VOLUME 51
PART 2

MEMOIRS

OF THE

QUEENSLAND MUSEUM

BRISBANE
31 DECEMBER 2005

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National Library of Australia card number
ISSN 0079-8835

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A Queensland Government Project
Typeset at the Queensland Museum

PONTONIINE SHRIMPS FROM PAPUA NEW GUINEA, WITH DESIGNATION OF TWO NEW GENERA, *CAINONIA* AND *COLEMONIA* (CRUSTACEA: DECAPODA: PALAEMONIDAE)

A.J. BRUCE

Bruce, A.J. 2005 12 31: Pontoniine shrimps from Papua New Guinea, with designation of two new genera, *Cainonia* and *Colemonia* (Crustacea: Decapoda: Palaemonidae). *Memoirs of the Queensland Museum* **51**(2): 333-383. Brisbane. ISSN 0079-8355.

A report is presented on a small collection of pontoniine shrimps, principally from the southern coast of Papua New Guinea, made by Neville Coleman in 2002-2003. The report includes information on 21 taxa, four of which are species new to science. These include one new species of a new genus, *Colemonia*, and three new species, *Periclimenes grandidens, Pontonides asperulatus* and *Pontonides loloata.* A new genus, *Cainonia*, is also designated for *Dactylonia medipacifica* (Edmondson), and two further new species are named, *Dactylonia borradailei* and *Pontonides sibogae*. Keys are provided to the genera of *Pontonia* sensu lato (Fransen, 2002) and species of *Pontonides* Borradaile. The pontoniine shrimp fauna of Papua New Guinea is reviewed. □ *Decapoda, Pontoniinae,* Cainonia *gen. nov.*, Colemonia *gen. nov.*, *Papua New Guinea.*

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The early history of pontoniine shrimp studies in Papua New Guinean (PNG) waters is brief and is fully described by De Grave (2000). who provided details of 13 species at the beginning of the twentieth century, increasing to 71 by 2000. The present small collection was made mainly in the vicinity of Loloata Island, 9° 32.093'S, 147° 16.605'E, in the Port Moresby region of PNG, by Neville Coleman, as part of his studies for the Australian Marine Photographic Index. The report consists of 21 pontoniine shrimp taxa, 4 of which are undescribed species, but 3 can not be referred with certainty to any known species. Other specimens were collected from Milne Bay. Remarks are also included on some related taxa.

The pontoniine fauna of PNG's northern coastlines are relatively well known through studies based on the Hansa Bay region (De Grave, 1998a, 1988b, 1999, 2000), but the southern shores have been much less studied and the fauna is much less well known. The present study increases the number of species known from the southern coasts by 13. Restricted synonymies only are provided. Fuller synonymies are to be found in Li (2000).

ABBREVIATIONS, AMPI, Australian Marine Photographic Index; BM, Bishop Museum, Honolulu; CL, postorbital carapace length; KBIN, Koninlijk Belgisch Instituut voor Naturwetenschappen, Brussels; QM, Queensland Museum, Brisbane; RCL, rostral carapace length; RMNH, Nationaal Natuurhistorisch Museum, Leiden; USNM, National Museum of Natural History, Washington; ZMA, Zoological Museum, Amsterdam.

SYSTEMATIC ZOOLOGY

Sub-phylum CRUSTACEA
Order DECAPODA Latreille, 1802
Family PALAEMONIDAE Rafinesque, 1815
Sub-family PONTONIINAE Kingsley, 1878

Colemonia gen. nov.

DIAGNOSIS. Body form small, robust, subcylindrical. Rostrum short, acute, unarmed, with 2 preterminal setae dorsally, dorsal carina distinct, lateral carinae narrow; carapace glabrous, inferior orbital angle present, antennal spine acute, orbit feebly developed, supraorbital, epigastric and hepatic spines absent, anterolateral angle rounded, not produced. Abdomen with posterior segments depressed, pleura rounded, sixth segment with posterolateral angle acute, posteroventral angle enlarged, acute. Telson with two pairs of small marginal dorsal spines, three pairs of posterior spines. Eye normal, with hemispherical cornea. Antennule with strong ventromedial tooth on basal segment, anterolateral tooth well developed, not exceeding half length of intermediate segment, flagella reduced. Antenna with basicerite unarmed, scaphocerite small, with distolateral tooth not

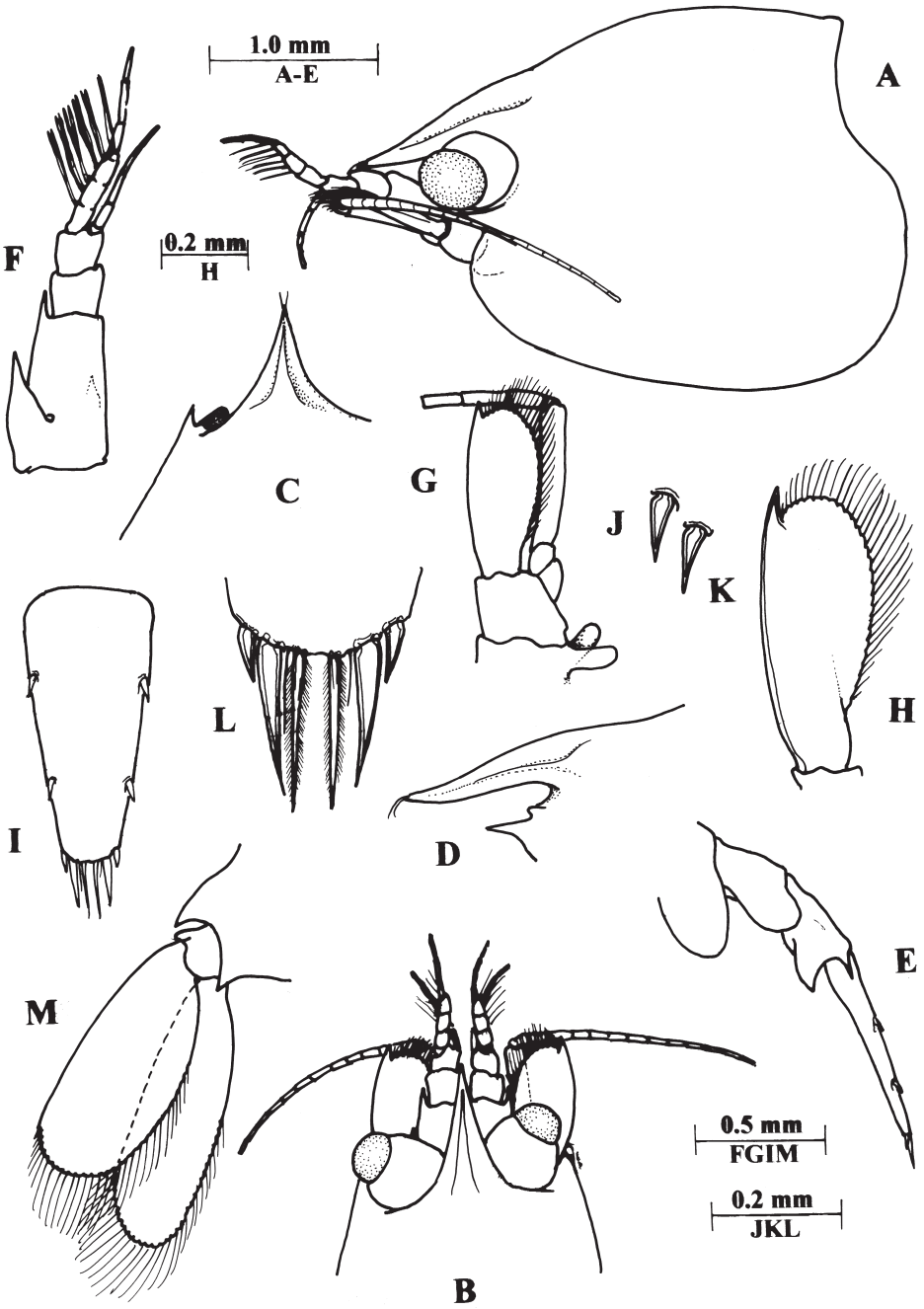

FIG. 1.*Colemonia litodactylus* gen. et sp. nov., holotype ♀, Madang. A, carapace and antennae, lateral. B, anterior carapace and antennae, dorsal. C, rostrum and left orbital region, dorsal. D, same, lateral. E, posterior abdominal segments and telson, lateral. F, antennule. G, antenna. H, scaphocerite. I, telson. J, same, anterior dorsal spine. K, same, posterior dorsal spine. L, posterior telson spines. M, uropod.

enlarged, less than 0.2 of lamellar length. Third thoracic sternite with large triangular transverse median plate, fourth unarmed, fifth with pair of low acute processes separated by median notch, sixth with low longitudinal median carina, seventh and eighth unarmed.

Mandible with slender corpus, without palp, molar process subcylindrical, incisor process with transverse set of four acute teeth distally, with denticles along medial border. Maxillula with bilobed palp, upper lacinia normal. Maxilla with enlarged, narrow simple basal endite with numerous setae medially, well exceeding slender palp, scaphognathite narrow. First maxilliped with slender setose palp, basal endite large, narrow, laterally convex, medially sublinear, with specialized distomedial setae (see description below), medial margin with sparse simple setae, distinct from rounded sparsely setose coxal endite, exopod well developed with narrow caridean lobe, flagellum with four plumose terminal setae, epipod large, bilobed. Second maxilliped endopod with dactylar segment small, basis with medial angulation, exopod flagellum well developed with four plumose terminal setae, epipod small, rounded with subacute posterior angle, without podobranch. Third maxilliped with ischiomerus fully fused to basis, endopod sub-operculiform, dorsally scaphoid, ante-penultimate segment much broader than distal segments, exopod flagellum well developed with four plumose terminal setae, coxa without medial process, with low rounded lateral plate, without arthrobranch. First pereiopods slender, with simple chelae. Second pereiopods with robust chelae, similar, slightly unequal, palm glabrous, smooth, without ventral carina, fingers without molar process and fossa, dactylus with single tooth, fixed finger with small acute tooth distally and denticulate carina proximally, both sparsely setose, proximal segments unarmed. Ambulatory pereiopods robust, dactylus simple, with unguis distinct, without distal scales, corpus without distoventral tooth or proximal accessory denticles, devoid of setae (except pair of disto- lateral sensory setae), propod with pair of well developed distoventral spines. Uropod with protopodite unarmed, exopod with distolateral spinule.

TYPE SPECIES. *Colemonia litodactylus* sp. nov.

ETYMOLOGY. For the collector, Neville Coleman, in recognition of his contribution to knowledge of the tropical shallow water marine fauna, and *Pontonia*, a name first used by Latreille (1829). Gender, feminine.

HOSTS. Associated with Ascidacea.

SYSTEMATIC POSITION. *Colemonia* is most closely related to *Dactylonia* and *Odontonia* Fransen (2002) (Table 1). The major differences between *Colemonia* gen. nov. and *Dactylonia* Fransen may be summarized as follows: In *Colemonia* the ventromedial tooth on the proximal segment of the antennular peduncle is large, the basal endite of the maxilla is elongate, narrow, simple, with numerous long setae, the basal endite of first maxilliped is elongate, narrow, sparsely setose, with some specialized apical spines, not forming a setal basket, the third maxilliped endopod has the articulation of ischiomerus and basis completely fused, broad, sparsely setose and semi-operculate, with a large transverse triangular sternal plate on the third thoracic sternite, the second pereiopod chelae subequal and similar, the third pereiopod with a simple dactylus, with only distolateral setae, and the telson with small dorsal spines.

The major differences between *Colemonia* gen. nov. and *Odontonia* Fransen may be similarly summarized as follows: In *Colemonia* the rostrum is acute, narrow with a distinct postrostral carina, the antennal spine is acute, the basal endite of the maxilla is elongate, narrow, simple, with numerous long setae, the basal endite of first maxilliped is elongate, narrow, sparsely setose, with some specialized apical spines, the third maxilliped endopod has the articulation of ischiomerus and basis completely fused, broad, sparsely setose and semi-operculate, with a large transverse triangular sternal plate on the third thoracic sternite, the second pereiopod chelae subequal, and the third pereiopod with a simple dactylus, with only distolateral setae, and strong distoventral propodal spines.

Colemonia litodactylus sp. nov.
(Figs 1-4, 22A)

MATERIAL. 1 ovig.♀, AMPI 1450, # 28, Milne Bay, 12 m, April 2003, QMW27252.

DIAGNOSIS. Rostrum acute, low post-rostral carina, semi-operculate third maxilliped, with triangular median process between coxae, ambulatory dactyls with corpus completely unarmed ventrally, devoid of setae, third pereiopod propod with strong distoventral spines.

DESCRIPTION. Body robust, subcylindrical, smooth, glabrous. Rostrum (Fig. 1D) slender in

TABLE 1. Comparison of related genera of Pontoniinae. w/wo = with or without

Character	*Dactylonia*	*Colemonia*	*Odontonia*
Rostrum	acute	acute	blunt
Rostral dentition	w/wo distoventral tooth	Nil	w/wo distoventral tooth
Lateral carinae	Narrow	Narrow	**Broad**
Postrostral region	Carinate	Carinate	Non-Carinate
Inferior orbital angle	Feebly developed	Distinct	Broadly rounded
Antennal spine	Acute	Acute	Blunt
Pterygostomial region	Rounded, not produced	Rounded, not produced	Rounded, not produced
Proximal antennular segment Ventromedial tooth	Small	Large	Large
Distolateral tooth	Reaching beyond middle of intermediate segment	Small	Large, reaching distal margin of intermediate segment
Anterolateral tooth of scaphocerite	<0.1 of scaphocerite length	about 0.12 scaphocerite length	>0.2 scaphocerite length
Incisor process of mandible, medial edge	Denticulate	Non-denticulate	Denticulate or non-denticulate
Basal endite of maxilla	Small, bilobed, proximal lobe sometimes obsolescent, sparsely setose	Large, elongate, narrow, simple, with numerous long setae	Small, bilobed or simple, sparsely setose
Basal endite of first maxilliped	Broad, very densely setose, forming basket	Elongate, narrow, sparsely setose, with few specialised apical spines	Broad, setose, not forming basket
Epipod of first maxilliped	Oval	Bilobed	Large, oval
Second maxilliped, dactylar segment	Long serrulate spines and setulose setae	Small, spines with filamentous setules	Short serrulate spines and long setulose setae
Basis	Without angular projection	Without angular projection	w/wo angular projection
Epipod	Rounded	Rounded, with posterior angulation w	Small, rounded or triangular
Third maxilliped, ischiomerus/ basis articulation	Partly fused	Fully fused	Partly fused
Combined segment form	Broad or narrow, not semi-operculate	Broad, semi-operculate	Narrow, not semi-operculate
Setation	Dense	Sparse	Moderate
Distal segments	Elongate, little narrower than combined segment	Short, broad, narrower than combined segment	Not short and broad
Terminal segment	Densely setose	Sparse short spines	Numerous serrulate setae
Third thoracic sternite	Unarmed	Large transverse triangular median plate	Unarmed
Fourth thoracic sternite	w/wo triangular notched plate	Unarmed	Transverse plate
Second pereiopod chelae	Unequal, dissimilar	Subequal, similar	Unequal, similar
Cross-section	Ventrally carinate, usually serrate	Oval, non-carinate, non-serrate	Oval, non-carinate, non-serrate
Dactylar dentition	Single tooth	Single tooth	Single tooth
Fingers	Gaping proximally	Not gaping	Not gaping
Dentition	Bidentate	Unidentate	Bidentate
Third pereiopod dactyl	Biunguiculate	Simple, unarmed	Usually biunguiculate
Setation of corpus	Well-developed	Absent	Well-developed
Unguial microspinulation	Present	Absent	Present or absent
Propod, distoventral spines	Well-developed	Robust	Small
Ventral spines	Present	Absent	Absent
Sixth abdominal segment, posterolateral tooth	Acute, usually well-developed	Acute, slender	Blunt, reduced
Posteroventral tooth	Acute, small	Acute, broad	Blunt, reduced
Telson, dorsal spines	Very large, submarginal, generally grouped on anterior half of telson	Small, marginal, not grouped on anterior half of telson	Well-developed, not very large

lateral view, tapering, acute, slightly exceeding intermediate segment of antennular peduncle, slightly depressed, unarmed, tip (Fig. 4A) with two long simple preterminal setae dorsally, ventral margin convex; in dorsal view (Fig. 1B,C), narrow, lateral carinae well developed, covering bases of eye stalks; with low narrow convex median dorsal carina, extending posteriorly to about level of posterior margin of orbit; carapace (Fig. 1A) with orbit weakly developed, inferior orbital angle small, rounded, antennal spine well developed, acute, marginal, extending well beyond anterior margin of carapace, pterygostomial region broadly rounded, not produced. Abdomen without special features. Pleura of first five segments broadly rounded; sixth segment (Fig. 1E) 0.31 of CL, depressed, posterolateral angle slender, acute, posteroventral angle broadly acute.

Telson (Fig. 1I) 0.6 of CL, about 2.2 times longer than sixth segment, about 2.2 times longer than anterior width, lateral margins sublinear, with 2 similar pairs of medium sized marginal dorsal spines (Fig. 1J,K), about 0.08 of telson length, at 0.33 and 0.66 of telson length, posterior margin (Fig. 1L) 0.4 of anterior margin width, broadly convex, with 3 pairs of spines, lateral spines small, about 0.35 of intermediate spine length, intermediate spines robust, about 0.17 of telson length, submedian spines slender, setulose, subequal to intermediate spine length.

Eyestalk (Fig. 1B, 4B) about 1.2 times longer than broad, 1.5 times broader than cornea; cornea hemispherical, poorly pigmented, diameter about 0.2 of CL. without distinct accessory pigment spot.

Antennule (Fig. 1F) normal; proximal segment of peduncle with large acute ventromedial tooth (Fig. 4B), distolateral tooth (Fig. 1F) well developed, about half length of intermediate segment, stylocerite acute, reaching about 0.6 of segment length, statocyst normal, with subcircular statolith, sparsely setose laterally; intermediate and distal segments of subequal length; upper flagellum biramous with 3 stouter proximal segments fused, short ramus with single segment only, longer, with four slender segments, with about six groups of aesthetascs, lower flagellum short, slender, with 4 segments.

Antenna (Fig. 1G) with basicerite robust, unarmed, antennal gland tubercle conspicuous, (single on right, doubled on left side); carpocerite about 6.8 times longer than wide, subcylindrical, slightly exceeding distal margin of lamella of scaphocerite; scaphocerite (Fig. 1H)) not reaching to end of antennal peduncle, narrow, about 2.5 times longer than wide, anterior margin rather rounded, lateral margin moderately convex, with relatively small distal tooth, about 0.12 of lamellar length, at about 9.12 of lamella length, extending distinctly beyond distal border of lamella.

Mandible (Fig. 2A) with corpus slender, without palp, incisor process (Fig. 4D) obliquely truncate distally, with 4 acute teeth, lateral tooth broadened, without denticles along distomedial margin; molar process (Fig. 4C) robust, centrally excavate with 4 blunt teeth, fringed by bands of short setae.

Maxillula (Fig. 2B) with stout feebly bilobed palp (Fig. 4E), proximal lobe small, with small hooked terminal seta; upper lacinia normal, with 7 short stout simple spines and setae distally, lower lacinia lost in dissection.

Maxilla (Fig. 2C) with slender subcylindrical non-setose palp, basal endite simple, large, broad, far exceeding palp, medially convex, distal and medial margin with numerous long, slender, sparsely setulose setae, coxal endite obsolete, medially concave; scaphognathite narrow, 3.5 times longer than central width, anterior lobe distally narrow.

First maxilliped (Fig. 2D) with short subcylindrical palp with preterminal simple seta, basal endite (Fig. 4F) well developed, narrow, about 1.7 times longer than basal width, well exceeding palp, lateral margin strongly convex, medial border straight, distomedial angle with single long simple fusiform terminal spine (Fig. 4G), with slightly shorter, more robust distally stellate spine (Fig. 4G) medially, with four shorter simple spines proximally, proximal medial margin with sparse long simple setae, coxal endite distinct, convex medially, non-setose, exopod well developed, flagellum with 4 plumose terminal setae, caridean lobe normal, epipod well developed, triangular, feebly bilobed.

Second maxilliped (Fig. 2E) with dactylar segment small, narrow, 3.2 times longer than wide, subequal to length of medial margin of propodal segment, with numerous long stout finely setulose setae (Fig. 4H), propodal segment large, twice as long as broad, distomedially rounded, with numerous stout denticulate spines medially, carpus, merus and ischiobasis without special features, exopod well developed with 4

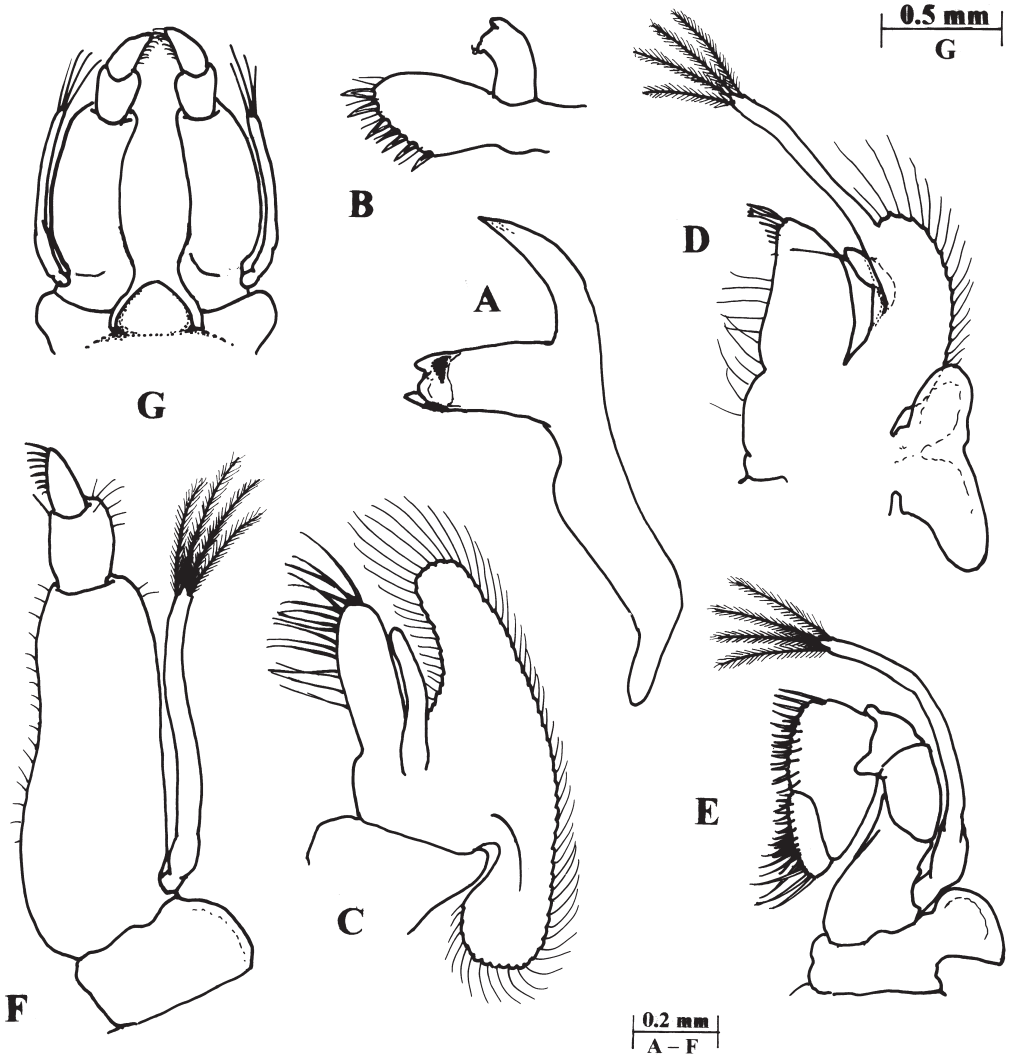

FIG. 2. *Colemonia litodactylus* gen. et sp. nov., holotype ♀, Madang. A, mandible. B, maxillula, upper lacinia and palp. C, maxilla. D, first maxilliped. E, second maxilliped. F, third maxilliped. G, third maxillipeds and third thoracic sternite.

plumose terminal setae, coxa with small rounded epipod, angularly produced posteriorly, without podobranch.

Third maxilliped (Fig. 2F) reaching to about distal basicerite, ischiomerus fully fused to basis without indication of demarkation, combined segment broad, semi-operculate, moderately scaphoid, 2.5 times longer than proximal width, feebly tapering distally, strongly bowed, medial margin with sparse short simple setae, lateral margin glabrous, penultimate segment short and broad, inserted slightly preterminally and sub-ventrally, about 0.25 of antepenultimate segment length, 1.4 times longer than wide, sparsely setose, terminal segment (Fig. 4I) preterminal, sub-ventrally inserted, 0.9 of penultimate segment length, 2.5 times longer than proximal width, tapering distally, with 2 short finely serrulate spines (Fig. 4I) medially, with largest spines distally, exopod well developed, reaching to end of ischiomeral segment, with 4 plumose terminal setae, coxa

normal with low rounded lateral plate, without arthrobranch. Paragnath (Fig. 4J) well developed; alae small, anteriorly rounded, posteriorly angular; corpus short, without carinae (?).

Third thoracic sternite with large transverse triangular plate, fourth unarmed, fifth with pair of low acute processes separated by median notch, sixth with low longitudinal median carina, seventh and eighth unarmed.

First pereiopod (Fig. 3A), exceeding basicerite by about half merus length; chela (Fig. 3B) about 3.0 times longer than deep, palm compressed, 1.5 times longer than depth, dorsally and ventrally convex, without cleaning setae proximally, with fingers subequal to palm length, compressed, dactylus slender, about 4.0 times longer than proximal depth, tapering strongly distally, to small simple acute hooked articulated unguis, cutting edge entire, sparsely setose, fixed finger similar; carpus slender, about 1.4 times chela length, 4.1 times longer than distal width, tapering strongly proximally; merus 1.2 times carpal length, 1.75 times chela length, 7.6 times longer than width, subuniform, slightly bowed; ischium about 0.5 of merus length; basis and coxa without special features.

Second pereiopods (Fig. 3C,F) well developed, slightly unequal in size, similar in shape. Major chela (Fig. 3D) about 0.97 of CL, palm slightly compressed, about 2.4 times longer than depth, tapering slightly distally, maximal depth at about 0.3 of length, smooth, glabrous, ventral margin not carinate, without serrations, fingers (Fig. 3E) about 0.33 of palm length, dactylus about 2.6 times longer than proximal depth, tapering distally to very strong acute hooked tip, with single small acute tooth at about half length, proximal and distal cutting edges entire; fixed finger about 1.25 times longer than proximal depth, ventrally non-carinate, cutting edge with small subacute tooth (Fig. 3E) at half length, distal cutting edge entire, with deep notch adjacent to tip, with low finely denticulate carina (Fig. 4K) proximally; carpus about 0.3 of palm length, 1.5 times longer than distal width, distally expanded, unarmed; merus 0.4 of palm length, uniform, 2.5 times longer than central width, unarmed; ischium subequal to carpus length, 3.0 times longer than distal width, tapering proximally.

