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MUNIDOPSIS (DECAPODA, ANOMURA) FROM SOUTH-EASTERN AUSTRALIA

BY

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ABSTRACT

Six species of the galatheid genus *Munidopsis* are recorded for the first time from Australia: *M. bispinoculata* Baba, 1988, *M. dasypus* Alcock, 1894, *M. edwardsii* (Wood-Mason, 1891), *M. marginata* (Henderson, 1885), *M. serricornis* (Lovén, 1852), and *M. verrilli* Benedict, 1902. Another, *Munidopsis rostrata* (A. Milne-Edwards, 1880), previously known from Queensland and reported here from Victoria, is a widespread species in both the Atlantic and the Indo-West Pacific, as also is *M. serricornis*. *Munidopsis verrilli* shows a disjunct distribution in the eastern Pacific off California and south-eastern Australia. A seventh species, *M. victoriae* n. sp., is described as new.

RÉSUMÉ

Six espèces de Galathéidés du genre *Munidopsis* sont signalées pour la première fois d'Australie: *M. bispinoculata* Baba, 1988, *M. dasypus* Alcock, 1894, *M. edwardsii* (Wood-Mason, 1891), *M. marginata* (Henderson, 1885), *M. serricornis* (Lovén, 1852), et *M. verrilli* Benedict, 1902. Une autre, *Munidopsis rostrata* (A. Milne-Edwards, 1880), connue auparavant de Queensland et signalée ici de Victoria, est une espèce répandue à la fois dans l'Atlantique et dans l'Indo-ouest Pacifique, ce qui est aussi le cas de *M. serricornis*. *Munidopsis verrilli* présente une distribution discontinue dans l'est du Pacifique au large de la Californie et dans le sud-est de l'Australie. Une septième espèce, *M. victoriae* n. sp. est décrite comme nouvelle.

INTRODUCTION

The galatheid genus *Munidopsis* is widespread in the world's oceans with more than 150 species at continental slope depths. A small collection of twelve individuals from south-eastern Australia has accumulated at Museum Victoria,

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Melbourne (NMV), and the Tasmanian Museum and Art Gallery, Hobart (TM), over the last two decades but their identities remained uncertain until now. Most have come from Museum Victoria's collections on the continental slope between Sydney, New South Wales and Hobart, Tasmania. A diverse isopod fauna from these stations was analysed by Poore et al. (1994) and ostracods by Kornicker & Poore (1996). Other specimens have been taken more recently from seamounts off south-eastern Tasmania (Poore et al., 1998).

These are not the first species of the genus recorded from Australia. Baba (1994) reported four species off central Queensland: *Munidopsis cidaris* Baba, 1994 at 1128-1178 m; *M. rostrata* (A. Milne-Edwards, 1880) at 1517-1539 m; *M. trachynotus* (Anderson, 1896) at 1385-1403 m; and *M. valdiviae* (Doflein & Balss, 1913) at 1040-1059 m.

Measurements in mm are indicated by both the carapace length (cl.) including rostrum, and the postorbital carapace length, the latter in parentheses.

TAXONOMY

Family GALATHEIDAE Samouelle, 1819

Munidopsis Whiteaves, 1874

Munidopsis bispinoculata Baba, 1988 (fig. 1)

Munidopsis bispinoculata Baba, 1988: 142, fig. 54.

Material examined. — New South Wales, off Nowra, 35°0′S 151°16.30′E, 15 July 1986, 1100 m, 5 m otter trawl, M. F. Gomon et al. on RV "Franklin" (stn SLOPE-9): 1 male, cl. 15.2 (10.8) mm (NMV J170991).

Type locality. — South-east of Doworra Island, off southern Halmahera, 1040 m.

Distribution. — Indonesia: Teluk Bone (Sulawesi), Teluk Tomini (Sulawesi), off south-west coast of Halmahera, off New South Wales, Australia; 933-2363 m.

Diagnosis. — Carapace rather smooth, bearing sparse obsolescent ridges, gastric region anteriorly delimited by transverse ridges medially interrupted. Front margin oblique, leading to small antennal spine, concavely divergent between antennal spine and anterolateral spine of carapace. Lateral margins subparallel, each with 2 small anterior spines. Eyes immovable; cornea well developed, broad relative to length, well-developed eyespine arising from end of cornea, directed anteriorly, accompanying another small spine mesial and ventral to it. Sternite of fourth thoracic somite with 2 or 3 spines on anterior lateral margin. Second and third abdominal tergites each with 2 transverse ridges, anterior one continued on to pleuron. Telson composed of 8 plates. Merus of third maxilliped with irregular spines on flexor margin, small terminal spine on extensor margin. Chelipeds short;

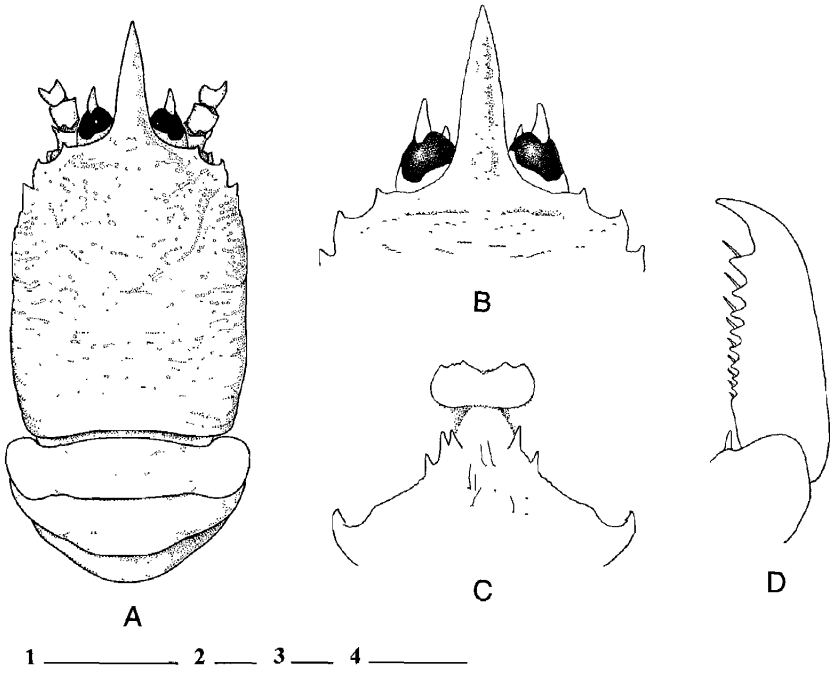

Fig. 1. *Munidopsis bispinoculata* Baba, 1988, male (NMV J17099). A, carapace and anterior part of abdomen, dorsal; B, anterior part of carapace, dorsal; C, anterior part of sternal plastron; D, distal part of first walking leg, lateral. Scale 1 = 5 mm; scales 2-4 = 1 mm; scale 1 for A; scale 2 for B; scale 3 for C; scale 4 for D.

merus lacking row of dorsal spines; carpus with a single spine on mesial margin; fixed finger with denticulate carina on distolateral margin. First walking leg overreaching cheliped; merus and carpus with spines on extensor margin; dactyl ending in curved terminal claw, flexor margin nearly straight, bearing 9 denticles each provided with relatively fine seta. Epipods absent from all pereopods.

Remarks. — The present specimen differs from the holotype in having more numerous ridges on the carapace, and the anterior spines on the third thoracic sternite are very small instead of being produced anteriorly. These differences are not considered to warrant description of a new species.

Munidopsis dasypus Alcock, 1894 (fig. 2)

Munidopsis dasypus Alcock, 1894: 329; Baba, 1988: 154, fig. 60 (synonymy).

