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New records, one new genus and 21 new species of Callianassidae (Crustacea, Axiidea) from the Indo-West Pacific

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Abstract

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The collections of ghost shrimps from the Indo-West Pacific that contributed to recent molecular phylogeny and resulting reclassification of Callianassidae (Poore et al., 2019; Robles et al., 2020) provide opportunities to review 11 genera and describe one new genus, redescribe existing species and describe 21 new species. *Aqaballianassa aqabaensis* (Dworschak, 2003), *A. brevirostris* (Sakai, 2002), *A. lewtonae* (Ngoc-Ho, 1994) are rediagnosed and *Aqaballianassa papua* sp. nov. from Papua New Guinea and *Aqaballianassa seychellensis* sp. nov. from the Seychelles are described as new. Three new species of *Caviallianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 are compared in a key with *Caviallianassa cavifrons* (Komai and Fujiwara, 2012): *Caviallianassa arafura* sp. nov. from the Arafura Sea, *Caviallianassa riwo* sp. nov. from Papua New Guinea and *Caviallianassa moorea* sp. nov. from French Polynesia. *Callianassa thailandica* Sakai, 2005 is treated as species inquirenda. No species of *Cheramus* Bate, 1888 occurs in the Indo-West Pacific despite the genus name having been widely used. Five species of *Coriollianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 are recognised and figured: *C. sibogae* (De Man, 1905), *C. coriolisae* (Ngoc-Ho, 2014) and new species, *Coriollianassa mainbaeae* sp. nov. and *Coriollianassa maputo* sp. nov. from the Mozambique Channel, and *Coriollianassa nynggulu* sp. nov. from the North West Australian slope. *Darryllianassa felderi* gen. et sp. nov. is described from Papua New Guinea. *Necallianassa nosybeensis* sp. nov. is described as a new species from Madagascar. *Praedatrypaea* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 is rediagnosed. Thirteen species are recognised and most diagnosed; four species are described as new: *Praedatrypaea jangamo* sp. nov. and *Praedatrypaea mozambiquensis* sp. nov. from Mozambique, and *Praedatrypaea mandu* sp. nov. and *Praedatrypaea ningaloo* sp. nov. from the North West Shelf of Australia. *Callianassa malaccaensis* Sakai, 2002 is treated as a junior synonym of *P. orientalis* (Bate, 1888). A key to separate ten species of *Praedatrypaea* is presented. *Pugnatrypaea* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 is rediagnosed and confined to three species. *Rayllianassa* Komai and Tachikawa, 2008 is rediagnosed and its species discussed. *Rayllianassa amboinensis* (De Man, 1888), a variable species, is rediagnosed; *Callianassa ngochoae* Sakai, 1999 and *Callianassa sahal* Poore, 2008 are treated as synonyms. *Rayllianassa aurora* sp. nov., *Rayllianassa bifida* sp. nov. and *Rayllianassa huonensis* sp. nov. are described as new species; the first two are associated with submerged wood at depths greater than 100 m. *Rudisullianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 is rediagnosed. *Rudisullianassa rudisulcus* Komai, Fujita and Maenosono, 2014 is discussed and partially illustrated; *Rudisullianassa pandan* sp. nov. is described as a new species from submerged wood. *Spinicallianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 is reviewed and a key is provided to five species; three species are described as new: *Spinicallianassa bilbili* sp. nov. from Papua New Guinea; *Spinicallianassa papetoi* sp. nov. from French Polynesia; and *Spinicallianassa westralia* sp. nov. from Western Australia. *Callianassa parvula* Sakai, 1988 is treated as a possible synonym of *S. spinicauda* (Komai, Maenosono and Fujita, 2014). *Trypaea* Dana, 1852 contains only *T. australiensis* Dana, 1852 and does not occur in the Indo-West Pacific as sometimes reported.

Keywords

ghost shrimps, taxonomy, new genus, new species, rediagnoses

Introduction

The family name Callianassidae Dana, 1852 was once used to describe a wide range of burrowing ghost shrimps belonging to the infraorder Axiidea de Saint Laurent, 1979. It has been progressively restricted and is now just one of eight similar families (Poore et al., 2019). Poore et al.'s (2019) revision and

the molecular phylogeny on which it was based (Robles et al., 2020) depended in part on extensive collections made in the Indo-West Pacific over the last couple of decades. These collections also made it possible to rediagnose known species and describe others revealed as new during the molecular study. This paper follows earlier contributions on Eucalliicidae Manning and Felder, 1991 (Poore, 2021),

Callichiridae Manning and Felder, 1991 (Poore, 2023), and the callianassid genera *Scallasis* Bate, 1888 (Komai et al., 2020) and *Arenallianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 (Schnabel et al., 2023).

Callianassidae comprise 26 genera, diagnosed by Poore et al. (2019), and 114 extant species (DecaNet eds, 2023). This contribution deals only with those from coral reefs and shelf environments in the Indo-West Pacific and northern Australia. Twelve genera, one newly diagnosed, and 39 species are covered here, of which 21 species are described as new. *Jocullianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019, *Paratrypaea* Komai and Tachikawa, 2008 and further comments on *Scallasis* are kept for other contributions.

Methods

Much of the material comes from the Muséum nationale d'Histoire naturelle, Paris (MNHN), including expeditions to Papua New Guinea, Madang Province (PAPUA NIUGINI stations) and New Ireland Province (KAVIENG 2014 stations) and to the Philippines (AURORA 2007 stations). The sizable Indo-West Pacific collection of the Florida Museum of Natural History, University of Florida, Gainesville (UF) was also useful. Specimens from Museums Victoria, Melbourne (NMV); the Australian Museum, Sydney (AM); Phuket Marine Biological Center, Thailand (PMBC); and Naturhistorisches Museum, Vienna (NHMW) were examined. Peter C. Dworschak kindly shared sketches of material seen by him on loan from the Natural History Museum of Denmark (NHMD; formerly Zoological Museum of Copenhagen, ZMUC) and National Museum of the Philippines, Manila (NMCR).

Material examined of common species has been shortened to list localities, museums, sexes and size ranges – full details are available online from the museums specified. Details (personnel, dates, maps) of MNHN expeditions/campagnes can be found at <https://expeditions.mnhn.fr>. Unless otherwise stated, station prefixes and numbers belong to systems initiated by the museum holding the material.

Size is expressed as carapace length (cl.), including rostrum, in mm. Individuals marked with an asterisk (*) were sequenced and contributed to the molecular analysis of Robles et al. (2020); those marked with a hash (#) were sequenced by Qi Kou, Institute of Oceanology, Chinese Academy of Sciences, Qingdao, China. The diagnosis of the new genus and updated diagnoses of *Praedatrypaea* and *Pugnatorypaea* were derived from the edited DELTA database (Dallwitz, 2018) used by Poore et al. (2019). New DELTA databases were created to generate diagnoses of species of *Praedatrypaea* and *Aqaballianassa*.

Illustrations were prepared by tracing in Abode Illustrator® pencil drawings made using a camera lucida. For simplicity, not all setae are shown. Poore et al. (2019) diagnosed two genera, *Caviallianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 and *Rudisullianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019 with a “maxilliped 3 ... dactylus ovate, with dense brush of long setae over most of upper-distal margin, few setae along lower margin”. This is figured here for three species (fig. 1b, h, i)

where the dactylus is contrasted with the usual setal arrangement in other genera in which marginal setae are not so clustered and concentrated on the lower distal margin (fig. 1c–g, j–l).

Colour photographs of fresh specimens were taken in the laboratory shortly after collection by Tin-Yam Chan and Zdeněk Ďuriš. Photographs in fig. 1 were taken using a Olympus 205C microscope and the Zerene Stacker routine.

Distribution are given in terms of Marine Ecoregions of the World (MEOW) realms or provinces (Spalding et al., 2007), with political terms in parentheses.

Taxonomy

Family Callianassidae Dana, 1852

Aqaballianassa Poore, Dworschak, Robles, Mantelatto and Felder, 2019

Aqaballianassa Poore et al., 2019: 90–91.—Robles et al., 2020).—Poore and Ahyong, 2023: 211.

Remarks. *Aqaballianassa* is recognised primarily by the presence of a branchiostegal sclerite isolating the anterodorsal corner of the branchiostegite (Dworschak, 2003; Poore et al., 2019). The mandibular molar seems characteristic of this genus only (fig. 3l, m); it is calcified with a swollen molar process lacking a sharp edge and an incisor with few teeth (Poore et al., 2019). Poore et al. (2019) recognised eight named species (Table 1), some rather poorly described and not easily differentiated. Robles et al.'s (2020) molecular phylogram included three named species and another as *Aqaballianassa* PNG-116. The identity of the last was supported by sequences from four individuals and is described here as *A. papua* sp. nov. Another new species, not part of the molecular study, *A. seychellensis* sp. nov., is also described.

Species of *Aqaballianassa* are differentiated largely on the shapes of the eyestalk, rostrum and anterior carapace margin, telson and uropod, and extent of the cervical groove. Descriptions of some nominal species are incomplete.

Aqaballianassa contains both gonochoristic and hermaphroditic species. Both sexes of *A. lewtonae* are known, males and females having different pleopods 1 and 2. All specimens of *A. papua* have female gonopores on the coxae of pereopod 3; all including the ovigerous individual have male gonopores on the coxae of pereopods 5. Dworschak (2003) labelled the largest specimen of *A. aqabaensis* a male but noted the presence of gonopores on pereopods 3 and 5, leading him to call it “intersex”. This specimen has a uniarticulate pleopod 1 and a bud-like pleopod 2. His illustration of the chelipeds are similar to those of ovigerous “females” of *A. lewtonae* (fig. 3n) and *A. papua*. The male chelipeds of *A. lewtonae* (fig. 3g, h) show the dimorphism typical of many callianassids, a short carpus and gaping fingers. Pleopod 1 of *A. lewtonae* is uniarticulate, as in *A. aqabaensis*; pleopod 2 is biramous, whereas it is bud-like in *A. aqabaensis*. All other species are known from one or few individuals identified as female.



Figure 1. Dactylus of maxilliped 3 of representatives of two callianassoid families. Eucalliidae. a, *Calliixina kensleyi* (Dworschak, 2005), MNHN IU-2016-8084. Callianassidae. b, *Caviallianassa moorea* sp. nov., UF 28875; c, *Paratrypaea* sp., MNHN IU-2013-7035; d, *Praedatrypaea lobetobensis* sp. nov., MNHN IU-2015-109; e, *Praedatrypaea orientalis* (Bate, 1888), AM P.74473; f, *Rayllianassa amboinensis* (De Man, 1888), UF 8700; g, *Rayllianassa bifida* sp. nov., MNHN IU-2013-7137; h, *Rudisullianassa pandan* sp. nov., MNHN IU-2013-7063; i, *Rudisullianassa rudisulcus* Komai, Fujita and Maenosono, 2014, MNHN IU-2013-7121; j, *Scallasis amboinae* Bate, 1888, MNHN IU-2013-12303; k, *Spinicallianassa spinicauda* (Komai, Maenosono and Fujita, 2014), MNHN IU-2014-2778; l, *Spinicallianassa papetoai* sp. nov., UF 29280.

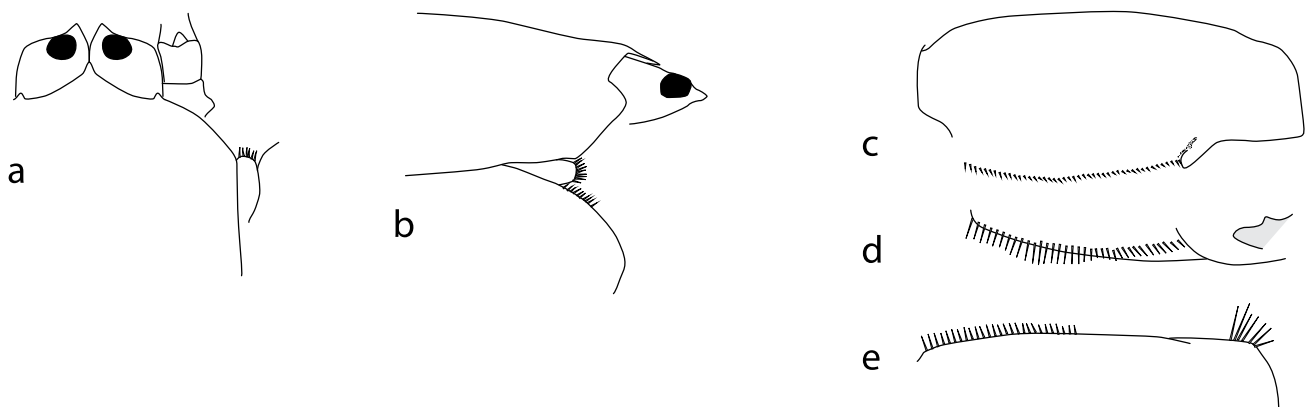


Figure 2. *Aqaballianassa aqabaensis* (Dworschak, 2003). Jordan. NHMW 16764, male, 5.4 mm: a, b, anterior carapace, eyestalks, antennal peduncle (dorsal, lateral views). c–e, pleomere 6 (lateral left; ventral right side, uropod articulation shaded; dorsal right side views).

Table 1. Distribution of species of *Aqaballianassa* in terms of MEOW provinces and political areas.

Species	Distribution
<i>A. amplimaxilla</i> (Sakai, 2002)	Andaman (Thailand)
<i>A. aqabaensis</i> (Dworschak, 2003)	Red Sea and Gulf of Aden, Western Coral Triangle (Jordan, Egypt, Philippines, Indonesia)
<i>A. brevirostris</i> (Sakai, 2002)	Andaman (Thailand, Singapore)
<i>A. ehsani</i> (Sepahvand, Tudge and Momtazi, 2018)	Somali/Arabian (Gulf of Oman)
<i>A. lewtonae</i> (Ngoc-Ho, 1994)	Northeast Australian Shelf, Eastern Coral Triangle (Qld, Australia; Papua New Guinea)
<i>A. nieli</i> (Sakai, 2002)	Andaman (Thailand)
<i>A. papua</i> sp. nov.	Eastern Coral Triangle (Papua New Guinea)
<i>A. seychellensis</i> sp. nov.	Western Indian Ocean (Seychelles)
<i>A. spinocolata</i> (Sakai, 2005)	Sunda Shelf (Malaysia)
<i>A. thorsoni</i> (Sakai, 2005)	Somali/Arabian (Persian Gulf)

Aqaballianassa aqabaensis (Dworschak, 2003)

Figure 2

Callianassa aqabaensis Dworschak, 2003: 416–426, figs 2–36.—Robles et al., 2009: 316.

Cheramus aqabaensis.—Sakai, 2011: 367.

Aqaballianassa aqabaensis.—Poore et al., 2019: 91, 136, 142.—Robles et al., 2020: figs 1, 3, 6.—Dworschak, 2022: 251–252.

Material examined. **Jordan**, Aqaba, Murjan, 10–14 m, holotype, paratypes, other specimens, NHMW 15759–16777 (5.0–6.2 mm).

Diagnosis. Major cheliped merus 1.8 times as long as wide, lower margin with distally directed proximal spine; propodus palm 1.8 times as long as carpus, 1.2 times as long as wide, with oblique gape (narrower than base of each finger), without tooth; fixed finger half as long as palm, with subdistal tooth on cutting edge; dactylus as long as fixed finger. Uropod endopod oval, 1.2 times as long as greatest width, upper face with at least 2 short spiniform setae; exopod wider than length of anterior margin. Telson 1.1 times as long as wide, tapering to about 0.9 greatest width.

Distribution. Western and Central Indo-Pacific (Jordan [type locality: Aqaba], Philippines, Indonesia); 10–14 m.

Remarks. Dworschak (2003) illustrated the small ‘branchiostegal sclerite’ below the anterior of the linea thalassinica but did not note that the suture separating it from the branchiostegite is incomplete (fig. 2a, b). Pleomere 6 has an oblique groove posteriorly on the ventrolateral margin (fig. 2c–e) as do all species of *Aqaballianassa*.

Sakai (2011) placed the species in *Cheramus* without explanation.

Aqaballianassa brevirostris (Sakai, 2002)

Callianassa brevirostris Sakai, 2002: 514–518, figs 30, 31.

Trypaea brevirostris.—Sakai, 2011: 394.

Aqaballianassa brevirostris.—Poore et al., 2019: 91, 136, 142.—Robles et al., 2020: figs 1, 3, 6.—Dworschak and Anker, 2022: 114: fig. 1c (colour photograph).

Material examined. **Thailand**, Andaman Sea, off Phuket, 59 m, 07° 30' N, 98° 29' E (BIOSHETF stn I2), PMBC 15710 (female, 2.5 mm); 21 m, 07° 52' N, 98° 48' E (BIOSHETF stn PB5), PMBC 15713 (male, 2.0 mm).

Diagnosis. Major cheliped merus 1.7 times as long as wide, lower margin with distally directed proximal spine; propodus palm as long as carpus, as long as wide, with oblique gape (narrower than base of each finger), without tooth; fixed finger 0.65 times as long as palm, without tooth on cutting edge. Dactylus longer than fixed finger. Uropod endopod oval, 1.2 times as long as greatest width; exopod anterior margin 1.5 times greatest width. Telson 1.1 times as long as wide, tapering to convex posterior margin (not as figured by Sakai, 2002).

Distribution. Andaman, Sunda Shelf (Thailand, Singapore, [type locality: Andaman Sea]); 0–73 m.

Remarks. Sakai (2002) reported males and females. The female and male major chelipeds (Sakai’s fig. 31C, D) are, as in hermaphroditic *A. aqabaensis*, not highly sexually dimorphic, if the illustrated “detached” cheliped is in fact from a male. The paratype male was reported to have a 2-articled pleopod 1; the smaller juvenile male reported here lacks pleopods 1 and 2.

Sakai (2011) placed the species in *Trypaea* without explanation. The branchiostegal sclerite is smaller than illustrated by Sakai (2002) but confirms the present generic placement.

Aqaballianassa lewtonae (Ngoc-Ho, 1994)

Figures 3, 4

Callianassa lewtonae Ngoc-Ho, 1994: 52–54, fig. 1.—Sakai, 1999: 47.—Sakai, 2005: 90.

Biffarius lewtonae.—Tudge et al., 2000: 143.—Davie, 2002: 457.

Trypaea lewtonae.—Sakai, 2011: 402.

Aqaballianassa lewtonae.—Poore et al., 2019: 91, 136, 142.—Robles et al., 2020: figs 1, 3, 6.

Material examined. **Australia**. Qld, Britomart Reef, 18° 7' S, 146° 38' E, reef front, 15 m, NMV J22659 (holotype ovigerous female, 5.0 mm). Pandora Reef, 18° 49' S, 146° 26' E, reef flat, 1 m, NMV J22684 (paratype female, 4.0 mm). Qld, NE of Townsville, 18° 43' S, 146° 45' E, 34 m, MNHN Th-1247 (paratype, ovigerous female, 5 mm). Lizard

I., Casuarina Beach, UF 17514 (ovigerous female, 4.7 mm), UF 17583 (male, 3.1 mm). NT, Arafura Sea: 9° 47.947' S, 135° 22.024' E, 92 m, calcareous mud (CSIRO stn SS05/2005/002/BS002), AM P.74527 (female, 2.9 mm with *Sacculina* plus male and female Bopyridae; female 3.5 mm); 9° 47.593' S, 135° 16.636 E, 85 m, muddy sand (CSIRO stn SS05/2005/012/GR019), AM P.74476B (3 females, 3.0 mm); 9° 22.547' S, 134° 3.585' E, 121 m, calcareous mud (CSIRO stn SS05/2005/022/GR038), AM P.74498 (female, 1.8 mm); 9° 52.788' S, 135° 21.891' E, 69 m, sandy mud (CSIRO stn SS05/2005/003/GR005), AM P.74499 (5 specimens, 2.1–3.1 mm); 9° 52.788' S,

135° 21.891' E, 69 m, sandy mud (CSIRO stn SS05/2005/003/GR005), AM P.74505 (female, 3.2 mm); 9° 50.035' S, 135° 17.74' E, 83 m, (CSIRO stn SS05/2005/007/BS003), AM P.74513 (1 male, 2 females, 2.8–3.0 mm); 9° 47.986' S, 135° 22.997' E, 91 m, calcareous mud (CSIRO stn SS05/2005/002/GR003), AM P.74514 (3 females, 2.5–3.3 mm); 9° 48.774' S, 135° 15.412' E, 82 m, sandy mud (CSIRO stn SS05/2005/010/GR017), AM P.74523 (female, 2.9 mm); 9° 50.126' S, 135° 17.766' E, 83 m, muddy fine sand (CSIRO stn SS05/2005/007/GR011), AM P.74525 (female, 3.2 mm); 9° 44.316' S, 135° 15.947' E, 102 m, calcareous mud (CSIRO stn SS05/2005/064/GR084), AM

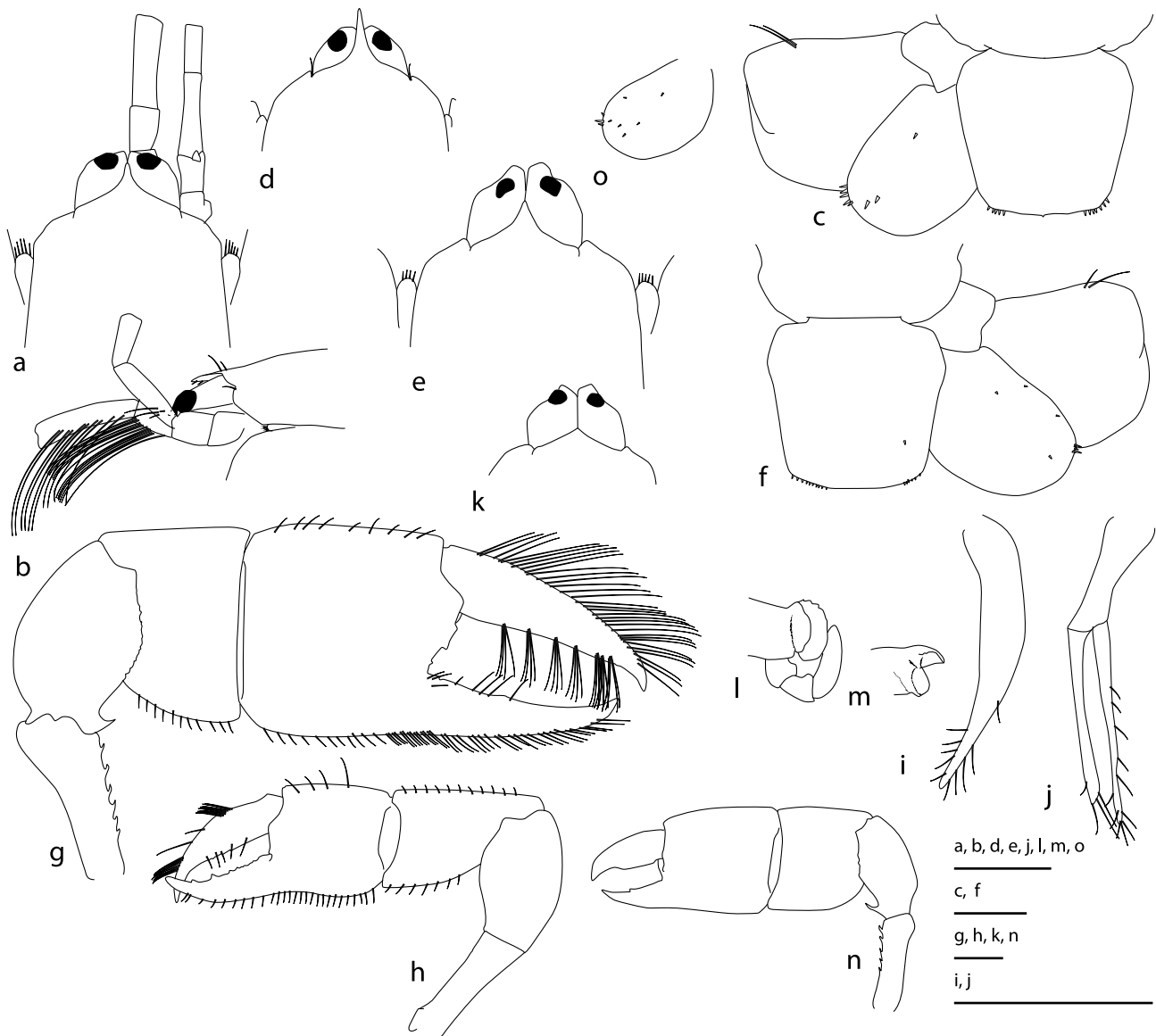


Figure 3. *Aqaballianassa lewtonae* (Ngoc-Ho, 1994). a–c, Australia, Qld, NMV J22659, holotype, ovigerous female, 5.0 mm; d, Australia, Qld, NMV J22684, paratype, female, 4.4 mm. e–i, Papua New Guinea, Madang, MNHN IU-2016-8152, male, 5.9 mm; j–m, Papua New Guinea, Madang, MNHN IU-2016-8155, ovigerous female, 4.2 mm; n, o, Australia, Qld, UF 17583, male, 3.1 mm. a, b, d, e, k, anterior carapace, eyestalk, antennular, antennal peduncles; c, e, f, telson, uropod (short robust setae and facial setae only shown, marginal setae not shown); g, male major cheliped (left, mesial); h, male minor cheliped (right, mesial); i, j, male pleopods 1, 2; l, m, mandible (mesial, posterior views); n, female major cheliped (right, mesial); o, left uropodal endopod. Scale bars = 1 mm.

P.74528 (female, 3.8 mm); 9° 47.94' S, 135° 22.024' E, 92 m, calcareous mud (CSIRO stn SS05/2005/002/BS002), AM P.74539 (female, 3.8 mm); 9° 49.294' S, 135° 19.599' E, 83 m, calcareous mud (CSIRO stn SS05/2005/009/GR015), AM P.74541 (1); 9° 52.788' S, 135° 21.891' E, 69 m, sandy mud (CSIRO stn SS05/2005/003/GR005), AM P.74478 (juvenile, 3.6 mm); 9° 47.986' S, 135° 22.007' E, 91 m, calcareous mud (CSIRO stn SS05/2005/002/GR002), AM P.74449 (1). **Papua New Guinea.** Madang Province, W of Tab I., 05° 10.2' S, 145° 50.4' E, 1–3 m (PAPUA NIUGINI stn PR243), MNHN IU-2013-7080* (female, 5.6 mm), MNHN IU-2013-7090 (female, 3.4 mm), MNHN IU-2013-7112 (female, 3.9 mm). New Britain, Kavieng Lagoon, Nago I. wharf, sand, 02° 36.3' S, 150° 46.2' E, 3–12 m (KAVIENG 2014 stn KR06), MNHN IU-2013-8835* (male, 3.7 mm). Kavieng Lagoon, in front of market, silty rocks with algae, 02° 34.7' S, 150° 47.5' E, 1–2 m (KAVIENG 2014 stn KZ16), MNHN IU-2014-2779* (male, 2.6 mm), MNHN IU-2014-2780 (female, 3.0 mm). New Ireland, E of North Cape, dead reef on top, sand and coral bommies, 02° 33.2' S, 150° 48.4' E, 5–20 m (KAVIENG 2014 stn KZ10), MNHN IU-2014-10001 (6 specimens, 1 with isopod Bopyridae), MNHN IU-2016-8152*# (male, 5.9 mm), MNHN IU-2016-8153*# (ovigerous female, 3.9 mm), MNHN IU-2016-8155* (ovigerous female, 4.2 mm).

Diagnosis. Major cheliped merus 1.5 times as long as wide, lower margin with distally directed proximal tooth; propodus palm 1.3 times as long as carpus, as long as wide, with oblique gape (wider than base of each finger) bearing short flange-like tooth; fixed finger as long as palm; dactylus longer than fixed finger. Uropod endopod oval, 1.3 times as long as greatest width; upper face with 1 or 2 subproximal and 2 subdistal short spiniform setae; anterior margin curved distally; curved anterodistal margin with 3–6 short spiniform setae; exopod wider or as wide as length of anterior margin. Telson as long as wide, tapering to about 0.7 greatest width; posterolateral margins with 5–10 short spiniform setae.

Supplementary description. Branchiostegal sclerite incompletely separated from branchiostegite proper. Rostrum variable, blunt in smallest individuals, one third as long as eyestalk, to tapered, more than half or almost as long as eyestalk in largest individuals. Eyestalk with obscure or prominent distomedial lobe beyond cornea. Antennal peduncle as long as antennular peduncle;

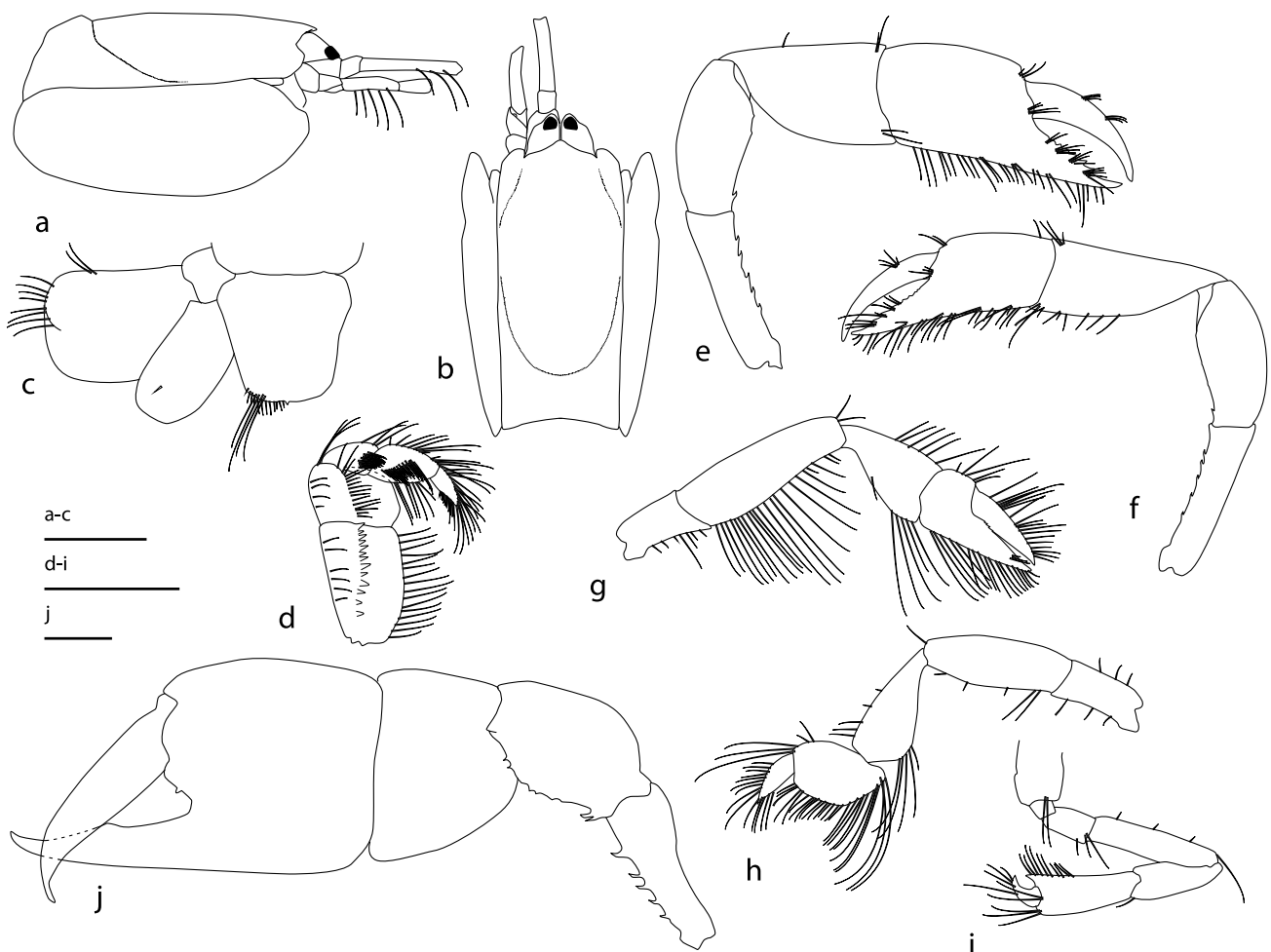


Figure 4. *Aqaballianassa lewtonae* (Ngoc-Ho, 1994). Australia, NT, Arafura Sea. AM P.74541, ovigerous female, 2.7 mm: a, b, carapace, antennular, antennal peduncles (lateral, dorsal views); c, telson, uropod (marginal setae not shown); d, maxilliped 3; e, major (left, mesial) cheliped; f, minor (right, mesial) cheliped; g–i, pereopods 2, 3, 5. AM P.745539, ovigerous female, 3.7 mm: j, major cheliped (right, mesial). Scale bars = 1 mm.

scaphocerite slightly longer than wide, with rounded apex. Mandibular molar calcified, chalky-white, with swollen projection lacking sharp edge; incisor with few teeth. Male minor cheliped three-quarters length of major cheliped; ischium, merus lower margins unarmed; propodus palm 0.7 times as long as carpus, as long as wide, with gape (narrower than base of each finger), fixed finger as long as palm, with irregular teeth on cutting edge; dactylus as long as fixed finger. Female major cheliped ischium lower margin with 5 teeth; merus twice as long as wide, lower margin with distally directed spine; propodus palm 1.25 times as long as carpus, 1.1 times as long as wide, with oblique gape (narrower than base of each finger) bearing mesial tubercle, fixed finger half as long as palm; dactylus stout, overreaching fixed finger.

Male pleopod 1 uniaarticulate, curved, tapering over distal third, with few subdistal setae. Male pleopod 2 rami elongate, uniaarticulate; exopod 12 times as long as width at base, longer than endopod.

Distribution. Sahul Shelf, Eastern Coral Triangle, Northeastern Australian Shelf (Australia, NT, Qld, northern Great Barrier Reef [type locality: Britomart Reef]; Papua New Guinea); 1–20 m.

Remarks. Ngoc-Ho's (1994) figures only vaguely indicated the branchiostegal sclerite that characterises the genus; the three type specimens listed are all females. Here, the male and female chelipeds, setation of the uropod and telson, and male pleopods are illustrated for the first time. The holotype is an ovigerous female (5.0 mm) whose major cheliped is more elongate and lacks a meral tooth. *Aqaballianassa lewtonae* is distinguished from other species of the genus by the telson, as long as wide and clearly tapering. The length of the rostrum varies in length from obtusely triangular to well exceeding the eyestalks. While the uropodal exopod is consistently squarish, as is the case for most species, the endopod varies in width.

Aqaballianassa amplimaxilla (Sakai, 2002) and *A. nieli* (Sakai, 2002), both based on numerous damaged individuals from the Andaman Sea and incompletely described, are possible synonyms of *A. lewtonae*.

Sakai (2011) placed the species in *Trypaea* without explanation. *Aqaballianassa lewtonae* and *A. papua* sp. nov. occurred at the same station (KR06) in the Kavieng Lagoon.

Aqaballianassa papua sp. nov.

<http://zoobank.org/urn:lsid:zoobank.org:act:0BA416C6-E2F4-444C-A629-B714EC4D617A>

Figures 1a, 5–7

Aqaballianassa PNG-1166.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Papua New Guinea.** Madang Province, W of Tab I., 05° 10.2' S, 145° 50.4' E, 1–3 m (PAPUA NIUGINI stn PR243), MNHN IU-2013-7117* (hermaphrodite, 4.1 mm). Paratypes. **Papua New Guinea.** Madang Province, NE of Tab I., 1–22 m (PAPUA NIUGINI stn PR155), MNHN IU-2013-7114*# (hermaphrodite, 3.4 mm), MNHN IU-2016-8150 (ovigerous hermaphrodite, 3.2 mm); W of Tab I., 05° 10.2' S, 145° 50.4' E, 1–3 m (PAPUA NIUGINI stn PR243), MNHN IU-2013-7107 (ovigerous female, 3.1 mm). New Britain, Kavieng Lagoon, Nago I. wharf, sand, 02° 36.3' S, 150° 46.2' E, 3–12 m (KAVIENG 2014 stn KR06), MNHN IU-2016-8151*#

(hermaphrodite, 3.6 mm), MNHN IU-2014-1056 (hermaphrodite, 4.1 mm); N of Sek I., inner slope, 05° 04.7' S, 145° 48.9' E, 8 m (PAPUA NIUGINI stn PS47), MNHN IU-2013-7068* (juvenile, 2.3 mm); MNHN IU-2017-1356 (juvenile, 2.5 mm).

Diagnosis. Major cheliped merus 1.6 times as long as wide, lower margin with distally directed proximal tooth; propodus palm 1.25 times as long as carpus, as long as wide, with oblique gape (as wide as base of each finger) bearing distolateral short square tooth; fixed finger 0.6 length of palm; dactylus stout, overreaching fixed finger. Uropod endopod oval-tapering, widest proximally, 1.1 times as long as greatest width; upper face usually with 1 subproximal and 2 subdistal short spiniform setae; anterior margin convex, or straight with subdistal spine; anterodistal margin with 1–3 short spiniform setae; exopod 1.2–1.3 times as wide as length of anterior margin. Telson 1.23 times as wide as long, tapering to about three-quarters greatest width; posterolateral margins with 1 or 2 short spiniform setae, posterior margin sometimes with spiniform seta(e) near midpoint.

Description of holotype. Hermaphrodite. Rostrum triangular, acute, with sharp lateral margin and slight ventral keel, situated level with dorsal carapace, shorter than eyestalks. Carapace dorsally flat, as long as pleomeres 1 and 2 combined; orbital margin almost transverse, separated from anterolateral angle by deep notch; anterolateral angle directed anteriorly; subanterolateral margin oblique; branchiostegal sclerite elongate-oval, protected laterally by domed section dorsal margin of branchiostegite; anterior margin of branchiostegite convex; cervical groove deeply incised, across 0.8 length of carapace, reaching linea thalassinica. Thoracic sternite 7 wider than long, anterior margin with broad rounded median lobe; ventral surface flat. Pleomere 1 tergite with transverse groove, posterior half much wider than anterior half. Pleomere 2 1.1 times as long as wide. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 about as long as wide, 1.1 times as long as pleomere 5, with posterior lateral groove dorsal to ridge leading to lateral notch.

Eyestalk about 1.3 times as long as wide, with dorsal face close to rostrum; sharp ventrolateral margin, anterolateral margin oblique, anteromedial angle rounded or angular in dorsal view, overreaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying anterolateral margin of eyestalk.

Antennular peduncle reaching beyond distal margin of antennal peduncle; article 1 not visible in dorsal view; article 3 little longer than articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 half as long as article 4; scaphocerite minute, comma-shaped, with acute apex.

Mandible molar process rounded, without tooth; incisor process with proximal obsolete teeth. Maxilliped 3 ischium dilating distally, 1.2 times as long as wide, crista dentata consisting of row of about 11 small, well-spaced teeth, stronger distally; merus about half as long as ischium measured along outer margin, about twice as wide as long, wider than ischium, with mesiodistal margin produced as convex lobe beyond base of carpus; carpus longer than merus outer margin; propodus ovoid-tapering, 1.7 times as long as wide; dactylus digitiform, 0.6 times as long as propodus.

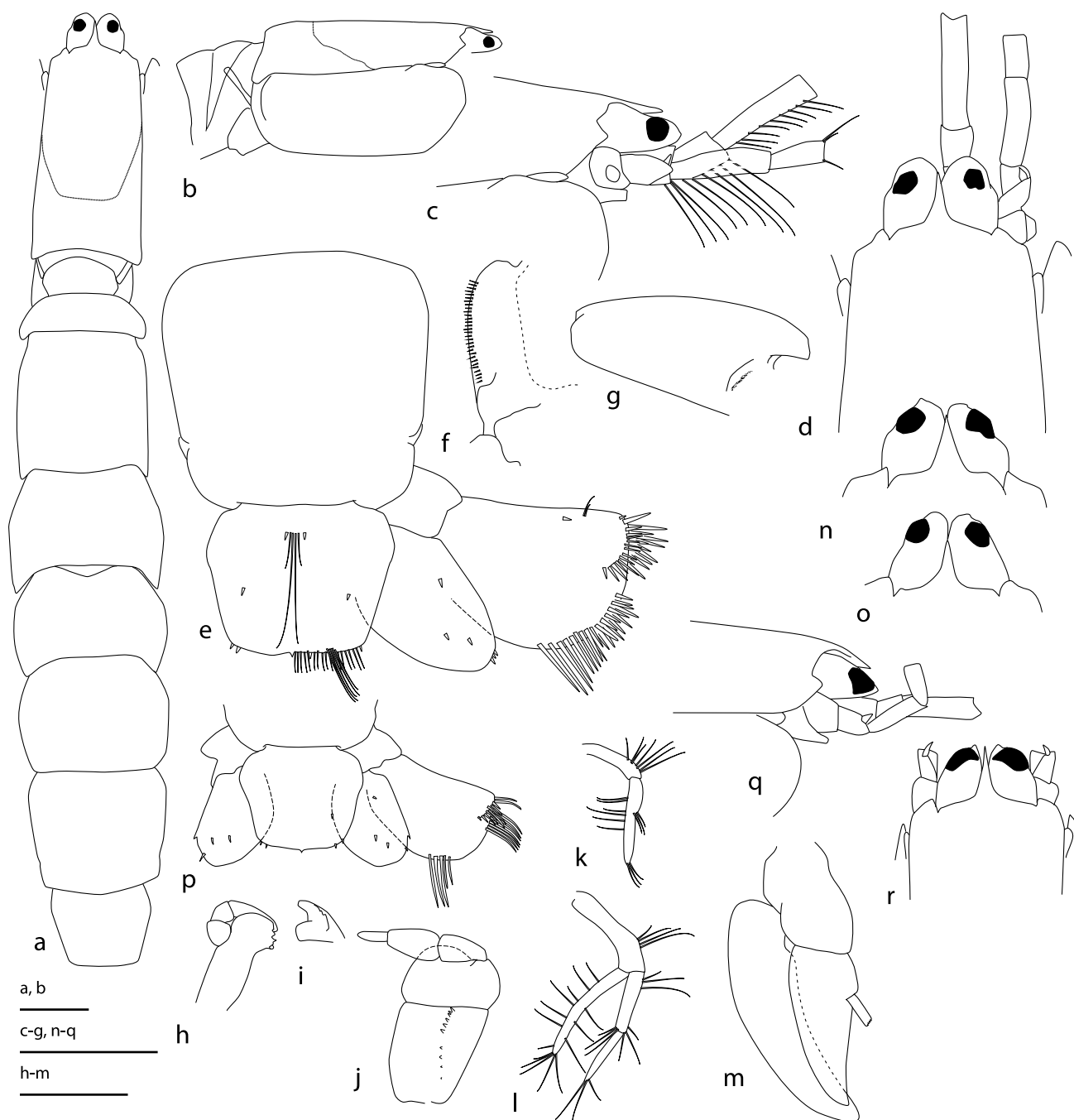


Figure 5. *Aqaballianassa papua* sp. nov. Papua New Guinea. MNHN IU-2013-7117, holotype hermaphrodite, 4.1 mm: a, dorsal carapace, pleon, telson; b, lateral carapace, pleomere 1; c, d, anterior carapace, eyestalk, antennule, antennal peduncles; e, pleomere 6, uropod, telson; f, g, pleomere 6 ventral, left lateral; h, left mandible, lateral; i, right mandible, mesial; j, maxilliped; k–m, pleopods 1–3. MNHN IU-2016-8150, ovigerous female, 3.2 mm: n, anterior carapace, eyestalks. MNHN IU-2016-8151, female, 3.6 mm: o, anterior carapace, eyestalks. MNHN IU-2013-7068, female, 2.3 mm: p, telson, uropods; q, r, anterior carapace, eyestalks, antennule, antennal peduncles. Scale bars = 1 mm.

Pereopods 1 (chelipeds) unequal, dissimilar. Female major cheliped massive, carpus-palm upper margin 1.2 times carapace length. Ischium barely expanding distally, upper margin concave, unarmed; lower margin with row of 8 spines. Merus as long as ischium, 1.7 times as long as wide (tooth excluded), ovate; upper margin convex, unarmed; lower margin with subproximal spine, scalloped over distal oblique third. Carpus about as long as wide; margins carinate; upper margin smooth; lower margin convex. Propodus upper margin 1.25 times as long as carpus; palm widest subproximally,

tapering, 1.05 times as long as wide; upper margin carinate; lateral surface smooth, convex, with deep concave gape; mesial surface slightly convex, with square tooth set back from distolateral margin; lower margin sharply carinate, with row of setae extending onto fixed finger; fixed finger 0.6 times as long as palm, not depressed; cutting edge with blade along lateral margin; dactylus overreaching fixed finger, hooked distally, with acute tip; upper margin with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge with small teeth over distal half.

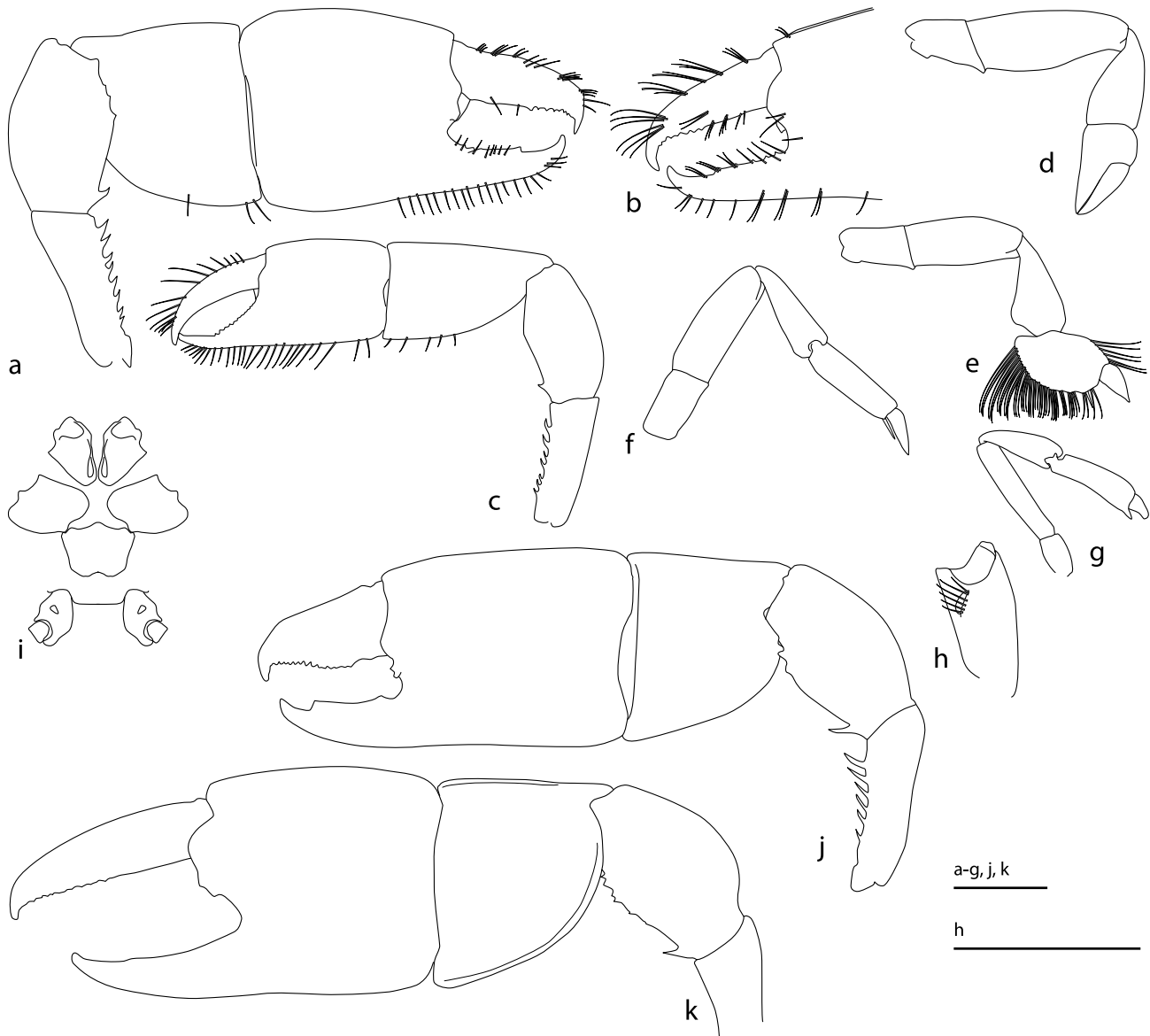


Figure 6. *Aqaballianassa papua* sp. nov. Papua New Guinea. MNHN IU-2013-7117, holotype hermaphrodite, 4.1 mm: a, major cheliped (left, mesial) b, major cheliped fingers (lateral); c, minor cheliped, right; d-g, pereopods 2-5; h, pereopod 5 coxa (mesial); i, thoracic sternum 7, pereopodal coxae 3-5. MNHN IU-2016-8151, hermaphrodite, 3.6 mm: j, major cheliped (right, mesial). MNHN IU-2013-7114, hermaphrodite, 3.4 mm: k, major cheliped (right, mesial). Scale bars = 1 mm.



Figure 7. *Aqaballianassa papua* sp. nov. Papua New Guinea. MNHN IU-2014-1056 (colour photographs by Zdeněk Ďuriš).

Minor cheliped carpus-palm upper margin 0.9 times carapace length. Ischium upper margin smooth, lower margin with row of 7 spines. Merus about as long as ischium; lower margin with tooth about one sixth along. Carpus wider distally, 1.2 times as long as merus, 1.7 times as long as wide. Palm slightly swollen, 1.2 times as long as wide; upper margin barely convex; lower margin sharply carinate, with row of long setae extending onto fixed finger. Fixed finger deep, triangular, three-quarters as long as palm, cutting edge denticulate except over distal third. Dactylus as long as palm, curved; cutting edge smooth.

Pereopod 2 merus lower margin slightly sinusoidal, 2.8 times as long as wide; carpus about 1.8 times as long as wide; chela subtriangular; palm about 1.5 times as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 carpus subtriangular, twice as long as wide; propodus suboval with produced lower proximal margin, upper margin equal to greatest width, lower margin convex, faintly undulate, marginal setae clustered on prominences, with one slender spiniform seta subdistally; dactylus about 0.75 times as long as propodus upper margin. Pereopod 4 coxa flattened ventrally, immovable; merus 1.8 times as long as ischium; carpus 0.8 length of merus; propodus as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with long spiniform setae parallel to dactylus; dactylus half as long as propodus. Pereopod 5 slender; coxa with semicircular gonopore; with chela about as long as carpus, slightly curving, fixed finger shorter than dactylus.

Pleopod 1 of 2 articles at right angles; ramus 1.3 times as long as peduncle; setose. Pleopod 2 biramous; peduncle almost straight; exopod slightly shorter than endopod; endopod of 2 articles. Pleopods 3–5 biramous, rami narrow; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod, bearing short coupling hooks on apical margin.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval-tapering, widest proximally, about 1.3 times as long as wide; upper surface with 1 proximal and 2 distal spiniform setae; anterior margin slightly convex; anterodistal margin with 3–5 short spiniform setae; distal margin narrow-convex, with fringe of setae; posterior margin setose. Exopod widest at midpoint, 1.2 times as long as wide, exceeding endopod by about half its length; anterior margin slightly concave, with 1 spiniform seta and 2 submarginal slender setae about two-thirds along; all margins with numerous slender setae, with more than 20 blade-like setae indistinguishably merged with distal margin; dorsal plate extending about one third across exopod, with row of about 15 stiff setae merging anteriorly with similar setae on distal margin.

Telson trapezoidal, 1.25 times as wide as long, broadest at anterior third, narrowing posteriorly; greatest width 1.4 times posterior width; dorsal surface with few medial setae and pair of spiniform setae near anterior margin, second pair of lateral spiniform setae posterior to midlength; posterolateral angle with 1 or 2 spiniform setae; posterior margin with median tooth.

Variation. Rostrum wider, longer and more depressed in some individuals than others; eyestalk mesiodistal lobe angular to rounded (cf. fig. 5c, d, n, o, q, r). Uropod endopod narrower and more tapered in larger individuals than juveniles (cf. fig. 5e, p), with small tooth on anterior margin in one juvenile (fig. 5p).

Colour. Carapace and pleon essentially translucent/white with pale orange dorsal band across anterior of carapace. Chelipeds carpi with asymmetrical distal pale orange band; palms with patchy orange colour distolaterally (fig. 7).

Etymology. From Papua New Guinea (noun in apposition).

Distribution. Eastern and Western Coral Triangle (Papua New Guinea, Indonesia); 1–22 m.

Remarks. Robles et al.'s (2020) molecular phylogram attributed four individuals (of seven) to *Aqaballianassa* PNG-116, one remote from the other three. Only hermaphrodites are known, all individuals with both female and male gonopores on pereopodal coxae 3 and 5 respectively. *Aqaballianassa papua* has a shorter telson and usually a longer rostrum than the other common species from the region, *A. lewtonae*. The major cheliped of two of the largest individuals has a shallow gape between the cheliped fingers with a molar-like tooth on the mesial margin (fig. 6a, i); another of similar size has a deeper gape and a blunt mesial tooth.

Aqaballianassa seychellensis sp. nov.

<http://zoobank.org/urn:lsid:zoobank.org:act:7EC933D6-FF09-46EB-AEC6-E00BF62AE4E2>

Figure 8

Material examined. Holotype. Seychelles, W of Farquhar Group, 10° 08' S, 50° 59' E, 73–90 m, RV Mahine cruise 336, stn 56(D-12), coral rubble, MNHN IU-2016-8095 (female, 4.9 mm, without maxillipeds). Paratype. Collected with holotype, MNHN IU-2016-8096 (ovigerous female, 2.8 mm, carapace detached, without maxillipeds, major cheliped or pereopods 2–4).

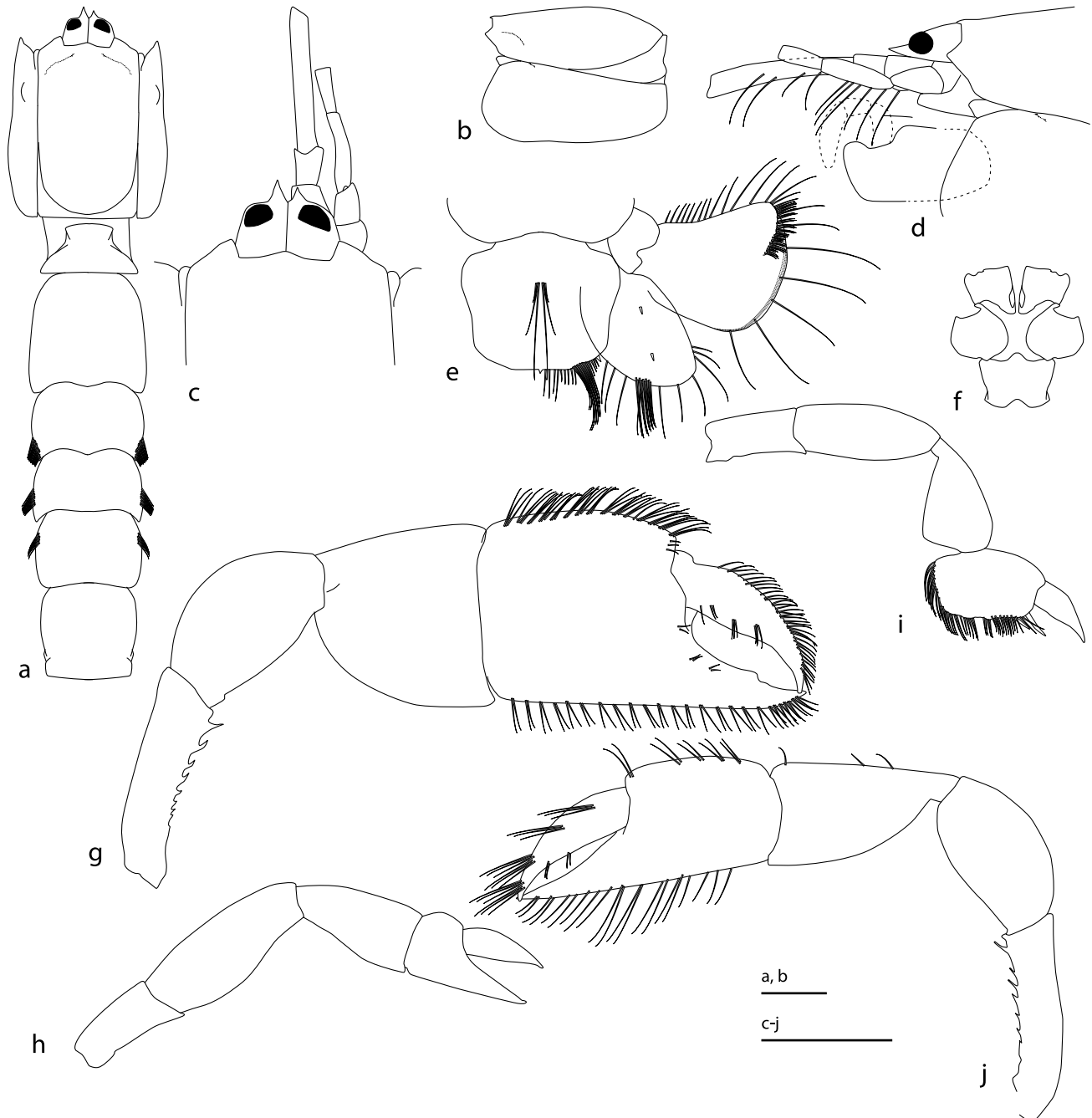


Figure 8. *Aqaballianassa seychellensis* sp. nov. Seychelles. MNHN IU-2016-8095, holotype female, 4.9 mm: a, carapace, pleon; b, carapace; c, anterior carapace, eyestalks, antennular, antennal peduncles; d, anterior carapace, eyestalks, antennular, antennal peduncles, mandible; e, telson, uropod (representative marginal setae only); f, thoracic sternite 7, pereopodal coxae 3, 4; g, major cheliped (left, mesial); h, i, pereopods 2, 3. MNHN IU-2016-8096, paratype ovigerous female, 2.8 mm: j, minor cheliped (right, mesial). Scale bars = 1 mm.

Diagnosis. Major cheliped merus 1.7 times as long as wide, lower margin with obsolete basal tooth; propodus palm 1.1 times as long as carpus, as long as wide, without wide gape; fixed finger 0.6 length of palm; dactylus as long as fixed finger. Uropod endopod oval-tapering, widest proximally, 1.4 times as long as greatest width; upper surface with 2 spiniform setae in middle row; anterior margin slightly convex; exopod as wide as length of anterior margin. Telson 1.3 times as long, narrowing posteriorly; posterolateral margins with 1 spiniform seta, posterior margin with median tooth.