Minor chela (Fig. 3G) about 0.89 of CL, 0.86 of major chela length, palm strongly compressed, about 2.5 times longer than depth, glabrous, ventral margin non-carinate, without serrations, fingers (Fig. 4H) about 0.3 of palm length, dactylus about 3.5 times longer than proximal depth, with single small acute tooth proximally at about 0.5 of length, distal cutting edge entire, tip strongly hooked, acute; fixed finger 1.5 times as long as proximal depth, cutting edge similar to that of major chela but less developed; carpus about 0.38 of palm length, 2.6 times longer than distal width, unarmed; proximal segments similar to major chela, less robust

Third pereiopod (Fig. 3I) exceeding carpocerite by about 0.3 of propod length. Dactylus (Fig. 4L) about 0.22 of propod length, corpus compressed, about 1.8 times longer than proximal depth, dorsal margin convex, ventral margin feebly concave, without distal accessory or other teeth, with pair of well developed sensory setae distolaterally, otherwise completely glabrous, unguis about 0.45 of corpus length, 1.8 times longer than basal width, transversely articulated with corpus, subacute, curved, without micro-denticulations. Propodus (Fig. 3J) about 0.5 of CL, subcylindrical, sparsely setose, about 6.6 times longer than proximal width, with pair of well developed distoventral spines, length almost subequal to basal width of dactylar corpus, ventral margin without spines; carpus about 0.5 of propod length, 3.0 times longer than distal width, tapering slightly proximally, unarmed; merus subequal to propod length, 4.4 times longer than central width, unarmed; ischium about 0.8 of propod length, unarmed; basis and coxa without special features. Fourth and fifth pereiopods similar.

Uropod (Fig. 1M) with short unarmed protopodite, exopod 2.3 times longer than broad, lateral margin convex, without distolateral tooth (Fig. 4M), with small mobile distolateral spine, without distinct diaeresis, endopod about 1.1 times exopod length, 3.3 times longer than wide.

Ova numerous and small, about 100.

MEASUREMENTS (mms). Postorbital carapace length, 2.2; carapace and rostrum, 3.2; body length (approx.), 9.5; major chela, 3.30; minor chela, 2.85; length of ovum, 0.75 .

COLOURATION (From colour transparency, AMPI 1450). Body and appendages semi-transparent, finely speckled with minute white chromatophores; with white median dorsal stripe along whole body, extending onto eyestalks, expanded over hepatic region of carapace and on each abdominal segment, with similar narrow band of white on second pereiopods along ventral margin of dactylus, palm of chela, carpus, merus and ischium.

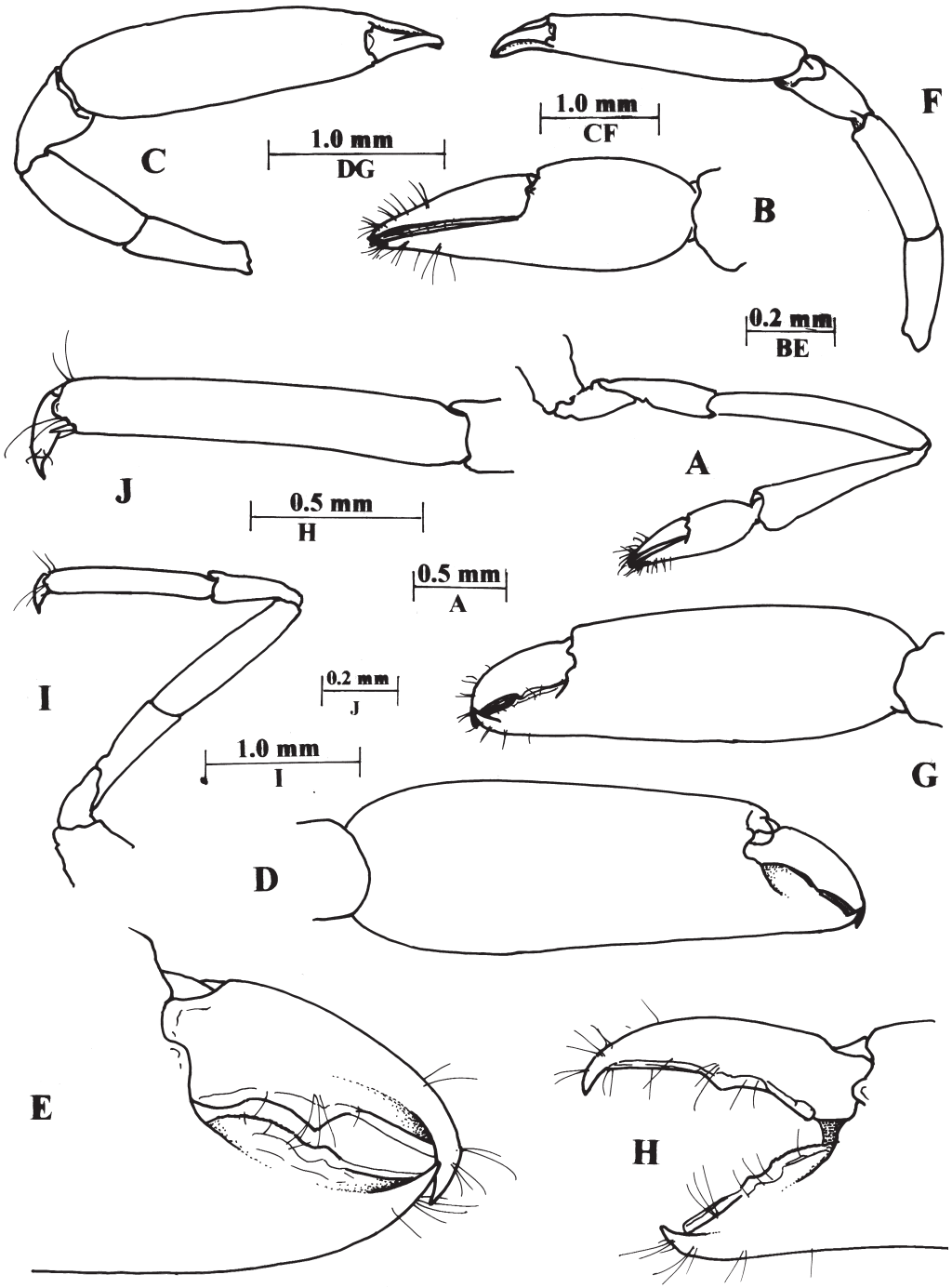

Fig. 3.*Colemonia litodactylus* gen. et sp. nov., holotype ♀, Madang. A, first pereiopod. B, same, chela. C, major second pereiopod. D, same, chela. E, same, fingers. F, minor second pereiopod. G, same, chela. H, same, fingers. I, third pereiopod. J, same, propod and dactylus.

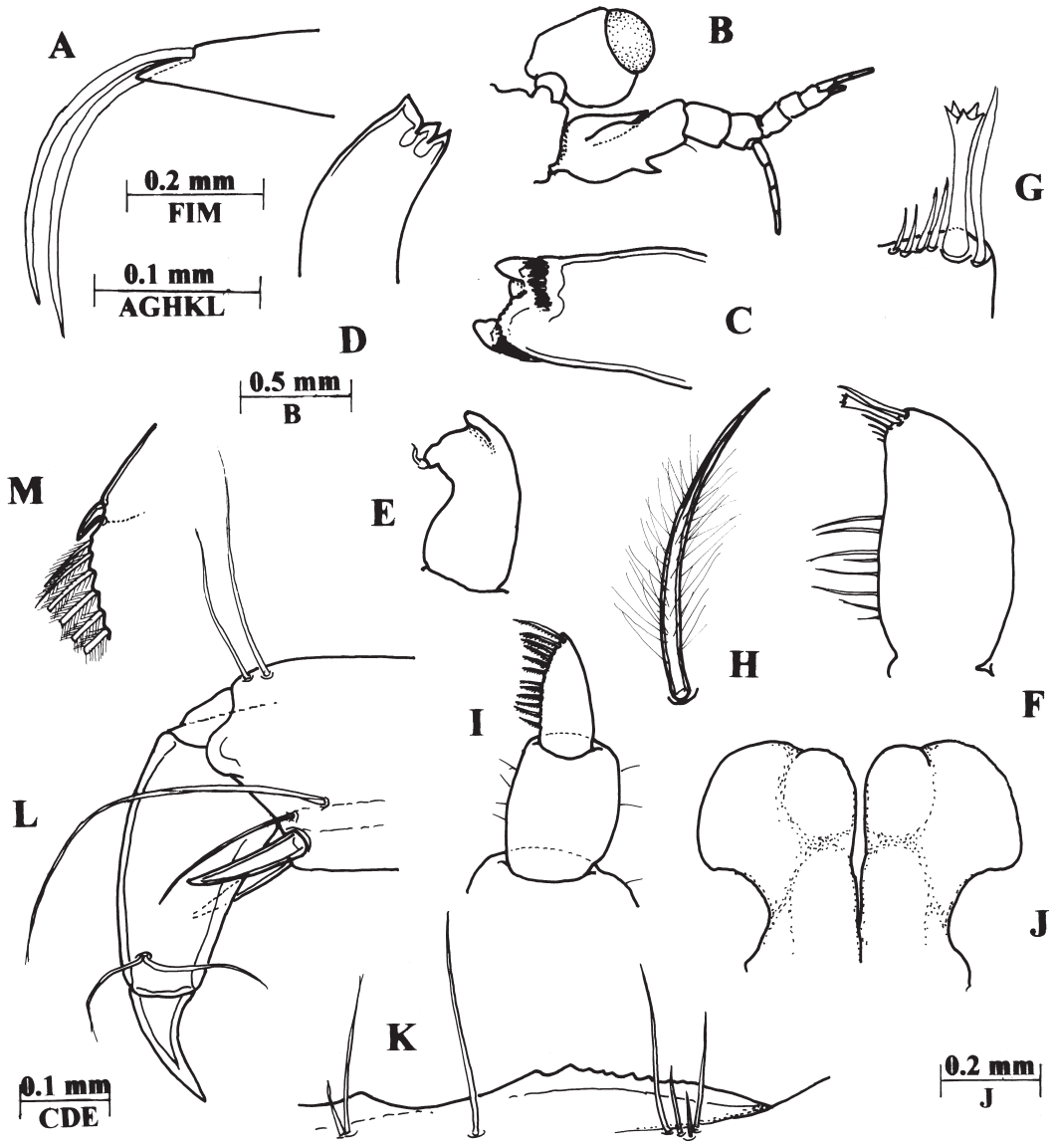

FIG. 4. *Colemonia litodactylus* gen. et sp. nov., holotype ♀, Madang. A, tip of rostrum. B, left eye, ophthalmic somite and antennule, medial aspect. C, mandible, molar process. D, same, incisor process. E, maxillula, palp. F, first maxilliped, endopod. G, same, terminal spines. H, second maxilliped, dactylar seta. I, third maxilliped, endopod, terminal and penultimate segments. J, paragnaths. K, minor second pereiopod, proximal cutting edge of fixed finger. L, third pereiopod, distal propod and dactylus. M, uropod, exopod, posterolateral spine.

HOST. Unidentified encrusting ascidian, [Ascidiacea].

ETYMOLOGY. Greek, *litos,* simple, and *daktylos*, finger

REMARKS. The accompanying male was lost during photography. Although no carinae were observed on the corpus of the paragnath prior to dissection, it is possible that these were overlooked as the paragnath was damaged during removal.

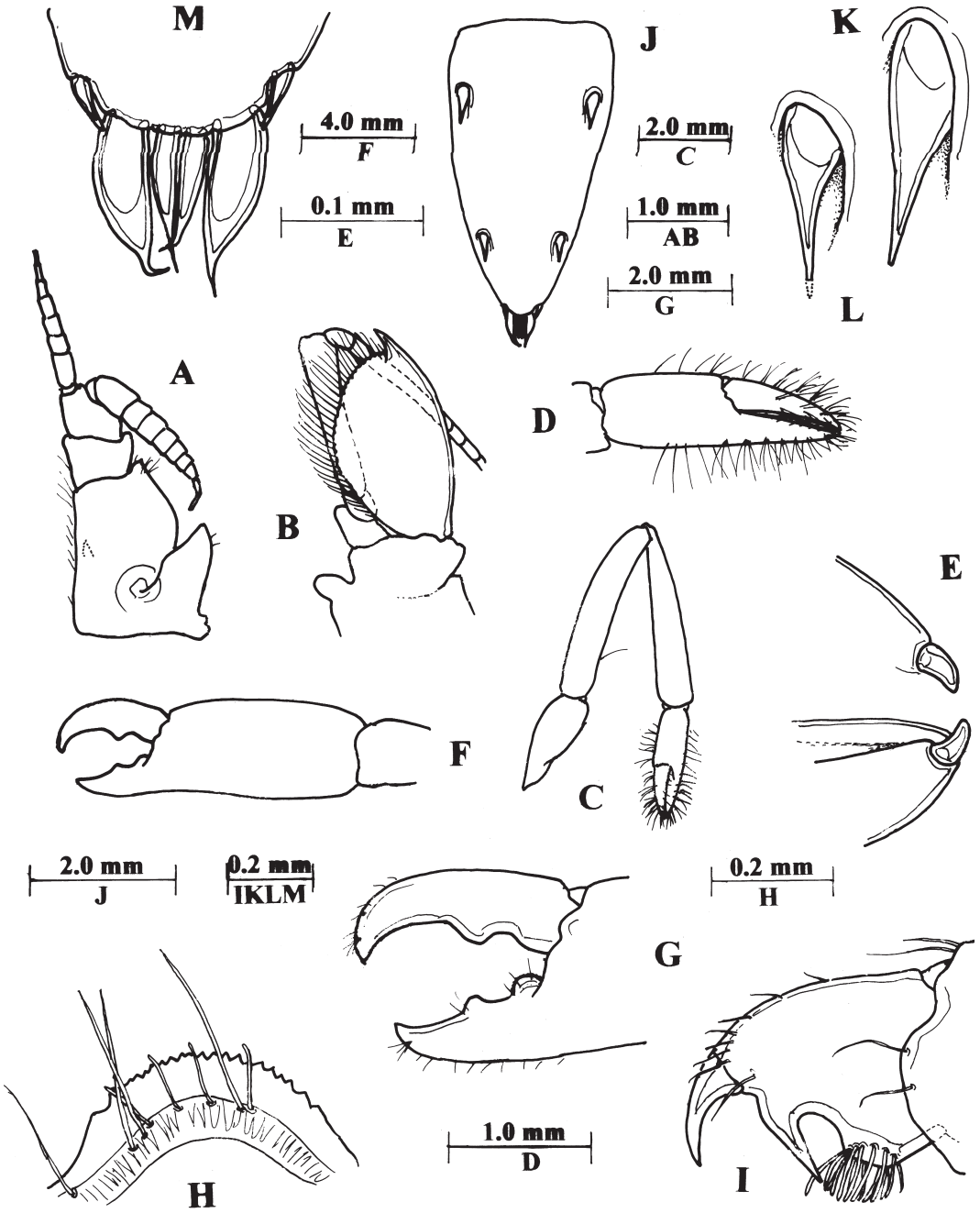

FIG. 5.*Conchodytes meleagrinae* Peters, ovig ♀, Milne Bay. A, antennule. B, antenna. C, first pereiopod. D, same, chela. E, same, finger tips. F, second pereiopod, chela. G, same, fingers. H, same, fixed finger, proximal tooth. I, third pereiopod, dactylus. J, telson. K, same, anterior dorsal spine. L, same, posterior dorsal spine. M, same posterior spines.

Conchodytes meleagrinae Peters, 1852a
(Fig. 5)

Conchodytes meleagrinae Peters, 1852a: 594; 1952b: 288; Li, 2000: 25, fig. 268; Davie, 2002: 308.
Conchodytes tridacnae Holthuis, 1952: 195, fig. 95 (*partim*); Jayachandran, 2001: 248, fig. 63 (*partim*).

MATERIAL. 1 ovigerous ♀, AMPI 1372, Milne Bay, 10 m, November 2002, QMW.27278.

REMARKS. The exact collection details, including the host, are uncertain. The specimen is referred to *C. meleagrinae* as the dorsal telson spines are at about 0.24 and 0.75 of the telson length, although the first pereiopod carpus is subequal to the merus length as is more approximate to the condition in *C. tridacnae* Peters.

Few illustrations of *C. meleagrinae* are available in the literature and the original descriptions (Peters, 1852a,b) were without illustration. Pearson (1905), Borradaile (1917), and Kemp (1922) also provided unillustrated reports. Nobili (1906) illustrated only the ambulatory dactyl. The first more comprehensive description and illustrations were provided by Kubo (1940), of specimens from the Ryukyu Islands, in *Tridacna* hosts, and from Palau, from *Pinctada* hosts. Kubo's figures for *C. meleagrinae* indicate that the first pereiopod carpus is distinctly shorter than the merus in that species and that the dorsal telson spines are at about 0.25 and 0.73 of the telson length. More recently Li (1997) has also figured the telsons of *C. meleagrinae* and *C. tridacnae* and shown again that the posterior dorsal spines of *C. tridacnae* are more posteriorly placed than those of *C. meleagrinae.* Britayev & Fachrutdinov (1994) indicate about 0.2 and 0.89 in *C. tridacnae* from Vietnamese waters.

The present specimen, CL 10.2 cm, referred to *C. meleagrinae*, agrees closely with the information provided by Kubo. The following points may be noted. The antenna (Fig. 5A) has a small ventromedial tooth on the proximal segment, the distolateral angle is produced and acute, the stylocerite is also distally acute, the upper flagellum is biramous with the first 5 segments fused, short ramus with 2 free segments, with about 6-7 groups of aesthetascs, longer ramus with 3 free segments, lower flagellum with 7 segments. The antenna (Fig. 5B) has the carpocerite 6 times longer than wide, well exceeding scaphocerite lamella and its distolateral tooth; scaphocerite lamella 1.7 times longer than wide, distolateral tooth large, far exceeding long axis of lamella. First pereiopod (Fig. 5C) with carpus and merus subequal, chela (Fig. 5D) with fingers subequal to palm length, with numerous groups of long serrulate setae, small stout articulated tips (Fig. 5E), surrounded by short stout simple setae, cutting edges entire. Second pereiopods subequal, chela (Fig. 5F) subequal to CL, palm about twice as long as deep, tapering slightly distally, fingers (Fig. 5G) about half palm length, dactylus compressed, non-carinate dorsally, with single acute denticulate tooth, fixed finger similar, with two denticulate teeth (Fig. 5H). Third pereiopod dactylus (Fig. 5I) has a robust articulated curved unguis, about 0.5 of the dorsal length of the corpus, corpus strongly compressed, distodorsal region with submarginal setae, accessory tooth large, acute, subequal to unguis, basal process without tooth, with numerous short stout simple setae, propod without spines. Telson (Fig. 5J) about 1.8 times longer than anterior width, dorsal spines well developed, anterior spines (Fig. 5K) about 0.12 of telson length, at 0.24 of telson length, posterior spines (Fig. 5L) smaller, about 0.75 of anterior pair length, at 0.75 of telson length, posterior margin narrow, convex, without median process, about 0.25 of anterior width, posterior spines (Fig. 5M) marginal, lateral spines small, about 0.35 of posterior dorsal spine length, intermediate spines proximally inflated, distally attenuated, about 0.11 of telson length, subequal to posterior dorsal spine length, submedian spines more slender, about 0.6 of intermediate spine length, non-setulose.

DISTRIBUTION. PNG – Previously reported from Hansa Bay, 5-15m, in *Pinctada margaritifera* and *P. maxima* (De Grave, 1999). Other – Type locality: Ibo, Cabo Delgado, Mozambique. Also reported from Egypt, Yemen, Kenya, Moçambique, Madagascar, Seychelle Islands, Oman, Maldive Islands, Sri Lanka, Andaman Islands, Malaysia, Indonesia, Vietnam, China, Japan, Northern Territory, Queensland, Caroline Islands, Marshall Islands, New Caledonia, Fijian Islands, Cook Islands, Tuamotu Islands, and Hawaiian Islands.

Dasycaris zanzibarica Bruce, 1973

Dasycaris zanzibarica Bruce, 1973: 247, figs 1-6; 1991b: 265, fig. 27; Li, 2000: 45, fig. 46; Davie, 2002: 310.

MATERIAL. 1♂ , 1 ovigerous ♀ , AMPI 1458, # 118, Loloata Island, 15 m, 22 April 2003, QMW27247.

HOST. *Cirripathes* sp. indet. [Antipatharia].

REMARKS. The specimens agree closely with earlier descriptions. The dorsal teeth on the carapace are very well developed, with the

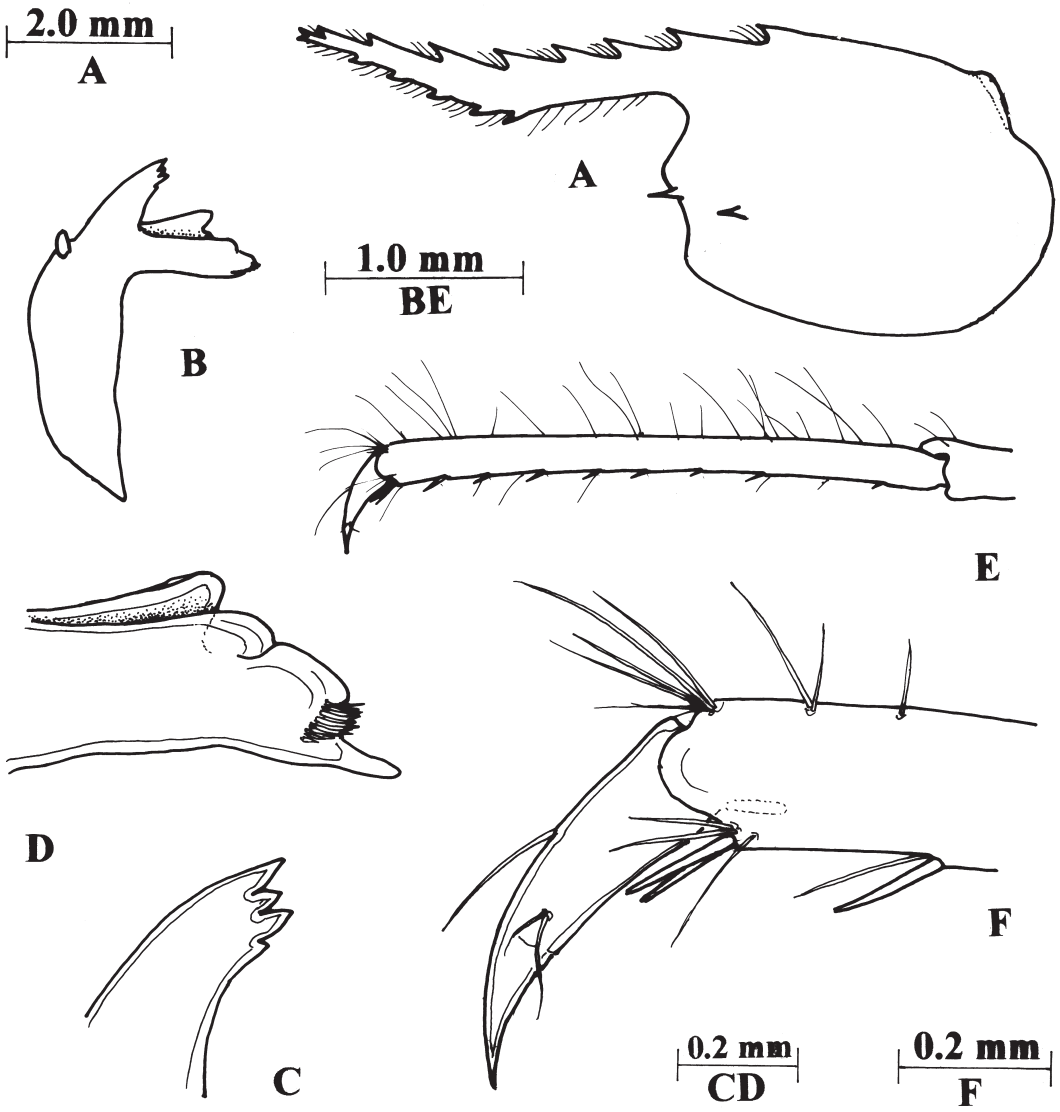

FIG. 6. *Exoclimenella* aff. *maldivensis* Duris & Bruce, ovig. ♀, Milne Bay. A, carapace and rostrum. B, mandible. C, same, incisor process. D, same, molar process. E, third pereiopod, propod and dactyl. F, same, distal propod and dactyl.

anterior tooth almost completely post-orbital. In the male the rostrum reaches almost to the end of the antennular peduncle, in the female, only to the end of the proximal peduncular segment.

DISTRIBUTION. PNG – Loloata Island (Coleman, 1998) and Madang, to 41 m (Debelius, 1999). Other – Type locality: Changu Island, Zanzibar. Also reported from Queensland, Taiwan, Japan, Philippines and New Caledonia.

Exoclimenella aff. **maldivensis** Duris & Bruce, 1995
(Figs 6, 22B)

MATERIAL. 1 ovigerous ♀, AMPI 1465, # 15, Milne Bay, 8 April 2003, QMW27254.

.COLOURATION (From colour transparency, AMPI 1465). Body generally semitransparent; posterior margin of carapace with broad dark band with white spots, hepatopancreas (?) with submedian and lateral white patches; eyestalk, cornea, ophthalmic somite and bases of antennal peduncles bright red; second pereiopods densely spotted with small white dots, with dark band across central carpus, four similar bands on palm, fingers with dark longitudinal striae; caudal fan with dark transverse band centrally.

HABITAT. Under algae.

REMARKS. The single specimen, has a single detached first pereiopod and lacks both second pereiopods. It has a rostral dentition of 1+8/5 (Fig. 6A), antennal and hepatic spines, but lacks a supraorbital spine, a finger-like median process is present on the fourth thoracic sternite, the fifth sternite with a bidentate transverse ridge, and a small single segmented non-setose palp on the mandible (Fig. 6B). Two arthrobranchs are present on the third maxilliped, each with four bilobed lamellae. The first pereiopod chela is strongly subspatulate, with denticulate cutting edges to the fingers, dactylus with a transparent distolateral lamina. The posterior margin of the third abdominal tergite is entire, without micro-denticulations. The specimen therefore readily fits into the diagnosis of *Exoclimenella* as provided by Duris & Bruce (1995), with the exception of the absence of microdenticulations from the third abdominal tergite. Without second pereiopods it cannot be certainly identified with any of the described species of *Exoclimenella.* However, *E. sudanensis* Duris & Bruce, 1995. can be excluded from consideration on account of it having a supraorbital spine and *E. sibogae* (Holthuis, 1952) on account of the quite dissimilar rostrum. Both *E. maldivensis* Duris & Bruce, 1995, and *E. denticulata* (Nobili,1906) would be excluded by their having well developed denticulations on the posterior margin of the third abdominal tergite and it is considered most likely that this specimen represents an undescribed taxon.