Material examined. — New South Wales, off Nowra, 35°0′S 151°16.30′E, 15 July 1986, 1100 m, 5 m otter trawl, M. F. Gomon et al. on RV "Franklin" (stn SLOPE-9): 1 female, cl. 24.6 (18.1) mm (NMV J17063).

Type locality. — Andaman Sea, 561 fms (1027 m).

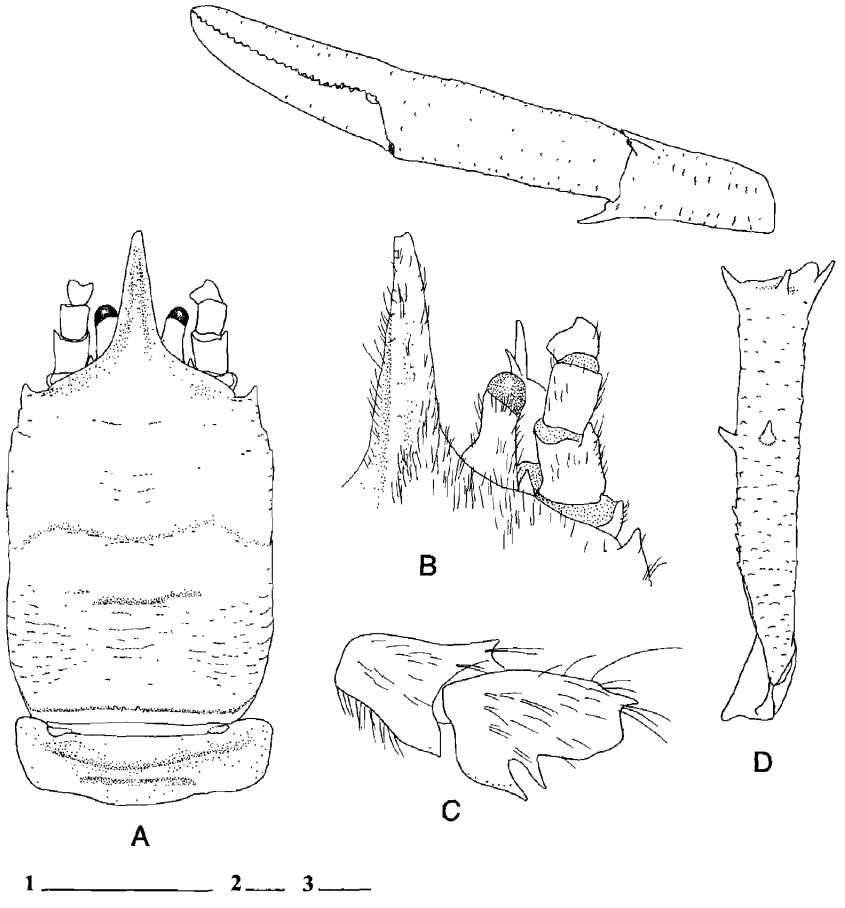

Fig. 2. *Munidopsis dasypus* Alcock, 1894, female (NMV J17063). A, carapace and anterior part of abdomen, dorsal; B, anterior part of cephalothorax, showing rostrum, eyestalk and antennal peduncle, dorsolateral; C, ischium and merus of right third maxilliped, lateral; D, right cheliped, dorsal. Scale 1 = 5 mm; scales 2, 3 = 1 mm; scale 1 for A, D; scale 2 for B; scale 3 for C.

Distribution. — Off Natal, Gulf of Aden, Arabian Sea, Laccadive Sea, Bay of Bengal, Andaman Sea, Moluccas, off south-western Luzon, off New South Wales, Australia; 214-1939 m.

Diagnosis. — Carapace covered with fine setae, posterior half surface with transverse ripples, transverse ridge directly anterior to posterior margin elevated, with 4 spines. Gastric and cardiac regions distinctly convex. Lateral margins subparallel, each bearing 2-3 spines anteriorly, anteriormost one largest, situated at anterolateral angle. Front margin oblique, without antennal spine. Rostrum straight, horizontal but distally curving dorsad, half as long as remaining carapace, dorsal carina weak proximally, distinct distally. Eyestalks setose, basally wide, distally slender; cornea slightly curving laterad. Small spine ventral to front margin

between bases of eyestalk and antennal peduncle. Abdomen unarmed, second and third somites each with 2 transverse ridges, both elevated. Antennal peduncle long relative to width, bearing prominent distolateral spine on second article only, first article dorsolaterally rounded, ventrodistally terminating in thin, rounded process. Merus of third maxilliped widened proximally, flexor margin with 2 spines on proximal half, distal one small, proximal one prominent, inflated on proximal margin, extensor margin with small distal spine. Fourth thoracic sternite narrowly elongate on anterior part. All pereopods covered with fine, long setae. Chelipeds relatively slender, merus and carpus with a few sharp spines, palm spineless, fingers directed slightly laterad. Meri and carpi of walking legs armed with a few prominent spines on extensor margin, terminal one largest. Epipods present on chelipeds.

Munidopsis edwardsii (Wood-Mason, 1891) (fig. 3)

Elasmonotus Edwardsii Wood-Mason in: Wood-Mason & Alcock, 1891: 201.
Munidopsis (Orophorhynchus) Edwardsii — Alcock, 1901: 265, pl. 3 fig. 4.
Munidopsis (Orophorhynchus) edwardsii — Alcock & McArdle, 1902: pl. 56 fig. 2.

Material examined. — New South Wales, 67 km ENE of Nowra, 34°41.97′S 151°22.44′E, 22 October 1988, 1896 m, 3.5 m beam trawl, G. C. B. Poore et al. on RV "Franklin" (stn SLOPE-59): 1 female, cl. 27.1 (19.4) mm (NMV J17062).

Type locality. — Bay of Bengal, 1310 fms (2397 m).

Distribution. — Bay of Bengal, off New South Wales, Australia; 1896-2610 m.

Diagnosis. — Body and appendages covered with very fine plumose setae. Carapace moderately convex, with very weak, interrupted ridges on both gastric region and posterior half surface, bearing borders separating gastric, anterior and posterior branchial, cardiac and intestinal regions; 2 epigastric eminences pronounced and spiniform. Front margin oblique, antennal spine distinct. Anterolateral angle acute; lateral margins of branchial regions bilobed, anterior lobe with salient cristiform margin bearing small processes, anteriorly ending in small spine, posterior lobe acutely produced at anterior end. Rostrum broadly triangular, horizontal, dorsally carinate. Abdomen spineless, second and third somites each with 2 transverse, elevated ridges. Telson divided into 8 plates. Eyes slightly movable, vertically compressed, eyestalk produced beyond cornea, ending in coarse stout spine, cornea small and lateral, laterally guarded by tiny process of eyestalk. Basal segment of antennule with distoventral and distolateral spines, both relatively short. Merus of third maxilliped with about 5 obtuse small spines on flexor margin, extensor margin ending in small but distinct spine. Pereopods covered with somewhat granulose small processes obscured by setae, setose condition more pronounced than on carapace. Chelipeds as long as carapace; fingers distally spoon-shaped, denticulate;