Description. Female. Rostrum obsolete. Carapace dorsally convex, highest at posterior third, as long as pleomeres 1–2 combined; orbital margin almost transverse, set well back from anterolateral angle such that eyestalks appear inset; anterolateral angle directed anteriorly; subanterolateral margin oblique; branchiostegal sclerite elongate-oval, not completely isolated, protected laterally by slightly domed section dorsal margin of branchiostegite; anterior margin of branchiostegite convex; cervical groove deeply incised, reaching linea thalassinica anteriorly, traversing close to posterior margin of carapace, postcervical length about 3% of total carapace length. Thoracic sternite 7 wider than long, anterior margin with prominent rounded median lobe; ventral surface flat. Pleomere 1 tergite with transverse groove, posterior half much wider than anterior half. Pleomere 2 as long as wide. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 about as long as wide, 1.2 times as long as pleomere 5, with posterior lateral groove dorsal to ridge leading to lateral notch.

Eyestalk about 1.3 times as long as wide, with dorsal face level with rostrum, with sharp ventrolateral margin, anterolateral margin convex, anteromedial angle sharp in dorsal and lateral views, reaching distal margin of antennular peduncle article 1. Cornea pigmented, spherical.

Antennular peduncle exceeding distal margin of antennal peduncle by half of length of article 3; article 1 visible in dorsal view; article 3 about 1.5 times as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.7 times as long as article 4; scaphocerite minute, semicircular.

Mandible massive, calcareous. Maxilliped 3 unknown.

Female major cheliped carpus-palm upper margin as long as carapace length. Ischium barely expanding distally, upper margin almost straight, unarmed; lower margin with row of 8 sharp oblique spines. Merus shorter than ischium, 1.7 times as long as wide, ovate; upper margin strongly convex, unarmed; lower margin with obsolete basal tooth. Carpus about as long as wide; margins carinate; upper margin smooth; lower margin convex. Propodus upper margin 1.1 times as long as carpus; palm widest at midpoint, as long as wide; upper margin carinate; lateral surface smooth, convex; mesial surface slightly convex near margins, distolateral margin unarmed; lower margin sharply carinate, with row of setae extending onto fixed finger; fixed finger 0.6 times as long as palm, not depressed; cutting edge with blade along lateral margin ending in blunt step. Dactylus as long as fixed finger, evenly curved, with acute tip; upper margin with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge without teeth.

Minor cheliped (of paratype) carpus-palm upper margin 0.9 times carapace length. Ischium upper margin smooth, lower margin with row of 7 spines. Merus about 0.8 length of ischium; upper margin convex; lower margin unarmed. Carpus wider distally, 1.2 times as long as merus, 1.8 times as long as wide. Palm slightly swollen, 1.2 times as long as wide; upper margin barely convex; lower margin sharply carinate, with row of long setae extending onto fixed finger. Fixed finger deep, triangular, as long as palm, cutting edge smooth. Dactylus as long as palm, curved; cutting edge smooth.

Pereopod 2 merus lower margin slightly sinusoidal, 2.6 times as long as wide; carpus twice as long as wide; chela subtriangular; palm about 1.7 times as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 carpus subtriangular, 1.7 times as long as wide; propodus subrectangular, with rounded lower proximal margin, upper margin equal to greatest width, lower margin straight, faintly undulate, marginal setae clustered on prominences, with 2 slender spiniform setae subdistally; dactylus about as long as propodus upper margin. Pereopod 4 unknown.

Female pleopods 1–3 typical of genus.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval-tapering, widest proximally, about 1.4 times as long as wide; upper surface with 2 spiniform setae in middle row; anterior margin slightly convex; distoposterior margin convex, with fringe of marginal setae; posterior margin with cluster of about 10 long submarginal setae. Exopod widest at midpoint, as long as wide, scarcely exceeding endopod; anterior margin slightly concave, with row of 8 evenly spaced marginal setae; posterior margin densely setose; upper surface without setae; dorsal plate extending about 0.4 width of exopod, with row of about 40 stiff setae merging anteriorly with setae on distal margin.

Telson trapezoidal, 1.3 times as wide as long, broadest over anterior third, narrowing posteriorly; greatest width 1.3 times posterior width; dorsal surface with 6 long medial setae near anterior margin; posterolateral angle with 1 spiniform seta; posterior margin with median tooth, setose, with submarginal cluster of sublateral setae.

Etymology. From the Seychelles, referring to the type locality.

Distribution. Western Indian Ocean (Seychelles); 73–90 m (known only from type locality).

Remarks. *Aqaballianassa seychellensis* is represented by only two incomplete specimens, which possess the branchiostegal sclerite that characterises this genus as well as general features of the pereopods and tailfan. The new species is instantly recognisable by extremely short postcervical region of the carapace, about 3% of the total carapace length instead of the 25% seen in all other species. The sharp anterior lobes of the eyestalks are unusual – something similar is seen in *A. spinoculata* (Sakai, 2005) and *A. thorsoni* (Sakai, 2005), but neither has the short postcervical region. Neither of these species, nor most others (except *A. aqabaensis* and *A. amplimaxilla* [Sakai, 2002]), possess the deeply set eyestalks between prominent anterolateral lobes seen in *A. seychellensis*. Neither of the two type specimens, one an ovigerous female, possesses a gonopore on the coxa of pereopod 5.

***Cavallianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019**

Cavallianassa Poore et al., 2019: 92.—Robles et al., 2020.—Poore and Ahyong, 2023: 211.

Remarks. Robles et al. (2020) used tissue from three code-named “species” in their molecular phylogram. They are described as two species here, linked to *Cavallianassa cavifrons* (Komai and Fujiwara, 2012). All share a short flat rostrum, operculiform maxillipeds 3 with dense setae on upper (extensor) margin of the dactylus, compact chelipeds with a row of tubercles on the lower margin of the merus beyond a proximal tooth or series of small short spines. Only the female of the type species, *C. cavifrons*, is known. Here, the male pleopods 1 and 2, maxilliped 3 and the uropodal setation that characterise the genus are figured for one of the new species. The major cheliped, propodus of pereopod 3 and the shape of the uropodal rami differ significantly between species.

Callianassa thailandica Sakai, 2005 was listed in *Cavallianassa* by Poore et al. (2019). The species had earlier been included with many others in *Trypaea* (Sakai, 2011). Inclusion in *Cavallianassa* can no longer be justified because the holotype male has a narrow maxilliped 3 quite different from that of other species of *Cavallianassa*. Sakai (2005) illustrated two detached male chelipeds that may belong to different genera – he reported another callianassid, *C. amboinae* (Bate, 1888), now *Scallasis amboinae*, from this locality in the Andaman Sea, *Galathea* stn 394, but the chelipeds are unlikely to be from this species. For the time being, *C. thailandica* is treated as species inquirenda.

Key to species of *Cavallianassa*

1. Maxilliped 3 merus about 1.3–1.5 times as wide as long 2
 - Maxilliped 3 merus about twice as wide as long 3
2. Maxilliped 3 merus with prominent mesiodistal lobe. Telson tapering, with lateral and posterior margins continuous; posterior margin convex *C. aurora*
 - Maxilliped 3 merus with broad mesiodistal lobe. Telson tapering to truncate posterior margin *C. cavifrons*
3. Telson posterior margin concave *C. riwo*
 - Telson posterior margin straight *C. moorea*

***Cavallianassa arafura* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:B44AFDD2-7D95-4EE0-B91B-5739E250084C>

Figure 9

Material examined. Holotype. **Australia**, Northern Territory, Arafura Sea, 9° 20.94' S, 134° 3.43' E, 140 m, calcareous gravel (CSIRO stn SS05/2005/023/GR042), AM P.74542 (ovigerous female, 3.5 mm).

Description. Female. Rostrum triangular, acute, flat, situated level with dorsal carapace, half as long as eyestalks. Carapace

dorsally flat, 0.85 times length of pleomeres 1, 2 combined; orbital margin oblique-transverse; anterolateral angle obtuse; subanterolateral margin concave; anterior margin of branchiostegite with dorsal concavity; cervical groove deeply incised, across 0.75 length of carapace, almost reaching linea thalassinica. Pleomere 1 tergite with transverse groove, posterior half wider than anterior half. Pleomere 2 1.1 times as long as wide. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 about as long as wide, 1.1 times as long as pleomere 5, with obscure posterolateral groove.

Eyestalk about 2.5 times as long as wide, not concealed by rostrum, basally convex, with lateral margin convex in dorsal view, anteromedial angle well separated, angular in dorsal view, reaching beyond distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying anterolateral margin of eyestalk.

Antennular peduncle reaching beyond distal margin of antennular peduncle; article 1 scarcely visible in dorsal view; article 3 about as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennular peduncle article 5 0.5 times as long as article 4, reaching 0.6 length of antennular article 3; scaphocerite minute, oval.

Maxilliped 3 ischium dilating distally, 1.4 times as wide as long, crista dentata consisting of row of about 12 small sharp teeth; merus shorter than ischium, about as wide as long, with mesiodistal margin well produced as convex lobe beyond base of carpus; carpus about as long as merus outer margin; propodus subrectangular, 1.4 times as long as wide; dactylus 0.8 times as long as propodus, with convex extensor (outer) margin, densely setose distally, with straight flexor (inner) margin bearing several setae.

Female major cheliped massive, carpus-palm upper margin 0.9 carapace length. Ischium upper margin straight, unarmed; lower margin with 5 obsolete teeth. Merus as long as ischium, twice as long as wide, subrectangular; upper margin convex, unarmed; lower margin with 1 small subproximal tooth, with obsolete blade over third quarter. Carpus about as long as wide; margins carinate; upper margin smooth; lower margin convex. Propodus upper margin 1.1 times as long as carpus; palm 1.1 times as long as wide; upper margin carinate, depressed distally; lateral surface smooth, convex; mesial surface slightly convex, with 1 denticle at base of finger; lower margin carinate, with row of clusters of setae extending onto fixed finger; fixed finger 0.6 times as long as palm, not depressed, base 0.65 times length; cutting edge with finely denticulate blade along proximal lateral margin. Dactylus as long as fixed finger, with acute tip; upper margin with tufts of long setae; cutting edge finely denticulate over distal three quarters.

Minor cheliped missing.

Pereopod 2 merus lower margin slightly sinusoidal, 2.5 times as long as wide; carpus about 1.4 times as long as wide; chela subtriangular; palm about twice as wide as upper margin; dactylus 2.3 times as long as palm upper margin. Pereopod 3 carpus subtriangular, 1.7 times as long as wide; propodus oval with broadly produced lower proximal margin, greatest width greater than upper margin, lower margin convex, with subdistal spiniform seta; dactylus about as long

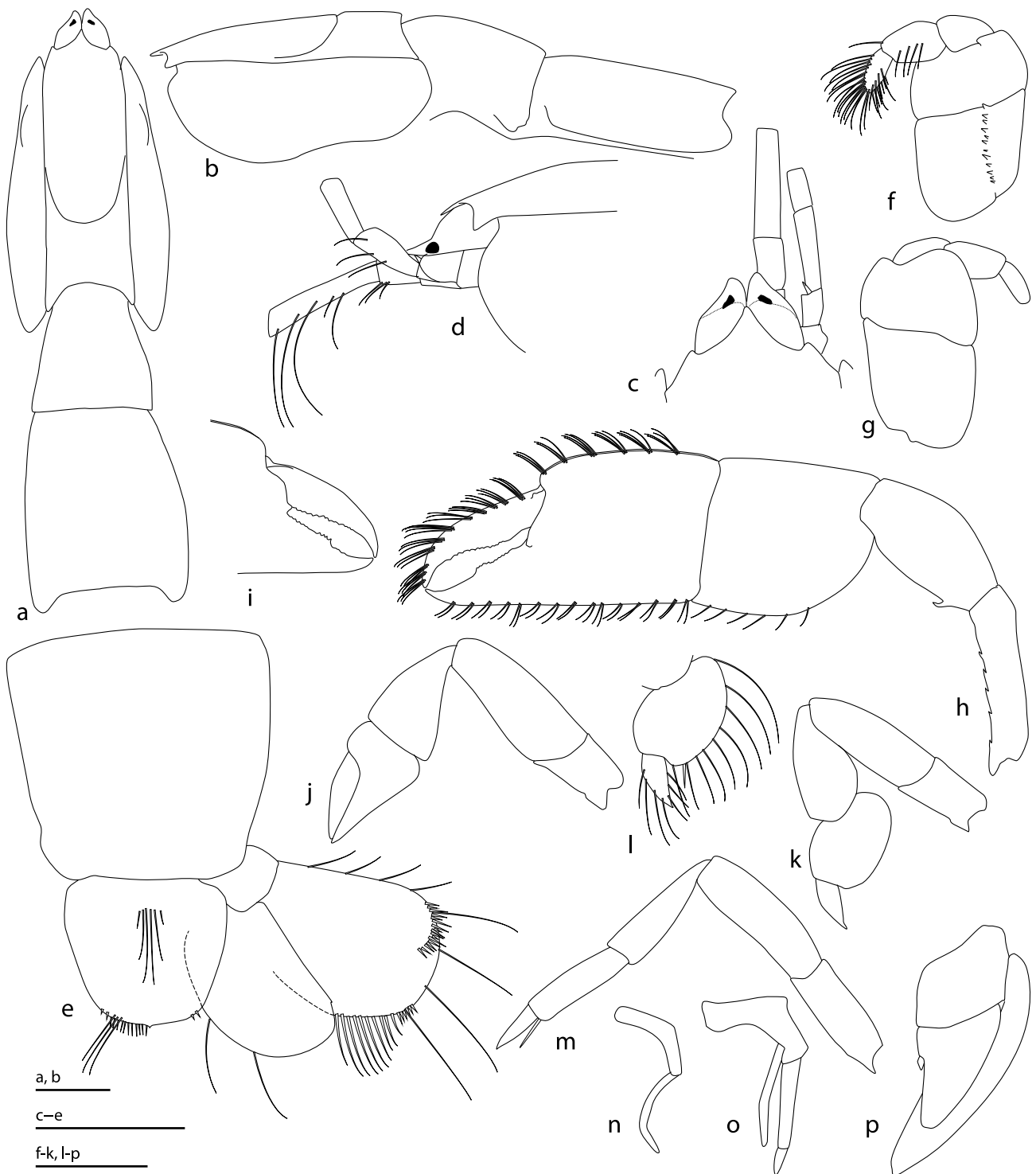


Figure 9. *Caviallianassa arafura* sp. nov. Australia, Arafura Sea, AM P.74542, holotype ovigerous female, 3.5 mm. a, eyestalks, carapace, pleomeres 1, 2; b, carapace, pleomeres 1, 2; c, d, antennular, antennal peduncles, eyestalks, carapace (dorsal, lateral); e, pleomere 6, telson, right uropod; f, g, maxilliped 3 (outer, inner faces); h, major cheliped (right, mesial); i, major cheliped fingers (lateral); j, pereopod 2; k, pereopod 3; l, pereopod 3 propodus, dactylus; m, pereopod 4; n-p, pleopods 1-3. Scale bars = 1 mm.

as propodus upper margin. Pereopod 4 coxa flattened ventrally, immovable; merus 1.5 times as long as ischium; carpus 0.9 length of merus; propodus 0.8 length of carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with long spiniform setae parallel to dactylus; dactylus half as long as propodus.

Female pleopod 1 of 2 articles at right angles; peduncle with strong bend; ramus as long as peduncle. Female pleopod 2 biramous; peduncle bent; exopod 0.7 length of endopod; endopod of 2 articles, second 0.3 length of first. Pleopods 3–5 biramous, rami narrow; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval, widest near midpoint, about 1.5 times as long as wide; anterior margin straight, with minute distal tooth; distal margin broadly convex, with fringe of setae; posterior margin setose. Exopod widest at midpoint, 1.25 times as long as wide; anterior margin straight; distoposterior margin evenly convex, with numerous slender setae, with about 12 blade-like setae indistinguishably merged with distal margin; upper surface without setae; dorsal plate extending about one third across exopod, with row of numerous stiff setae merging anteriorly with similar setae on distal margin.

Telson 1.1 times as wide as long, broadest at anterior third, tapering, with lateral and posterior margins continuous; posterior margin convex, with 2 sublateral pairs of spiniform setae, with median tooth.

Etymology. From the Arafura Sea, where the type specimen was collected (noun in apposition).

Distribution. Sahul Shelf; 140 m.

Remarks. *Caviallianassa arafura* resembles *C. cavifrons*, which was thoroughly described and figured by Komai and Fujiwara (2012) based on females from around 200 m depth in reducing sediments from Japan. The new species differs in the shorter, more tapering telson, the larger distal lobe on the merus of maxilliped 3 and the more elongated female major cheliped.

Caviallianassa moorea sp. nov.

<http://zoobank.org/urn:lsid:zoobank.org:act:979A1ED7-4734-428B-A119-A6754443E6DF>

Figures 1b, 10–12

Caviallianassa FP-11.—Poore et al., 2019: figs 3h, 6c, 8g, 10e, f, 11b, c.—Robles et al., 2020: figs 1, 3, 6.

Caviallianassa PNG-1165.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **French Polynesia**, Moorea, between Cook's Bay and Hilton, off Pihaena, 17.481° S, 149.8300° W (stn BIZ-632), UF 29204 (ovigerous female, 3.9 mm). Paratypes. Moorea, near Nihimaru river estuary, 17.535° S, 149.906° W (stn MB-216), UF 16481 (male, 3.0 mm), UF 16467*# (ovigerous female, 3.1 mm). Papetoai, 17.49° S, 149.88° W, 0–3 m: stn BIZ-493, UF 28909* (ovigerous female, 2.6 mm); stn BIZ-463, UF 28819* (ovigerous female, 2.9 mm); stn BIZ-539, UF 28875* (ovigerous female, 3.8 mm); stn BIZ-493, UF 28904* (ovigerous female, 3.6 mm); stn BIZ-109, UF 23873# (ovigerous female, 3.8 mm); stn BIZ-109, UF 29097#

(ovigerous female, 3.8 mm). Other material. **Papua New Guinea**, Madang, near Remp Mission, 5° 1.6' S, 145° 47.9' E, 2–15 m (PAPUA NIUGINI stn PR76), MNHN IU-2013-7092*# (ovigerous female, 4.0 mm).

Description. Female. Rostrum triangular, blunt, flat, situated level with dorsal carapace, much shorter than eyestalks. Carapace dorsally flat, three quarters length of pleomeres 1, 2 combined; orbital margin almost transverse; anterolateral angle obtuse; subanterolateral margin weakly concave; anterior margin of branchiostegite with dorsal concavity; cervical groove deeply incised, across 0.8 length of carapace, reaching linea thalassinica. Pleomere 1 tergite with transverse groove, posterior half much wider than anterior half. Pleomere 2 1.1 times as long as wide. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 about as long as wide, 1.1 times as long as pleomere 5, with obscure posterolateral groove.

Eyestalk about 2.5 times as long as wide, not concealed by rostrum, with lateral margin convex in dorsal view, anteromedial angle angular in dorsal view, reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying anterolateral-dorsal margin of eyestalk.

Antennular peduncle reaching beyond distal margin of antennal peduncle; article 1 not visible in dorsal view; article 3 about as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.8 times as long as article 4, reaching 0.7 length of antennal article 3; scaphocerite minute, oval.

Mandible molar process shelf-like, with small mesial teeth; incisor process with irregular teeth. Maxilliped 3 ischium dilating distally, 1.5 times as wide as long, crista dentata consisting of row of about 15 small, well-spaced sharp teeth; merus shorter than ischium, about twice as wide as long, with mesiodistal margin produced as convex lobe beyond base of carpus; carpus 0.7 times merus outer margin; propodus subrectangular, 1.2 times as long as wide; dactylus as long as propodus, with convex extensor (outer) margin, densely setose distally, with straight flexor (inner) margin bearing 3 or 4 setae.

Pereopods 1 (chelipeds) unequal, dissimilar. Female major cheliped massive, carpus-palm upper margin just exceeding carapace length. Ischium expanding distally, upper margin concave, unarmed; lower margin with 4 obsolete teeth. Merus as long as ischium, twice as long as wide, subrectangular; upper margin convex, unarmed; lower margin with 3 small subproximal teeth, with denticulate blade over third quarter. Carpus about as long as wide; margins carinate; upper margin smooth; lower margin convex. Propodus upper margin as long as carpus; palm of almost even width, 1.1 times as long as wide; upper margin carinate; lateral surface smooth, convex, with 4 clusters of long setae in gape; mesial surface slightly convex, with 2 denticles and 1 cluster of long setae at base of finger; lower margin carinate, with row of clusters of setae extending onto fixed finger; fixed finger 0.67 times as long as palm, not depressed, base 0.6 times length; cutting edge with finely denticulate blade along lateral margin. Dactylus overreaching fixed finger, with acute tip; upper margin with tufts of long setae; cutting edge finely denticulate over distal three quarters.

Minor cheliped carpus-palm upper margin 0.9 carapace length. Ischium margins smooth. Merus about as long as ischium; lower margin convex distally, unarmed. Carpus widest over distal half, 1.25 times as long as merus, twice as long as wide. Palm 1.25 times as long as wide; upper margin barely convex; lower margin sharply carinate, with row of long setae extending onto fixed finger; lateral face with cluster of

long setae at base of finger. Fixed finger deep, triangular, 0.7 length of palm, cutting edge denticulate except over distal third. Dactylus longer than palm, curved; cutting edge smooth.

Pereopod 2 merus lower margin slightly sinusoidal, twice as long as wide; carpus about 1.8 times as long as wide; chela subtriangular; palm about twice as wide as upper margin; dactylus 2.3 times as long as palm upper margin. Pereopod 3

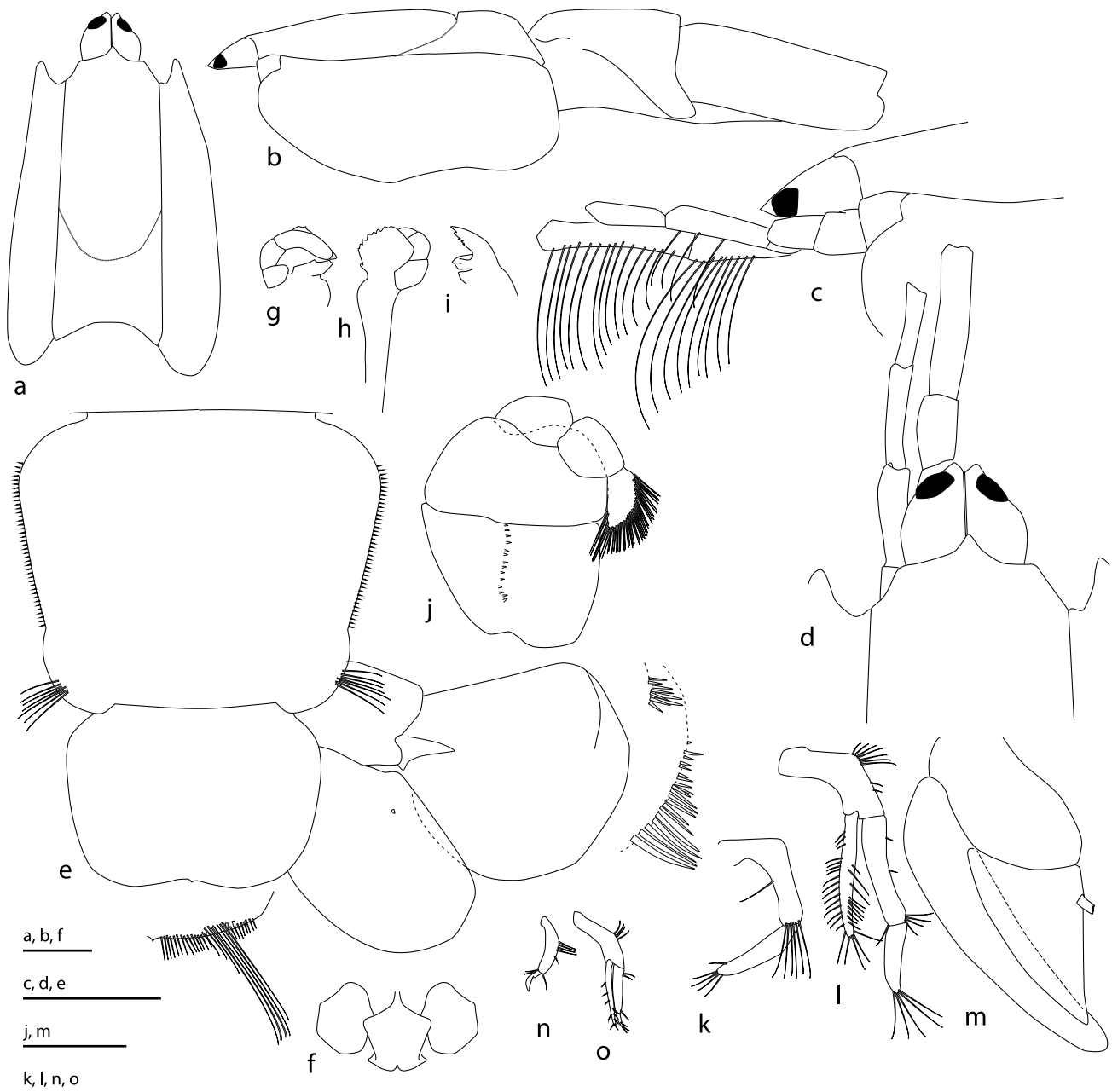


Figure 10. *Caviillianassa moorea* sp. nov. French Polynesia. UF 29204, holotype ovigerous female, 3.9 mm: a, carapace; b, carapace, pleomeres 1, 2; c, d, anterior carapace, eyestalks, antennular, antennal peduncles; e, pleomere 6, telson, right uropod (with detail of setation); f, thoracic sternum 7, coxae 4; g-i, mandible views; j, maxilliped 3; k-m, pleopods 1-3. UF 16481, paratype male, 3.0 mm: n, o, pleopods 1, 2. Scale bars = 1 mm.

carpus subtriangular, 1.7 times as long as wide; propodus subrectangular with broadly produced lower proximal margin, upper margin equal to greatest width, lower margin almost straight, with short subdistal spiniform seta; dactylus about as long as propodus upper margin. Pereopod 4 coxa flattened ventrally, immovable; merus 1.5 times as long as ischium;

carpus 0.9 length of merus; propodus 0.8 length of carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with long spiniform setae parallel to dactylus; dactylus half as long as propodus.

Female pleopod 1 of 2 articles at right angles; peduncle with strong bend; ramus half as long as peduncle. Female

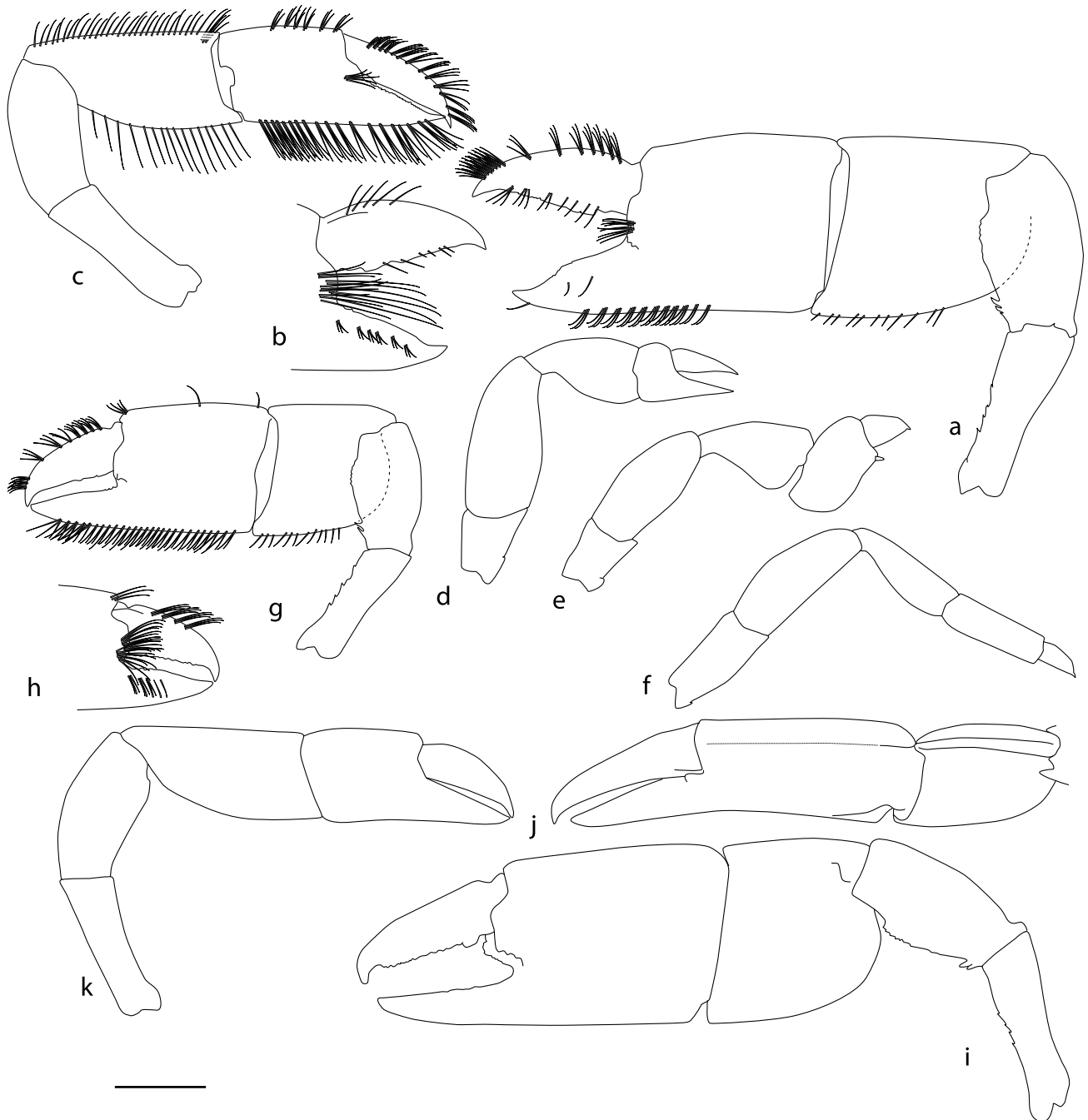


Figure 11. *Cavallianassa moorea* sp. nov. French Polynesia. UF 29204, holotype ovigerous female, 3.9 mm: a, major cheliped (right, mesial); b, major cheliped fingers (lateral); c, minor cheliped (left, mesial); d–f, pereopods 2–5. UF 16481, paratype male, 3.0 mm: g, major cheliped (right, mesial); h, major cheliped fingers (lateral). UF 29097, paratype ovigerous female, 4.0 mm: i, j, major cheliped (right, mesial, upper views); k, minor cheliped (left, mesial view). Scale bar = 1 mm.

pleopod 2 biramous; peduncle bent; exopod 0.7 length of endopod; endopod of 2 articles, second two-thirds length of first. Pleopods 3–5 biramous, rami narrow; appendix interna projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval, widest near midpoint, about 1.3 times as long as wide; upper surface with 1 proximal spiniform seta; anterior margin straight; distal margin broadly convex, with fringe of setae; posterior margin setose. Exopod widest at midpoint, about as wide as long; anterior margin straight; posterior margin semicircular, with numerous slender setae, with more than 20 blade-like setae indistinguishably merged with distal margin; upper surface

without setae; dorsal plate extending about one third across exopod, with row of numerous stiff setae merging anteriorly with similar setae on distal margin.

Telson 1.4 times as wide as long, broadest at anterior third, with lateral and posterior margins continuous; posterior margin concave, with 2 sublateral pairs of spiniform setae, with median tooth.

Male. Major cheliped similar to that of female. Ischium lower margin with 6 irregular teeth. Merus lower margin with 3 subproximal teeth, with denticulate blade over third quarter. Propodus upper margin 1.15 times as long as carpus; palm of almost even width, 1.15 times as long as wide; lateral surface with 2 clusters of long setae in gape; mesial surface with 1 denticle and 1 cluster of long setae at base of finger; fixed finger

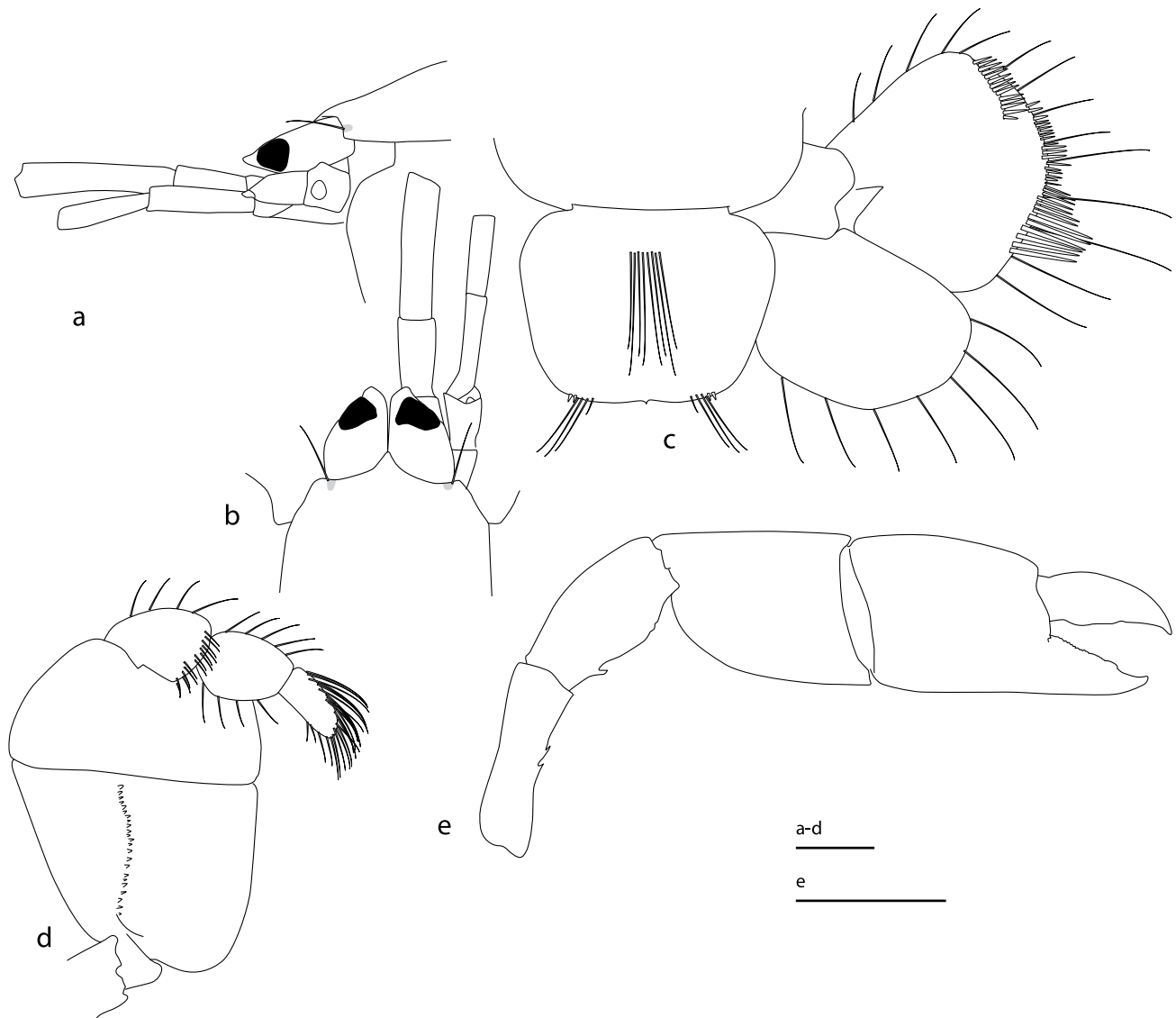


Figure 12. *Cavillianassa moorea* sp. nov. Papua New Guinea. MNHN IU-2013-7092, ovigerous female, 4.0 mm: a, b, anterior carapace, eyestalks, antennular, antennal peduncles (lateral, dorsal); c, telson, right uropod; d, maxilliped 3; e, major cheliped (left, mesial). Scale bars = 1 mm.

0.67 times as long as palm, not depressed, base half length; cutting edge mostly smooth.

Pleopod 1 of 2 articles; peduncle curved; ramus twisted, 0.4 length of peduncle. Pleopod 2 biramous; peduncle bent; exopod slightly shorter than endopod; endopod of 2 articles, second third length of first.

Etymology. From Moorea, where the type specimen was collected (noun in apposition).

Distribution. Southeast Polynesia, Eastern Coral Triangle (French Polynesia, Papua New Guinea); intertidal.

Remarks. Robles et al. (2020) found almost no genetic differences between four specimens of “*C. FP-11*” from Moorea in their molecular phylogram. Another, “*C. PNG-1165*” from Papua New Guinea was sister of these but more remote (0.036 divergence for the 12S gene) and may warrant recognition as a separate species. No meaningful morphological differences in the telson, uropod or antennae were detected between this ovigerous female (MNHN IU-2013-7092) and those from Moorea. The major cheliped (fig. 12e) is slightly more slender; the merus has one tooth rather than two or three but has the same tubercle in the gape. The cheliped, and other features, differ significantly from the only specimen of *Caviallianassa* from Papua New Guinea described below as another species.

***Caviallianassa riwo* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:24234C2A-B2AE-4D64-BB50-F11D8849A930>

Figures 13, 14

Caviallianassa PNG-1172.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Papua New Guinea**, Madang, off Riwo, 5° 9' S, 145° 48.2' E, 1–2 m (PAPUA NIUGINI stn PR235), MNHN IU-2013-7111*# (female, 2.5 mm).

Description. Female. Rostrum triangular, blunt, flat, situated level with dorsal carapace, shorter than half length of eyestalks. Carapace dorsally flat, 0.8 length of pleomeres 1–2 combined; orbital margin almost transverse, with pair of semicircular translucent area laterally; anterolateral lobes produced, rounded; subanterolateral margin straight; anterior margin of branchiostegite with dorsal concavity; cervical groove across 0.75 length of carapace, reaching linea thalassinica. Thoracic sternite 7 subpentagonal with slightly projecting anteromedian margin; ventral surface with shallow median groove. Pleomere 1 tergite with transverse groove, posterior half scarcely wider than anterior half. Pleomere 2 about as long as wide. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 0.9 times as long as wide, 1.8 times as long as pleomere 5, with slight posterolateral notch.

Eyestalk about 1.3 times as long as wide, with dorsal face close to rostrum, anterolateral margin tapering, convex, oblique, anteromedial angle rounded in dorsal view, overreaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying anterolateral margin of eyestalk.

Antennular peduncle reaching beyond distal margin of antennal peduncle; article 1 not visible in dorsal view; article 3

little longer than articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.7 times as long as article 4; scaphocerite minute, droplet-shaped.

Maxilliped 3 ischium dilating distally, 1.3 times as wide as long, crista dentata consisting of row of 9 small, well spaced teeth; merus 0.6 times as long as ischium measured along outer margin, about twice as wide as long, with mesiodistal margin produced as convex lobe beyond base of carpus; carpus 0.8 times as long as merus outer margin; propodus tapering over distal two-thirds, 1.2 times as long as wide, flexor (inner) margin with subproximal lobe; dactylus 0.8 times as long as propodus, with convex extensor (outer) margin, densely setose distally, with straight flexor (inner) margin bearing 4 setae.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped massive, carpus-palm upper margin 1.25 carapace length. Ischium expanding distally, upper margin concave, unarmed; lower margin with 3 teeth. Merus as long as ischium, 1.75 times as long as wide (tooth excluded), ovate; upper margin convex, carinate, with subproximal tubercle; lower margin with 2 subproximal teeth, with broad lobe beyond midpoint. Carpus 1.2 times as wide as long; margins carinate; upper margin smooth; lower margin convex. Propodus upper margin 1.5 times as long as carpus; palm widest subproximally, tapering, 1.1 times as long as wide; upper margin carinate; lateral surface smooth, convex, with concave gape, with cluster of long setae close to distal margin; mesial surface convex, with lobed ridge set back from distolateral margin; lower margin sharply carinate, with row of setae extending onto fixed finger; fixed finger 0.5 times as long as palm, curved upwards; cutting edge, concave, smooth. Dactylus overreaching fixed finger, strongly hooked distally; upper margin with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge with 2 large blunt teeth.

Minor cheliped carpus-palm upper margin 1.05 carapace length. Ischium upper margin smooth, lower margin with 1 small spine. Merus 0.8 times as long as ischium; margins smooth. Carpus parallel-sided over most of length, 1.3 times as long as merus, 2.3 times as long as wide. Palm rectangular, 1.4 times as long as wide; upper margin barely convex; lower margin carinate, with row of long setae extending onto fixed finger. Fixed finger triangular, 0.6 times as long as palm, cutting edge denticulate over middle third. Dactylus as long as palm, curved; cutting edge smooth.

Pereopod 2 merus lower margin slightly sinusoidal, 2.15 times as long as wide; carpus 1.5 times as long as wide; chela subtriangular; palm twice as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 carpus subtriangular, 1.8 times as long as wide; propodus almost semicircular, wider than long, with strongly produced evenly-curved lower margin, marginal setae clustered, with 1 slender spiniform seta; dactylus about as long as propodus upper margin. Pereopod 4 coxa flattened ventrally, immovable; merus 1.25 times as long as ischium; carpus as long as merus; propodus 0.8 times as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with long spiniform setae parallel to dactylus, almost

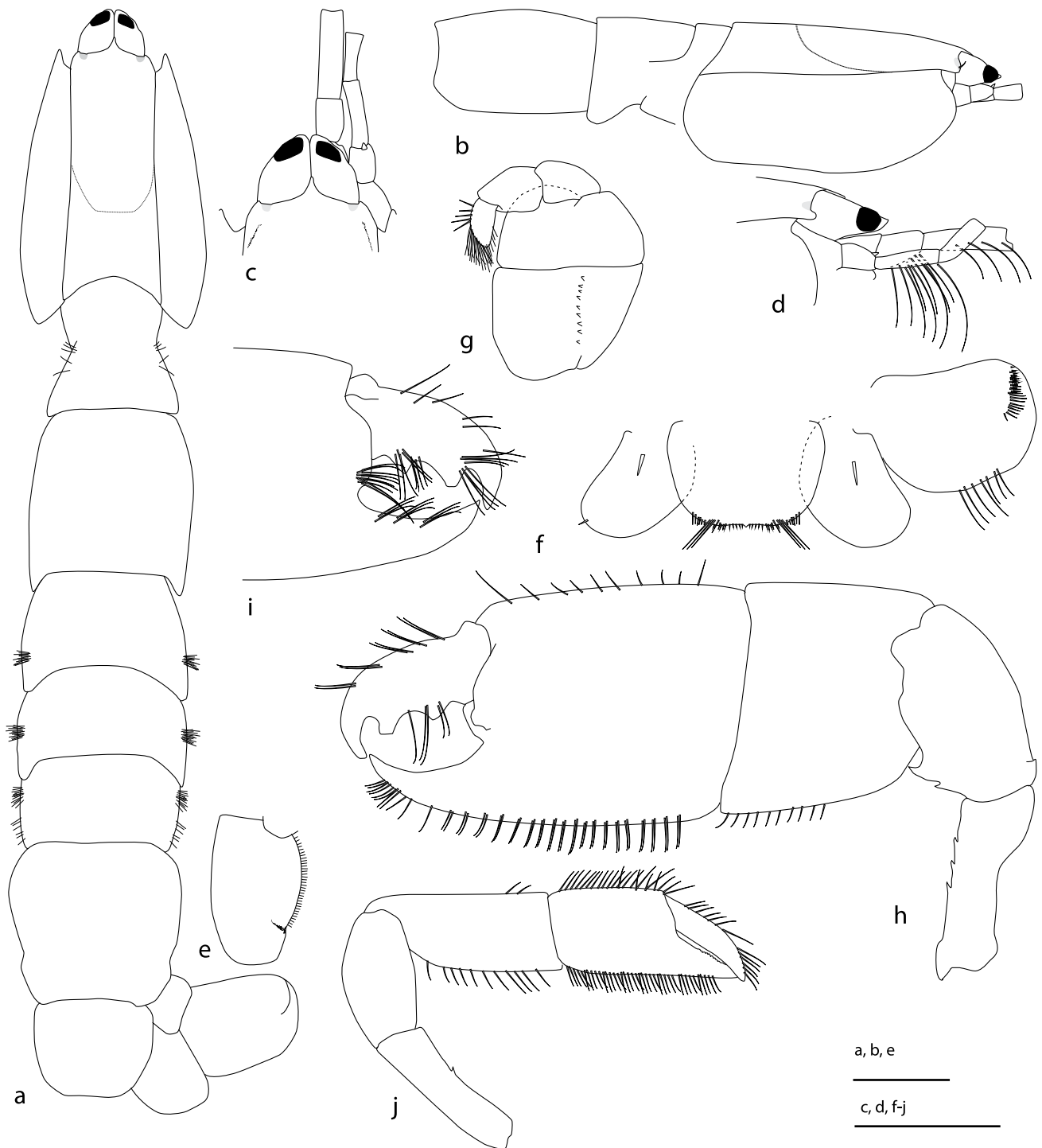


Figure 13. *Caviallianassa riwo* sp. nov. Papua New Guinea. MNHN IU-2013-7111, holotype female, 2.5 mm: a, carapace, pleon, telson, uropod; b, carapace, pleomeres 1, 2; c, d, antennular, antennal peduncles, eyestalks, carapace front; e, pleomere 6, right lateral; f, telson, right uropod, left uropod endopod; g, maxilliped 3; h, major (left) cheliped; i, major cheliped fingers, lateral; j, minor (left) cheliped. Scale bars = 1 mm.

reaching tip; dactylus half as long as propodus. Pereopod 5 slender, with chela about as long as carpus, slightly curving, fixed finger with short subdistal spiniform setae.

Pleopod 1 of 2 articles; ramus shorter than peduncle, with 2 distal setae. Pleopod 2 biramous; peduncle bent; exopod 0.7 times as long as endopod; endopod of 2 articles. Pleopods 3–5 biramous, endopod 1.5 times as long as wide; appendix interna twice as long as wide, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval, widest proximally, about as long as wide; upper surface with 1 long spiniform seta; anterior margin slightly convex; margins setose. Exopod widest at midpoint, 1.3 times as long as wide, exceeding endopod by about half its length; anterior margin concave; posterior margin with 6 or 7 blade-like setae indistinguishably merged with distal margin; upper surface without setae; dorsal plate extending about halfway across exopod, comprising about 30 stiff setae merging anteriorly with similar setae on distal margin.

Telson trapezoidal, 1.4 times as wide as long, broadest at anterior third, narrowing posteriorly to evenly rounded posterolateral corners; posterolateral angle with 2 short spiniform setae; posterior margin with median tooth.

Etymology. From Riwo, Papua New Guinea, a village near the type locality (noun in apposition).

Distribution. Eastern Coral Triangle (Papua New Guinea); 1–2 m.

Remarks. The species is known from a single female well separated from *Caviallianassa moorea* in Robles et al.'s (2020) molecular phylogram. The antennae are relatively more compact than in *C. moorea*. Although the female is smaller than those of *C. moorea*, the major cheliped has more developed dentition on the fingers; the bifid meral tooth is more prominent than the two small teeth seen in *C. moorea*, approaching that seen in *C. cavifrons* (Komai and Fujiwara, 2012).

Cheramus Bate, 1888

Cheramus Bate, 1888: 29.—Poore et al., 2019: 93 (redialagnosis, synonymy).—Poore and Ah Yong, 2023: 212.

Remarks. The type species of *Cheramus* was selected by Manning and Felder (1991) as *Cheramus occidentalis* Bate, 1888, now *C. profundus* (Biffar, 1973). As Sakai (2005) pointed out, this subsequent type species designation predated by one day that by Holthuis (1991) of *Cheramus orientalis* Bate, 1888. *Cheramus profundus* is a West Atlantic species and the only member of the genus (Poore et al., 2019). Lacking molecular data, Robles et al. (2020) and Poore et al. (2019) relied on morphology to place the genus close to *Cheramoides* Sakai, 2011 and *Poti* Rodrigues and Manning, 1992, two other monotypic West Atlantic genera. The antennular peduncle is exceeded by all of the antennal peduncular article 5 and the minor and major chelipeds are similar, both attenuated, with swollen palms (Biffar, 1973). *Cheramus* has been widely used as a genus or subgenus name for small callianassids in the Indo-West Pacific. Sakai (2011) included 16 species and others have been added since (Komai and Fujiwara, 2012; Komai et al., 2014b; Sepahvand et al., 2015). Komai et al. (2014b) reviewed use of the genus name but *Cheramus* does not occur in the Indo-West Pacific.

Coriollianassa Poore, Dworschak, Robles, Mantelatto and Felder, 2019

Coriollianassa Poore et al., 2019: 93.—Robles et al., 2020: figs 1, 3, 6.—Poore and Ah Yong, 2023: 212.

Remarks. The genus is characterised by the sharp anteriorly directed rostrum with a dorsal carina. The antennal peduncle is longer than the antennular peduncle and the scaphocerite is usually bifid. The carpus of the larger cheliped has an unusual “neck” such that the merus does not overlap the carpus at right angles as in many callianassids. The lower margin of merus of the cheliped has an oblique tooth with a minute tooth more

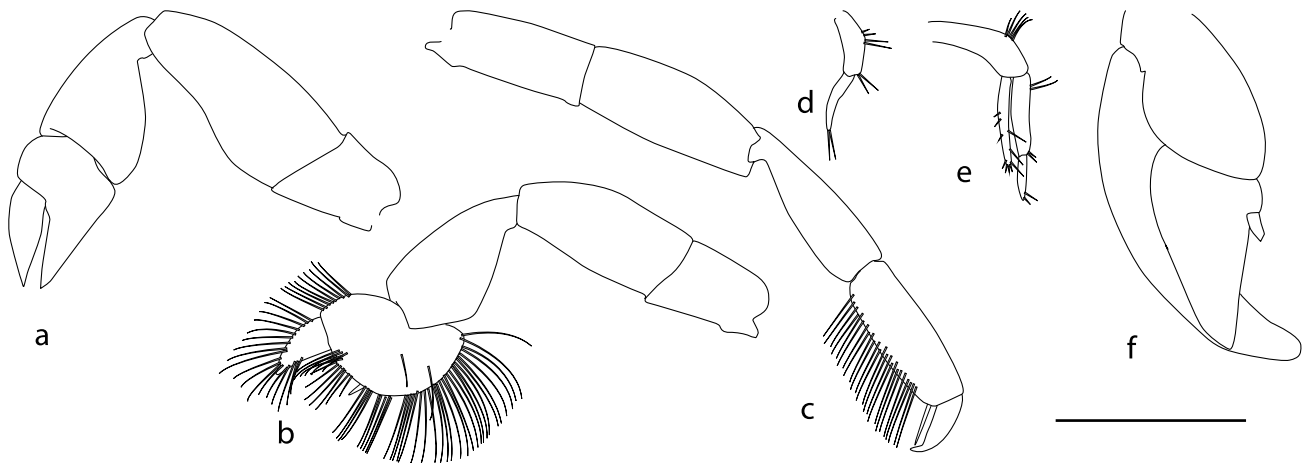


Figure 14. *Caviallianassa riwo* sp. nov. Papua New Guinea. MNHN IU-2013-7111, holotype female, 2.5 mm: a–c, pereopods 2–4; d–f, pleopods 1–3. Scale bar = 1 mm.

proximal. The eyestalk is well domed above the cornea. Contrary to Poore et al.'s (2019) diagnosis, the male pleopod 2 is a small tubercle; pleopod 1 is a simple ramus.

The molecular phylogeny (Robles et al., 2020) recognised four clades, some with little support: (1) *Coriollianassa* MOZ-33, five individuals from the Mozambique Channel; (2) one individual from Vanuatu; (3) a specimen identified as *C. coriolisae* (Ngoc-Ho, 2014) from its type locality, the Philippines; and (4) *C. MOZ-31*, another specimen from the Mozambique Channel. These are treated here as *C. coriolisae* and two new species. The identity of additional material from northwestern Australia previously identified as *C. sibogae* (De Man, 1905) was confirmed but other material from this region was found to belong to a third new species. Differences between species can be found in the shapes of the eyestalks, rostrum, maxilliped 3, pleomere 1 and in proportions of pleomere 6, telson and the uropodal rami.

The identity of another from French Polynesia identified as *C. sibogae* remains in doubt.

Coriollianassa coriolisae (Ngoc-Ho, 2014)

Figure 15

Callianassa coriolisae Ngoc-Ho, 2014: 552–554, fig. 3 (type locality, Philippines).

Coriollianassa coriolisae.—Poore et al., 2019: 93, 137, 142, fig. 2n.—Robles et al., 2020: figs 1, 3, 6, Supplementary tables 1, 2.

Material examined. **Philippines.** N Sulu Sea, 11° 58' N, 121° 15' E, 320–337 m (MUSORSTOM 3 stn CP119), MNHN IU-2013-18276 (holotype of *Callianassa coriolisae*, male, 12 mm). Casiguran Sound, 16° 5' N, 121° 57' E, 98–107 m (MNHN AURORA stn 2654), NMCR 49805 (ULLZ 10135*), (male without major cheliped, 6.4 mm). Off Dipaculao, 15° 57' N, 121° 47' E, 278–271 m (AURORA stn CC2733), NHMW 26457 (male, 6.9 mm, figured by P.C. Dworschak, pers. comm.). **Vanuatu**, S of Espiritu Santo, 15° 43' S, 167° 03' E, 441 m (SANTO Casier 3), MNHN IU-2013-7138* (female, 6.5 mm, without chelipeds).

Diagnosis. Rostrum scarcely carinate dorsally, with ventral keel-like carina. Maxilliped 3 merus with broadly rounded mesiodistal angle. Telson elongate-trapezoidal, 1.4 times as long as wide.

Distribution. Western Coral Triangle (type locality: N Sulu Sea, 320–337 m), Tropical Southwestern Pacific; 98–441 m.

Remarks. *Callianassa coriolisae* was well illustrated by Ngoc-Ho (2014). Here, the carapace of the holotype is illustrated in dorsal and lateral views along with detail of the front and antennae. Ngoc-Ho separated the new species from *C. sibogae* on the absence of a rostral carina, more oblique distomesial margin of the maxillipedal merus, and shape of the uropod. The fragmentary material from the Philippines, illustrated by Peter C. Dworschak (pers. comm.), and from Vanuatu, illustrated here (fig. 15c, d), are included with some hesitation in *C. coriolisae*. All specimens are no more than half the size of the holotype of *C. coriolisae*. One specimen from each locality was sequenced but there was zero divergence between the two 12S sequences. All possess a maxilliped 3 merus with an oblique distomesial margin and a rostrum barely carinate above.

Coriollianassa mainbaza sp. nov.

<http://zoobank.org/urn:lsid:zoobank.org:act:E1B2D755-3C57-4036-84C1-01C4C7BB5DC7>

Figures 16, 17

Trypaea sibogae.—Sakai and Türkay, 2012: 738–740, fig. 7 (Gulf of Aden).

Coriollianassa MOZ-33.—Poore et al., 2019: fig. 8c.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Mozambique**, off Maputo, 25° 59' S, 34° 35' E, 630–638 m (MAINBAZA stn CC3173), MNHN IU-2008-10314* (male, 8.0 mm). Paratypes. Collected with holotype, MNHN IU-2008-10315* (female, 7.7 mm). Mozambique, off Maputo, 25° 36' S, 33° 17' E, 437–445 m, (MAINBAZA stn CC3172); MNHN IU-2008-7922* (female, 8.8 mm); MNHN IU-2016-8146* (female, 6.3 mm). Off Bazaruto I., 21° 36' S, 35° 57' E, 990–996 m (MAINBAZA stn CC3147), MNHN IU-2010-7924 (female, 7.3 mm).

Diagnosis. Rostrum with dorsal basal carina, with ventral straight keel-like carina. Maxilliped 3 merus with distinct oblique mesiodistal margin. Telson elongate-trapezoidal, 1.25 times as long as wide.

Description of male holotype. Rostrum laterally compressed, situated well below upper level of carapace, with dorsal basal carina, with ventral straight keel-like carina. Carapace convex anteriorly in lateral view, as long as pleomeres 1–3 combined; orbital margin concave; anterolateral angle produced slightly anterovergally as narrow lobe; subanterolateral margin slightly convex, anterior margin of branchiostegite set well back, almost vertical; cervical groove across 0.75 length of carapace, almost reaching linea thalassinica. Pleomere 1 tergite waisted in dorsal view, with deep saddle visible in lateral view; posterior section flat in lateral view. Pleomere 2 widest, wider than long. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 about as long as wide, 1.2 times as long as pleomere 5, with slight ventrolateral projection.

Eyestalk 1.2 times as long as wide, with oblique dorsal face diverging from rostrum, with sharp ventrolateral margin, anterolateral margin oblique, anteromedial angle rounded in dorsal view, not reaching distal margin of antennular peduncle article 1. Cornea with weak scattered pigmentation.

Antennular peduncle reaching to about distal margin of antennal peduncle article 4; article 1 clearly visible in dorsal view; article 2 shorter than article 1; article 3 1.4 times as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of sparse long setae. Antennal peduncle article 5 0.6 length of article 4; scaphocerite with bifid apex.

Mandible molar process shelf-like, with small mesial tooth; incisor process with obsolete teeth. Maxilliped 3 ischium tapering, twice as long as wide, crista dentata comprising row of about 18 strong, irregular, erect spines, stronger distally, overlapping distal margin; merus about 0.7 times as long as ischium measured along outer margin, about 1.4 times as wide as long, as wide as ischium, with distinct oblique mesiodistal margin; carpus shorter than merus; propodus ovoid, 1.7 times as long as wide; dactylus digitiform, 0.75 times as long as propodus.

Pereopods 1 (chelipeds) unequal, dissimilar. Male major cheliped massive, carpus-palm upper margin 1.1 times

carapace length. Ischium expanding distally, upper margin sinuous, unarmed; lower margin with row of 7 spines. Merus as long as ischium, twice as long as wide (tooth excluded), tapering distally; upper margin convex, unarmed; lower margin with oblique spine bearing a subproximal minute tooth, plus row of small tubercles distal to spine. Carpus 1.3 times as long as wide, with constricted “neck”; margins carinate; upper margin smooth, concave over proximal third; lower margin convex, with distal sharp tooth. Propodus upper margin as long as carpus; palm subquadrate, 1.2 times as long as wide; upper margin carinate; lateral surface smooth, convex, with peg-like tooth in gape; mesial surface slightly convex, with peg-like tooth in gape set back from lateral peg; lower margin carinate, with row of setae extending onto fixed

finger; fixed finger 0.8 times as long as palm, slightly depressed; cutting edge smooth, with obtuse blade at midpoint. Dactylus reaching as far as fixed finger, strongly curved distally, with acute tip; upper margin with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge with rounded teeth diminishing distally; mesial surface with tufts of setae along cutting edge.