Other morphological features may be noted. The rostrum has two dorsal teeth distally anterior to the level of the most distal ventral tooth. A distinct post-orbital ridge is present, close to the anterior margin of the orbit and the antennal spine is marginal. The corpus of the mandible in this specimen is robust and the molar process (Fig. 6D), is particularly stout and broad, but the incisor process (Fig. 6C), is comparatively feeble and narrow rather than broad and has a small additional tooth on the distomedial margin. The fourth pleuron is posteroventrally rounded, the fifth acutely pointed. The third pereiopod is similar to that of *E. maldivensis*: the ventral margin of the dactylus (Fig. 6F), is uniformly concave, and the anterior margin has a single long seta at 0.37 of the length. The unguis is more than half the corpus length. The propod (Fig. 6E), has a pair of distoventral spines and 8 ventral spines. The specimen agrees closely with the specimen reported from Hachijo Island, Japan, except that that specimen shows a distinctly post-marginal antennal spine. This specimen also lacks denticulation on the posterior margin of the third abdominal tergite (Okuno, pers. comm., 3 November 2003).

The colour pattern of this specimen corresponds exactly with that illustrated by Kawamoto & Okuno (2003:30) as *E. maldivensis* from Kume Island, Okinawa and also with *E. maldivensis* by Debelius (1999: 189, from the Burma Banks, Thailand), which also shows the reddish eyes and has dark purplish patches on the chelae of the second pereiopods as described in *E. maldivensis* by Duris & Bruce (1995, fig. 5 ab).

Colouration of *E. denticulata, E. sudanensis, E. sibogae* and *E. maldivensis* s.str. are still unknown.

DISTRIBUTION. PNG – Laing Island and Wanginam Bay, Hansa Bay, 15 m, in *Seriatopora hystrix* (De Grave, 2000). Other – Type locality: Genego Islet, North Nilandu Atoll, Maldive Islands. Also reported from Thailand, Japan and Western Australia.

Kemponia sp. aff. **agag** (Kemp, 1922)
(Fig. 7)

Periclimenes (Ancylocaris) agag Kemp, 1922: 197, figs 47-49, pl. 7.
Periclimenes agag; Li, 2000: 150, fig. 181; Jayachandran, 2001: 281, fig.75; Davie, 2002,: 323.
Not *Periclimenes agag*; Bruce, 1992: 64, fig. 16.
Kemponia agag; Bruce, 2004: 10.

MATERIAL. 1 ♂, 1 ov.♀, AMPI 1452, #68, Loloata Island, 18 m, 12 April 2003, QM W27253.

DIAGNOSIS. A small species of the *grandis*-group *sensu* Kemp (1922) now placed in

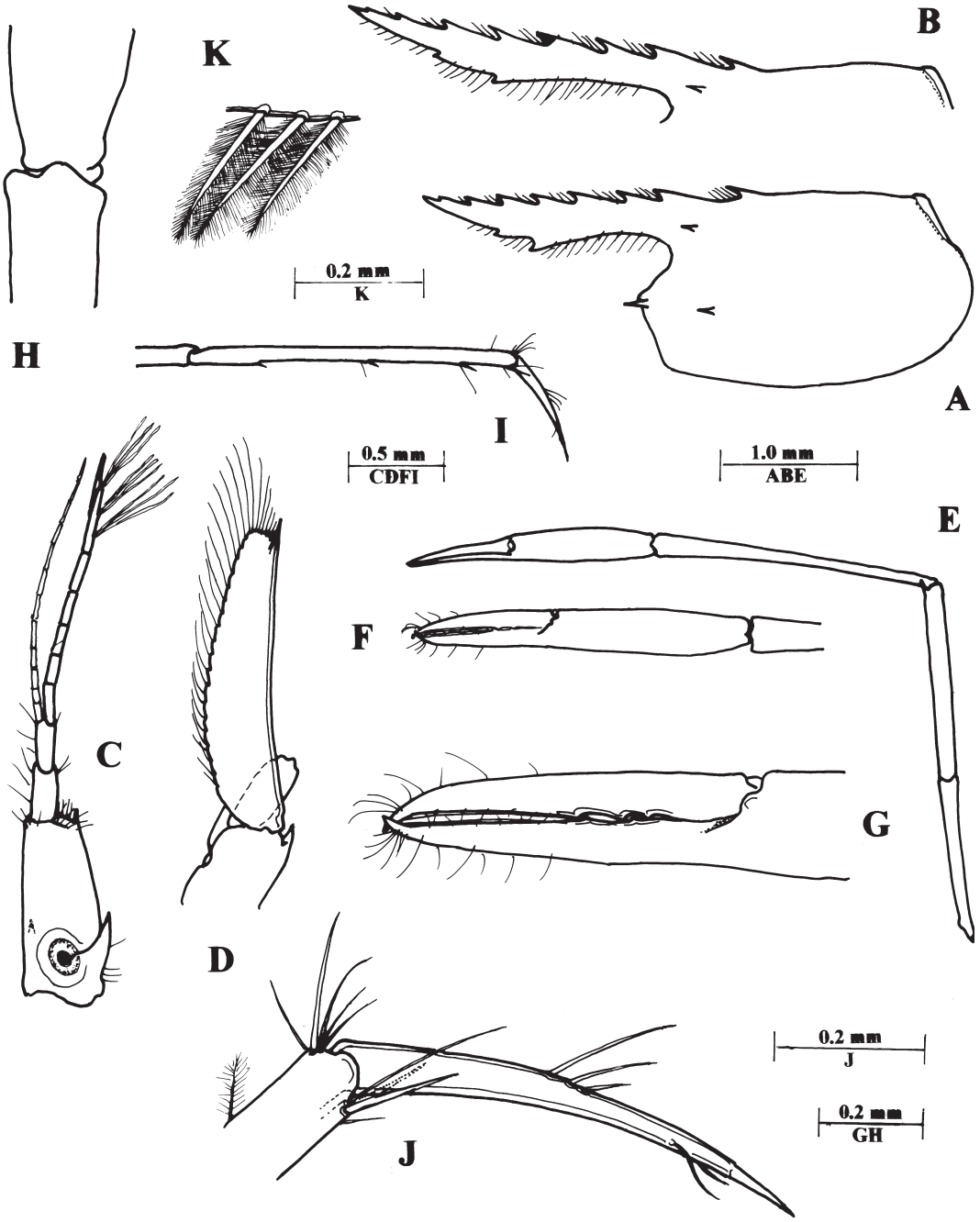

FIG. 7. *Kemponia* aff. *agag* (Kemp). A, carapace and rostrum. B, rostrum. C, antennule. D, antenna. E, second pereiopod. F, same, chela. G, same, fingers. H, same, distal carpus. I,. third pereiopod (?), propod and dactyl. J, same, distal propod and dactyl. K, ventral pleural setae. A,C,D,I, ovigerous ♀. B, ♂.

Kemponia Bruce. Rostrum shallow (♂) (Fig. 7B), deeper (♀) (Fig. 7A), reaching to end of scaphocerite, 0.95 (♀)-1.2 (♂) of CL, dentition 1+7/2, first tooth on carapace, with supraorbital, antennal and hepatic spines, inferior orbital angle reduced; posterior margin of third abdominal tergite minutely denticulate, pleura 4-5 posteriorly blunt; scaphocerite (Fig. 7D) with distolateral tooth well exceeding lamella; eye stout, cornea 0.25 of CL; mandible without palp, third maxilliped with small arthrobranch; fourth thoracic sternite with slender median process; first pereiopod with carpus 1.85 times chela length; second pereiopod (Fig. 7E) slender, chela subequal to CL, palm smooth, fingers (Fig. 7G) about 0.75 of palm length, feebly excavate, weakly dentate (Fig.7G), 3 small teeth proximally on dactylus, 2 on fixed finger, distal cutting edges entire, sharp; carpus greater than chela length, distally unarmed; third pereiopod propod (Fig. 7I) subequal to CL, with distoventral spines twice basal width of dactylus, with 3 shorter ventral spines, dactyl (Fig. 7J) slender, about 0.28 of propod length, 9.0 longer than basal width.

MEASUREMENTS. Carapace length, 1.8 (♂). 2.0 (♀) mm.

COLOURATION (From colour transparency, AMPI 1452). Body and antennae semitransparent, feebly speckled with small white dots, pinkish patches, on ventral abdomen (?), second pereiopods with palms of chelae pinkish, fingers white.

HOST. *Cavernularia glans* [Pennatulacea]. The association may have been accidental.

REMARKS. The small specimens are accompanied by only a single detached second pereiopod, there are also three detached ambulatory pereiopods. The female has no attached pereiopods and the male has both first pereiopods and the right fifth pereiopod, with the right second pereiopod regenerating.

Kemp (1922) remarked of the *P. grandis* group, (now *Kemponia*) that "The species of this group are more difficult to identify than any others of the subfamily". This situation has not greatly improved since Kemp's time. The present specimens are referred with some hesitation to Kemp's *P. agag*. The antennular upper flagellum is biramous (Fig. 7C) with the six proximal segments fused, the short ramus consists of only a single segment and the longer of two, only three groups of aesthetascs are present. The scaphocerite (Fig. 7D) is similar to that illustrated by Kemp. The only second pereiopod (Fig.7E) preserved may be that of the female, which is less useful than that of the male for the purposes of species identification. The second pereiopod carpus (Fig. 7H), in particular, has only a single small blunt distal lobe, not two as in Kemp's material. The minute denticulations along the posterior margin of the third abdominal tergite is similar to that reported in *Exoclimenella* and *Periclimenella* species by Duris & Bruce (1995, fig. 7D), but which have not yet been reported in any other species of *Kemponia* or *Periclimenes*. The ventral margins of the pleura are provided with numerous conspicuous very densely plumose setae (Fig. 7K), an unusual feature in the *grandis* species group. The collection of further specimens is necessary to confirm or refute the identification and the association with a pennatulacean. The present specimens are not conspecific with the specimens reported, as *P. agag*, from Lizard Island, Queensland (Bruce, 1992), which may belong to *K. longirostris* (Borradaile) (see Holthuis, 1958). They also differ from Ledoyer's New Caledonian material, which had the fifth pleuron posteroventrally acute and not rounded (Ledoyer, 1984, as *P.* (*Harpilius*) *agag*).

The species of the *P. grandis* group, *sensu* Kemp, now included in *Kemponia,* appear to be free-living micro-predators, without "commensal" associations. The exception is *Kemponia amymone* (De Man), a coral associate. The association of the present specimens with a pennatulacean may have been accidental, but the occurrence of a heterosexual pair suggests that it may have been genuine. Associations of *Periclimenes* species with shallow water pennatulaceans have not been reported but do occur in deeper water, i.e., *Periclimenes alcocki* Kemp, 1922, with *Virgularia* sp. at 620-666m (Bruce, 1996).

DISTRIBUTION. PNG – *Kemponia agag* s.str. has not been reported from PNG. Other – Type locality: Port Blair, Andaman Islands. Reported from Red Sea, Andaman Islands, Marshall Islands and (?) New Caledonia.

Manipontonia psamathe (De Man, 1902)

Urocaris psamathe De Man, 1902: 816, pl. 25, fig. 51.
Periclimenes (Ancylocaris) psamathe; Kemp, 1922: 173.
Periclimenes (Harpilius) psamathe; Holthuis, 1952: 61, fig. 23.
Periclimenes psamathe; De Grave, 2000: 139; Li, 2000: 229, fig. 304; Davie, 2002: 331.
Manipontonia psamathe; Bruce et al., 2005: 6-8, figs 1-3.

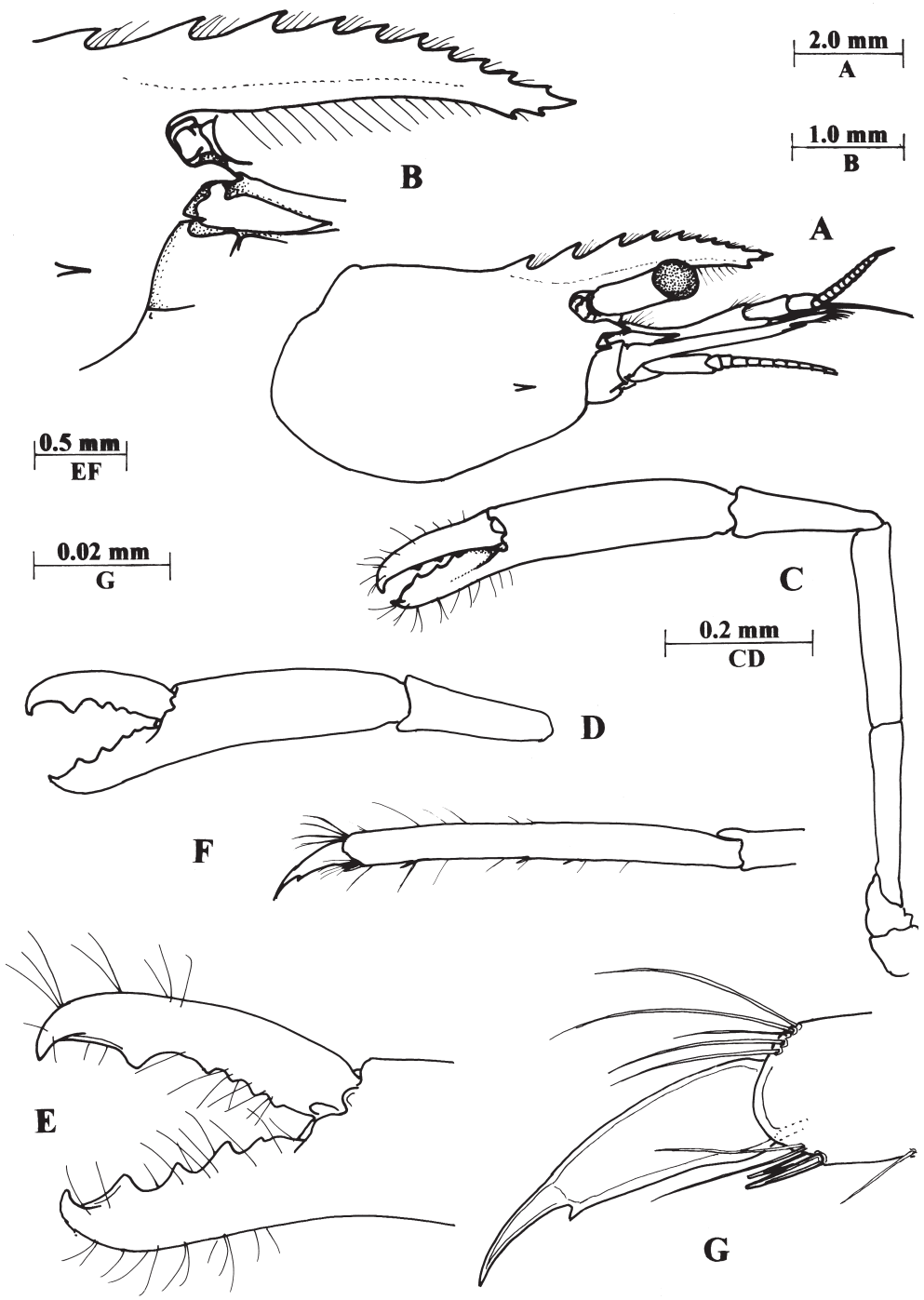

FIG. 8. *Periclimenes grandidens* sp. nov., ovig. ♀, holotype. A, carapace and rostrum. B, anterior carapace and rostrum. C, major second pereiopod. D, same, chela. E, same, fingers. F, third pereiopod, propod and dactyl. G, same, distal propod and dactyl.

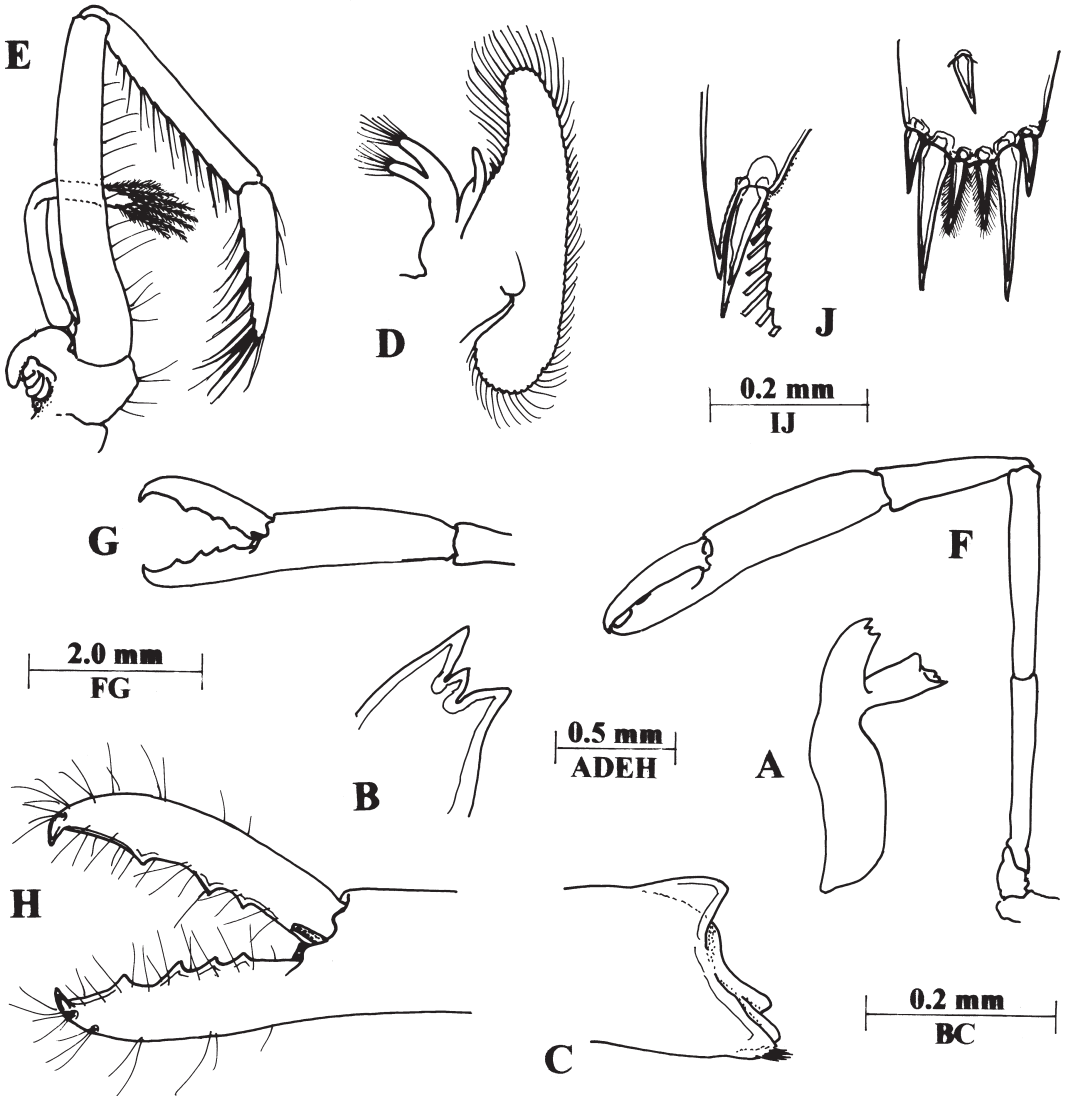

FIG. 9. *Periclimenes grandidens* sp. nov., ovig. ♀, paratype. A, mandible. B, same, molar process. C, same, incisor process. D, maxilla. E, third maxilliped. F, minor second pereiopod. G, same, chela. H, same, fingers. I, posterior telson spines. J, uropod, distolateral angle of exopod.

MATERIAL. (1) 1♂, AMPI ???, # 144, Loloata Island, 24 April 2003, QMW27244. (2) 1♀, AMPI 1454, # 119, Loloata Island, 22 April 2003, QMW27233.

HOST. (2) *Junceella* sp. [Gorgonacea].

REMARKS. (2) with both second pereiopods in early regeneration. The specimens present no special features. Rostral dentitions, 1+2+ ??/0.

DISTRIBUTION. PNG – Sushi Maru Wreck; Duangit reef, Hansa Bay, 19-42 m, (De Grave, 2000). Other – Type locality: Ternate, Indonesia. Also known from Kenya, Zanzibar, Tanganyika, Madagascar, Seychelle Islands, Maldive Islands, Chagos Islands, Singapore, Malaya, Indonesia, South China Sea, Japan, Phillipines, Queensland, New Caledonia, Caroline Islands, Marshall Islands.

Periclimenes amboinensis (De Man, 1888)

Anchistia amboinensis De Man, 1888: 546, pl. 22a, fig. 2.
Periclimenes amboinensis; Borradaile, 1898: 385; Bruce, 1992: 64, fig. 16; De Grave, 2000: 133; Li, 2000: 153, fig. 187; Davie, 2002: 323.

MATERIAL. (1) 1 ov.♀, AMPI 1459, # 101, Loloata Island, 10 m, 20 April 2003, QM W27251. (2) 1 ov.♀, AMPI 1453, # 84, Milne Bay, 10 m, 19 April 2003, QM W27250.

HOST. (1) *Comanthina* sp. (2) unidentified crinoid, [Crinoidea].

COLOURATION (From colour slide, AMPI 1459). Body and appendages very dark blue-black, body with numerous narrow transverse bars of dark gray, distal rostrum, eyes, tips of fingers of second pereiopods, patches along ambulatory pereiopods and tips of caudal fan all bright yellow. (From colour slide, AMPI 1453). Body and appendages deep red, with numerous paler pinkish patches and spots, cornea brilliant white.

REMARKS. (1) Rostral dentition 7/2. (2) The specimen lacks most of the rostrum, so the identification must be considered provisional only. A colour photo shows that about 6-7 dorsal teeth were present, ventral teeth cannot be discerned. From the photographs taken the hosts appear to be different crinoids, so the specimens may represent two closely similar species.

DISTRIBUTION. PNG – Madang (Debelius, 1999) and, Laing Islands; Duangit reef; and Wanginam reef; Hansa Bay, 10-30 m (De Grave, 2000). Other – Type locality: Ambon, Moluccan Islands, Indonesia. Known also from Maldive Islands, Thailand, Indonesia, Taiwan, Japan, Western Australia, Queensland, Marshall Islands, and New Caledonia.

Periclimenes ceratophthalmus Borradaile, 1915

Periclimenes (Corniger) ceratophthalmus Borradaile, 1915: 211; 1917: 324, 365, pl. 54 fig. 9.
Periclimenes (Ancylocaris) ceratophthalmus; Kemp, 1922: 172.
Periclimenes (Periclimenes) ceratophthalmus; Kemp, 1925: 324, fig. 18.
Periclimenes ceratophthalmus; De Grave, 2000: 134; Li, 2000: 167, fig. 206; Davie, 2002: 325.

MATERIAL. 1♀, AMPI 1457, # 117, Loloata Island, 10 m, 22 April 2003, QMW27249.

HOST. Unidentified crinoid.

COLOURATION (From colour transparency, AMPI 1457). Dark red, almost uniform, with feeble slightly paler longitidinal banding, palest on exopod of uropod, which is mottled with transparent patches.

REMARKS. The specimen, CL 2.6 mm, presents no special features and has a rostral dentition of 3/0, and the small dorsal telson spines are subequal to the lateral posterior spines, about 0.1 mm in length, 0.05 of the telson length. The single second pereiopod has the chela about 1.15 times the CL. The colour pattern is similar to but darker than that shown by Debelius (1999) for a Tongan specimen.

DISTRIBUTION**.** PNG – Kimbe Bay (Debelius, 1999) and Mast Wreck; Wanginam reef and Awar Wreck, Hansa Bay; 4-15 m (De Grave, 2000). Other – Type locality: Hululé, North Malé Atoll, Maldive Islands. Known also from Red Sea, Kenya, Zanzibar, Seychelle Islands, Maldive Islands, Indonesia, Japan. Queensland, New South Wales, Solomon Islands, Tongan and Caroline Islands.

Periclimenes grandidens sp. nov. (Figs 8-10, 22C)

MATERIAL. (1) 1 ovigerous ♀, holotype, AMPI 1445, # 91, Loloata Island, 16 m, 19 April 2003, QM W27245. (2) 1 ovig. ♀, paratype, AMPI 1446, # 141, Loloata Island, 23 April 2003, QM W27246. (3) 1 ♀, paratype, AMPI 1400, Loloata Island, 20 m, November 2002, QM W27238. (4) 2 juv.♀♀, AMPI 1460, # 133, Loloata Island, 23 April 2003, QM W27239.

DIAGNOSIS. A species of the *holthuisi*-group, rostrum normal, arched; dentition 1+8-9/2-3, without epigastric tooth, third abdominal tergum posterodorsally produced, bluntly subcarinate, ophthalmic somite without *béc ocellaire,* second pereiopod with carpus about 0.75 of palm length, chelae not bowed, fingers distinctly shorter than palm, with 3-4 large acute teeth distributed over whole length of cutting edges, third pereiopod propod with short spines, dactyl about 3.5 times longer than basal width, about 0.2 of propod length, with small projecting accessory tooth.

DESCRIPTION. A slenderly built shrimp of the *holthuisi*-species group, of subcylindrical body form, with a relatively well developed abdomen.