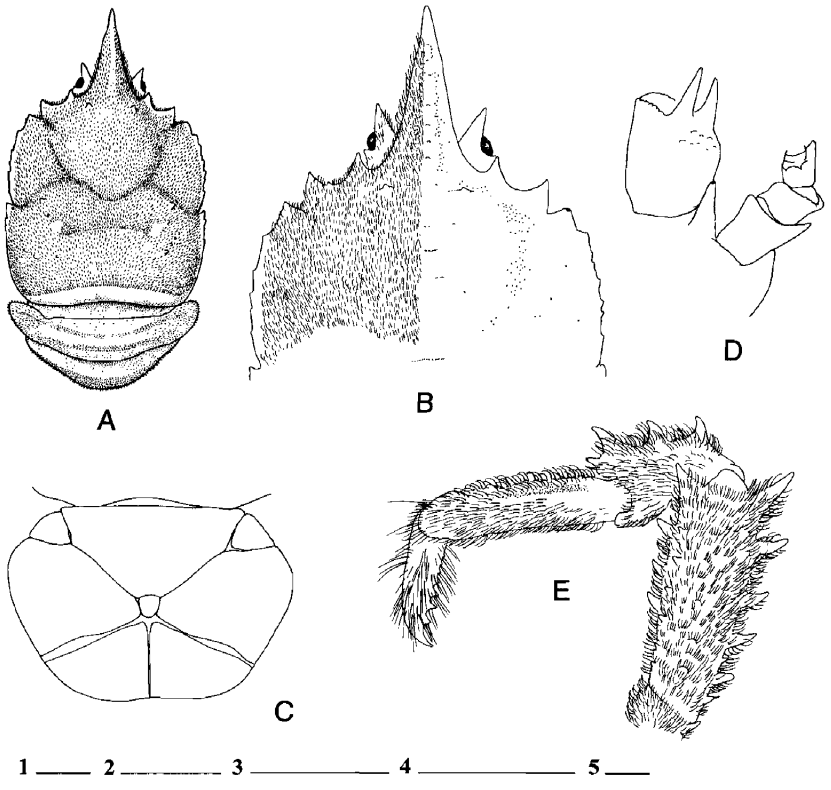

Fig. 3. *Munidopsis edwardsii* Wood-Mason, 1891, female (NMV J17062). A, carapace and anterior part of abdomen, dorsal; B, anterior part of carapace, right half denuded, dorsal; C, telson; D, left antennule and antennal peduncle, ventral; E, left first walking leg, lateral. Scales 1-4 = 5 mm; scale 5 = 1 mm; scale 1 for A, scale 2 for B; scale 3 for E; scale 4 for C; scale 5 for D.

edge of fixed finger overlapping that of movable finger (movable finger slightly shorter); fixed finger with denticulate carina on distolateral margin; palm as long as fingers, unarmed; merus with row of dorsal spines. Walking legs relatively long, first walking leg overreaching cheliped; merus with row of stout extensor marginal spines continued on to carpus, flexor margin also with row of spines; carpi and propodi longitudinally carinate on dorsolateral face; dactyls distinctly shorter than propodi, with nonplumose, stiff, long setae, distally ending in curved claw of moderate size, flexor margin nearly straight, with row of about 7 acuminate teeth. Epipods present on chelipeds.

Remarks. — The pair of epigastric spines are neither described nor illustrated for the type material but are apparent in the present material. In other material at hand from off Durban and the Bay of Bengal a pair of eminences is present in small specimens and a pair of more pronounced processes in large specimens.

Munidopsis marginata (Henderson, 1885) (fig. 4)

Elasmonotus marginatus Henderson, 1885: 416; 1888: 161, pl. 19 figs. 2, 2a; Thomson, 1899: 196 (list).

Munidopsis marginatus — Doflein & Balss, 1913: 176 (list).

Material examined. — New South Wales, off Nowra, 34°58.40′S 151°23.20′E, 16 July 1986, 1750 m, 5 m otter trawl, M. F. Gomon et al. on RV "Franklin" (stn SLOPE-15): 1 female, cl. 15.3 (10.3) mm (NMV J17066).

Type locality. — Off New Zealand, 1100 fms (2013 m).

Distribution. — Known only from the type locality.

Description. — Carapace covered with tubercles or granulations; gastric region moderately inflated, without spines; cardiac and intestinal regions delimited. Front margin oblique lateral to eyestalks, transverse between antennal peduncle and anterolateral corner of carapace. Anterior branchial regions dorsally flattish, warped laterally, lateral margin strongly convex anteriorly, cristate, overhanging pterygostomian flap, posteriorly converging, posterior branchial margins convergent posteriorly.

Rostrum constricted between eyes, broadly triangular beyond constriction; distally curving dorsad, dorsal surface granulate like carapace, bearing ridge in midline; lateral margin finely serrate.

Sternal plastron relatively long; third thoracic sternite with 2 anterior lobes; fourth thoracic sternite narrowly elongate anteriorly, lateral margins concave.

Abdominal somites less granulate than carapace, second and third tergites transversely bicarinate, anterior carina prominent on third tergite; fourth tergite with a single carina equally as prominent as preceding one. Telson composed of 8 plates, posterior plates relatively wide.

Eyes immovable, eyestalks finely granulate, produced anteriorly beyond cornea; cornea small, lateral and ventral to eyestalk.

Antennular basal article with distolateral and distodorsal spines, both well developed. Antennal peduncle having first article with anteriorly produced spine ventrally, dorsolateral corner broadly produced; second article with distolateral spine, third article with small distomesial spine.

Third maxillipeds having ischium flat and smooth laterally, with very small spine at distal end of flexor margin, mesial ridge with 14 or 15 denticles. Merus distally narrowed, lateral surface granulate, flexor margin with 4 or 5 small irregular spines; extensor margin ending in small spine accompanied by small additional spine proximal to it.

Chelipeds relatively stout, with tubercles or tubercular small spines on surface, bearing short fine plumose setae marginally except for fingers. Merus with stout distal spines mesially and laterally, lateral margin with irregular small spines.

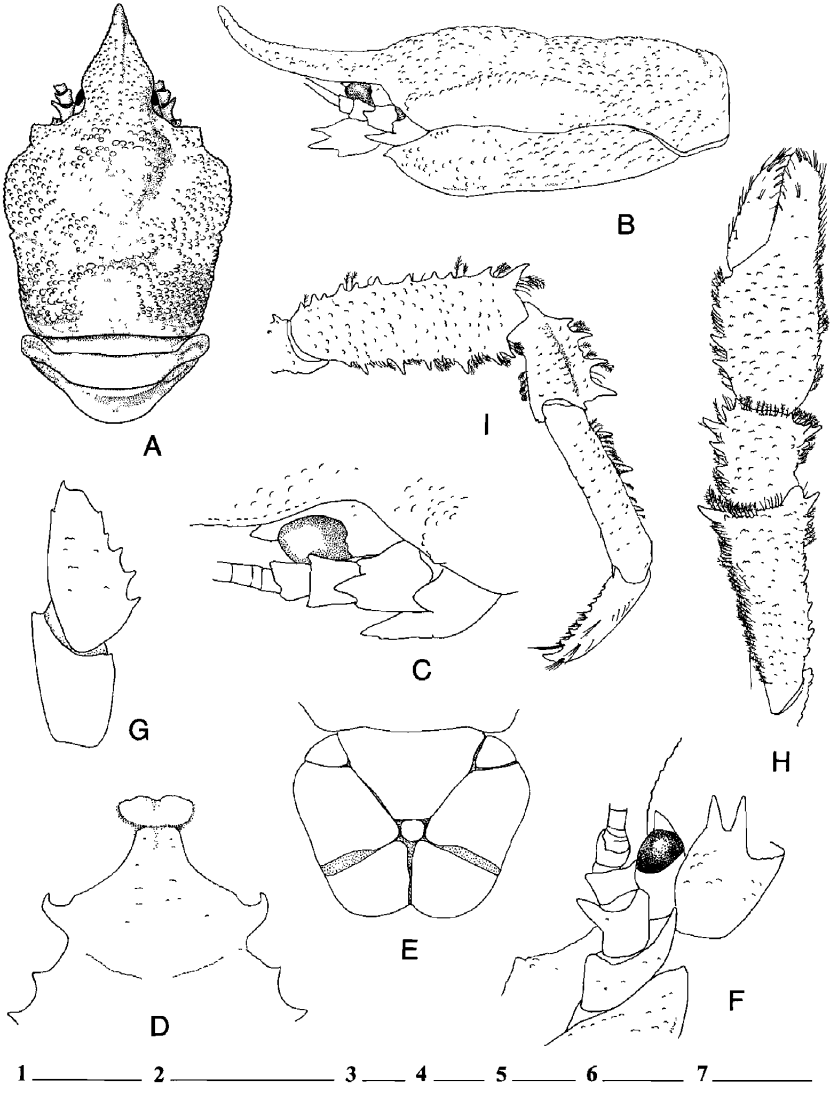

Fig. 4. *Munidopsis marginata* (Henderson, 1885), female (NMV J17066). A, carapace and anterior part of abdomen, dorsal; B, carapace, lateral; C, left eye and antenna, lateral; D, anterior part of sternal plastron; E, telson; F, anterior part of cephalothorax showing right eyestalk, antennule and antennal peduncle, ventrolateral; G, ischium and merus of right third maxilliped, lateral; H, right cheliped, dorsal; I, right first walking leg, lateral. Scales 1, 2 = 5 mm; scales 3-7 = 1 mm; scale 1 for A; scale 2 for B; scale 3 for H, I; scale 4 for E; scale 5 for D, F; scale 6 for C; scale 7 for G.

