

Pontoniine Shrimps from the Great Astrolabe Reef, Fiji¹

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THE PONTONINE SHRIMP FAUNA of the Astrolabe reef system has not received any previous attention, and the small collection of shrimps made during the course of a visit by the Western Society of Naturalists in July 1978 has provided records of several species of interest to the western Pacific region as a whole. The island of Ndravuni lies on the Great Astrolabe Reef at 18°44.5' S, 178°30.0' E, and is 45 mi almost due south of Suva, Viti Levu, Fiji. Most specimens were obtained from a fringing reef at 1–2 m depth and a water temperature of 25°C. The specimens are deposited in the collections of the National Museum of Natural History, Washington, D. C.

In the discussion below, CL refers to the postorbital carapace length. Full synonymies are generally to be found in Holthuis (1952).

SPECIES LIST

1. *Periclimenes soror* Nobili, 1904
2. *Periclimenes commensalis* Borradaile, 1915
3. *Periclimenes inornatus* Kemp, 1922
4. *Philarius gerlachei* (Nobili, 1905)
5. *Ischnopontonia lophos* (Barnard, 1962)
6. *Platycaris latirostris* Holthuis, 1952
7. *Paratypton siebenrocki* Balss, 1914
8. *Coralliocaris superba* (Dana, 1852a)
9. *Jocaste japonica* (Ortmann, 1890)
10. *Jocaste lucina* (Nobili, 1901)
11. *Anchistus australis* Bruce, 1977
12. *Pontoniopsis comanthi* Borradaile, 1915

Periclimenes soror Nobili, 1904

RESTRICTED SYNONYMY:

Periclimenes soror Nobili, 1904:232; Gordon, 1939:395–400, figs. 1–3; Bruce, 1976 (1978):299–306, figs. 1–6.

Periclimenes (Periclimenes) soror; Holthuis, 1952:9, 51–53, fig. 17, table 1; 1959:194–195.

MATERIAL EXAMINED: One ovigerous ♀; CL 2.0 mm; at 40 m; Collected by L. Marsh.

HOST: *Choriaster granulosus* Lütken (Asteroidea).

COLORATION: Deep purple, uniform.

REMARKS: The rostral dentition was 11/0. The specimen is as previously described. The species has been recorded earlier in association with this host, but from shallow water, at only 1.2 m.

DISTRIBUTION: Type locality: Djibouti, Gulf of Aden. Known throughout the Indo-West Pacific region and also from Taboga Island, Panama. Previously reported from the Fiji Islands (Bruce 1972).

Periclimenes commensalis Borradaile, 1915

RESTRICTED SYNONYMY:

Periclimenes (Cristiger) commensalis Borradaile, 1915:211; Holthuis, 1952:8, 53–56, figs. 18, 19; Monod, 1976:145–147, figs. 45–51.

Periclimenes commensalis; Bruce, 1971:7–11, 27–30, fig. 2.

MATERIAL EXAMINED: One ovigerous ♀; CL 2.2 mm.

HOST: *Comanthus samoanus* A. H. Clark (Crinoidea).

COLORATION: Deep purple, almost black.

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REMARKS: The single example was found on the same host as the specimen of *Pontoniopsis comanthi* (see below). This species associates with a variety of crinoid host genera and has previously been found on *Comanthus parvicirrus* and *C. annulatus*. The association with *C. samoanus* represents a new host record. The specimen agrees with previous information.

DISTRIBUTION: Type locality: Murray Island, Torres Straits. Recorded from East Africa to New Caledonia. The present record extends the known range of this species to the east.

Periclimenes inornatus Kemp, 1922

RESTRICTED SYNONYMY:

Periclimenes (Ancylocaris) inornatus Kemp, 1922: 170, 191–194, figs. 43–46.

Periclimenes inornatus; Bruce, 1976a: 103–106, figs. 10, 11.

MATERIAL EXAMINED: One ovigerous ♀; CL 3.5 mm.

HOST: *Radianthus* sp. (Actiniaria).

COLORATION: Transparent, with pinkish tinge.