Rostrum (Fig. 8B) well developed, about 0.95 of CL, slightly elevated, weakly arched, compressed, reaching to near distal margin of intermediate antennular peduncle segment, lateral and ventral carinae absent, dorsal carina well developed with 9-10 acute teeth, first tooth situated posterior to orbital margin, size and separation diminishing distally, ventral margin concave, with long plumose setae, with 1-3 small acute teeth distally. Carapace (Fig. 8A) smooth,

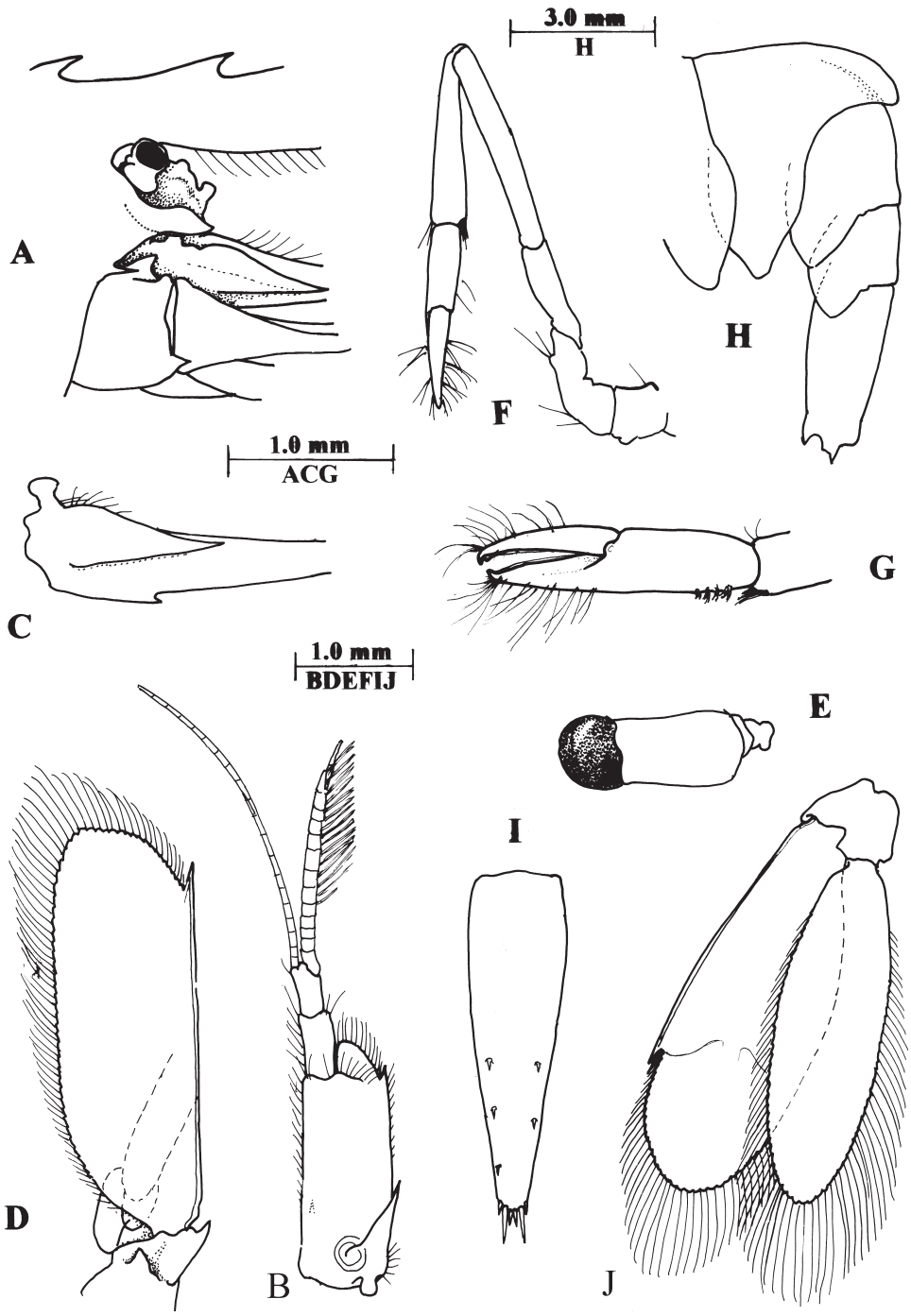

FIG. 10. *Periclimenes grandidens* sp. nov., ovig. ♀, paratype. A, anterior carapace, lateral. B, antennule. C, same, proximal segment of right peduncle, lateral. D, antenna. E, eye. F, first pereiopod. G, same, chela. H, third to sixth abdominal segments. I, telson. J, uropod.

glabrous, without epigastric tooth or supraorbital spines, orbit weakly developed, inferior orbital angle (Fig. 10A) strongly produced, acute, dorsally convex, with inner ventral flange, antennal spine small, marginal, hepatic spine larger, placed below level of antennal spine, anterolateral branchiostegite broadly rounded.

Abdomen well developed, smooth, glabrous, third tergite (Fig. 10H) bluntly produced posteriorly, sixth segment about twice length of fifth, twice as long as anterior depth, posterolateral and posteroventral angles acute, pleura of first to third segments bluntly elongated ventrally, fourth and fifth bluntly produced posteriorly.

Telson (Fig. 10I) about 0. 9 of CL, 0.85 of sixth abdominal segment length, about 3.5 times longer than anterior width, lateral margins sublinear, converging posteriorly, with two pairs of small dorsolateral spines at about 0.6 and 0.7 of telson length (asymmetrical in holotype), posterior margin (Fig. 9I) about 0.3 of anterior telson width, angular, without median point, with three pairs of spines, lateral spines robust, about 0.45 of telson length, intermediate spines longer, about 2.5 times length of lateral spines, submedian spines slightly longer than lateral spines, more slender and densely plumose.

Antennule (Fig. 10B) with proximal segment about 2.5 times longer than wide, medial and lateral margins subparallel, with numerous plumose setae, anterolateral margin strongly produced, obliquely rounded, reaching to middle of intermediate segment, densely setose, anterolateral tooth small, reaching to about one third of the anterolateral lobe length, proximal dorsolateral angle with conspicuous rounded protuberance (Fig. 10A,B,C), ventromedial margin with small acute tooth (Fig. 10C) at 0.3 of length; stylocerite well developed, acute, slender, reaching to about 0.45 of segment length, statocyst normal; intermediate segment about 0.3 of proximal segment length, twice as long as wide, densely setose medially; distal segment about 0.8 of intermediate segment length, 2.1 times longer than distal width; upper flagellum biramous, rami with proximal 10 segments fused, shorter ramus with 3 free segments, longer ramus with about 10, with about 18 groups of aesthetascs, longer ramus filiform, about 1.5 times peduncle length.

Antenna (Fig. 10D) with stout basicerite with small acute ventral distolateral tooth, with angular process proximodorsally(Fig. 10A,D), carpocerite subcylindrical, reaching to about 0.5 of scaphocerite length, flagellum well developed; scaphocerite large, exceeding antennular peduncle, about 3.0 times longer than width, lateral margin straight, subparallel to medial margin, with small acute distolateral tooth far exceeded by obliquely rounded distal lamella.

Ophthalmic somite with small rounded *béc ocellaire*.

Eye (Fig. 10E) well developed, with large globular cornea, about 0.2 of CL, without ocellus, stalk subcylindrical, slightly tapering distally, about 1.8 times maximal width.

Epistome unarmed.

Mouthparts as in *P. holthuisi* Bruce. Mandible (Fig. 9A) small, without palp; molar process (Fig. 9B) distally obliquely truncate with 4 blunt teeth; incisor process (Fig. 9C) with three acute teeth distally, central tooth smallest, medial margin without denticles. Maxilla (Fig. 9D) with bilobed palp, each lobe with about 8 simple setae. Third maxilliped (Fig. 9E) coxa with rounded lateral plate, with small quadrilamellar arthrobranch.

Fourth thoracic sternite unarmed.

First pereiopod (Fig. 10F) slender, exceeding distal margin of scaphocerite by fingers; chela (Fig. 10G) subequal to carpal length, palm slightly compressed, about 2.5 times longer than deep, with 4 transverse rows of short coarsely serrulate spines proximoventrally, fingers with numerous setae, subequal to palm length, slender, tapering, with stout hooked tips, cutting edges entire, lateral; carpus about 4.6 times longer than distal width, tapering slightly proximally, with serrulate setae distoventrally; merus about 1.2 times carpal length, subcylindrical, 7.5 times longer than width; ischium about half meral length; basis and coxa without special features.

Second pereiopods (Fig. 8C) well developed, similar, slightly unequal. Major chela (Fig. 8D) about 1.02-1.19 of CL, not bowed, palm smooth, oval in section, about 3.2 times longer than deep, slightly enlarged distally, fingers (Fig. 8E) robust, about 0.6 of palm length, dactylus 4.6 times proximal depth, with stout hooked tip, cutting edge lateral, with large blunt tooth at about 0.75 of length, separated by broad notch from four smaller proximal teeth, distal cutting edge entire, fixed finger similar, with three large blunt teeth, more evenly distributed, and smaller more recurved tooth proximally; carpus about 0.6 of palm length, subequal to finger length,

about 4.0 times longer than central width, weakly expanded distally, unarmed; merus unarmed, about 0.85 of palm length, 5.2 times longer than central width; ischium almost subequal to meral length; basis and coxa without special features. Minor second pereiopod (Fig. 9F) similar to major chela, with chela (Fig. 9G) about 0.89-0.92 of CL, 0.76-0.91 of major chela length, palm 3.3 times longer than central depth, fingers (Fig. 9H) about 0.75 of palm length, dactylus with three well developed acute teeth, fixed finger with four, both extending over the central half of the cutting edges, posterior three teeth of fixed finger slightly recurved; carpus about 0.8 of palm length; merus 1.2 times palm length; ischium subequal to palm length.

Third pereiopod reaching to distal end of scaphocerite; dactylus (Fig. 8G) about 0.23 of propod length, with corpus compressed, 2.5 times longer than basal width, tapering distally to half basal width, dorsal margin weakly convex, ventral margin feebly concave, with small acute distal accessory tooth, about 0.12 of unguis length, unguis feebly demarkated from corpus, slender, curved, 4.0 times longer than basal width; propod (Fig. 8F) about subequal to CL, uniform, about 11.5 times longer than wide, with pair of short distoventral spines, subequal to basal width of dactylus, three similar isolated spines along ventral border; carpus about 0.5 of propod length, merus subequal to propod length, ischium 0.5 of propod length; fourth and fifth pereiopods similar.

Uropod (Fig. 10J) far exceeding telson, with protopodite posterolaterally unarmed; exopod broad, about 2.7 times longer than greatest width, at about half length, lateral margin non-setose, weakly convex, with long slender posterolateral tooth (Fig. 9J), with longer mobile spine medially, diaeresis poorly demarkated; endopod about 0.9 of exopod length, 3.2 times longer than central width.

MEASUREMENTS (mm). Holotype ♀, carapace length, 4.7; carapace and rostrum, 7.8; total body length (approx.), 26.0; second pereiopod, major chela, 4.8; minor chela, 4.3; length of non-eyed ovum, 0.5. Paratype female, carapace length, 3.9; length of eyed ovum, 0.85.

HOSTS. (1)(2) *Euphyllia paradivisa* Veron, 1990; (3) *Plerogyra sinuosa* (Dana) [Scleractinia, Caryophyllidae]. (4) *Stichodactyla mertensii* Brandt [Actininaria].

COLOURATION (From colour transparency, AMPI1445). Body and appendages mainly semi-transparent, thoracic region with sparse larger white spots with small closely associated deep blue spots, abdomen with large conspicuous broadly U-shaped patch on posterior third tergite, with central white patches, surrounded by deep blue patches, outlined narrowly by white, second tergite with dorsolateral white spot surrounded by blue, margined narrowly with white, fourth tergite with contiguous submedian white spots, surrounded by blue and margined narrowly with white, posterior sixth segment whitish; telson proximally deep reddish, distally white, terminally deep blue; antennal peduncles and scaphocerite colourless, antennal flagella white; eyestalk with two dorsal white spots, cornea golden; first and second pereiopods with joints deep blue, carpus, merus and palm spotted with small white dots, fingers white; ambulatory pereiopods colourless; uropods with distal two thirds deep blue outlined by white marginal band, broadest anteriorly, endopod with white dots proximally; ova pale pink.

SYSTEMATIC POSITION. *Periclimenes grandidens* is most closely related to *P. holthuisi* Bruce, 1969, with which it shares most of the characters presented in the Diagnosis**.** It differs most noticeably from *P. holthuisi* in its more robust second pereiopod chelae, with the stout teeth along the cutting edges of the fingers, with the carpus about 0.6 of the chela length. In *P. holthuisi* these chelae are more slender, with the carpus generally about subequal to the palm length, and the fingers subequal to the palm length, bearing only few weak teeth on the proximal half of the cutting edges. In *P. grandidens* the ambulatory propods are armed with short spines, in contrast to *P. holthuisi*, and the dactyl bears only a small short accessory tooth, whereas *P. holthuisi* has a well developed tooth about half the length of the unguis. *Periclimenes holthuisi* has a very small *béc ocellaire* (Bruce, 1982a), similar to *P. grandidens*.

ETYMOLOGY. Latin *grandis,* large and *dens,* tooth; a reference to the dentition of the second pereiopods.

REMARKS. The description of *P. grandidens* increases to 11 the number of species in the *holthuisi*-species group. These may now be identified with the following key.

A KEY TO THE SPECIES OF THE *PERICLIMENES HOLTHUISI*-GROUP

1. Ambulatory dactyls biunguiculate 2
   Ambulatory dactyls simple; R. 1+ 7-10/2 . . . . . *P. tosaensis* Kubo , 1951

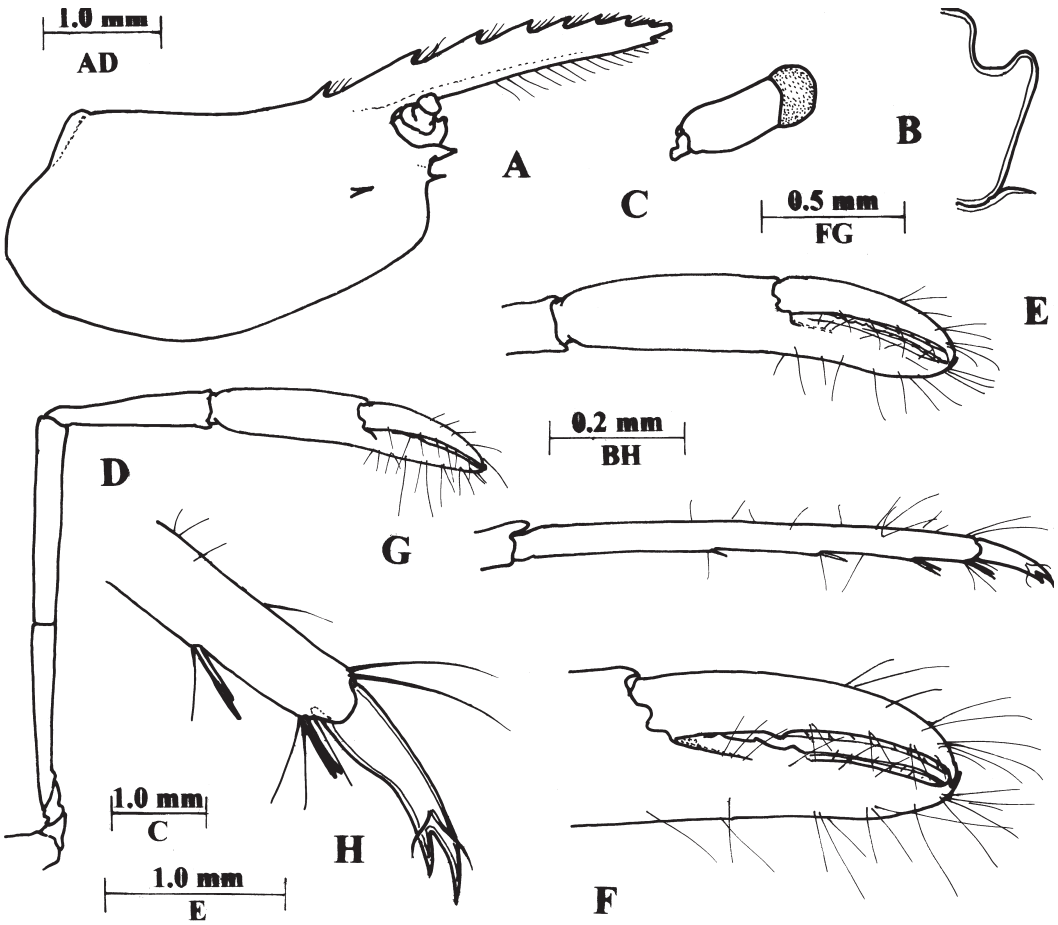

FIG. 11. *Periclimenes* aff. *holthuisi* Bruce, ♂, Milne Bay. A, carapace and rostrum. B, ophthalmic somite, right lateral. C, eyestalk. D, second pereiopod. E, same, chela. F, same, fingers. G, third pereiopod, propod and dactyl. H, same, distal propod and dactyl.

2. Carapace with 2-3 postorbital teeth; R. 2-3 + 6-7/2-4 . . . . . *P. aesopius* (Bate, 1863)

Carapace with 0-1 postorbital teeth 3

3. Carapace without postorbital rostral teeth; carpus of second pereiopod longer than chela; R. 5-6/0-2 . . . . . *P. longicarpus* Bruce & Svoboda, 1983

Carapace with postorbital rostral tooth 4

4. Rostrum slender; third abdominal tergum posterodorsally subcarinate 5

Rostrum with deeper lamina, arched; third abdominal tergum postero-dorsally produced, not markedly carinate 6

5. Rostrum straight, upwardly directed, exceeding distal margin of proximal segment of antennular peduncle; first pereiopods with dactylus longer than palm; R. 1+6-7/2-3 . . . . . *P. tenuirostris* Bruce,1991

Rostrum curved, horizontal, not exceeding distal margin of proximal segment of antennular peduncle; first pereiopods with dactylus shorter than palm; R. 1+6-8/1-3. . . . *P. kobayashii* Okuno & Nomura, 2002

6. Second pereiopod chela with fingers bearing series (5-7) of small acute recurved denticles along both cutting edges 7

Fingers of second pereiopods with few (1-4) larger, acute, proximal teeth 8

7. Maxilla with simple distal endite; second pereiopods overreaching scaphocerite by distal part of merus; cutting edges of fingers usually with 6-8 small acute recurved teeth; with well developed *béc ocellaire*; R. 1+5-7/0-2 . . . . . *P. venustus* Bruce, 1990c

Maxilla with bilobed distal endite; second pereiopods overreaching scaphocerite by proximal part of palm; cutting edges of fingers with 2-4 acute recurved teeth;

with small *béc ocellaire*; R. 1+7-9/1-2 . . . . . *P. sarasvati* Okuno, 2002

8. Second pereiopods with chelae bowed; ophthalmic somite without *béc ocellaire*; R. 1+7-8/1-2 . . *P. magnificus* Bruce, 1979 . . . . . .

Second pereiopods with chelae not bowed, ophthalmic somite with *béc ocellaire* 9

9. Third pereiopod dactyl 7 or more times longer than basal width, about 0.28 of propod length, with very slender adpressed accessory tooth; R 0-1+11-13/1 . . . . . *P. adularans* Bruce, 2003

Third pereiopod dactyl 4 times longer than basal width, about 0.2 of propod length, without adpressed accessory tooth 10

10. Second pereiopod with carpus subequal to palm length; fingers with 1-6 small teeth; third pereiopod with long spines, dactyl with well developed accessory tooth R. 1+10-13/2-4 . . . . . *P. holthuisi* Bruce, 1969

Second pereiopod with carpus 0.75 of palm length, fingers with 4 large acute teeth, third pereiopod with short spines, dactyl with small accessory tooth; R. 1+8-9/2-3 . . . . . *P. grandidens* sp. nov.

The shrimps referred to *Periclimenes tosaensis* by Debelius (1999: 177) from Milne Bay, (PNG), Ambon, (Indonesia) and Cabilao (Philippines), show the same colour pattern as *P. grandidens* and are possibly conspecific.

The species of the *holthuisi*-group are now well known for their conspicuous species specific colour patterns which make them favourite subjects for underwater photographers. A key to the colour patterns of most species has been provided by Okuno (2002). The colour patterns of some species (*P adularans, P. tenuirostris*) are still unknown. *Periclimenes grandidens* has a pattern quite distinct from its nearest relative, *P. holthuisi*. The third abdominal tergite in *P. grandidens* has a broadly U-shaped patch, with the arms directed anteriorly, with inner patches of white surrounded, somewhat irregularly, by deep blue patches, outlined narrowly by a fine white border, quite distinct from the white chevron-shaped patch present in *P. holthuisi,* with a bright red anterior border.

The colouration of *P. grandidens* is more similar to *P. sarasvati*, also an associate of a scleractinian coral, *Euphyllia ancora* Veron and Pichon. Okuno (2002) describes the dorsal third abdominal somite as "with white small patch bordered anteriorly and posteriorly by similar sized, purple narrow patches; in dorsal view, anterior patch V-shaped". In addition to the characters listed in the above key, *P. sarasvati* differs in some further small characters that help to distinguish it from *P. grandidens*, in particular the third pereiopod propod bears only a single short, rather robust distoventral spine, with a single similar preterminal ventral spine, *P. grandidens* has a pair of short slender distoventral spines and three further spines along the ventral margin; also the dactylar accessory tooth is about half the length of the unguis in *P. sarasvati*, but only about 0.12 of the unguis length in *P. grandidens*; the dactylus is also more slender, about 4.5 times longer than the basal width, about 3.6 times in *P. grandidens.*

The strongly produced acute inferior orbital angle is one of the major characters of the *holthuisi*-species group, with its characteristic ventral flange. Okuno (2002) has commented on a "small raised lobe" on the dorsum of the basicerite in *P. sarasvati*, an acute process in *P. grandidens*. The proximal dorsolateral process of the proximal segment of the antennal peduncle present in *P. grandidens* is not mentioned in Okuno's description but is shown in his Figure 1. These features all appear to form part of a complex of related morphological characters and are likely to be present in other species of this group.

Periclimenes aff. **holthuisi** Bruce, 1969
(Figs 11, 22D)

Periclimenes holthuisi Bruce, 1969: 258; 1982: 244, fig. 7; Fransen, 1989: 139, figs 4a, 5ab, 6a-f, 7a-g; De Grave, 2000:136; Li, 2000: 190, fig. 241; Davie, 2002: 327.

MATERIAL. 1 ♂, AMPI 1371, Milne Bay, 12 m, 16 November 2002, QMW27241.

DIAGNOSIS. Rostrum subequal to CL, dentition 1+7/1, elevated, at about 15°, not arched (Fig. 11A); antennal spine acutely produced with small ventral flange, largely concealed by anterior margin of carapace; third abdominal tergite non-carinate; ophthalmic somite with small blunt tubercle (Fig. 11B), eyestalk elongate, greater than half CL, (Fig. 11C), cornea globular, poorly pigmented, about 0.25 of CL; second pereiopods (Fig. 11D), subequal, chelae (Fig. 11E), not bowed, fingers (Fig. 11F), subequal to palm length, dactyl with single small acute tooth, fixed finger with three small acute teeth proximally, with numerous long setae, carpus 1.3 times palm length; ambulatory pereiopod dactyls (Fig. 11H), about 4.5 times longer than proximal width, 0.2 of propod length, biunguiculate, accessory tooth well developed, not adpressed, propods (Fig. 11G), with well developed paired distoventral and distal ventral spines, with two shorter ventral spines.

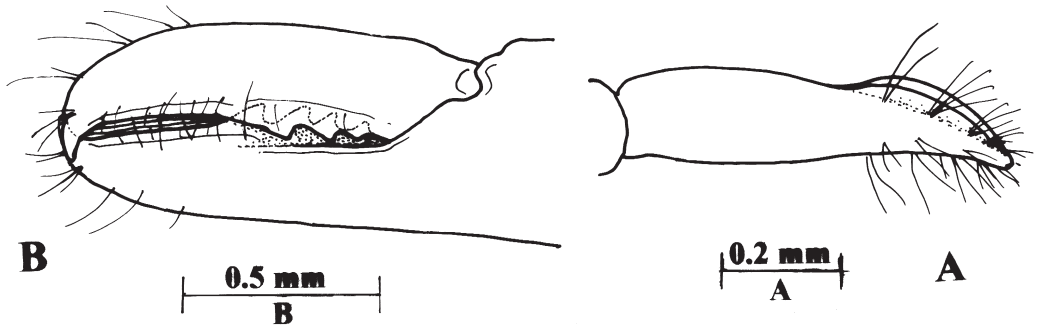

FIG. 12. *Periclimenes inornatus* Kemp, A, first pereiopod chela. B, fingers of major second pereiopod.

DESCRIPTION. Closely similar to *Periclimenes holthuisi.* The specimen has a CL of 2.8 mm, and has a rostral dentition of 1+ 7/1 (Fig. 20A), with the rostrum directed dorsally, with the tip of the rostrum missing. Utilising the characters provided in the key to the *P. holthuisi*-group provided above, the specimen has a less strongly dentate rostrum (1+10-13/2-4 in *P. holthuisi*), with only a very small tubercular *béc ocellaire*, which also contrasts with *P. holthuisi*, and has the fingers of the second pereiopod chelae less strongly armed, with one dactylar and three small teeth on the fixed finger, rather than two and four as reported by Bruce & Svoboda (1983). A single tooth only is present on each finger in the type material. The reference to *P. holthuisi* in Bruce & Svoboda, 1983 is erroneous. The material referred to, was incorrectly identified and is being described separately as a new species.

HOST. *Megalactis hemprichii* Ehrenberg, 1834 [Actininaria] (Karen Gowlett-Homes, pers. comm., 10 October 2003).

COLOURATION (From colour transparency, AMPI 1371). Mainly transparent. Rostrum, scaphocerite, flagella and ambulatory pereiopods colourless. Third abdominal segment with conspicuous posterodorsal patch, consisting of a red crescent posteriorly, a central white zone , with white median and lateral lobes with blue distal areas. Ventral abdomen with sparse red and white dots. Posterior margin of sixth abdominal segment reddish, also protopod of uropod, rami distally white. Cornea white. Second pereiopods with palm white, fingers blue, carpus white proximally, blue distally.

REMARKS. The colour pattern does not correspond to that of *P. holthuisi* s.str. The morphological differences from *P. holthuisi* s. str., and the association with *Megalactis hemprichii***,** suggest that this specimen represents an undescribed taxon. As it may be immature, and no adult females are available, it is preferable to await the collection of further material before adding to the already complex *P. holthuisi*-species group.

The specimen also shows some resemblance to the specimen from the Spermonde Archipelago reported on by Fransen (1989, as *P.* aff. *holthuisi,* associated with an anemone, *Actinodendron* sp.) but differs from this specimen in having a less arched rostrum, more weakly dentate fingers on the second pereiopods and a less distinct, blunt béc ocellaire. The dorsal telson spines are also larger and at about 0.5 and 0.75 of the telson length, not minute at 0.65 and 0.82.

Periclimenes holthuisi has been reported in association with numerous coelenterates, reviewed by Fransen (1989): *Dofleinia armata* Wassillief, *Entacmaea quadricolor* (Rüppell), *Heteractis* sp., and *Radianthus ritteri* (Kwietniewski) (Actinaria), together with the fungiid coral *Heliofungia actiniformis* (Quoy & Gaimard), and the scyphozoan *Cassiopea andromeda* (Forskål). It has not been reported in association with *Megalactis* spp. A specimen, *P.* cf. *holthuisi,* was reported in association with an anemone, *Actinodendron* sp., by Fransen (1989). Bruce & Svoboda (1984) list several actinarians and scleractinians as hosts for this species. However, this was compiled before many of the species in this group had been described and probably many records need confirmation.

DISTRIBUTION. PNG – Kranket Island, Madang, 36 m (Bruce, 1976b), Loloata Island (Coleman, 1998) and Duangit reef, Hansa Bay, 20 m (De Grave, 2000). Other – Type locality: Lung Ha Wan, Hong Kong. Recorded also from Jordan, Zanzibar, Maldive Islands, Sri Lanka,

Malaya, Singapore, Indonesia, Vietnam, China, Hong Kong, South China Sea, Japan, Philippines, Northern Territory, Queensland, New Caledonia, Caroline Islands, and Marshall Islands.

Periclimenes incertus Borradaile, 1915

Periclimenes (Cristiger) incertus Borradaile, 1915: 210; 1917: 364, pl. 53 fig. 7.
Periclimenes (Periclimenes) impar Kemp, 1922: 147, figs 16-17, pl. 3 fig. 1.
Periclimenes (Periclimenes) incertus; Holthuis, 1959: 193.
Periclimenes incertus; Li, 2000: 193, fig. 244; Davie, 2002: 327.

MATERIAL. 1 ♂, 1 ov. ♀, AMPI —, # 33, Loloata Island, 8 m, 11 April 2003, QM W27240.

HOST. *Oceanapia* sp. (Phloeodictyidae, Porifera).

COLOURATION. No data.

REMARKS. Often found with *Thaumastocaris streptopus*. The specimens present no special features. Both specimens show the characteristic robust ambulatory dactyl, with a large stout accessory tooth. The male has a rostral dentition of 10/2, the female's rostrum is largely missing. The male lacks both second pereiopods. The female has both, the larger with the fingers distinctly gaping distally, as in Holthuis (1952, fig. 7e, as *P. impar*), indicating that this feature may occur in both sexes. The association with *Oceanapia* represents a new host record.