Carpus relatively short, with row of spines on mesial and lateral margins, mesial spines larger. Palm more than half as long as broad, mesial margin with row of 3 spines, lateral margin with small spine continued on to fixed finger. Fingers about

as long as palm, moderately depressed, spooned at tips, prehensile edges crenulate, that of fixed finger slightly overlapping that of movable finger, fixed finger with crest of small spines on distolateral margin.

Walking legs granulate on lateral surface, bearing short fine setae sparsely along extensor and flexor margins as figured. Meri successively shorter posteriorly, somewhat cristate along extensor margin, bearing irregular spines along extensor and flexor margins, distalmost on extensor margin prominent. Carpus with row of distinct spines paralleling ridge on lateral surface. Propodus with 3 or 4 spines mesial to extensor margin, flexor margin ending in pair of small movable spines. Dactyls two-thirds as long as preceding article, ending in curved claw preceded by 8 proximally diminishing spines on nearly straight flexor margin, each spine bearing short seta.

Epipods absent from all pereopods.

Remarks. — This is the first record of the species since that of the type material east of New Zealand.

Munidopsis rostrata (A. Milne-Edwards, 1880) (fig. 5)

Galacantha rostrata A. Milne-Edwards, 1880: 52.
Munidopsis rostrata — Chace, 1942: 75 (synonymy); Baba, 1988: 161; 1994: 18.

Material examined. — New South Wales, 67 km ENE of Nowra, 34°42.14′S 151°21.72′E, 1642 m, 22 October 1988, 3.5 m beam trawl, G. C. B. Poore et al. on RV "Franklin" (stn SLOPE-59): 1 male, cl. 36.0 (26.7) mm (NMV J17061). Victoria, 85 km S of Point Hicks, 38°31.41′S 149°21.10′E, 26 October 1986 m, 3.5 m beam trawl, G. C. B. Poore et al. on RV "Franklin" (stn SLOPE-72): 1 ovigerous female, 38.2 (31.8) mm (NMV J21043).

Type locality. — Bequia, Windward Islands, 1591 fms (2912 m).

Distribution. — This is one of the most widespread species of *Munidopsis* (see Baba, 1988). The nearest prior record is off the Queensland shelf (Baba, 1994).

Diagnosis. — Carapace covered with tubercles much like scales, dorsally armed with 2 epigastric, 1 strong laterally compressed mesogastric, 1 moderate cardiac spine. Front margin oblique, without antennal spine. Lateral margins nearly subparallel, anteriorly bearing 2 strong spines followed by small spine or lobe-like process anterior to midlength. Rostrum with depressed lateral spine with a few accompanying spines at anterior end of horizontal portion, upturned distally. Second, third and fourth abdominal tergites each with median spine on anterior ridge. Telson composed of 10 plates. Eyes movable. Small spine ventral to front margin between eye and antennal peduncle. Basal article of antennule with strong distolateral spine, distodorsal spine absent, distomesial margin produced into small spine, distoventral margin with broad thin process. Ischium of third maxilliped with sharp ridge along flexor margin, anteriorly ending in flat sharp process;

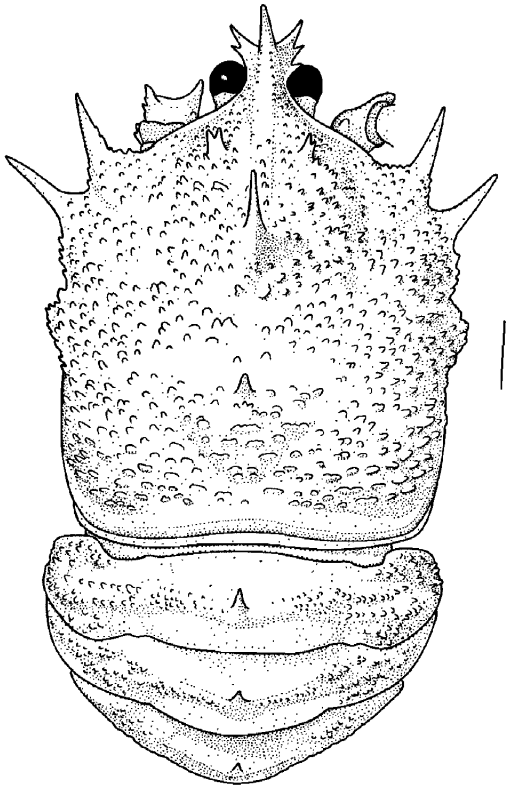

Fig. 5. *Munidopsis rostrata* (A. Milne-Edwards, 1880), female (NMV J21043), carapace and anterior part of abdomen, dorsal. Scale = 5 mm.

merus distally narrowed, flexor margin with 2 or 3 spines, proximal one strong; extensor margin unarmed. Pereopods tuberculate on surface. Chelipeds having merus and carpus both with distal spines, spineless elsewhere; chela unarmed. First walking legs overreaching end of cheliped; meri having extensor distal margin with produced edge ending in spine (or without spine); carpi also with distal spine only on extensor margin; dactyli curving, flexor margin with about 20 small spines. Epipods present on chelipeds and first two walking legs.

Remarks. — The two lateral spines placed on the anterior part of the carapace are subequal, although the posterior one is larger in the "Albatross" specimens (Baba, 1988). Examination of material at hand from West Africa (CANCAP material, Leiden Museum) and from the vicinity of Japan shows that this character is not consistent (Baba, unpubl.): some of them have larger first spine, some have larger second, and some have subequal spines. In the two Australian specimens the vertical portion of the rostrum is distally carinate on each side, anteriorly ending in a dorsoventrally depressed spine preceded by a few small spines. Inasmuch as the

other essential characters (i.e., carapace ornamentation, shapes of the antennule, antenna, third maxillipeds and all pereopods) are similar to those of the previously reported specimens (e.g., Baba, 1988), the present material is considered only another variant but further study may reveal more than one species.

Munidopsis serricornis (Lovén, 1852) (figs. 6-9)

Galathea serricornis Lovén, 1852: 22 (type locality: Sweden).
Galathea tridentata Esmark, 1857: 239 (type locality: Lofoten, west coast of Norway).
Galathodes rosaceus A. Milne-Edwards, 1882: 43 (type locality: northwest coast of Spain, 900 m).
Munidopsis tridentata — Chace, 1942: 88; Samuelsen, 1972: 91; Baba, 1988: 172, fig. 70; Abello & Valladares, 1988: 99, fig. 3.