Minor cheliped slender; carpus-palm upper margin 0.7 carapace length. Ischium upper margin smooth, lower margin with row of 5 spines. Merus about as long as ischium; lower margin with spine near midpoint. Carpus 1.4 times as long as merus, parallel-sided over most of length, 4 times as long as wide. Palm slightly swollen, 1.3 times as long as wide; upper margin convex; lower margin sharply carinate, with row of long

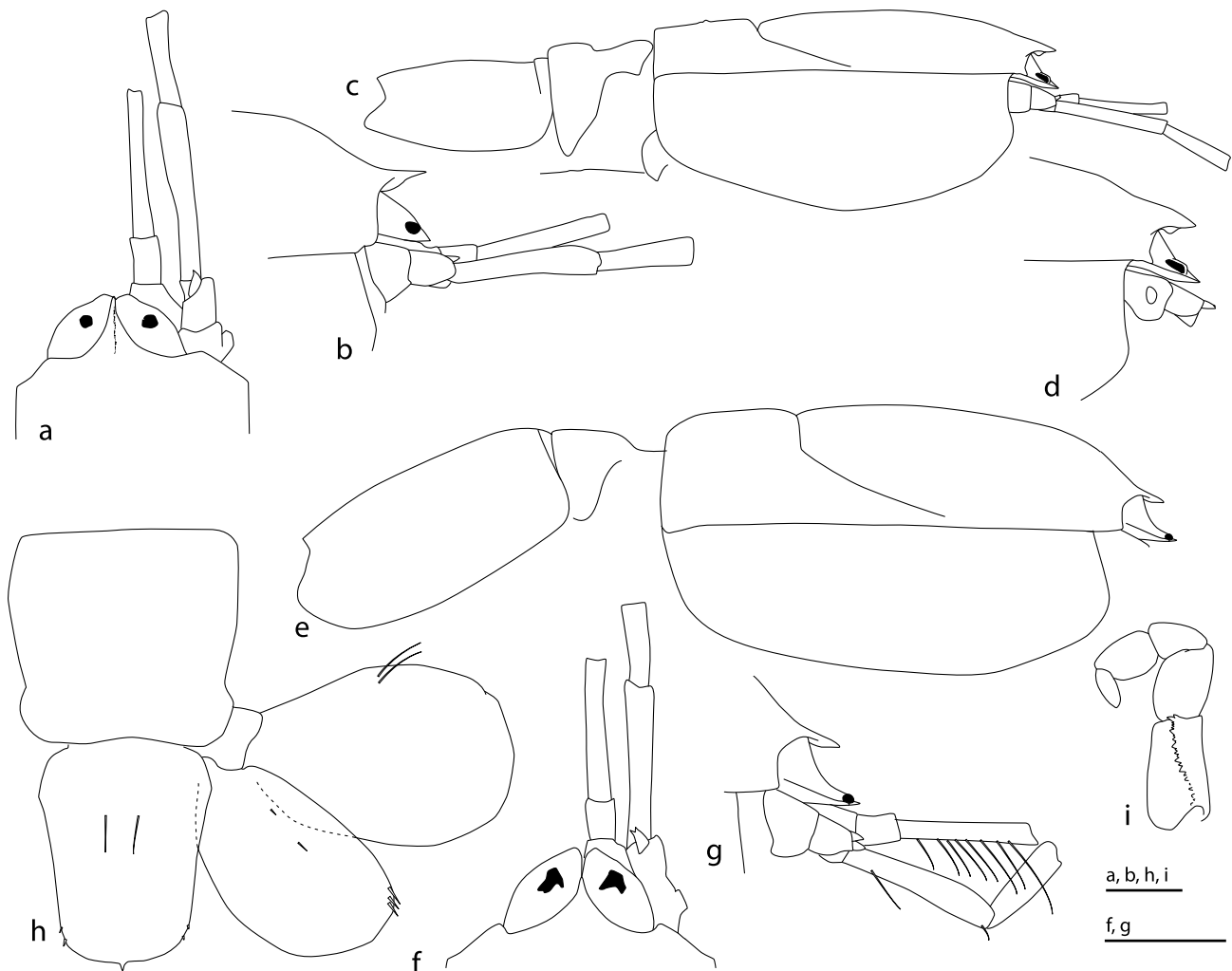


Figure 15. *Coriollianassa coriolisae* (Ngoc-Ho, 2014). Philippines, MNHN IU-2013-18276, holotype male, 12 mm: a, b, anterior carapace, eyestalk, antennular, antennal peduncles (dorsal, lateral views). NMCR 49805 (ULLZ 10135), male without major cheliped, 6.4 mm (from sketches supplied by P.C. Dworschak: c, eyestalk, antennular, antennal peduncles, carapace, pleomeres 1, 2; d, anterior carapace, eyestalk, antennal peduncle, Vanuatu, MNHN IU-2013-7138, female, 6.5 mm: e, carapace, pleomeres 1, 2; f, g, anterior carapace, eyestalk, antennular, antennal peduncles (dorsal, lateral views); h, pleomere 6, right uropod; i, maxilliped 3. Scale bars = 1 mm.

setae extending onto fixed finger. Fixed finger about as long as palm, slightly curving down; cutting edge smooth. Dactylus 1.6 times as long as palm, curved; cutting edge smooth.

Pereopod 2 merus lower margin slightly sinusoidal, 3.0 times as long as wide; carpus about twice as long as wide; chela subtriangular; palm about twice as wide as upper margin; dactylus 3 times as long as palm upper margin. Pereopod 3 carpus subtriangular, 2.6 times as long as wide; propodus suboval with produced lower proximal margin, upper margin 1.4 times width, lower margin convex, faintly undulate, marginal setae clustered on prominences, with 1 slender spiniform seta subdistally; dactylus about 0.9 times as

long as propodus upper margin. Pereopod 4 merus as long as ischium; carpus 0.8 length of merus; propodus 0.8 times as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with spiniform seta parallel to dactylus; dactylus half as long as propodus. Pereopod 5 slender, with chela about as long as carpus, slightly curving; dactylus as long as fixed finger.

Male pleopod 1 uniarticulate, 8 times as long as wide, with few distal short setae. Pleopod 2 tubercle-like. Pleopods 3–5 biramous, rami narrow; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

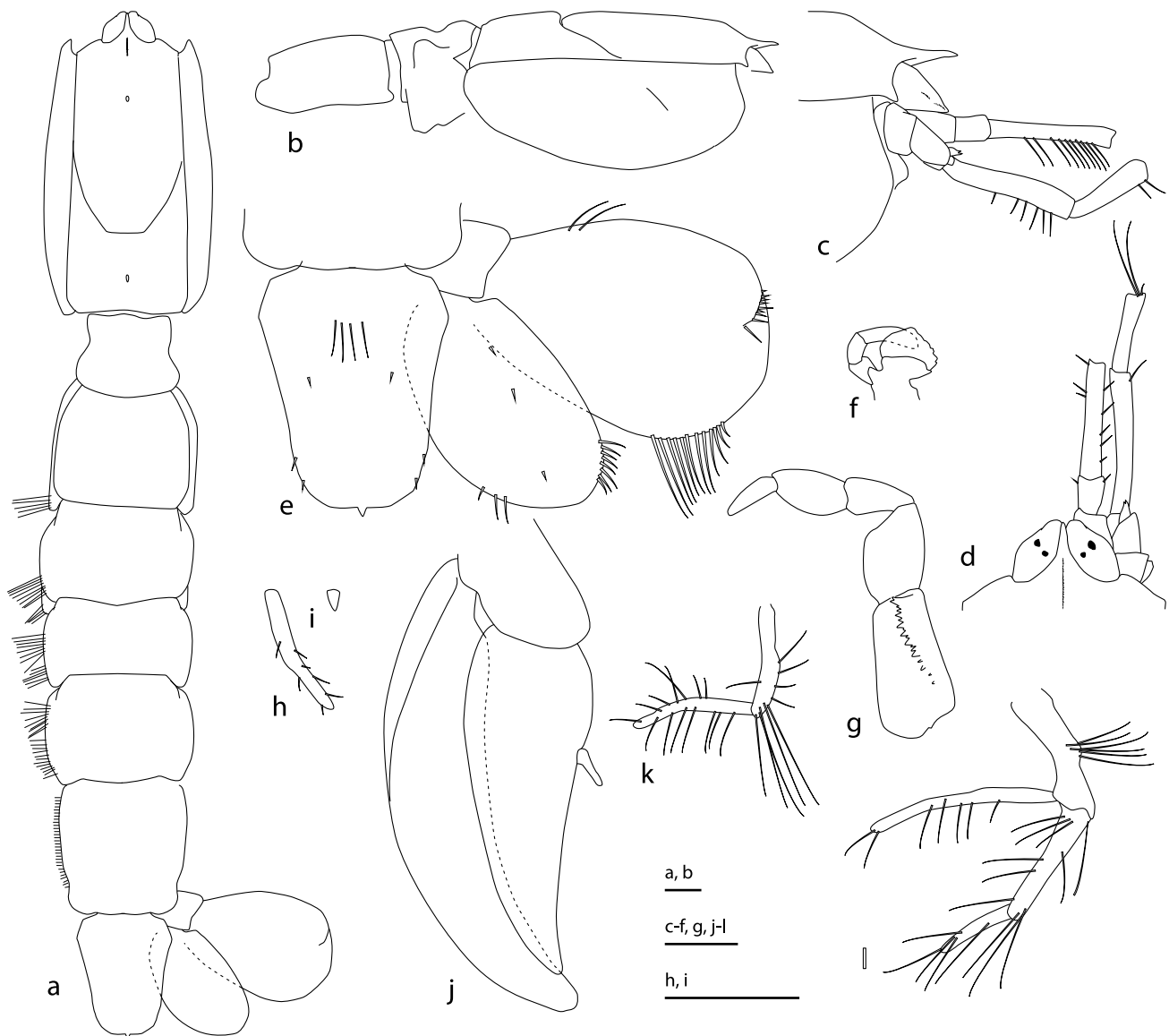


Figure 16. *Coriollianassa mainbazeae* sp. nov. Mozambique. MNHN IU-2008-10314, holotype male, 8.0 mm: a, eyestalks, carapace, pleon, telson, right uropod; b, carapace, eyestalk, pleomeres 1, 2; c, d, anterior carapace, eyestalk, antennular, antennal peduncles (lateral, dorsal views); e, telson, right uropod; f, mandible; g, maxilliped 3; h–j, pleopods 1–3. MNHN IU-2008-7922, paratype female, 8.8 mm: k, l, pleopods 1, 2. Scale bars = 1 mm.

Uropodal endopod and exopod overreaching posterior margin of telson. Endopod oval, about 1.6 times as long as wide; anterior margin slightly convex; anterodistal margin with 8 spiniform setae; distal margin convex, with fringe of setae; posterior margin with 3 stouter marginal setae; upper surface with row of up to 3 spiniform setae. Exopod dilating to rounded distal margin, 1.4 times as long as wide, exceeding endopod by about one fifth length; anterior margin convex, setose; posterior margin with numerous slender setae, with about 12 blade-like setae, indistinguishably merged with distal margin; upper surface with 1 or 2 submarginal slender setae about one third along; dorsal plate curved, short, about one third exopod width, with row of about 12 stiff setae distinct from setal row of distal margin.

Telson elongate-trapezoidal, 1.25 times as long as wide, broadest at anterior fifth, narrowing posteriorly; greatest width 1.7 times posterior width; dorsal surface with few medial setae anterior to midlength; lateral margin with 2 well-spaced spiniform setae near posterolateral angle; posterior margin convex, with median tooth.

Female. Major cheliped similar to male cheliped, carpus and palm more elongate; carpus 1.5 times as long as wide; propodus palm 1.4 times as long as wide. Minor cheliped similar to male. Pleopod 1 of 2 articles at right angles; ramus slightly longer than peduncle; setose (of single article in small female). Female pleopod 2 biramous; peduncle almost straight; exopod tapering distally, slightly shorter and narrower than endopod; endopod of 2 articles.

Etymology. For MAINBAZA, the survey of the coast of Mozambique in 2009 organised by the Instituto Español de Oceanografía and the Muséum national d'Histoire naturelle.

Distribution. Western Indian Ocean; 437–996 m.

Remarks. *Coriollianassa mainbazae* has a longer and more tapering telson than other species of this genus. The rostrum is narrower and more acute in lateral view than in other species and is weakly carinate only on the carapace proper. Sakai and Türkay (2012) recorded and figured "*Trypaea sibogae*" from 472–479 m in the Gulf of Aden. The elongate pleomere 6 and telson plus geographic proximity suggest their record could be of *C. mainbazae*.

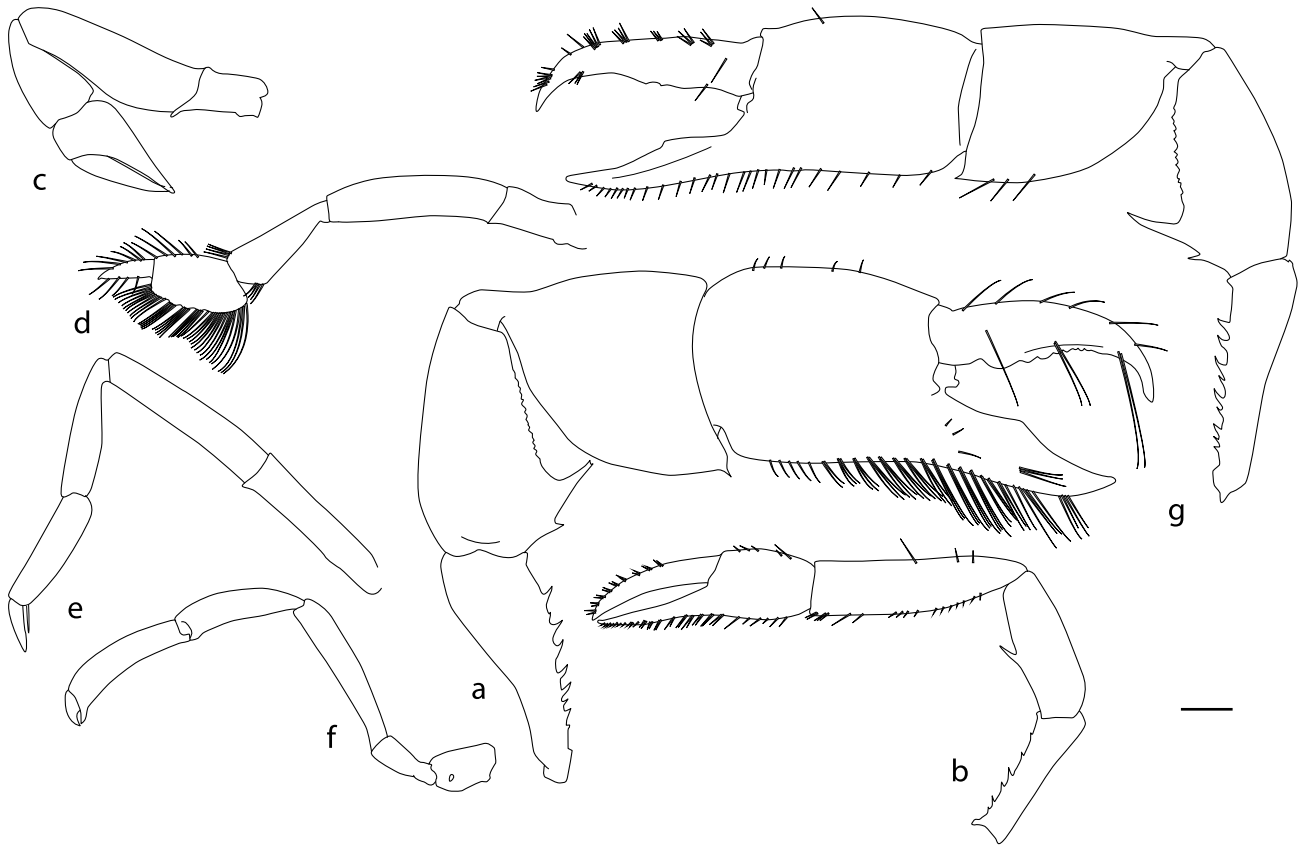


Figure 17. *Coriollianassa mainbazae* sp. nov. Mozambique. MNHN IU-2008-10314, holotype male, 8.0 mm: a, major cheliped (left, mesial); b, minor cheliped (right, mesial); c–f, pereopods 2–5. MNHN IU-2008-7922, paratype female, 8.8 mm: g, major cheliped (right, mesial). Scale bar = 1 mm.

***Coriollianassa maputo* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:3750203A-DEF7-42CC-841E-1B7BC2DA693A>

Figure 18

Coriollianassa MOZ-31.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Mozambique**, off Maputo, 25° 59' S, 34° 35' E, 638 m (MAINBAZA stn CC3172), MNHN IU-2014-10472* (female, 3.9 mm, without chelipeds, pereopod 3).

Diagnosis. Rostrum carinate dorsally, with ventral keel-like carina. Maxilliped 3 merus truncate distally, with sharply rounded mesiodistal angle. Pleomere 1 tergite with dome-like posterior section. Telson trapezoidal, 0.8 times as long as wide.

Description of female holotype. Rostrum laterally compressed, deep, situated well below upper level of carapace, exceeding eyestalks, with sharp dorsal carina, with ventral convex keel-like carina. Carapace convex anteriorly in lateral view, as long as pleomeres 1–3 combined; orbital margin oblique-transverse; anterolateral angle scarcely produced, rounded; subanterolateral margin straight, anterior margin of branchiostegite set well back, almost vertical; cervical groove across 0.8 length of carapace, almost reaching linea thalassinica. Pleomere 1 tergite waisted in dorsal view, with deep saddle visible in lateral view; posterior section domed in lateral view. Pleomere 2 widest, wider than long, laterally flared. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 1.25 times as long as wide, 1.3 times as long as pleomere 5, with slight ventrolateral projection.

Eyestalk 0.7 long as wide, with transverse distal margin bearing convex protruding cornea, well short of distal margin of antennular peduncle article 1. Cornea dome-shaped, well pigmented.

Antennular peduncle reaching to about distal margin of antennal peduncle article 4; article 1 clearly visible in dorsal view; article 2 shorter than article 1; article 3 as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of sparse long setae. Antennal peduncle article 5 0.6 length of article 4; scaphocerite with bifid apex.

Mandible molar process shelf-like, with small mesial tooth; incisor process with obsolete teeth. Maxilliped 3 ischium tapering, 2.2 times as long as wide, crista dentata comprising row of about 15 strong, irregular, erect spines, stronger distally, overlapping distal margin; merus about 0.6 times as long as ischium measured along outer margin, about 0.6 as wide as long, widest distally, with distinct transverse distal margin; carpus shorter than merus; propodus ovoid, 1.7 times as long as wide; dactylus digitiform, 0.75 times as long as propodus.

Pereopods 1 (chelipeds) missing.

Pereopod 2 merus lower margin slightly sinusoidal, 4.0 times as long as wide; carpus about 1.8 times as long as wide; chela subtriangular; palm about 0.17 times width of upper margin; dactylus 2.7 times as long as palm upper margin. Pereopod 4 merus 1.4 times as long as ischium; carpus 0.65 length of merus; propodus as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with spiniform seta parallel to dactylus;

dactylus half as long as propodus. Pereopod 5 slender, with chela longer than carpus, slightly curving; dactylus longer than fixed finger.

Female pleopod 1 uniaarticulate, with subdistal setae. Pleopod 2 biramous. Pleopods 3–5 biramous, rami narrow; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

Uropodal endopod and exopod overreaching posterior margin of telson. Endopod oval-tapering, about 1.7 times as long as wide; anterior margin slightly convex; anterodistal margin without spiniform setae; distal margin convex, with fringe of setae; posterior margin without stouter marginal setae; upper surface without spiniform setae. Exopod dilating to rounded distal margin, 1.7 times as long as wide, exceeding endopod by about one quarter length; anterior margin convex, setose; posterior margin with numerous slender setae, with about 12 blade-like setae, indistinguishably merged with distal margin; upper surface with 1 submarginal slender seta about one third along; dorsal plate curved, short, about one fifth exopod width, with row of about 12 stiff setae distinct from setal row of distal margin.

Telson trapezoidal, 0.8 times as long as wide, broadest at anterior 0.2, narrowing posteriorly; greatest width 1.6 times posterior width; dorsal surface with few medial setae anterior to midlength; posterolateral angle with 1 spiniform seta; posterior margin convex, without median tooth.

Etymology. For Maputo, a town in Mozambique close to the type locality (noun in apposition).

Distribution. Western Indian Ocean; 638 m (known only from type locality).

Remarks. Four features distinguish *Coriollianassa maputo* from *C. mainbazeae*, the other species from the Mozambique Channel: (1) the strongly domed posterior section of pleomere 1; (2) the square merus of maxilliped 3; (3) the short eyestalk with transverse distal margin; and (4) the relatively shorter telson. The square merus of maxilliped 3 resembles that figured for *C. sibogae* and the eyestalk could be interpreted as belonging to this species, but the rostrum is scarcely carinate, specifically mentioned by De Man (1905, 1925a), and the telson is relatively shorter than in his figure. *Coriollianassa maputo* is weakly separated from two other species in the molecular phylogeny of Robles et al. (2020).

***Coriollianassa nyinggulu* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:E210BEFB-935A-48F6-99C8-79CE3F6BEAF1>

Figures 19, 20

Callianassa sp. MoV 4962.—Poore et al., 2008: 94 (North West Shelf, Australia).

Material examined. Holotype. **Australia**. WA, North West Shelf, off Ningaloo South, 22.079° S, 113.796° E, 201–206 m (CSIRO stn SS10/2005/146), NMV J53455 (male, 7.6 mm). Other material. **Australia**, NT, Arafura Sea, 9° 18.21' S, 133° 41.82' E, 187 m, gravel (CSIRO stn SS05/2005/029/GR052), AM P.74540 (male, 3.9 mm).

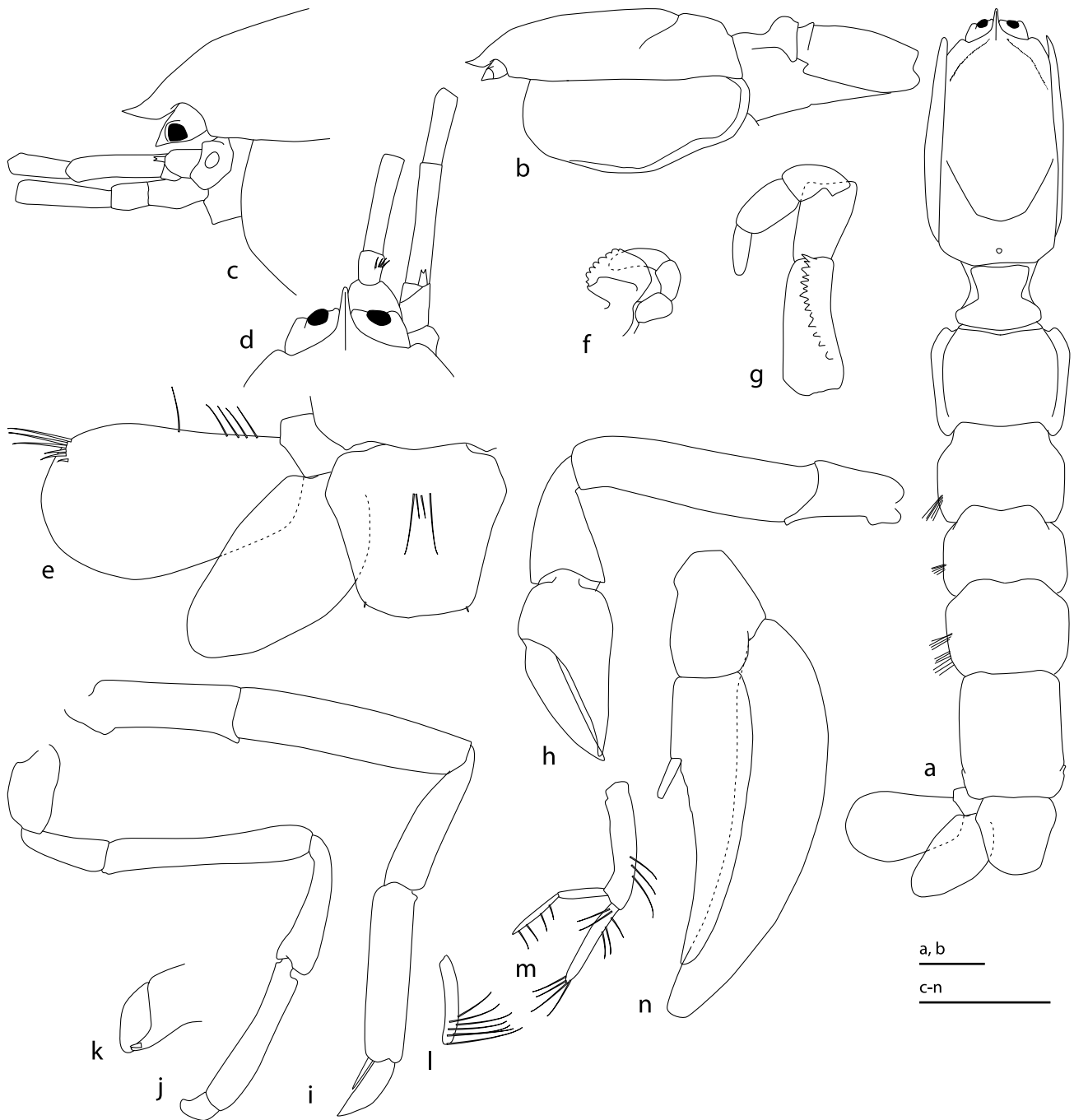


Figure 18. *Coriollianassa maputo* sp. nov. Mozambique, MNHN IU-2014-10472, female, 3.9 mm: a, eyestalks, carapace, pleon, telson, left uropod; b, carapace, eyestalk, pleomeres 1, 2; c, d, anterior carapace, eyestalk, antennular, antennal peduncles (lateral, dorsal views); e, telson, left uropod; f, mandible; g, maxilliped 3; h, pereopod 2; i, pereopod 4; j, k, pereopod 5 with detail; l–n, pleopods 1–3. Scale bars = 1 mm.

Diagnosis. Rostrum acute, with weak dorsal carina, with ventral straight keel-like carina. Antennular peduncle reaching to midpoint of antennal peduncle article 4. Maxilliped 3 merus with rounded oblique mesiodistal margin. Telson trapezoidal, 1.1 times as long as wide.

Description of male holotype. Rostrum laterally compressed, situated well below upper level of carapace, dorsally moderately carinate, with ventral straight keel-like carina, acute in dorsal and lateral views. Carapace almost straight, depressed anteriorly, in lateral view, as long as pleomeres 1–3 combined; orbital

margin concave; anterolateral angle produced anteroventrally as narrow lobe; subanterolateral margin convex, anterior margin of branchiostegite set well back, almost vertical; cervical groove across 0.75 length of carapace, almost reaching linea thalassinica. Pleomere 1 tergite waisted in dorsal view, with shallow saddle visible in lateral view; posterior section flat in lateral view. Pleomere 2 widest, wider than long, laterally flared. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 0.8 times as long as wide, as long as pleomere 5, with slight ventrolateral projection.

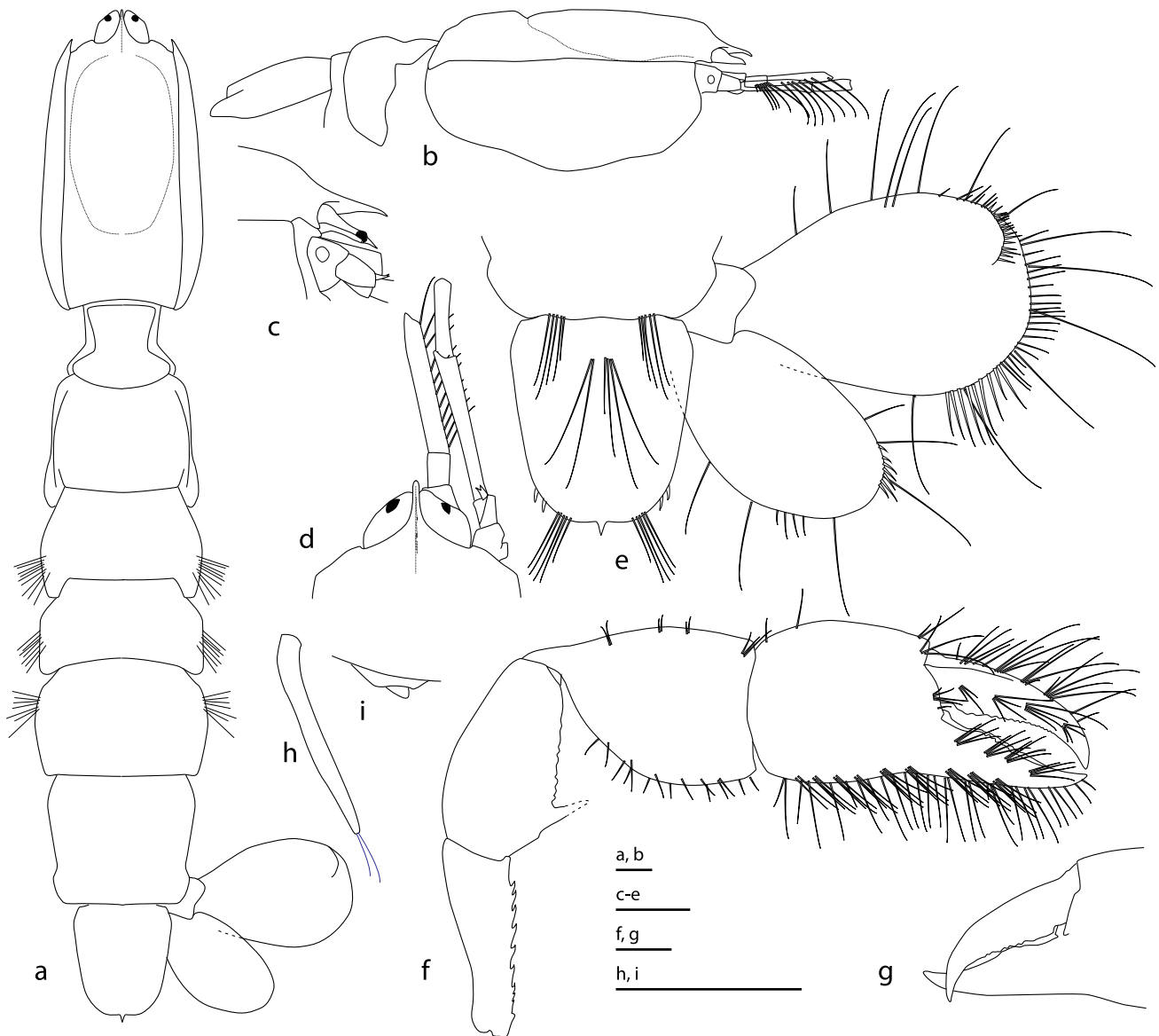


Figure 19. *Coriollianassa nynggulu* sp. nov. NW Australia, NMV J53455, male, 7.6 mm. a, eyestalks, carapace, pleon, telson, right uropod; b, carapace, eyestalk, antennular, antennal peduncles, pleomeres 1, 2; c, anterior carapace, eyestalk, base of antennule (lateral); d, anterior carapace, eyestalk, antennular, antennal peduncles (dorsal view); e, telson, right uropod; f, major cheliped (left, mesial); g, cheliped fingers (lateral); h, i, right pleopods 1, 2 (in situ). Scale bars = 1 mm.

Eyestalk as long as wide, with oblique dorsal face diverging from rostrum, with sharp slightly upturned ventrolateral margin, anterolateral margin oblique, anteromedial angle thin, rounded in dorsal view, overreaching distal margin of antennular peduncle article 1. Cornea subdistal, domed.

Antennular peduncle reaching to midpoint of antennal peduncle article 4; article 1 clearly visible in dorsal view; article 2 shorter than article 1; article 3 1.6 times as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of sparse long setae. Antennal peduncle article 5 0.5 length of article 4; scaphocerite with bifid apex.

Maxilliped 3 ischium tapering, 1.5 times as long as wide at base, crista dentata comprising row of about 18 strong, irregular, erect spines, stronger distally, overlapping distal margin; merus about 0.7 times as long as ischium measured along outer margin, about 1.35 times as wide as long, wider than distal margin of ischium, with distinct oblique mesiodistal margin; carpus shorter than merus; propodus ovoid, 1.8 times as long as wide; dactylus digitiform, 0.7 times as long as propodus.

Male major cheliped massive, carpus-palm upper margin 0.95 carapace length. Ischium expanding distally, upper margin sinuous, unarmed; lower margin with row of 10 spines (proximal 3 minute). Merus as long as ischium, 1.8 times as long as wide (tooth excluded), tapering distally; upper margin convex, unarmed; lower margin with oblique spine bearing a subproximal tubercle, plus row of small tubercles distal to spine. Carpus 1.5 times as long as wide, with constricted "neck"; margins carinate; upper margin smooth, concave over proximal third; lower margin convex, distally rounded. Propodus upper margin 0.75 times as long as carpus; palm barrel-shaped, 1.1 times as long as wide; upper margin

carinate; lateral surface smooth, convex, with tubercle in gape; mesial surface slightly convex, with slight angle in gape set back from lateral peg; lower margin carinate, with row of setae extending onto fixed finger; fixed finger 0.9 times as long as palm, barely depressed; cutting edge denticulate. Dactylus reaching as far as fixed finger, curved distally, with acute tip; upper margin with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge with few rounded teeth diminishing distally; mesial surface with tufts of setae along cutting edge.

Minor cheliped missing.

Pereopod 2 merus lower margin slightly sinusoidal, 3.2 times as long as wide; carpus about twice as long as wide; chela subtriangular; palm about twice as wide as upper margin; dactylus 3 times as long as palm upper margin. Pereopod 3 carpus subtriangular, 2.6 times as long as wide; propodus suboval with produced lower proximal margin, upper margin 1.3 times width, lower margin convex, faintly undulate, marginal setae clustered on prominences, with 1 slender spiniform seta subdistally; dactylus about 0.8 times as long as propodus upper margin. Pereopod 4 carpus 0.7 length of merus; propodus 0.8 times as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with spiniform seta parallel to dactylus; dactylus half as long as propodus. Pereopod 5 slender, with chela about as long as carpus, slightly curving; dactylus as long as fixed finger.

Male pleopod 1 uniaarticulate, 8 times as long as wide, with few distal short setae. Pleopod 2 tubercle-like. Pleopods 3–5 biramous, rami narrow; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

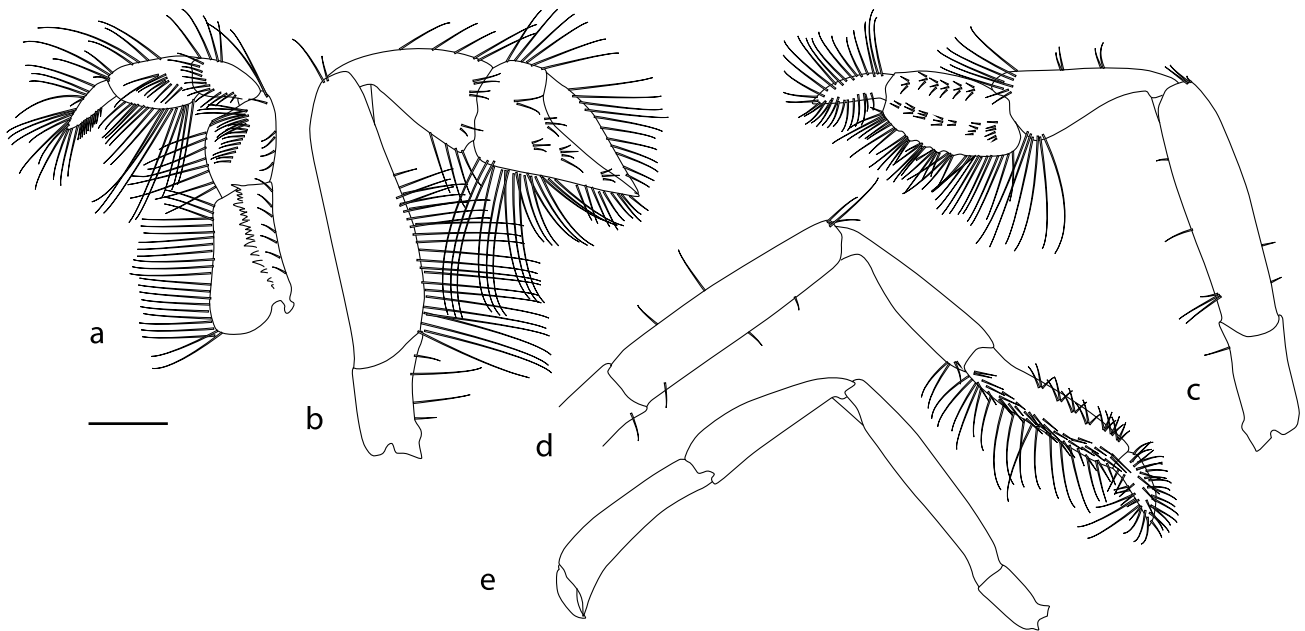


Figure 20. *Coriollanassa nynggulu* sp. nov. NW Australia, NMV J53455, male, 7.6 mm. a, maxilliped 3; b–e, pereopods 2–5. Scale bar = 1 mm.

Uropodal endopod and exopod overreaching posterior margin of telson. Endopod oval, about 1.7 times as long as wide; anterior margin slightly convex; anterodistal margin with 8 spiniform setae; distal margin convex, with fringe of setae; posterior margin with 4 stouter marginal setae; upper surface without spiniform setae. Exopod dilating to rounded distal margin, 1.5 times as long as wide, exceeding endopod by about one third length; anterior margin convex, setose; posterior margin with numerous slender setae, with about 8 blade-like setae, indistinguishably merged with distal margin; upper surface with 2 submarginal slender setae near midpoint; dorsal plate curved, short, about one third exopod width, with row of about 12 stiff setae distinct from setal row of distal margin.

Telson elongate-trapezoidal, 1.1 times as long as wide, broadest at anterior fifth, narrowing posteriorly; greatest width 1.4 times posterior width; dorsal surface with few medial setae anterior to midlength; lateral margin with 2 spiniform setae near posterolateral angle; posterior margin convex, with median tooth.

Etymology. *Nyinggulu* is the name given to the Ningaloo reef and coast by the local Indigenous people (noun in apposition).

Distribution. Northwest Australian Shelf, Sahul Shelf; 187–206 m.

Remarks. *C. nyinggulu* is notable for the broad oval uropodal exopod, the stiletto-shaped rostrum, and the length of the antennular peduncle relative to the antennal peduncle (it reaches the midpoint of article 5, whereas it reaches only the distal margin of article 4 in all other species).

Coriollianassa sibogae (De Man, 1905)

Figure 21

Callianassa sibogae De Man, 1905: 613–614.—Ngoc-Ho, 1994: 54–56, fig. 3 (North West Shelf, Australia).

Callianassa (Cheramus) sibogae.—De Man, 1928a: 124–127, pl. 11 fig. 17.

Cheramus sibogae.—Ngoc-Ho, 2005: 77, fig. 15 (French Polynesia).

Trypaea sibogae.—Sakai, 2011: 408–409.

Coriollianassa sibogae.—Poore et al., 2019: 93, 140, 142.

Material examined. **Australia.** WA, North West Shelf, between Port Hedland and Dampier, 18° 41' S, 118° 39' E, 134 m (MV stn NWA21), NMV J22662 (1 male, 3.8 mm; female, 5.4 mm); 18° 45' S, 118° 24' E, 142 m (MV stn NWA23), MNHN Th1248 (female, 4.0 mm) (det. Ngoc-Ho, 1994). **French Polynesia.** Raiatea Is., 16° 43.17' S, 151° 25.67' E, 309 m, MNHN Th1434 (female, 7.5 mm).

Diagnosis. Rostrum sharply carinate dorsally, concave on each side, bulbous ventrally. Maxilliped 3 merus distally truncate, with obtuse mesiodistal angle. Telson trapezoidal, 1.1 times as long as wide.

Distribution. Western Coral Triangle (type locality: Bali Sea, 7° 46' S, 114° 30.5' E, 330 m – *Siboga* stn 5), Northwest Australian shelf; 134–330 m.

Remarks. De Man (1905) based *Callianassa sibogae* on a single specimen of cl. 6.8 mm without chelipeds and pereopods 3 and 4 from 330 m in the Bali Sea. He described the rostrum as “lamellar, strongly compressed, with sharp upper edge, acuminate”, tergum of pleomere 1 as “saddle-shaped, carrying

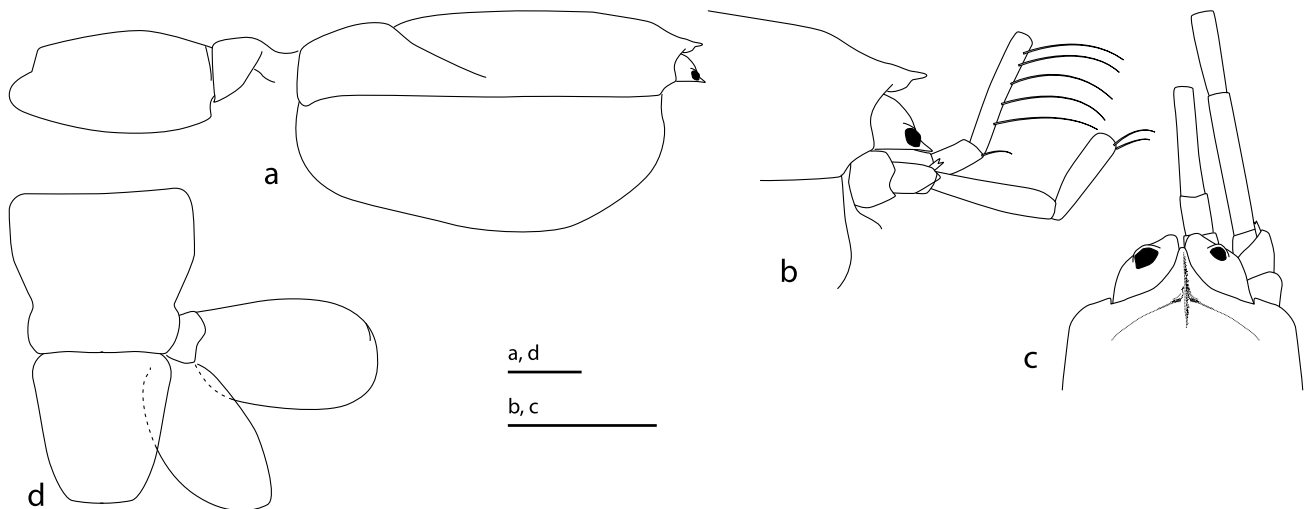


Figure 21. *Coriollianassa sibogae* (De Man, 1905). Australia, North West Shelf, NMV J22662 (female, 5.4 mm). a, carapace, pleomeres 1, 2; b, c, anterior carapace, eyestalk, antennular, antennal peduncles (dorsal, lateral views); d, pleomere 6, right uropod. Scale bars = 1 mm.

on the middle of its wider posterior part a compressed, low tubercle, appearing here thus carinate” and the merus of maxilliped 3 as “quadrangular, shorter than the ischium, somewhat widening anteriorly”. The two specimens from the North West Shelf of Australia determined by Ngoc-Ho (1994) are consistent with this description and De Man’s (1928a) figures. *Coriollianassa sibogae* is notable for the anteriorly directed rostrum being sharply carinate above and bulbous below and the almost right-angled distomesial margin of maxilliped 3.

The specimen from French Polynesia attributed to this species by Ngoc-Ho (2005) most probably belongs to this species, although critical elements (maxilliped 3, major cheliped) are missing.

***Darryllianassa* gen. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:242F9105-478D-4639-BA51-F612343036D1>

Diagnosis. Rostrum acute. Pleomere 1 tergite undivided or with weak transverse step. Cornea well-defined, pigmented, eyestalk distal lobes blunt, oriented vertically. Antennular peduncle length about twice width of both eyestalks, little shorter than antennal peduncle; articles 2 and 3 with single lateral row of few well-spaced long setae. Antennal scaphocerite simple, longer than wide, acute. Maxilliped 3 merus as long as wide at ischium-merus suture; crista dentata with proximal row of 5 spines and distal dentate blade; dactylus tapering, with scattered setae over upper margin, dense brush of short setae distally on lower margin. Female major cheliped merus with oblique spine halfway along lower margin; propodus distal margin and fixed finger having lateral and medial cutting edges separated by shallow groove and deep cavity at base (under dactylus). Minor and major chelipeds of female similar; minor cheliped merus lower margin with spine at or near midpoint; carpus upper margin longer than propodus. Pereopod 3 propodus elongate-oval, tapering, without proximal lobe on lower margin. Pleopods 3–5 appendices internae longer than broad, clearly emerging from margin of endopod. Uropodal endopod ovoid, longer than wide, anterior margin straight, posterodistal margin evenly convex, without facial setae. Uropodal exopod about 1.5 times as long as wide, distal margin poorly differentiated from anterior margin, anterodistal corner rounded, with wide elevated dorsal plate. Telson about as wide as long, tapering from anterolateral lobe; anterolateral lobe prominent, defined posteriorly by clear unchitinised region; transverse ridge with only fine setae.

Type species. *Darryllianassa felderi* sp. nov. (by present designation).

Etymology. For Darryl L. Felder, University of Louisiana at Lafayette, Lafayette, Louisiana, honouring his considerable contribution to callianassid taxonomy and ecology, by combining his given names with *Callianassa*.

Remarks. *Darryllianassa* is erected for a single species unique in the possession of two similar chelipeds, each with fingers longer than the palm and with a deep groove and basal cavity

on the fixed finger. The cheliped merus lacks a proximal tooth. Pereopod 3 has an oval propodus without a strong “heel”, similar to that in *Cheramus* and *Scallasis*, but not as simple as in *Lipkecallianassa* Sakai, 2002. Maxilliped 3 is relatively narrow (pediform) compared to many callianassid genera, in which it is operculiform. The male is unknown. DNA could not be retrieved from tissue samples so its molecular affinities could not be determined.

***Darryllianassa felderi* sp. nov.**

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Figures 22, 23

Material examined. Holotype. **Papua New Guinea.** Madang Province, Alexishafen, 05° 05.3' S, 145° 48.0' E, 8–13 m (PAPUA NIUGINI stn PS14), MNHN IU-2017-1354 (female, 4.3 mm).

Description of female holotype. Rostrum triangular, situated at level of dorsal carapace, 0.65 length of eyestalk. Carapace well calcified, dorsally almost flat in lateral view, 1.3 times as long as pleomeres 1–2 combined; orbital margin oblique, convex; anterolateral lobe triangular; subanterolateral margin convex, oblique; anterior margin of branchiostegite with dorsal concavity, produced as narrow rounded lobe; cervical groove deeply incised, across 0.8 length of carapace, not reaching linea thalassinica. Pleomere 1 tergite without transverse groove, much narrower anteriorly. Pleomere 2 1.25 times as long as pleomere 1. Pleomere 5 slightly longer than pleomeres 3 and 4. Pleomere 6 about as long as pleomere 5, about as long as wide anteriorly.

Eyestalk slightly longer than wide, with dorsal face scarcely depressed anteriorly, proximally swollen, with sharp convex anterolateral margin, anteromedial angle sharply rounded in dorsal view, not overreaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying small mid-distal area of eyestalk.

Antennular peduncle little shorter than antennal peduncle; article 1 visible in dorsal view only laterally; article 3 about as long as articles 1 and 2 combined; article 2 with few long setae; article 3 with few well-spaced ventrolateral setae. Antennal peduncle article 5 0.55 times as long as article 4; scaphocerite acute.

Mandible well calcified; molar process with double-toothed margin; incisor with triangular teeth. Other mouthparts typical of family (fig. 23h–n). Maxilliped 3 ischium not narrower distally, 1.8 times as long as wide, crista dentata comprising 5 strong independent curved teeth over proximal half, 8 smaller closer teeth forming blade over distal half; merus 0.5 times as long as ischium measured along outer margin, slightly wider than long, wider than ischium, with mesiodistal margin almost transverse, separated from rounded inner margin by obtuse rounded corner; carpus as long as merus outer margin; propodus ovoid-tapering, 1.7 times as long as wide; dactylus tapering, shorter than propodus, with scattered setae along upper margin, dense row of short setae along distal lower margin.

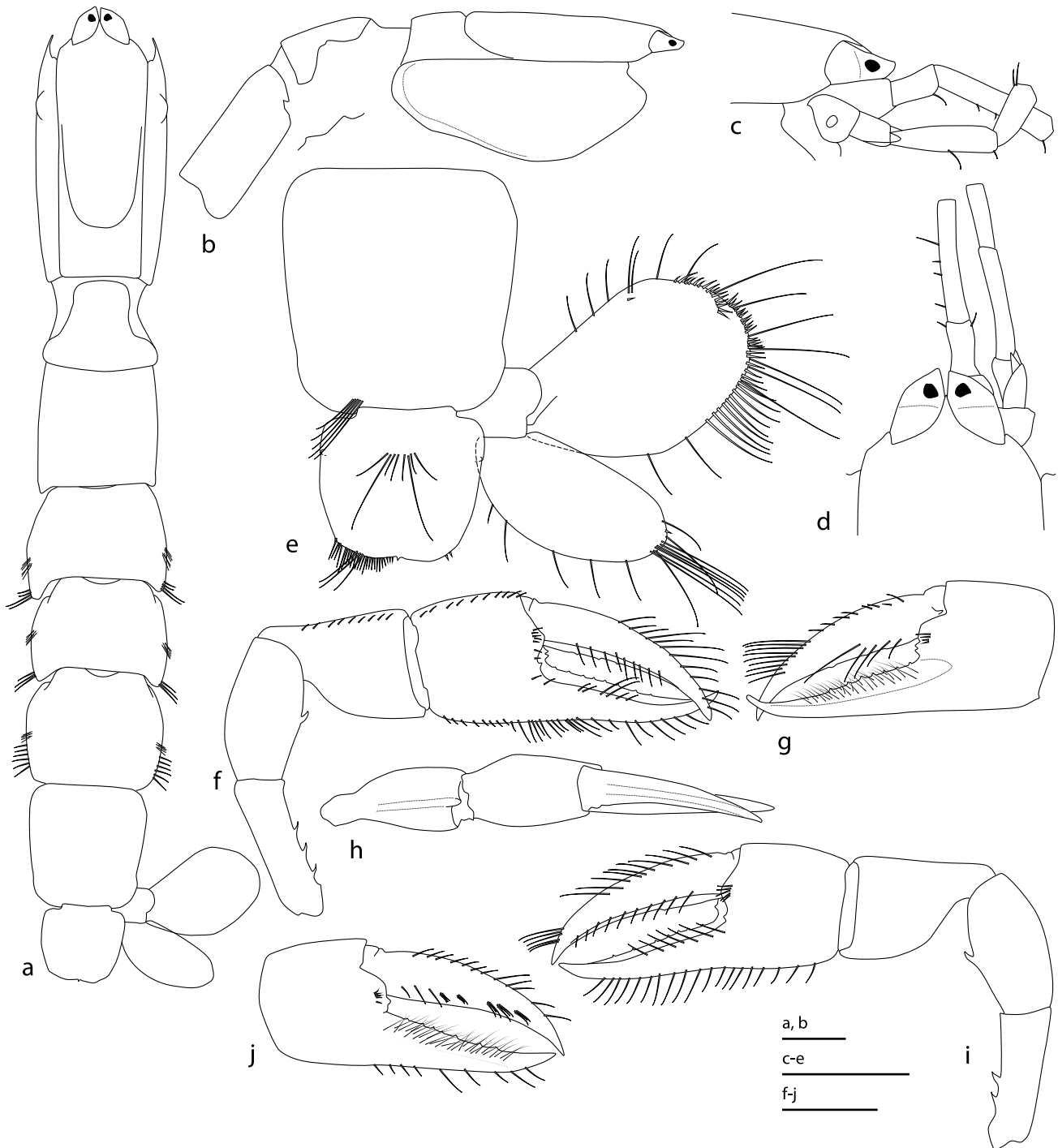


Figure 22. *Darryllianassa felderi* sp. nov. Papua New Guinea. MNHN IU-2017-1345, holotype female, 4.3 mm. a, eyestalks, carapace, pleon, telson, uropod; b, eyestalk, carapace, pleomeres 1, 2; c, d, anterior carapace, eyestalk, antennular, antennal peduncles (lateral, dorsal); e, pleomere 6, telson, right uropod; f, major cheliped (left, mesial); g, major cheliped propodus, dactylus (lateral); h, major cheliped carpus–dactylus (upper view); i, minor cheliped (left, mesial); j, minor cheliped propodus, dactylus (lateral). Scale bars = 1 mm.

Pereopods 1 (chelipeds) subequal in size, similar. Major cheliped carpus-palm upper margin 0.65 carapace length. Ischium scarcely expanding distally, upper margin straight, unarmed; lower margin with row of 3 similar spines. Merus 0.9 length of ischium, 1.9 times as long as wide (tooth excluded), ovate; upper margin convex, unarmed; lower margin with oblique spine near midpoint. Carpus 1.45 times as long as wide; upper margin with soft rounded ridge; lower margin carinate. Propodus upper margin 0.75 length of carpus; palm length 0.8 width; upper margin convex in lateral view, rounded; lateral surface smooth, convex, with slight ridge running along fixed finger, setose above this ridge; distolateral margin of palm produce, with 2 blunt teeth in gape; mesial surface convex, distomesial margin concave, set back from distolateral margin, with small tooth; lower margin carinate, with row of setae extending onto fixed finger; fixed finger 1.5 times as long as palm, tapering, with upturned tip; major cutting edge lateral, straight with regular row of 8 small triangular teeth, with more medial smooth ridge separated from major ridge by shallow groove and deep cavity at base (under dactylus). Dactylus as long as fixed finger, curved, with acute tip; upper margin ridged, with tufts of long setae; cutting edge doubly carinate, lateral carina with 3 small triangular teeth.

Minor cheliped essentially similar to major cheliped, 0.95 length. Ischium lower margin with 2 spines. Palm distolateral margin with 1 triangular tooth.

Pereopod 2 merus lower margin slightly sinusoidal, 3.0 times as long as wide; carpus about 1.6 times as long as wide; chela subtriangular; palm about 1.8 times as wide as upper margin; dactylus 2.7 times as long as palm upper margin. Pereopod 3 carpus 2.7 times as long as wide; propodus oval, 1.6 times as long as wide; lower margin without proximal heel, with long subdistal spiniform seta. Pereopod 4 coxa flattened ventrally, distal articles linear. Pereopod 5 chelate.

Pleopod 1 uniramous. Pleopod 2 biramous, exopod shorter than endopod. Pleopod 3 appendix interna emerging from endopod margin.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod elongate-oval, widest near midpoint, twice as long as wide; upper surface without spiniform setae; anterior margin almost straight; distal margin evenly convex, with 1 short spiniform seta plus cluster of submarginal fine setae; posterior margin setose. Exopod subrectangular, 1.6 times as long as wide, exceeding endopod by one third its length; anterior margin straight; all margins with numerous slender setae, with about 12 blade-like setae

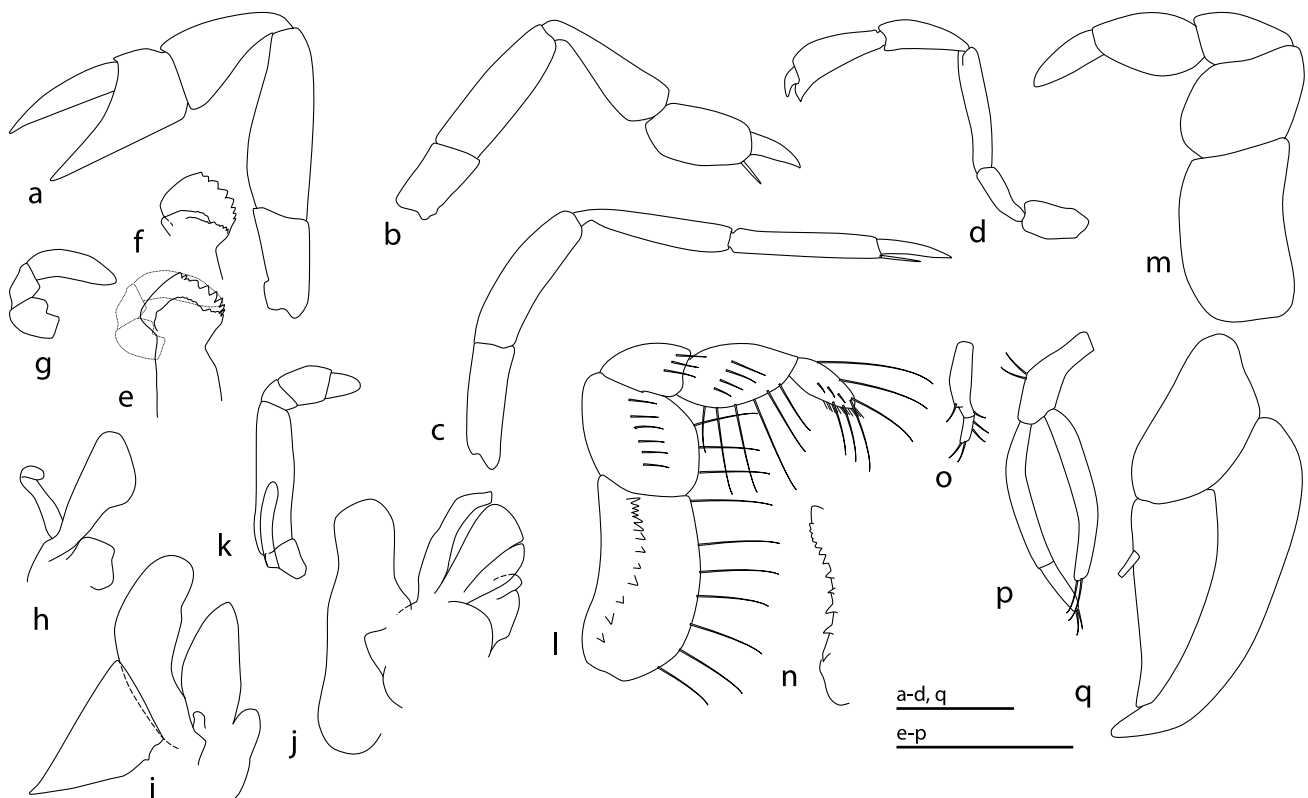


Figure 23. *Darryllianassa felderi* sp. nov. Papua New Guinea. MNHN IU-2017-1345, holotype female, 4.3 mm. a–d, pereopods 2–5; e, mandible (posterior view); f, mandible molar, incisor processes; g, mandibular palp; h, maxillule; i, maxilla; j, maxilliped 1; k, maxilliped 2; l, maxilliped 3 (inner view); m, maxilliped 3 (outer view); n, maxilliped 3 crista dentata (mesial view); o–q, pleopods 1–3. Scale bars = 1 mm.

on posterior margin indistinguishably merged with distal margin; dorsal plate reaching about halfway across exopod, of about 15 stiff setae; dorsal surface with 2 long setae and 1 small spiniform seta near distal anterior margin.