DISTRIBUTION. PNG – Davit Wreck; Sushi Maru Wreck, Laing Island, Hansa Bay, from 9-11 m in sponges (De Grave, 2000). Other – Type locality: South Nilandu Atoll, Maldive Islands. Recorded from the Yemen, Kenya, Zanzibar, Tanganyika, Madagascar, Maldive Islands, Sri Lanka, Andaman Islands, Singapore, Indonesia, Philippines; Western Australia, Northern Territory, Queensland, and New Caledonia,.

Periclimenes inornatus Kemp, 1922 (Fig. 12)

Periclimenes (Ancylocaris) inornatus Kemp, 1922: 191, figs 44-46.
Periclimenes inornatus; Bruce, 1976a:103, figs 10-11; Li, 2000: 196, fig. 248; Jayandran 2001: 203, fig. 86; Davie, 2002: 328.

MATERIAL. (1) 1♂, AMPI 1456, #143, Loloata Island, 16 m, 24 April 2003, QMW27242. (2) 1♂, AMPI, # 144, Loloata Island, 24 April 2003, QM W27243.

HOST. (1) *Stichodactyla mertensii* Brandt. (2) Specimen found with *M. psamathe* (?), see above.

REMARKS. Rostral dentition 7-8/1. Specimen (2) with fourth thoracic sternite with well developed transverse ridge with open median notch. First pereiopod chela (Fig. 12A) with fingers broadly expanded laterally, with entire lateral cutting edges, with small acute articulated tips. Second pereiopods subequal, chela about 0.6 of CL, fingers (Fig.12 B) about 0.6 of palm length, with three well developed stout acute slightly recurved teeth on the dactylus, four similar teeth on the fixed finger, the dactylar teeth opposing inside the fixed finger teeth. Third ambulatory dactyl with non-spinulose unguis.

COLOURATION (From colour transparency, AMPI). Semi-transparent, with pinkish tinge, without conspicuous colouration, white chromatophores along dorsal eyestalk and along thoracic gut.

DISTRIBUTION. PNG– Hansa Bay, Laing Island; Davit Wreck; Wanginam reef'; Bisal Paap reef; 6-30 m; on *Actinodendron plumosum; Heteractis magnifica* (De Grave, 2000). Other – Type locality: Great Cocos Island, Port Blair, Andaman Islands. Known from Kenya, Zanzibar, Comoro Islands, Seychelle Islands, Maldive Islands, Andaman Islands, Indonesia, South China Sea, Japan; Western Australia, Queensland, Solomon Islands, Caroline Islands, and Fijian Islands.

Periclimenes magnificus Bruce, 1979

Periclimenes magnificus Bruce, 1979: 195, figs 1-5, pl. 1a-c; Li, 2000:212, fig. 274.

MATERIAL. 1 spm, ?♂, AMPI ??, Loloata Island, April 2003.

HOST. *Cassiopea* sp. [Scyphozoa].

COLOURATION (From colour transparency, AMPI ?). Corneae, eyestalks, antennal peduncles, second pereiopods white; carapace with poorly developed transverse white patch, larger more distinct white posterodorsal patch on third abdominal tergite, small white median dots on fourth and fifth segments, second pereiopod finger tips blue, caudal fan largely white with conspicuous blue dot on distal uropodal endopod.

REMARKS. Specimen not collected. Data from colour transparency. The colouration is consistent with being a male. The third abdominal segment dorsal patch lacks the red anterior margin conspicuous in the female (Bruce, 1980a: 41). This species has not been reported in association with scyphozoans. Previously associated with actinarians, *Dofleinia armata* Wassilieff, 1908, and *Radianthus cooki* (Verrill); scleractinians, *Catalaphyllia jardinei* (Saville-Kent), *Fungia armata* (Alcock), and alcyonarians, *Lobophyton* sp. (Bruce & Svoboda, 1983; Fransen, 1989; Nomura, 1989;

Debelius, 1999). Debelius's photo (1999: 181) suggests that the species may be a fish cleaner.

DISTRIBUTION. PNG– Loloata Island (Coleman, 1998). Rabaul [*P.* sp., cf. *magnificus*] (Debelius, 1999). Other – Type locality: Wistari Reef, Capricorn Islands, Queensland. Known also from Thailand, Indonesia, Japan, Philippine Islands, Northern Territory, Queensland, and New Caledonia.

Periclimenes soror Nobili, 1904

Periclimenes soror Nobili, 1904: 232; Bruce, 1978a; 299, figs 1-6; Li, 2000: 237, fig. 316; Davie, 2002: 332.
Periclimenes (Periclimenes) soror; Holthuis, 1952: 51, fig. 17.

MATERIAL. 2 ovig. ♀, AMPI 1435, # 66, Loloata Island, 10 m, 17 April 2003, QM W27234.

HOST. *Protoreaster nodosus*. (Linn.) [Echinodermata: Asteroidea].

COLOURATION (From colour transparency, AMPI 1435). Uniform deep red.
REMARKS. The specimens present no special features: rostral dentition 11/0.

DISTRIBUTION. PNG – New Britain and Bougainville (Bruce, 1978); Loloata Island (Coleman, 1998); Port Moresby, Kimber Bay, (*Bicolor* form, on *Acanthaster*) (Coleman, 2000); Awar; Duangit; Laing Island, Hansa Bay; 3-10 m; on *Linckia guildingi, Choriaster granulatus,* and *Culcita novaeguineae* (De Grave, 2000). Other – Type locality: Jibuti. Also reported from Saudi Arabia, Kenya, Zanzibar, Tanganyika, Madagascar, Seychelle Islands, Chagos Islands, Sri Lanka, Malaya, Indonesia, Vietnam, China, Hong Kong, Taiwan, Japan, Philippines, Sabah, Bismarck Archipelago, Solomon Islands, Western Australia, Northern Territory, Queensland, New South Wales, Lord Howe Island, New Caledonia, Marshall Islands, Mariannas Islands, Fijian Islands, Hawaiian Islands, Society Islands, Tuamotu Islands. Also Mexico, Panama, Colombia.

Periclimenes venustus Bruce, 1990a

Periclimenes venustus Bruce, 1990a: 230, figs 1-6, 7a, 8a; De Grave, 1998b: 16, fig. 1; 2000: 140; Li, 2000: 246, fig. 327; Davie, 2002: 333.

MATERIAL. (1) 1♂, 1 ov. ♀, AMPI 1373, Milne Bay, 18 m, November 2002, QM W27237; (2) 1 ov. ♀, AMPI 1451, # 38, Loloata Island, 8 m, 11 April 2003, QM W27236; (3) 1 ovig. ♀, AMPI 1447, # 78, Loloata Island, 15 m, 18 April 2003, QM W27235. (4) 1 juv.♀, AMPI 1350, Loloata Island, 15m, November 2001, QM W25873.

HOST. (1) (2) (3), *Heliofungia actiniformis* Quoy and Gaimard [Fungiidae]. (4) unidentified anemones.

COLOURATION (From colour transparency, AMPI 1373). (1) Female: Body mainly transparent; carapace with broad transverse white mid-dorsal patch, with four sets of paired blue and white chromatophores close to posterior margin, with similar white-blue-white groups along lower branchiostegite; third abdominal segment with cordiform posterodorsal white patch, apex posteriorly, colour most intense along outer border, with submedian blue dots anteriorly, similar, more widely separated pair posteriorly; proximal caudal fan heavily spotted with blue and white chromatophores, centrally colourless, distal exopod largely white with large dark blue terminal patch, endopod with several small white dots, posteriorly blue, telson tip similar; antennular peduncle sparsely dotted with white and blue; antenna colourless; eyestalk with blue-white dots; mouthparts colourless; second pereiopods with articulations and distal third of fingers deep blue, proximal two thirds of fingers, palm, carpus and distal merus and ischium heavily spotted with coarse white dots; first pereiopods similar but colouration less strong; ambulatory pereiopods transparent; pleopods heavily spotted with blue and white. Male: Similar to female but pattern less strongly developed, without transverse white patch on carapace, white abdominal patch feebly developed but two pairs of blue spots distinct; second pereiopods similar to female. (From colour transparency, AMPI 1451) (2) Ovigerous female: Generally similar to (1) but without a transverse dorsal patch on the carapace and the posterodorsal third abdominal tergite with a large sub-cordiform patch of pink, with a star shaped central transparent area, internal and external margins of patch white. (4) Juvenile female, generally consistent colouration, but with dorsal abdominal patch less distinctly developed.

REMARKS. Rostral dentitions: (1) male, 7/1; female 8/2, distalmost teeth minute; (2) 7/1: (3) 9/2; (4) 8/1. *Béc ocellaire* well developed, angular, subacute. The colouration agrees closely with that of the type material. The dentition of the second pereiopod fingers is (L,R; dactyl/fixed finger) (1) 4/6, 4/4; 4/7, 4/7; (2) 5/8,4/7; (3) 7/7, 6/8; (4) 3/6,-/-. Range of finger dentition 4-7/4-8, all teeth small, generally slightly recurved.

DISTRIBUTION. PNG – Loloata Island (Coleman, 1998); Laing Island, Hansa Bay, 5-30 m, (De Grave, 1998b; 2000). Other – Type locality: Port Essington, Northern Territory. Known also from Indonesia, Japan, Philippine Islands, Western Australia, Northern Territory, Queensland, Lord Howe Island, and (??) Micronesia.

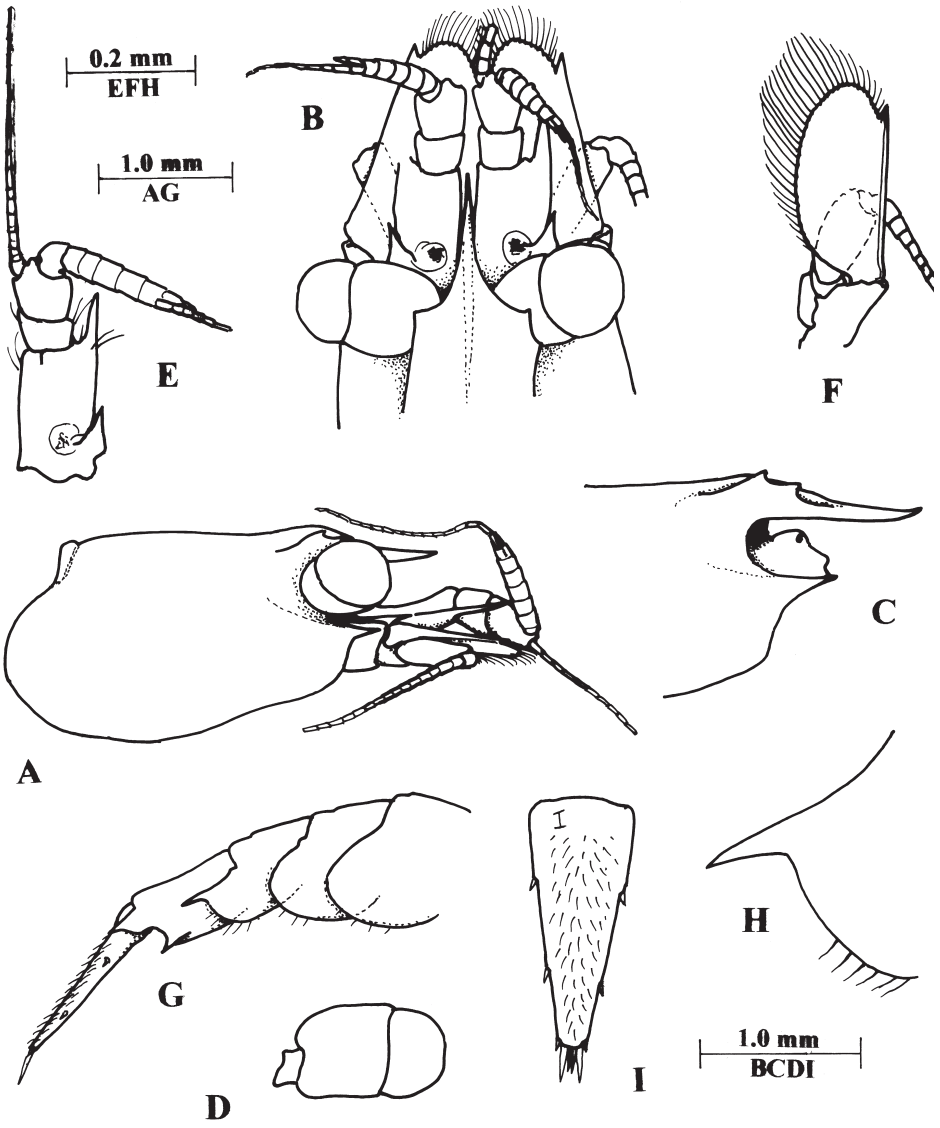

FIG. 13. *Pontonides asperulatus* sp. nov., holotype ♀. A, carapace and antennae, lateral. B, anterior carapace and antennae, dorsal. C, anterior carapace and rostrum. D, eye. E, antennule. F, antenna. G, posterior abdomen and telson. H, fifth abdominal segment, pleuron. I, telson.

Pontonides asperulatus sp. nov.
(Figs 13-16, 22E)

MATERIAL. 1 ♀, holotype, AMPI1455, # 116, Horseshoe Reef, Loloata Island, 16 m, 22 April 2003, QMW27227.

DIAGNOSIS. Supraorbital carina angular, uni- or bidentate, carapace and abdomen smooth, eyestalk without dorsal tubercle, third maxilliped with fusiform setae laterally on basal region of exopod, with rudimentary arthrobranch, fingers of first pereiopod chela with cutting edges denticulate, second pereiopods grossly unequal, dissimilar, major chela densely setose and tuberculate, fingers with cutting edges coarsely dentate, abdomen with fifth segment pleuron strongly posteroventrally produced, telson dorsally densely setose, with flattened fusiform setae.

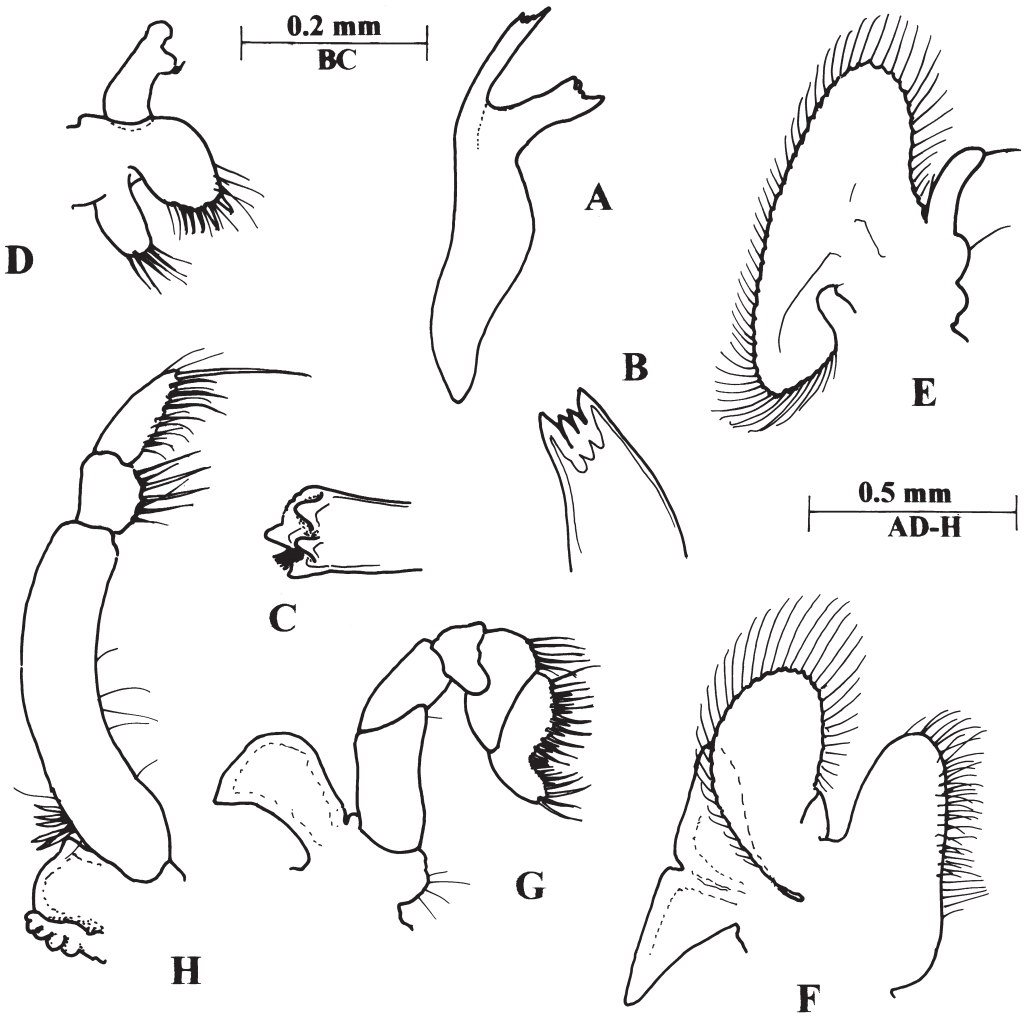

FIG. 14. *Pontonides asperulatus* sp. nov., holotype ♀. A, mandible. B, same, incisor process. C, same molar process. D, maxillula. E, maxilla. F, first maxilliped. G, second maxilliped. H, third maxilliped.

DESCRIPTION. Body form small, subcylindrical, slightly depressed.

Carapace (Fig. 13A) and abdomen smooth, non-areolate, glabrous. Rostrum slender, oval in section distally, unarmed, slightly up-curved distally, reaching to near distal end of proximal segment of antennular peduncle, lateral carinae obsolete on distal third, broadly expanded over bases of eyestalks (Fig. 13B), angular, with one small lateral angle on left and two on right, orbit (Fig. 13C) well developed, inferior orbital angle broadly convex, antennal spine very well developed, reaching almost to distal margin of basicerite, without epigastric, hepatic or branchiostegal spines, anterolateral angle broadly convex.

Abdomen (Fig. 13G) with third abdominal segment not posterodorsally produced, sixth segment about 1.7 times longer than deep, 1.23 times fifth (Fig. 13H) segment length, 0.44 of CL, posterolateral angle large and very acute, posteroventral angle acute, smaller, pleura of first four segments broadly rounded, fifth posteriorly produced, with very large slender acute tooth at posterodorsal angle.

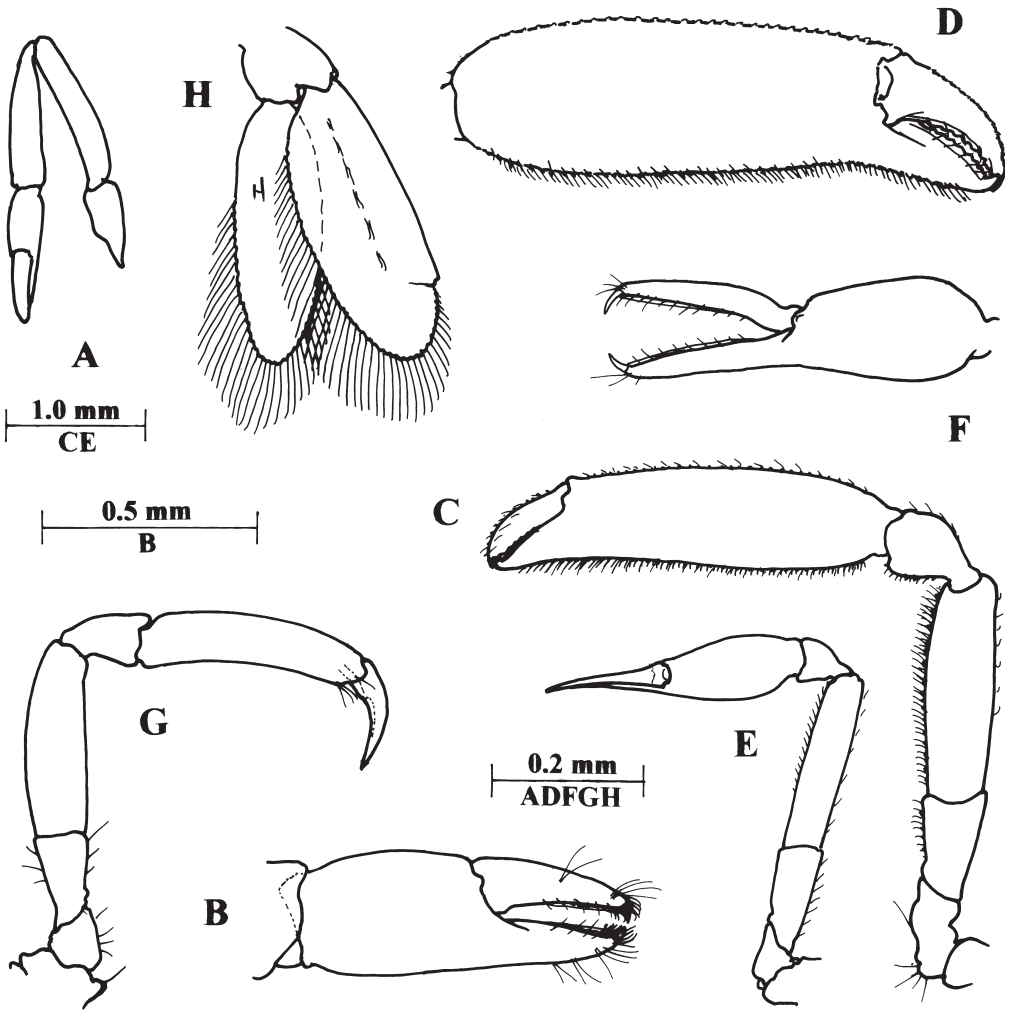

FIG. 15. *Pontonides asperulatus* sp. nov., holotype ♀. A, first pereiopod. B, same, chela. C, major second pereiopod. D, same, chela. E, minor second pereiopod. F, same, chela. G, third pereiopod. H, uropod.

Telson (Fig. 13I) length about 0.77 of CL, 1.7 times sixth abdominal segment length, 2.4 times longer than anterior width, with two pairs of small lateral marginal dorsal spines at about 0.38 and 0.75 of telson length, posterior margin about 0.28 of anterior width, rounded, without median point (Fig. 16I), with small lateral spines subequal to dorsal spines, intermediate spines robust, about 0.14 of telson length, submedian spines slender, setulose, about 0.6 of intermediate spine length, dorsal surface with numerous short fusiform setae (Fig. 16J).

Antennule (Fig. 13E) with proximal segment of peduncle parallel sided, about 1.7 times longer than wide, with anterolateral angle (Fig. 16A) (damaged on left side) very strongly produced, acute, reaching to middle of distal segment of peduncle, anterolateral lobe very small, convex, with single plumose seta, stylocerite short, acute, reaching to about 0.5 of segment length, without ventromedial tooth; intermediate and distal segments short and stout, combined length about 0.7 of proximal segment length; upper flagellum proximally stout, biramous, with five proximal

segments fused, shorter free ramus with two segments, longer ramus filiform, with about 17 segments, with about 12 groups of aesthetascs.

Antenna (Fig. 13F) with stout unarmed basicerite; carpocerite about twice as long as wide, flattened, exceeding proximal segment of antennular peduncle; flagellum well developed; scaphocerite exceeding antennular peduncle, lamina broad, about 2.2 times longer than width, lateral margin straight, with small distolateral tooth at 0.83 of lamellar length, well exceeded by distal lamina.

Ophthalmic somite without *béc ocellaire*, with small black pigment spot.

Eye (Fig. 13D) wel-developed, with hemispherical cornea, without accessory pigment spot, diameter subequal to stalk length, stalk without dorsal tubercle.

Mandible (Fig. 14A) without palp, molar process (Fig. 14C) robust, distally truncate, with five blunt teeth, with small bunch of short setae posteriorly, incisor process (Fig. 14B) slender, with four distal teeth, central pair smaller than outer pair. Maxillula (Fig. 14D) with distinctly bilobed palp (Fig. 16B), upper lobe non-setose, lower lobe with small tubercle with single, short simple seta, upper lacinia broad with five short simple spines distally and numerous longer setae, lower lacinia with setae only. Maxilla (Fig. 14E) with well developed palp, curved, blunt, with single short simple terminal seta, basal region convex without distinct endites, with single short simple seta, coxal region similar, without seta. Scaphognathite well developed, about 2.25 times longer than broad. First maxilliped (Fig. 14F) with short pointed non-setose palp (Fig. 16C), basal and coxal endites fused, basal portion with sparse simple setae, coxal region with few setae, exopod with large broad caridean lobe, flagellum reduced to small knob on proximal medial margin, epipod large triangular, bilobed. Second maxilliped (Fig. 14G) with typical endopod with dactylar segment deeply emarginate medially, with numerous robust serrulate spines, without exopod, epipod well developed with acute posterolateral angle, without podobranch. Third maxilliped (Fig. 14H) with robust endopod, reaching to about middle of carpocerite, proximal segment bowed, uniform, about 5.3 times longer than width, sparsely setose, with six fusiform setae laterally on basal region (Fig. 16D), without exopod, lateral plate of coxa anteriorly pointed, with small, poorly lamellate arthrobranch.

Fourth thoracic sternite with broad, subrectangular transverse plate.

First pereiopod (Fig. 15A) slender, exceeding the carpocerite by the carpus and chela; chela (Fig. 15B) with palm moderately compressed, about 1.5 times longer than deep, fingers (Fig. 16E) broad, about 0.9 of chela length, tapering, with well developed articulated terminal spines, surrounded by short stout setae, dactylus (Fig. 16F) about 3.4 times longer than proximal depth, cutting edge lateral, weakly denticulate over distal half, with sharp entire lamella laterally, fixed finger similar, about 3.0 times longer than proximal depth; carpus slightly longer than chela, tapering proximally, about 4.0 times longer than distal width; merus about 1.1 times carpus length, uniform, slightly bowed, 5.6 times longer an wide; ischium 0.5 of merus length; basis typical; coxa with small distoventral lobe.

Second pereiopods well developed, grossly unequal, dissimilar. Major second pereiopod (Fig. 15C) with chela (Fig. 15D) oval in section, 2.8 times longer than central depth, 1.7 times CL, tapering slightly distally, densely covered with minute acute tubercles on lateral surface and short erect simple setae, fingers (Fig. 16G) about 0.35 of palm length, robust, with lateral cutting edges, tips stout, acute, hooked, dactylus about 2.1 times longer than proximal depth, cutting edge coarsely dentate with about 9 blunt teeth, decreasing in size proximally, fixed finger similar, 1.7 times longer than proximal depth, cutting edge similar to dactylus; carpus short, stout, unarmed, about 0.25 of chela length, strongly tapered proximally, about 1.6 times distal width, ventral surface spinulate, setose; merus about 0.66 of palm length, 3.2 times longer than central width, subuniform, unarmed, ventral surface densely spinulate, setulose; ischium 0.5 of merus length, 1.5 times longer than distal width, tapering proximally, ventral surface spinulate, setulose: basis and coxa without special features.