Material examined. — Tasmania, 82.1 km SSE of Southeast Cape, "Sister I" seamount, 44°16.8′S 147°15.6′E, 23 January 1997, 820 m, epibenthic sled, T. N Stranks et al. on FRV "Southern Surveyor" (stn SS1/97-12): 1 female, cl. 9.4 (5.7) mm (NMV J44745). Tasmania, 82.8 km SSE of SE Cape, "U" seamount, 44°19.2′S 147°07.2′E, 27 January 1997, 1083 m, trapline, T. N. Stranks et al. on FRV "Southern Surveyor" (stn SS1/97-41): 1 male, cl.15.4 (11.2) mm (NMV J44746). Tasmania, Cascade Plateau, c. 173 km E of Tasman Island, 600-700 m, 30 September 1985, M. Williams et al. on "Sea Lion": 1 female, 6.5 (4.5) mm (TM G 3994). Victoria, S of Point Hicks, 38°21.90′S 149°20.00′E, 23 June 1986, 1000 m, WHOI epibenthic sled, G. C. B. Poore et al.: 1 specimen (sex indet.), 5.0 (3.4) mm (NMV J17100).

Distribution. — Widely distributed in the Atlantic (off coast of Iceland to Cape Verde Islands, the Mediterranean; western Atlantic off north coast of Cuba and northwest Gulf of Mexico) and Indo-Pacific (Indonesia off southern Obi; Philippines in Sulu Sea, between Siquijor and Bohol; Palawan Passage; west of Sumatra; Nicobar Islands; Bay of Bengal; off Sri Lanka; Maldives; off Kerala State, India; Saya de Malha Bank; off east coast of Somali Republic); 100-2165 m, shallowest recorded off Bergen, Norway (Samuelsen, 1972) and deepest off Morocco (Bouvier, 1922).

Diagnosis. — Carapace with or without epigastric spines, bearing obsolescent, interrupted transverse ridges. Front margin oblique or transverse mesial to small antennal spine, oblique between antennal spine and anterolateral spine. Lateral margins with 4 spines, posterior-most absent in small specimen. Rostrum wide, dorsal surface carinate, distally trifid. Abdomen unarmed. Telson composed of 7 or 8 plates; midlateral plates fringed with coarse setae in male. Eyes small, movable. Small spine ventral to front margin between eyestalk and antennal peduncle. Chelipeds moderately setose; merus with prominent distal spines, midmesial marginal spine, a few ventral spines and row of dorsal spines; carpus relatively elongate, bearing 3 distal spines, mesial margin with prominent spine proximal to distal spine, dorsal surface tuberculate or with small spines. Walking legs having dactyls nearly straight along flexor margin, bearing row of low teeth each with corneous seta. Epipods absent from all pereopods.

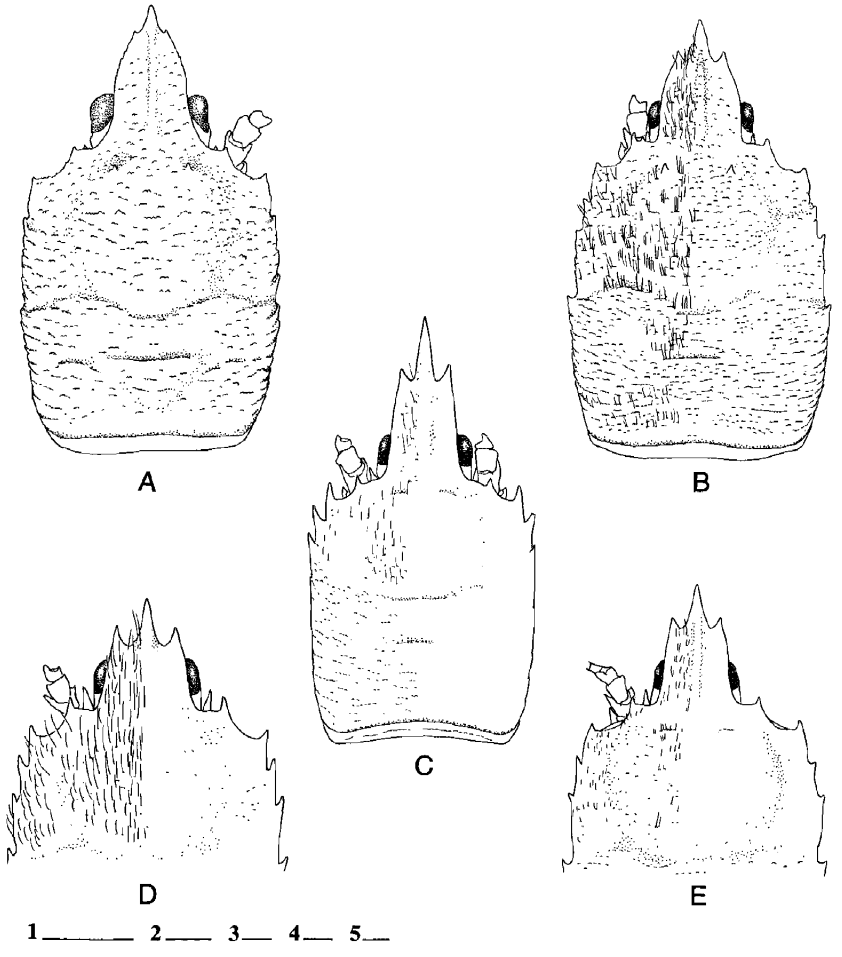

Fig. 6. *Munidopsis serricornis* (Lovén, 1852), carapace (or anterior half of carapace). A, sex indet. (NMV J17100); B, male (NMV J44746); C, female (NMV 44745); D, male from "Valdivia" stn 198 (MZS 349); E, female from Trondheim (MZS 354). Scales = 1 mm; scale 1 for A; scale 2 for C; scale 3 for E; scale 4 for B; scale 5 for D.

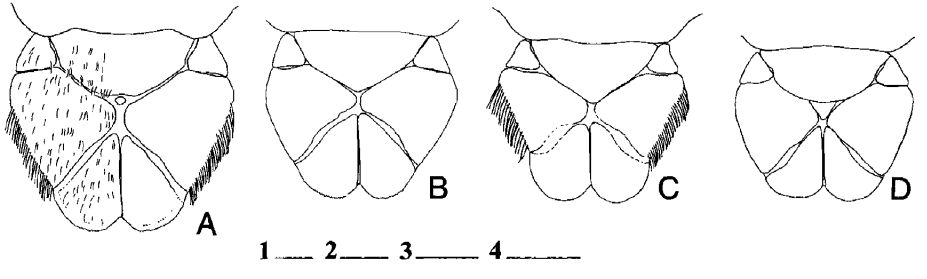

Fig. 7. *Munidopsis serricornis* (Lovén, 1852), telsons. A, male (NMV J44746); B, female (NMV 44745); C, male from "Valdivia" stn 198 (MZS 349); D, female from Trondheim (MZS 354). Scales = 1 mm; scale 1 for D; scale 2 for A; scale 3 for C; scale 4 for B.