REMARKS: The single example has a rostral dentition of 7/1 and agrees fully with previous descriptions. The specimen has a comparatively well-developed eye, which extends far beyond the line of the lateral margin of the carapace in dorsal view [as in Seychelle Islands material from *Radianthus* (Bruce 1976a)], and not the small-sized eye reported in Palau Islands specimens from corals (Miyake and Fujino 1968). The rostrum does not exceed the antennular peduncle, and the carpus of the first pereopod is 1.46 times the length of the chela instead of subequal, as in the Palau material.

DISTRIBUTION: Type locality: Port Blair, Andaman Islands. Also known in western Indian Ocean, Kenya, Zanzibar, Comoro Islands, Seychelle Islands, Maldives Islands,

and South China Sea. The present record confirms the presence of Kemp's species in the western Pacific Ocean.

Philarius gerlachei (Nobili, 1905)

Figure 1A–C

RESTRICTED SYNONYMY:

Harpilius Gerlachei Nobili, 1905: 160; 1906: 45, pl. 4, fig. 10.

Harpilius gerlachei; Tattersall, 1921: 390, pl. 28, fig. 9; Kemp, 1922: 238–239, figs. 74–75.

Philarius gerlachei; Holthuis, 1952: 15, 152–153, fig. 69.

MATERIAL EXAMINED: One ovigerous ♀; CL 5.75 mm.

HOST: *Acropora tubicinaria* (Dana) (Scleractinia).

COLORATION: Pallid, with dark spots posterior to the antennal spine, a set of four dorsally on the anterior second abdominal somite, and a row of four across the pleura of second and third abdominal segments.

REMARKS: The male specimen was probably lost in the course of collection. The female has a rostral dentition of 5/1, and has a well-marked postorbital ridge. The second pereopods are subequal, and the cutting edges of the fingers are armed with a series of five small regular acute teeth. The carpus and merus are unarmed. This shrimp has not been previously recorded in association with *Acropora tubicinaria*.

DISTRIBUTION: Type locality: Arzana Island, Persian Gulf. Also known from Red Sea, western Indian Ocean, Great Barrier Reef, Solomon Islands, Marshall Islands, Gilbert & Ellice Islands, and Samoan Islands.

Ischnopontonia lophos (Barnard, 1962)

RESTRICTED SYNONYMY:

Philarius lophos Barnard, 1962: 242–243, fig. 2.