Minor second pereiopod (Fig. 15E) with chela (Fig. 15F) about half major chela length, 1.25 of CL; palm twice as long as proximal depth, tapering strongly distally, smooth, glabrous, fingers long, slender, equal to palm length, compressed, with strongly hooked articulated tips, dactylus about 6.0 times longer than proximal depth, tapering gradually distally, with entire sharp lateral cutting edge, fixed finger similar; carpus short, stout, unarmed, glabrous, non-tuberculate, about 0.4 of palm length; merus

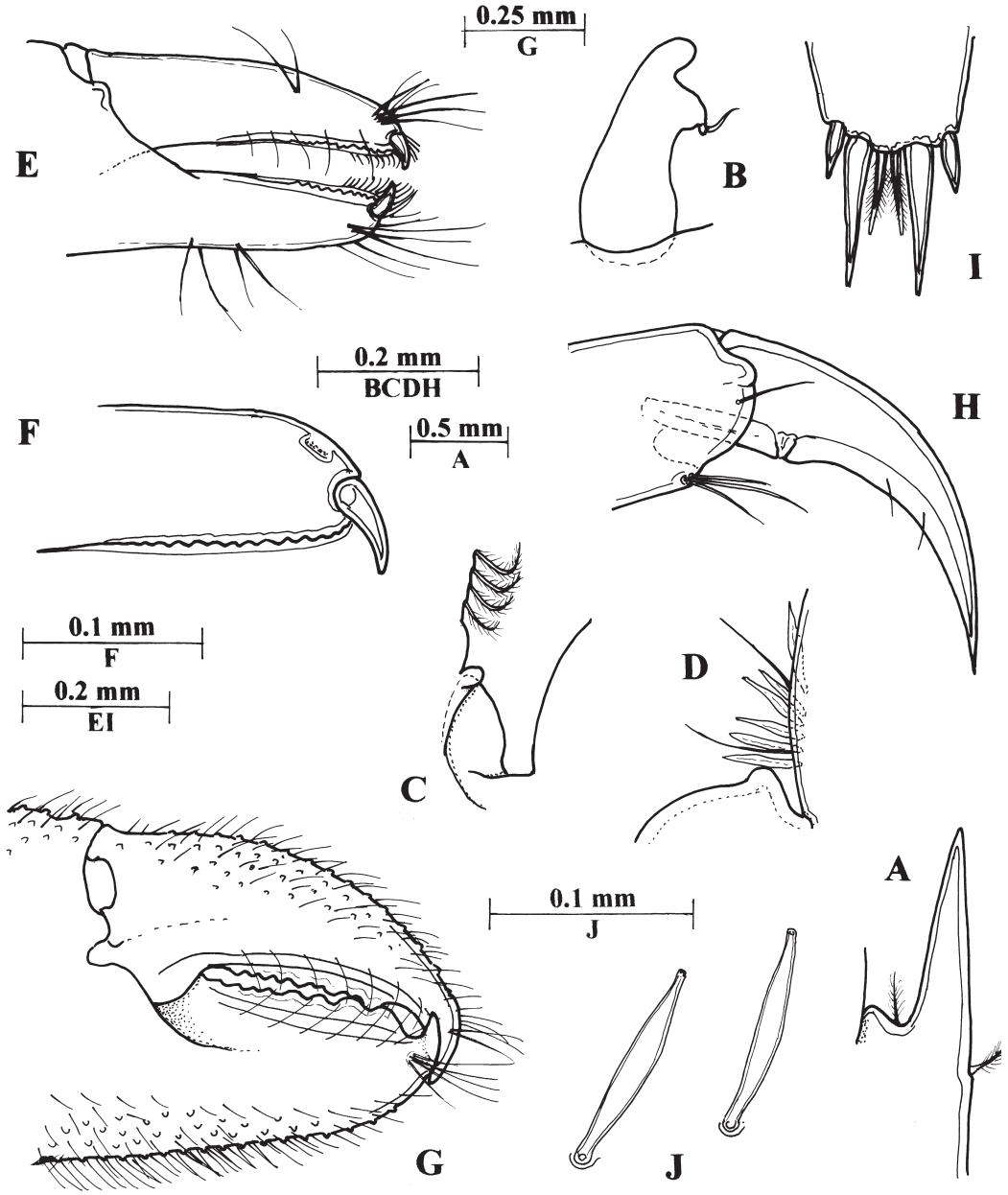

FIG. 16. *Pontonides asperulatus* sp. nov., holotype ♀. A, antennular peduncle, distolateral angle of proximal segment. B, maxillula, palp. C, first maxilliped, palp. D, third maxilliped, proximal region of proximal segment of endopod, lateral aspect. E, first pereiopod, fingers. F, same, distal dactylus. G, major second pereiopod, fingers. H, third pereiopod, distal propod and dactylus. I, telson, posterior spines. J, same, dorsal setae.

1.4 times palm length, unarmed, subuniform, 4.0 times longer than central width, ventrally densely setose; ischium 0.6 of merus length, 2.6 times longer than distal width, moderately tapering

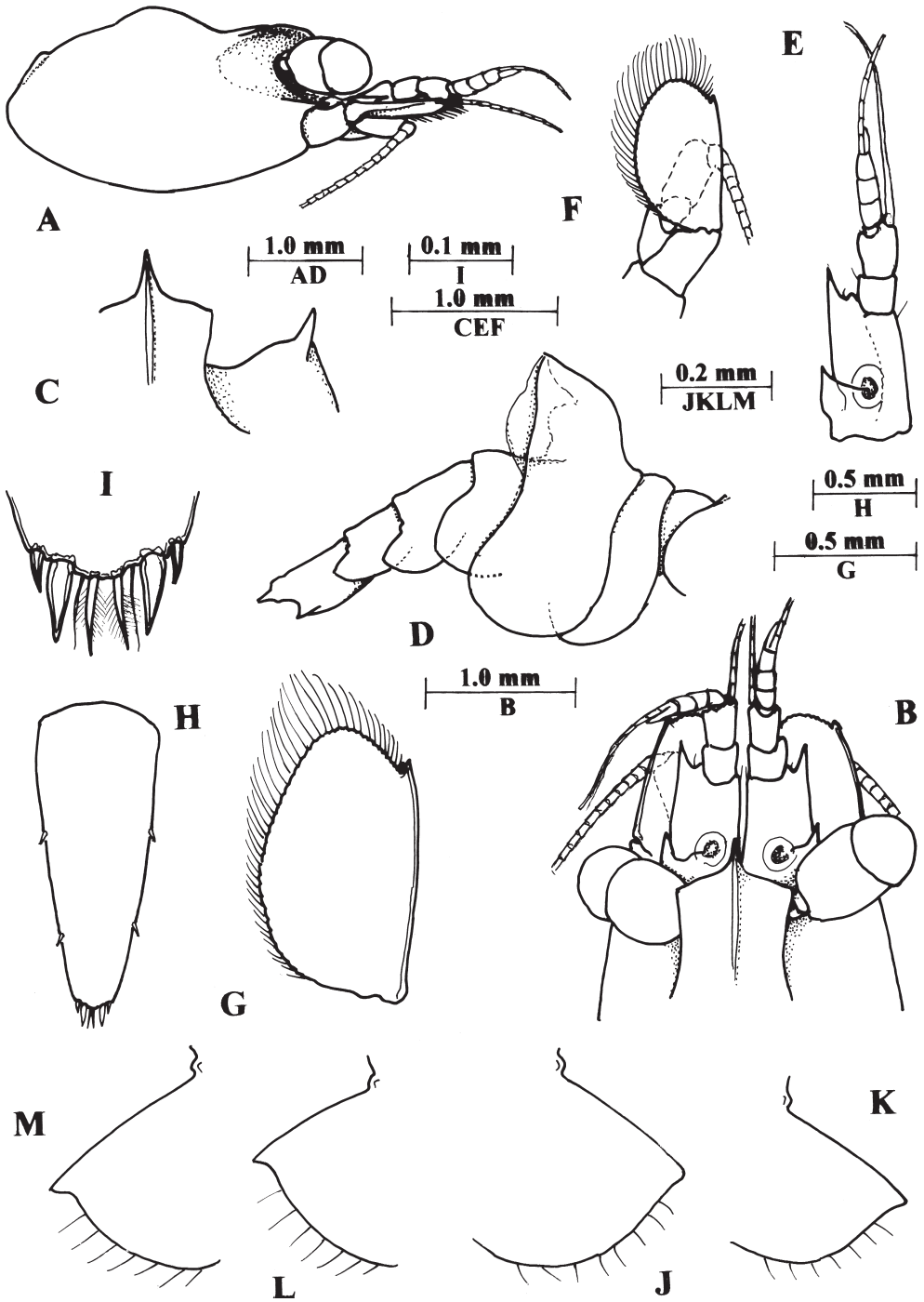

FIG. 17. *Pontonides loloata* sp. nov., paratype ♀. A, carapace and antennae, lateral. B, same, anterior dorsal aspect. C, right orbital region, dorsal. D, abdomen, lateral. E, antennule. F, antenna. G, scaphocerite. H, telson. I, same, posterior spines. J, K, fourth and fifth pleura, female, left. L, M, same, ♂, right.

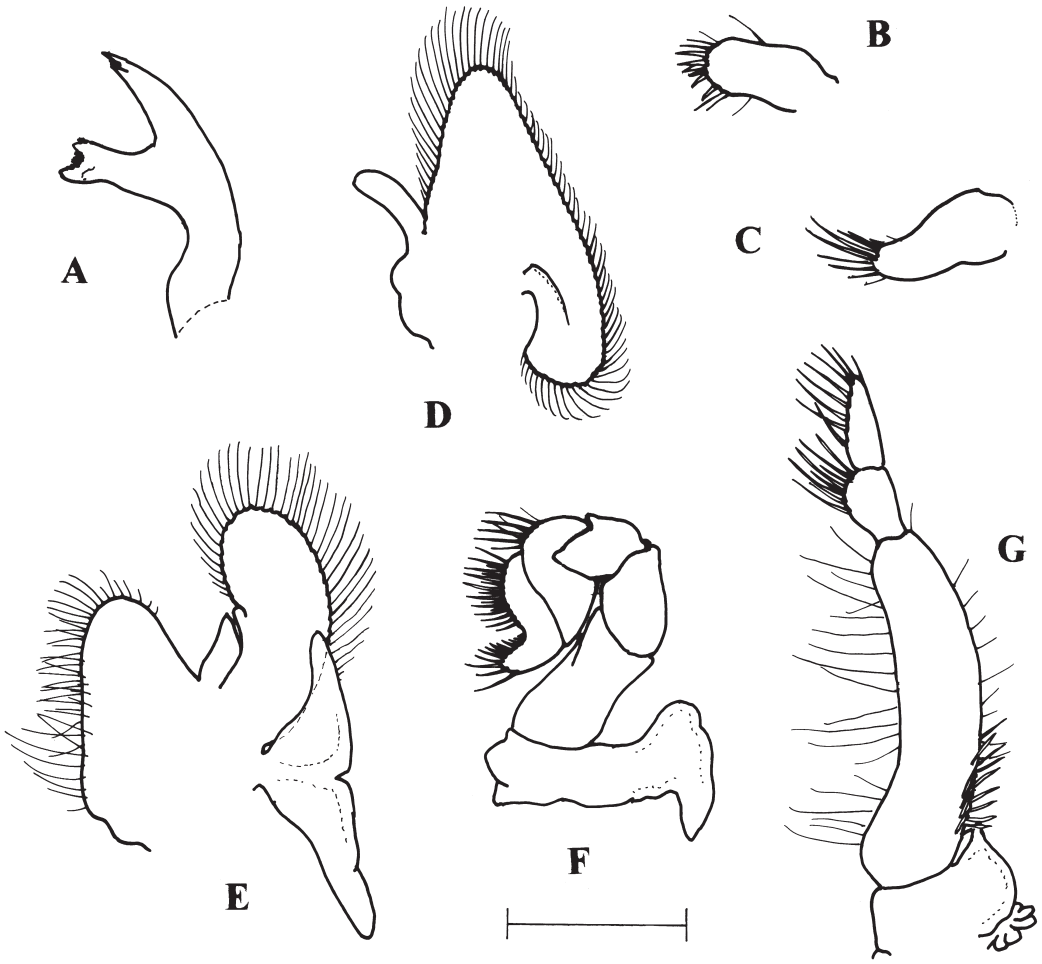

FIG. 18. *Pontonides loloata* sp. nov., paratype ♀. A, mandible. B, maxillula, upper lacinia. C, same, lower lacinia. D, maxilla. E, first maxilliped. F, second maxilliped. G, third maxilliped.

proximally, dorsal margin setose, basis and coxa without special features.

Third pereiopod (Fig. 15G) stout, exceeding carpocerite by about half propodus length,; dactylus (Fig. 16H) large, stout, simple, strongly curved, about 0.5 of propodus length, 4.0 times longer than proximal width, ventral edge sharply carinate, with large basal plate proximally; propodus about 0.6 of CL, bowed, subuniform, 5.0 timed longer than deep, deeply emarginate distoventrally, without spines, with sparse setae distally; carpus short, unarmed, about 0.35 of propodus length1.5 times longer than distal width; merus about 0.84 of propodus length, 3.0 times longer than central width, unarmed; ischium 0.5 of meral length; basis without special features; coxa with small ventral lobe. Fourth and fifth pereiopods similar to third.

Pleopods without special features.

Uropod (Fig. 15H) with protopodite posteriorly unarmed; rami extending well beyond telson: exopod about 2.6 times longer than wide, with two small spinules at posterolateral angle on left, damaged on right, diaeresis weakly developed; endopod about 0.88 of exopod length, 3.0 times longer than wide.

MEASUREMENTS. Holotype ♀, carapace length, 1.75; carapace and rostrum, 2.9; total body length (approx.), 8.0; second pereiopod, major chela, 3.15; minor chela, 2.1.

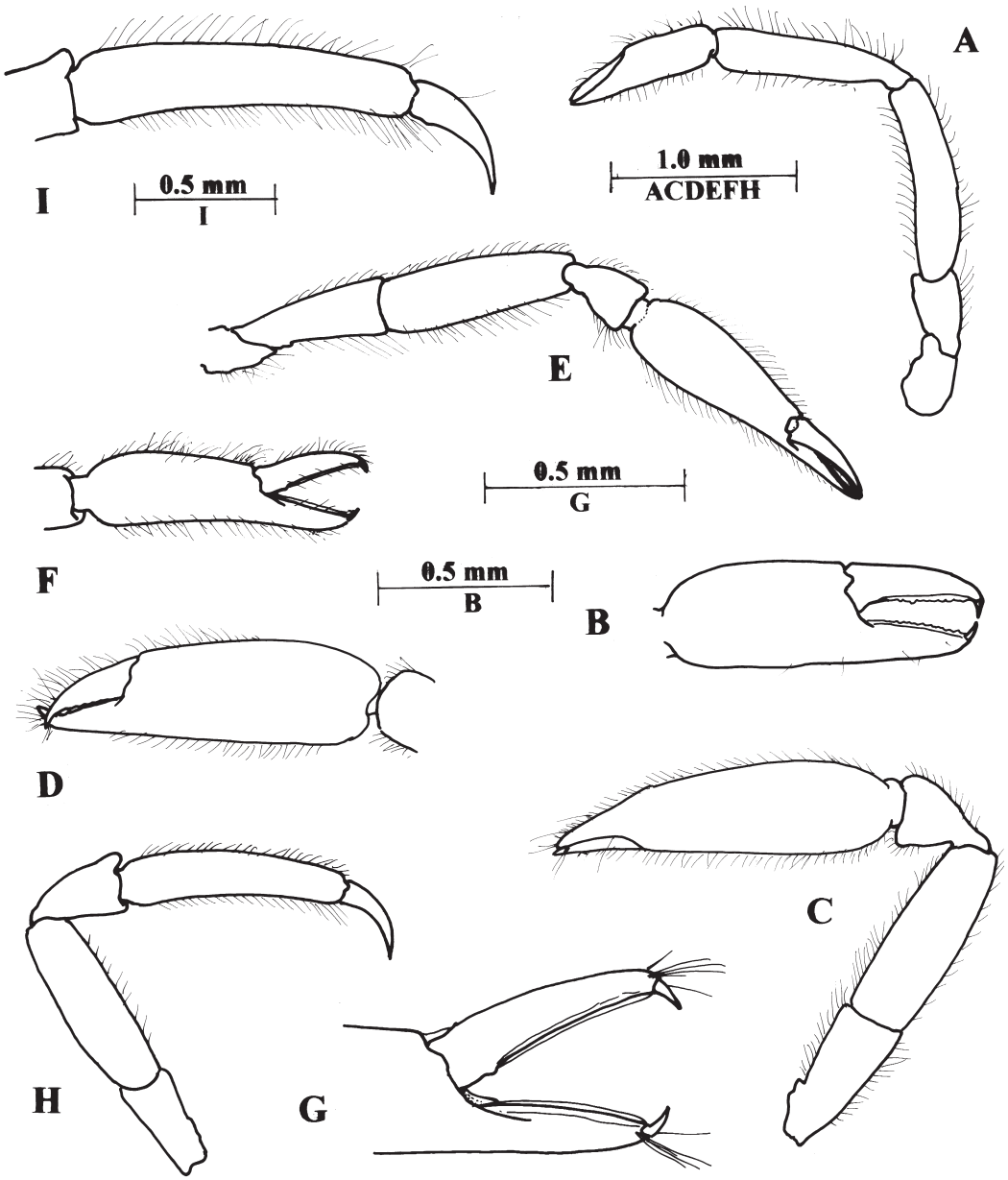

FIG. 19. *Pontonides loloata* sp. nov., paratype ♀. A, first pereiopod. B, same, chela. C, major second pereiopod, D, same, chela. E, minor second pereiopod. F, same, chela. G, same, fingers. H, third pereiopod. I, same, propod and dactyl.

HOST. *Cirripathes* sp. [Antipatharia].

COLOURATION (From colour transparency, AMPI 1455). Mainly highly transparent, carapace with two small white spots dorsally, abdomen with irregular transverse white bar across posterior of third tergite, posterior margin of sixth segment white, major second pereiopod translucent whitish.

SYSTEMATIC POSITION. *Pontonides asperulatus* sp. nov. does not appear closely related to the other species of the genus. Other species have the major second pereiopod chelae smooth and near glabrous, with the cutting edges of the fingers feebly or non-denticulate. The very well developed posterior tooth on the fifth pleuron is unique in the genus, the other species having the pleura rounded or feebly armed. The dorsal setation of the telson is also unique.

ETYMOLOGY. Latin, *asper*, rough.

REMARKS. The slender form of the single specimen suggests that it may be immature. The robust curved dactyl of the ambulatory propods is capable of an extreme degree of mobility, which suggests that it is capable of a strong grip upon the tissues of its host. The large basal plate and well developed hinge, and the deep distoventral emargination of the propod enable a wide range of flexion and extension to occur. Similar dactyls are found in all species of the genus. No information is available on the ecological situation in which these animals occur, but a specially strong grip might be required in localities subject to particularly strong currents. Similar dactyls have been noted in *Dasycaris symbiotes* Kemp 1922, and *Platycaris latirostris* Holthuis 1952 (Bruce, 1966).

Pontonides loloata sp. nov.
(Figs 17-21, 22F)

Pontonides unciger; De Grave, 2000: 142.
Pontonides sp. 2. Minemizu, 2000: 69.

MATERIAL. (1) 1♂, 1♀, paratypes, AMPI 1462, # 11, Milne Bay Province, 8 April 2003, QM W27226. (2) 1♀, paratype, AMPI 1464, # 16, Milne Bay, 8 April 2003, QM W27228. (3) 1 ♂ 1ovig. ♀, allotype and holotype, AMPI 1449, # 139, Loloata Island, 23 April 2003, QMW27230. (4) 1 ♂, 1 ♀, Laing Island lagoon, Hansa Bay, 5 m, 4 October 1992, coll. S. De Grave, KBIN IG 27951/NAT 274. (5) 2 juv., Davit Wreck, Hansa Bay, 9 m, 1 September 1992, coll. S. De Grave, KBIN IG 27951/NAT 274.

DIAGNOSIS. Carapace and abdomen feebly areolate, female carapace markedly gibbous, rostrum short, only to one third of length of proximal segment of antennular peduncle, distal third distinct, supraorbital carinae broadly angular angular, without distinct tooth, orbit very deep, antennal spine small, eye without dorsal tubercle, fourth and fifth pleura with acute posterodorsal tooth in male, angular in female, second pereiopods small, subequal, major chela finely tuberculate, with long setae, minor second pereiopod fingers much shorter than palm, third to fifth pereiopods with numerous long setae, sparse fusiform setae on telson.

DESCRIPTION. (1) Loloata Island specimens. – A small sized pontoniine shrimp of subcylindrical, slightly depressed body form.

Carapace (Fig. 17A) and abdomen (Fig. 17D) glabrous, dorsally smooth, pleura and branchiostegite very feebly areolate. Rostrum (Fig. 17A,B) slender, oval in section distally, unarmed, straight, reaching to near level stylocerite tips, lateral carinae obsolete on distal third, broadly expanded over bases of eyestalks, weakly angular, with obtuse lateral angle, anterior margin feebly convex, posterior border feebly concave, orbit (Fig. 17C) well developed, inferior orbital angle broadly convex, antennal spine well developed, without epigastric, hepatic or branchiostegal spines, gastric region gibbous, anterolateral angle slightly produced, rounded convex.

Abdomen (Fig. 17D) with third abdominal segment not posterodorsally produced, sixth segment about 1.6 times longer than deep, 1.5 times fifth segment length, 0.44 of CL, posterolateral angle and posteroventral angles well developed, acute, ventral surface sparsely setose, pleura of first three segments broadly rounded, fourth and fifth posteriorly produced, dorsal margin almost straight, ventral strongly convex, with acute tooth at posterodorsal angle in male (Fig. 17L,M), less marked in female (Fig. 17J,K).

Telson (Fig. 17H) length about 0.72 of CL, 1.75 times sixth abdominal segment length, 2.6 times longer than anterior width, with two pairs of small lateral marginal dorsal spines, about 0.5 mm long, at about 0.44 and 0.75 of telson length, posterior margin (Fig. 17I) about 0.3 of anterior width, rounded, without median point, with small lateral spines subequal to dorsal spines, intermediate spines robust, about 0.65 of telson length, submedian spines slender, setulose, about 0. 9 of intermediate spine length, dorsal surface of telson with sparse fusiform setae.

Antennule (Fig. 17E) with proximal segment of peduncle parallel sided, about 1.6 times longer than wide, with anterolateral angle (Fig. 20A) strongly produced, acute, reaching to slightly exceed intermediate segment of peduncle, anterolateral margin slightly produced, rounded, with single plumose seta, stylocerite short, acute, reaching to about 0.5 of segment length, without ventromedial tooth; intermediate and distal segments short and stout, combined length about 0.75 of proximal segment length; upper

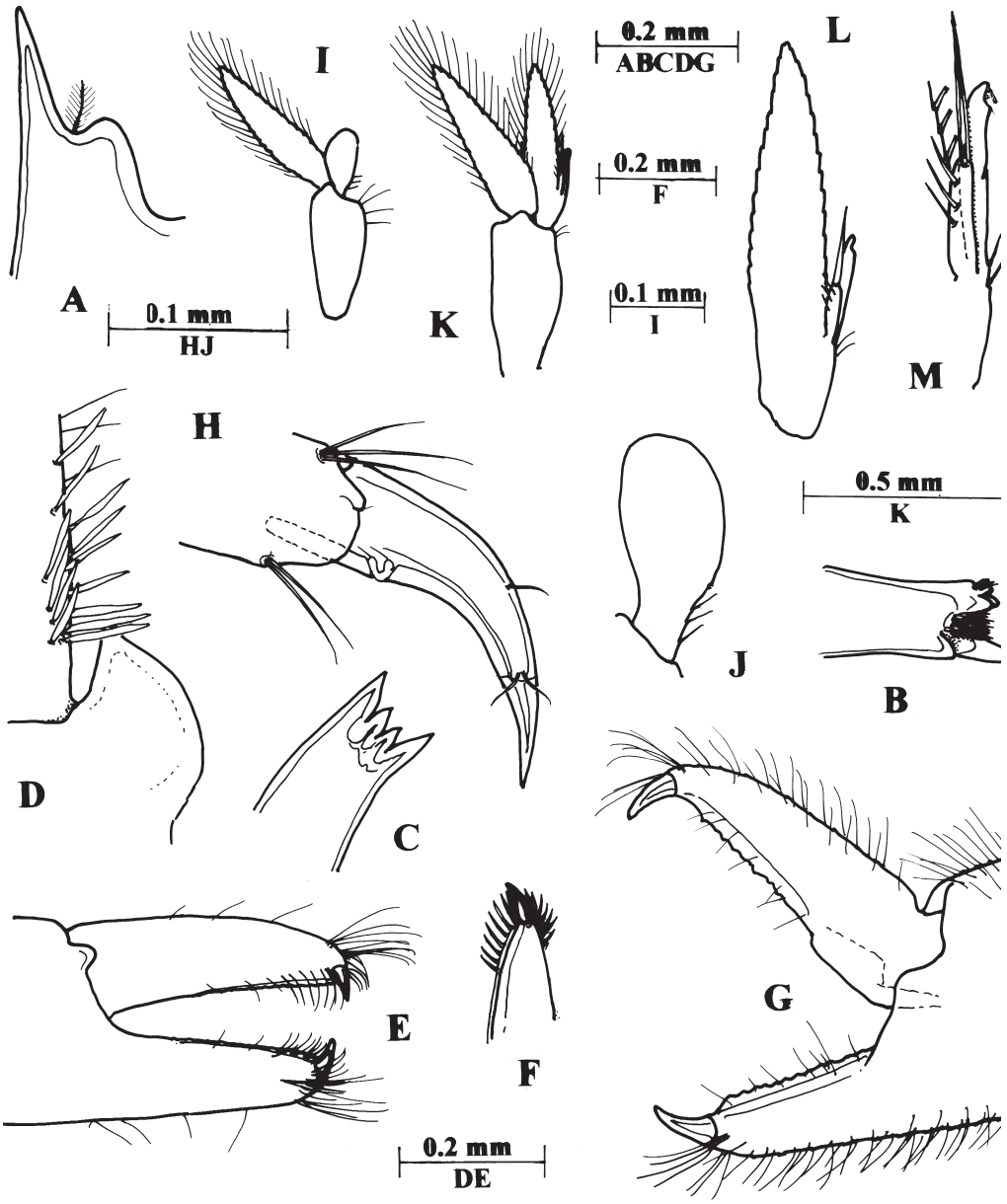

FIG. 20. *Pontonides loloata* sp. nov., paratype ♀. A, antennular peduncle, distolateral angle of proximal segment. B, mandible, molar process. C, same, incisor process. D, third maxilliped, proximal lateral margin of endopod and lateral plate of coxa. E, first pereiopod, fingers. F, same, distal dactylus. G, major second pereiopod, fingers. H, third pereiopod, distal propod and dactylus. Paratype male. I, first pleopod. J, same, endopod. K, second pereiopod. L, same, endopod. M, same, appendix masculina and appendix interna.

flagellum proximally stout, biramous, with three proximal segments fused, shorter free ramus with single segment, longer ramus filiform, with about 7 segments, with about 8 groups of aesthetascs, lower flagellum with about 11 segments.