Telson 0.9 times as wide as long, broadest anteriorly, narrowing posteriorly to broadly rounded posterolateral corners; anterolateral lobes ventral to (overlapping) posterolateral margin; posterolateral corners each with 2 spiniform setae; posterior margin excavate, with minute median tooth; dorsal surface with few medial setae in row at 0.3 length.

Etymology. For Darryl L. Felder, University of Louisiana at Lafayette, Lafayette, Louisiana, honouring his considerable contribution to callianassid taxonomy and ecology, and his part in the study leading to this contribution.

Distribution. Eastern Coral Triangle (Papua New Guinea); 8–13 m (known only from type locality).

Remarks. The species is the only one in the genus and is immediately recognised by its equal chelipeds, each with fingers longer than the palm and with a deep groove and basal cavity on the cutting edge of the fixed finger.

Necallianassa Heard and Manning, 1998

Necallianassa Heard and Manning, 1998: 883–884.—Poore et al., 2019: 95.—Robles et al., 2020.—Poore and Ahyong, 2023: 212.

Trypaea.—Sakai, 2011: 385–387 (partim; not *Trypaea* Dana, 1852).

Remarks. *Necallianassa* was erected for three species from the Atlantic and Mediterranean (Heard and Manning, 1998), all with a distal spine on the anterior margin of the uropodal endopod. *Necallianassa acanthura* (Caroli, 1946) and *N. berylae* Heard and Manning, 1998 possess a strong spine at the posterolateral margin of the telson and another at the base of the longitudinal ridge on the uropodal exopod. *Necallianassa truncata* (Giard and Bonnier, 1890) differs from these two in that the uropodal endopodal spine is the only one but it is much smaller than in the other two species (Ngoc-Ho, 2003). Here, a new species from Madagascar in the Indian Ocean is described.

Necallianassa nosybeensis sp. nov.

<http://zoobank.org/urn:lsid:zoobank.org:act:6C594F1C-22DB-4ADD-8178-0EB02450F14B>

Figures 24, 25

Necallianassa MA-03.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Madagascar**, Nosy Bé, E of Hellville, at CNRO complex, 13.4069° S, 48.2917° E, intertidal mud to silty sand flat with some rocks (stn MGNW-31), UF 14624 (female, 4.4 mm). Paratypes. Collected with holotype, UF 14499# (male, 3.0 mm); UF 14500 (male, 3.6 mm)

Description. Female. Rostrum triangular, blunt, flat, situated level with dorsal carapace, about one-third length of eyestalks. Carapace dorsally flat, as long as pleomeres 1–2 combined; orbital margin almost transverse; anterolateral lobes insignificant; subanterolateral margin oblique; anterior margin of branchiostegite with shallow dorsal concavity; cervical groove across 0.75 length of carapace, deep at midpoint,

reaching linea thalassinica. Thoracic sternite 7 subpentagonal; ventral surface with obsolete posterior median groove. Pleomere 1 tergite flat dorsally, wider posteriorly. Pleomere 2 about as wide across posterior margin as long. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 about as long as wide, 1.2 times as long as pleomere 5.

Eyestalk about 1.2 times as long as wide, with dorsal face close to rostrum, anterolateral margin evenly tapering, convex, oblique, anteromedial angle rounded in dorsal view, reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, sitting in distal part of eyestalk.

Antennular peduncle reaching distal margin of antennal peduncle; article 1 visible in dorsal view; article 3 about as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.85 length of article 4; scaphocerite semicircular.

Maxilliped 3 coxa with small mesial tooth; ischium dilating distally, 1.1 times as long as wide, crista dentata consisting of row of 11 small, well-spaced teeth; merus half as long as ischium measured along outer margin, about 1.6 times as wide as long, with mesiodistal margin evenly convex; carpus about as long as merus outer margin; propodus oval, 1.3 times as long as wide; dactylus 0.9 times as long as propodus, elongate-oval, with dense row of short setae along flexor (lower) margin.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped carpus-palm upper margin 0.9 carapace length. Ischium expanding distally, upper margin unarmed; lower margin unarmed. Merus shorter than ischium, 2.5 times as long as wide (tooth excluded), subrectangular; upper margin weakly convex; lower margin with small tooth at about third length. Carpus 1.2 times as long as wide; margins carinate. Propodus upper margin 0.8 carpus length; palm almost parallel-sided, as long as wide; upper and lower margins with slight ridge; lateral surface smooth, convex, with concave gape; mesial surface convex; lower margin with row of setae extending onto fixed finger; fixed finger 0.7 length of palm, triangular; cutting edge with row of 5 spaced triangular teeth. Dactylus as long as fixed finger, hooked distally; upper margin with tufts of long setae; cutting edge with 8 rounded teeth, more closely spaced over distal two thirds.

Minor cheliped carpus-palm upper margin as long as carapace length. Ischium lower margin unarmed. Merus 0.9 length of ischium; margins smooth. Carpus parallel-sided over most of length, 1.5 times as long as merus, 2.1 times as long as wide. Palm square, as long as wide; upper margin barely convex; lower margin carinate, with row of long setae extending on to fixed finger. Fixed finger triangular, almost as long as palm, cutting edge with 7 triangular teeth over proximal two thirds. Dactylus as long as palm, curved; cutting edge smooth.

Pereopod 2 merus lower margin slightly sinusoidal, 2.5 times as long as wide; carpus 1.6 times as long as wide; chela subtriangular; palm 1.6 times as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 carpus subtriangular, twice as long as wide; propodus wider than long, with evenly curved lower margin, marginal setae evenly spaced, without gaps, with 1 short spiniform seta; dactylus shorter than propodus upper margin. Pereopod 4

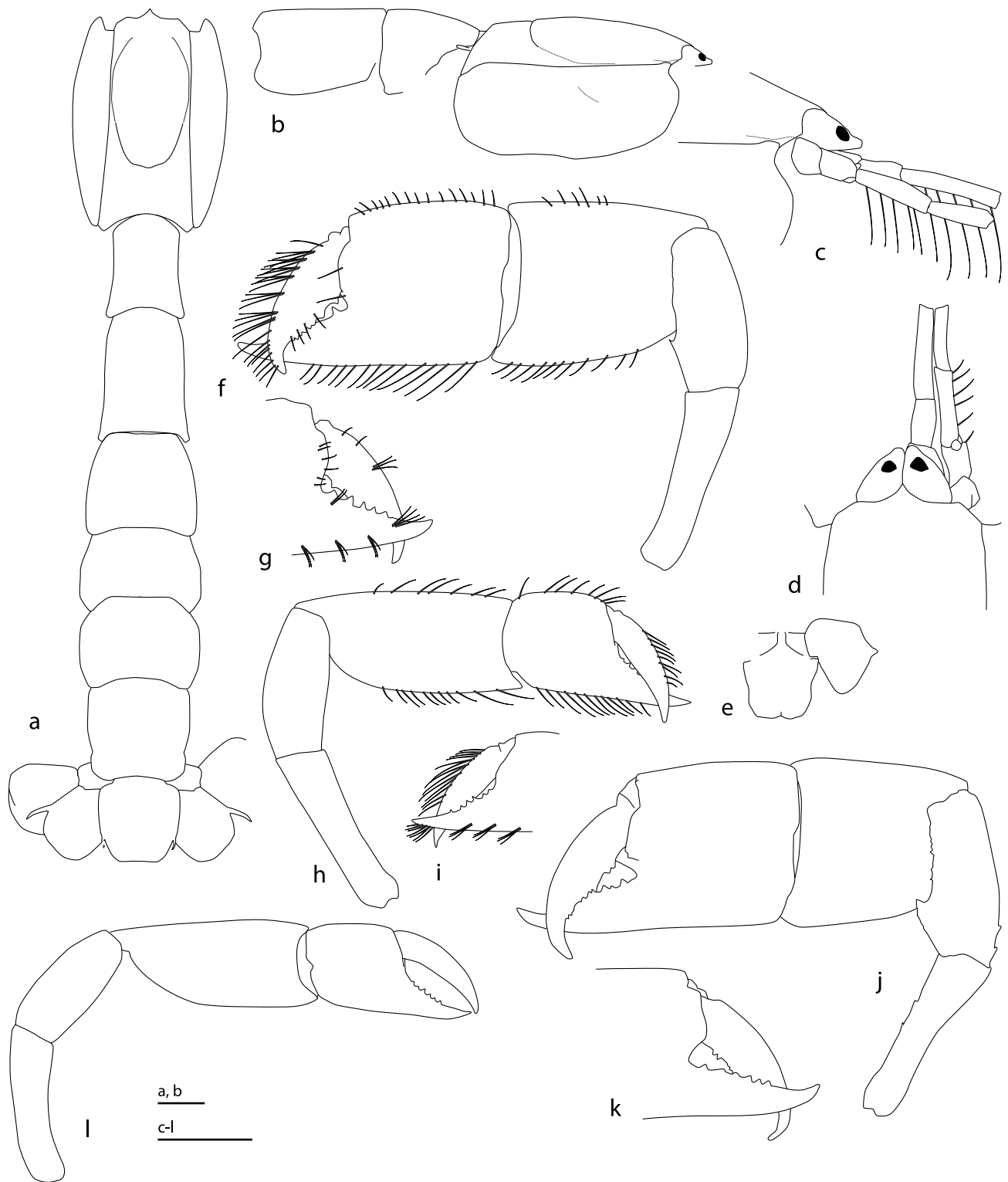


Figure 24. *Necallianassa nosybeensis* sp. nov. Madagascar. UF 14624, holotype female, 4.4 mm: a, carapace, pleon, telson, uropod endopods, dorsal; b, carapace, pleomeres 1, 2, lateral; c, d, anterior carapace, eyestalk, antennular, antennal peduncles; e, thoracic sternum 7, coxa 4; f, major cheliped (right, mesial view); g, major cheliped fingers (lateral view); h, minor cheliped (left, mesial view); i, minor cheliped fingers (lateral view). Paratype male, UF 14500: j, major cheliped (right, mesial view); k, major cheliped fingers (lateral view); l, minor cheliped (left, mesial view). Scale bars = 1 mm.

coxa flattened ventrally; carpus shorter than merus; propodus as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with long spiniform setae parallel to dactylus; dactylus half as long as propodus. Pereopod 5 slender, chelate.

Pleopod 1 of 2 articles; ramus about as long as peduncle, with 3 distal setae. Pleopod 2 biramous; peduncle slightly bent; endopod 0.7 length of exopod; endopod of 2 articles, second short. Pleopods 3–5 biramous, endopod 1.7 times as long as wide; appendix interna twice as long as wide, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

Uropod endopod and exopod scarcely overreaching posterior margin of telson. Endopod subcircular, about as long as wide; anterior margin straight, ending in sharp spine about 0.7 length of margin; posterodistal margins setose. Exopod widest at midpoint, about as long as wide; anterior margin straight; posterior margin with about 12 blade-like setae indistinguishably merged with densely setose distal margin; dorsal plate extending about 0.4 distance across exopod, scarcely differentiated from distal margin, comprising short stiff setae merging anteriorly with similar setae on distal margin; proximal plate with minute dorsal tooth.

Telson tapering, 1.3 times as long as wide, widest proximally, narrowing posteriorly to 1 minute and 1 posterolateral prominent curved spines; posterior margin concave, setose.

Male. Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped carpus-palm upper margin about as long as carapace length. Ischium expanding distally, upper margin unarmed; lower margin with 2 obsolete teeth. Merus about as long as ischium, 3 times as long as wide (tooth excluded), subrectangular; upper margin weakly convex, with 2 proximal teeth; lower margin with triangular tooth occupying proximal third, distally with irregular small teeth. Carpus as long as wide; margins carinate. Propodus upper margin 0.9 times as long as carpus; palm almost parallel-sided, as long as wide; upper and lower margins with slight ridge; lateral surface smooth, convex, with deep concave gape; mesial surface convex; fixed finger 0.7 length of palm, triangular; cutting edge with row of 6 irregular triangular teeth. Dactylus as long as fixed finger, hooked distally; cutting edge with irregular teeth, 2 forming a proximal molar.

Minor cheliped carpus-palm upper margin 0.8 carapace length. Ischium lower margin unarmed. Merus 0.8 length of

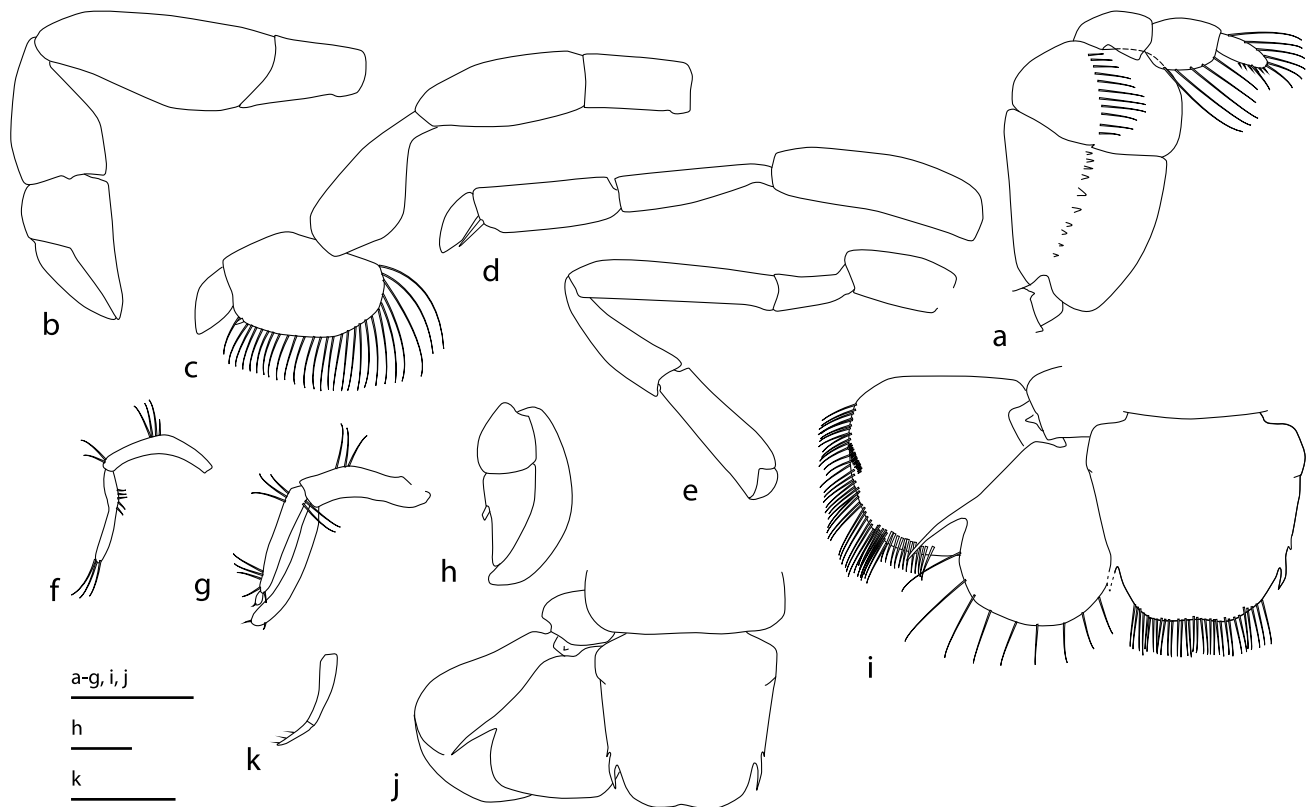


Figure 25. *Necallianassa nosybeensis* sp. nov. Madagascar. UF 14624, holotype female, 4.4 mm: a, maxilliped 3; b–e, pereopods 2–5; f–h, pleopods 1–3; i, telson, left uropod. UF 14500, paratype male; j, telson, left uropod. UF 14499, paratype male; k, pleopod 1. Scale bars = 1 mm.

ischium; margins smooth. Carpus parallel-sided over most of length, 1.5 times as long as merus, 2.3 times as long as wide. Palm square, as long as wide; upper margin barely convex; lower margin carinate. Fixed finger triangular, almost as long as palm, cutting edge with 6 triangular teeth over proximal half. Dactylus as long as palm, curved; cutting edge smooth.

Pleopod 1 small, curved, biarticulate. Pleopod 2 absent.

Etymology. From Nosy Bé, town in Madagascar, the type locality.

Distribution. Western Indian Ocean (Madagascar, known only from type locality); intertidal.

Remarks. The prominent spine at the base of the uropodal exopod found in *Necallianassa acanthura* (Caroli, 1946) and *N. berylae* Heard and Manning, 1998 (see Ngoc-Ho, 2003: fig. 8) is represented in *N. nosybeensis* by a minute tooth on the articulating proximal sclerite. The cheliped of the male of all previously described species possesses a strong meral hook and deep gape between the fingers; the cheliped of the two males in this collection have a relatively smaller tooth that is still more developed than the small spine of the female. The gape between the fingers is larger than in the female but not as much as in the other two species. *Necallianassa nosybeensis* differs from previously described species in having a row of triangular teeth along cutting edges of both fingers of the major cheliped and the fixed finger of the minor cheliped in both sexes. *Necallianassa nosybeensis* has a second minute posterolateral tooth on the telson; *N. acanthura* has one pair of spines, *N. berylae* has two similar spines, and *N. truncata* has none.

The new species was found close to *N. acanthura* and *N. truncata* in the molecular phylogram (Robles et al., 2020).

***Praedatrypaea* Poore, Dworschak, Robles, Mantelatto and Felder, 2019**

Praedatrypaea Poore et al., 2019: 97.—Robles et al., 2020: figs 1, 3, 6.—Poore and Ah Yong, 2023: 213.

Diagnosis. Rostrum acute, anteriorly directed, usually shorter than eyestalks. Pleomere 1 tergite divided into 2 sections by transverse step. Pleomere 6 with sublateral ventral sharp ridge, flared posteriorly (where observed). Antennular peduncle exceeded by all or at least half of antennal peduncular article 5; articles 2 and 3 with single lateral row of well-spaced long setae along lower margin. Antennal scaphocerite simple, longer than wide, acute. Maxilliped 3 merus wider at ischium-merus suture than long, with or without distal spine on distal free margin. Male major cheliped merus smooth or with tooth at midpoint or with row of teeth along lower margin. Pereopod 3 propodus oval, lower margin slightly convex, leading to narrow sharply rounded proximal lobe. Uropodal endopod ovoid, longer than wide, anterior margin straight, posterodistal margin evenly convex, usually with spiniform setae near anterior and distal margins. Uropodal exopod about 1.5–1.8 times as long as wide, distal margin clearly differentiated from anterior margin, anterodistal corner right-angled, posterodistal margin with row of 6–8 long blade-like setae proximal to long setae on distal

margin. Telson anterolateral lobe prominent, defined posteriorly by clear unchitinised region; posterior margin convex between posterolateral angles or with medial notch, with medial spine.

Remarks. Members of *Praedatrypaea* are recognised by the weak calcification between the anterolateral lobe and the remainder of the telson (fig. 27e, f), the prominent posterior median spine on the telson sitting in a shallow concavity (e.g. fig. 28d) or not (fig. 27d), and the lower margin of the merus of the chelipeds with one tooth at its midpoint (rarely more). Most species possess a tooth on the distal margin of the merus of maxilliped 3 (e.g. fig. 27h).

Robles et al. (2020) found three well-separated species (*P. praedatrix* [De Man, 1905], *P. propinqua* [De Man, 1905] and *P. MOZ-34*) to belong to a clade sister to all other callianassid genera. Poore et al. (2019) included the two described species plus *P. modesta* (De Man, 1905) and *P. longicauda* (Sakai, 1967), all originally described from Indonesia, in *Praedatrypaea*. *Praedatrypaea praedatrix* and *P. propinqua* have been recorded from localities other than from their type localities; both have been recorded from the North West Shelf of Australia and another new species described herein occurs there. A second species of *Praedatrypaea* from Mozambique represented by a single small individual without chelipeds is also described below. *Praedatrypaea modesta* is diagnosed below. In *P. longicauda* the distal tooth on maxilliped 3 is obsolete, but is otherwise too poorly known to be diagnosed or included in the key to species below.

All these species have a tooth on the merus of maxilliped 3. Three species lacking the maxillipedal 3 meral tooth included in *Pugnatrypaea* by Poore et al. (2019) are here transferred to *Praedatrypaea*: *P. orientalis* (Bate, 1888) **comb. nov.**, *P. intermedia* (De Man, 1905) **comb. nov.** and *P. lobetobensis* (De Man, 1905) **comb. nov.** All possess a weakly chitinised suture isolating the anterolateral lobe of the telson and a row of teeth along the lower margin of the major chelipeds, similar to other species. In addition, *P. ruiyui* (Liu, 2022) **comb. nov.**, described from the northern South China Sea, is transferred from *Pugnatrypaea*, in which it was originally included, for the same reasons. From its illustrations, the species is difficult to distinguish from *P. orientalis*.

These transfers bring to 13 the number of named species of *Praedatrypaea*. The genus varies in other ways besides the presence or absence of a meral tooth on maxilliped 3. The posterior margin of the telson ranges from convex to having a medial excavation, and the lower margin of the cheliped merus may have a single tooth at the midpoint or a row of teeth. This variability makes distinction from species of *Pugnatrypaea* difficult – *Pugnatrypaea* is restricted here to species with a basal spine on the merus of the major cheliped. In the light of this rearrangement, the diagnosis of the genus has been updated.

The telson and uropod of *Notiax bicauda* Sakai, 2010 from the Gulf of Tonkin, also included in *Pugnatrypaea* by Poore et al. (2019), are consistent with *Praedatrypaea* but its chelipeds are unknown. It remains a species inquirenda.

Key to ten species of *Praedatrypaea* (*P. bicauda*, *P. inhambane* and *P. longicauda* excluded)

1. Chelipeds with proximal tooth on upper margin of merus 2
 - Chelipeds without proximal tooth on upper margin of merus 3
2. Telson with convex lateral margins converging on pair of lobes (each as long as wide) separated by narrow median notch. Pereopod 3 propodus oval, 1.6 times as long as wide *P. lobetobensis*
 - Telson with straight lateral margins converging on pair of lobes (each shorter than wide) separated by concave median notch. Pereopod 3 propodus elongate-oval, twice as long as wide *P. intermedia*
3. Maxilliped 3 merus without tooth on distal margin *P. orientalis/P. ruiyui*
 - Maxilliped 3 merus with tooth on distal margin 4
4. Pereopod 3 propodus linear (4 times as long as wide). Major cheliped fingers with irregular teeth along cutting edges. Uropodal endopod with 3 long spiniform setae close to distoposterior margin *P. modesta*
 - Pereopod 3 propodus oval (2–4 times as long as wide). Major cheliped fingers with 1 tooth or smooth on cutting edge. Uropodal endopod without 3 long spiniform setae close to distoposterior margin (setae arranged otherwise) ... 5
5. Antennular peduncle reaching to end of antennal peduncle article 5. Telson as long as wide; anterolateral lobes near midpoint *P. mandu*
 - Antennular peduncle reaching to end of antennal peduncle article 4 or midway along article 5. Telson longer than wide; anterolateral lobes proximal to midpoint 6
6. Major cheliped carpus twice as long as wide *P. ningaloo*
 - Major cheliped carpus about as long as wide 7
7. Uropodal exopod rectangular, 1.6–1.9 times as long as wide *P. propinqua*
 - Uropodal exopod rectangular-oval, 1.4–1.5 times as long as wide 8
8. Telson 1.3 times as long as wide, posterior margin medially concave *P. praedatrix*
 - Telson 1.2 times as long as wide, posterior margin convex ... *P. jangamo*

***Praedatrypaea inhambane* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:DFE9A6D4-4E55-4070-9A5C-8573163E2951>

Figure 26

Material examined. Holotype. **Mozambique**, Mozambique Channel, Inhambane transect, 24° 15.70' S, 35° 42.20' E, 605–612 m

(MAINBAZA stn CC3165), MNHN IU-2008-10312# (female, 4.3 mm, without pereopods).

Diagnosis. Antennular peduncle reaching just beyond distal margin of antennal peduncle article 4. Maxilliped 3 ischium about 1.6 times as long as wide; merus subsquare, about 1.2 times as wide distally as long, with small tooth on transverse distal margin. Chelipeds unknown. Uropod endopod oval, 1.5 times as long as wide; anterior margin slightly convex, with 5 distal stout setae; distal margin convex; dorsal face without proximal spiniform setae. Uropod exopod widest subdistally, 1.3 times as long as wide; anterior margin almost straight, with few setae. Telson 1.4 times as long as wide, widest at strong lateral lobes at one sixth length; posterior margin convex, with median spine.

Description of female holotype. Rostrum acute, narrow in dorsal view, situated below level of dorsal carapace, 0.75 length of eyestalks. Carapace orbital margin almost transverse; anterolateral lobes triangular; subanterolateral margin steeply oblique. Pleomere 6 damaged.

Eyestalk 1.55 times as long as wide, with oblique dorsal face diverging from rostrum, anterolateral margin convex, thin, flange-like, not reaching distal margin of antennular peduncle article 1. Cornea with small separate pigmented ommatidia, sitting in midpart of eyestalk.

Antennular peduncle reaching one third way along antennal peduncle article 5; article 1 visible in dorsal view; article 3 shorter than articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.6 length of article 4; scaphocerite triangular in dorsal view.

Maxilliped 3 ischium subrectangular, about 1.6 times as long as wide, crista dentata flange-like, of row of about 20 uneven contiguous teeth (ischium triangular in cross-section); merus subsquare, 0.7 length of ischium measured along outer margin, about 1.2 times as wide distally as long, with small tooth on transverse distal margin; carpus about as long as merus outer margin; propodus tapering, 1.9 times as long as greatest width; dactylus 0.8 length of propodus, elongate-oval, with dense row of short setae along flexor (lower) margin.

Chelipeds, pereopods unknown.

Uropod endopod and exopod not overreaching posterior margin of telson. Endopod oval, 1.5 times as long as wide; anterior margin slightly convex; anterodistal margin with 5 subdistal spiniform setae; dorsal face unarmed. Exopod widest subdistally, 1.3 times as long as wide; anterior margin almost straight, with few setae; posterior margin with about 10 falcate setae indistinguishably merged with densely setose distal margin; dorsal plate differentiated from distal margin, comprising 2 or 3 rows of short and medium stiff setae merging anteriorly with similar setae on distal margin; dorsal face without spiniform seta.

Telson 1.4 times as long as wide, widest at strong lateral lobes at one sixth length; narrowing posteriorly to rounded corner leading to posterior margin; posterolateral margin convex, setose, with medial spine.

Etymology. From Inhambane, Mozambique, city near the type locality (noun in apposition).

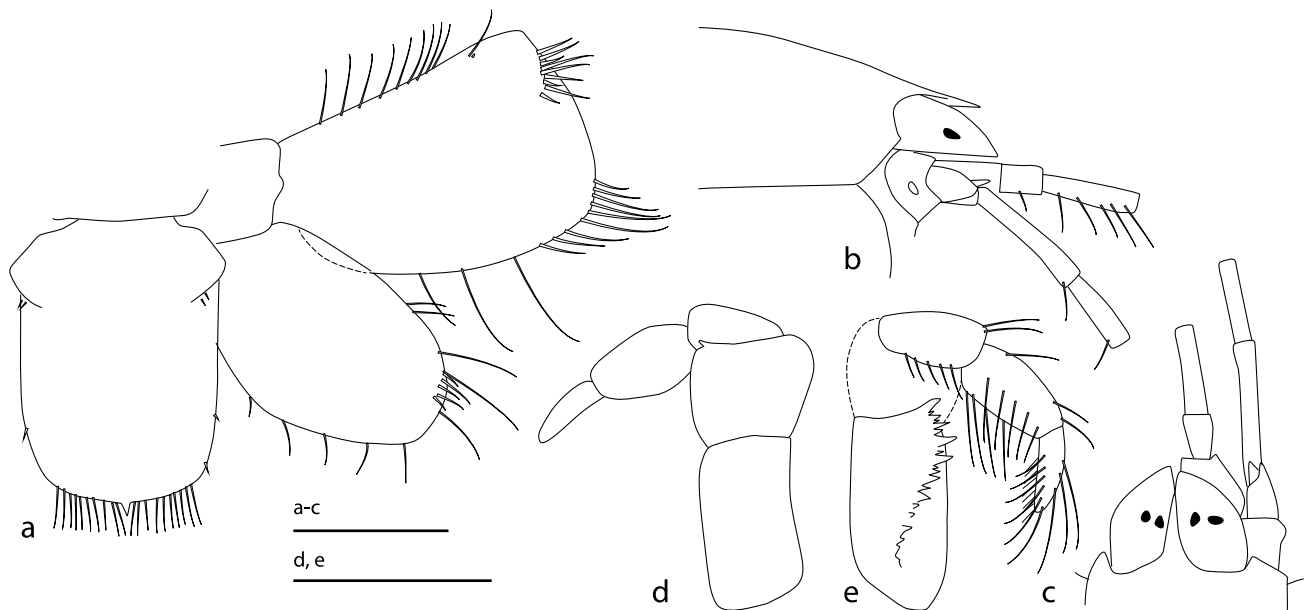


Figure 26. *Praedatrypaea inhambane*. Mozambique, MNHN IU-2008-10312, female, 4.3 mm: a, telson, right uropod; b, c, anterior carapace, antennular, antennal peduncles, eyestalks (lateral, dorsal views); d, maxilliped 3 (outer view, merus flattened); e, maxilliped 3 (inner view, merus flexed). Scale bars = 1 mm.

Distribution. Western Indian Ocean; 605–612 m (known only from type locality).

Remarks. A single incomplete specimen was referable to this genus on the basis of the maxilliped 3, telson, rostrum and antennae. It was taken close to the type locality of *P. jangamo* sp. nov. but at a greater depth. The specimen was much smaller than the type of *P. jangamo* and differed in the position of the tooth on the merus of maxilliped 3 and in shapes of the telson and uropod. The specimen differs from all other species in the mesial position of the tooth on the maxilliped 3 merus and the absence of facial setae on the uropodal rami.

***Praedatrypaea intermedia* (De Man, 1905) comb. nov.**

Callianassa intermedia De Man, 1905: 609–610.—Sakai, 1999: 46.—Tudge et al., 2000: 143.—Sakai, 2005: 86.

Callianassa (Cheramus) intermedia.—De Man, 1928b: 26, 98, 143–146, pl. 14 fig. 21.

Trypaea intermedia.—Sakai, 2011: 398–399.

Pugnatorypaea intermedia.—Poore et al., 2019: 138, 143.

Diagnosis. Antennular peduncle reaching distal margin of antennal peduncle article 4. Maxilliped 3 unknown. Chelipeds meri upper margins each with subproximal spine. Major cheliped merus lower margin with row of teeth; carpus about as long as wide; palm about twice as long as carpus, 1.3 times as long as wide; fingers with cutting edges with obsolete teeth in female, with irregular teeth in male. Uropod endopod 1.2 times as long as wide; anterior margin convex, with 2 distal stout setae; distal-posterior margin strongly convex distally; dorsal face with 3 distal long setae. Uropod exopod widest distally,

little longer than wide; anterior margin straight, not setose. Telson 1.15 times as long as wide, widest at strong lateral lobes at one-third length; posterior margin with obtuse medial depression, with medial spine; with 2 pairs of spiniform setae on posterolateral margins. Male pleopod 1 2-articled; pleopod 2 absent.

Distribution. Western Coral Triangle (known only from type locality: Indonesia, Bali Sea, 7° 46' S, 114° 30.5'E); 330 m.

Remarks. No material was examined – the species has not been recorded since its discovery. The diagnosis was prepared largely from the description and figures of De Man (1928a). Sakai (1999) observed that the holotype (not lectotype, as he stated) is a male, not a female. The presence of a tooth on maxilliped 3 merus is unknown.

***Praedatrypaea jangamo* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:801C7423-148A-4A4A-9249-0E3D2877BA9D>

Figure 27

Praedatrypaea MOZ-34.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Mozambique**, off Praia de Jangamo, 24° 8.33' S, 35° 42.07' E, 406–410 m (MAINBAZA stn CC3163), MNHN IU-2008-10313*# (male, 9.8 mm, without major cheliped).

Diagnosis. Antennular peduncle reaching distal margin of antennal peduncle article 4. Maxilliped 3 ischium about as long as wide; merus oval, about 1.35 times as wide as long, with tooth on convex distal margin. Chelipeds meri upper margins

each unarmed. Major cheliped unknown. Uropod endopod 1.5 times as long as wide; anterior margin straight, with about 10 distal stout setae; distal-posterior margin semicircular; dorsal face with 2–4 proximal spiniform setae, another 1–3 close to anterior margin and 1–3 distally. Uropod exopod widest distally, 1.4 times as long as wide; anterior margin convex, not setose. Telson 1.2 times as long as wide, widest at strong lateral lobes at one third length; posterior margin convex, with median

spine; with 1–3 pairs of spiniform setae on posterolateral margin; with 2 pairs of longitudinal rows of 2 spiniform setae. Male pleopod 1 2-articled; pleopod 2 biramous.

Description. Male. Rostrum acute, triangular in dorsal view, situated below level of dorsal carapace, half as long as eyestalks. Carapace dorsally convex, as long as pleomeres 1 and 2 combined; orbital margin almost transverse; anterolateral lobes

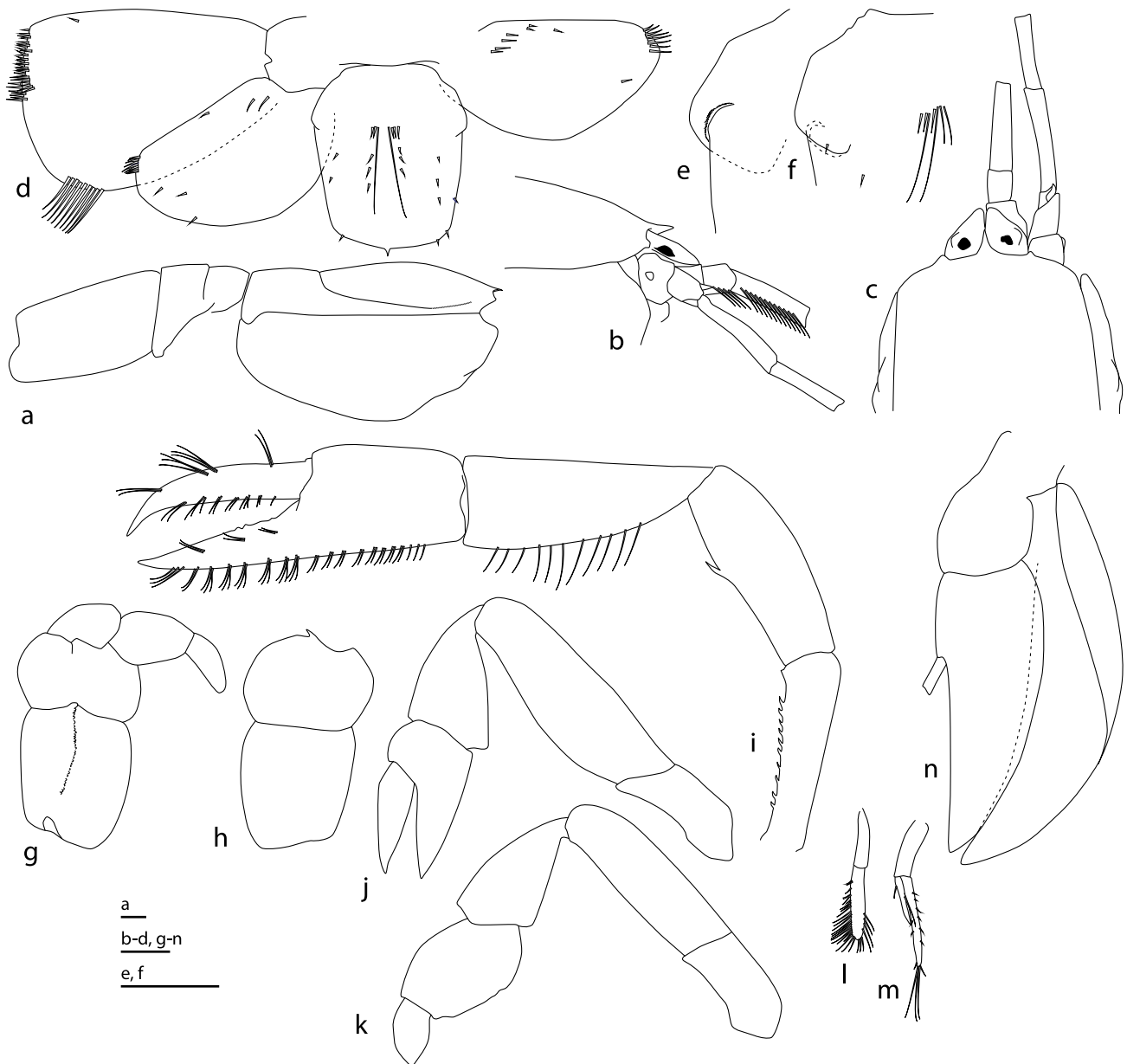


Figure 27. *Praedatrypaea jangamo* sp. nov. Mozambique, MNHN IU-2008-10313, holotype, male, 9.8 mm: a, carapace, pleomeres 1, 2 (lateral); b, c, anterior carapace, eyestalks, antennular, antennal peduncles (lateral, dorsal views); d, telson, left uropod, right uropodal endopod; e, telson, left anterolateral margin and lobe (oblique dorsoposterior view, posterior part of telson sitting in socket); f, telson, left anterolateral margin, lobe and setae on transverse ridge (dorsal view); g, maxilliped 3 (inner view); h, maxilliped 3 ischium, merus (outer view); i, minor cheliped (right, mesial view); j, k, pereopods 2, 3; l–n, pleopods 1–3. Scale bars = 1 mm.

rounded; subanterolateral margin oblique; cervical groove across 0.75 length of carapace, shallow at midpoint, almost reaching linea thalassinica. Pleon damaged; pleomere 6 with oblique shelf protruding from posteroventral margin.

Eyestalk little longer than wide, with oblique dorsal face diverging from rostrum, anterolateral margin convex, oblique, anteromedial angle rounded in dorsal view, not reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, sitting in proximal part of eyestalk.

Antennular peduncle reaching distal margin of antennal peduncle article 4; article 1 visible in dorsal view; article 3 about as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.75 length of article 4; scaphocerite comma-shaped in dorsal view.

Maxilliped 3 ischium subrectangular, about as long as wide, crista dentata consisting of row of about 30 uneven contiguous teeth; merus oval, 0.7 length of ischium measured along outer margin, about 1.35 times as wide as long, with mesiodistal margin evenly convex, with sharp mesially directed tooth; carpus about as long as merus outer margin; propodus tapering, 1.4 times as long as greatest width; dactylus 0.9 length of propodus, elongate-oval, with dense row of short setae along flexor (lower) margin.

Major cheliped unknown.

Minor cheliped carpus-palm upper margin 0.8 carapace length. Ischium lower margin with 10 similar teeth. Merus little longer than ischium; upper margin convex, smooth; lower margin with small tooth near midpoint. Carpus dilating, 1.15 times as long as merus, 2.8 times as long as wide. Palm 0.6 length of carpus, 1.3 times long as wide; upper margin barely convex; lower margin carinate, with row of setae extending onto fixed finger; fixed finger as long as palm, cutting edge obsoletely dentate. Dactylus longer than palm, curved distally; cutting edge smooth.

Pereopod 2 merus 3.2 times as long as wide; carpus 1.4 times as long as wide; chela subtriangular; palm 1.8 times as wide as upper margin; dactylus 2.4 times as long as palm upper margin. Pereopod 3 carpus subtriangular, twice as long as wide; propodus oval, longer than wide, with evenly curved lower margin, marginal setae in groups separated by gaps, with 1 short spiniform seta; dactylus 0.7 length of propodus upper margin. Pereopod 4 missing. Pereopod 5 chelate.

Pleopod 1 uniramous, article 2 longer. Pleopod 2 biramous, endopod half as long as exopod. Pleopods 3–5 biramous, endopod 2.6 times as long as wide; appendix interna narrow, 0.15 times as long as endopod.

Uropod endopod and exopod well overreaching posterior margin of telson. Endopod almost semicircular, 1.5 times as long as wide; anterior margin straight; anterodistal margin with about 10 subdistal spiniform setae; dorsal face with 2–4 proximal spiniform setae, another 1–3 close to anterior margin and 1–3 distally (slight differences between left and right endopods). Exopod widest distally, 1.4 times as long as wide; anterior margin convex, not setose; posterior margin with about 12 falcate setae indistinguishably merged with densely setose distal margin; dorsal plate moderately differentiated from distal margin, comprising 2 or 3 rows of

short and medium stiff setae merging anteriorly with similar setae on distal margin; dorsal face with short spiniform seta near anterior margin.

Telson 1.2 times as long as wide, widest at strong lateral lobes at one third length, narrowing posteriorly to rounded corner leading to posterior margin; posterolateral margin with 1–3 pairs of spiniform setae; posterior margin convex, setose, with medial spine; dorsal transverse ridge with 2 or 3 pairs of spiniform setae and long setae; dorsal surface with 2 pairs of longitudinal rows of 2 spiniform setae.

Etymology. From Praia de Jangamo, a local name in Mozambique near the type locality (noun in apposition).

Distribution. Western Indian Ocean (Mozambique Channel); 406–410 m.

Remarks. *Praedatrypaea jangamo* is known from a single male from deep water, two or three times as long as all other species. It is distinguished from other species by the broader uropodal rami and their pattern of spiniform setae. The rostrum is unusually short and the antennal article 5 longer than in other species.

Praedatrypaea lobetobensis (De Man, 1905) comb. nov.

Figures 1d, 28, 29

Callianassa lobetobensis De Man, 1905: 607.—Sakai, 1999: 48.—Tudge et al., 2000: 143.—Sakai, 2005: 91.

Callianassa (Cheramus) lobetobensis.—De Man, 1928b: 26, 93, 98, 137, pl. 13 fig. 20, pl. 14 fig. 20a–d.

Cheramus lobetobensis.—Sakai, 2011: 368.

Pugnatrypaea lobetobensis.—Poore et al., 2019: 138, 143.

Material examined. **Australia**, NT, Arafura Sea, 9° 12.331' S, 133° 38.903' E, 158 m, mud (CSIRO stn SS05/2005/032/BS006), AM P.74439 (ovigerous female, 5.3 mm, antennules missing; female, 3.2 mm). WA, North West Shelf, 16° 73.25' S, 119° 24.68' E, 695 m (CSIRO stn SS05/2007/73), NMV J60024 (juvenile, 1.6 mm); 16° 37.03' S, 120° 34.02' E, 410 m (CSIRO stn SS05/2007/12), NMV J6002 (juvenile, 1.5 mm); 9° 24.141' S, 134° 14.268' E, 97 m, muddy silt (CSIRO stn SS05/2005/014/GR023), AM P.74445 (damaged); 9° 7.587' S, 133° 25.289' E, 199 m (CSIRO stn SS05/2005/041/GR066), AM P.74470 (female, 3.0 mm). **Papua New Guinea**, Bismarck Sea, 03° 32' S, 148° 06' E, 540–586 m (MADEEP stn DW4248), MNHN IU-2015-109# (male, 3.3 mm).

Diagnosis. Antennular peduncle reaching distal margin of antennal peduncle article 4. Maxilliped 3 ischium about twice as long as wide; merus oval, about 1.5 times as wide as long, with tooth on oblique margin. Chelipeds meri upper margins each with subproximal spine. Major cheliped merus lower margin with spine at midpoint, or with 4 teeth over proximal half; carpus about as long as wide, or about twice as long as wide; palm about as long as or 1.5 times as long as carpus, 1.2 times as long as wide or about twice as long as wide; fingers, cutting edges with obsolete teeth. Uropod endopod 1.8 times as long as wide; anterior margin straight, with 2 small teeth, with 4 distal spiniform setae; distal-posterior margin strongly convex distally; dorsal face without facial setae. Uropod exopod rectangular, truncate distally, twice as long as wide; anterior margin straight, not setose. Telson 1.4 times as long as wide, widest at strong lateral lobes at one fifth length; posterior margin with 2

semicircular lobes separated by narrow notch filled by medial spine; with 2 pairs of spiniform setae on posterolateral margins. Male pleopod 1 2-articled; pleopod 2 biramous.

Supplementary description. Female. Rostrum laterally compressed, situated below upper level of carapace, with ventral convex keel-like carina, three quarters length of eyestalks. Carapace dorsally flat, as long as pleomeres 1–3 combined; orbital margin almost transverse; anterolateral

angle projecting, rounded; subanterolateral margin oblique; cervical groove across 0.7 length of carapace, reaching linea thalassinica. Pleomere 1 tergite waisted in dorsal view. Pleomere 6 about as long as wide, with ventrolateral projection.

Eyestalk 1.25 times as long as wide, with flat dorsal face, with sharp ventrolateral margin, anterolateral margin convex in dorsal view, not reaching distal margin of antennular peduncle article 1. Cornea terminal, occupying middle third of distal margin of eyestalk, darkly pigmented.

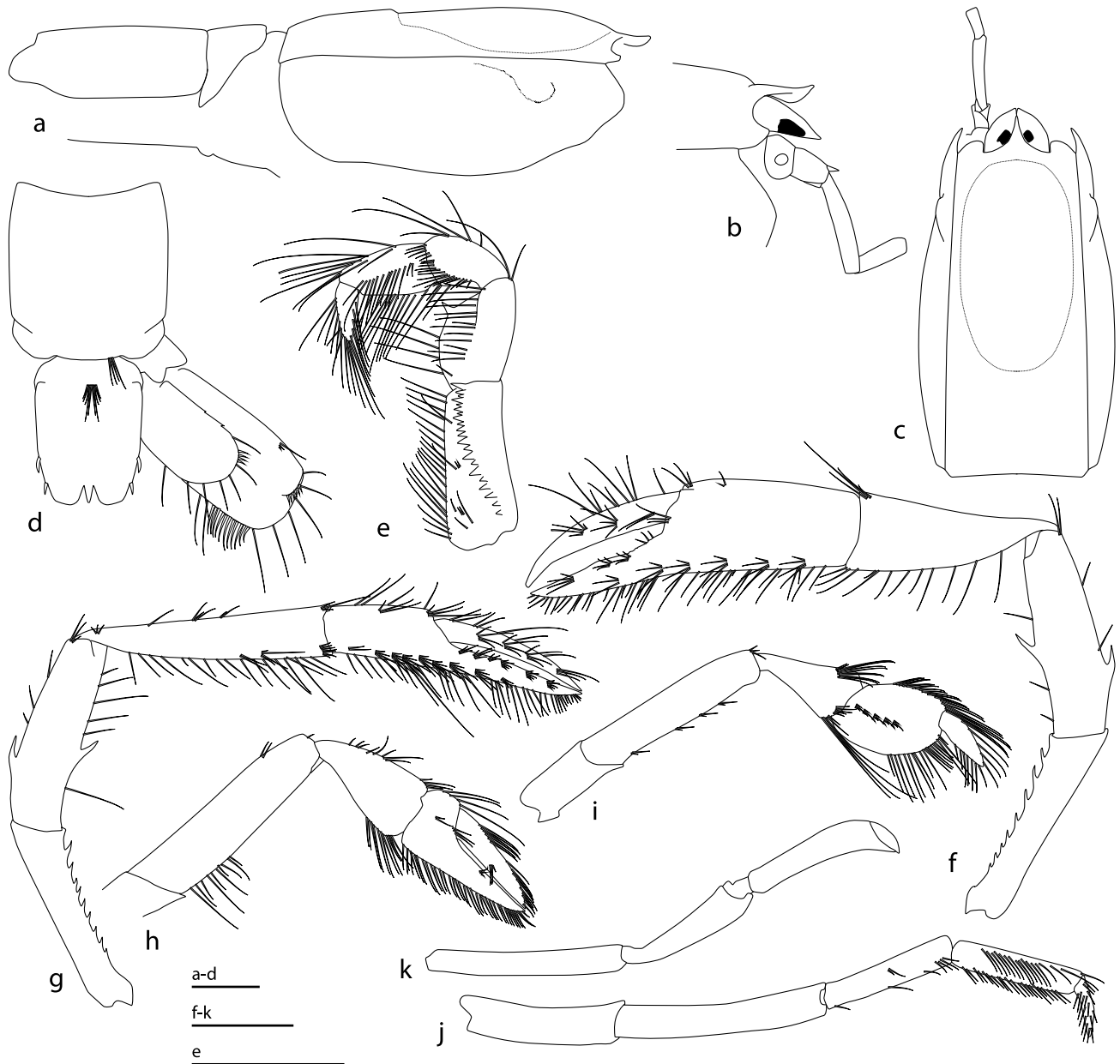


Figure 28. *Praedatrypaea lobetobensis* (De Man, 1905). Australia, Arafura Sea. AM P.74439, ovigerous female, 5.3 mm: a, carapace, pleomeres 1, 2; b, anterior carapace, eyestalk, antennal peduncle; c, carapace, eyestalks, left antennal peduncle; d, pleomere 6, telson, right uropod; e, maxilliped 3; f, major cheliped (right, mesial); g, minor cheliped (left, mesial); h–k, pereopods 2–5. Scale bars = 1 mm.

Antennular peduncle reaching distal margin of antennal peduncle article 4; article 1 clearly visible in dorsal and lateral views; article 2 shorter than article 1; article 3 as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of sparse long setae. Antennal peduncle article 5 0.6 length of article 4; scaphocerite minute, spiniform.

Maxilliped 3 ischium slightly tapering, 2.1 times as long as wide, crista dentata consisting of row of about 20 strong erect spines, stronger distally, overlapping distal margin; merus about 0.7 length of ischium measured along outer margin, about 1.45 times as long as wide, wider than ischium, with triangular tooth on mesiodistal margin; carpus slightly shorter than merus; propodus tapering, 1.9 times as long as wide; dactylus digitiform, 0.7 length of propodus, with long setae concentrated distally and along flexor margin.

Pereopods 1 (chelipeds) unequal, similar. Major cheliped linear, carpus-palm upper margin about as long as carapace length. Ischium slightly expanding distally, upper margin straight, unarmed; lower margin with row of 8 spines. Merus

about as long as ischium, 3 times as long as wide (spines excluded), slightly tapering distally; upper margin with 1 spine about one third way along; lower margin with oblique tooth near midpoint. Carpus 2.7 times as long as wide, elongate-triangular; upper margin smooth; lower margin convex. Propodus upper margin 0.9 length of carpus; palm slightly expanding distally, 1.9 times as long as wide; upper margin carinate; lateral surface smooth; mesial surface slightly convex; lower margin sharply carinate, with row of setae extending onto fixed finger; fixed finger 0.75 times length of palm, slightly depressed; cutting edge obscurely denticulate proximally. Dactylus as long as fixed finger, slightly curved; upper margin with few tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge smooth.

Minor cheliped similar to major but more slender; carpus-palm upper margin slightly shorter than carapace length. Ischium upper margin smooth, lower margin with row of 9 spines. Merus about as long as ischium; with teeth as in major. Carpus 5 times as long as wide, elongate-triangular. Propodus

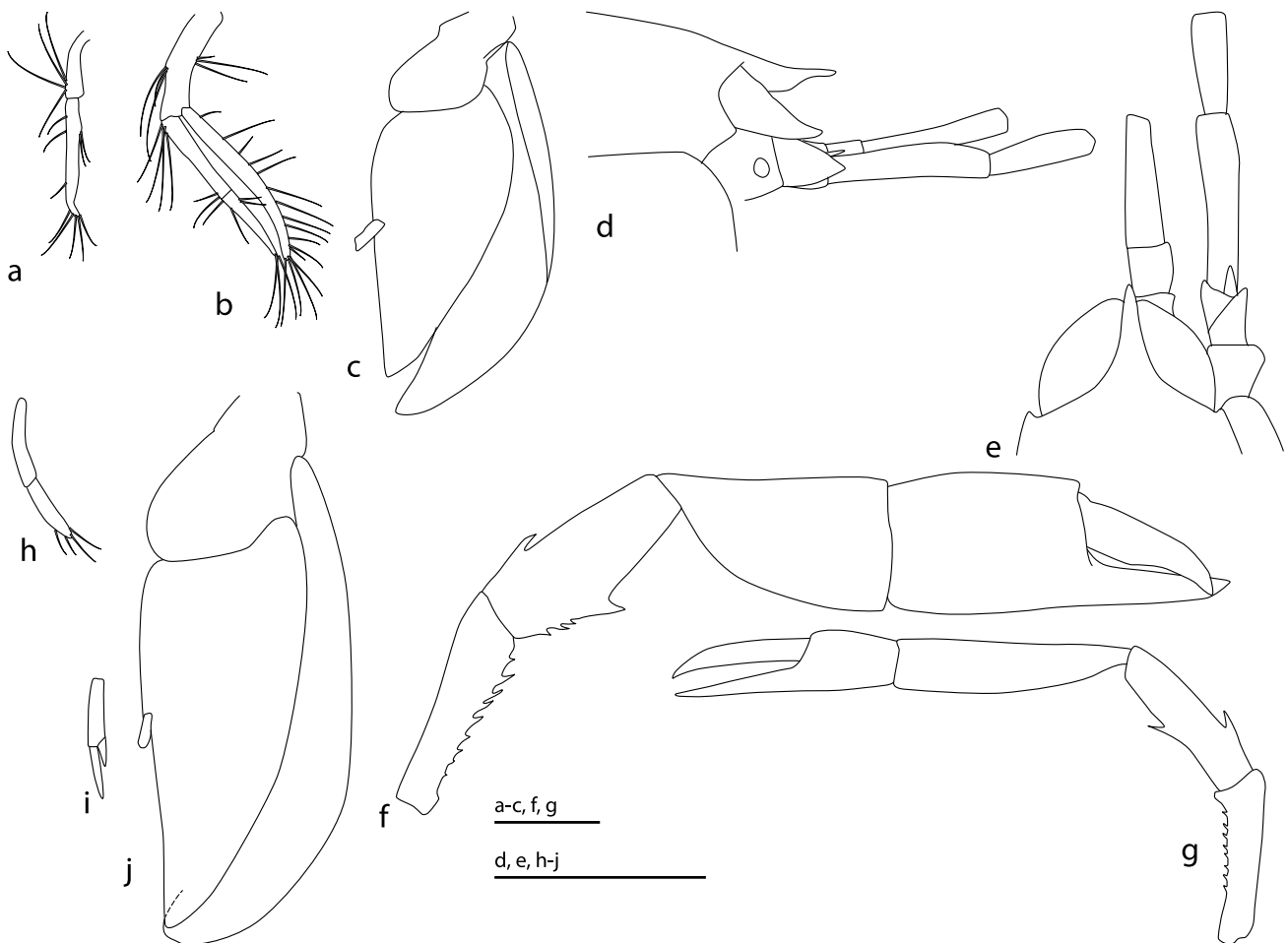


Figure 29. *Praedatrypa lobetobensis* (De Man, 1905). Australia, Arafura Sea. AM P.74439, ovigerous female, 5.3 mm: a–c, pleopods 1–3. Papua New Guinea, MNHN IU-2015-109, male, 3.3 mm: d, e, anterior carapace, eyestalk, antennular, antennal peduncles (lateral); f, major cheliped (left mesial); g, minor cheliped (right, mesial); h–j, pleopods 1–3. Scale bars = 1 mm.

upper margin 0.35 times as long as carpus; palm slightly expanding distally, 1.9 times as long as wide; upper margin carinate; lateral surface smooth; mesial surface slightly convex; lower margin sharply carinate, with row of setae extending onto fixed finger; fixed finger as long as palm, not depressed; cutting edge smooth. Dactylus as long as fixed finger, slightly curved; cutting edge smooth.

Pereopod 2 merus with almost parallel margins, 4.1 times as long as wide; carpus subtriangular, 1.9 times as long as wide; chela subtriangular; palm twice as wide as upper margin; dactylus 3.3 times as long as palm upper margin. Pereopod 3 carpus subtriangular, twice as long as wide; propodus oval with slight produced lower proximal margin, upper margin 1.2 times width, lower margin convex; dactylus nearly straight, 0.75 length of propodus upper margin. Pereopod 4 coxa flattened ventrally, immovable; basis and ischium partially fused, extended posterolaterally; merus 1.2 times as long as ischium; carpus 0.65 length of merus; propodus as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface; dactylus slightly curving, half as long as propodus. Pereopod 5 slender, with chela longer than carpus, slightly curving.

Female pleopod 1 of 2 articles. Female pleopod 2 subequally biramous; peduncle almost straight; exopod tapering distally, endopod of 2 articles. Pleopods 3–5 biramous, rami broad (endopod twice as long as wide); appendix interna slender, rod-like, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

Uropod exopod only overreaching posterior margin of telson. Endopod about 1.6 times as long as wide, oval with straight anterior margin bearing 2 minute teeth, with 4 distal spiniform setae; upper surface without slender or spiniform setae; posterodistal margin convex, with fringe of setae. Exopod rectangular, with convex truncate distal margin, 1.7 times as long as wide, exceeding endopod by about one third length; anterior margin almost straight, without setae; posterior margin with numerous slender setae, with 10 blade-like distal setae, indistinguishably merged with distal margin; upper surface with 1 long seta; dorsal plate shorter than half exopod width, with row of about 6 stiff setae grading into/separated from setal row of distal margin.

Telson suboval, 1.4 times as long as wide, broadest anterior to anterolateral lobes, narrowing posteriorly to pair of posterior lobes separated by deep notch including median spine; dorsal surface with few medial setae anterior to midlength; posterolateral margin with 2 prominent curved spiniform setae.

Male. Rostrum not as deep as in female. Pereopods 1 (chelipeds) unequal, similar. Major cheliped linear, carpus-palm upper margin little shorter than carapace length. Ischium slightly expanding distally, upper margin straight, unarmed; lower margin with row of 8 spines, increasing in size distally. Merus about as long as ischium, 2.5 times as long as wide (spines excluded), slightly tapering distally; upper margin with 1 spine about one third way along; lower margin with oblique tooth near midpoint, smaller ones proximally. Carpus 1.7 times as long as wide, elongate-triangular; upper margin smooth; lower margin convex. Propodus upper margin 0.8 length of carpus; palm widest at midpoint, 1.3 times as long as wide; upper margin

carinate; lateral surface smooth; mesial surface slightly convex; lower margin sharply carinate, with row of setae extending onto fixed finger; fixed finger 0.7 length of palm, straight; cutting edge smooth. Dactylus as long as fixed finger, slightly curved; cutting edge smooth. Minor cheliped as in female. Pleopod 1 2-articled. Pleopod 2 biramous; endopod half as long as exopod.