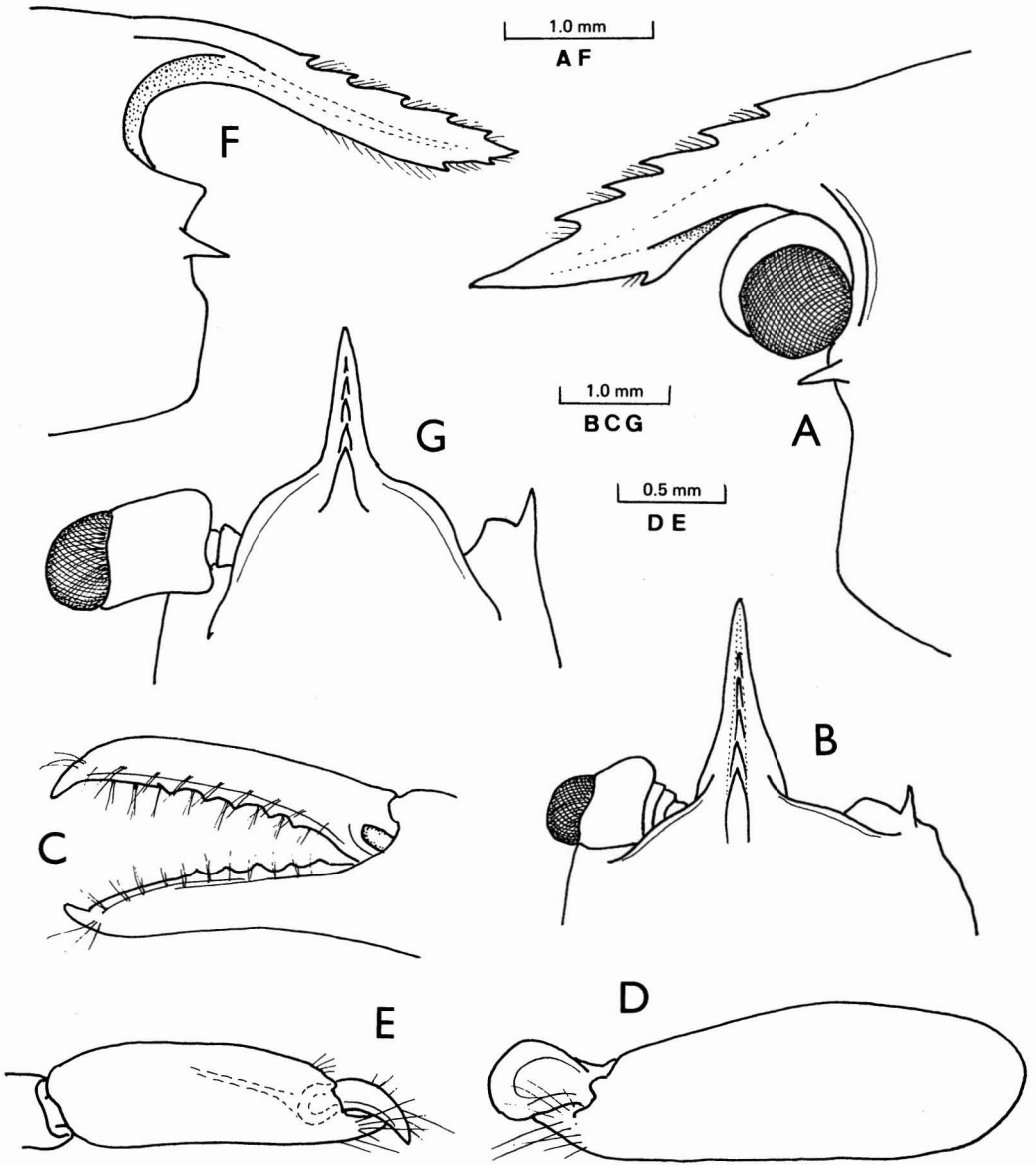


FIGURE 1. *Philarius gergachei* Nobili, ovigerous female; A, B, anterior carapace and rostrum, lateral and dorsal views; C, fingers of second pereiopod. *Paratypton siebenrocki* Balss, juvenile male; D, E, chela of second pereiopod, major and minor. *Coralliocaris superba* (Dana), ovigerous female; F, G, anterior carapace and rostrum, lateral and dorsal views.

Ischnopontonia lophos; Bruce 1966b: 585–589, figs. 1–5.

MATERIAL EXAMINED: One ♂, one ovigerous ♀ (damaged); CL ♂ 1.2 mm.

HOST: *Galaxea fascicularis* (L.) (Scleractinia).

COLORATION: Mainly transparent, with white dorsal patches on body.

REMARKS: The specimens were found in association with the alpheid *Racilius compressus* and the pontoniine *Platycaris latirostris*, as occurs typically elsewhere. The speci-

mens show no differences from those previously recorded. The male has a rostral dentition of 12/0.

DISTRIBUTION: Type locality: Inhaca Island, Mozambique. Common throughout western Indian Ocean reefs, and also known from Singapore and the Capricorn Islands, southern Great Barrier Reef. Not otherwise known from the western Pacific Ocean.

Platycaris latirostris Holthuis, 1952

RESTRICTED SYNONYMY:

Platycaris latirostris Holthuis, 1952:16, 173–176, figs. 85, 86; Bruce, 1966a:1–8, figs. 1–5.

MATERIAL EXAMINED: One second pereopod only.

HOST: *Galaxea fascicularis* (L.) (Scleractinia).

REMARKS: The second pereopods of *Platycaris latirostris* are highly characteristic and cannot be confused with those of any other species. The single second pereopod found in association with the normal coral host clearly indicates the presence of the species in the Astrolabe reef system. Presumably, the limb was autotomized as the result of the disturbance during the collection of the coral host, and the shrimp escaped.