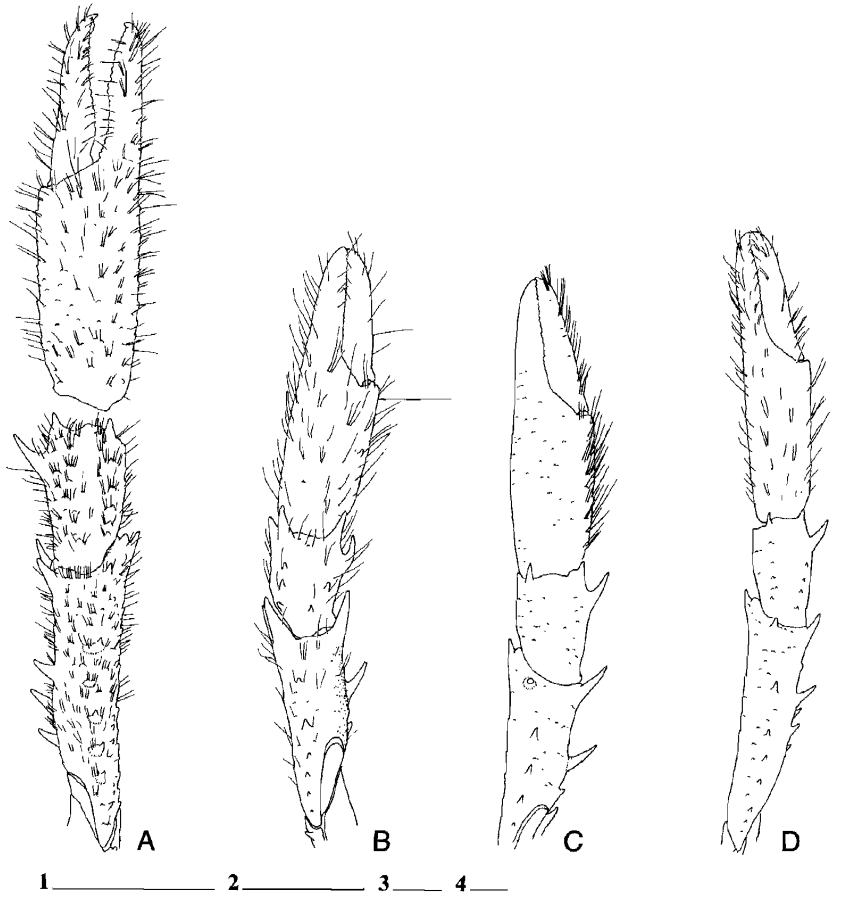

Fig. 8. *Munidopsis serricornis* (Lovén, 1852), chelipeds. A, male (NMV J44746); B, female (NMV 44745); C, male from "Valdivia" stn 198 (MZS 349); D, female from Trondheim (MZS 354). Scales 1, 2 = 5 mm; scales 3, 4 = 1 mm; scale 1 for A; scale 2 for D; scale 3 for B; scale 4 for C.

Remarks. — The smallest specimen (NMV J17100) with female gonopores has pleopodal buds that do not represent a typically female feature so the sex is indeterminate. Its carapace is rather tubercular on the dorsal surface, bearing a pair of distinct epigastric spines, as also does that of the other small specimen (TM G3994). The pereopods are missing in the former (smallest) but present in the latter. Other diagnostic features of these specimens are nearly the same as the others. We believe that the tuberculate condition is normal in the younger stage.

The specimen NMV J44745 differs from the others in having the walking leg dactyls more strongly curving and bearing fewer spines on the flexor margin. The Musée Zoologique, Strasbourg holds the two females (MZS 354) and two males (MZS 357) from Trondheim Fjord reported by Ortmann (1892) under the name of *M. tridentata*, and one male (MZS 349) from the German Deep-Sea

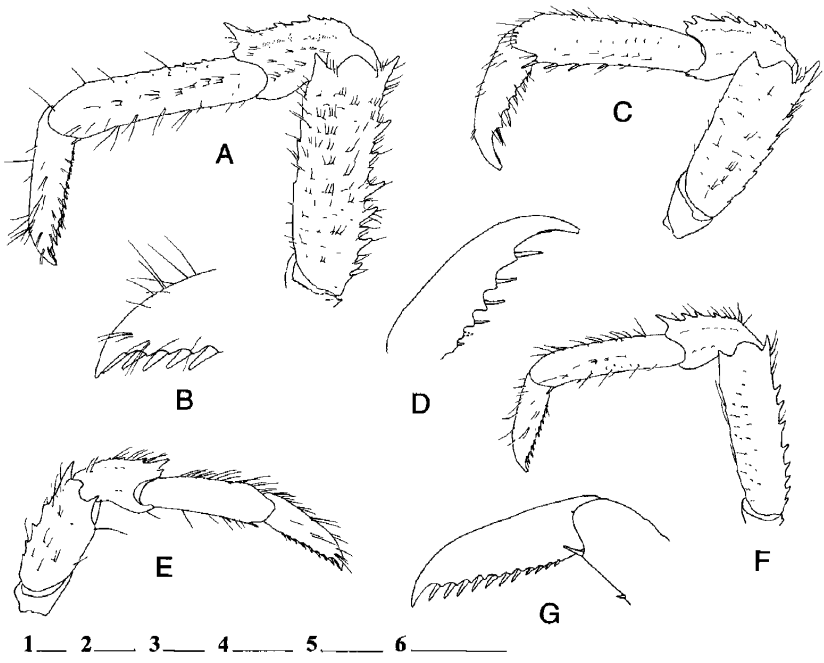

Fig. 9. *Munidopsis serricornis* (Lovén, 1852), walking legs. A, male (NMV J44746), left first; B, distal part of same; C, female (NMV 44745), left second; D, distal part of same; E, male from "Valdivia" stn 198 (MZS 349), right third; F, female from Trondheim (MZS 354), left first; G, distal part of same. Scales = 1 mm; scale 1 for F; scale 2 for A; scale 3 for E; scale 4 for C; scale 5 for G; scale 6 for B, D.

Expedition ("Valdivia" stn 198 near Nias, Indonesia, 677 m). In the "Valdivia" material, the rostrum is not clearly ridged in the midline as in other specimens. In addition, the carapace and abdomen are more setose, the dactyls of the walking legs lack a seta contiguous on the flexor side of the terminal claw as seen in others (fig. 9D). However, other essential features are nearly the same in all specimens examined or previously described. Comparison of the carapace, telson, chelipeds, and walking legs between specimens from Victoria, the "Valdivia" station and the Norwegian coast reveals that they may be considered identical. There are some differences: the gastric region bears a pair of spines in the larger specimen from Victoria whereas it is smooth in the others; the telson is composed of 7 plates in the larger specimen from Victoria and in the female from Trondheim, Norway. It is noted that one of two eastern Atlantic specimens at hand ("Tydeman" Azores Expedition, CANCAP-5 stn 5.090, Leiden Museum) bears eight telson plates and distinct gastric spines.

Munidopsis verrilli Benedict, 1902 (fig. 10)

Munidopsis verrilli Benedict, 1902: 291, fig. 34; Schmitt, 1921: 169, fig. 108.

Material examined. — Tasmania, approx. 93 km SSE of South-east Cape, 44°22′S 147°18′E, 1580-1700 m, 25 January 1997, CSIRO party on FRV "Southern Surveyor" (stn SS01/97-23): 1 female, cl. 28.8 (22.5) mm (TM G3601).

Type locality. — Off San Diego, California, 1500 m.

Distribution. — Off San Nicolas Island, Santa Cruz Basin, from Monterey Bay to off Cerros Island, off San Diego; off Tasmania, Australia; 1500-2010 m.

Diagnosis. — Body and appendages with long coarse setae. Carapace longer than wide; dorsal surface with 2 epigastric spines, bearing interrupted ridges somewhat elevated. Front margin oblique, antennal spine pronounced. Lateral margins somewhat convex, each bearing 5 spines, first anterolateral, small, second to fourth on anterior branchial region, last at anterior end of posterior branchial region. Rostrum narrowly triangular, distally upturned, carinate on dorsal surface. Abdomen spineless, telson divided into 10 plates. Eyestalks dorsoventrally movable, bearing 2 eyespines, mesial one larger. Basal segment of antennule with 2 terminal spines (distodorsal and distolateral), distomesial angle unarmed. Merus of third maxilliped with 4 distally diminishing spines on flexor margin, distal spine on extensor margin. Chelipeds spinose; merus with 3 rows of spines (dorsal, mesial, and mesioventral); palm somewhat depressed, especially along mesial margin, bearing 2 prominent spines on mesial margin; fingers distally fitting each other with a few intermeshing teeth when closed; denticulate carina obsolescent on distolateral margin of fixed finger. Walking legs relatively slender, meri and carpi with row of spines on extensor margin; propodi twice as long as dactyls, flexor margin ending in pair of spines preceded by single spine on first and second walking legs but none on third; dactyls having straight (or slightly convex) flexor margin with row of low proximally diminishing spines, each bearing short seta. Epipods absent from pereopods.