Distribution. Western and Eastern Coral Triangle, Sahul Shelf, Northwest Australian Shelf (Papua New Guinea, Bismarck Sea; Indonesia, Banda Sea [type locality: Savu Sea, 8° 27' S, 122° 54.5' E, 247 m]; Australia, NT and WA, Arafura Sea to North West Shelf); 158–695 m.

Remarks. The holotype of *Praedatrypaea lobetobensis* is an ovigerous female with a more robust major cheliped than the females examined here; the lower margin of the merus of the major cheliped has four teeth along its proximal half, whereas these specimens have a single spine. These differences are attributed to larger size (cl. 5.9 mm) and maturity than the females examined here.

Praedatrypaea lobetobensis is one of two species in the genus with a tooth on the upper margin of the merus of both chelipeds, the other being *P. intermedia* (De Man, 1905). Both were described from eastern Indonesian deep water. They differ in the shape of the telson, that of *P. lobetobensis* having convex lateral margins converging on a pair of lobes (each as long as wide) separated by a narrow median notch, while that of *P. intermedia* has straight lateral margins converging on a pair of lobes (each shorter than wide) separated by a concave median notch.

Praedatrypaea mandu sp. nov.

<http://zoobank.org/urn:lsid:zoobank.org:act:82790EBF-E2B2-42CA-8F0B-C732F534E188>

Figures 30, 31

Praedatrypaea propinqua.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Australia.** WA, Carnarvon Shelf, W of Mandu, Cape Range, 22.119°–22.121° S, 113.8424°–113.8418° E, 80 m (Geosciences Australia stn SOL4469_1_019_MAPS02, 18 Jun 2008), NMV J59650*# (ovigerous female, 2.6 mm). Paratypes, collected with holotype: NMV J59276 (male, 2.7 mm), NMV J72486 (female, incomplete, 2.8 mm), NMV J72487 (female, lacking pereopods 1–4, 2.8 mm). Other material. **Australia.** WA, northeastern North West Shelf to off Geraldton: 12.434° S, 123.601° E, 100 m (CSIRO stn SS05/2007/185), NMV J60030 (2); 19.79° S, 115.476° E, 102 m (CSIRO stn SS05/2007/24), NMV J60027 (ovigerous female, 2.8 mm; 3 males); 22.1188° S, 113.8209° E, 100 m (Geosciences Australia stn SOL4769_1_012_MAPS01), NMV J71758 (3 males, 2.4–3.5 mm, no chelipeds); 22.8486° S, 113.511° E, 100 m (CSIRO stn SS10/2005/135), NMV J53453 (male, 3.2 mm; ovigerous female, 3.1 mm); 22.8514° S, 113.513° E, 100 m (CSIRO stn SS10/2005/136), NMV J60031 (4); 28.986° S, 113.836° E, 117 m (CSIRO stn SS07/2005/109), NMV J60356 (male, 2.7 mm).

Diagnosis. Antennular peduncle reaching distal margin of antennal peduncle article 5. Maxilliped 3 ischium about 1.55 times as long as wide; merus oval, about 1.5 times as wide as long, with tooth on convex distal margin. Chelipeds meri upper margins each unarmed. Major cheliped merus lower margin

with spine at midpoint; carpus 1.4 times as long as wide; palm 1.15 times as long as carpus, 1.35 times as long as wide; fingers, cutting edges with obsolete teeth. Uropod endopod twice as long as wide; anterior margin slightly convex, with 4 distal stout setae; distal-posterior margin tapered, oblique; dorsal face with irregular row of 5 or 6 spiniform setae close to anterior margin. Uropod exopod rectangular, truncate distally, twice as long as wide; anterior margin straight, setose. Telson 0.85 as long as wide, widest at strong lateral lobes at midpoint; posterior margin convex, with median spine; without spiniform setae on posterolateral margins. Male pleopods 1, 2 absent.

Description. Female. Rostrum acute, narrow in lateral and dorsal views, situated below level of dorsal carapace, as long as eyestalks. Carapace dorsally flat, as long as pleomeres 1, 2 and half pleomere 3 combined; orbital margin almost transverse; anterolateral lobes rounded; subanterolateral margin oblique; cervical groove across 0.8 length of carapace, shallow at midpoint, reaching *linea thalassinica*. Pleomere 1 tergite flat dorsally, wider posteriorly. Pleomere 2 about as wide as long. Pleomeres 3–5 each wider than long; pleura each with patch of

plumose setae. Pleomere 6 1.15 times as long as wide, 1.3 times as long as pleomere 5; with oblique shelf protruding from posteroventral margin.

Eyestalk about as long as wide, with oblique dorsal face diverging from rostrum, anterolateral margin evenly tapering, oblique, anteromedial angle rounded in dorsal view, not reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, sitting in middle of eyestalk.

Antennular peduncle reaching distal margin of antennal peduncle article 5; article 1 visible in dorsal view; article 3 about as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.6 length of article 4; scaphocerite comma-shaped in dorsal view.

Maxilliped 3 ischium dilating over most of length, constricted distally, 1.55 times as long as wide, *crista dentata* consisting of row of about 25 uneven contiguous teeth; merus half as long as ischium measured along outer margin, about 1.5 times as wide as long, with mesiodistal margin evenly convex, with sharp mesially directed tooth; carpus about as long as merus outer margin; propodus tapering, 1.6 times as long as

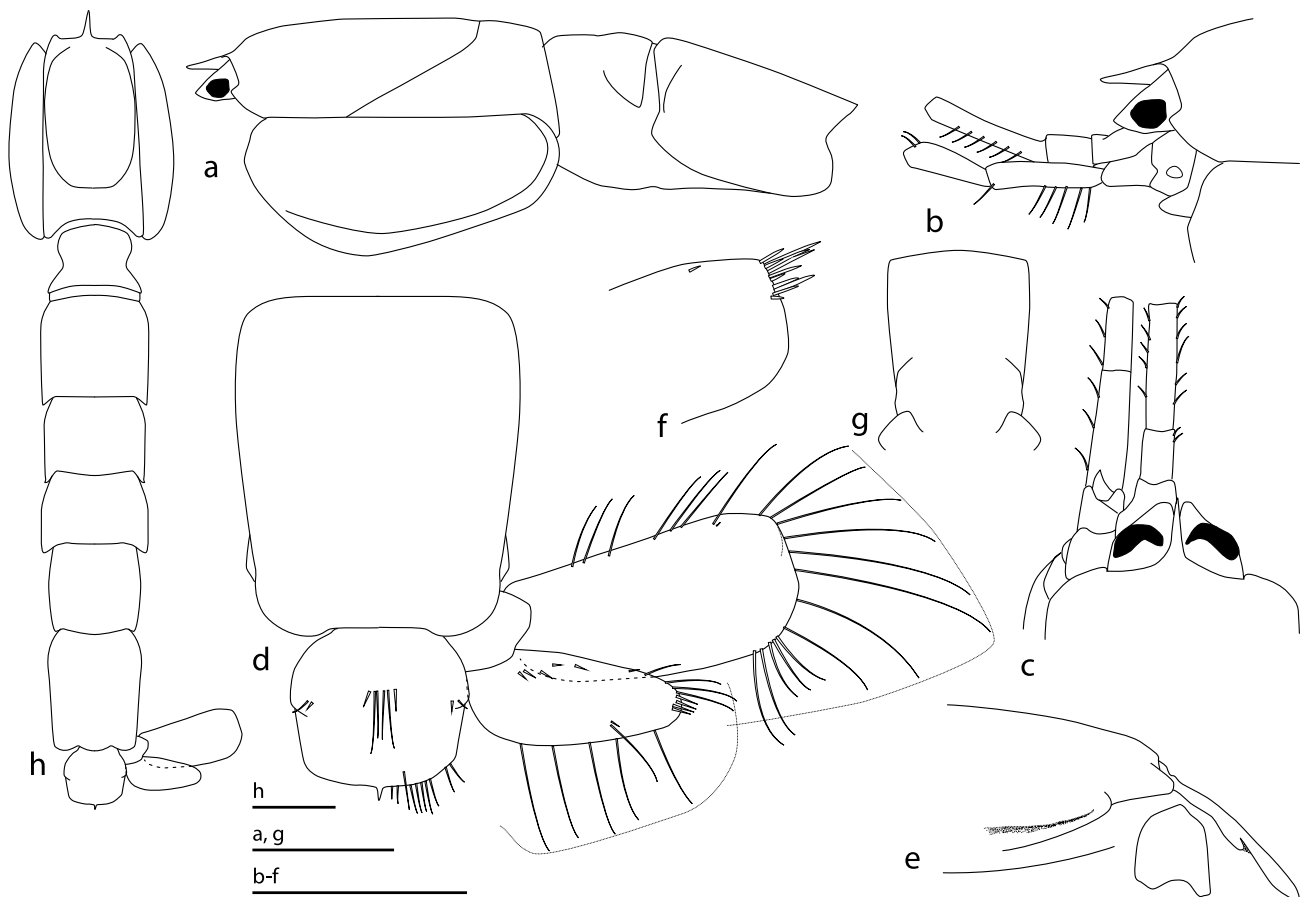


Figure 30. *Praedatrypaea mandu* sp. nov. Australia, Carnarvon Shelf. NMV J59650, holotype female, 3.3 mm: a, carapace, eyestalk, pleomeres 1, 2; b, c, anterior carapace, eyestalks, antennular, antennal peduncles (lateral, dorsal views); d, pleomere 6, telson, right uropod; e, pleomere 6, telson, uropod peduncle (left lateral view); f, uropod exopod (distal half, dorsal plate); g, pleomere 6, bases of uropod peduncles (ventral view). NMV J59276, paratype male, 3.5 mm: h, carapace, pleon, telson, uropod. Scale bars = 1 mm.

greatest width; dactylus 0.7 length of propodus, elongate-oval, with dense row of short setae along flexor (lower) margin.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped carpus-palm upper margin 0.9 carapace length. Ischium expanding distally, upper margin unarmed; lower margin with 9 spines increasing in length distally. Merus as long as ischium, 2.2 times as long as wide (tooth excluded), oval; upper margin convex; lower margin with small tooth at about two thirds length. Carpus 1.4 times as long as wide. Propodus upper

margin 1.15 times as long as carpus; palm 1.35 times as long as wide; upper margin convex; lateral surface smooth, convex, with concave gape; mesial surface convex; lower margin with row of setae extending onto fixed finger; fixed finger about as long as palm; cutting edge with 2 low teeth. Dactylus as long as fixed finger, curved; cutting edge with 2 low teeth.

Minor cheliped carpus-palm upper margin 0.9 carapace length. Ischium lower margin with 9 spines increasing in length distally. Merus as long as ischium; upper margin

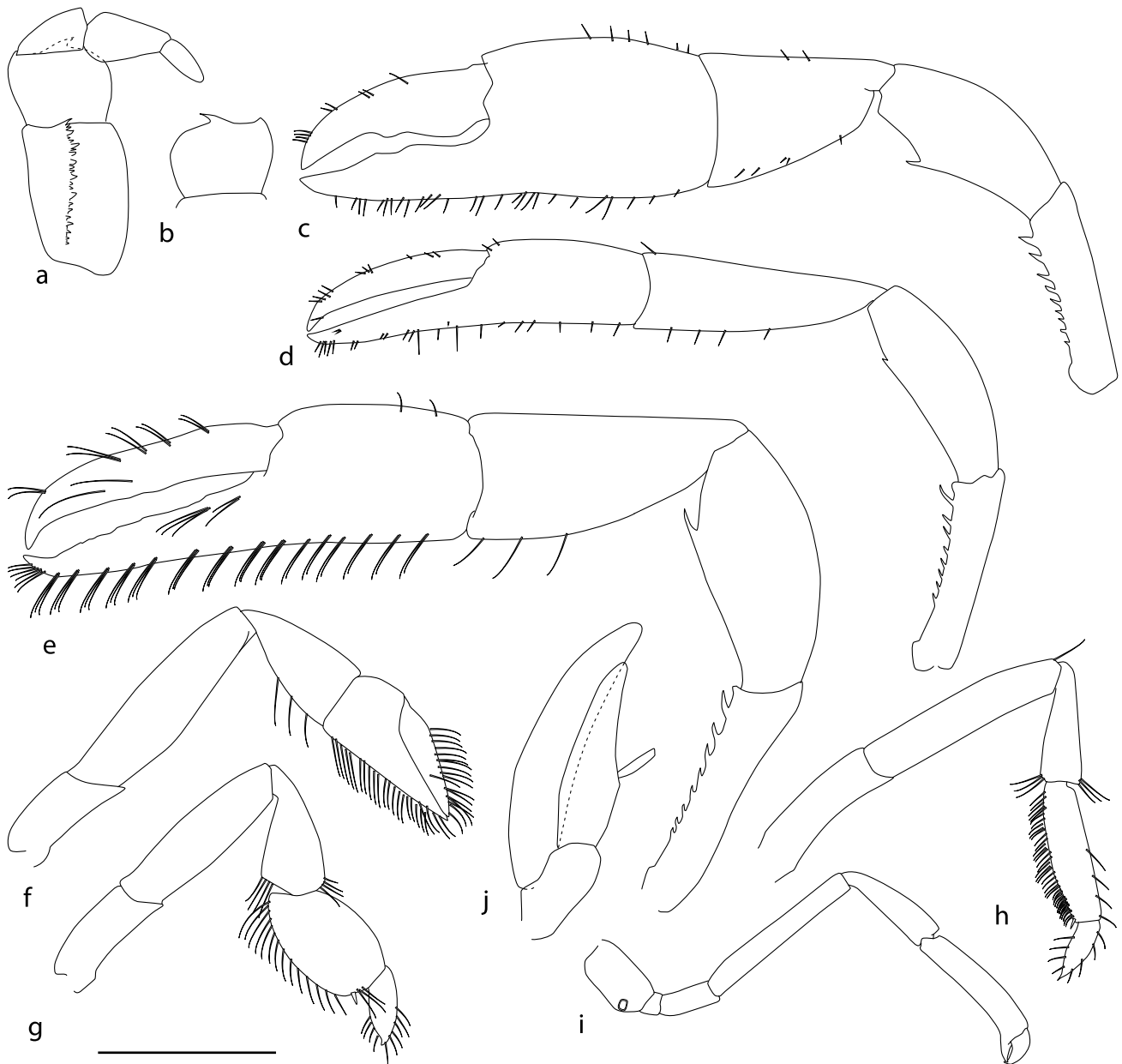


Figure 31. *Praedatrypaea mandu* sp. nov. Australia, Carnarvon Shelf. NMV J59650, holotype female, 3.3 mm: a, maxilliped 3 (inner view); b, maxilliped 3 merus (outer view); c, major cheliped (right, mesial view); d, minor cheliped (left, lateral view). NMV J59276, paratype male, 3.5 mm: e, minor cheliped (right, mesial view); f-i, pereopods 2-5; j, pleopod 3. Scale bar = 1 mm.

convex, smooth; lower margin with small distal tooth. Carpus dilating, 1.15 times as long as merus, 3 times as long as wide. Palm 0.6 length of carpus, twice long as wide; upper margin barely convex; lower margin carinate, with row of setae extending onto fixed finger; fixed finger longer than palm, cutting edge smooth. Dactylus longer than palm, curved distally; cutting edge smooth.

Pereopod 2 merus 3.8 times as long as wide; carpus twice as long as wide; chela subtriangular; palm 1.5 times as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 carpus subtriangular, twice as long as wide; propodus oval, longer than wide, with evenly curved lower margin, marginal setae evenly spaced, without gaps, with 1 short spiniform seta; dactylus 0.7 length of propodus upper margin. Pereopod 4 propodus longer than carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with short spiniform setae at base of dactylus; dactylus half as long as propodus. Pereopod 5 slender, chelate.

Pleopods 3–5 biramous, endopod 3.3 times as long as wide; appendix interna narrow, 0.25 length of endopod.

Uropod endopod and exopod well overreaching posterior margin of telson. Endopod subtriangular-oval, twice as long as wide; anterior margin slightly convex; anterodistal margin setose, with 4 subdistal spiniform setae; posterior margin with marginal setae; dorsal face with irregular row of 5 spiniform setae close to anterior margin. Exopod rectangular, truncate distally, twice as long as wide; anterior margin straight, setose; posterior margin with 5 falcate setae indistinguishably merged with densely setose distal margin; dorsal plate scarcely differentiated from distal margin, comprising about 12 short and medium stiff setae merging anteriorly with similar setae on distal margin; dorsal face with distal long seta and short spiniform seta near anterior margin.

Telson 1.15 times as wide as long, widest at strong lateral lobes at midpoint, narrowing posteriorly to rounded corner leading to transverse-convex posterior margin; posterior margin setose, with medial spine; lateral lobe with spiniform seta and long seta; transverse ridge with 1 pair of spiniform setae and long setae.

Male. Major cheliped unknown. Minor cheliped carpus-palm upper margin 0.9 carapace length. Ischium lower margin with 8 spines increasing in length distally. Merus almost as long as ischium; upper margin convex, smooth; lower margin with sharp distal tooth. Carpus 1.15 times as long as merus, 2.3 times as long as wide. Palm 0.65 length of carpus, 1.4 times long as wide; upper margin barely convex; lower margin carinate, with row of setae extending onto fixed finger; fixed finger 1.4 times as long as palm, cutting edge irregular. Dactylus longer than palm, curved distally; cutting edge smooth.

Pleopods 1 and 2 absent.

Etymology. From Mandu, a local name on Cape Range near the type locality (noun in apposition).

Distribution. Northwest Australian Shelf (Western Australia, northeastern North West Shelf to off Geraldton); 80–200 m.

Remarks. Two species of *Praedatrypaea* have been recorded from the North West Shelf of Australia: *Praedatrypaea*

praedatrix (De Man, 1905) by Sakai (1988) and *P. propinqua* (De Man, 1905) by Ngoc-Ho (1994); the latter was the name used erroneously in Robles et al.'s (2020) molecular study for a specimen from this region. Closer study reveals that the specimen from which tissue was taken is a new species, *P. mandu*, which differs from De Man's two species in having the peduncles of the antenna and antennule of similar lengths; the peduncles of the antenna are much longer in De Man's species. The telson of the new species is as long as wide, whereas those of De Man's species are longer than wide. The uropodal exopod of the new species is twice as long as wide but relatively wider in the other two species. The propodus of pereopod 3 is much narrower than that of the holotype of *P. propinqua* figured by De Man (1928a) and of that of material from New Caledonia (Ngoc-Ho, 1991).

The new species bears an uncanny resemblance to *C. brachytelson* Sakai, 2002 from the Andaman Sea, especially in the shape of the pleomere 6, telson, uropod and rostrum. Sakai's specimens lacked all pereopods. Sakai specifically noted the absence of a tooth on the merus of maxilliped 3, a feature of *P. mandu*.

Praedatrypaea modesta (De Man, 1905)

Callianassa (*Calliactites*) *modesta* De Man, 1905: 604.—De Man, 1928: 26, 97, 118–124, pl. 10 fig. 16, pl. 11 fig. 16.

Callianassa modesta.—Liu and Zhong, 1994: 562.—Sakai, 1999: 48.—Komai, 2000: 345 (list).—Tudge et al., 2000: 143.—Sakai, 1999: 48–49.

Cheramus modestus.—Sakai, 2011: 369.

Praedatrypaea modesta.—Poore et al., 2019: 139, 143.

Diagnosis. Antennular peduncle reaching midpoint of antennal peduncle article 5. Maxilliped 3 ischium about as long as wide; merus rectangular, dilating, about 1.2 times as wide as long, with tooth on convex distal margin. Chelipeds meri upper margins each unarmed. Major cheliped merus lower margin with spine at midpoint; carpus about as long as wide; palm 1.7 times as long as carpus, about as long as wide; fingers, cutting edges with irregular teeth along cutting edges (more prominent on fixed finger of male). Uropod endopod 1.6 times as long as wide; anterior margin convex, with 4 distal stout setae; distal-posterior margin tapered, oblique; dorsal face with 3 long spiniform setae close to posterior margin. Uropod exopod oval, 1.7 times as long as wide; anterior margin convex, setose. Telson as long as wide, widest at strong lateral lobes at one-third length; posterior margin convex, with median spine; with 2 pairs of spiniform setae on posterolateral margins. Male pleopod 1 2-articled; pleopod 2 biramous.

Distribution. South China Sea, Sunda Shelf (Southern China, Philippines, Malaysia, Indonesia [type locality: Elat, W coast Kai Besar, 27 m]); 27–310 m.

Remarks. De Man (1905) listed 12 specimens from four *Siboga* stations in Indonesia, from 27 to 310 m depth. De Man (1928a: 124) selected the largest female from *Siboga* stn 261 (Elat, west coast of "Great-Kei-Island" [Kai Besar], 27 m) as the lectotype. Sakai's subsequent (1999) lectotype designation of a male from *Siboga* stn 116 was unnecessary.

This diagnosis was based on De Man's (1928) figures supplemented by sketches of males and females from the Gulf

of Siam, Malaysia (ZMUC CRU-3832–CRU-3836; recatalogued in part as NHMD 81684) and from the MNHN Panglao expedition to the Philippines kindly shared by Peter C. Dworschak (pers. comm., 15 Jun 2018). *Praedatrypaea modesta* differs from others in the possession of three long facial spiniform setae near the posterodistal margin of the uropodal endopod and a rectangular (not oval) pereopod 3 propodus. The species is notable for the strong irregular teeth on the male major cheliped.

***Praedatrypaea ningaloo* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:9B78B4B5-0385-4AB5-AF1D-82F8C664CA6E>

Figure 32

Callianassa sp. MoV 4966.—Poore et al., 2008: 94.

Material examined. Holotype. **Australia**, North West Shelf, off Ningaloo North, 21.9781° S, 113.837° E, 106 m (CSIRO stn SS10/2005/162), NMV J53459 (female, 4.4 mm).

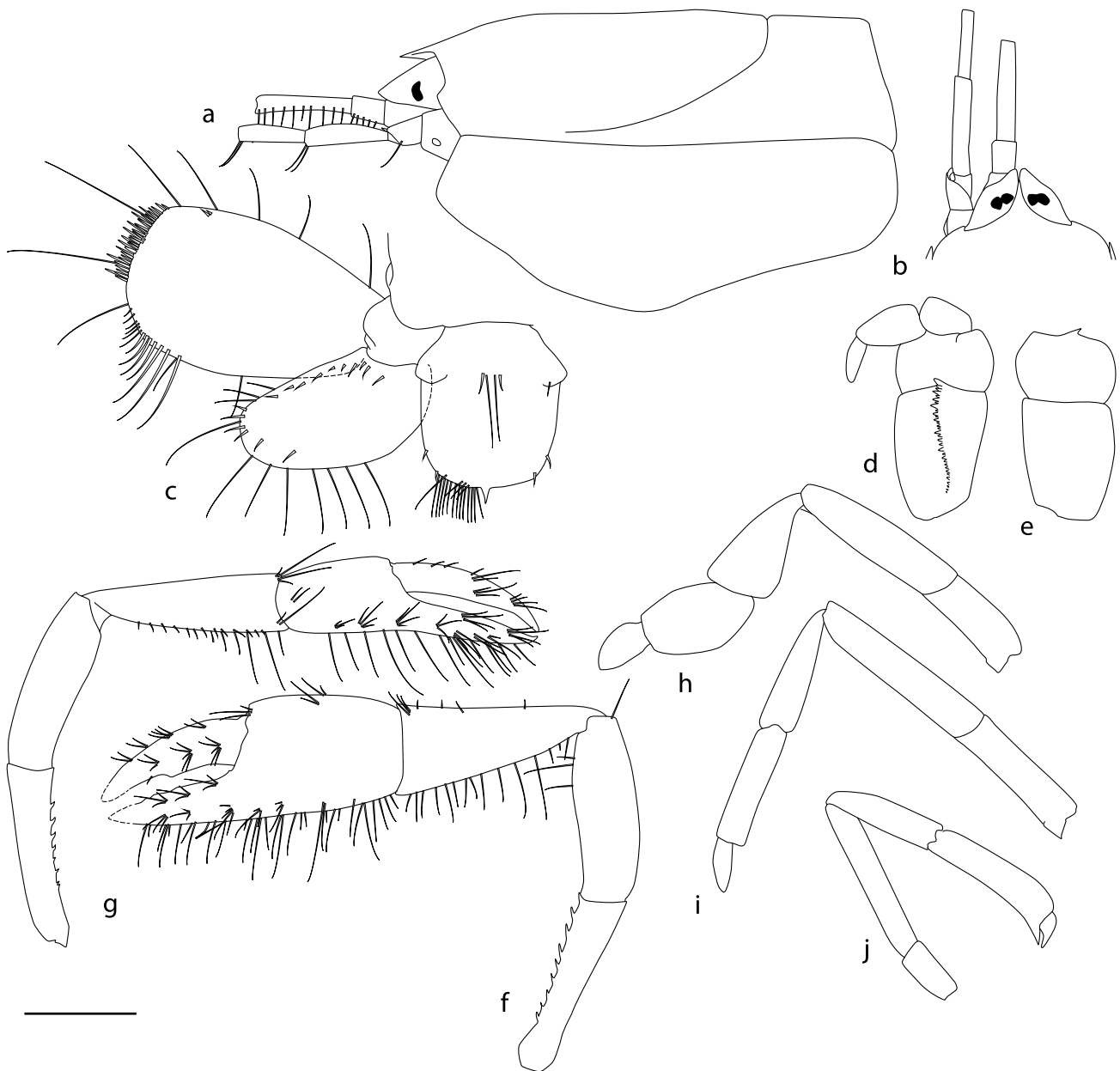


Figure 32. *Praedatrypaea ningaloo* sp. nov. Australia, North West Shelf. NMV J53459, holotype female, 4.4 mm: a, b, anterior carapace, eyestalks, antennular, antennal peduncles (lateral, dorsal views); c, pleomere 6, telson, left uropod; d, maxilliped 3 (inner view); e, maxilliped 3 ischium, merus (outer view); f, major cheliped (left, lateral view); g, minor cheliped (right, lateral view); h–j, pereopods 3–5. Scale bar = 1 mm.

Diagnosis. Antennular peduncle reaching midpoint of antennal peduncle article 5. Maxilliped 3 ischium about 1.3 times as long as wide; merus oval, about 1.5 times as wide as long, with tooth on convex distal margin. Chelipeds meri upper margins each unarmed. Major cheliped merus lower margin without spine at midpoint; carpus 2.3 times as long as wide; palm 1.7 times as long as carpus, 1.3 times as long as wide; fingers, cutting edges with obsolete teeth. Uropod endopod 1.4 times as long as wide; anterior margin straight, with 4 distal spiniform setae; distal-posterior margin evenly curved; dorsal face with curved row of 10 spiniform setae close to anterior margin, 2 more near posterodistal margin. Uropod exopod ovate, truncate distally, 1.7 times as long as wide; anterior margin convex, setose. Telson 1.1 times as long as wide, widest at strong lateral lobes at one-third length; posterior margin convex, with median spine; with 2 pairs of spiniform setae on posterolateral margins. Male pleopods 1, 2 unknown.

Description. Female. Rostrum acutely triangular in dorsal view, situated below level of dorsal carapace, 0.7 length of eyestalks. Carapace dorsally flat, as long as pleomeres 1, 2 combined; orbital margin oblique; anterolateral lobes rounded; subanterolateral margin oblique; cervical groove across 0.8 length of carapace, shallow at midpoint, almost reaching linea thalassinica.

Eyestalk about as long as wide, subtriangular in dorsal view, with oblique dorsal face diverging from rostrum, anterolateral margin slightly concave, oblique, anteromedial angle rounded in dorsal view, reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, sitting proximally on eyestalk.

Antennular peduncle reaching midpoint of margin of antennal peduncle article 5; article 1 barely visible in dorsal view; article 3 longer than articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.7 length of article 4; scaphocerite comma-shaped in dorsal view.

Maxilliped 3 ischium dilating over most of length, 1.3 times as long as wide, crista dentata consisting of row of about 35 uneven contiguous teeth; merus 0.65 length of ischium measured along outer margin, about 1.5 times as wide as long, with mesiodistal margin convex, with sharp mesially directed tooth; carpus little shorter than merus outer margin; propodus tapering, 1.7 times as long as greatest width; dactylus 0.65 length of propodus, elongate-oval, with dense row of short setae along flexor (lower) margin.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped carpus-palm upper margin 0.8 carapace length. Ischium expanding distally, upper margin unarmed; lower margin with 8 spines increasing in length distally. Merus as long as ischium, 2.9 times as long as wide; upper margin convex; lower margin unarmed. Carpus 2.3 times as long as wide. Propodus upper margin 0.7 length of carpus; palm 1.3 times as long as wide; upper margin convex; lateral surface smooth, convex; mesial surface convex; lower margin with row of setae extending onto fixed finger; fixed finger about as long as palm; cutting edge irregular. Dactylus as long as fixed finger, curved; cutting edge with 1 low step-like tooth.

Minor cheliped carpus-palm upper margin 0.7 carapace length. Ischium lower margin with 7 spines increasing in length distally. Merus as long as ischium; upper margin convex, smooth; lower margin unarmed. Carpus dilating, as long as merus, 3.4 times as long as wide. Palm half as long as carpus, 1.4 times long as wide; upper margin barely convex; lower margin carinate, with row of setae extending onto fixed finger; fixed finger longer than palm, cutting edge smooth. Dactylus longer than palm, curved distally; cutting edge smooth.

Pereopod 3 carpus subtriangular, twice as long as wide; propodus oval, longer than wide, with evenly curved lower margin, marginal setae evenly spaced, without gaps, with 1 short spiniform seta; dactylus 0.7 length of propodus upper margin. Pereopod 4 propodus as long as carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with short spiniform setae at base of dactylus; dactylus half as long as propodus. Pereopod 5 slender, chelate.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod suboval, 1.4 times as long as wide; anterior margin almost straight; anterodistal margin setose, with 4 subdistal spiniform setae; posterior margin with marginal setae; dorsal face with curved row of 10 spiniform setae close to anterior margin, 2 more near posterodistal margin. Exopod ovate, truncate distally, 1.7 times as long as wide; anterior margin convex; posterior margin with 7 falcate setae indistinguishably merged with densely setose distal margin; dorsal plate scarcely indistinguishable from distal margin, comprising short and medium stiff setae merging anteriorly with similar setae on distal margin; dorsal face with 2 short spiniform setae near anterior margin.

Telson 1.1 times as wide as long, widest at strong lateral lobes at one third length, narrowing posteriorly without angle to convex posterior margin; posterolateral margin with 2 spiniform setae; posterior margin setose, with medial spine; lateral lobe with short seta; transverse dorsal ridge with 1 pair of spiniform setae and long setae.

Etymology. From Ningaloo, name of the barrier reef near the type locality (noun in apposition).

Distribution. Northwest Australian Shelf (Western Australia, off Ningaloo; known only from the type locality); 106 m.

Remarks. The single female of *P. ningaloo* differs significantly from the two other species found on the Australian North West Shelf. Notably, the carpus of the major cheliped is more than twice as long as wide (about as wide as long in *P. mandu* and *P. propinqua*), the uropodal endopod has 12 facial spiniform setae in an irregular row close to the anterior and distoposterior margin (3 or 4 in a group in the other two species), and the uropodal exopod is ovate, 1.7 times as long as wide (more rectangular and narrower in the other two species). The dorsal armature of the uropodal endopod (several spiniform setae in a longitudinal row) of *Praedatrypaea ningaloo* resembles that of *P. praedatrix*, but the shorter antenna and the major cheliped with its elongate merus and carpus differ.

***Praedatrypaea orientalis* (Bate, 1888) comb. nov.**

Figures 1e, 33, 34

Cheramus orientalis Bate, 1888: 30, pl. 1 fig. 2.—Tudge et al., 2000: 145.—Sakai, 2011: 370.—Holthuis, 1991: 239 (type species designation of *Cheramus* – q.v. above).

Callianassa (Cheramus) orientalis.—Borradaile, 1903: 546.—De Man, 1928b: 9, pl. 1 fig. 2, 2a.—De Man, 1928a: 26, 93, 98, 119, 132, 137.

Callianassa orientalis.—Sakai, 1999: 49, fig. 5.—Sakai, 2005: 20, 95.

Callianassa malaccaensis Sakai, 2002: 492–496, figs 18, 19.—Sakai, 2005: 91–92. **Syn. nov.**

Cheramus malaccaensis.—Sakai, 2011: 368.

Pugnatrypaea orientalis.—Poore et al., 2019: 139, 143.

Material examined. **Australia**, NT, Arafura Sea, 9° 50.466' S, 135° 16.099' E, 80 m, muddy sand (CSIRO stn SS05/2005/005/GR006), AM P.74440 (male, 5.9 mm). 9° 22.63' S, 134° 12.83' E, 106 m, sandy mud (CSIRO stn SS05/2005/015/GR025), AM P.74441A (male, 6.5 mm). 9° 49.933' S, 135° 19.656' E, 83 m, calcareous mud (CSIRO stn SS05/2005/008/GR013), AM P.74444 (female, 3.5 mm). 9° 22.66' S, 134° 12.87' E, 70 m, sandy mud (CSIRO stn SS05/2005/015/BS004), AM P.74472 (male, 5.9 mm). 9° 48.774' S, 135° 15.412' E, 82 m, (CSIRO stn SS05/2005/010/GR017), AM P.74473 (female, 5.10 mm). 9° 47.593' S, 135° 16.636' E, 85 m, muddy sand (CSIRO stn SS05/2005/012/GR019), AM P.74476 (male, 3.5 mm; female, 3.3 mm). 9° 47.992' S, 135° 22.001' E, 92 m, calcareous mud (CSIRO stn SS05/2005/002/GR001), AM P.74477 (male, 4.9 mm). 9° 50.361' S, 135° 20.904' E, 87 m, muddy sand (CSIRO stn SS05/2005/006/GR008), AM P.74479 (female without chelipeds, 5.9 mm); 9° 47.986' S, 135° 22.007' E, 91 m, calcareous mud (CSIRO stn SS05/2005/002/GR002), AM P.74449 (1 incomplete); 9° 47.768' S, 135° 16.935' E, 84 m, rippled sand (CSIRO stn SS05/2005/011/GR018), AM P.74446 (2 females, incomplete, 3.1, 3.9 mm).

Diagnosis. Antennular peduncle reaching midpoint of antennal peduncle article 5. Maxilliped 3 ischium about twice as long as wide; merus oval, about as wide as long, without tooth on oblique margin. Chelipeds meri upper margins each unarmed. Major cheliped merus lower margin with spine at midpoint and few smaller proximal teeth in female, with spine at midpoint or row of teeth in male; carpus about as long as wide or longer than wide; palm 1.25 times as long as carpus, 1.2 times as long as wide; fingers, cutting edges with obsolete teeth in female, with irregular teeth in male. Uropod endopod 1.6 times as long as wide; anterior margin straight, with 5 distal spiniform setae; distal-posterior margin strongly convex distally; dorsal face with row of 5 spiniform setae close to anterior margin. Uropod exopod rectangular, truncate distally, 1.5 times as long as wide; anterior margin straight, not setose. Telson 1.15 times as long as wide, widest at strong lateral lobes at one-third length; posterior margin with shallow medial depression, with medial spine; with 2 pairs of spiniform setae on posterolateral margins. Male pleopod 1 2-articled; pleopod 2 biramous.

Supplementary description. **Male.** Rostrum acutely triangular in dorsal view, situated at level of dorsal carapace, 0.8 length of eyestalks. Carapace dorsally flat, as long as pleomeres 1–3 combined; orbital margin oblique; anterolateral lobes rounded; subanterolateral margin oblique; cervical groove across 0.75 length of carapace, shallow at midpoint, almost reaching linea thalassinica.

Eyestalk 1.2 times as long as wide, almost quadrant-shaped in dorsal view, with oblique dorsal face diverging from rostrum, anterolateral margin concave, anteromedial angle rounded in dorsal view, nearly reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, sitting near middle of eyestalk.

Antennular peduncle reaching near midpoint of antennal peduncle article 5; article 1 barely visible in dorsal view; article 3 longer than articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae.

Antennal peduncle article 5 0.6–0.7 length of article 4; scaphocerite comma-shaped in dorsal view.

Maxilliped 3 ischium almost parallel-sided over most of length, twice as long as wide, crista dentata consisting of row of about 20 uneven contiguous teeth; merus 0.6 length of ischium measured along outer margin, about as wide as long, with mesiodistal margin convex, oblique, without tooth; carpus little shorter than merus outer margin; propodus tapering, 1.4 times as long as greatest width; dactylus 0.75 length of propodus, elongate-oval, with dense row of short setae along flexor (lower) margin.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped carpus-palm upper margin 0.9 carapace length. Ischium expanding distally, upper margin unarmed; lower margin with 6 similar spines over middle third. Merus as long as ischium, 1.8 times as long as wide; upper margin convex; lower margin convex, with spine at midpoint or with 7 evenly spaced spines. Carpus about as long as wide. Propodus upper margin 1.2 times as long as carpus; palm about as long as wide; upper margin convex; lateral surface smooth, convex; mesial surface convex, with blunt boss or bifid tooth proximal to gape; lower margin with row of setae extending onto fixed finger; fixed finger two thirds as long as palm; cutting edge with irregular teeth over proximal half. Dactylus as long as fixed finger, curved; cutting edge with broad subproximal tooth, irregular crenellations over middle third.

Minor cheliped carpus-palm upper margin 0.65 carapace length. Ischium lower margin with minute teeth. Merus as long as ischium; upper margin convex, smooth; lower margin with tooth beyond midpoint. Carpus dilating, 1.6 times as long as merus, about 4 times as long as wide. Palm 0.4 times as long as carpus, 1.5 times long as wide; upper margin barely convex; lower margin carinate, with row of setae extending onto fixed finger; fixed finger longer than palm, cutting edge smooth. Dactylus about as long as palm, curved; cutting edge smooth.

Pereopod 2 merus 3.3 times as long as wide; carpus 1.7 times as long as wide; chela subtriangular; palm twice as wide as upper margin; dactylus 2.8 times as long as palm upper margin. Pereopod 3 carpus oval, 2.4 times as long as wide; propodus oval, 1.7 times as wide, with evenly curved lower margin, marginal setae in groups separated by gaps, with 1 short spiniform seta; dactylus 0.75 length of propodus upper margin. Pereopod 4 propodus longer than carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with short spiniform setae at base of dactylus; dactylus half as long as propodus. Pereopod 5 chelate.

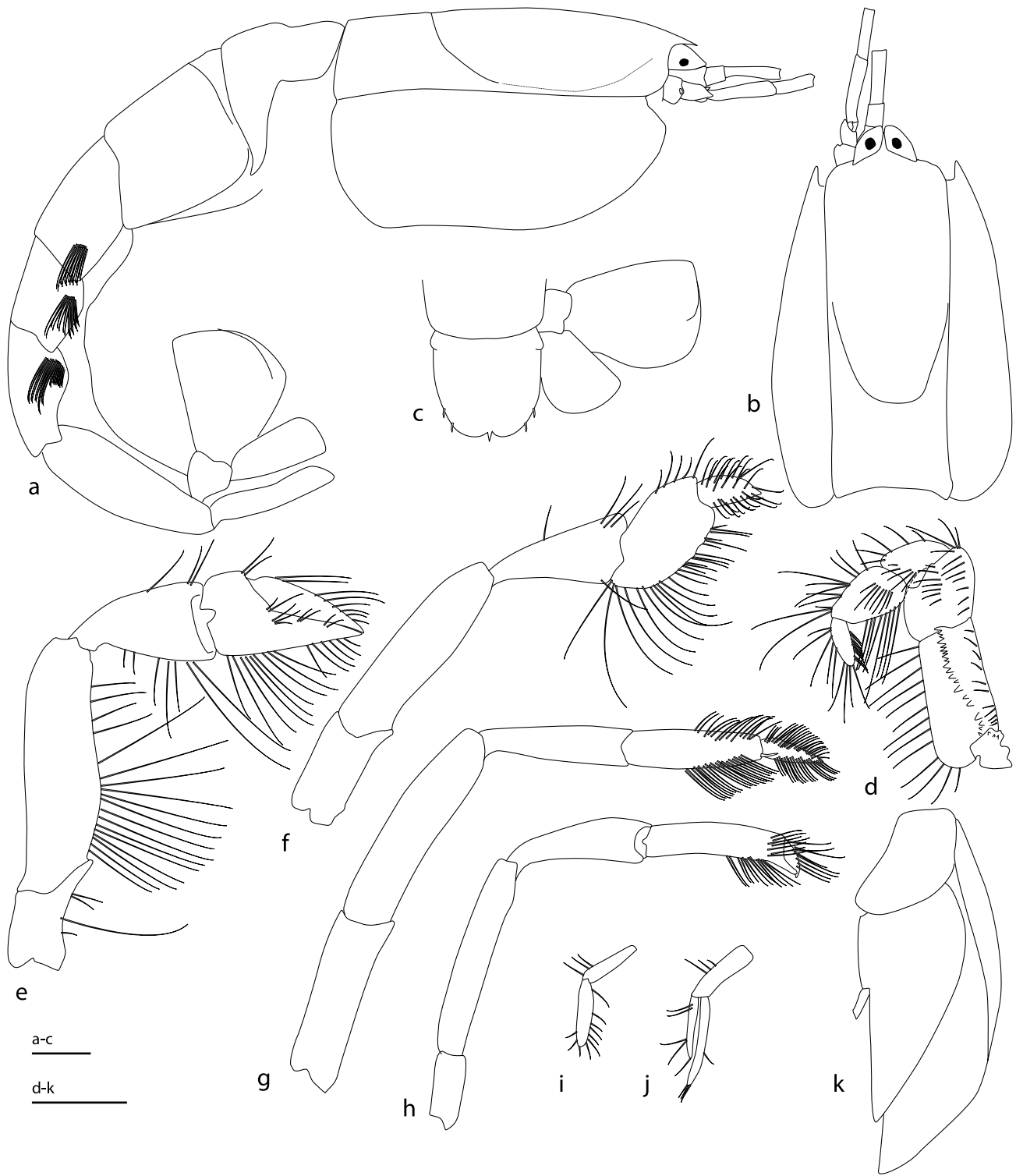


Figure 33. *Praedatrypaea orientalis* (Bate, 1888). Australia, Arafura Sea. AM P.74479, female, 5.9 mm: a, antennular, antennal peduncles, eyestalk, carapace, pleon, uropod (lateral); b, antennular, antennal peduncles, eyestalk, carapace (dorsal); c, telson, right uropod (setae not figured); d, maxilliped 3 (inner face); e–h, peropods 2–5; i–k, pleopods 1–3. Scale bars = 1 mm.

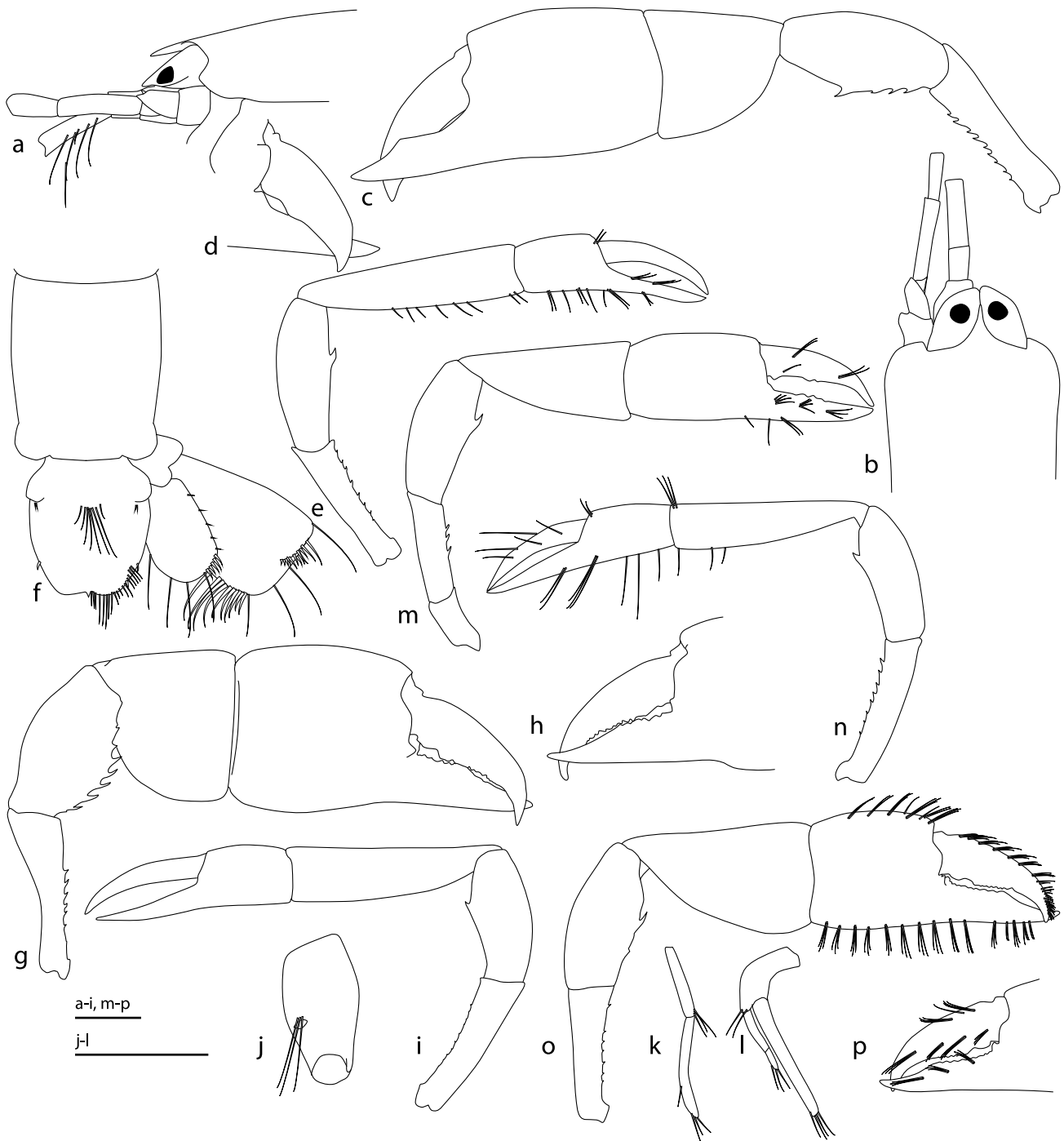


Figure 34. *Praedatrypaea orientalis* (Bate, 1888). Australia, Arafura Sea. AM P.74444, female, 5.9 mm: a, antennular, antennal peduncles, eyestalk, carapace (lateral); b, antennular, antennal peduncles, eyestalk, carapace (dorsal); c, major cheliped (right, mesial); d, major cheliped fingers (lateral); e, minor cheliped (left, mesial). AM P.74440, male, 5.9 mm: f, pleomere 6, telson, right uropod; g, major cheliped (left, mesial); h, major cheliped fingers (lateral); i, minor cheliped (right, mesial); j, pereopod 5 coxa (mesial); k, l, pleopods 1, 2. AM P.74476, male, 3.5 mm: m, major cheliped (left, mesial); n, minor cheliped (right, mesial). AM P.74472, male, 5.9 mm: o, major cheliped (left, mesial); p, major cheliped fingers (lateral). Scale bars = 1 mm.

Male pleopod 1 short, narrow. Pleopod 2 with endopod shorter than exopod.

Uropod endopod and exopod reaching posterior margin of telson. Endopod suboval, 1.6 times as long as wide; anterior margin almost straight; anterodistal margin setose, with 5 subdistal spiniform setae; posterior margin with marginal setae; dorsal face with row of 5 well-spaced short setae close to anterior margin. Exopod rectangular, truncate distally, 1.5 times as long as wide; anterior margin straight, not setose; posterior margin with 9 falcate setae indistinguishably merged with densely setose distal margin; dorsal plate scarcely indistinguishable from distal margin, comprising short and medium stiff setae merging anteriorly with similar setae on distal margin; dorsal face without spiniform setae.

Telson 1.15 times as long as wide, widest at strong lateral lobes at one third length, narrowing posteriorly without angle to paired convex posterior margin with medial notch bearing medial spine; with 2 pairs of spiniform setae on posterolateral margin; lateral lobe with 2 short setae posterior; transverse dorsal ridge with long setae.

Variation. The major cheliped of smaller males is less well developed, narrower and with obsolete teeth on the fingers (cf. fig. 34m with fig. 34g, k). The major cheliped merus of the two largest males differ, one with a row of teeth along the lower margin, the other with one prominent tooth and minute teeth (cf. fig. 34g, o). The major cheliped of the female has fewer teeth on the lower margin of the merus and simpler dentition on the fingers (fig. 34c, d).

Distribution. Sahul Shelf (Australia, NT, Arafura Sea); 51–106 m.

Remarks. The holotype of *Cheramus orientalis* Bate, 1888 is from the eastern Arafura Sea (9° 59' S, 139° 42' E, 28 fm [51 m]), very close to this new collection. Bate's description and figures are sketchy and can not be relied on. W.T. Calman's figures of the telson, uropod and maxilliped 3 of the holotype were included in De Man (1928a) and the carapace, pleomere 6, telson and uropod of the holotype were figured by Sakai (1999); all figures are consistent with the new material. Bate's holotype lacks chelipeds and other pereopods which are described and figured here. *Cheramus orientalis* Bate, 1888 was listed by Poore et al. (2019) as a member of *Pugnatrypaea*, mainly because it lacks the tooth on the merus of maxilliped 3 present in other species of *Praedatrypaea*. The telson does not have the deep posterior notch characteristic of *Pugnatrypaea*. Illustrations of *Pugnatrypaea ruiyui* Liu, 2022, from the northern South China Sea, are virtually identical to those of *Praedatrypaea orientalis* presented here. For the time being, it is treated as *Praedatrypaea ruiyui* (Liu, 2022) **comb. nov.**

Callianassa malaccaensis Sakai, 2002 is probably a synonym of *P. orientalis*. Sakai (2002) recognised the similarity between the two species, noting only slight differences in the relative lengths of the antennular and antennal peduncles and shape of the uropodal exopod, differences that appear within species variability. The telson, uropod, maxilliped 3, eyestalk, and antennae are quite similar. If so, the species range would extend into the Andaman Sea at similar depths.

Praedatrypaea praedatrix (De Man, 1905)

Figure 35

Callianassa praedatrix De Man, 1905: 607–608.—Ngoc-Ho, 1994: fig. 2a–c (holotype).—Sakai, 1999: 51.—Sakai, 2005: 100.

Callianassa (Cheramus) praedatrix.—De Man, 1928a: 26, 97, 99, 146–151, pl. 15 fig. 22.

Callianassa praedatrix.—Sakai, 1988: 59–61, fig. 4.

Cheramus praedatrix.—Tudge et al., 2000: 145.—Sakai, 2011: 370–371.

Praedatrypaea praedatrix.—Poore et al., 2019: 139, 143.—Robles et al., 2020: figs 1, 3, 6.—Dworschak, 2022: 252–253, fig. 1.

Material examined. **Egypt**, Dahab Lagoon, 28.48° S, 34.49° E, NHMW 24324 (ULLZ 10129)* (ovigerous female, 6.8 mm).

Diagnosis. Antennular peduncle reaching distal margin of antennal peduncle article 4. Maxilliped 3 ischium about 1.3 times as long as wide; merus oval, about 1.5 times as wide as long, with tooth on convex distal margin. Chelipeds meri upper margins each unarmed. Major cheliped merus lower margin with spine at midpoint, or with row of teeth; carpus 0.6 times as long as wide; palm 2.2 times as long as carpus, 1.2 times as long as wide; fingers, cutting edges with obsolete teeth. Uropod endopod 1.5 times as long as wide; anterior margin convex, with 4 distal stout setae; distal-posterior margin truncate distally, convex posteriorly; dorsal face with irregular row of 6 spiniform setae close to anterior margin, 1+3 spiniform setae close to posterodistal angle. Uropod exopod rectangular-oval, truncate distally, 1.5 times as long as wide; anterior margin straight, setose. Telson 1.3 times as long as wide, widest at strong lateral lobes at one third length; posterior margin with shallow medial depression, with medial spine; with 2 pairs of spiniform setae on posterolateral margins. Male pleopods 1, 2 unknown.

Distribution. Western Coral Triangle, Northwest Australian Shelf (Indonesia [type locality: Boton Strait, 75–94 m]; North West Shelf, Australia); 76–94 m. Other records doubtful.

Remarks. *Callianassa praedatrix* was described from a single female from Boton Strait, Indonesia. Tissue from a female from Egypt was identified as this species and contributed to the molecular treatment of Robles et al. (2020) and later figured by Dworschak (2022: fig. 1). Although taken far from the type locality, Dworschak (2022) identified the female based on the maxilliped 3, pleomere 6, uropods and pereopod 3. While the shape and setation of the uropodal rami of the Egyptian female are much as in De Man's (1928b) figure, the posterior of the telson is more rounded (Dworschak, 2022: fig. 1h) than truncate (De Man, 1928b: pl. 15 fig. 22; Ngoc-Ho, 1994: fig. 2). The identity of the Egyptian female is questionable.

Davie (2002) included the species in the Australian fauna based on Sakai's (1988) record of an ovigerous female lacking chelipeds and pleomere 6 and tailfan of *C. praedatrix* De Man, 1905 (now *Praedatrypaea praedatrix*) from the North West Shelf. His figures of the maxilliped 3 and pereopod 3 (relatively wider and narrower respectively than *P. propinqua*) support his identification.

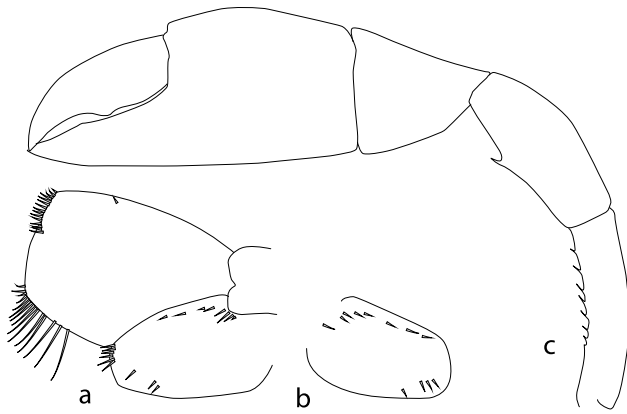


Figure 35. *Praedatrypaea praedatrix* (De Man, 1905). Egypt. NHMW 24324, ovigerous female, 6.8 mm: a, left uropod; b, right uropodal endopod; c, major cheliped (right, mesial view). Same scale.

Praedatrypaea propinqua (De Man, 1905)

Figure 36

Callianassa propinqua De Man, 1905: 609.—Ngoc-Ho, 1991: 290–292, fig. 4.—Sakai, 1999: 51.—Sakai, 2005: 100–101.

Callianassa (Cheramus) propinqua.—De Man, 1928a: 27, 98, 127, pl. 12 fig. 18.

Callianassa propinqua.—Ngoc-Ho, 1994: 54, fig. 2d–f.

Cheramus propinquus.—Tudge et al., 2000: 145.—Davie, 2002: 459.—Sakai, 2011: 371–372.

Lipkecallianassa sp. MoV 4960.—Poore et al., 2008: 96.

Praedatrypaea propinqua.—Poore et al., 2019: 139, 143.

Material examined. **Papua New Guinea**, off Cape Croisilles, 04° 53' S, 145° 49' E, 370 m (PAPUA NIUGINI stn DW4031), MNHN IU-2013-12310 (female, 5.0 mm). **Australia** WA, North West Shelf, between Timor Sea and off Ningaloo: 12.434° S, 123.601° E, 100 m (CSIRO stn SS05/2007/185), NMV J60028 (juvenile); 12.4343° S, 123.601° E, 100 m (CSIRO stn SS05/2007/186), NMV J60033 (2 females, 1.0 mm); 17.4408° S, 120.439° E, 200 m (CSIRO stn SS05/2007/94), NMV J60029 (female, 3.1 mm); 18° 50' S, 117° 39' E, 178 m (MV stn NWA 29), NMV J22660 (male, 2.1 mm; ovigerous female, 2.8 mm), 19° 5' S, 117° 26' E, 120 m (MV stn NWA 52), NMV J22661 (2 females, 2.8 mm); 19.7503° S, 115.367° E, 200 m (CSIRO stn SS05/2007/32), NMV J60026 (female, 3.9 mm); 21.986° S, 113.82° E, 165 m (CSIRO stn SS10/2005/153), NMV J53451 (ovigerous female, 3.8 mm); 22.079° S, 113.796° E, 201–206 m (CSIRO stn SS10/2005/146), NMV J53452 (4 females, 3.6 mm [one with Bopyridae in branchial chamber]); NMV J71760 (male, 4.0 mm).

Diagnosis. Antennular peduncle reaching midpoint of antennal peduncle article 5. Maxilliped 3 ischium about twice as long as wide; merus with lobed mesiodistal corner, about 1.2 times as wide as long, with tooth on convex distal margin. Chelipeds meri upper margins each unarmed. Major cheliped merus lower margin with spine at midpoint; carpus 1.0–1.2 times as long as wide; palm 1.4–1.7 times as long as carpus, 1.3–1.4 times as long as wide; fingers, cutting edges with obsolete teeth. Uropod endopod 1.5–1.7 times as long as wide; anterior margin convex, with two distal stout setae; distal-posterior

margin not differentiated from anterior margin, more convex distally; dorsal face with row of three (rarely four) spiniform setae proximally and close to anterior margin. Uropod exopod rectangular, truncate distally, 1.6–1.9 times as long as wide; anterior margin straight, setose. Telson 1.2–1.3 times as long as wide, widest at strong lateral lobes at about one quarter length; posterior margin convex, with median spine; with two pairs of spiniform setae on posterolateral margins. Male pleopod 1 2-articled or filiform; pleopod 2 biramous or minuscule.

Distribution. Tropical Southwestern Pacific, Western and Eastern Coral Triangle, Sahul Shelf, Northwest Australian Shelf (New Caledonia; Indonesia [type locality: North Sulawesi, Kwandang Bay, 75 m]; Papua New Guinea; Australia, northwestern WA); 75–300 m.

Remarks. *Callianassa propinqua* was described from Kwandang, North Sulawesi, Indonesia at 75 m (De Man, 1905) and has been subsequently reported from New Caledonia (Ngoc-Ho, 1991) and the North West Shelf of Australia (Ngoc-Ho, 1994), where it seems relatively common. Some of the ratios of and between articles used to diagnose the species are variable between individuals.