DISTRIBUTION: Type locality: Flores, Lesser Sunda Islands. Commonly found in the western Indian Ocean in association with *Galaxea fascicularis*. Also known from Heron Island, southern Great Barrier Reef, but not otherwise recorded from the western Pacific Ocean.

Paratypton siebenrocki Balss, 1914

Figures 1D, E, 2

RESTRICTED SYNONYMY:

Paratypton siebenrocki Balss, 1914:84, fig. 4; 1915:30–31, figs. 18–25; Borradaile, 1921:1–9, figs. 1–11; Bruce, 1969:171–186, figs. 1–5, pl. 1; 1976a:120–124, figs. 19, 20; 1980:237–246, figs. 1–4.

MATERIAL EXAMINED: One ♂, one ♀; CL ♂ 1.6 mm, CL ♀ 2.4 mm.

HOST: *Acropora tubicinaria* (Dana) (Scleractinia).

COLORATION: Translucent white.

REMARKS: As normal, the pair of specimens were found in a bilocular cyst in the base of the coral host colony. These shrimps have not been previously recorded in association with this host, having been reported only from *Acropora hyacinthus* (Dana), *A. massawensis* von Marenzeller, *A. palmerae* Wells, *A. squamosa* Brooks, *A. squarrosa* (Ehrenberg), and *A. variabilis* (Klunzinger).

The specimens were considerably larger than the postlarval example described from La Réunion (Bruce, 1980). In the female, the second pereopods are of adult form, but moderately unequal. In the male, the second pereopods are also unequal, with the larger only of adult form. The smaller is intermediate with those described for the postlarva. In the male, the third pereopods are subequal and short; in the female, they are unequal, with the left greatly elongated. In the female, the carpus of the first pereopod is slightly swollen; in the male, they are normal. The tunnel formed by the abdominal pleura is particularly well marked in the female and less so in the male. In the female, the greatly enlarged and rigid pleura of the fourth and fifth abdominal segments completely enclose the sixth segment and the telson and uropods.

DISTRIBUTION: Type localities: Senafir, Koseir, Mersa Sheik, Red Sea; Jaluit, Samoa. Also known from Kenya, Zanzibar, Seychelle Islands, La Réunion, and the Great Barrier Reef.

Coralliocaris superba (Dana, 1852a)

Figure 1F, G

RESTRICTED SYNONYMY:

Oedipus superba Dana, 1852a:25; 1852b:573; 1855:12, pl. 37 fig. 2.
Coralliocaris superba; Holthuis, 1952:17, 188–191, fig. 92.



FIGURE 2. *Paratrypton siebenrocki* Balss, juvenile female.