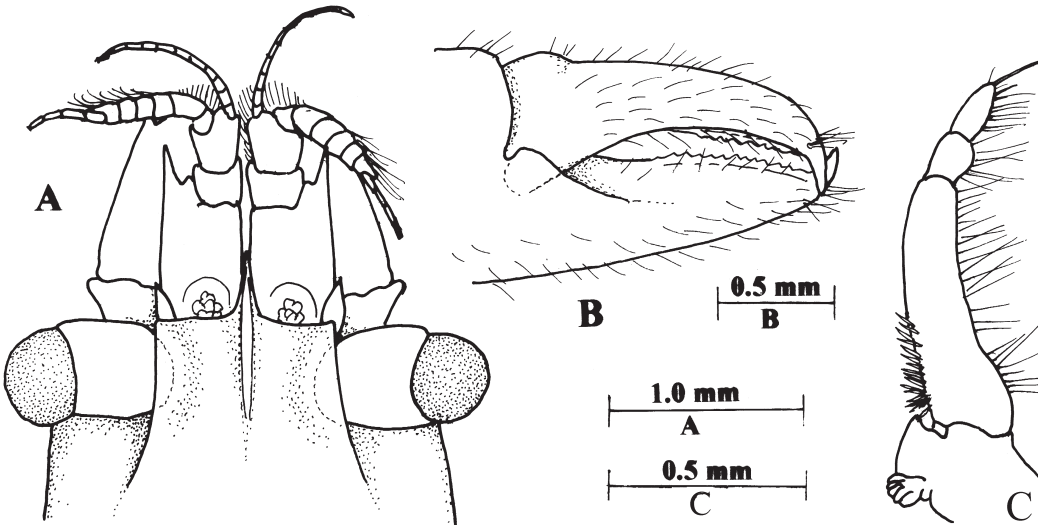

FIG. 21. *Pontonides loloata* sp. nov., ♀. Hansa Bay. A, anterior carapace and antennae, dorsal. B, third maxilliped. C, major second pereiopod, fingers.

Antenna (Fig. 17F) with stout unarmed basicerite; carpocerite about twice as long as wide, flattened, reaching to about middle of intermediate segment of antennular peduncle; flagellum well developed; scaphocerite (Fig. 17G) not exceeding antennular peduncle, lamina broad, about 1.8 times longer than width, lateral margin slightly convex, with small distolateral tooth at 0.83 of lamellar length, well exceeded by distal lamina.

Ophthalmic somite without *béc ocellaire*, with small black pigment spot.

Eye well developed, with hemispherical cornea, without accessory pigment spot, diameter subequal to stalk length, stalk without dorsal tubercle.

Mandible (Fig. 18A) without palp, molar process (Fig. 20B) robust, distally truncate, with five blunt teeth, with small bunch of short setae posteriorly, incisor process (Fig. 20C) slender, with four distal teeth, central pair smaller than outer pair. Maxillula with upper lacinia (Fig. 18B) broad with six short simple spines distally and numerous longer setae, lower lacinia (Fig. 18C) with setae only. Maxilla (Fig. 18D) with well developed palp, curved, blunt, non-setose, basal region convex without distinct endites, coxal region similar, both without setae. Scaphognathite well developed, about 2.4 times longer than broad. First maxilliped (Fig. 18E) with short pointed non-setose palp, basal and coxal endites fused, basal portion with sparse simple setae, coxal region with few setae, exopod with large broad caridean lobe, flagellum reduced to small knob on proximal medial margin, epipod large, triangular, bilobed. Second maxilliped (Fig. 18F) with typical endopod with dactylar segment deeply emarginate medially, with numerous robust serrulate spines, without exopod, epipod well developed with acute posterolateral angle, without podobranch. Third maxilliped (Fig. 18G) with robust endopod, reaching to about proximal end of carpocerite, proximal segment completely fused with basis, bowed, uniform, about 4.2 times longer than width, sparsely setose, with double rows of about 12 fusiform setae laterally on basal region (Fig. 20D), without exopod, penultimate segment about 0.2 of proximal segment length, expanded distomedially, with spines, terminal segment 2.5 times longer than wide, 1.2 times penultimate segment length, with strong terminal spine on left (lost on right?), about 0.6 of segment length, medial border spinose; lateral plate of coxa anteriorly pointed, with small quadrilamellate arthrobranch.

Fourth thoracic sternite with low transverse ridge with rounded lateral teeth, fifth sternite similar, more marked, with acute lateral teeth, sixth sternite with small longitudinal median ridge.

First pereiopod (Fig. 19A) moderately slender, all segments generally setose, exceeding the carpocerite by the carpus and chela; chela (Fig. 19B) with palm moderately compressed, about 1.75 times longer than deep, fingers (Fig. 20E) broad, about 0.75 of chela length, tapering, with well developed articulated terminal spines, surrounded by short curved setae (Fig. 20F), dactylus about 4.0 times longer than proximal depth, cutting edge lateral, weakly denticulate over distal half, with sharp entire lamella laterally, fixed finger similar, about 3.4 times longer than proximal depth; carpus about 1.25 timed longer than chela, tapering proximally, about 4.5 times longer than distal width; merus subequal to carpus length, uniform, slightly bowed, 4.7 times longer an wide; ischium 0.4 of merus length; basis typical.

Second pereiopods small, unequal, dissimilar. Major second pereiopod (Fig. 19C) with chela (Fig. 19D) oval in section, 2.6 times longer than proximal depth, tapering slightly distally, 1.0 (♂) – 1.08 (♀) times CL, densely covered with minute acute tubercles particularly on lateral surface and numerous simple setae, fingers (Fig. 20G) about 0.3 of palm length, robust, with lateral cutting edges, tips stout, acute, hooked, dactylus about 3.1 times longer than proximal depth, cutting edge coarsely dentate with about 12 small irregular teeth, decreasing in size proximally, fixed finger similar, 1.8 times longer than proximal depth, cutting edge similar to dactylus; carpus short, stout, unarmed, about 0.4 of chela length, strongly tapered proximally, about 1.4 times distal width, ventral surface spinulate, setose; merus about 0.8 of palm length, 2.8 times longer than central width, subuniform, unarmed, ventral surface densely spinulate, setulose; ischium 0.7 of merus length, 2.1 times longer than distal width, tapering proximally, ventral surface spinulate, setulose; basis and coxa without special features.

Minor second pereiopod (Fig. 19E) with chela (Fig. 19F) about 0.83 of major chela length, 0.81 (♂), 0.86 (♀) of CL; palm about 2.3 times as long as proximal depth, tapering slightly distally, smooth, setose, fingers (Fig. 19G) long, slender, about 0.6 of palm length, compressed, with strongly hooked articulated tips, dactylus about 4.0 times longer than proximal depth, tapering gradually distally, with entire sharp lateral cutting edge, fixed finger similar; carpus short, stout, unarmed, setose, non-tuberculate, about 0.4 of palm length; merus subequal to palm length, unarmed, subuniform, 3.2 times longer than central width, generally densely setose; ischium 0.75 of merus length, 3.0 times longer than distal width, moderately tapering proximally, generally setose; basis and coxa without special features.

Third pereiopod (Fig. 19H) robust, generally strongly setose, exceeding carpocerite by about half propodus length; dactylus (Fig. 20H) large, stout, simple, strongly curved, about 0.4 of propodus length, 4.0 times longer than proximal width, ventral edge sharply carinate, with large basal plate proximally; propodus (Fig. 19I) about 0.5 of CL bowed, 4.8 times longer than deep, tapering slightly distally, deeply emarginate distoventrally, without spines, with numerous long setae; carpus short, unarmed, about 0.45 of propodus length 1.6 times longer than distal width; merus about 0.9 of propodus length, 3.4 times longer than central width, unarmed; ischium 0.5 of meral length; basis without special features; coxa with small ventral lobe. Fourth and fifth pereiopods similar to third.

Pleopods with basipodite and rami densely setose, without special features. Male first pleopod (Fig. 20I) with endopod rounded, oval (Fig. 20J), medial margin with three simple setae proximally. Male second pleopod (Fig. 20K) with endopod (Fig. 20L) with appendices at about 0.2 of medial margin length; appendix masculina (Fig. 20M) about 0.14 of endopod length, with stout simple terminal spine about 1.4 times appendix length, with 3 shorter simple spines ventrolaterally; appendix interna about 1.5 times appendix masculina length, with few terminal cincinnuli.

Uropod with protopodite posteriorly unarmed; rami extending slightly beyond telson: exopod about 2.6 times longer than wide, lateral border setose, with small spinule at posterolateral angle, diaeresis weakly developed; endopod subequal to exopod length, 3.4 times longer than wide.

(2) Hansa Bay specimens. Generally as above, but largest specimen (Fig. 21A) much larger, with rostrum extending well beyond level of anterior margin of statocyst, to about halfway between that and the distal margin of the proximal antennular segment, with broadly rectangular lateral carinae covering the bases of the eyestalks and the proximal third of the statocyst, without lateral teeth. The third maxilliped (Fig. 21B) generally similar to the above description, with numerous fusiform setae along the lateral border of the antepenultimate segment of the endopod.

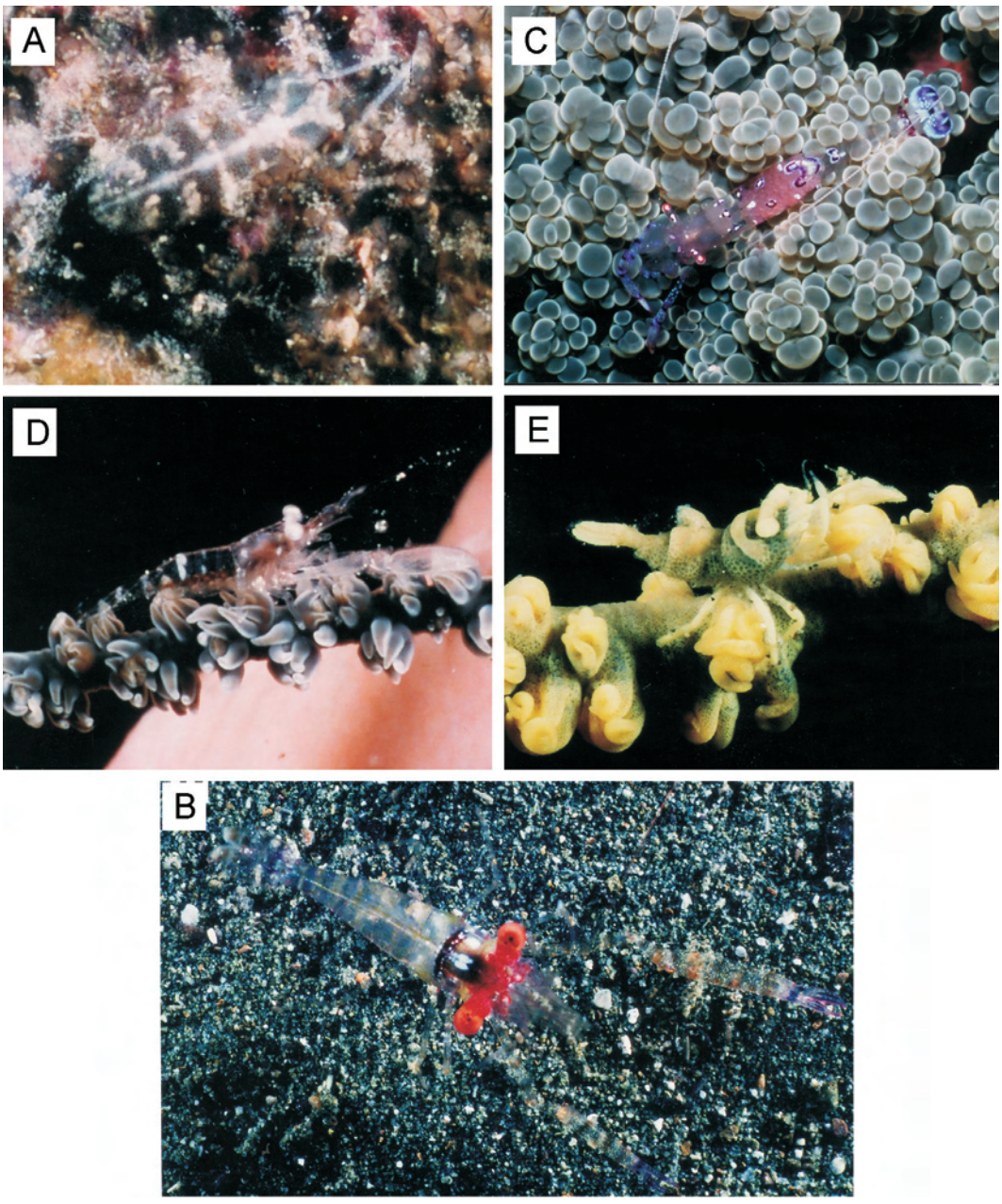

FIG. 22. A, *Colemonia litodactylus* gen. et sp. nov., holotype female. B, *Exoclimenella* sp. aff. *maldivensis* Duris & Bruce. C, *Periclimenes grandidens* sp. nov., holotype. D, *Pontonides asperulatus* sp. nov., holotype. E, *Pontonides loloata* sp. nov., holotype.

The major second pereiopod has the fingers (Fig. 21C) weakly tuberculate and gaping slightly proximally.

MEASUREMENTS (mm). Holotype ♀, carapace length, 1.8; carapace and rostrum, 2.3; total body length (approx.) 6.8; second pereiopod, major chela, 1.45; minor chela,

1.35. Allotype ♂, carapace length, 1.2; carapace and rostrum, 1.7; total body length (approx.) 4.7; second pereiopod, major chela, 1.5; minor chela, 1.3.

SYSTEMATIC POSITION. *Pontonides loloata* sp. nov. is most closely related to *P. unciger* Calman, 1939. It may be readily distinguished, particularly in large adult females, by the form of the rostrum and its lateral carinae, which are subrectangular without acute lateral teeth, with the distal rostrum non-carinate, as opposed to dentate, with the lateral carinae continuing to the rostral tip.

HOST. (1-5) *Cirripathes* sp. [Antipatharia].

COLOURATION. (From colour slide). Body and appendages, including caudal fan, generally uniform pale yellow, carapace with single broad transverse yellow band, rest of carapace and abdomen densely spotted with small light brown dots.

ETYMOLOGY. For the locality of one of the specimens, Loloata Island.

REMARKS. Both specimens (1) from Milne Bay have a distorted third abdominal tergite. This so closely resembles the condition reported in *Periclimenes hertwigi* Balss by Bruce (1972) that it seems certain that it was caused by a bopyrid isopod parasite of the genus, *Filophryxus* Bruce 1972. The type and only species of this genus is *F. dorsalis* Bruce. A photograph of the live specimens *in situ* on their host clearly shows that the parasites had already been lost prior to capture.

The colour photo provided by Minemizo (2000) shows exactly the same colour pattern as in the present specimens. In Japanese waters it occurs on *Cirripathes anguina* and *C. spiralis* at depths of 15 m and more (Minemizu, 2000). Minemizu (pers. comm., 31 October 2003) also confirms that as many as 10 specimens may occur on a single host and that the shrimps "snatch away" items of food that the host has caught. He also notes that the shrimp undergoes nocturnal colour changes, becoming translucent at night.

DISTRIBUTION. The type locality, Loloata Island, and Hansa Bay, PNG, and the Izu Peninsula, Japan.

Pontoniopsis comanthi Borradaile, 1915

Pontoniopsis comanthi Borradaile, 1915: 213; 1917: 377, pl. 57, fig. 27; Holthuis, 1952: 153, figs 70-71; De Grave, 2000: 143; Li, 2000: 276, fig. 369; Davie, 2002: 337.

MATERIAL. 1 ov.♀, AMPI 1461, # 3, Milne Bay, 10 m, 7 April 2003, QM W227232.

HOST. Unidentified crinoid,.

COLOURATION (From colour transparency, AMPI 1461). Mainly very dark red-brown, with narrow pale yellow-orange dorsal stripe from rostrum to telson, more yellow posteriorly, including uropods; ambulatory pereiopods transparent, heavily banded with brown.

REMARKS. One of the smallest pontoniine shrimps, the single specimen has a CL of 1.05 mm, without special features. *Pontoniopsis comanthi* is the only Indo-West Pacific species referred to the genus and has been associated with a variety of crinoid host genera (*Comanthus, Comatula, Heterometra, Lamprometra* and *Tropiometra,* Bruce, 1982b) but more often from unidentified crinoids. The ambulatory propods in some specimens are dostoventrally unarmed (Holthuis, 1952) but others are spinose, with one, two or even three spines (Bruce, 1989). This suggests that a complex of morphologically similar species may be involved. More material from carefully identified segregated hosts will be necessary to clarify their relationships.

DISTRIBUTION. PNG – Duangit reef; Mast Wreck; Awar Wreck; Laing Island, Hansa Bay, 4-25 m, (De Grave, 2000). Other – Type locality: Mabuaig, Torres Strait, Queensland. Reported also from Israel, Kenya, Zanzibar, Seychelle Islands, Indonesia, Japan, Philippine Islands, Western Australia, Queensland, Coral Sea, Mariannas Islands, Marshall Islands, Fijian Islands and Kiribati.

Thaumastocaris streptopus Kemp, 1922

Thaumastocaris streptopus Kemp, 1922: 244-247, figs 78; De Grave, 2000: 143, fig.7; Li, 2000: 286, fig. 380; Davie, 2002: 338.

MATERIAL. 1 ♂, 1 ov.♀, AMPI 1443, # 33, Loloata Island, 8 m, 11 April 2003, QM W.27231.

HOST. *Oceanapia* sp. (Phloeodictyidae, Porifera).

REMARKS. Reported in *Xestospongia testudinaria* (Lamarck) by De Grave (2000), the present specimens present no special features. Collected with specimens of *Periclimenes incertus,* see above. The association with *Oceanapia* represents a new host record.

DISTRIBUTION. PNG – Laing Island, Hansa Bay, 7-30 m, (De Grave, 2000). Other – Type locality: Nouméa, New Caledonia. Reported also from Jordan, Sudan, Somalia, Kenya, Zanzibar, Tanganyika, Madagascar, Comoro Islands, Thailand, Indonesia, Japan, Philippine Islands, Western Australia, Queensland, Caroline Islands, Marshall Islands, New Caledonia.

Vir colemani Bruce, 2003a

Vir colemani Bruce, 2003a: 119, figs 1-6.

MATERIAL. (1) 1 ovig. ♀, AMPI 1351, Loloata Island, 10 m, 18 November 2001, QM W.25877.
HOST. *Plerogyra sinuosa* (Dana). [Scleractinia]

REMARKS. The single specimen has the rostrum slightly exceeding the antennular peduncle, with rostral dentition of 5/1 and non-spinulate ambulatory propods. The distal dorsal rostral tooth is particularly minute. Coleman has also photographed specimens from Loloata Island in November 2001 and from Walindi, Kimbe Bay, New Britain in December 1999 with the same colour pattern.

DISTRIBUTION. PNG– Type locality: Loloata Island, Port Moresby, 10 m, on *Plerogyra paradivisa* Veron, 1990. Other – Nil.

Vir philippinensis Bruce & Svoboda, 1984

Vir philippinensis Bruce & Svoboda, 1984: 87, figs 1-4; De Grave, 2000: 145; Li, 2000: 302, fig. 405; Davie, 2002: 340.

MATERIAL. 1♀ , AMPI 1349, Loloata Island, 25 m, 19/20 April 2001, QM W.25876.
HOST. *Plerogyra sinuosa* (Dana) [Scleractinia].

REMARKS. The single specimen has a rostral dentition of 8/2 and spinulate ambulatory propods.

DISTRIBUTION. PNG – Loloata Island (Coleman, 1998); Laing Island; Mast Wreck, Hansa Bay, 7-10 m; on *Euphyllia glabrescens* (De Grave, 2000). Other – Type locality: Cebu, Philippine Islands, 20-30 m. Red Sea, Myanmar, Indonesia, Japan, Western Australia, and Queensland.

DISCUSSION

(1) FURTHER REMARKS ON THE INDO-WEST PACIFIC "*PONTONIA*-LIKE" PONTONIINE GENERA

Pontonia Latreille, 1829, *sensu lato* has been revised by Fransen (2002) and divided into six genera. *Colemonia* gen. nov. increases the number of genera to seven. His detailed review indicates that *Dactylonia* Fransen, then had six species [to which has been added *D. franseni* Bruce, 2003b], includes *D. medipacifica* (Edmondson, 1935) which exhibits many features that contrast markedly with the other species. A new genus is now proposed for Edmondson's species.

Cainonia gen. nov.

DIAGNOSIS. Small, robust, subcylindrical, slightly depressed body. Rostrum very short, acute, unarmed, with preterminal setae ventrally, dorsal carina feebly developed, lateral carinae broad, not covering bases of eyestalks; carapace glabrous, inferior orbital angle obsolete, antennal spine acute, orbit feebly obsolete, supraorbital, epigastric and hepatic spines absent, anterolateral angle rounded, not produced. Abdomen with posterior segments depressed, pleura rounded, sixth segment with posterolateral angle reduced, posteroventral angle small, blunt. Telson with two pairs of large sub-marginal dorsal spines, three pairs of posterior spines. Eye normal, with hemispherical cornea. Antennule with ventromedial tooth on basal segment minute or absent, anterolateral tooth small, not exceeding half length of intermediate segment, flagella reduced. Antenna with basicerite unarmed, scaphocerite well developed, with distolateral tooth not exceeding lamella, less than 0.1 of lamellar length. Third thoracic sternite without large triangular transverse median plate, fourth unarmed, fifth and sixth with pairs of low acute lateral plates, sixth, seventh and eighth unarmed. Mandible with slender corpus, without palp, molar process subcylindrical, incisor process with oblique set of four acute teeth distally, without denticles along medial border. Maxillula with feebly bilobed palp, upper lacinia normal. Maxilla with reduced simple basal endite with single distal seta, scaphognathite broad. First maxilliped with slender palp, basal endite large, broad, laterally convex, medially sublinear, with numerous long finely serrulate setae, distinct from densely setose coxal endite, exopod well developed with narrow caridean lobe, flagellum with 4-5 plumose terminal setae, epipod large, feebly bilobed. Second maxilliped endopod with dactylar segment normal, basis without medial angulation, exopod flagellum well developed with 4 plumose terminal setae, epipod small, rounded, without podobranch. Third maxilliped with ischiomerus partly fused to basis, endopod slender, antepenultimate segment slightly broader than distal segments, exopod flagellum well developed with numerous plumose terminal setae, coxa without medial process, with large rounded lateral plate, without arthrobranch. First pereiopods robust, with simple chelae. Second pereiopods with robust chelae, similar, subequal, palm glabrous, smooth, without ventral carina, fingers without molar process and fossa, dactylus with single small tooth, fixed finger with two

TABLE 2. Comparison of *Dactylonia* and *Cainonia*. w/wo=with or without

Character	*Dactylonia*	*Cainonia*
Rostrum	Well developed, acute	Greatly reduced, acute, short, not covering bases of eyes
Lateral carinae	Narrow	Broad
Postrostral region	Carinate	Feebly carinate
Inferior orbital angle	Feebly developed	Obsolete
Antennal spine	Acute	Acute, small, broad
Pterygostomial region	Rounded, not produced	Rounded, slightly produced
Ventromedial tooth on proximal antennular segment	Small	Minute or absent
Distolateral tooth	Reaching beyond middle of intermediate segment	Small, not reaching beyond middle of intermediate segment
Anterolateral tooth of scaphocerite	<0.1 of scaphocerite length, usually exceeding lamella	0.1 of scaphocerite length, not exceeding lamella
Maxilla, basal endite	Small, bilobed, proximal lobe sometimes obsolescent, sparsely setose	Short, simple, obsolescent, with single seta
Coxal endite	Distinct	Obsolete
Basal endite of first maxilliped	Broad, densely setose, forming basket	Broad, numerous long setae, not forming basket
Epipod of first maxilliped	Oval	Large, elongate, feebly bilobed
Epipod of second maxilliped	Rounded	Trapezoidal, proximally expanded
Third maxilliped endopod, articulation of ischiomerus and basis	Partly fused	Partly fused, suture indistinct
Combined segment form	Broad or narrow, not semi-operculate	Narrow, not semi-operculate
Distal segments	Elongate, little longer than combined segment	Elongate
Terminal segment	Densely setose	Numerous long setae
Fourth thoracic sternite	w/wo triangular medially notched plate	Transverse lateral plates
Second pereiopod chelae	Unequal, dissimilar	Subequal, similar
Cross section	Ventrally carinate, usually serrate	Oval, non-carinate
Third pereiopod dactyl		
Setation of corpus	Well-developed	Numerous slender setae
Accessory tooth	Acute, unarmed or feebly denticulate	Blunt, densely microdenticulate
Ventral dentition	Elongate, acute or blunt, sometimes distally swollen with microdenticulations	Short blunt club-like teeth
Unguial microspinulation	Sparse denticulations distally	Densely microspinulate
Propod, distoventral spines	Well-developed, acute	Present, blunt
Ventral spines	Present	Absent
Sixth abdominal segment, posterolateral tooth	Acute, generally well-developed	Blunt, obsolete
Posteroventral tooth	Large, broad, acute	Reduced, blunt
Telson, dorsal spines	Very large, submarginal, usually grouped on anterior half	Large, submarginal, on anterior half
HOST	Ascidian	Bivalve mollusc

small acute teeth distally, both sparsely setose, proximal segments unarmed. Ambulatory pereiopods slender, dactylus biunguiculate, with unguis distinct, densely covered with microdenticulations, corpus with distoventral tooth similar to but smaller than unguis, ventral margin with 12-13 blunt club-like teeth, of decreasing size proximally, devoid of distal microdenticulations, corpus with numerous dorsal and ventral setae, propod with pair of slender distoventral spines only. Uropod with protopodite unarmed, exopod with distolateral spinule only.

TYPE SPECIES. *Pontonia medipacifica* Edmondson, 1935. The genus is monospecific.

ETYMOLOGY. Greek *kainos*, new, and *Pontonia*, a name first used by Latreille (1829). Gender feminine.

HOSTS. Associated with spondylid bivalve molluscs.

SYSTEMATIC POSITION. *Cainonia* is most closely related to *Dactylonia* Fransen (2002). The similarities and differences are detailed in Table 2.

The major features that distinguish *Cainonia* gen. nov. from *Dactylonia* Fransen 2002 are the very short rostrum that does not cover the bases of the eyestalks, the obsolete orbit and inferior orbital angle (see below), the strongly reduced basal endite and obsolete coxal endite of the maxilla, the subequal, similar, non-carinate second pereiopod chelae, and the blunt densely microspinulate unguis and accessory tooth of the ambulatory pereiopods, with the short blunt club-like ventral tubercles on the corpus, and blunt distoventral spines on the ambulatory propod. The host association, unlike all other *Dactylonia* species is with a spondylid bivalve mollusc.

The "antennal spine" in this species may actually be the expanded inferior orbital angle, in which case the antennal spine would be absent. The generic definition would then be revised to "inferior orbital angle acute, antennal spine absent" in place of "inferior orbital angle obsolete, antennal spine acute".

The only other "*Pontonia*-like" genus associated with bivalve hosts is *Bruceonia* Fransen, 2002, which was found in *Chama pacifica* Broderip, 1835. The single species, *B. ardeae* Bruce, is readily distinguished from *C. medipacifica* by the presence of a well developed stout rostrum and a generally hirsute body and appendages. It is known only from its type locality on the Great Barrier Reef.