Remarks. — This is the first record since the original description of Benedict (1902). The identification was verified by examination of the holotype (National Museum of Natural History, Smithsonian Institution, USNM 20556), and specimens in the Natural History Museum, London ("Albatross" stn 4425, 21.8 miles NW of East Point, San Nicolas Island, California, 1100 fms, 3.iv.1904: 2 males, 2 ovigerous females, identified by W. L. Schmitt; Santa Cruz Basin, California, 952-1052 fms: 3 males, 1 female, identified by Carl Boyd).

The carapace ornamentation and the eyespines link the species to *M. ciliata* Wood-Mason, 1891. However, *M. verrilli* is distinctive in that the chelipeds are relatively long, bearing distinct spines along the mesial margin of the palm,

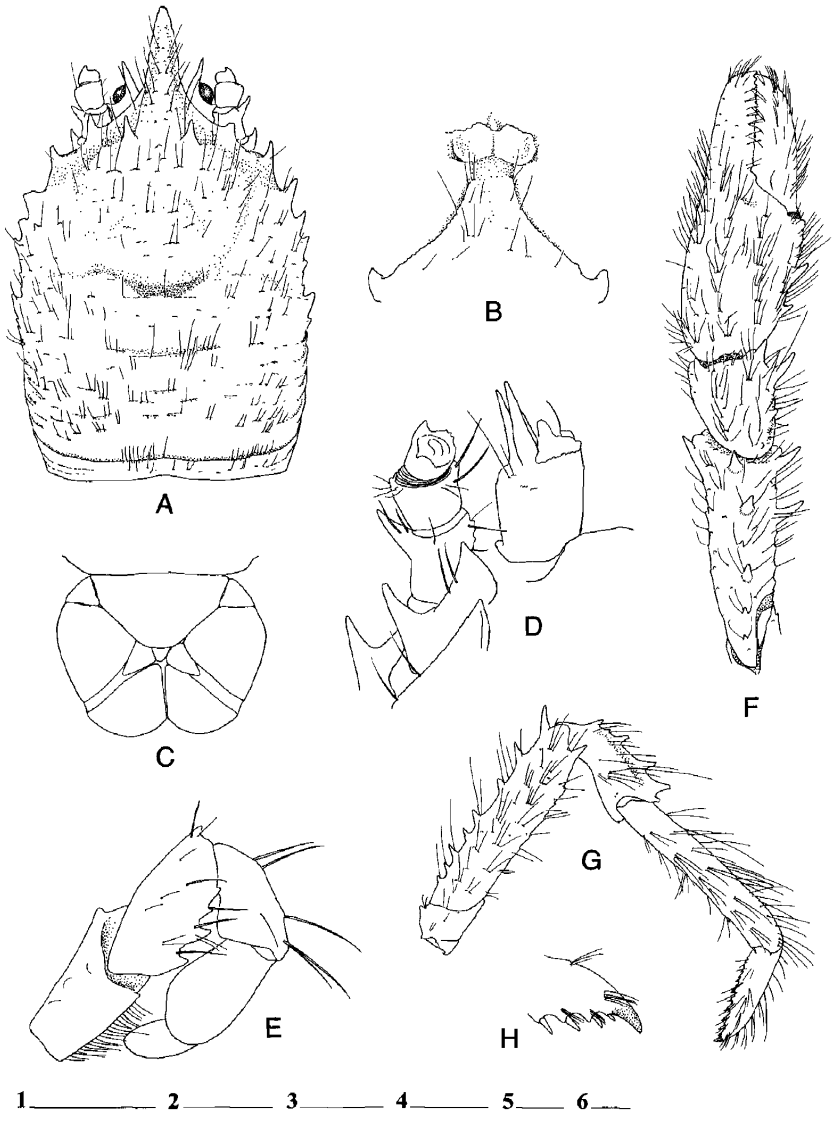

Fig. 10. *Munidopsis verrilli* Benedict, 1902, female (TM G3601). A, carapace, dorsal; B, anterior part of sternal plastron; C, telson; D, right antennule and antennal peduncle, ventral; E, endopod of right third maxilliped, lateral; F, left cheliped, dorsal; G, right second walking leg, lateral; H, distal part of same. Scales 1-4 = 5 mm; scales 5, 6 = 1 mm; scale 1 for C; scale 2 for G; scale 3 for A; scale 4 for F; scale 5 for E, H; scale 6 for B, D.

whereas *M. ciliata* has short chelipeds exceeded by the first walking leg (a feature of the *Orophorhynchus*-group), without spines on the palm. Also, epipods are absent from all pereopods in *M. verrilli* while present on the chelipeds in *M. ciliata*. No additional characters of significance were noted.

The species is now recorded from both the eastern and western Pacific.

Munidopsis victoriae n. sp. (figs. 11-12)

Material examined. — Victoria, 38 km SW of Cape Bridgewater, near Portland, 38°38′S 141°04′E, 27 June 1982, 990 m, mud, trawl, P. Forsyth: 1 ovigerous female, cl. 23.9 (16.8) mm (NMV J21035).

Etymology. — For the state of Victoria, a noun in the genitive singular.

Description. — Body and appendages covered with short fine setae. Carapace, exclusive of rostrum, slightly longer than broad, moderately arched from anterior to posterior end and from side to side, posterior cervical groove distinct, anterior one indistinct; transverse depression in anterior cardiac region. Frontal margin with moderate antennal spine leading obliquely and ventroposteriorly to small anterolateral spine ventral to level of lateral margin of carapace. In profile, no distinct border between gastric region and rostrum. Posterior half of carapace with numerous short ridges supporting bases of setae. Anterior branchial region dorsally flattish. Lateral margins cristiform, slightly concave at midlength in dorsal view, both anterior and posterior half somewhat convex; anteriorly ending in short stout spine directed forward. Posterior margin shallowly concave, preceded by elevated ridge without spine.

Rostrum narrowly triangular, distinctly shorter than remaining carapace; dorsal surface nearly horizontal in distal half, deflexed anteriorly in proximal half, moderately carinate longitudinally; lateral margin ridged, ventral surface convex

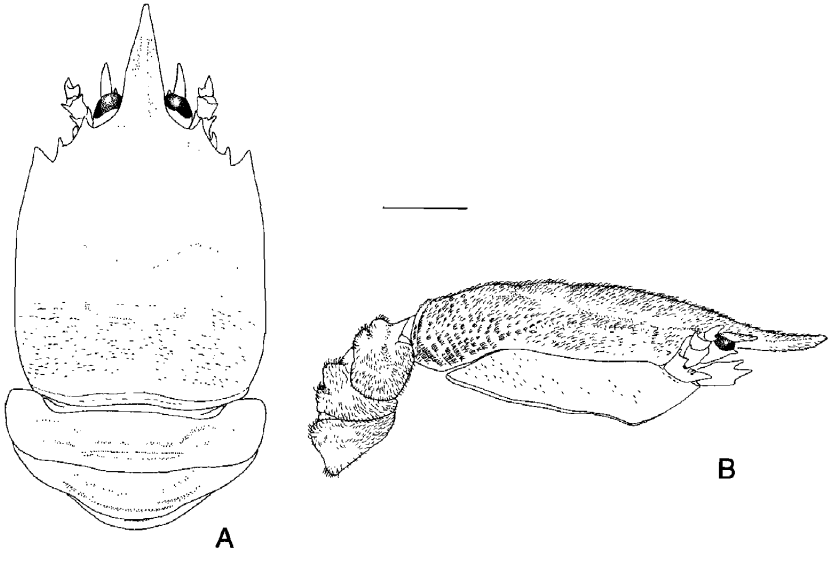

Fig. 11. *Munidopsis victoriae* n. sp., ovigerous female holotype (NMV J21035). A, carapace and anterior part of abdomen, denuded, dorsal; B, same, lateral. Scale = 5 mm.