The male from New Caledonia differs from the Indonesian and Australian specimens in having several teeth along the lower margin of the major cheliped merus and a rounder merus of maxilliped 3. This male possesses a two-articled male pleopod 1 and a biramous pleopod 2; the only male from Australia has a filiform pleopod and minuscule bud-like pleopod 2 (fig. 36h).

Pugnatorypaea Poore, Dworschak, Robles, Mantelatto and Felder, 2019

Pugnatorypaea Poore et al., 2019: 97–98.—Robles et al., 2020: figs 1, 3, 6.—Poore and Ahyong, 2023: 213.

Diagnosis. Rostrum acute, anteriorly directed, almost as long as eyestalks. Pleomere 1 tergite fused, divided into 2 sections by transverse step. Pleomere 6 flared posteriorly. Cornea with scattered reduced pigmentation. Antennular peduncle exceeded by all of antennal peduncular article 5 or not exceeding article 5; articles 2 and 3 with single lateral row of well-spaced long setae along lower margin. Antennal scaphocerite simple, longer than wide, acute. Maxilliped 3 merus distally almost transverse with obtuse angle between distal and mesial margins, as long as or longer than wide at ischium-merus suture, without distal spine on distal free margin. Male major cheliped merus with simple proximal hook on lower margin. Pereopod 3 propodus oval, lower margin convex, leading to narrow sharply rounded proximal lobe. Male pleopod 2 present or absent. Uropodal endopod ovoid, longer than wide, anterior margin straight, posterodistal margin evenly convex, with long facial spiniform setae on rib. Uropodal exopod about 1.8 times as long as wide, distal margin clearly differentiated from anterior margin, anterodistal corner right-angled, posterodistal margin with row of 6–8 long blade-like setae proximal to long setae on distal margin. Telson anterolateral lobe obsolete, undefined; telson tapering over distal third to pair of lobes separated by deep notch, with medial spine.

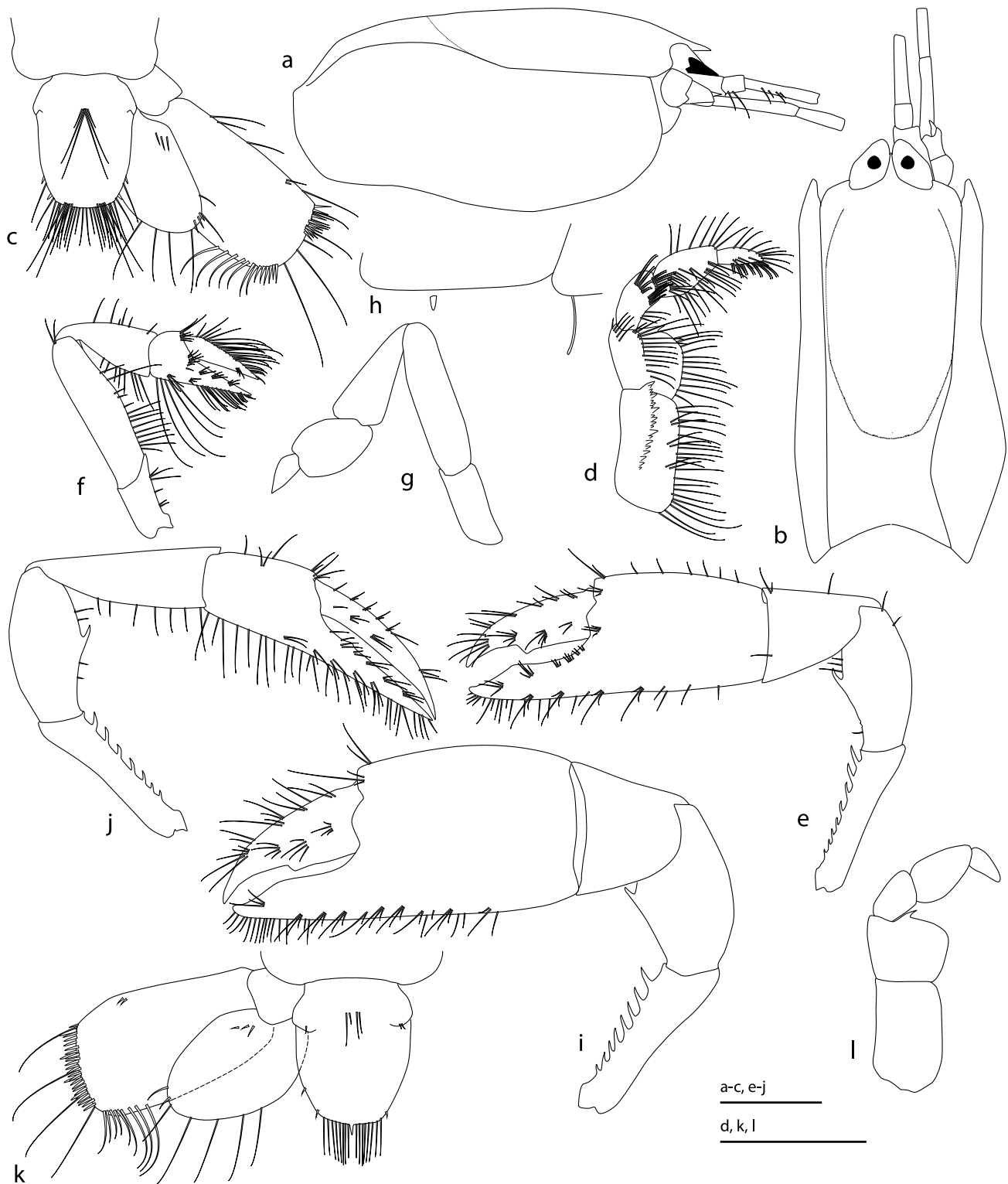


Figure 36. *Praedatrypaea propinqua* (De Man, 1905). Australia, North West Shelf. NMV J53452, female (with Bopyridae in right branchial cavity), 3.6 mm: a, b, carapace, eyestalks, antennular, antennal peduncles (lateral, dorsal views); c, telson, right uropod; d, maxilliped 3; e, major cheliped (right, mesial view); f, g, pereopods 2, 3. NMV J71760, male, 4.0 mm; h, right pleomeres 1, 2 lower margins, pleopods 1, 2 (lateral view in situ). NMV J53451, female, 3.8 mm: i, major cheliped (right, mesial view); j, minor cheliped (left, mesial view). NMV J22661, female, 2.8 mm: k, telson, left uropod. NMV J22660, female, 2.8 mm: l, maxilliped 3. Scale bars = 1 mm.

Remarks. Poore et al. (2019) listed six species of *Pugnatorypaea* of which four have been transferred to *Praedatorypaea* above. *Pugnatorypaea pugnatrix* (De Man, 1905) was one of two species in Robles et al.'s (2020) phylogram, the other from the Gulf of Mexico has since been described as *P. emanata* Felder and Robles, 2020. The telson of both species has a deep notch with a median spine on the posterior margin and two pairs of spiniform setae near the posterolateral curvature, long facial spiniform setae on the uropodal endopod, and a single proximal tooth on the lower margin of the merus of the major cheliped.

These features are shared with *P. iranica* (Sepahvand, Momtazi and Tudge, 2015) from the Persian Gulf, bringing the number of species to three. The spines on the eyestalks of *P. iranica* bear an uncanny resemblance to those of *Aqaballianassa thorsoni* (Sakai, 2005), also from the Persian Gulf.

In the light of this rearrangement, the diagnosis of the genus has been updated above. Liu's (2022) key to species is superseded.

Pugnatorypaea pugnatrix (De Man, 1905)

Callianassa pugnatrix De Man, 1905: 611–612.—Sakai, 1999: 51–52.—Tudge et al., 2000: 143.—Sakai, 2005: 101.

Callianassa (Cheramus) pugnatrix.—De Man, 1928b: 27, 93, 99, 138, 151–155, pls 15, 16 fig. 23.

Trypaea pugnatrix.—Sakai, 2011: 406.

Pugnatorypaea pugnatrix.—Poore et al., 2019: 139, 143.—Robles et al., 2020: figs 1, 3, 6.

Material examined by P.C. Dworschak. **Philippines**, Sulu Sea, 08° 52' N, 123° 37' E, 583–569 m (MNHN stn PANGLAO 2005 CP 2358), NMCR 49803 (male, 4.8 mm).

Distribution. Western Coral Triangle (Philippines, Indonesia [type locality: Bali Sea, 330 m]); 330–569 m.

Remarks. The species was described from a holotype (cl. 4.2 mm) from Indonesia (07° 46' S, 114° 30.5' E) at 330 m depth (*Siboga* stn 5). Sakai (1999) re-examined the specimen (misinterpreting it as lectotype) at the Zoological Museum Amsterdam (now Naturalis Biodiversity Center). Figures of a second specimen, which provided tissue for Robles et al.'s (2020) analysis, were kindly made available by Peter C. Dworschak confirming features of the telson, rostrum, maxilliped 3 and major cheliped.

Rayllianassa Komai and Tachikawa, 2008

Rayllianassa Komai and Tachikawa, 2008: 42–43.—Komai et al., 2014a: 550–551.—Poore et al., 2019: 98, 143.—Robles et al., 2020: figs 1, 3, 6.—Poore and Ahyong, 2023: 213.

Diagnosis. Hermaphrodite. Rostrum obsolete or obtusely triangular, flat, not reaching cornea. Cervical groove deeply incised dorsally. Eyestalk distal lobes obliquely truncated, apices diverging. Antennular peduncle exceeding antennal peduncle by quarter to half length of article 3. Antennal scaphocerite simple, longer than wide, acute. Maxilliped 3 ischium-merus as wide as long or almost so; merus wider at ischium-merus suture than long; dactylus tapering, with scattered setae over upper margin, dense brush of short setae distally on lower margin. Major cheliped merus lower margin straight or widest at midpoint, with

or without denticles. Minor cheliped half to two thirds width of major cheliped, both swollen; carpus upper margin shorter than propodus. Uropodal endopod ovoid, longer than wide, anterior margin straight, posterodistal margin evenly convex, usually with 2 facial spiniform setae on rib. Uropodal exopod about as long as wide, posterodistal margin with row of 6–8 long blade-like setae proximal to long setae on distal margin. Telson as long as or longer than wide, tapering from near base; posterior margin slightly concave, sometimes with medial spine.

Remarks. *Rayllianassa* was erected for *Callianassa amboinensis* De Man, 1888 by Komai and Tachikawa (2008). Komai et al. (2014b) later broadened the diagnosis to include a second species, *R. rudisulcus* Komai, Fujita and Maenosono, 2014, but Poore et al. (2019) showed this to belong to another genus, *Rudisullianassa*. *Rayllianassa* has been diagnosed by the absence of a prominent proximal hook on the merus of the major cheliped (having at most a small tooth near the midpoint), the chelipedal carpi and propodi being swollen and the width of the minor propodus about 0.6 that of the major. The lobes on the eyestalks are truncate-oblique and the maxilliped 3 particularly broad (ischium-merus 1.5 times as long as wide) (Poore et al., 2019).

Robles et al. (2020) found substantial genetic difference between eight individuals of “*Rayllianassa amboinensis*”, four from Papua New Guinea, two from the Philippines, one from the Line Islands and another from Vanuatu (mislabelled Papua New Guinea on Robles et al. [2020: fig. 3]), including within these localities. Five of these individuals plus another from Papua New Guinea were included in a reanalysis by Qi Kou (pers. comm., 7 July 2023), leading to the conclusion that at least five species are included in this complex. Estimates of interspecific evolutionary divergence ranged from 0.040 to 0.168 for 12S sequences and 0.047 to 0.143 for 16S sequences (Table 2).

Subsequent morphological examination of the specimens contributing to these analyses revealed three species corroborated by the major clades in Robles et al.'s (2020) molecular analysis: *R. amboinensis* sensu stricto, *R. aurora* sp. nov. and *R. bifida* sp. nov., and another suggested by Kou's analysis. One individual (tissue sample ULLZ 10127 from a female NHMW 25915) is included here as *Rayllianassa* sp.

The new species differ from *R. amboinensis* in some so-called generic features, necessitating the new generic diagnosis provided above, notably in the relative lengths of the antennular and antennal peduncles, armature of the major cheliped merus and shape of the pereopod 3 propodus.

Poore et al. (2019) included five species: *R. amboinensis*, *R. bangensis* (Sakai, 2005), *R. lignicola* (Alcock and Anderson, 1899), *R. parva* (Edmondson, 1944) and *R. sahal* (Poore, 2008). Only the first is so far well known. *Rayllianassa bangensis* (Sakai, 2005) is known from a single male, cl. 3.8 mm, from 49 m in the Philippines. This record and Ngoc-Ho's (1991) record of *R. amboinensis* are the only records of males in this genus – most are females, probably hermaphrodites. While the maxilliped 3 and major cheliped are typical of *Rayllianassa*, the antennal peduncle longer than the antennular peduncle is characteristic of *Rudisullianassa*. See further comment under *R. aurora* sp. nov. below. *Rayllianassa lignicola* was described

Table 2. Kimura's 2-parameter pair-wise genetic distances of 12S rRNA (below diagonal) and 16S rRNA (above diagonal) among specimens studied. Analyses were conducted based on 397 bp 12S rRNA and 405 bp 16S rRNA sequence alignments using MEGA 11 (Tamura et al. 2021).

Species	Museum number	1	2	3	4	5	6
1 <i>R. amboinensis</i>	MNHN IU-2013-7049		0.051	0.127	0.130	0.102	0.111
2 <i>R. amboinensis</i>	MNHN IU-2013-7079	0.016		0.128	0.131	0.102	0.114
3 <i>R. aurora</i> sp. nov.	MNHN IU-2016-8124	0.152	0.159		0.002	0.140	0.143
4 <i>R. aurora</i> sp. nov.	MNHN IU-2016-8125	0.152	0.159	0.000		0.137	0.140
5 <i>Rayllianassa</i> sp.	NHMW 25915 (ULLZ-10127)	0.087	0.099	0.148	0.148		0.047
6 <i>R. huonensis</i> sp. nov.	MNHN IU-2011-6054	0.112	0.114	0.168	0.168	0.040	

from two females, tl. 11 mm, 14.8 mm, from “water-logged mangrove-twigs” at 185 fm (338 m) in the Andaman Sea. The chelipeds and relative lengths of the antennal peduncles, plus the association with wood, are evidence for placement in *Rayllianassa*. The generic placement of *C. parva* in *Rayllianassa* is doubtful. While the chelipeds and telson are *Rayllianassa*-like, the relative lengths of the antennal peduncles and maxilliped 3 are not typical. *C. sahal* Poore, 2008 is synonymised with *R. amboinensis* below.

Samadi et al. (2010) reported that “*Callianassa*” *amboinensis* is associated with deep-sea wood, having been collected in traps baited with wood sunk off New Caledonia and Vanuatu. Hoyoux (2006, 2010) studied the digestion of wood in this species from Papua New Guinea (MNHN SALOMON 2 stations). *Callianassa amboinensis* has been reported from 80 metres, scarcely the deep sea, of New Caledonia, but not specifically from wood (Ngoc-Ho, 1991). The only available material from Vanuatu has been identified here as *R. bifida* sp. nov. and that from SALOMON 2 stations as *R. aurora* sp. nov., both from samples containing wood. Komai et al. (2014) summarised the depth distribution of *R. amboinensis* as 0.5 to 183 m, and cited literature showing that the species burrows in sponges or alcyonacean soft corals and suggested that the association with deep-sea wood involves species other than *R. amboinensis*. Species of another genus easily confused with *Rayllianassa*, *Rudisullianassa rudisulcus* (Komai, Fujita and Maenosono, 2014) and *Rudisullianassa pandan* sp. nov., are also from samples containing sunken wood.

Rayllianassa amboinensis (De Man, 1888)

Figures 1f, 38, 39

Callianassa amboinensis De Man, 1888: 480, pl. 20 fig. 4.—Zehntner, 1894: 194.—Poore and Griffin, 1979: 248, fig. 14.—Sakai, 1984: 96–99, figs 1, 2.—Sakai, 1988: 53, 57, fig. 1.—Ngoc-Ho, 1991: 283, fig. 1.—Sakai, 1999: 35, 38.—Tudge et al., 2000: 143.—Ngoc-Ho, 2005: 68, fig. 12.

Callianassa (Calliactites) amboinensis.—Borradaile, 1903: 545.

Callianassa (Trypaea) amboinensis.—De Man, 1928a: 27, 93, 107, 165, pl. 18 fig. 28.

Callianassa ngochoae Sakai, 1999: 36, 49.—Komai et al., 2014: 553–554 (synonymy with *C. amboinensis*).—Poore et al., 2019: 98, 139, 146 (genus incertae sedis).

Callianassa sahal Poore, 2008: 172–174, fig. 5. **Syn. nov.**

Callianassa sp. MoV 4964.—Poore et al., 2008: 92.

Notiastax amboinensis.—Sakai, 2011: 382.

Notiastax ngochoae.—Sakai, 2011: 384–385.

Rayllianassa amboinensis.—Komai and Tachikawa, 2008: 43–47, figs 13–15 (Ogasawara Is).—Komai et al., 2014a: 551–554, figs 1, 2.—Poore et al., 2019: 136, 143.

Rayllianassa cf. *amboinensis*.—Robles et al., 2020: figs 1, 3, 6 (part).

Trypaea sahal.—Sakai, 2011: 407–408.

Rayllianassa sahal.—Poore et al., 2019: 140, 143.

Material examined. **Mariana Islands.** Guam I., Hospital Point, 13.502084° N, 144.768206° W, 93–95 m, UF 13834 (female, 2.4 mm). Palmyra Atoll, N side, 5.8978° N, 162.0628° E, 0–13 m, UF 11709 (ovigerous female, 3.0 mm). **Line Islands,** Kingman Reef, NEE of Atoll, 6.4036° N, 162.3427° E, UF 11678* (ovigerous female, 4.2 mm). **Philippines.** 12° 31' N, 120° 39' E, 92–97 m, in sponge (stn MUSORSTOM 3 117), MNHN Th-1227 (female, 4 mm). **Papua New Guinea.** Bismarck Archipelago, N side of Rara I., Seadler Harbour, Off Lorengau Town, 2° S, 147.27° E, 3–17 m, associated with Porifera, UF 8700* (ovigerous female, 4.3 mm). Salomon Sea. N of Normanby I., d'Entrecasteaux Archipelago, 09° 49' S, 151° 34' E, 150–180 m (MADEEP stn DW4316), MNHN IU-2014-18537 (female, 3.3 mm). Madang Province, 05° 11' S, 145° 48.4' E, 8 m, in dead corals (PAPUA NIUGINI stn PB11), MNHN IU-2013-7058* (female, 4.0 mm); MNHN IU-2013-325 (ovigerous female, 6.5 mm); 05° 10.8' S, 145° 49.8' E, 22 m (PAPUA NIUGINI stn PR10), MNHN IU-2013-7049*# (ovigerous female, 4.1 mm); 05° 15.9' S, 145° 47.1' E, 10 m (PAPUA NIUGINI stn PB37), MNHN IU-2013-7079*# (ovigerous female, 5.2 mm). Kavieng Province, 02° 32' S, 150° 47' E, 130–144 m (KAVIENG 2014 stn DW 4499), MNHN IU-2015-989 (female, 4.4 mm). **New Caledonia.** MNHN Th-1071 (holotype of *Callianassa ngochoae*, male/immature, 2.8 mm). **Australia.** Arafura Sea (Geosciences Australia stn 2012t07/183), NMV J71761 (ovigerous female, 9.3 mm). Timor Sea, Sahul Banks, W of Mangol Shoal, 11° 40.26' S, 125° 04.84' E, 18 m, NMV J53340 (holotype of *Callianassa sahal*, ovigerous female, cl. 4.3 mm). WA, 5.4 km E of Tish Point, Rosemary I., Dampier Archipelago, 20.498° S, 116.64° E (stn DA2/84/1), NMV J53341 (2 females, 4.2, 7.8 mm). WA, off Point Cloates, 22° 50.55' S, 113° 30.40' E, 100 m, NMV J53457 (ovigerous female).

Diagnosis. Antennular peduncle longer than antennal peduncle. Major cheliped merus lower margin straight or convex, smooth or with small teeth; carpus oval in cross-section, upper and lower margins weakly carinate; palm upper margin weakly carinate, without tubercles and ridges on distal mesial and lateral margins at the base of fingers; dactylus straight or strongly curved, with

blade along cutting edge or with basal tooth, apex simple. Pereopod 3 propodus suboval-angular, lower margin with distinct corner between straight proximal half and concave distal half. Uropodal exopod widest near midpoint, about as long as wide.

Distribution. Central and Eastern Indo-Pacific (Japan, Philippines, New Caledonia, Marquesas Is., Easter I., Indonesia [type locality: Ambon], Papua New Guinea, northern Australia); 0–183 m, associated with sponges and alcyonaceans (Komai et al., 2014b).

Remarks. As Komai and Tachikawa (2008), who described the species in detail, and Komai et al. (2014a) noted, *R. amboinensis* has been reported from throughout the Indo-West Pacific and illustrated several times since its discovery in Ambon, Indonesia (De Man, 1928a; Poore and Griffin, 1979; Sakai, 1984, 1988; Ngoc-Ho, 2005; Komai and Tachikawa, 2008; Komai et al., 2014a). There are some discrepancies between the illustrations, indicating that more than one species may be involved, but the three new species described below and revealed by Robles et al.'s (2020) molecular analysis have not been illustrated previously.

Rayllianassa amboinensis is recognised by the almost circular maxilliped 3 ischium+merus, the antennal peduncle reaching near or just beyond the midpoint of article 3 of the antennular peduncle, the triangular anterodistal lobe of the eyestalk, the palm of the major cheliped lacking a carina on the upper margin and lacking teeth on its distal margins, and the asymmetry of the lower margin of the propodus of pereopod 3 (more convex proximally than distally). Komai et al. (2014b) noted that the cervical groove is incised and a dorsal oval (postrostral depression) is present (figs 39d, 40j). The genetic variability between the four individuals from Papua New Guinea and one from the Line Islands (those remaining in *R. amboinensis* after the three new species are removed) is reflected in some morphological variability (figs 39, 40). The rostrum is more prominent in some individuals than others, the telson ranges from as long as wide to longer than wide, the length:width ratio of the uropodal rami ranges widely, the merus of the major cheliped has no or few small teeth along its lower margin and is wider in some than others, the minor palm ranges from 0.6 to 0.75 times as wide as the major palm. Ovigerous females range from cl. 3.3 mm to cl. 9.3 mm, a

considerable range that may explain some of the morphological variation. For the time being it is concluded that this material represents only one species consistent with the illustrations of De Man (1928a: Ambon), Poore and Griffin (1979: NW Australia), Sakai (1988: NT, Australia), Ngoc-Ho (1991: New Caledonia), Komai and Tachikawa (2008: S Japan) and Komai et al. (2014b: S Japan). In other illustrations, Sakai (1984: N Australia) and Ngoc-Ho (2005: Marquesas), the major cheliped palm is more barrel-shaped than typical, suggesting that *R. amboinensis* represents a species complex as yet unresolved.

All authors cited above have reported only females, but all individuals (except one) checked here are in fact hermaphrodites with both male and female gonopores. Sakai (1999) noted that in the individual from New Caledonia identified as *C. amboinensis* by Ngoc-Ho (1991), the antennal peduncle article 5, the merus of the major cheliped and the telson differed from those of *C. amboinensis* and erected a new species, *C. ngochoae* Sakai, 1999. Later, Sakai (2005) returned *C. ngochoae* to synonymy with *C. amboinensis*. Later still, Sakai (2011) revived his 1999 species as what he then called “*Notiax ngochoae*”, including in its synonymy several citations of *C. amboinensis*, including De Man's (1928a) description of its holotype. Komai et al. (2014b) summarised the complicated arguments for and against the synonymy of the two species. None of these arguments noted that the antennular peduncle scarcely exceeds the antennal peduncle (shorter than is typical) (Ngoc-Ho, 1991: fig. 1a, b) but its length relative to the carapace is similar to that in other individuals. The holotype is very small (cl. 2.8 mm) with a minute pleopod 1 and two-articled pleopod 2 (confirmed by re-examination). Ngoc-Ho (1991) assumed it to be a male but it may be immature, which could explain the unusual relative size of the antennae. The maxilliped 3, eyestalks, rostrum and relative size of the chelipeds are consistent with the specimen belonging to *R. amboinensis*.

Re-examination of the holotype of *C. sahal* Poore, 2008 has shown that it does not differ substantially from *R. amboinensis* (fig. 38a–c), and it is here synonymised.

As Komai et al. (2014b) argued, and elaborated above under **Remarks** for *Rayllianassa*, *R. amboinensis* is not associated with deep-sea wood, but has been found burrowing in sponges or alcyonacean soft corals between 0.5 and 183 m.

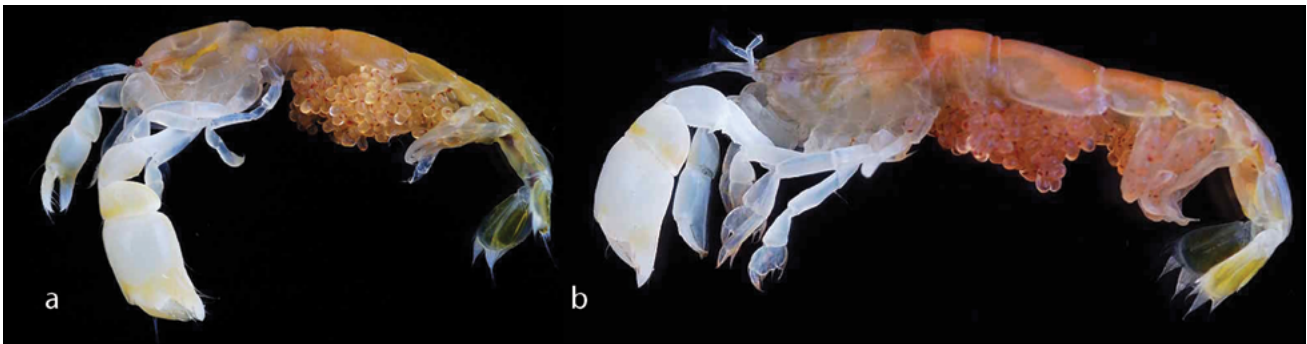


Figure 37. *Rayllianassa* spp. a, *R. aurora* sp. nov., Philippines, MNHN IU-2016-8126, ovigerous female, 4.4 mm; b, *Rayllianassa* sp. Philippines, NHMW 25915, ovigerous female, 4.3 mm. (colour photographs by T.-Y. Chan).

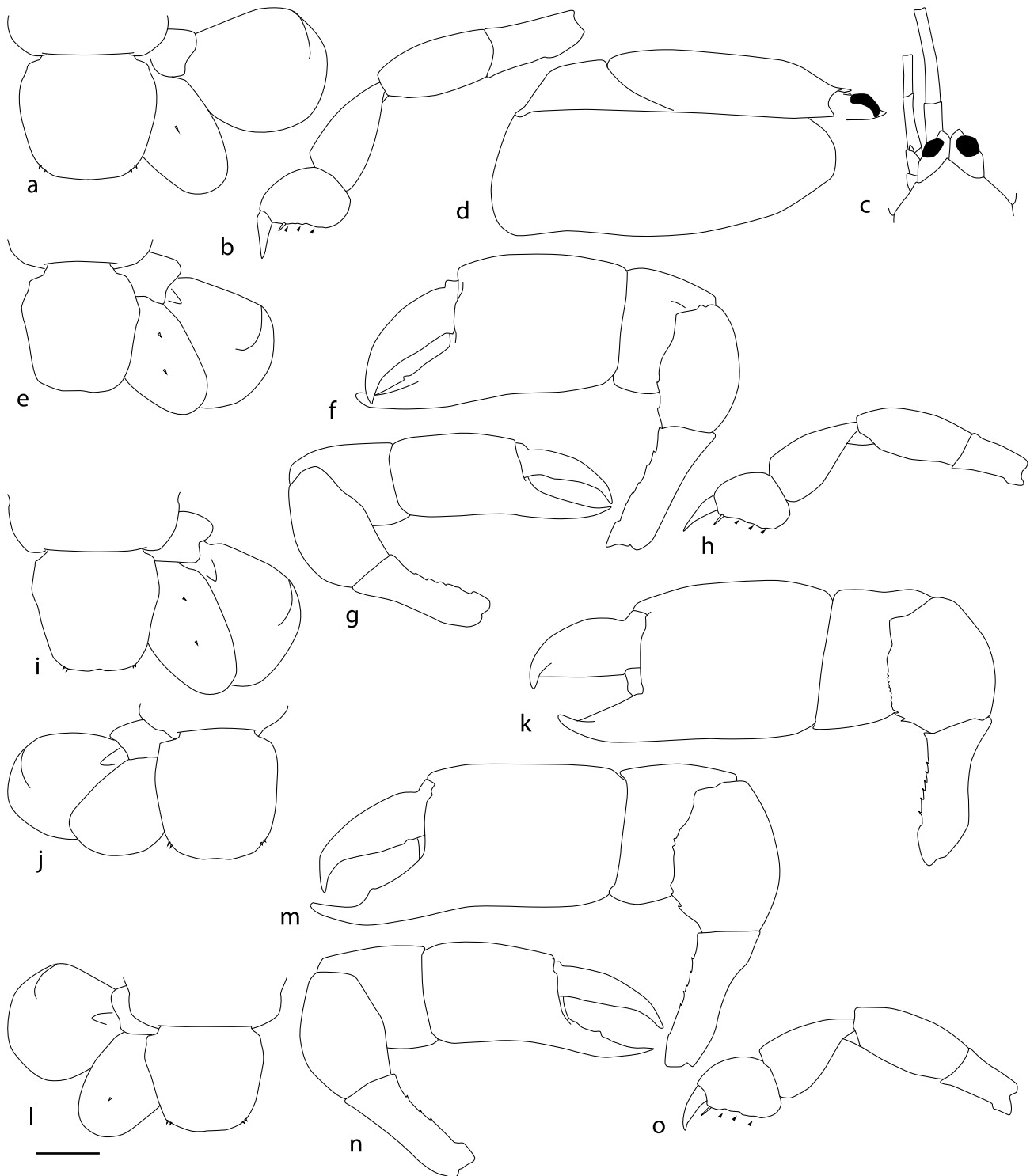


Figure 38. *Rayllianassa amboinensis* (De Man, 1888). a–d, Timor Sea, NMV J53340, holotype of *C. sahum*, ovigerous female, cl. 4.3 mm. e–h, Papua New Guinea, UF 8700, ovigerous female, 4.3 mm. i, Papua New Guinea, MNHN IU-2013-7079, ovigerous female, 5.2 mm. j, k, Papua New Guinea, MNHN IU-2013-7058, female, 4.0 mm. l–o, Line Is, UF 11678, ovigerous female, 4.2 mm. a, e, i, j, l, telson, uropod; b, h, o, pereopod 3 (arrows show gaps in marginal setae); c, anterior carapace, eyestalks, antennular, antennal peduncles; d, carapace, eyestalk (lateral); f, k, m, major cheliped (mesial); g, n, minor cheliped (mesial). Scale bar = 1 mm.

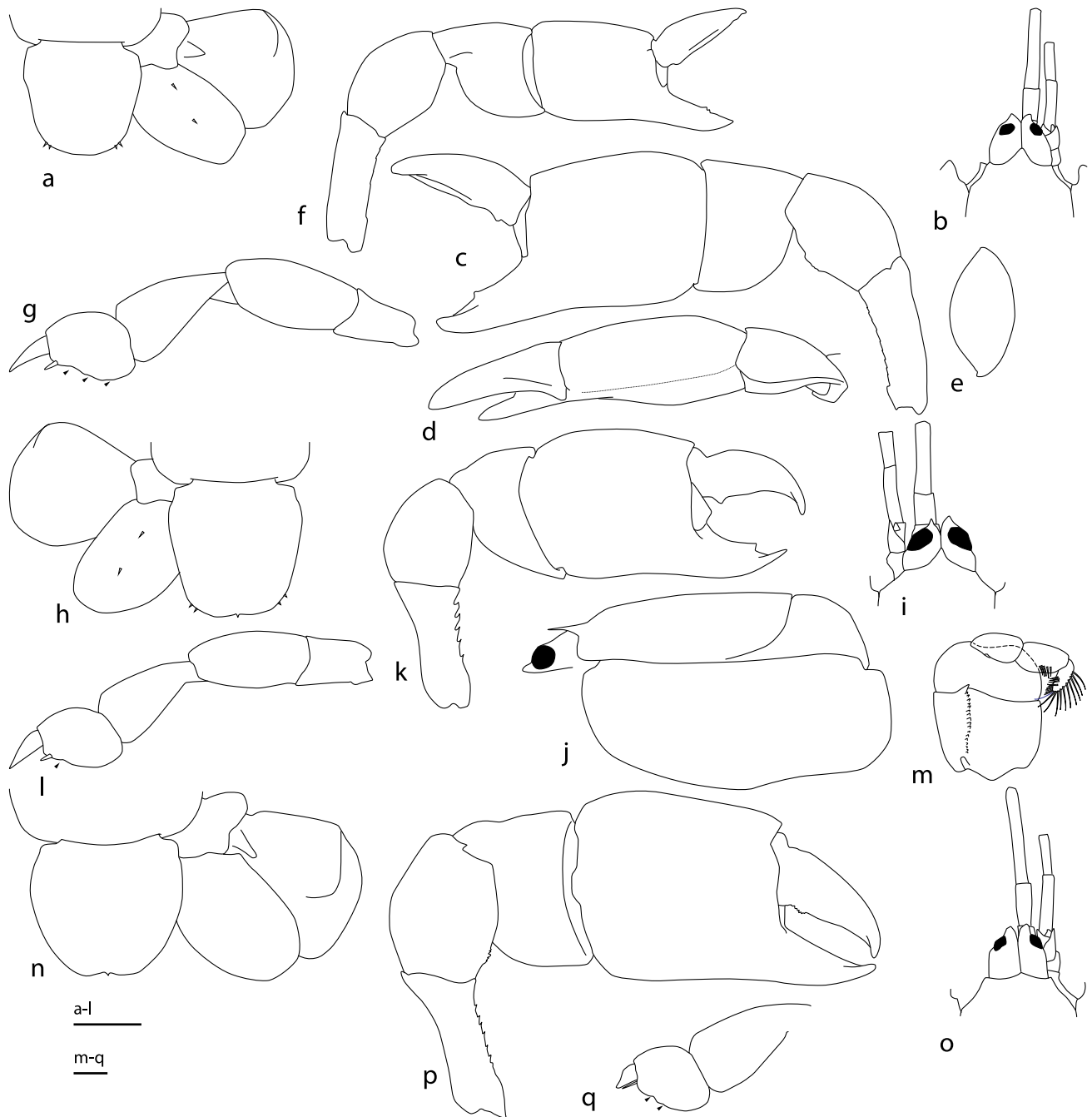


Figure 39. *Rayllianassa amboinensis* (De Man, 1888). a–g, Papua New Guinea, MNHN IU-2013-7049, ovigerous female, 4.1 mm; h–m, Papua New Guinea, MNHN IU-2015-989, female, 4.4 mm; n–q, Arafura Sea, NMV J71761, ovigerous female, 9.3 mm (Note scale). a, h, n, telson, uropod; b, i, o, anterior carapace, eyestalks, antennular, antennal peduncles; c, k, p, major cheliped (mesial); d, major cheliped, carpus–dactylus (upper); e, major cheliped carpus (cross-section, mesial face left); f, minor cheliped (mesial); g, l, q, pereopod 3 (arrows show gaps in marginal setae); j, carapace, eyestalk (lateral); m, maxilliped 3. Scale bars = 1 mm.

***Rayllianassa aurora* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:31B5E2A2-ED53-4D67-95DD-A1EB669EEFA1>

Figures 37a, 40, 41

Callianassa amboinensis.—Hoyoux, 2006: 33.—Samadi et al., 2010: 462.

Rayllianassa cf. *amboinensis*.—Robles et al., 2020: figs 1, 3, 6 (part from Philippines).

Material examined. Holotype. **Philippines.** Luzon, Lamon Bay, 14° 27' N, 121° 47' E, 300 m (AURORA 2007 stn CP2720), MNHN IU-2016-8126 (ovigerous female, 4.4 mm). Paratypes, collected with holotype. MNHN IU-2013-7135 (16 females, 1.8–4.9 mm), NMV J71762 (3 ovigerous females, 4.9 mm); MNHN IU-2013-7136 (ovigerous female, 4.0 mm), MNHN IU-2016-8124*# (ovigerous female, 5.1 mm); MNHN IU-2016-8125# (ovigerous female, 4.4 mm). Philippines. Luzon, Lamon Bay, 14° 29' N, 121° 43' E, 311–361 m (AURORA 2007 stn CP2717), MNHN IU-2013-7139 (9 females, 1.6–3.4 mm). Other material. **Papua New Guinea,** Salomon Is, Tetepare, 08° 47' S, 157° 31' E, 94–133 m (SALOMON 2 stn CP2295), MNHN IU-2016-8143 (female, 5.4 mm), MNHN IU-2017-1353 (ovigerous female, 3.1 mm), MNHN IU-2017-1358 (female, 5.4 mm). Other material examined by P.C. Dworschak. **Philippines,** Luzon, Lamon Bay, MNHN AURORA 2007 stations: 14° 29' N, 121° 48' E, 216–220 m (stn CP2718), NHMW 26465 (ovigerous female, 5.3 mm); 14° 26' N, 121° 48' E, 160–155 m (stn CP2719), NHMW 26467 (7 females); 14° 27' N, 121° 47' E, 300 m (stn CP2720), NHMW 26466 (ovigerous female), NMCR 50819 (female); 14° 23' N, 121° 50' E, 156–147 m (stn CC2723), NMCR 50820 (female), NMCR 50821 (ovigerous female); Baler Bay, 15° 54.2' N, 121° 54.2' E, 100 m (stn CP2760), NMCR 50808 (ovigerous female), NMCR 50822 (ovigerous female), NMCR 50823 (ovigerous female).

Diagnosis. Antennular peduncle little shorter than antennal peduncle. Major cheliped merus with tooth or small teeth along lower margin; carpus oval in cross-section, margins weakly carinate; palm upper margin with obsolete carina, with tubercles and ridges on distal mesial and lateral margins at the base of fingers; dactylus with blade along cutting edge, apex simple. Pereopod 3 propodus oval, not wider proximally. Uropodal exopod widest near midpoint, 1.8 times as long as wide.

Description of holotype. Hermaphrodite. Rostrum obsolete, situated below level of dorsal carapace. Carapace dorsally convex in lateral view, as long as pleomeres 1–2 combined; orbital margin almost transverse, with pair of uncalcified areas laterally; anterolateral angle blunt; subanterolateral margin almost horizontal; anterior margin of branchiostegite convex; cervical groove deeply incised, across 0.8 length of carapace, reaching linea thalassinica. Pleomere 1 tergite with shallow transverse groove. Pleomere 2 twice as long as pleomere 1. Pleomere 6 about as long as wide.

Eyestalk 1.2 times as long as wide, with dorsal face depressed anteriorly, with sharp ventrolateral margin, anterolateral margin oblique, anteromedial angle angular in dorsal view, displaced laterally, reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying anterolateral margin of eyestalk.

Antennular peduncle little shorter than antennal peduncle; article 1 visible in dorsal view; article 3 1.2 times as long as

articles 1 and 2 combined; article 2 with dense longitudinal ventral row of long setae; article 3 with well-spaced ventral setae. Antennal peduncle article 5 about as long as article 4; scaphocerite triangular.

Maxilliped 3 ischium dilating distally, 1.2 times as long as wide, crista dentata consisting of about 20 small, well-spaced irregular teeth; merus 0.7 times as long as ischium measured along outer margin, about 1.6 times as wide as long, as wide as ischium, with mesiodistal margin produced as weak lobe beyond base of carpus; carpus little shorter than merus outer margin; propodus ovoid-tapering, 1.5 times as long as wide; dactylus ovoid, as long as propodus.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped massive, carpus-palm upper margin 1.2 carapace length. Ischium expanding distally, upper margin concave, unarmed; lower margin with row of 7 similar small teeth. Merus as long as ischium, 1.5 times as long as wide (tooth excluded), ovate; upper margin convex, unarmed; lower margin with tooth near midpoint, another minor tooth more distal. Carpus 0.65 as long as wide; upper margin rounded; lower margin weakly carinate, with shallow mesial depression parallel to margin. Propodus upper margin 2.1 times as long as carpus; palm almost parallel-sided, 1.2 times as long as wide; upper margin obscurely angled along mesial length; lateral surface smooth, convex; distolateral margin of palm oblique, with tubercle near base of finger; mesial surface convex, distomesial margin oblique, set back from distolateral margin, with prominent oblique crenellate ridge; lower margin carinate, with row of setae extending onto fixed finger; fixed finger 0.5 length of palm, triangular; cutting edge lateral, a crenellate blade. Dactylus as long as fixed finger, hooked distally, with acute tip; upper margin double-ridged, with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge with triangular tooth one third along, blade-like over distal half.

Minor cheliped carpus-palm upper margin 0.7 carapace length. Ischium upper margin smooth, lower margin with row of 3 teeth. Merus about as long as ischium; lower margin with obtuse angle at midpoint. Carpus wider distally, 0.8 length of merus, as long as wide, upper and lower margins rounded. Palm swollen, 1.4 times as long as wide; upper margin convex, with obscure mesial angle; lower margin carinate, with row of long setae extending onto fixed finger; distomesial margin with small tubercle at base of fixed finger; distolateral margin with crenellate oblique ridge at base of finger. Fixed finger, 0.7 length of palm, cutting edge lateral, with small irregular tubercles. Dactylus malformed in holotype, tapering, as long as fixed finger in paratypes.

Pereopod 2 merus lower margin slightly sinusoidal, 2.3 times as long as wide; carpus about 1.6 times as long as wide; chela subtriangular; palm about 1.3 times as wide as upper margin; dactylus 1.5 times as long as palm upper margin. Pereopod 3 merus 2.8 times as long as wide; carpus subtriangular, 1.8 times as long as wide; propodus oval, upper margin 1.2 times greatest width, lower margin evenly convex, without proximal heel, marginal setae with 3 clear gaps along distal half, with 1 slender spiniform seta subdistally; dactylus about 0.6 length of propodus upper margin. Pereopod 4 coxa flattened ventrally, distal articles linear. Pereopod 5 chelate.

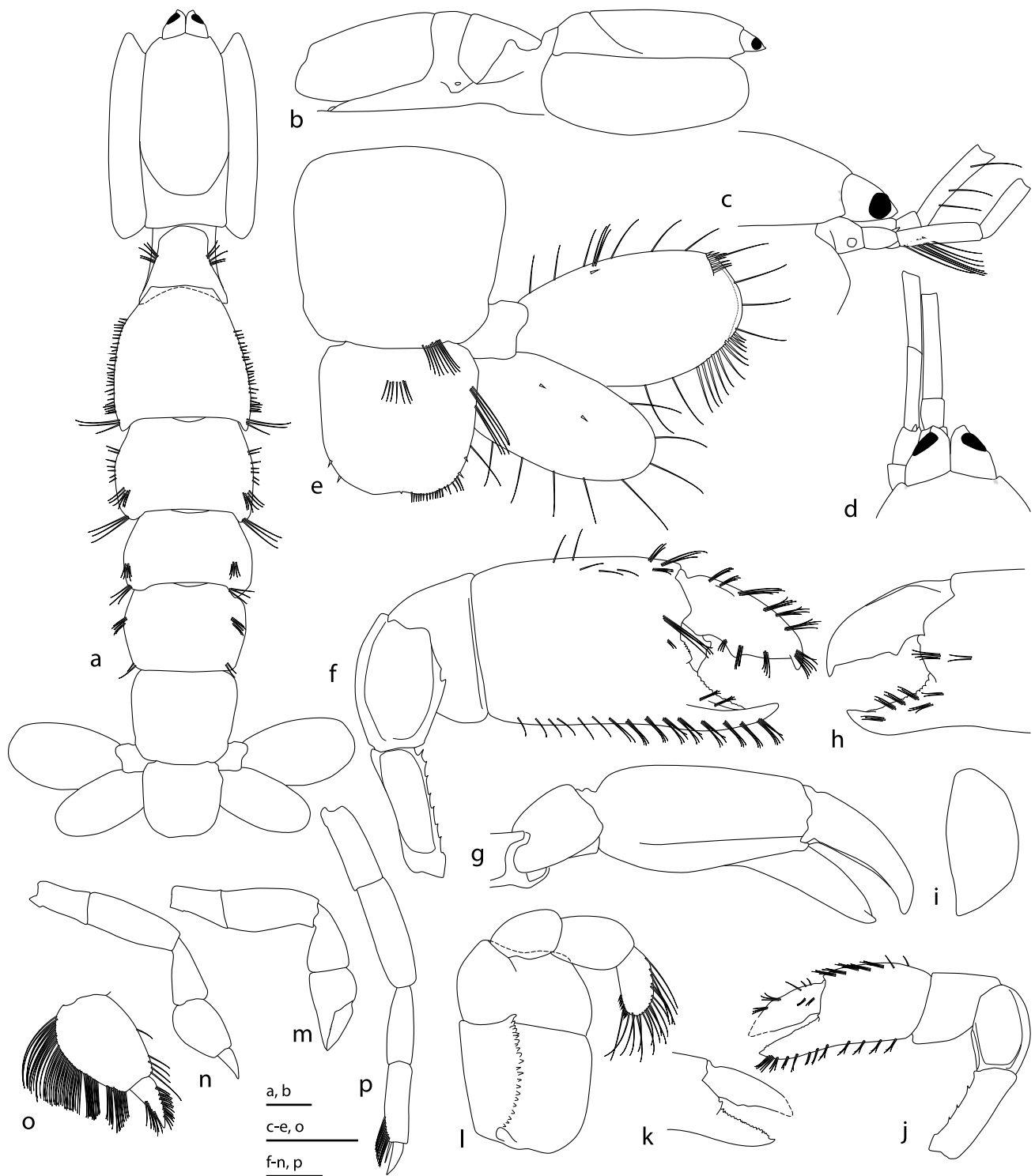


Figure 40. *Rayllianassa aurora* sp. nov. Philippines. MNHN IU-2016-8126, holotype ovigerous female, 4.4 mm: a, eyestalks, carapace, pleon, uropods, telson (dorsal); b, eyestalk, carapace, pleomeres 1, 2 (lateral); c, d, eyestalk, antennular, antennal peduncles, anterior carapace (lateral, dorsal); e, pleomere 6, right uropod, telson; f, major cheliped (left, mesial); g, major cheliped, carpus–dactylus (upper view); h, major cheliped distal palm, fingers (lateral); i, major cheliped (cross-section, upper topmost, mesial left); j, minor cheliped (right, mesial); k, minor cheliped distal palm, fingers (lateral); l, maxilliped 3; m, n, pereopods 2, 3; o, pereopod 3 propodus, dactylus; p, pereopod 4. Scale bars = 1 mm.

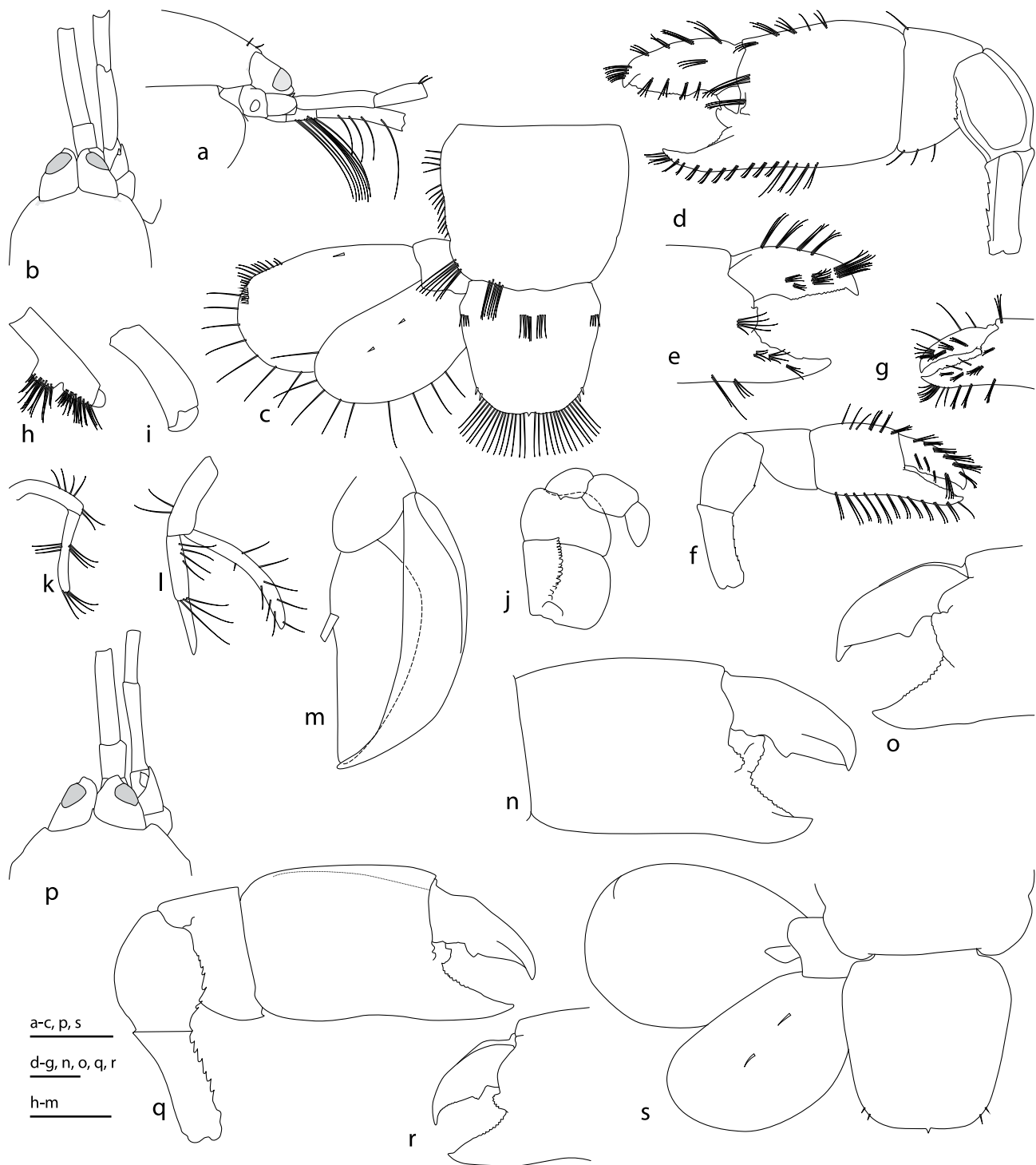


Figure 41. *Rayllianassa aurora* sp. nov. Philippines. MNHN IU-2016-8125, paratype ovigerous female, 4.4 mm: a, b, eyestalk, antennular, antennal peduncles, anterior carapace (lateral, dorsal); c, pleomere 6, left uropod, telson; d, major cheliped (left, mesial); e, major cheliped distal palm, fingers (lateral); f, minor cheliped (right, mesial); g, minor cheliped distal palm, fingers (lateral); h, right pereopod 5 propodus, dactylus (atypical); i, left pereopod 5 propodus, dactylus; j, maxilliped 3. MNHN IU-2016-8126, holotype ovigerous female, 4.4 mm: k–m, pleopods 1–3. MNHN IU-2016-8124, paratype ovigerous female, 5.1 mm: n, major cheliped palm, fingers (left, mesial); o, major cheliped distal palm, fingers (lateral). Papua New Guinea, MNHN IU-2017-1358, ovigerous female, 5.4 mm: p, anterior carapace, eyestalks, antennular, antennal peduncles (dorsal); q, major cheliped palm, fingers (left, mesial); r, major cheliped distal palm, fingers (lateral). MNHN IU-2016-8143, ovigerous female, 5.4 mm: s, left uropod, telson. Scale bars = 1 mm.

Pleopod 1 of 2 articles at right angles; ramus about as long as peduncle; setose. Pleopod 2 biramous; endopod slightly shorter than exopod. Pleopods 3–5 biramous, endopod 2.4 times as long as wide; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval, widest near midpoint, about twice as long as wide; upper surface with 2 spiniform setae on dorsal rib; anterior margin almost straight; distal margin evenly convex, with fringe of setae; posterior margin setose. Exopod widest near midpoint, 1.8 times as long as wide, exceeding endopod by one quarter its length; anterior margin convex; all margins with numerous slender setae, with about 12 blade-like setae on posterior margin indistinguishably merged with distal margin; dorsal plate apparent on distal margin as row of about 7 stiff setae merging anteriorly with similar setae on anterior margin.

Telson as wide as long, broadest at anterior fifth, narrowing posteriorly to broadly rounded posterolateral corners; posterolateral corners each with 2 spiniform setae; posterior margin medially excavate, with minute median tooth; dorsal surface with few medial setae.

Variation. The rostrum of the types from the Philippines is shorter (figs 40d, 41b) than that of the two specimens from Papua New Guinea (fig. 41p). The armature on the distomesial margin of the propodus of the major cheliped varies from a crenellate ridge to rugose tubercle (cf. figs 40f, 41d, n, q); the distolateral margin appears to be always produced, often with a tubercle uppermost on the distal ridge (figs 40h, 41e, o, r). The uropodal endopod is about twice as wide as long in the holotype (fig. 40e) but is relatively wider in the illustrated paratype (fig. 41c) and the example from Papua New Guinea (fig. 40s); all appear to have two spiniform setae along the rib. The pereopod 5 propodus of the illustrated paratype has a secondary bunch of setae on a secondary “thumb” (fig. 41h).

Etymology. From AURORA, the name of the MNHN cruise during which this material was collected, so named after the Aurora Memorial National Park on the eastern coast of Luzon, the Philippines (noun in apposition).

Distribution. Western and Eastern Coral Triangle (Philippines, Papua New Guinea); 94–361 m.

Remarks. *Rayllianassa aurora* differs from *R. amboinensis* in: (1) having an oval propodus on pereopod 3 (not wider proximally as in *R. amboinensis*); (2) the peduncle of the antennule being shorter than that of the antenna (the antennular peduncle is longer in *R. amboinensis*); (3) a narrower uropodal exopod; and (4) tubercles and ridges on the distal mesial and lateral margins of the palm of the chelipeds at the base of the fingers. Robles et al. (2020) recorded one of the paratypes as *Rayllianassa cf. amboinensis*.

The major cheliped of *R. aurora* is similar to that of *R. bangensis* Sakai, 2005, also from the Philippines. Sakai (2005) figured the antennular peduncle as longer than the antennular peduncle (as in *Rudisullianassa*) and the telson much longer than in *R. aurora*.

Much of the material recorded from the Philippines at the AURORA 2007 stations was associated with wood.

Rayllianassa bifida sp. nov.

<http://zoobank.org/urn:lsid:zoobank.org:act:DF11C5CD-E6EF-4C09-9952-44505A84A984>

Figures 1g, 42, 43

Rayllianassa cf. amboinensis.—Robles et al., 2020: figs 1, 3, 6 (part).

Material examined. Holotype. **Vanuatu.** NW of Malo I., 15° 38' S, 167° 04' E, 114–132 m (Santo 2006 stn AT05), MNHN IU-2013-7137* (female, 4.4 mm). Paratype, collected with holotype, MNHN IU-2017-1357 (ovigerous female, 4.7 mm).

Diagnosis. Antennular peduncle about as long as antennal peduncle. Major cheliped merus with large proximal bifid tooth on lower margin; carpus upper and lower margins carinate, directed mesially to form parallel depressions above and below swollen mesial face; palm upper margin with narrow rounded keel, without tubercles and ridges on distal mesial and lateral margins at the base of fingers; dactylus with blade along cutting edge, apex simple. Pereopod 3 propodus oval, not wider proximally. Uropodal exopod widest near midpoint, 1.8 times as long as wide.

Description of holotype. Hermaphrodite. Rostrum broadly triangular, apically depressed, situated below level of dorsal carapace, one quarter length of eyestalks. Carapace dorsally convex in lateral view, as long as pleomeres 1–2 combined; orbital margin almost transverse; anterolateral angle blunt; subanterolateral margin almost horizontal; anterior margin of branchiostegite convex; cervical groove deeply incised, across 0.8 length of carapace, reaching linea thalassinica. Thoracic sternite 7 wider than long, posterior margin deeply incised between pair of lobes. Pleomere 1 tergite with shallow transverse groove. Pleomere 2 twice as long as pleomere 1. Pleomere 6 about as long as wide.

Eyestalk little longer than wide, with dorsal face close to rostrum, with sharp ventrolateral margin, anterolateral margin oblique, anteromedial angle rounded in dorsal view, not reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying anterolateral margin of eyestalk.

Antennular peduncle about as long as antennal peduncle (neither individual with both); article 1 visible in dorsal view; article 3 about as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 0.75 length of article 4; scaphocerite minute, triangular (paratype).