Cainonia medipacifica (Edmondson, 1935) comb. nov.

Pontonia medipacifica Edmondson, 1935: 6, fig.2; Bruce, 1980b: 225, figs 1-4; Li, 2000: 265, fig. 351.
Dactylonia medipacifica; Fransen, 2002: 307, figs 202-208.

HOLOTYPE. Ovigerous ♀, BM S.3845 from Midway Island, Hawaiian Islands.

HOST. *Spondylus varians* Sowerby 1847 [Mollusca: Spondylidae].

DISTRIBUTION. Ambon, Indonesia; Ifaluk Atoll, Caroline Islands, and the Hawaiian Islands.

A REVISED KEY TO THE GENERA OF "*PONTONIA*" SENSU LATU (based on Fransen, 2002)

1. Rostrum stout, thickened, without distinct dorsal, ventral or lateral carinae, suboval in section; body and appendages generally sestose: ambulatory dactyls simply biunguiculate……*Bruceonia* Fransen

   Rostrum with distinct carinae, T or + shaped in section 2

2. Rostrum greatly reduced, not covering bases of eyestalks, with ventral carina, maxilla with strongly reduced basal endite and obsolete coxal endite; subequal, similar, non-carinate second pereiopod chelae; blunt densely microspinulate unguis and accessory tooth on dactyls of ambulatory pereiopods, with short blunt club-like ventral tubercles on the corpus, blunt distoventral spines only on ambulatory propod. . . . . *Cainonia* gen. nov.

   Rostrum well developed, covering bases of eyestalks . 3

3. Rostrum with 2-3 distinct dorsal teeth, lateral carinae not developed. . . . . *Rostronia* Fransen

   Rostrum without or with one small subdistal dorsal tooth, with developed lateral carinae. 4

4. Ventromedial tooth on proximal antennular segment large5

   Ventromedial tooth on proximal antennular segment small. 6

5. Ambulatory dactyls generally biunguiculate, setose, with accessory ventral teeth; propod with feebly developed distoventral spines; third maxillipeds not sub-operculiform, third thoracic sternite without transverse median plate . . . . . *Odontonia* Fransen

   Ambulatory dactyls simple, glabrous; propod with well developed distoventral spines; third maxillipeds sub-operculiform, third thoracic sternite with large triangular transverse median plate *Colemonia* gen. nov.

6. Dactyls of ambulatory pereiopods with flexor margin dentate or tuberculate; rostrum with dorsal carina; first maxilliped endites forming basket . . . . . *Dactylonia* Fransen

   Dactyls of ambulatory pereiopods with flexor margin unarmed; rostrum without dorsal carina; first maxilliped endites not forming basket. 7

7. Rostrum with subdistal ventral tooth; antennal spine distinctly separated from infraorbital margin, acute; scaphocerite with distolateral tooth less than 0.1 of length of scaphocerite; submedian carinae of corpus of paragnath parallel, setose; alae of paragnath medially rounded; proximal pair of dorsal spines at 1/3 to ½ of telson length; distal pair of dorsal spines on distal third of telson . . . . . …*Pontonia* Latreille

8. Rostrum without ventral teeth; antennal spine merged with inferior orbital angle, blunt (acute in *Ascidonia flavomaculata*); scaphocerite with distolateral tooth more than 0.2 of length of scaphocerite; submedian carinae on corpus of paragnath oblique, non-setose, alae of paragnath medially bilobed or excavate; proximal pair of dorsal spines at ¼ of telson length; distal pair of dorsal telson spines on proximal half of telson . . . . . *Ascidonia* Fransen

Dactylonia sp. from New Caledonia (Bruce, 2003: 305) was not correctly identified originally (Bruce, 1996) and was later referred to an un-named species. To clarify the placement of this taxon it is here provided with a name.

Dactylonia borradalei sp. nov.

Not *Pontonia ascidicola* Borradaile, 1898: 389; 1899: 409, pl. 36, fig. 6.
Pontonia ascidicola; Bruce, 1996: 241, fig. 29 g, h.
Dactylonia ascidicola; Fransen, 2003: 284 (*partim*).

Dactylonia sp. Bruce, 2003b: 305.

DIAGNOSIS. Generally closely similar to *Dactylonia ascidicola* Borradaile, 1898. Differs from that species, and all others of the genus, in the presence of a minute comb with fine pectinations on the ventral proximal margin of the unguis of the third ambulatory pereiopod (Bruce, 1996, fig. 29g), and a propod without distal or ventral spines (Bruce, 1996, fig. 29g). The ventral accessory denticles of the ambulatory corpus also are distally swollen (Bruce, 1996, fig. 6h) and without microdenticulations, rather than distally truncate and microdenticulate as in *P. ascidicola* (Fransen, 2002, fig. 191b,c). The unguis is also without distodorsal scales, which are present in *D. ascidicola.*

TYPES. Ovigerous ♀ holotype, ♂ allotype, MNHN-Na 12889, from Neokumbi Reef, New Caledonia, 20-40 m.

ETYMOLOGY. In honour of Lancelot Alexander Borradaile (1872-1945), formerly Lecturer in Zoology in the University of Cambridge, Fellow, Dean and Lecturer of Selwyn College, who published in 1917 the first major monograph *On the Pontoniinae,* in recognition of his major contribution to pontoniine shrimp studies.

HOST. *Ascidea sydneiensis* Stimpson, 1854.[Ascidiacea]

DISTRIBUTION. Known only at type locality.

REMARKS. The absence of spines from the ambulatory propod is a feature that requires a slight modification for the generic diagnosis for its inclusion.

Dactylonia franseni was described on the basis of a single example from Mombasa, Kenya (Bruce, 2003b). It was considered that the unusual rostrum was probably abnormal. A further example from the same locality has now become available, which enables the normal rostrum to be described.

Dactylonia franseni Bruce, 2003b

Pontonia sp. Bruce, 1976b: 483.
Dactylonia franseni Bruce, 2003b: 299, figs 1-4.

MATERIAL. 1♂, Nyali, Mombasa Old Port, Kenya, AJB #2107, 6 m, 15 February 1974, coll. J. Wood, scuba, from bridge mooring chains, RMNH D 50658.

REMARKS. The rostrum is narrow, about three times longer than the basal width, scarcely covering the bases of the eyestalks, reaching to about 0.5 of the length of the basal antennular segment, very acute in lateral view, dorsal carina strongly convex, ventral margin straight, without distal setae.

HOST. Not recorded, presumably as for holotype, *Ascidia sydniensis*. Colouration noted as transparent, with scattered large yellow chromatophores all over body and appendages.

MEASUREMENTS (mm). Carapace length, 2.3; carapace and rostrum, 3.3; second pereiopod, major chela, 5.0; minor chela, 4.0.

DISTRIBUTION. Known only from the type locality, Nyali, Mombasa, Kenya.

(2) FURTHER REMARKS ON SPECIES OF *PONTONIDES* CALMAN

The few species of *Pontonides* Calman, 1939 are not well known. In addition to the species reported on above, only two other species have so far been described in the literature from the Indo-West Pacific region, *Pontonides maldivensis (*Borradaile, 1915), and *P. unciger* Calman, 1939.

Pontonides maldivensi may be readily distinguished from all other known species by the form of the lateral rostral carinae. In Borradaile's illustration (Borradaile, 1917, pl. 57, fig. 28b) this appears strongly and smoothly concave. Actually, in the type material, it is weakly bi-concave, with a slight angulation between the two curved edges, and is without any trace of a tooth. This indicates a closer resemblance to the other species of the genus than was apparent.

Pontonides unciger, as described by Calman (1939), is a species with an acute tooth on the lateral rostral carinae, a smooth carapace and abdomen; the eyestalk without a dorsal tubercle, the second maxilliped with a number of fusiform setae along the proximal dorsal margin of the endopod; similar setae present on the third maxilliped but without such setae on the second pereiopods. These features all contrast with the *Siboga* specimen described as *P. unciger* by Holthuis (1952), which is now reported as a new species.

The holotype of *P. unciger,* BMNH 1939.10.9.306, has been re-examined. It is mainly intact, but now lacking both second pereiopods. Dissected antennae, mouthparts and first pereiopod on the right side are missing. It can be confirmed that the carapace and abdomen are smooth and the eye lacks a dorsal tubercle. It may be noted that the third sternite is with a broad based, laterally concave, distally acute transverse plate and the pleuron 4 and 5 both bear a small but distinct acute posterior tooth. The

pereiopods and telson are sparsely setose. About 20 ova are present.

Many records of *P. unciger* should be re-assessed. Some of these probably do not belong to *P. unciger* s.str. *Pontonides unciger* has been reported from: Madagascar: Nosy Tanga (?) (Bruce, 1978b); Seychelle Islands: Desroches Atoll,15 m; Bird Island, 20 m; Poivre Atoll, 15 m (Fransen,1994); Maldive Islands: North Nilandu Atoll, Genego Island, 50 m (*Pontonides* ? *unciger* Duris, 1990); Queensland: Broadhurst Reef, 5 m (Zann, 1980); Wistari Reef (?) (Bruce, 1983); Taiwan: Kentin National Park, Ping-Tong (Jeng, 1998); Japan: Amakusa Island (Kikuchi & Miyake, 1978); Hawai'i: no locality (Gosliner, et al., 1996). There are also many photographs of the same or a very similar shrimp in non-scientific publications, often on antipatharian hosts such as *Cirripathes anguinis*. The species with two broad transverse yellow bands across the carapace, often referred to *P. unciger,* such as in Debelius (2001: 194) is a distinct innominate species.

The identification of the specimens, from Mombasa, Kenya (Bruce, 1976b), can be confirmed. The specimens were found in association with unidentified bushy antipatharian hosts, from 26-30 metres. The *Pontonides* specimens from Takuata, Marquesas Islands have been excellently described and illustrated in considerable detail by Monod (1979), who confirms the presence of fusiform setae (which he suggests may be aesthetascs) on the second and third maxillipeds, so that these specimens also may be safely attributed to *P. unciger* Calman. However, he does not mention or illustrate a tooth on the fifth pleuron. The single host is not identified but as about 30 specimens were obtained, it is likely to have been a bushy specimen and not a *Cirripathes.*

Pontonides is represented in the eastern Pacific region by *P. sympathes* De Ridder & Holthuis, 1979, from the Galapagos Islands. This species resembles the species named below in having a distinct dorsal tubercle on the eyestalk but differs in having a very short rostrum with dentate lateral carinae.

Pontonides sibogae sp. nov.

Pontonides unciger; Holthuis, 1952: 249, figs 108-112; Fujino & Miyake, 1969: 87, fig. 1.

DIAGNOSIS. Lateral rostral carinae angular, without conspicuous acute lateral tooth, branchiostegite and pleura with areolate depressions, posterior pleura without posteroventral teeth, eyestalk with dorsal tubercle, second and third maxillipeds without fusiform setae, fusiform setae present along dorsal margin of ischium of second pereiopods.

HOLOTYPE. ♀, ZMA De204639 from Siboga Station 49a, Sape Strait, Indonesia, 23° 30'S, 119° 4.6'E, 70 m, 14 April 1899, ZMA De 204639.

ETYMOLOGY. After the Netherlands research vessel *Siboga*, which supported the 1899-1900 expedition to Indonesia during which this species was collected..

SYSTEMATIC POSITION. Most closely related to *Pontonides unciger,* this species is readily distinguished by the characters provided in the diagnosis above.

HOST. Not recorded.

DISTRIBUTION. Known with certainty only from the type locality and Japan.

REMARKS. The specimens described by Fujino & Miyake (1969) are reported to agree exactly with the description of Holthuis (1952) and are therefore considered to belong to *P. sibogae* rather than *P. unciger* Calman. The second pereiopods are particularly variable, but most of those illustrated show the presence of the characteristic fusiform setae on the ischium. They were found in association with the scleractinian coral *Dendrophyllia ijimai* Yabe, collected from 54-72 m, at a similar depth to the holotype.

A KEY TO THE INDO-WEST PACIFIC SPECIES OF *PONTONIDES* BORRADAILE, 1917

1. Body surface distinctly areolated; supraorbital carina dentate; eye with dorsal tubercle, second pereiopod ischium with fusiform setae. . . . . *P. sibogae* sp. nov.
   Body surface not strongly areolate; eye without dorsal tubercle, second pereiopod ischium without fusiform setae 2
2. Supraorbital carina generally convex, without distinct tooth, extending almost to rostral tip, with lateral tooth obsolete; third maxilliped without fusiform setae, second pereiopod ischium with fusiform setae; minor chela with fingers 1.5 times longer than palm; fourth and fifth pleura rounded . . . . *P. maldivensis* (Borradaile)
   Lateral margins of supraorbital carinae angular or convex 3
3. Supraorbital carina subrectangular, without acute tooth, rostrum not exceeding level of tip of stylocerite; third maxilliped only with ischial fusiform setae; second pereiopods small, subequal; fifth pleuron with small tooth at most . . . . . *P. loloata* sp. nov.
   Supraorbital carina with acute tooth 4

4. Rostrum reaching to distal margin of proximal segment of antennular peduncle, distally distinct from lateral carinae; second pereiopods markedly unequal, densely covered with short erect setae, minutely denticulate; minor second pereiopod with fingers subequal to palm length; fifth pleuron with very large posterodorsal tooth, fourth pleuron rounded . . . . . *P. asperulatus* sp. nov.

Rostrum not reaching to distal margin of proximal segment of antennular peduncle, lateral carinae extending to rostral tip; major second pereiopod chela sparsely covered with long setae, minor chela with fingers about half palm length, minutely denticulate; fourth and fifth pleura weakly armed *P. unciger* Calman

(3) AN ANNOTATED CHECKLIST OF THE PAPUA NEW GUINEAN PONTONIINE SHRIMP FAUNA

The pontoniine fauna of Melanesia as a whole has been summarized by De Grave (2001). The more restricted fauna of PNG is summarized below. The pontoniine shrimp fauna is raised to 64 taxa, with four species of uncertain specific status, belonging to 32 genera. *Periclimenes* is the largest genus, with 35 species, more than half the total number. Most are well known Indo-West Pacific coral reef species and probably represent only a small fraction of the total pontoniine fauna present.

Anchiopontonia hurii (Holthuis, 1981)
Hansa Bay, 9-19 m, in *Spondylus varius* (De Grave, 1999)

Anchistus australis Bruce, 1977
Hansa Bay, 5-15 m, in *Tridacna gigas, T. squamosus* (De Grave, 1999)

Anchistus custoides Bruce, 1977
Hansa Bay, 6-15 m, in *Pinna bicolor, Atrina vexillum* (De Grave, 1999)

Anchistus custos (Forsskål, 1775)
Hansa Bay, 19 m, in *Pinna bicolor* (De Grave, 1999)

Anchistus demani Kemp, 1922
Hansa Bay, 3-6 m, in *Tridacna squamosa, T. maxima* (De Grave, 1999)

Anchistus miersi (De Man, 1888)
Dobu, D'Entrecasteaux Islands (Borradaile, 1898). Hansa Bay, 3-19 m, in *Magnavicula penguin, Tridacna maxima* (De Grave,1999)

Apopontonia dubia Bruce, 1981
Davit Wreck, Hansa Bay, 10 m (De Grave, 2000)

Apopontonia falcirostris Bruce, 1976
Laing Island lagoon, Hansa Bay, 5-25 m, in *Xestospongia testudinaria* (De Grave, 2000)

Colemonia litodactylus gen. et sp. nov. Above.

Conchodytes biunguiculatus Paulson, 1875
Hansa Bay, 7m, in *Streptopinna saccata* (De Grave, 1999)., Duangit, Hansa Bay, and Potsdam Islands and Purar Island reef, 10-45 m (De Grave, 2000)

Conchodytes meleagrinae Peters, 1852. Above.

Conchodytes monodactylus Holthuis, 1952
Hansa Bay, 20 m, in *Magnavicula pinguin* (De Grave, 1999)

Coralliocaris superba (Dana, 1852)
Mast Wreck, Hansa Bay, 3 m (De Grave, 2000)

Coralliocaris viridis Bruce, 1974
Madang (Morgan, 1988).

Dactylonia ascidicola (Borradaile, 1898)
Laing Island, Hansa Bay (De Grave, 2000).

Dasycaris zanzibarica Bruce, 1973. Above.

Exoclimenella sibogae (Holthuis, 1952)
Davit Wreck, Hansa Bay, 10 m, (De Grave, 2000); Hansa Bay, Laing Island, 15 m, in *Seriatopora hystrix* (De Grave, 2000).

Exoclimenella maldivensis Duris & Bruce, 1995
Laing Island, Hansa Bay; Wanginam Bay, 15 m, in *Seriatopora hystrix* (De Grave, 2000)

Exoclimenella aff. *maldivensis.* See above.

Fennera chacei Holthuis, 1951
Awar Wreck; Laing Island; Davit Wreck, Hansa Bay, 6-10 m, in *Pocillopora damicornis* (De Grave, 2000).

Hamodactylus boschmai Holthuis, 1952
Loloata Island (Coleman, 1998).

Hamodactylus noumeae Bruce, 1970
Laing Island, Hansa Bay, 5 m, in *Pocillopora damicornis,* (De Grave, 2000).

Hamopontonia corallicola Bruce, 1970
Loloata Island (Coleman, 1998). Laing Island, Hansa Bay, to 6 m, on *Heliofungia actiniformis,* (De Grave, 1998).

Harpiliopsis beaupresii (Audouin, 1825)
Laing Island, Hansa Bay, 5 m, in *Pocillopora damicornis*, (De Grave, 2000).

Harpiliopsis depresssa (Stimpson, 1860)
Madang (Morgan, 1988). Laing Island, Hansa Bay, 5-15 m, in *Pocillopora damicornis, Seriatopora hystrix,* (De Grave, 2000).

Harpiliopsis spinigera (Ortmann)
Laing Island; Mast Wreck, Hansa Bay; Potsdam Island, 3-10 m, in *Pocillopora damicornis, Stylophora pistillata* (De Grave, 2000).

Harpilius lutescens Dana, 1852
Laing Island, Hansa Bay, in *Pocillopora damicornis* (!!) (De Grave, 2000).

Ischnopontonia lophos (Barnard, 1962)
Laing Island, Hansa Bay, 7-20 m, in *Galaxea fascicularis, Acrhelia horrescens* (De Grave, 2000).

Jocaste japonica (Ortmann, 1890)
Laing Island; Mast Wreck, Hansa Bay, 3-15 m, in *Acropora* sp., (De Grave, 2000).

Jocaste lucina (Nobili, 1906)
Laing Island, Hansa Bay, 5-10 m, in *Pocillopora damicornis, Acropora* sp., (De Grave, 2000).

Kemponia aff. *agag.* Above.

Kemponia amymone (De Man, 1902)
Sisimangum, Hansa Bay, 5-6 m (De Grave, 1999). Laing Island; Awar Wreck Hansa Bay,; 3-15 m; in *Acropora* sp., *Seriatopora hystix, Pocillopora damicornis* (De Grave, 2000).

Kemponia elegans (Paulson, 1875)
Laing Island, Hansa Bay, intertidal (De Grave, 2000).

Kemponia ensifrons (Dana, 1852)
Laing Island; Duangit reef; Awar village; Hansa Bay, intertidal to 35 m (De Grave, 2000).

Kemponia grandis (Stimpson, 1860)
Laing Island; Duangit reef, Hansa Bay; Purar Island reef; intertidal to 15 m; (De Grave, 2000). .

Kemponia kororensis (Bruce, 1977)
Laing Island, Hansa Bay, to 10m, on *Heliofungia actiniformis* (De Grave, 1998).

Kemponia lacertae (Bruce, 1992)
Laing Island, Hansa Bay, 15 m (De Grave, 2000).

Kemponia longirostris (Borradaile, 1915)
Beagle Bay (as *Palaemonella rotumana*), (Nobili, 1899).

Kemponia platycheles (Holthuis, 1952)
Laing Island, Hansa Bay, 15m; in *Seriatopora hystrix* (De Grave, 2000).

Kemponia seychellensis (Borradaile, 1917)
Beagle Bay (as *Periclimenes tenuipes*), (Nobili, 1899).

Kemponia tenuipes (Borradaile, 1898)
Ralun, New Britain (Borradaile, 1900). Loloata Island (Coleman, 1998). Laing Island, Hansa Bay, 10-30 m (De Grave, 2000).

Manipontonia psamathe (DeMan, 1902). Above.

Odontonia sibogae (Bruce, 1972)
Laing Island, Hansa Bay, (De Grave, 2000).

Onycocaridella monodoa (Fujino & Miyake, 1969)
Laing Island, Hansa Bay, 10 m, (De Grave, 2000).

Orthopontonia ornata (Bruce, 1970)
Davit Wreck; Sushi Maru Wreck; Mast Wreck, Hansa Bay, (De Grave, 2000).

Palaemonella pottsi Borradaile, 1915
Hansa Bay, Laing Island; Duangit reef; 1-30 m (De Grave, 2000).

Palaemonella pusilla Bruce, 1975
Madang (Bruce, 2002).

Palaemonella rotumana (Borradaile, 1898)
Beagle Bay (Nobili, 1899, as *Periclimenes vitiensis*). Laing Island; Davit Wreck; Duangit reef; Purar Island reef, Hansa Bay; Potsdam Island; 3-45 m (De Grave, 2000).

Paranchistus armatus (H.- M. Edwards, 1837)
New Ireland (H. Milne Edwards, 1837). Hansa Bay, in *Tridacna gigas* (De Grave, 1999).

Paranchistus pycnodontae Bruce, 1978
Hansa Bay, 9-10 m, in *Hyotissa hyotis, Magnavicula penguin* (De Grave, 1999).

Periclimenaeus bidentatus Bruce, 1970
Mast Wreck; Hansa Bay, 8m, in sponges (De Grave, 2000).

Periclimenaeus nobilii Bruce, 1974
Laing Island, Hansa Bay, (De Grave, 2000).

Periclimenella spinifera (De Man, 1902)
Beagle Bay, (as *Periclimenes tridentata*), (Nobili, 1899). Laing Island; Hansa Bay, 3-10 m (De Grave, 2000).

Periclimenes affinis (Zehntner, 1895)
Wanginam reef; Duangit reef"; Laing Island; Hansa Bay, 6-30 m (De Grave, 2000).

Periclimenes amboinensis (DeMan, 1888). Above.

Periclimenes attenuatus Bruce, 1971
Laing Island, Duangit Reef, Hansa Bay, 1-15 m, on crinoids (De Grave, 2000).

Periclimenes brevicarpalis (Schenkel, 1902)
Madang (Morgan, 1988). Loloata Island (Coleman, 1998), Milne Bay (Coleman, 2000). Laing Island; Hansa Bay, 1-5m; on *Macrodactyla doreensis* (De Grave, 2000).

Periclimenes ceratophthalmus Borradaile, 1915. Above.

Periclimenes commensalis Borradaile, 1915
Duangit reef; Wanginam reef; Hansa Bay, 3-20 m; on crinoids (De Grave, 2000).

Periclimenes grandidens sp. nov. Above.

Periclimenes holthuisi Bruce, 1969
Kranket Island, Madang (Bruce, 1977). Loloata Island (Coleman, 1998). Duangit reef, Hansa Bay, 20 m (De Grave, 2000).

Periclimenes aff. *holthuisi* Bruce, 1969. Above.

Periclimenes imperator Bruce, 1967
Loloata Island (Coleman, 1998). Milne Bay, on *Risbecia tryoni*; Tufi (Debelius, 1999). Awar; Laing Island; Bisal Paap reef, Hansa Bay, 5-30 m; on *Stichopus variegatus, Euapta godeffroyi, Hexabranchus sanguineus* (De Grave, 2000).

Periclimenes incertus Borradaile, 1915. Above.

Periclimenes inornatus Kemp, 1922 Above.
Laing Island; Davit Wreck; Wanginam reef"; Bisal Paap reef; Hansa Bay, 6-30 m; on *Actinodendron plumosum; Heteractis magnifica* (De Grave, 2000).

Periclimenes kempi Bruce, 1969
Hansa Bay, Laing Island; Purar Island reef; 5-10 m; on soft corals (De Grave, 2000).

Periclimenes madreporae Bruce, 1969
Hansa Bay, Laing Island; Duangit reef; 3-7 m; in *Pocillopora. damicornis* (De Grave, 2000).

Periclimenes magnificus Bruce, 1979. Above.

Periclimenes ornatus Bruce, 1969
Hansa Bay, Laing Island; on *Entacmaea quadricolor* (De Grave, 2000).

Periclimenes perlucidus Bruce, 1969
Hansa Bay, Duangit reef, 35 m; *Dendronephthea* sp. (De Grave, 2000).

Periclimenes sarasvati Okuno, 2002
Without precise locality (Debelius, 1999, *fide* Okuno, 2002).

Periclimenes tenuis Bruce, 1969
Hansa Bay, Duangit reef, 20 m; on crinoids (De Grave, 2000).

Periclimenes venustus Bruce, 1990. Above.

Periclimenes sp. cf. *venustus* Debelius, 1999
Milne Bay (Debelius, 1999).

Periclimenes watamuae Bruce, 1976

Hansa Bay, Laing Island, 10 m, on *Heliofungia actiniformis* (De Grave, 1998); 10 m; on *Porites* sp., *Lobophyllia hemprichii* (De Grave, 2000).

Philarius gerlachei (Nobili, 1905)
Hansa Bay, Laing Island, Sushi Maru Wreck; 11-15 m, in *Acropora* spp, (De Grave, 2000).

Philarius imperialis (Kubo, 1940)
Hansa Bay, Laing Island; Awar Wreck; 6-20 m; in *Pocillopora eydouxi, Acropora* sp. De Grave, 2000).

Pliopontonia furtiva Bruce, 1973
Loloata Island (Coleman, 1998).

Pontonides asperulatus sp. nov. Above.

Pontonides loloata sp. nov. Above.

Pontoniopsis comanthi Borradaile, 1915. Above.

Stegopontonia commensalis Nobili, 1906
Loloata Island (Coleman, 1998). Hansa Bay, Laing Island, 10 m, on *Diadema setosum* (De Grave, 2000).

Thaumastocaris streptopus Kemp. Above.

Tuleariocaris zanzibarica Bruce, 1967
Bougainville Island, Kieta (Bruce, 1967).

Vir colemani Bruce, 2003a. Above.

Vir orientalis (Dana, 1852)
Laing Island; Hansa Bay, 7-20 m; in *Acropora* spp. (De Grave, 2000).

Vir philippinensis Bruce & Svoboda, 1984. Above.

ACKNOWLEDGEMENTS

I am most grateful to Neville Coleman, for the opportunity to report on this interesting shrimp collection and for the use of his excellent photographs. K. Wouters (Koninlijk Belgisch Instituut voor Natur-wetenschappen, Brussels) kindly enabled me to examine the *Pontonides* specimens from Hansa Bay and Miranda Lowe provided the opportunity for the re-examination of the *Pontonides unciger* holotype. J.N.A. Hooper kindly identified the phloeodictyid sponge host. Sammy De Grave and Charles Fransen provided many helpful suggestions on the draft manuscript. This study was facilitated by support from the Australian Biological Resources Study.

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