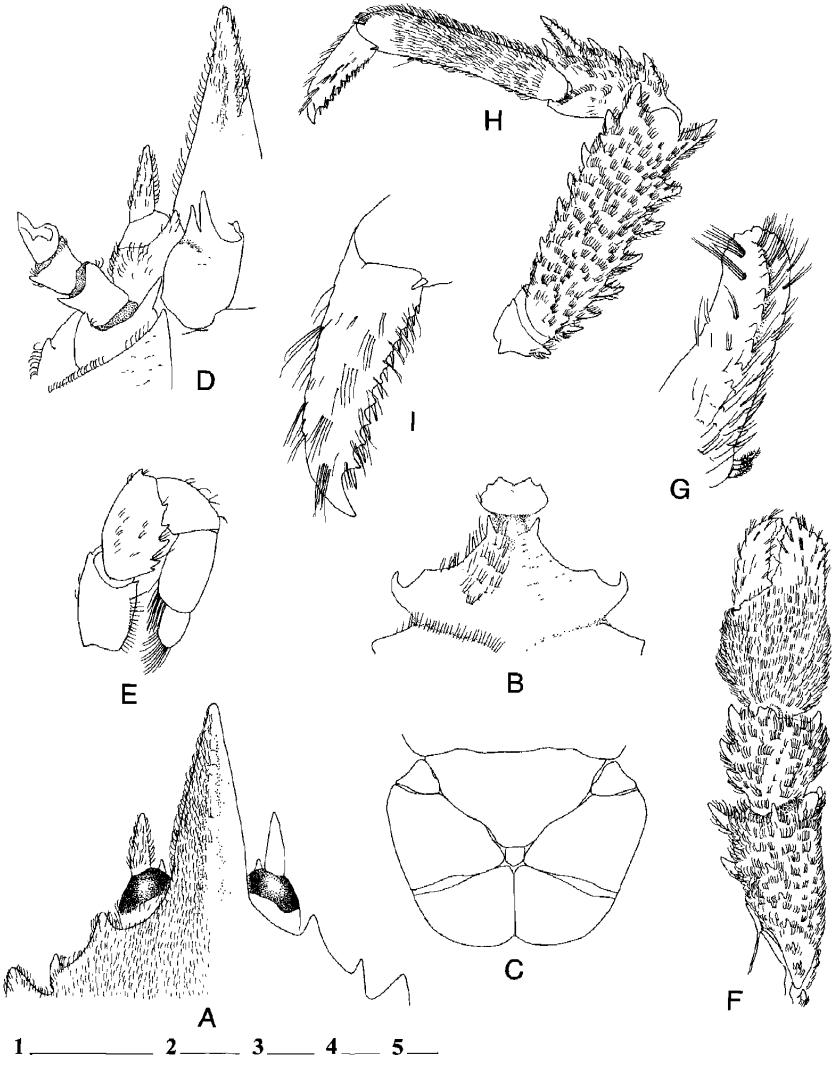

Fig. 12. *Munidopsis victoriae* n. sp., ovigerous female holotype (NMV J21035). A, anterior part of carapace, showing rostrum and eyestalks, dorsal; B, anterior part of sternal plastron; C, telson; D anterior part of cephalothorax, showing rostrum, eyestalks, antennule, antennal peduncle, ventrolateral; E, endopod of right third maxilliped, lateral; F, right cheliped, dorsal; G, fixed finger of same, lateral; H, left first walking leg, lateral; I, dactyl of same, lateral. Scale 1 = 5 mm; scales 2-5 = 1 mm; scale 1 for F, H; scale 2 for G, I; scale 3 for E; scale 4 for B, D; scale 5 for A, C.

from side to side, and anterior to posterior end. Pterygostomian flap anteriorly ending in small, acute spine, surface with short fine ridges.

Third thoracic sternite with opposed lobes anteriorly, each bearing 2 small processes, mesial one at end of anteriorly produced margin. Fourth thoracic sternite short relative to width, anteriorly with 2 spines, each followed by concave lateral

margin much shorter than half width of the sternite; ventral surface with short scattered ridges.

Second to fourth abdominal somites with transverse elevated ridge followed by transverse groove. Telson composed of 8 plates, length-width ratio 0.74, posterior 2 plates wider than long.

Eyes immovable, cornea wide relative to length; 2 eyespines, lateral spine as long as remaining eyestalk, arising from anterodorsal end of cornea, directed straight forward, covered with fine setae; mesial spine small, ventral and mesial to lateral spine, placed at anterior end of ventral side of eyestalk, visible in dorsal view.

Basal article of antennule with 2 spines, distodorsal and distolateral. Antennal peduncle with fixed basal article strongly produced at anterior end of ventral side, distolateral corner with short stout spine. Second and third articles each with small distolateral spine.

Ischium of third maxilliped shorter than merus, lateral face flattish, bearing setiferous longitudinal ridge along smooth flexor margin, anteriorly ending in small spine, mesial ridge with 23 denticles. Merus somewhat widened at proximal third, bearing 5 irregular spines on flexor margin and small spine at extensor distal corner. Carpus unarmed.

Epipods absent from all pereopods.

Chelipeds shorter than carapace including rostrum, wide relative to length, surface with short tuberculate ridges supporting bases of setae, distinct on merus and carpus, indistinct on chela. Basi-ischium with 1 distodorsal and 1 distoventral spine. Merus about as long as chela, bearing 4 stout distal spines, row of 5-6 dorsal spines, 1 mesial and 2-4 ventral spines. Carpus as long as wide, bearing 3 mesial and 1 distolateral spines.

Walking legs relatively wide. Meri successively short posteriorly, lateral surface with scale-like ridges, extensor margin with 7, 7, 5 acute spines on first, second, third walking legs, respectively. Carpi having extensor margin with 4 acute spines paralleled by ridge distally ending in small spine on lateral surface. Propodi about twice as long as dactyls, flexor margin ending in pair of movable spines preceded by another spine at point one-third of length from distal end. Dactyls having distal claw relatively short, flexor margin with 9-11 low teeth diminishing toward proximal end of article, each accompanied by short fine corneous seta.

Remarks. — The pilosity of the body and appendages, strong eyespines, short chelipeds and general spination of all pereopods link the species to *Munidopsis pilosa* Henderson, 1885 previously known from the Andaman Sea, Makassar Strait and Molucca Sea in 732-1510 m. However, the new species is distinguished from that species by the shapes of the eyes and the sternite of the fourth thoracic somite: in *Munidopsis victoriae*, the cornea is well developed, having a large eyespine

arising from the anterior end of the cornea, whereas in *M. pilosa* the cornea is very reduced, divided into left and right parts in dorsal view by the eyestalk that extends on to the lateral eyespine; the fourth thoracic sternite bears a pair of well-developed spines on the anterior part of the lateral margin in *M. victoriae,* instead of 2 or 3 spines in *M. pilosa.*

Two eyespines separated from the eyestalk by the well-developed cornea are also possessed by *M. bispinoculata* Baba, 1988 from Sulawesi and southern Halmahera, in 933-2363 m, and *M. similior* Baba, 1988, from the Mindanao Sea and coast of Luzon, in 267-366 m. These two lack the short, dense pilosity on the body and appendages seen in *M. victoriae*, and their carapace lateral margins are not cristiform.

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