Maxilliped 3 ischium dilating distally, 1.2 times as long as wide, crista dentata consisting of row of about 20 small, well-spaced irregular teeth; merus about half as long as ischium measured along outer margin, about 1.4 times as wide as long, wider than ischium, with mesiodistal margin produced as convex lobe beyond base of carpus; carpus about as long as merus outer margin; propodus ovoid-tapering, 1.6 times as long as wide; dactylus digitiform, 0.8 times length of propodus.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped massive, carpus-palm upper margin 1.5 times carapace length. Ischium expanding distally, upper margin almost straight, unarmed; lower margin with row of 7 similar spines. Merus as long as ischium, 1.8 times as long as wide (tooth excluded),

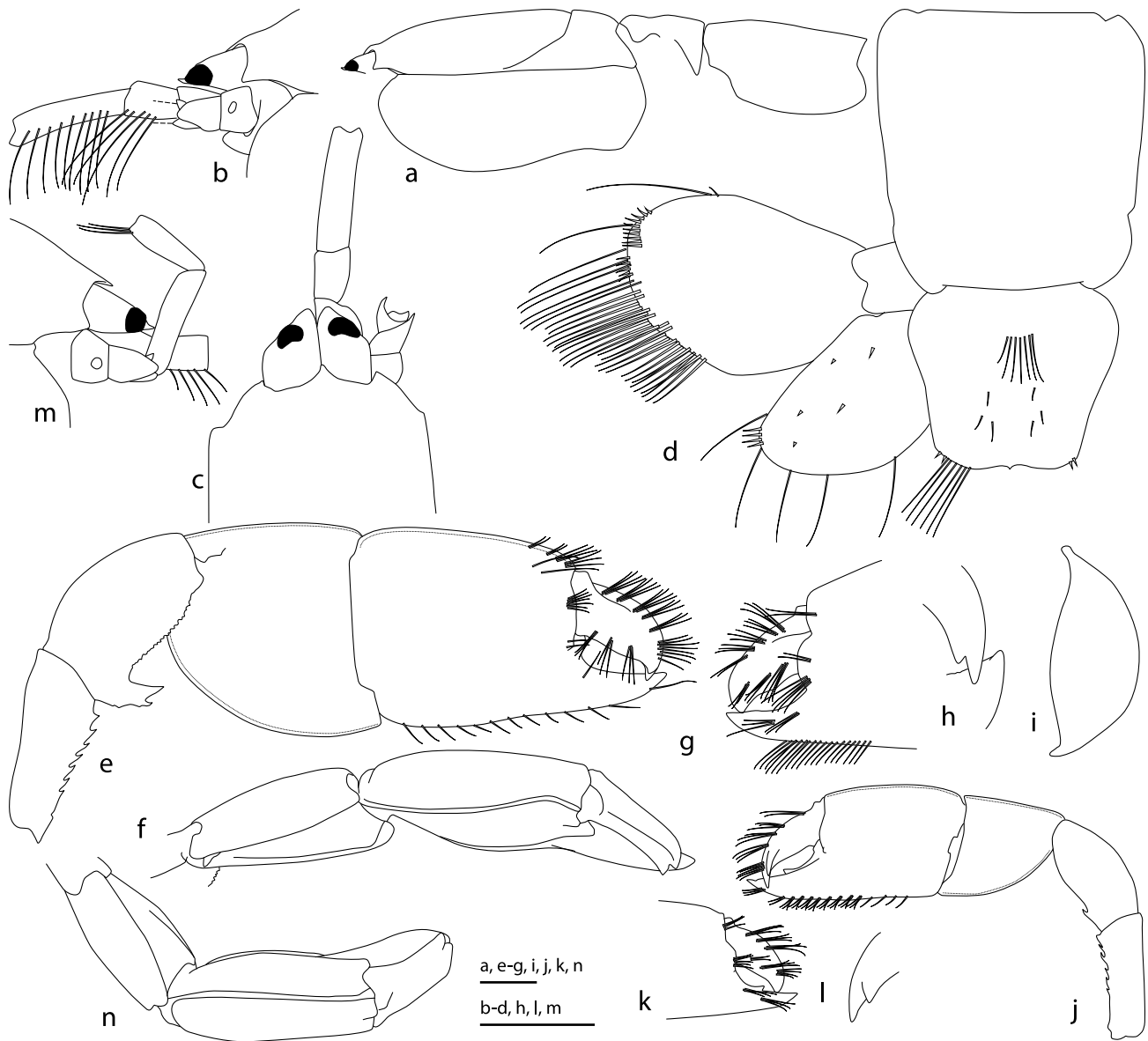


Figure 42. *Rayllianassa bifida* sp. nov. Vanuatu. MNHN IU-2013-7137, holotype female, 4.4 mm: a, carapace, pleomeres 1, 2 tergites, eyestalk; b, c, carapace, eyestalks, antennular peduncle, antennal peduncle articles 1–3 (lateral, dorsal); d, pleomere 6, telson, left uropod; e, major cheliped (left, mesial); f, major cheliped, carpus–dactylus (upper view); g, major cheliped fingers (lateral); h, major cheliped finger tips (apical view); i, major cheliped carpus cross-section (upper margin topmost, inner face left); j, minor cheliped (right, mesial); k, minor cheliped fingers (lateral); l, minor cheliped dactylus (apical view). MNHN IU-2017-1357, paratype ovigerous female, 4.7 mm: m, anterior carapace, eyestalk, antennular peduncle article 2, antennal peduncle; n, major cheliped, carpus–dactylus (upper view). Scale bars = 1 mm.

ovate; upper margin convex, unarmed; lower margin with subproximal bicuspid spine, with small blunt teeth over distal three quarters. Carpus 0.85 as long as wide; upper and lower margins carinate, directed mesially to form parallel depressions above and below swollen mesial face. Propodus upper margin 1.2 times as long as carpus; palm widest subproximally, as wide as carpus, tapering, as long as wide; upper margin with narrow rounded keel; lateral surface smooth, convex; mesial surface convex, with obtuse angle set back from distolateral margin;

lower margin carinate, with row of setae extending onto fixed finger; fixed finger 0.4 length of palm, distally directed; cutting edge lateral, blade-like. Dactylus as long as fixed finger, hooked distally, with acute tip and mesial accessory tooth; upper margin ridged, with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge unarmed.

Minor cheliped carpus–palm upper margin as long as carapace length. Ischium upper margin smooth, lower margin with row of 6 teeth. Merus about as long as ischium; lower

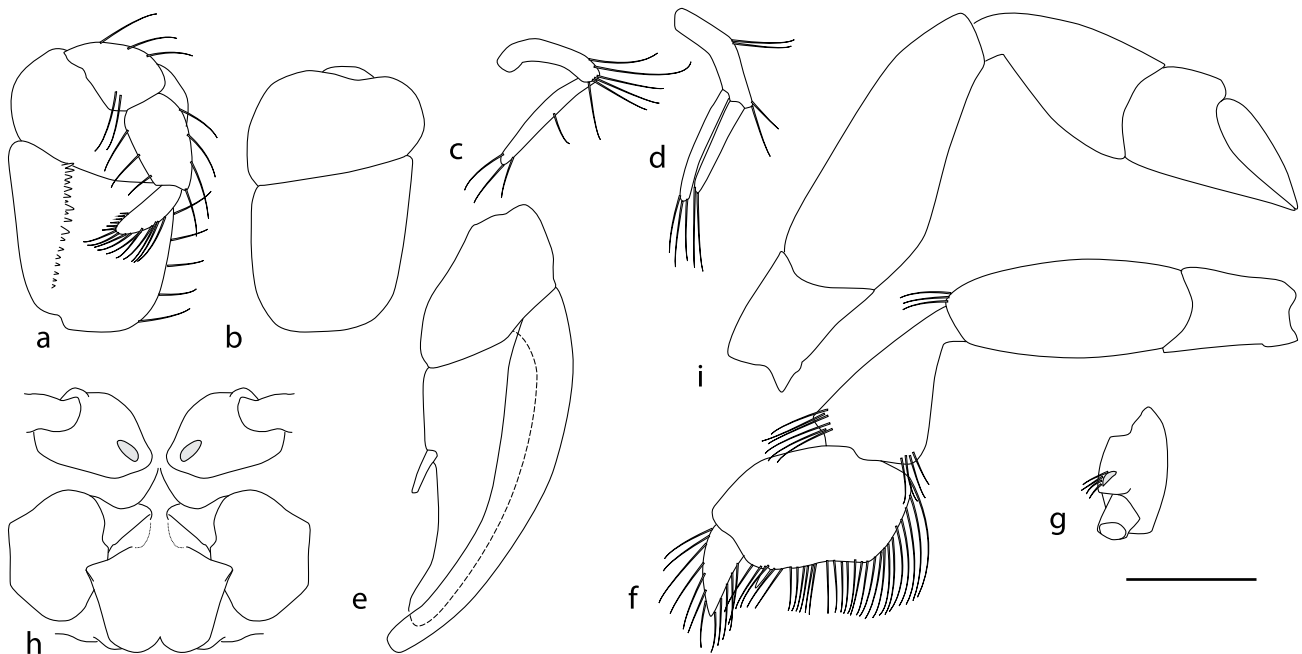


Figure 43. *Rayllianassa bifida* sp. nov. Vanuatu. MNHN IU-2013-7137, holotype female, 4.4 mm: a, b, maxilliped 3 (left, inner, outer views); c–e, pleopods 1–3; f, pereopod 3; g, pereopod 5 coxa (mesial view); h, thoracic sternite 7, pereopodal coxae 3, 4. MNHN IU-2017-1357, paratype ovigerous female, 4.7 mm: i, pereopod 2. Scale bar = 1 mm.

margin with tooth about one quarter along. Carpus wider distally, little shorter than merus, as long as wide, upper and lower margins carinate as in major cheliped. Palm slightly swollen, 1.2 times as long as wide; upper margin convex, with narrow rounded keel; lower margin carinate, with row of long setae extending onto fixed finger; mesial face with small tubercle at base of fixed finger. Fixed finger deep, triangular, half as long as palm, cutting edge lateral, with tooth at midpoint. Dactylus as long as palm, curved, with subapical mesial accessory tooth; cutting edge smooth.

Pereopod 2 merus lower margin slightly sinusoidal, 2.5 times as long as wide; carpus about 1.8 times as long as wide; chela subtriangular; palm about 1.6 times as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 merus 2.4 times as long as wide; carpus subtriangular, 1.7 times as long as wide; propodus suboval-angular, upper margin 1.2 times greatest width, lower margin with distinct corner between straight proximal half and concave distal half, marginal setae with 2 clear gaps along distal half, with 1 slender spiniform seta subdistally; dactylus about 0.7 length of propodus upper margin. Pereopod 4 coxa flattened ventrally, otherwise unknown. Pereopod 5 chelate.

Pleopod 1 of 2 articles at right angles; ramus 1.2 times as long as peduncle; setose. Pleopod 2 biramous; endopod slightly shorter than exopod. Pleopods 3–5 biramous, endopod 2.3 times as long as wide; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval-tapering, widest over proximal half, about 1.5 times as long as wide; upper surface with 2

spiniform setae on dorsal rib, 3 others more anteriorly; anterior margin almost straight; anterodistal margin with 4 short spiniform setae; distal margin convex, with fringe of setae; posterior margin setose. Exopod widest near midpoint, 1.5 times as long as wide, exceeding endopod by one quarter its length; anterior margin almost straight; all margins with numerous slender setae, with more than 20 blade-like setae on posterior margin indistinguishably merged with distal margin; dorsal plate apparent on distal margin as row of about 12 stiff setae merging anteriorly with similar setae on anterior margin.

Telson trapezoidal, 1.2 times as wide as long, broadest at anterior fifth, narrowing posteriorly; greatest width 1.4 times posterior width; posterolateral angle each with spiniform setae; posterior margin medially excavate, with median tooth; dorsal surface with few medial setae.

Variation. The two individuals are similar; the meral tooth on the paratype is not so obviously bicuspid as in the smaller holotype.

Etymology. *bifida* (Latin), describing the tips of the cheliped dactyli.

Distribution. Tropical Southwestern Pacific (Vanuatu); 114–132 m.

Remarks. *Rayllianassa bifida* is represented by MNHN IU-2013-7137, one of two individuals on the smaller primary clade in the molecular phylogram of Robles et al. (2020: fig. 3 [mislabelled PNG]).

Rayllianassa bifida shares with *R. amboinensis* a broad angular propodus of pereopod 3, a broad oval maxilliped 3,

prominent mesial lobes on the eyestalks, large cornea, a large major cheliped relative to the carapace, spiniform setae along the uropodal endopod ridge, and hermaphroditism. The new species differs in having a proximal tooth on the major cheliped merus (never seen in *R. amboinensis*), a feature shared with *R. huonensis* sp. nov. Whereas the upper margin of the cheliped of *R. amboinensis* has a dull ridge visible only mesially as a shadow under suitable lighting, *R. bifida* has a prominent ridge on the upper margin of the carpus and propodus (fig. 42f, n); on the carpus this ridge and the one on the lower margin are directed mesially as carinae, creating shallow mesial concavities parallel

to the margins (fig. 42i). The third article of the antennule is much shorter and thicker than that of *R. amboinensis* figured by De Man (1928a) and Komai et al. (2014a), making the antennular and antennal peduncles of similar lengths.

***Rayllianassa huonensis* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:F4FE461E-177A-4750-A156-A08643400AC9>

Figures 44, 45

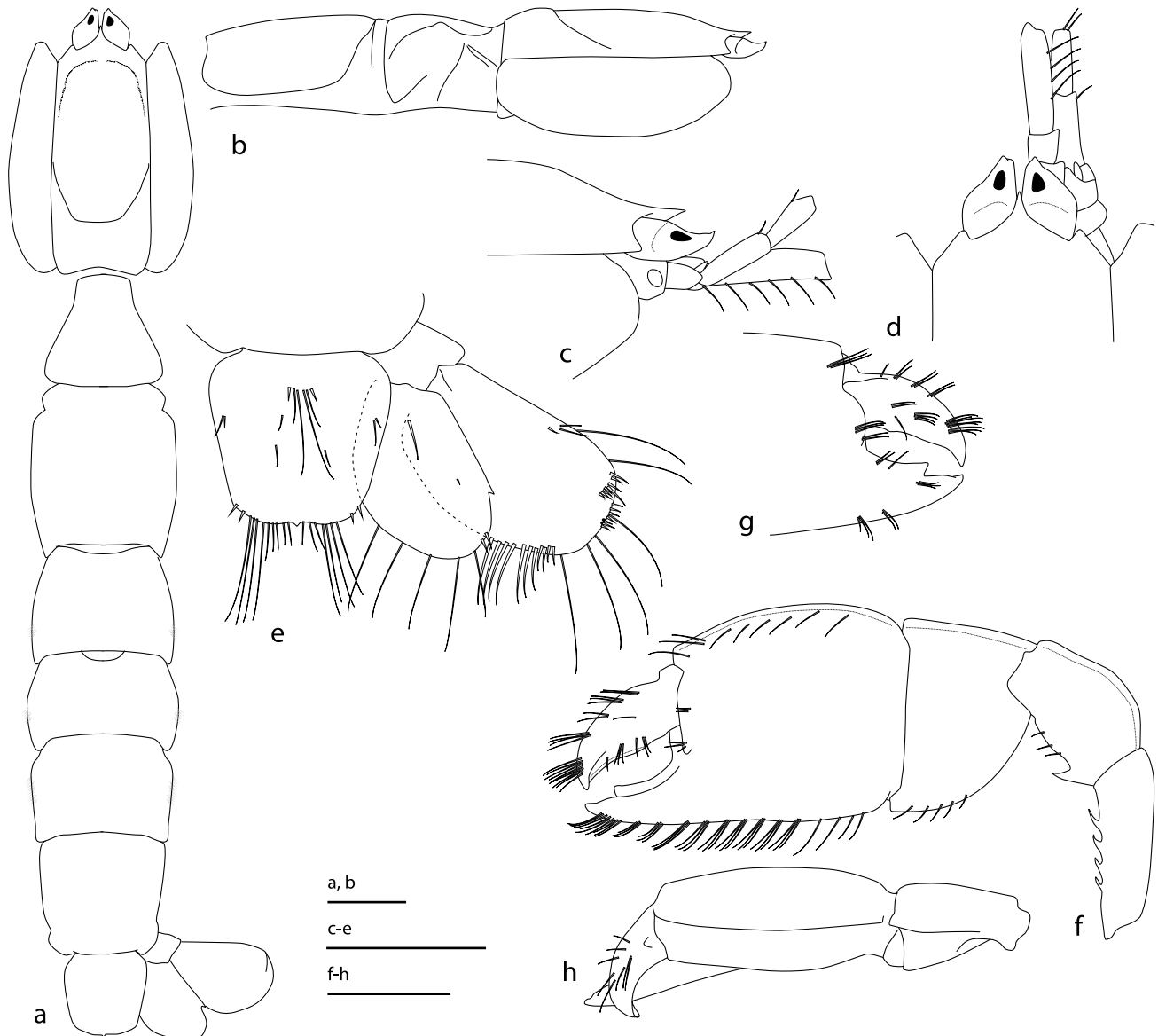


Figure 44. *Rayllianassa huonensis* sp. nov. Papua New Guinea. MNHN IU-2011-6054 (holotype ovigerous female, 3.1 mm: a, eyestalks, carapace, pleon, telson, uropod (dorsal); b, eyestalk, carapace, pleomeres 1, 2 (lateral); c, d, antennular, antennal peduncles, eyestalk, anterior carapace (lateral, dorsal); e, telson, right uropod; f, major cheliped (right, mesial); g, major cheliped distal palm, fingers (lateral); h, carpus–dactylus (upper). Scale bars = 1 mm.

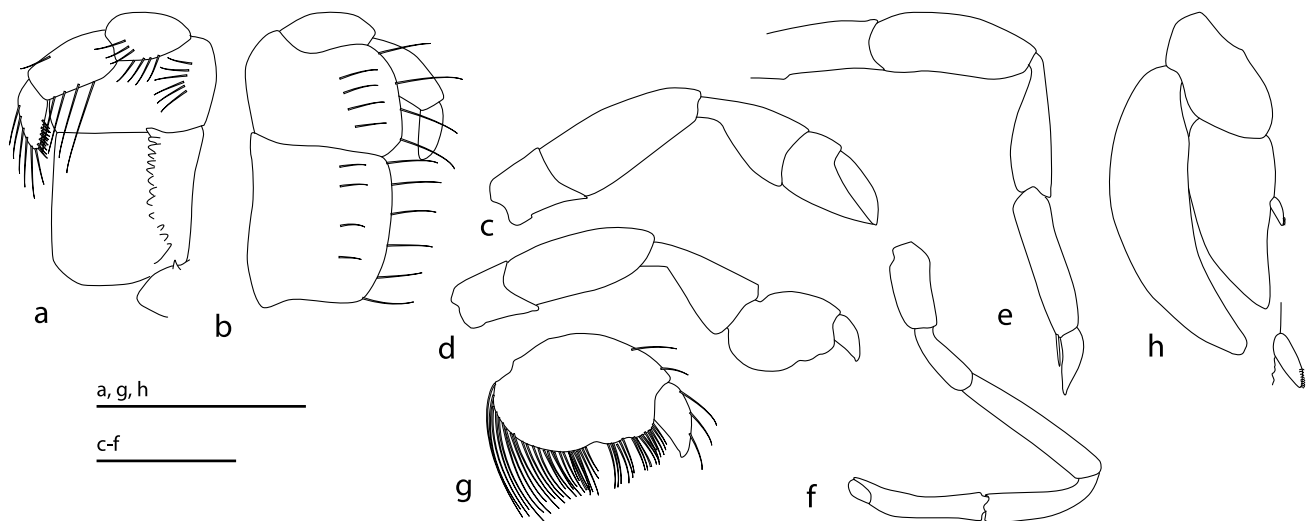


Figure 45. *Rayllianassa huonensis* sp. nov. Papua New Guinea. MNHN IU-2011-6054 (holotype ovigerous female, 3.1 mm: a, b, maxilliped 3 (mesial, lateral views); c–f, pereopods 2–5; g, pereopod 3 propodus, dactylus, h, pleopod 3 (with detail of appendix interna. Scale bars = 1 mm).

Material examined. Holotype. **Papua New Guinea**, Huon Gulf, SE of Lae, 07° 27' S, 147° 31' E, 462–495 m (BIOPAPUA stn CP3636), MNHN IU-2011-6054# (ovigerous female, 3.1 mm).

Diagnosis. Antennular peduncle about as long as antennal peduncle. Major cheliped merus with simple proximal tooth and carinate along most of lower margin; carpus and merus upper margins carinate; palm upper margin with narrow rounded keel, without tubercles and ridges on distal mesial and lateral margins at the base of fingers; dactylus with blade along cutting edge, apex simple. Pereopod 3 propodus oval, widest proximally. Uropodal exopod widest near midpoint, 1.6 times as long as wide.

Description of holotype. Carapace dorsally flat in lateral view, 0.8 length of pleomeres 1–2 combined; orbital margin oblique; anterolateral angle blunt; subanterolateral margin horizontal; anterior margin of branchiostegite convex; cervical groove deeply incised, across 0.8 length of carapace, almost reaching linea thalassinica. Pleomere 1 tergite without transverse groove. Pleomere 1.7 times as long as pleomere 1. Pleomere 6 about as long as wide.

Eyestalk 1.4 times as long as wide, with dorsal face close to rostrum, with sharp ventrolateral margin, anterolateral margin oblique, anteromedial angle triangular, acute in dorsal view, upturned, reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, small, not filling anterior half of eyestalk.

Antennular peduncle about as long as antennal peduncle; article 1 visible in dorsal view; article 3 longer than articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of long setae. Antennal peduncle article 5 as long as article 4; scaphocerite minute, oval.

Maxilliped 3 ischium almost parallel-sided, 1.3 times as long as wide, crista dentata consisting of row of about 13 teeth, contiguous distally; merus about two thirds as long as ischium

measured along outer margin, about 1.4 times as wide as long, wider than ischium, with mesiodistal margin produced as convex lobe beyond base of carpus; carpus about as long as merus outer margin; propodus ovoid-tapering, 1.8 times as long as wide; dactylus digitiform, 0.8 length of propodus.

Major cheliped massive, carpus-palm upper margin 0.9 carapace length. Ischium expanding distally, upper margin almost straight, unarmed; lower margin with row of 4 similar spines. Merus little shorter than ischium, 1.5 times as long as wide (tooth excluded), ovate; upper margin convex, unarmed, carinate; lower margin with proximal angled spine, carinate over distal three quarters. Carpus 0.65 as long as wide; upper and lower margins carinate. Propodus upper margin 1.7 times as long as carpus; palm widest at midpoint, wider than carpus, as long as wide; upper margin convex, with narrow rounded keel; lateral surface smooth, convex; mesial surface convex, distolateral margin with tubercle near base of fixed finger; lower margin carinate, with row of setae extending onto fixed finger; fixed finger half as long as palm, distally directed; cutting edge lateral, blade-like, ending in step two thirds along. Dactylus as long as fixed finger, hooked distally, with acute tip; upper margin ridged, with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge unarmed.

Minor cheliped unknown.

Pereopod 2 merus lower margin almost straight, 2.5 times as long as wide; carpus about 1.8 times as long as wide; chela subtriangular; palm about 1.7 times as wide as upper margin; dactylus 2.2 times as long as palm upper margin. Pereopod 3 merus 2.5 times as long as wide; carpus subtriangular, 1.7 times as long as wide; propodus oval, upper margin as long as greatest width, lower margin rounded over proximal half, distal half sinusoidal, marginal setae with 2 clear gaps along distal half, with 1 slender spiniform seta subdistally; dactylus about 0.6 length of propodus upper margin. Pereopod 4

propodus about 3.8 times as long as wide. Pereopod 5 chelate.

Pleopods of female 1, 2 typical. Pleopods 3–5 biramous, endopod 2.3 times as long as wide; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval-tapering, widest at midpoint, about 1.6 times as long as wide; upper surface with 1 long proximal spiniform setae on dorsal rib; anterior margin almost straight ending in small tooth; anterodistal margin with 2 short spiniform setae; distal margin convex, with fringe of setae; posterior margin setose. Exopod widest near midpoint, 1.6 times as long as wide, exceeding endopod by one third its length; anterior margin almost straight; all margins with numerous slender setae, with more than 10 blade-like setae on posterior margin indistinguishably merged with distal margin; dorsal plate apparent near distal margin as row of about 7 stiff setae.

Telson trapezoidal, as wide as long, broadest at anterior fifth, narrowing posteriorly; greatest width 1.4 times posterior width; posterolateral angle each with 2 spiniform setae; posterior margin medially excavate, with median tooth; dorsal surface with few medial setae including pair of spiniform setae.

Etymology. From the Gulf of Huon, Papua New Guinea.

Distribution. Solomon Sea (Papua New Guinea); 462–495 m.

Remarks. *Rayllianassa huonensis* shares with *R. bifida* sp. nov. a proximal spine on the merus of the major cheliped but lacks the strong cheliped carina and bifid cheliped dactylus seen in this species. The new species is also genetically and morphologically close to *Rayllianassa* sp. (see below).

Rayllianassa sp.

Figures 37b, 46

Rayllianassa cf. *amboinensis*.—Robles et al., 2020: fig. 3 (part).

Material examined by P.C. Dworschak. **Philippines**, Luzon, 14° 53' N, 121° 45' E, 269–277 m (MNHN AURORA 2007 stn CP2671), NHMW 25915* (tissue sample ULLZ 10127), (ovigerous female, 4.3 mm).

Diagnosis. Antennular peduncle about as long as antennal peduncle. Major cheliped merus with simple proximal tooth and carinate along most of lower margin; carpus and merus upper margins carinate; palm upper margin with narrow rounded keel, without tubercles and ridges on distal mesial and lateral margins at the base of fingers; dactylus with blade along cutting edge, apex simple. Pereopod 3 propodus oval, widest proximally. Uropodal exopod widest near midpoint, 1.2 times as long as wide; endopod elongate-oval, twice as long as wide.

Remarks. Peter C. Dworschak (pers. comm., 26 September 2022) provided sketches of this individual that is included in the molecular phylogram of Robles et al. (2020: fig. 3). It is similar to *R. huonensis*. The major cheliped of the two species are similar (merus with a basal spine, distomesial margin of the palm with a tubercle) but the uropods differ – *R. huonensis* has a relatively narrower exopod and wider endopod with a long spiniform seta on the dorsal face. Sequences of the two species diverge significantly (12S: 0.031; 16S: 0.050; Table 2). The dorsal carapace and pleon is reddish; the chelipeds have a pale orange distal transverse band on the carpus and palm (fig. 37b).

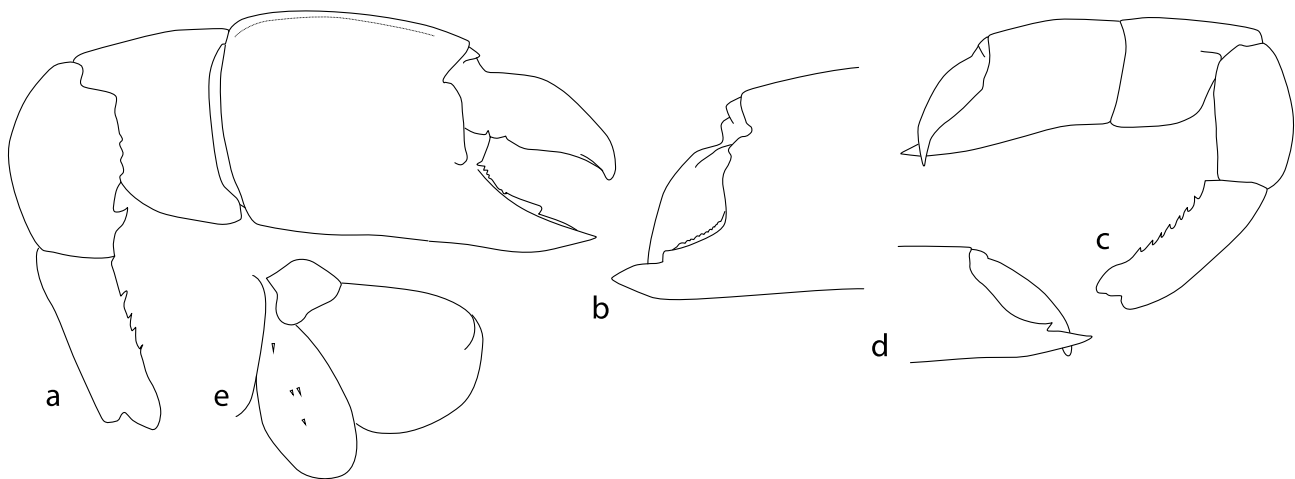


Figure 46. *Rayllianassa* sp. Philippines. NHMW 25915 (ovigerous female, 4.3 mm: a, major cheliped (left, mesial); b, major cheliped distal palm, fingers (lateral); c, minor cheliped (right, mesial); d, minor cheliped distal palm, fingers (lateral); e, right uropod (from drawings by P.C. Dworschak).

***Rudisullianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019**

Rudisullianassa Poore et al., 2019: 98–99.—Robles et al., 2020: figs 1, 3, 6.—Poore and Ahyong, 2023: 213.

Diagnosis. Hermaphrodite. Rostrum obsolete or obtusely triangular, flat, not reaching cornea. Cervical groove suture-like dorsally. Antennular peduncle exceeded by distal half of antennal peduncular article 5. Antennal scaphocerite simple, about as long as wide, apically rounded. Maxilliped 3 ischium-merus 1.5 times as long as wide; merus wider at ischium-merus suture than long; dactylus tapering, with scattered setae over upper margin, dense brush of short setae distally on lower margin *or* ovate, with dense brush of long setae over most of upper-distal margin, few setae along lower margin. Major cheliped merus widest distally, lower margin with or without denticles. Minor cheliped half width of major cheliped, both swollen; carpus upper margin shorter than propodus. Uropodal endopod ovoid, longer than wide, anterior margin straight, posterodistal margin evenly convex, with or without facial spiniform setae on rib. Uropodal exopod about as long as wide or about 1.5–1.8 times as long as wide, posterodistal margin with row of 6–8 long blade-like setae proximal to long setae on distal margin. Telson about as wide as long, tapering from anterolateral lobe; anterolateral lobe obsolete, undefined; posterior margin slightly concave, without medial spine.

Remarks. Poore et al (2019) diagnosed *Rudisullianassa*. *Rudisullianassa rudisulcus* (Komai, Fujita and Maenosono, 2014) and *R. pandan* sp. nov. are sister species in the molecular phylogram of Robles et al. (2020: fig. 3). Their closest neighbour in this analysis is *Scallasis* Bate, 1888 (see Komai et al., 2020 for rediagnosis). Morphologically, *Rudisullianassa* is most similar to *Rayllianassa*, differing in having the antennal peduncle longer than the antennular peduncle (vice versa or as long as each other in *Rayllianassa*). Both genera are rediagnosed here but are hard to distinguish morphologically despite the apparent molecular separation.

Komai et al. (2014a) recorded *R. rudisulcus* from soft sediment, inferring the species was a sediment burrower as is typical of callianassids. Most of the records of the same species and a second from Papua New Guinea noted the presence of wood in the sample or that the shrimp was extracted from mud surrounding *Pandanus* roots. This suggests that both species burrow next to wood, as do some species of *Rayllianassa*.

Komai et al. (2014a) reported only one specimen of the type species, *Rayllianassa rudisulcus*, an ovigerous female. All the new material of this species and of a second species have both female and male gonopores, even while ovigerous.

***Rudisullianassa pandan* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:39DA749A-D7B1-4A40-A246-34F1BA361BC4>

Figures 1h, 47

Rudisullianassa PNG-369.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **Papua New Guinea**, Madang Province, S of Tab I., 05° 10.3' S, 145° 50.3' E, 2–4 m, associated with *Pandanus* wood (PAPUA NIUGINI stn PR22), MNHN IU-2013-7054* (female,

4.2 mm). Paratypes. Collected with holotype, MNHN IU-2013-7063*# (female without pleon, 4.5 mm), MNHN IU-2013-437 (ovigerous female, 3.52 mm), MNHN IU-2017-1347 (10 hermaphrodites, 3–4 mm), MNHN IU-2017-1348*# (hermaphrodite, 4.7 mm), MNHN IU-2017-1349 (ovigerous female, 3.6 mm), MNHN IU-2017-1350 (ovigerous female, 3.5 mm), NMV J71657 (2 hermaphrodites, 3.5, 3.9 mm). Other material. **Papua New Guinea**, Madang Province, (PAPUA NIUGINI stn PR58), MNHN IU-2013-7132 (female, 4.3 mm).

Description. Rostrum barely projecting, situated level with dorsal carapace, as long as eyestalks. Carapace dorsally flat, as long as pleomeres 1 and 2 and half of pleomere 3 combined; orbital margin transverse; anterolateral angle not projecting, obtuse; subanterolateral margin oblique, anterior margin of branchiostegite with dorsal lobe; cervical groove across 0.85 length of carapace, reaching linea thalassinica, scarcely incised in lateral view. Thoracic sternite 7 subpentagonal with projecting anteromedian margin; ventral surface without median groove; posterior margin with negligible median indentation. Pleomere 1 tergite narrowest anteriorly. Pleomere 2 slightly wider than long. Pleomeres 3–5 each wider than long; pleura each with patch of plumose setae. Pleomere 6 about as long as wide, 1.1 times as long as pleomere 5, with obsolete ventrolateral groove.

Eyestalk 1.3 times as long as wide, tapering, with gently sloping anterior face, anteromesial angle rounded in dorsal view, reaching distal margin of antennular peduncle article 1. Cornea occupying anterolateral margin of eyestalk, darkly pigmented.

Antennular peduncle almost reaching distal margin of antennal peduncle article 5; article 1 scarcely visible in dorsal view; article 2 shorter than article 1; article 3 1.5 times as long as articles 1 and 2 combined; articles 2 and 3 with longitudinal ventral row of sparse long setae. Antennal peduncle article 5 0.8 length of article 4; scaphocerite minute, oval.

Maxilliped 3 ischium distally expanded, about as long as wide, crista dentata consisting of row of 20 small similar teeth; merus about 0.6 length of ischium measured along outer margin, about twice as wide as long, with mesiodistal lobe overreaching articulation of carpus; carpus shorter than merus; propodus oval, 1.4 times as long as wide; dactylus ovoid, 0.9 length of propodus, twice as long as wide, with dense setae over distal margins.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped massive, carpus-palm upper margin 1.4 times carapace length. Ischium expanding distally, upper margin concave, unarmed; lower margin with obsolete teeth. Merus 1.2 times as long as ischium, 1.6 times as long as wide, vase-shaped; upper margin convex, unarmed; lower margin with oblique distal lobe, armed with few small teeth. Carpus 1.7 times as wide as long; margins carinate, folding mesially. Propodus upper margin 2.8 times as long as carpus; palm of almost even width, 1.45 times as long as wide; upper margin with slight mesial carina; lateral surface smooth, convex, distal margin with 2 blunt rounded teeth at base of finger; mesial surface convex, with small tooth at base of finger; lower margin carinate, with row of clusters of setae extending onto fixed finger; fixed finger about half as long as palm, convex, depressed and angled mesially beyond palm; cutting edge lateral, uneven. Dactylus not overreaching fixed finger;

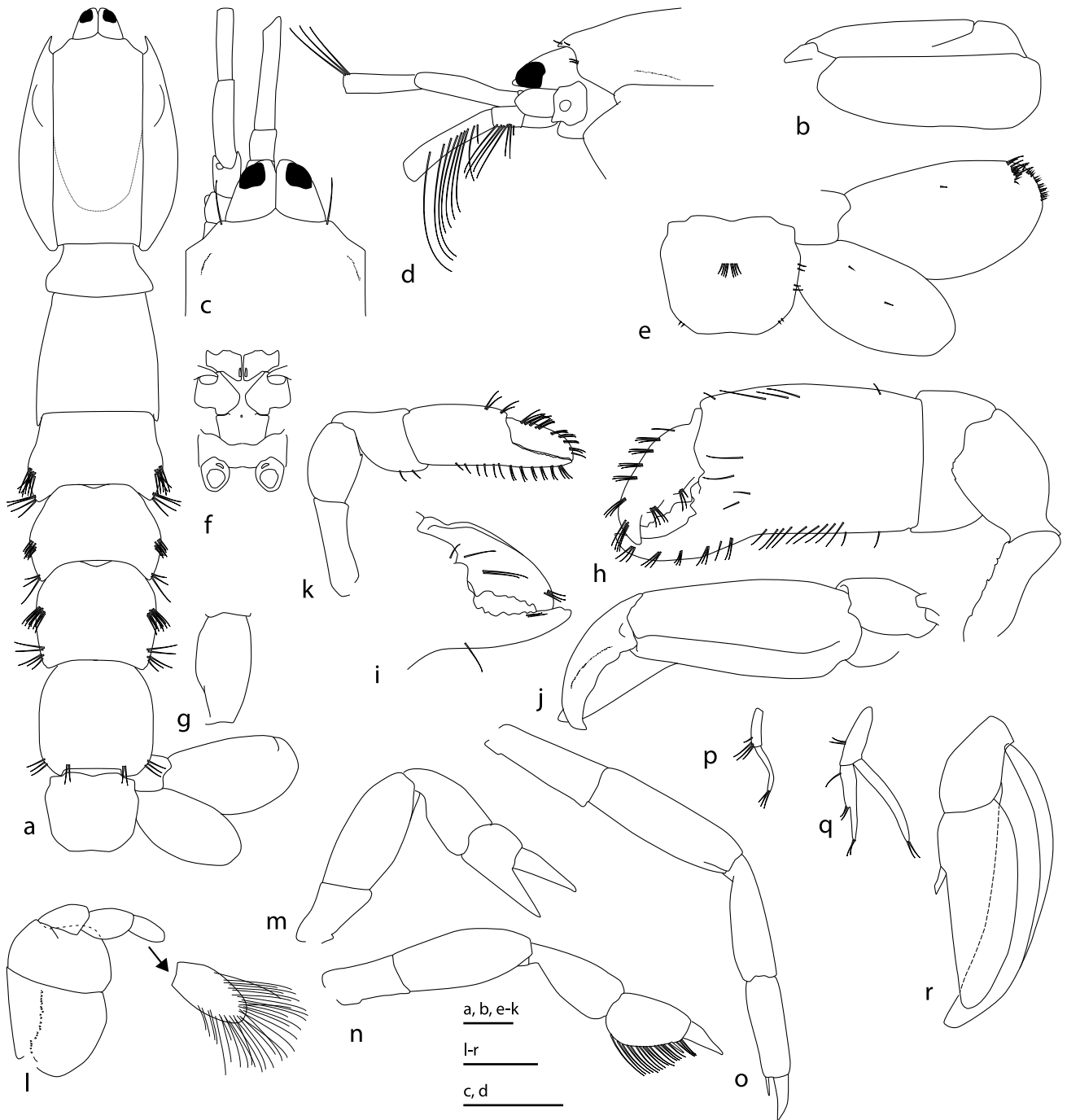


Figure 47. *Rudisullianassa pandan* sp. nov. Papua New Guinea. MNHN IU-2013-7054, female, 4.2 mm: a, eyestalks, carapace, pleon, telson, uropod; b, eyestalk, carapace (lateral); c, d, antennular peduncle, antennal peduncle, eyestalk, anterior carapace (dorsal, lateral); e, telson, right uropod; f, thoracic sternites 7, 8, pereopodal coxae 3–5 (gonopores shaded); g, pleomere 6 (left lateral); h, major cheliped (right, mesial); i, major cheliped distal palm, fingers (lateral); j, carpus–dactylus (upper); k, minor cheliped (left, mesial); l, maxilliped 3 (with detail of dactylus); m–o, pereopods 2–4; p–r, pleopods 1–3. Scale bars = 1 mm.

upper margin with tufts of long setae; cutting edge with triangular blunt proximal tooth, irregularly tooth blade over distal third, with blunt hooked tip.

Minor cheliped carpus-palm upper margin about as long as that of major cheliped. Ischium margins smooth. Merus 0.75 times as long as ischium; lower margin convex with small tooth about two thirds along. Carpus widest over distal half, almost as long as merus, 1.2 times as long as wide. Palm 1.5 times as long as wide; upper margin barely convex; lower margin sharply carinate, with row of long setae extending onto fixed finger; lateral face smooth. Fixed finger 0.7 length of palm, cutting edge denticulate. Dactylus 0.74 length of fixed finger; cutting edge smooth.

Pereopod 2 merus with convex margins, 2.2 times as long as wide; carpus subtriangular, twice as long as wide; palm 1.3 times as wide as upper margin; dactylus 1.7 times as long as palm upper margin. Pereopod 3 carpus subtriangular, twice as long as wide; propodus widest proximally, tapering, without produced lower proximal margin, upper margin 1.4 times width, lower margin convex, with 1 slender subdistal spiniform seta, with evenly spaced marginal setae; dactylus nearly straight, about 0.6 length of propodus upper margin. Pereopod 4 coxa flattened ventrally, immovable; merus 1.4 times as long as ischium; carpus 0.8 length of merus; propodus 0.8 length of carpus, with dense grooming setae distally on lower margin, scattered stiff setae on outer surface, with long spiniform setae parallel to dactylus; dactylus straight, half as long as propodus. Pereopod 5 slender, subchelate.

Female pleopod 1 of 2 articles, second weakly curved. Female pleopod 2 biramous; peduncle almost straight; endopod tapering distally, slightly shorter and broader than exopod, of 2 articles. Pleopods 3–5 biramous, rami narrow; appendix interna slender, rod-like, projecting well beyond mesial margin of endopod, bearing coupling hooks on apical margin.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval, about 1.65 times as long as wide; upper surface with 2 spiniform setae; anterior margin slightly convex; posterodistal margin convex, with fringe of setae. Exopod oval, 1.6 times as long as wide, exceeding endopod by about one third length; anterior margin convex, with 4 submarginal slender setae; posterior margin with numerous slender setae, with about 7 blade-like distal setae, indistinguishably merged with distal margin; upper surface with 1 spiniform seta; dorsal plate short, with row of about 10 stiff setae separate from setal row of distal margin.

Telson 1.2 times as long as wide, broadest at anterior fifth, narrowing posteriorly to oblique posterolateral angles, each with 2 small spiniform setae; posterior margin weakly concave; dorsal surface with few medial setae anterior to midlength.

Etymology. Pandan, a Malay word from which the palm genus *Pandanus* is derived (noun in apposition).

Distribution. Eastern Coral Triangle (Papua New Guinea); 2–4 m, associated with submerged wood.

Remarks. *Rudisullianassa pandan* differs from *R. rudisulcus* in having (1) narrower uropodal rami; (2) relatively shorter telson;

(3) the tooth on the distolateral margin of the palm of the major cheliped less prominently triangular; (4) the distal margin of the merus of maxilliped 3 not as produced and the dactylus not as densely distally setose; and (5) the propodus of pereopod 3 more symmetrical (it is wider proximally in *R. rudisulcus*).

Both species occur in Madang Province, Papua New Guinea, and were taken from a single sample associated with submerged pandanus wood.

***Rudisullianassa rudisulcus* (Komai, Fujita and Maenosono, 2014)**

Figures 1i, 48

Rayllianassa rudisulcus Komai et al., 2014a: 554–560, figs 3–7.

Rudisullianassa rudisulcus.—Poore et al., 2019: 140, 143.—Robles et al., 2020: figs 1, 3, 6.

Material examined. **Papua New Guinea**, Madang Province, S of Tab I., 05° 10.3' S, 145° 50.3' E, 2–4 m (PAPUA NIUGINI stn PR22), MNHN IU-2013-435* (ovigerous female, 4.4 mm), MNHN IU-2013-7060* (hermaphrodite, 3.7 mm), MNHN IU-2013-7069* (ovigerous female, 4.0 mm), MNHN IU-2017-1345 (7 hermaphrodites, 2 ovigerous females, 2.9–3.7 mm), NMV J71663 (3 hermaphrodites, 1 ovigerous female, 2.9–3.8 mm). Kranket I., 05° 11.5' S, 145° 49.5' E, 10–20 m (PAPUA NIUGINI stn PR58), MNHN IU-2013-7088* (2 ovigerous females, 3.4 mm), MNHN IU-2013-7042* (ovigerous female, 4.4 mm), MNHN IU-2013-7131 (ovigerous female, 3.7 mm), MNHN IU-2013-7121 (hermaphrodite, 3.8 mm). N of Madang, intertidal 04° 59.3' S, 145° 47.6' E (PAPUA NIUGINI stn PM27), MNHN IU-2013-7057 (ovigerous female, 2.9 mm).

Diagnosis. Telson as long as wide, broadest at anterior third, narrowing posteriorly to rounded posterolateral angles; dorsal surface with few medial setae anterior to midlength; posterolateral angle with row of small spiniform setae; posterior margin convex. Uropod endopod oval, about 1.4 times as long as wide; upper surface without spiniform setae. Exopod oval, 1.4 times as long as wide, with row of submarginal slender setae; posterior margin with numerous slender setae, with 3 blade-like distal setae; upper surface with 1 spiniform seta near midpoint.

Distribution. South Kurishio, Eastern Coral Triangle (Ryukus, Japan [type locality: Ohura Bay, Okinawa I., 3–20 m]; Papua New Guinea); 0–20 m; associated with submerged wood.

Remarks. The species description and figures are comprehensive (Komai et al., 2014a) and little needs to be added. The maxilliped 3 dactylus is short and bears dense setae over the distal and upper margins, much denser than in *R. pandan*, and resembles the condition in eucalliicids. Komai et al. (2014b) figured the female pleopod 2 with a 2-articled exopod; all of the new material has only one article, as is typical of callianassids (fig. 41h). The major chela is mesially twisted and its palm is characterised by a lateral triangular tooth in the gape (fig. 41c–e).

***Spinicallianassa* Poore, Dworschak, Robles, Mantelatto and Felder, 2019**

Spinicallianassa Poore et al., 2019: 99–100.—Robles et al., 2020: figs 1, 3, 6.—Poore and Ahyong, 2023: 214.

Remarks. Species of *Spinicallianassa* have an acute rostrum. Larger adults of most species have a longitudinal groove, sometimes well defined by a sharp ridge, on the lateral face of the palm running onto the fixed finger. The eyestalk is more swollen and convex laterally than in other callianassid genera except *Caviallianassa*, which it somewhat resembles; *Spinicallianassa* differs from *Caviallianassa* in having a spine between a third and half way along the lower margin of the cheliped merus rather than smaller subproximal spine(s). A feature of most species is the small tubercle at the lower limit of the distomesial margin of the cheliped palm.

Robles et al. (2020) recognised three undescribed species of which one, *S. aff. acutirostellata* (Sakai, 1988), is here reidentified as *S. spinicauda* (Komai, Maenosono and Fujita, 2014). Three new species, one from Papua New Guinea, a second principally from French Polynesia, and a third from southwestern Australia are described as new. The identity of *S. acutirostellata* remains problematic (see below). Differences between the species are slight, and were it not for the genetic separation all could be viewed as one variable species. The best illustrated species is *S. spinicauda* (Komai, Maenosono and Fujita, 2014). The diagnoses below concentrate on few critical characters.

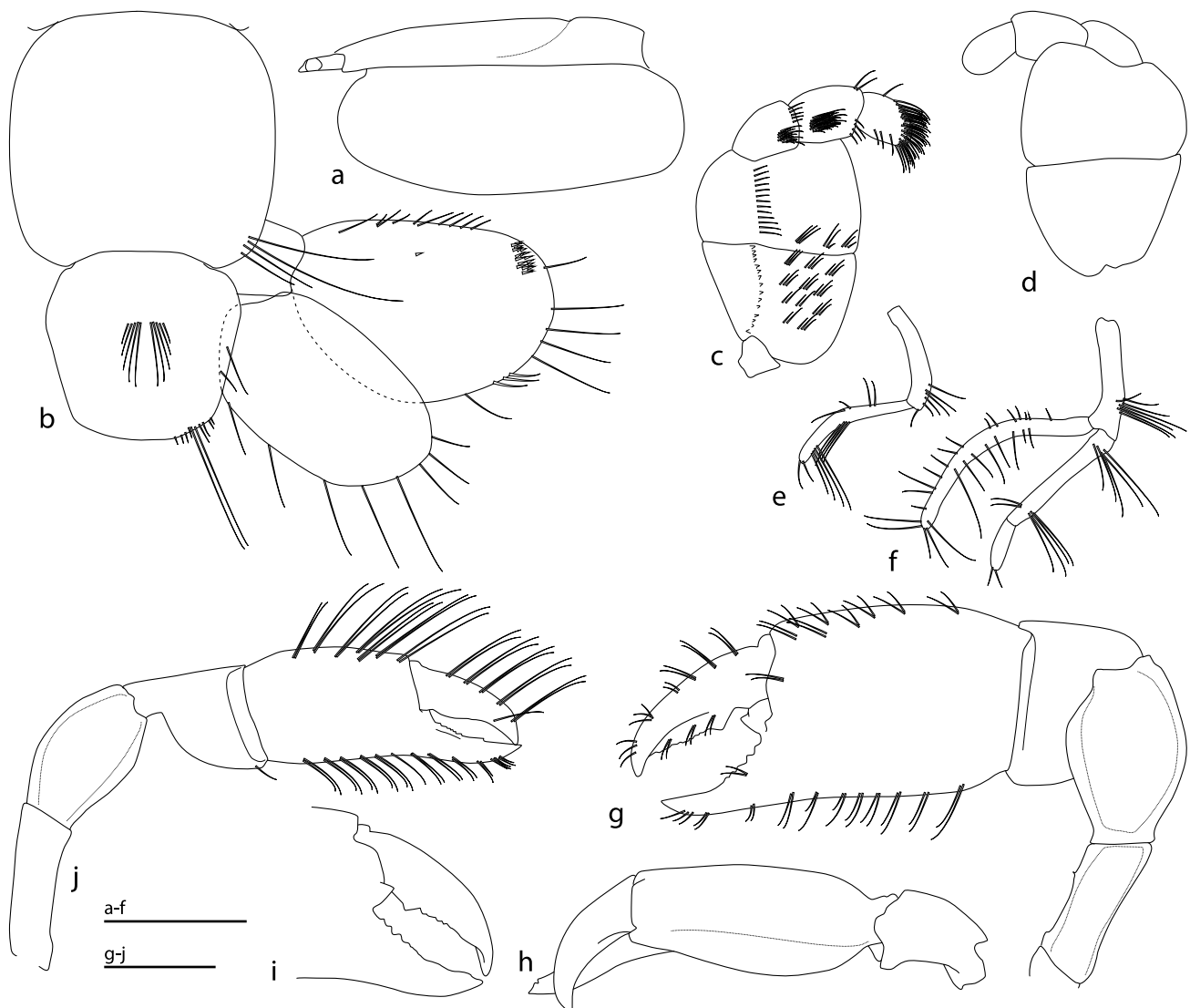


Figure 48. *Rudisullianassa rudisulcus* Komai, Fujita and Maenosono, 2014. Papua New Guinea. MNHN IU-2013-7121, hermaphrodite, 3.8 mm: a, eyestalk, carapace. MNHN IU-2013-435, ovigerous female, 4.4 mm: b, pleomere 6, telson, right uropod; c, d, maxilliped 3 (mesial, outer views); e, f, pleopods 1, 2; g, major cheliped (right, mesial); h, major cheliped carpus–dactylus (upper); i, major cheliped distal palm, fingers (lateral); j, minor cheliped (left, mesial). Scale bars = 1 mm.

Key to species of *Spinicallianassa**S. parvula* excluded

1. Uropodal exopod distal margin convex, with obtuse angle between it and anterior margin; anterior margin with 1–3 distal spiniform setae plus fine setae; dorsal plate of few spiniform setae 2
- Uropodal exopod distal margin straight, with right angle between it and anterior margin; anterior margin with only fine setae; dorsal plate of numerous spiniform setae 4
2. Telson 1.2 times as long as wide. Uropodal exopod with 2 or 3 well spaced spiniform setae along anterior margin *S. westralia*
- Telson 1.4–1.6 times as long as wide. Uropodal exopod with 1 or 2 distal spiniform setae along anterior margin 3
3. Maxilliped 3 merus rectangular *S. bilbili*
- Maxilliped 3 merus semicircular *S. acutirostella*
4. Telson posterolateral corners rounded; without short dorsal spiniform setae *S. papetoai*
- Telson posterolateral corners squarish; with row of short dorsal spiniform setae *S. spinicauda*

***Spinicallianassa acutirostella* (Sakai, 1988)**

Figure 49

Callianassa acutirostella Sakai, 1988: 57–59, fig. 2.—Sakai, 1999: 37.—Tudge et al., 2000: 143.—Davie, 2002: 458.

Trypaea acutirostella.—Sakai, 2011: 390.

Cheramus acutirostella.—Komai et al., 2014b: 522, fig. 16.

Spinicallianassa acutirostella.—Poore et al., 2019: 140, 143.

Not *Callianassa acutirostella*.—Sakai, 2005: 64–68, figs 13, 14 (= *Spinicallianassa spinicauda* (Komai, Maenosono and Fujita, 2014).

Material examined. Australia, WA, North West Shelf, 19° 05.1' S, 118° 53.7' E, 82 m, NTMAG Cr000789 (holotype female, 4.5 mm).

Diagnosis. Telson 1.35 times as wide as long, with dorsal transverse row of long setae and 3 pairs of spiniform setae, anterolateral lobes rounded, lateral margins tapering to angular posterolateral corners; posterior margin almost truncate. Uropodal endopod 1.7 times as long as wide, with 4 or 5 scattered spiniform setae on face, without spiniform setae along anterodistal margin; anterior margin with or without subdistal tooth. Uropodal exopod 1.2 times as long as wide, distal margin at right angles to anterior margin, dorsal plate comprising numerous dense spiniform setae, anterior margin without distal spiniform seta. Maxilliped 3 ischium 1.0–1.2 times as long as wide; merus almost semicircular.

Distribution. Northwest Australian Shelf (Australia, WA [type locality: North West Shelf, 82 m]); 82 m.

Remarks. *Callianassa acutirostella* was described from a single female without pereopods, reillustrated here in part. The original description (Sakai, 1988) illustrated (unconvincingly) the two pairs of prominent spiniform setae

on the face and the row of about 16 short spiniform setae on each half of the posterior margin of the telson, figured in more detail from the holotype by Komai et al. (2014b) who transferred the species to *Cheramus*. The uropodal endopod has three long and one short spiniform setae on the anterodistal margin plus two long facial spiniform setae on the longitudinal ridge; the exopod has spiniform setae of various lengths on the posterodistal margin and the margin of the dorsal plate, plus a single facial spiniform seta. The scaphocerite is minute and triangular.

***Spinicallianassa bilbili* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:66725744-228A-433E-8432-2C745FA73747>

Figure 50

Spinicallianassa PNG-757.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. Papua New Guinea, Madang Province, S of Madang, near Bil Bil I., 05° 18' S, 145° 46.1' E, 17 m (PAPUA NIUGINI stn PB29), MNHN IU-2013-842* (ovigerous female, 3.3 mm).

Diagnosis. Telson 1.4 times as wide as long, with dorsal transverse row of long setae, anterolateral lobes angular, lateral margins tapering to angular posterolateral corners; posterior margin truncate. Uropodal endopod 1.7 times as long as wide, with 2 well-spaced spiniform setae on face, with 5 along anterodistal margin; anterior margin without subdistal tooth. Uropodal exopod 1.5 times as long as wide, distal margin convex, dorsal plate comprising 5 spiniform setae, anterior margin with 2 distal spiniform setae. Maxilliped 3 ischium 1.8 times as long as wide; merus rectangular.

Description of holotype. Rostrum spine-like, situated at level of dorsal carapace, almost as long as eyestalk. Carapace dorsally weakly convex in lateral view, as long as pleomeres 1 and 2 combined; orbital margin oblique, convex; anterolateral lobe prominent; subanterolateral margin oblique; anterior margin of branchiostegite evenly convex; cervical groove deeply incised, across 0.9 length of carapace, not reaching linea thalassinica. Pleomere 1 tergite with shallow transverse groove, much narrower anteriorly. Pleomere 2 twice as long as pleomere 1. Pleomere 6 about as long as wide.

Eyestalk about as long as wide, with dorsal face strongly depressed anteriorly (basally about three quarters as high as wide), with sharp ventrolateral margin, lateral margin swollen proximal to cornea, anteromedial angle rounded in dorsal view, overreaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying mid-distal of eyestalk.

Antennular peduncle little shorter than antennal peduncle; article 1 scarcely visible in dorsal view; article 3 about as long as articles 1 and 2 combined; article 2 with dense longitudinal ventral row of long setae; article 3 with well-spaced ventral setae. Antennal peduncle article 5 0.6 length of article 4; scaphocerite acute.

Maxilliped 3 ischium slightly narrower distally, 1.8 times as long as wide, crista dentata comprising 6 strong curved teeth over proximal half, 9 smaller closer teeth over distal half; merus 0.5 length of ischium measured along outer margin, as wide as

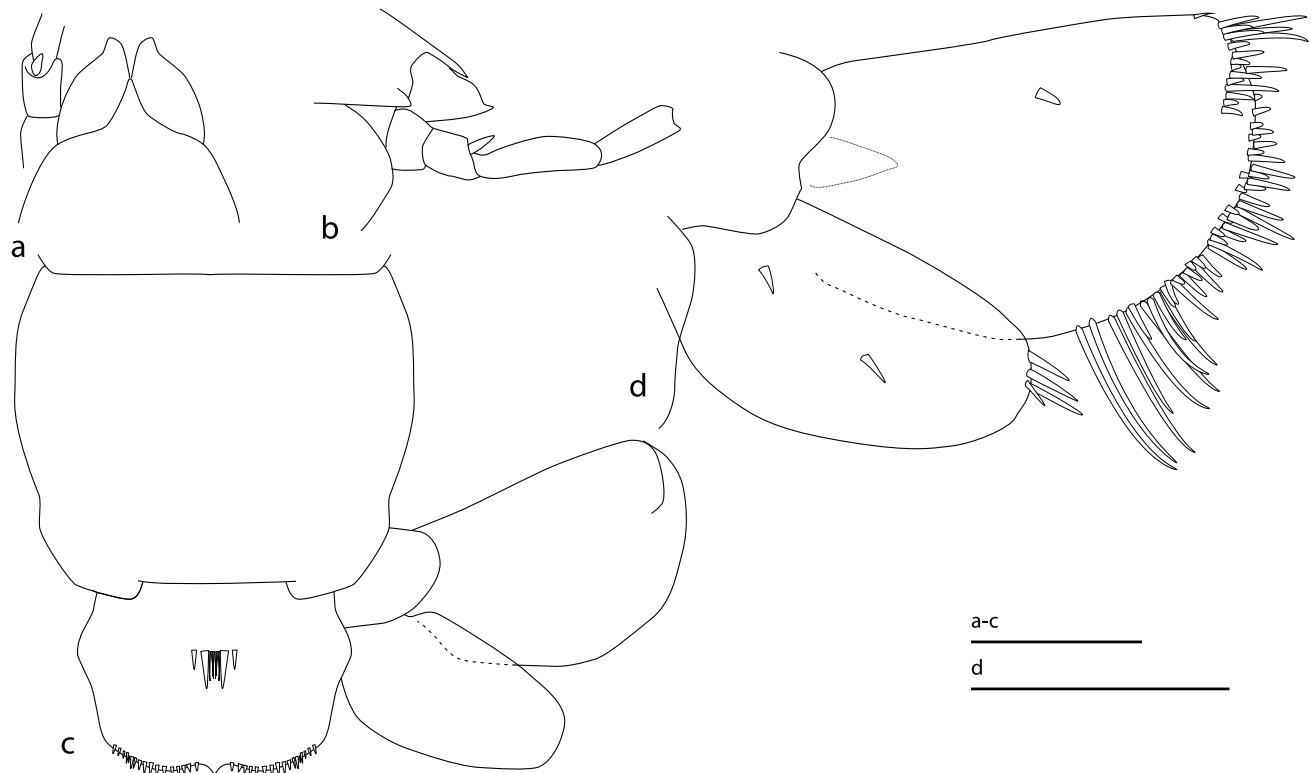


Figure 49. *Spincallianassa acutirostella* (Sakai, 1988). Australia, North West Shelf. NTMAG Cr000789, holotype female, 4.5 mm: a, b, rostrum, antennal peduncle, eyestalk; c, pleomere 6, telson, uropod; d, right uropod. Scale bars = 1 mm.

long, wider than ischium, with mesiodistal margin oblique, separated from inner margin by distinct rounded corner; carpus as long as merus outer margin; propodus ovoid-tapering, 1.7 times as long as wide; dactylus tapering, shorter than propodus, with scattered setae along upper margin, dense row of short setae along distal lower margin.

Pereopods 1 (chelipeds) unequal, similar. Major cheliped carpus-palm upper margin 0.9 carapace length. Ischium scarcely expanding distally, upper margin almost straight, unarmed; lower margin with row of five similar spines. Merus as long as ischium, 1.7 times as long as wide (tooth excluded), ovate; upper margin convex, unarmed; lower margin with oblique spine near midpoint. Carpus 1.1 times as long as wide; upper margin carinate; lower margin carinate. Propodus upper margin as long as carpus; palm 1.1 times as long as wide; upper margin convex, ridged; lateral surface smooth, convex, with slight concavity at base of finger; distolateral margin of palm slightly convex; mesial surface convex, distomesial margin transverse, set back from distolateral margin; lower margin carinate, with row of setae extending onto fixed finger; fixed finger 0.65 length of palm, triangular; cutting edge lateral, an irregular blade, with minor more medial ridge. Dactylus as long as fixed finger, straight, with acute tip; upper margin ridged, with tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge with irregular small teeth.

Minor cheliped carpus-palm upper margin 0.8 carapace length. Ischium upper margin smooth, lower margin with row of six spines. Merus about as long as ischium; lower margin with oblique spine at midpoint. Carpus wider distally, about as long as merus, 1.5 times as long as wide, upper and lower margins carinate. Palm as long as wide; upper margin convex, ridged; lower margin carinate, with row of long setae extending onto fixed finger; distomesial margin oblique. Fixed finger 0.7 length of palm, cutting edge lateral, with small irregular teeth, with minor more mesial ridge. Dactylus tapering, curved, unarmed.

Pereopod 2 merus lower margin slightly sinusoidal, 2.5 times as long as wide; carpus about 1.6 times as long as wide; chela subtriangular; palm about 1.7 times as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 unknown. Pereopod 4 coxa flattened ventrally, distal articles linear. Pereopod 5 chelate.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval, widest near midpoint, 1.7 times as long as wide; upper surface with 2 spiniform setae on dorsal rib; anterior margin almost straight; distal margin evenly convex, with spiniform setae at anterodistal margin; posterior margin setose. Exopod widest near midpoint, 1.4 times as long as wide, exceeding endopod by one quarter its length; anterior margin straight; all margins with numerous slender setae, with about 15 blade-like setae on posterior

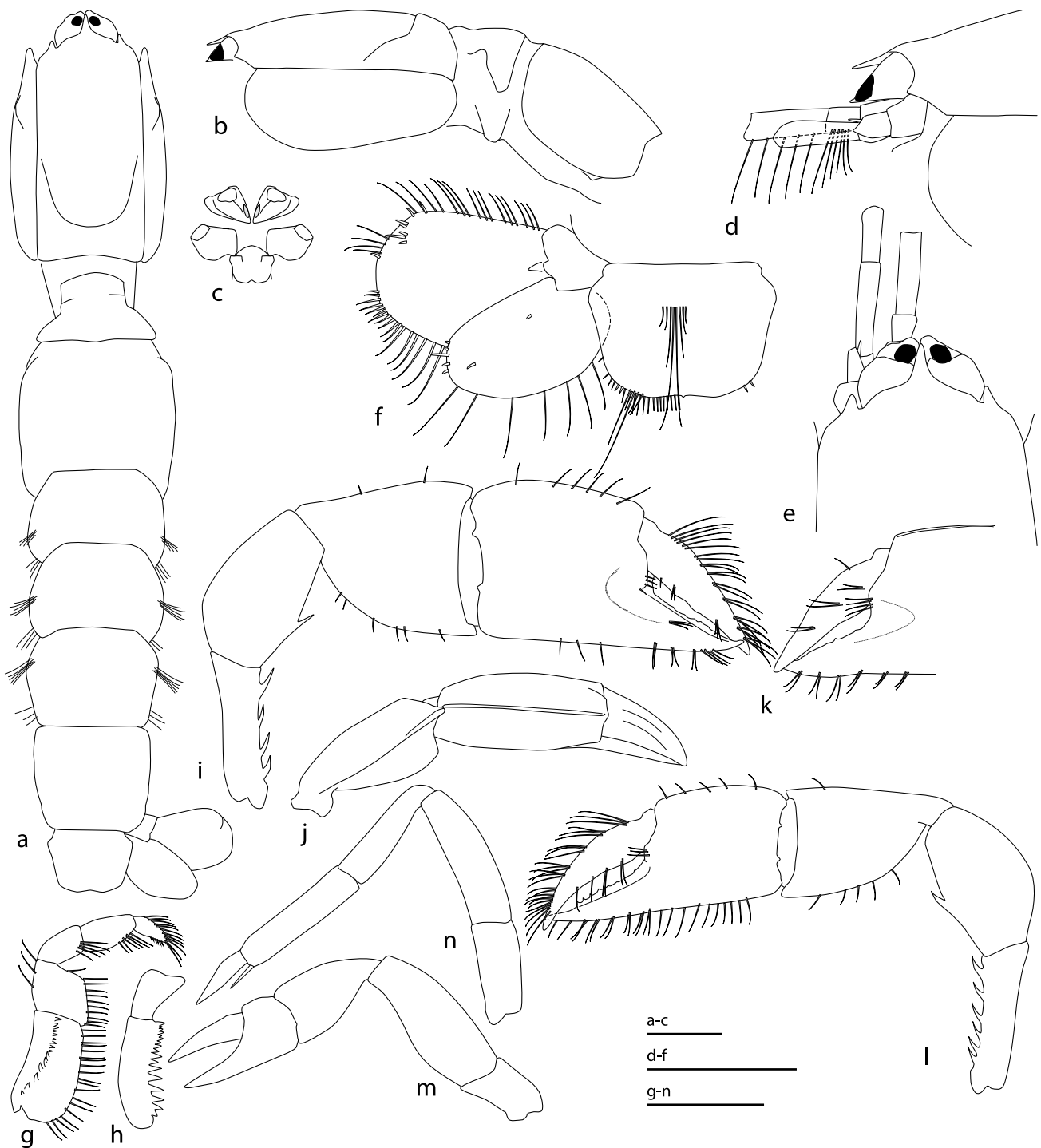


Figure 50. *Spinicallianassa bibbili* sp. nov. Papua New Guinea. MNHN IU-2013-842, holotype ovigerous female, 3.2 mm: a, eyestalks, carapace, pleon, telson, uropod; b, eyestalks, carapace, pleomeres 1, 2 (lateral); c, thoracic sternite 7, pereopodal coxae 3, 4; d, e, anterior carapace, eyestalks, antennular, antennal peduncles (lateral, dorsal); f, telson, left uropod; g, maxilliped 3 (inner view); h, maxilliped 3 ischium, merus (mesial view); i, major cheliped (left, mesial); j, major cheliped carpus–dactylus (upper); k, major cheliped distal palm, fingers (lateral); l, minor cheliped (right, mesial); m, pereopod 2; n, pereopod 4. Scale bars = 1 mm.

margin indistinguishably merged with distal margin; dorsal plate apparent near distal margin as row of about 7 irregularly spaced stiff setae.

Telson 1.4 times as wide as long, broadest at anterior fifth, narrowing posteriorly to broadly rounded posterolateral corners; posterolateral corners each with 2 spiniform setae; posterior margin excavate, with minute median tooth; dorsal surface with few medial setae.

Etymology. Contraction of Bil Bil Island, Papua New Guinea, type locality (noun in apposition).

Distribution. Eastern Coral Triangle (Papua New Guinea); 17 m.

Remarks. The molecular analysis (Robles et al., 2020: fig 3) placed this single specimen on a clade sister to seven closely clustering representatives of *S. aff. acutirostella*, reidentified here as *S. spinicauda*. *Spinicallianassa bilbili* differs from *S. spinicauda* in having a much narrower maxilliped 3 (ischium almost twice as long as wide; about as long as wide in *S. spinicauda*), a more triangular rostrum (narrow), rounded distomesial lobes on the eyestalks (acute), the telson with two pairs of distolateral spiniform setae (6–7 pairs of distal marginal spiniform setae), and uropodal endopod with two facial spiniform setae (five spiniform setae in two rows).

***Spinicallianassa papetoai* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:BF71A89C-426F-4F45-B415-EEA6BA898246>

Figures 11, 51, 52

Spinicallianassa FP-10.—Robles et al., 2020: figs 1, 3, 6.

Material examined. Holotype. **French Polynesia**, Moorea, Papetoai lagoon, 17.490867° S, 149.882879° E (FMNH stn BIZ-109), UF 23875 (ovigerous female, 5.3 mm). Paratypes. French Polynesia, Moorea (all FMNH stations: Papetoai, 17.489800° S, 149.884° W (stn BIZ-463), UF 28785*# (ovigerous female, 4.5 mm), UF 28821* (juvenile, 2.9 mm), UF 28822* (ovigerous female, 4.200 mm); (stn BIZ-493), UF 28905* (ovigerous female, 4.3 mm). Papetoai, 17.491100° S, 149.884400° W (stn MIB-195), UF 16285 (ovigerous female, 4.5 mm), UF 16299 (female, 4.9 mm). SW of Motus, 17.494° S, 149.921° W (stn BIZ-474), UF 28787 (female, 3.6 mm). Motu I. Channel, 17.489210° S, 149.913140° W (stn BIZ-676), UF 29277 (female, 5.1 mm). Haapiti, mangrove area, 17.556680° S, 149.874400° W (stn MIB-054), UF 15733 (ovigerous female, 5.7 mm). Motu Tiahura/Fareone channel, 17.488800° S, 149.913400° E, (stn MIB-226), UF 16508 (ovigerous female, 4.4 mm), UF 16509 (female, 5.2 mm). Other material (all females, many ovigerous, not measured). **French Polynesia**, Moorea (all FMNH stations). Papetoai lagoon, 17.490867° S, 149.882879° W (stn BIZ-109), UF 23877. Papetoai, 17.489800° S, 149.884° W (stn BIZ-463), (UF 28786/2, UF 28823. NW Motus, in channel between islands and beach, 17.488393° S, 149.913420° W (stn BIZ-148), UF 23947. NW Motus, in channel between islands, 17.489335° S, 149.913178° W (stn BIZ-150), UF 23946, UF 23955. Nihimauru estuary, 17.533° S, 149.904050° W (stn BIZ-158), UF 23987. Between Cook's Bay and Hilton, off Pihana, 17.481° S, 149.83° W (stn BIZ-632), UF 29192, UF 29211, UF 29212, UF 29213, UF 29214. Ray feeding site near Motu islands 17.487680° S, 149.970° E, (stn BIZ-675), UF 29259, UF 29260, UF 29261, UF 29263, UF 29266, UF 29268#, UF 29269, UF 29270, UF 29271. Motu I. Channel, 17.489210° S, 149.913140° W (stn BIZ-676), UF 29272, UF 29275, UF

29276, UF 29280. Motu Tiahura/Fareone channel, 17.4888° S, 149.9134° E, (stn MIB-226), UF 16510, UF 16511, UF 18419.

Diagnosis. Telson 1.3 times as wide as long, with dorsal transverse row of long setae, anterolateral lobes rounded, lateral margins tapering to broadly rounded posterolateral corners; posterior margin convex with slight medial concavity. Uropodal endopod 1.6 times as long as wide, with 10–12 scattered spiniform setae on face, especially in diagonal subdistal row, with 4 spiniform setae along anterodistal margin; anterior margin with subdistal tooth. Uropodal exopod 1.25 times as long as wide, distal margin at right angles to anterior margin, dorsal plate comprising numerous dense spiniform setae, anterior margin without distal spiniform seta. Maxilliped 3 ischium about as long as wide; merus almost semicircular.

Description of holotype. Rostrum spine-like, situated at level of dorsal carapace, 0.65 length of eyestalk. Carapace dorsally weakly convex in lateral view, about as long as pleomeres 1–2 combined; orbital margin transverse, well differentiated from sides of rostrum; anterolateral lobe insignificant; subanterolateral margin convex, oblique; anterior margin of branchiostegite vertical below linea thalassinica, convex ventrally; cervical groove deeply incised, across 0.8 length of carapace, not reaching linea thalassinica. Pleomere 1 tergite with shallow transverse groove, much narrower anteriorly. Pleomere 2 1.3 times as long as pleomere 1. Pleomere 6 about as wide as long.

Eyestalk 0.75 as wide as long, with dorsal face strongly depressed anteriorly (basally about three quarters as high as wide), with sharp ventrolateral margin, lateral margin swollen proximal to and opposite cornea, anteromedial angle sharply angled laterally in dorsal view, overreaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying mid-distal half of eyestalk.

Antennular peduncle little longer than antennal peduncle; article 1 not visible in dorsal view; article 3 about as long as articles 1 and 2 combined; article 2 with dense longitudinal ventral row of long setae; article 3 with well-spaced ventral setae. Antennal peduncle article 5 0.7 length of article 4; scaphocerite acute, curved.

Maxilliped 3 ischium dilating distally, as long as wide, crista dentata comprising about 20 small, unevenly spaced teeth; merus 0.5 length of ischium measured along outer margin, twice as wide as long, with mesiodistal margin convex, reaching beyond articulation of carpus; carpus 0.9 length of merus outer margin; propodus ovoid-tapering, 1.7 times as long as wide; dactylus tapering, 0.6 length of propodus, with scattered setae along upper margin, dense row of short setae along distal lower margin.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped carpus-palm upper margin 0.9 carapace length. Ischium expanding distally, upper margin almost straight, unarmed; lower margin with row of 10 similar oblique spines. Merus as long as ischium, 1.7 times as long as wide (tooth excluded), ovate; upper margin convex, unarmed; lower margin with oblique spine one third along, denticulate beyond. Carpus 0.85 as long as wide; upper margin carinate; lower margin carinate. Propodus upper margin 1.3 times as long as carpus; palm as long as wide; upper margin convex, carinate over entire length;

lateral surface smooth, convex; distolateral margin of palm with convex lobe; mesial surface convex, distomesial margin transverse, set back from distolateral margin, with tubercle at lower limit; lower margin carinate, with row of setae extending onto fixed finger; fixed finger 0.75 length of palm, triangular; cutting edge lateral, microserrate over proximal half, steep step before distal concavity. Dactylus as long as fixed finger, curved, with acute tip; upper margin ridged, with dense tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge unarmed.

Minor cheliped carpus-palm upper margin 0.75 carapace length. Ischium upper margin smooth, lower margin with row of 6 similar oblique spines. Merus about as long as ischium;

lower margin with oblique spine at midpoint. Carpus wider distally, 1.1 times as long as merus, 1.6 times as long as wide, upper and lower margins carinate. Palm as long as wide; upper and lower margins carinate; distomesial margin transverse. Fixed finger 0.7 length of palm, cutting edge lateral, with teeth along middle length. Dactylus tapering, curved, unarmed.

Pereopod 2 merus lower margin slightly sinusoidal, 2.7 times as long as wide; carpus 1.8 times as long as wide; chela subtriangular; palm about 1.7 times as wide as upper margin; dactylus 2.5 times as long as palm upper margin. Pereopod 3 carpus subtriangular, 1.8 times as long as wide; propodus upper margin convex, about as long as greatest width, lower

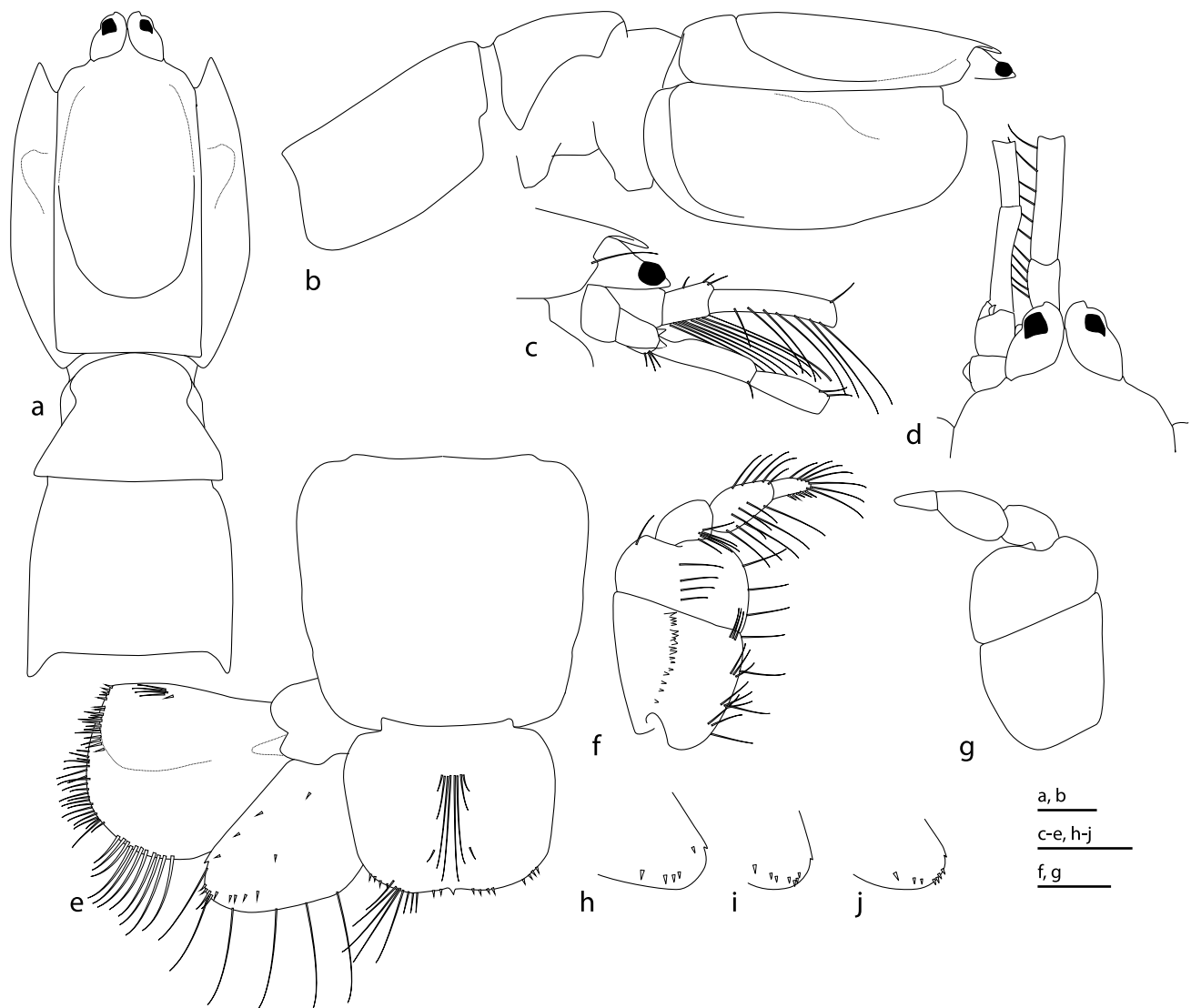


Figure 51. *Spinicallianassa papetoai* sp. nov. French Polynesia, Moorea. UF 23875, holotype ovigerous female, 5.3 mm: a, b, eyestalks, carapace, pleomeres 1, 2 (dorsal, lateral); c, d, eyestalk, antennular, antennal peduncles, anterior carapace (lateral, dorsal); e, pleomere 6, telson, left uropod; f, g, maxilliped 3 (inner, outer views). Right uropod endopod apex: h, UF 16509, female, 5.2 mm; i, UF 16508 female, 4.4 mm; j, UF 16285 ovigerous female, 4.5 mm. Scale bars = 1 mm.

margin evenly convex, with 1 slender subdistal spiniform seta, with 3 gaps between marginal setae; dactylus nearly straight, about as long as propodus upper margin. Pereopod 4 distal articles linear. Pereopod 5 chelate.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod tapered-oval, widest near midpoint, 1.5 times as long as wide; upper surface with 10 small spiniform setae (2 on dorsal rib, 3 near anterior margin, 5 near distal-posterior margin); anterior margin straight, with small distal tooth; distal margin evenly convex, with 5 spiniform setae at anterodistal margin; posterior margin convex, setose. Exopod widest near midpoint, as long as wide; anterior margin almost straight; with about 12 blade-like setae on posterior margin indistinguishably merged with distal margin; dorsal plate extending 0.4 way across exopod, heavily armed with closely packed stiff setae merging with those on distal margin; distal and posterior margins also furnished with row of fine setae; upper face without setae.

Telson 1.2 times as wide as long, broadest at anterior third, narrowing posteriorly to rounded posterolateral corners; posterior margin medially excavate, with 6–8 irregularly

spaced minute spiniform setae on each lateral half; dorsal surface with transverse row of 8 fine long setae.

Variation. The pattern of spiniform setae on the upper surface of the uropodal endopod varies. Two longitudinal rows of 3–5 anterior and 3 along the midrib are always present. While the number of setae near the distal-posterior margin varies as shown in fig. 51e, h–j, there is always a gap between the first and a group of 2–4.

Etymology. From Papetoai, type locality (noun in apposition).

Distribution. Southeast Polynesia (French Polynesia, Moorea); low intertidal to immediate subtidal.

Remarks. *Spinicallianassa papetoai* (as *S. sp. F-10*) was clearly different from two other species (here identified as *S. bilbili* and *S. spinicauda*) in the molecular analysis of Robles et al. (2020). It differs from these two and others in the shape of the eyestalk (laterally almost bilobed) and the pattern of spiniform setae on the upper face of the uropodal endopod.

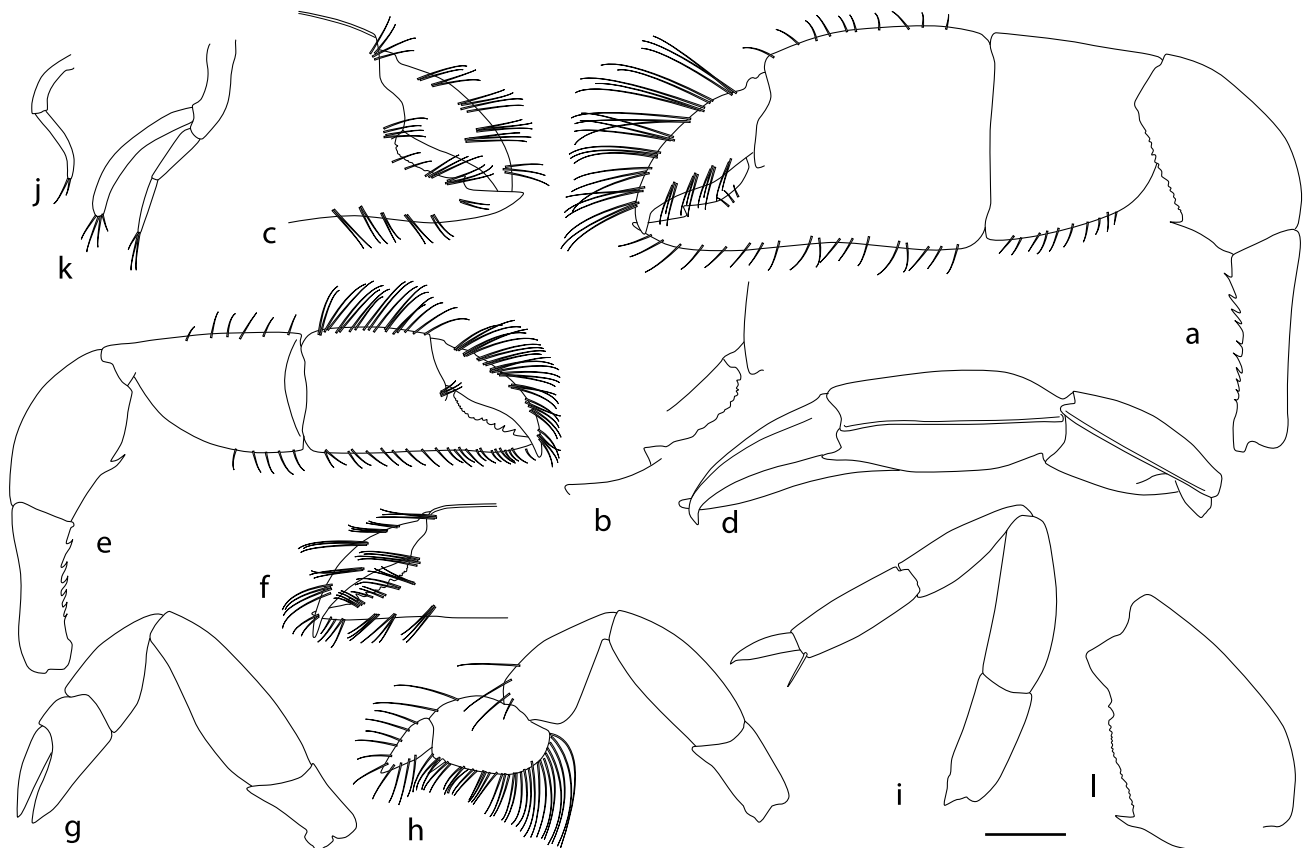


Figure 52. *Spinicallianassa papetoai* sp. nov. French Polynesia, Moorea. UF 23875, holotype ovigerous female, 5.3 mm: a, major cheliped (right, mesial); b, major cheliped (detail of gape and fixed finger); c, major cheliped fingers (lateral); d, major cheliped (carpus–dactylus, upper view); e, minor cheliped (left, mesial); f, minor cheliped fingers (lateral); g–i, pereopods 2–4; j, k, pleopods 1, 2. l, UF 16509, female, 5.2 mm, major cheliped merus (mesial). Scale bar = 1 mm.

***Spinicallianassa parvula* (Sakai, 1988)**

Figure 53

Callianassa parvula Sakai, 1988: 59, fig. 3.—Sakai, 1999: 50.—Tudge et al., 2000: 143.—Davie, 2002: 458.

Cheramus parvulus.—Sakai, 2011: 370.

Spinicallianassa parvula.—Poore et al., 2019: 139, 143.

Material examined. **Australia**, WA, North West Shelf, 19° 04.4' S, 118° 47.35' E, 83 m, NTMAG Cr000783 (holotype female, 4.0 mm).

Distribution. Northwest Australian Shelf (Australia, WA); 83 m.

Remarks. The damaged holotype lacking maxilliped 3 and chelipeds is the only specimen. The long horizontal sharp rostrum, swollen eyestalks and oval propodus on pereopod 3 are consistent with *Spinicallianassa*. The telson, reillustrated here (fig. 53), is 1.2 times as wide as long, has spiniform setae in the anterior dorsal transverse row, a pair of dorsal spiniform setae more lateral and posterior, and irregular short spiniform setae on the posterior margin, not as excavate as illustrated by Sakai (1988). The three facial setae on the uropod are confirmed (fig. 53). The specimen is a female with gonopores on the coxae of pereopods 3 and female-like pleopods 1 and 2, not a male as stated by Sakai (1988, 1999). The species may be synonymous with *S. spinicauda*.

***Spinicallianassa spinicauda* (Komai, Maenosono and Fujita, 2014)**

Figures 1k, 54–56

Callianassa acutirostella.—Sakai, 2005: 64 (part), figs 13, 14.—Sakai, 1999: 37 [not *Callianassa acutirostella* Sakai, 1988].

Cheramus spinicauda Komai et al., 2014: 505, figs 1–8.

Trypaea acutirostella.—Sakai, 2011: 390 (part.).

Spinicallianassa aff. *acutirostella*.—Robles et al., 2020: figs 1, 3, 6, tables S1, S2.

Spinicallianassa spinicauda.—Poore et al., 2019: 140, 143.—Robles et al., 2020: table S2.—Dworschak, 2022: 253–255, fig. 2.

Material examined. **Papua New Guinea**, Madang Province, Riwo, 05° 09' S, 145° 48.2' E, 1–3 m (PAPUA NIUGINI stn PR195), MNHN IU-2013-7064*# (female, 7.5 mm); MNHN IU-2013-7083 (female, 6.9 mm); MNHN IU-2013-7115* (female, 4.0 mm). Kavieng Province (KAVIENG 2014 stations), Kavieng Lagoon, Nago I. Wharf, 02° 36.3' S, 150° 46.2' E, 3–12 m (stn KR06), MNHN IU-2016-8147* (ovigerous female, 6.2 mm); MNHN IU-2014-1042* (ovigerous female, 6.5 mm); MNHN IU-2013-8839*# (female, 5.9 mm); MNHN IU-2013-8838 (=NMV J71763)* (ovigerous female, 6.7 mm). Kavieng Harbour, 02° 34.7' S, 150° 47.5' E, 1–2 m (stn KZ16), MNHN IU-2014-2778 (ovigerous female, 5.4 mm). **Saudi Arabia**, Red Sea, Farasan I., Tiger Head I., 16.79097° N, 42.19865° E, karstic shore, 1–10 m (stn SAFA-024), UF 36051 (ovigerous female, 5.5 mm). Gulf of Aqaba, Joey's Shipwreck Bay, 28.184617° N, 34.638117° E, 3–10 m, seagrass (stn NORS-17B), UF 38165 (female, 4.7 mm). **Indonesia**, Maluku Tenggara, MNHN IU-2016-8089 (ovigerous female, 6.2 mm). Pulku Maratua, E Kalimantan, MNHN IU-2016-8092 (female, 6.0 mm).

Diagnosis. Telson 1.35 times as wide as long, with dorsal transverse row of long setae and 3 pairs of spiniform setae, anterolateral lobes rounded, lateral margins tapering to angular posterolateral corners; posterior margin almost truncate. Uropodal endopod 1.7 times as long as wide, with 4 or 5 scattered spiniform setae on face, without spiniform setae along anterodistal margin; anterior margin with or without subdistal tooth. Uropodal exopod 1.2 times as long as wide, distal margin at right angles to anterior margin, dorsal plate comprising numerous dense spiniform setae, anterior margin without distal spiniform seta. Maxilliped 3 ischium 1.0–1.2 times as long as wide; merus almost semicircular.

Variation. While most specimens from Papua New Guinea resemble Komai et al.'s (2014) figures, the chelipeds of some differ. The carpus of the major cheliped is shorter, the palm more swollen, and the dactylus with a basal molar in some (cf.

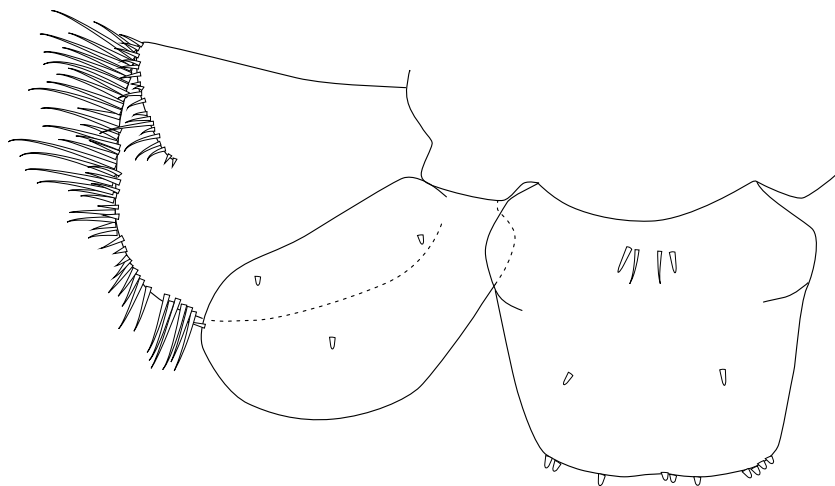


Figure 53. *Spinicallianassa parvula* (Sakai, 1988). Australia, North West Shelf, NTMAG Cr000783, holotype female, 4.0 mm: pleomere 6, telson, uropod.

figs 56a, b with 56l, m). The short distolateral carina on the upper margin of the minor cheliped is more exaggerated in some than others (cf. figs 56d, 56o). Komai et al. (2014) did not observe this carina.

Colour. Carapace and pleon essentially translucent/white; very pale orange over anterior carapace. Chelipeds carpi, palms and dactyli with pale reddish-orange dots on mesial and lateral faces (fig. 54). See too Komai et al. (2014: fig. 8).



Figure 54. *Spinicallianassa spinicauda* (Komai, Maenosono and Fujita, 2014). Papua New Guinea. MNHN IU-2014-1042, ovigerous female, 6.5 mm (colour photographs by Zdeněk Ďuriš).

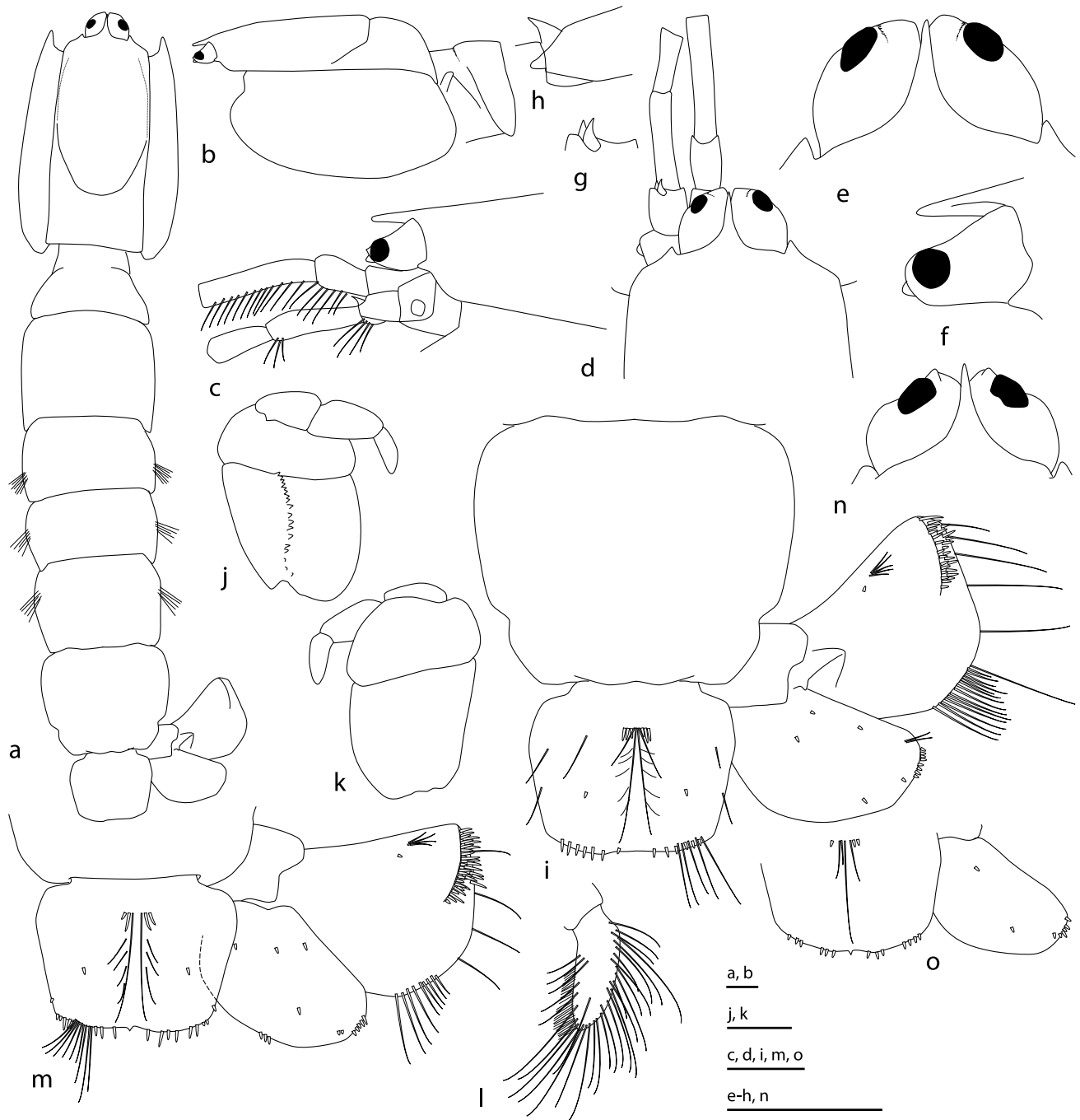


Figure 55. *Spinicallianassa spinicauda* (Komai, Maenosono and Fujita, 2014). Papua New Guinea. MNHN IU-2013-7064, female, 7.5 mm: a, eyestalks, carapace, pleon, telson, uropod; b, eyestalk, carapace, pleomere 1 (lateral); c, d, anterior carapace, eyestalk, antennular, antennal peduncles (lateral, dorsal); e, f, eyestalks (dorsal, lateral); g, h, scaphocerite (dorsal, lateral); i, pleomere 6, telson, right uropod; j, k, maxilliped 3 (inner, outer); l, maxilliped 3 dactylus. MNHN IU-2013-7083, female, 6.9 mm: m, telson, uropod. Saudi Arabia, UF 36051, ovigerous female, 5.5 mm: n, eyestalks (dorsal); o, telson, uropodal endopod. Scale bars = 1 mm.

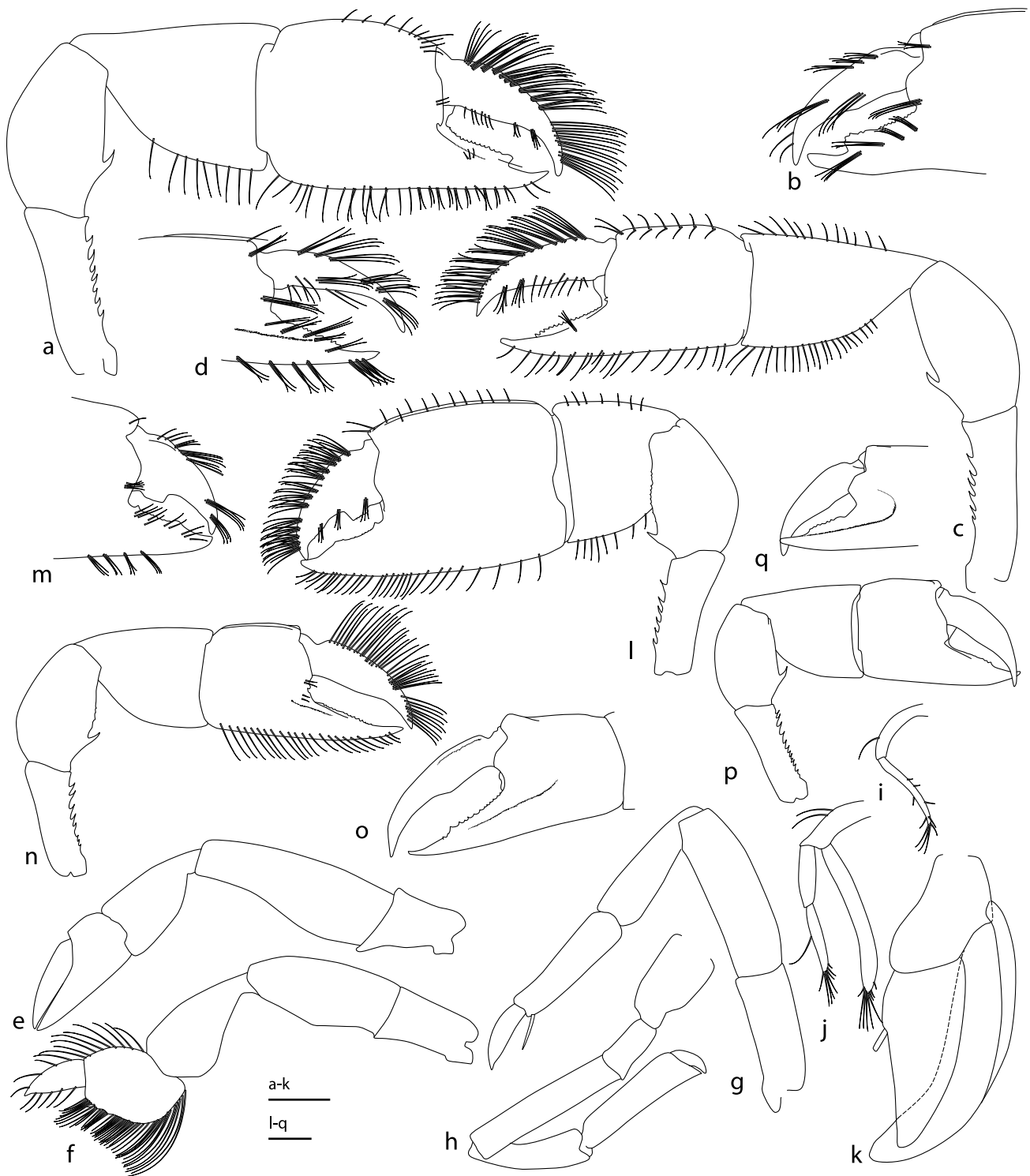


Figure 56. *Spinicallianassa spinipectus* (Komai, Maenosono and Fujita, 2014). Papua New Guinea. MNHN IU-2013-7064, female, 7.5 mm: a, major cheliped (left, mesial); b, major cheliped, distal palm, fingers (lateral); c, minor cheliped (right, mesial); d, minor cheliped, distal palm, fingers (lateral); e-h, pereopods 2-5; i-k, pleopods 1-3. MNHN IU-2013-7083, female, 6.9 mm: l, major cheliped (right, mesial); m, major cheliped, distal palm, fingers (lateral); n, minor cheliped (left, mesial); o, minor cheliped, distal palm, fingers (lateral). Indonesia. MNHN IU-2016-8089, female, 6.0 mm: p, major cheliped (left, mesial); q, major cheliped, fingers (lateral). Scale bars = 1 mm.

Distribution. Eastern Coral Triangle, Red Sea and Gulf of Aden (Japan, Okinawa [type locality], Philippines, Papua New Guinea, Saudi Arabia); 1–12 m.

Remarks. Six specimens in the molecular phylogram (Robles et al., 2020) came from Papua New Guinea (listed above) with one (NHMW 25368*) from Palawan, Philippines. Dworschak (2022) confirmed the latter and others from the Philippines, Japan, and the Red Sea as *S. spinicauda*. The ovigerous female collected in the Arafura Sea by the *Galathea* expedition, reported and illustrated by Sakai (2005) as *C. acutirostella* is more likely to be *S. spinicauda*. About one quarter of an Australian Museum collection of about 40 callianassids from the Arafura Sea were incomplete or damaged and could not be reliably identified – none appeared to belong to the same species as the *Galathea* specimen.

While close to *S. acutirostella*, *S. spinicauda* differs in having a broader uropodal rami, the endopod with several small facial spiniform setae (two only in *S. acutirostella*) and the maxilliped 3 merus twice as wide as long (1.5 times in *S. acutirostella*). The two females from Saudi Arabia in this collection could not be distinguished from the many specimens from Papua New Guinea, consistent with the view of Dworschak (2022). Only females have been collected.

***Spinicallianassa westralia* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:941976E5-CABA-4F59-A8BA-6EFAC22483DC>

Figures 57, 58

Callianassa sp. MoV 4963.—Poore et al., 2008: 94.

Material examined. Holotype. **Australia**, WA, off Jurien Bay, 29.8069° S, 114.431° E, 114 m (CSIRO stn SS10/2005/083), NMV J53456 (female, 3.5 mm). Paratype. Australia, WA, North West Shelf, Imperieuse L23 transect, 18° 27.37' S, 120° 08.41' E, 80 m (CSIRO stn SS05/2007/82), NMV J71759 (ovigerous female, 3.3 mm).

Diagnosis. Telson 1.2 times as wide as long, with dorsal transverse row of long setae and 1 or 2 pairs of spiniform setae, 1 pair of sublateral spiniform setae, anterolateral lobes rounded, lateral margins tapering to slightly rounded posterolateral corners; posterior margin convex with slight medial concavity. Uropodal endopod 1.9 times as long as wide, with 5 well spaced spiniform setae on face, with 3 or 4 along anterodistal margin; anterior margin with small subdistal tooth. Uropodal exopod 1.7 times as long as wide, distal margin convex, dorsal plate comprising 5–7 spiniform setae, anterior margin with 3 distal spiniform setae. Maxilliped 3 ischium twice as long as wide; merus almost semicircular.

Description of holotype. Rostrum triangular, situated at level of dorsal carapace, 0.65 length of eyestalk. Carapace dorsally weakly convex in lateral view; orbital margin transverse, curving into sides of rostrum; anterolateral lobe prominent; subanterolateral margin almost horizontal; anterior margin of branchiostegite convex; cervical groove deeply incised, across 0.85 length of carapace, not reaching linea thalassinica.

Eyestalk 0.8 as wide as long, with dorsal face depressed anteriorly (basally about three quarters as high as wide), with

rounded ventrolateral margin, lateral margins almost parallel proximal to cornea, anteromedial angle asymmetrically rounded in dorsal view, with slight depression medial-distal to cornea, reaching distal margin of antennular peduncle article 1. Cornea densely pigmented, occupying mid-distal of eyestalk.

Antennular peduncle little longer than antennal peduncle; article 1 visible in dorsal view; article 3 longer than articles 1 and 2 combined; article 2 with dense longitudinal ventral row of long setae; article 3 with well-spaced ventral setae. Antennal peduncle article 5 0.7 length of article 4; scaphocerite acute, curved.

Maxilliped 3 ischium dilating distally, 1.2 times as long as wide, crista dentata comprising about 16 small, unevenly spaced teeth; merus 0.5 length of ischium measured along outer margin, 1.5 times as wide as long, with mesiodistal margin convex, overreaching articulation of carpus; carpus as long as merus outer margin; propodus ovoid-tapering, 1.7 times as long as wide; dactylus tapering, shorter than propodus, with scattered setae along upper margin, dense row of short setae along distal lower margin.

Pereopods 1 (chelipeds) unequal, dissimilar. Major cheliped carpus-palm upper margin as long as carapace. Ischium expanding distally, upper margin almost straight, unarmed; lower margin with row of 7 similar oblique spines. Merus 0.8 length of ischium, 1.7 times as long as wide (tooth excluded), ovate; upper margin convex, unarmed; lower margin with oblique spine proximal one third way along margin. Carpus almost as long as wide; upper margin carinate; lower margin carinate. Propodus upper margin 1.5 times as long as carpus; palm 1.2 times as long as wide; upper margin convex, carinate over entire length; lateral surface smooth, convex, with ill-defined depression at base of finger; distolateral margin of palm with lower angle; mesial surface convex, distomesial margin transverse, set back from distolateral margin, with tubercle at lower limit; lower margin carinate, with row of setae extending onto fixed finger; fixed finger 0.65 length of palm, triangular; cutting edge lateral, with steep step before distal concavity. Dactylus slightly overreaching fixed finger, curved, with acute tip; upper margin ridged, with dense tufts of long setae; lateral surface with few tufts of long setae along cutting edge; cutting edge unarmed.

Minor cheliped carpus-palm upper margin 0.75 carapace length. Ischium upper margin smooth, lower margin with row of 5 similar oblique spines. Merus about as long as ischium; lower margin unarmed. Carpus wider distally, 1.1 times as long as merus, twice as long as wide, upper and lower margins carinate. Palm 1.25 times as long as wide; upper margin convex, carinate; lateral face convex, without ridge leading onto finger; lower margin not carinate, with row of long setae extending onto fixed finger; distomesial margin oblique, with obsolete tubercle at lower limit. Fixed finger 0.75 length of palm, cutting edge smooth. Dactylus tapering, curved, unarmed.

Pereopod 2 merus lower margin slightly sinusoidal, 2.8 times as long as wide; carpus 1.8 times as long as wide; chela subtriangular; palm about 1.4 times as wide as upper margin; dactylus twice as long as palm upper margin. Pereopod 3 carpus subtriangular, twice as long as wide; propodus oval, upper margin convex, 1.2 times as long as greatest width,

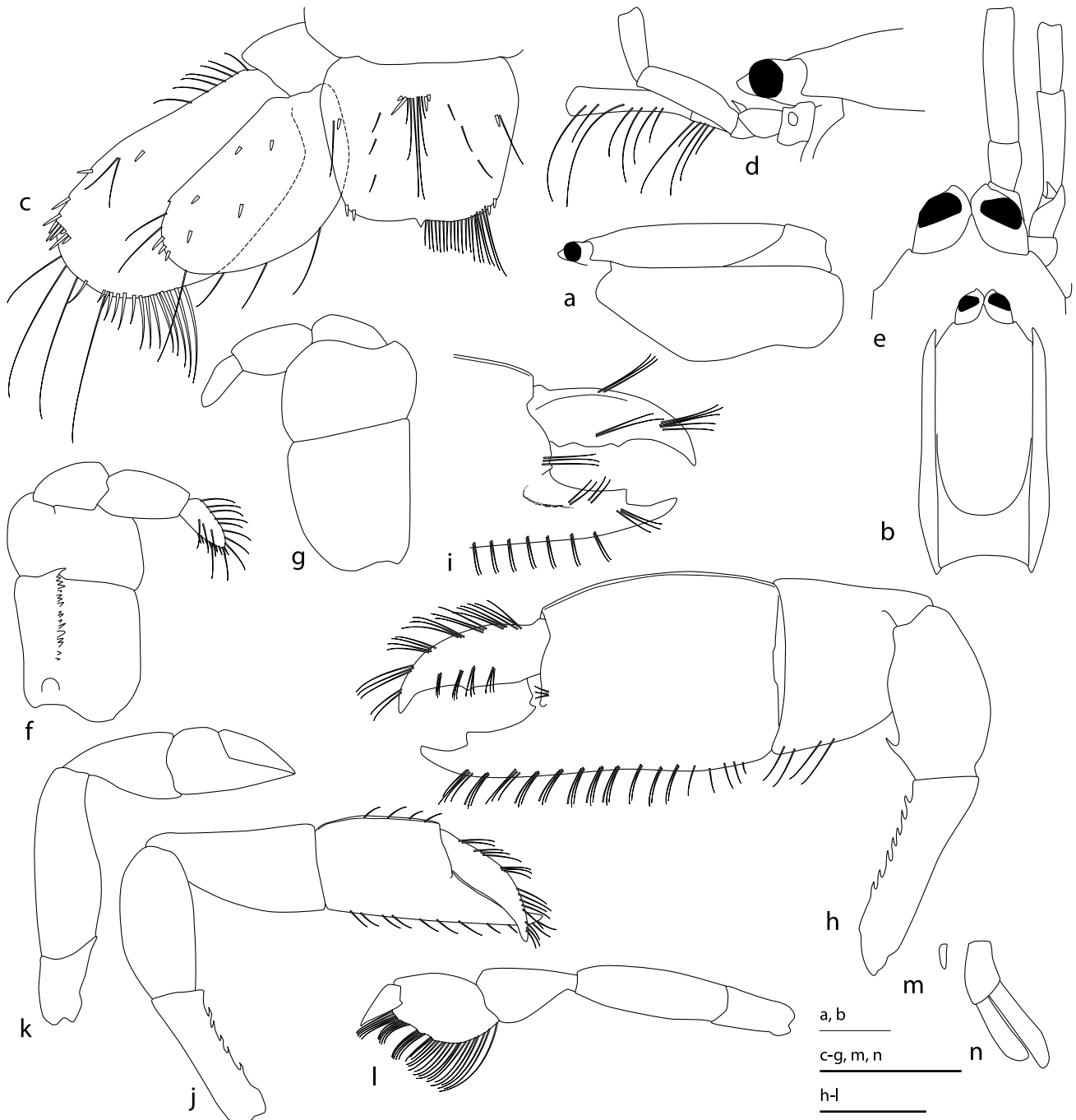


Figure 57. *Spinicallianassa westralia* sp. nov. Australia, WA. NMV J53456, holotype female, 3.6 mm: a, b, eyestalks, carapace (lateral, dorsal); c, telson, uropod; d, e, antennular, antennal peduncles, eyestalks, anterior carapace (lateral, dorsal); f, g, maxilliped 3 (inner, outer views); h, major cheliped (right, mesial view); i, major cheliped fingers (lateral); j, minor cheliped (left, mesial view); k, l, pereopods 2, 3; m, n, pleopods 1, 2. Scale bars = 1 mm.

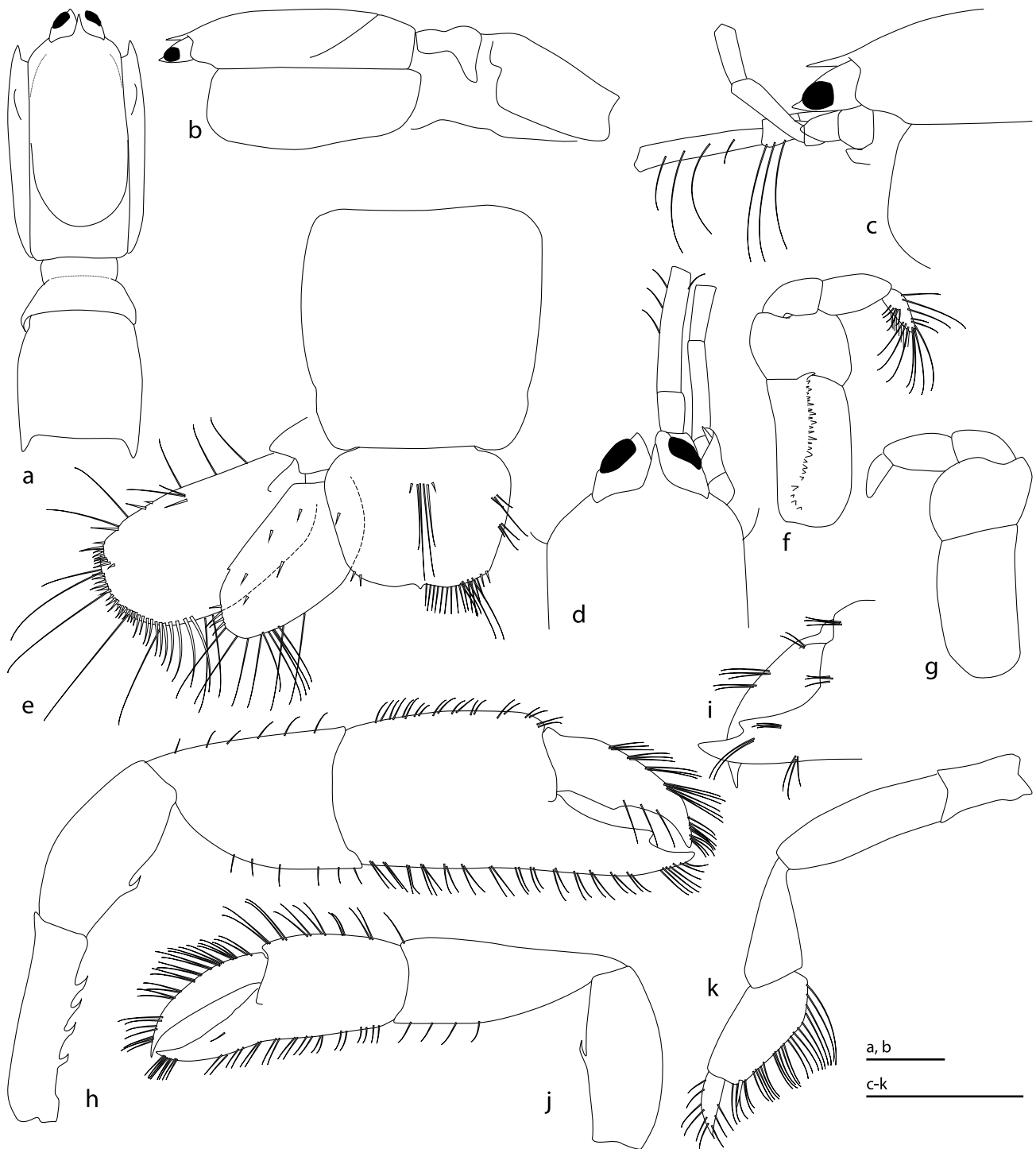


Figure 58. *Spinicallianassa westralia* sp. nov. Australia, North West Shelf, NMV J71759, paratype ovigerous female, 3.3 mm. a, b, eyestalks, carapace, pleomeres 1, 2 (dorsal, lateral); c, d, antennular, antennal peduncles, eyestalk, anterior carapace (lateral, dorsal); e, pleomere 6, telson, left uropod; f, g, maxilliped 3 (inner, outer); h, major cheliped (left, mesial); i, major cheliped fingers (lateral); j, minor cheliped (right, mesial); k, pereopod 3. Scale bars = 1 mm.

lower margin convex, with lower proximal margin not produced, with 1 slender subdistal spiniform seta, with gaps between clusters of marginal setae; dactylus nearly straight, shorter than propodus upper margin. Pereopods 4, 5 missing.

Pleopod 1 minute, uniarticulate. Pleopod 2 biramous, small, without setae.

Uropod endopod and exopod overreaching posterior margin of telson. Endopod oval, widest near midpoint, 1.8 times as long as wide; upper surface with 5 small spiniform setae (2 on dorsal rib, 2 near anterior margin, 1 near posterior margin); anterior margin straight, with minuscule distal tooth; distal margin evenly convex, with 3 spiniform setae near anterodistal margin; posterior margin convex, setose. Exopod widest near midpoint, 1.8 times as long as wide; anterior margin slightly convex, with 3 separated spiniform setae; with about 14 blade-like setae on posterior margin indistinguishably merged with distal margin; dorsal plate extending one quarter way across exopod, with few stiff setae merging with those on distal margin; distal and posterior margins also furnished with row of fine setae; upper face with 1 small spiniform seta and 2 fine setae near anterior margin.

Telson 1.2 times as wide as long, broadest at anterior third, narrowing posteriorly to obtusely rounded posterolateral corners, each with 2 spiniform setae; posterior margin medially excavate, setose; dorsal surface with transverse row of 4 medial fine long setae plus 2 pairs (1 pair in paratype) of spiniform setae, 2 submedial longitudinal rows of very fine setae, scattered fine setae, 1 sublateral pair of spiniform setae and accompanying fine seta.

Variation. The paratype has a narrower major cheliped and narrower maxilliped 3.

Etymology. Contraction of Western Australia, where the species is found (noun in apposition).

Distribution. West Central Australian Shelf (Australia, WA), 80–114 m.

Remarks. The uropodal exopod of *Spinicallianassa westralia* is narrower than in other species of the genus and is characterised by two long marginal spiniform setae and one submarginal on the anterior margin; the dorsal plate comprises few setae and extends only a small fraction across the exopod.

***Trypaea* Dana, 1852**

Trypaea Dana, 1852. – Poore et al., 2019: 100 (redesignation, synonymy).—Poore and Ahyong, 2023: 214.

Remarks. Sakai (2011) used the genus name *Trypaea* for eight species from the Eastern Pacific Ocean, five species from the North and Western Atlantic Ocean, and 40 species from elsewhere, mostly from the Indo-West Pacific. As Poore et al. (2019) and Robles et al. (2020) showed, the only species of *Trypaea* is *T. australiensis* Dana, 1852, restricted to southeastern Australia, where it is the most common intertidal estuarine and marine species of callianassid (Poore, 2004). The genus does not occur in the Indo-West Pacific.

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