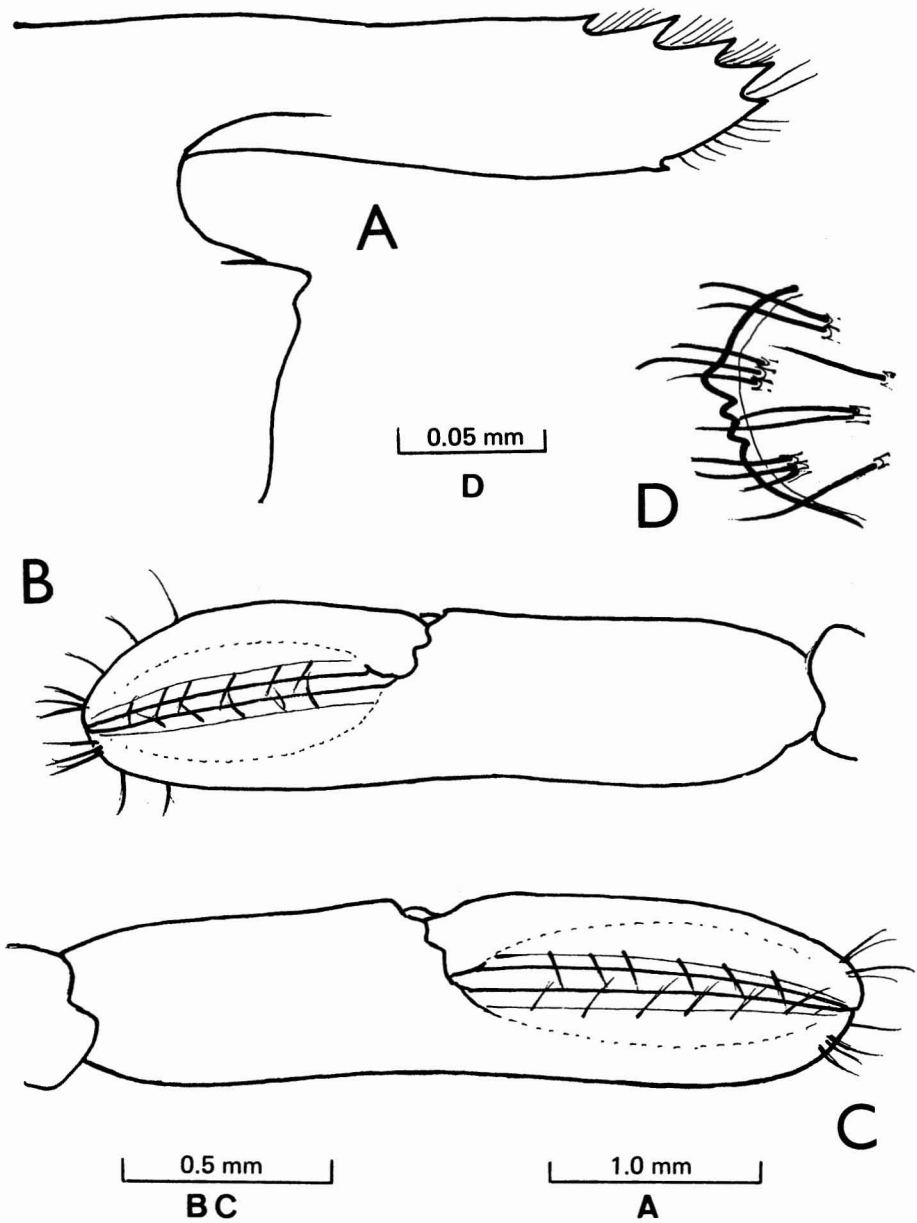


FIGURE 3. *A*, *Anchistus australis* Bruce, ovigerous female, anterior carapace and rostrum, lateral view; *B*, *Jocaste lucina* (Nobili) male, chela of minor second pereiopod; *C*, *Jocaste japonica* (Ortmann), male, chela of minor second pereiopod; *D*, *Pontiopsis comanthi* Borradaile, ovigerous female, tip of dactyl of minor second pereiopod.

MATERIAL EXAMINED: One ♂, one ovigerous ♀; CL ♂ 3.0 mm, CL ♀ 3.4 mm.

HOST: *Acropora tubicinaria* (Dana) (Scleractinia).

REMARKS: Although previously recorded from a wide range of *Acropora* spp. (15 species) as host corals (Bruce 1977a), this species has not been previously noted in

association with *A. tubicinaria*. The rostral dentition is 5/2 in the female and 4/2 in the male, and a well-developed orbit is present. The specimens agree with previously published descriptions.

DISTRIBUTION: Type locality: Tongatabu, Tongan Islands. Common and widespread throughout the Indo-West Pacific region, with the exception of the Hawaiian Islands. Also previously recorded from New Caledonia, Samoan Islands, and Marshall Islands.

Jocaste japonica (Ortmann, 1890)

Figure 3C

RESTRICTED SYNONYMY:

Coralliocaris superba var. *japonica*; Ortmann, 1890: 509.

Jocaste japonica; Holthuis, 1952: 17, 193–195, fig. 94; Patton, 1966: 279–280, fig. 3b; Bruce, 1974: 198–199, fig. 7.

MATERIAL EXAMINED: Two ♂, two ovigerous ♀; CL ♂ 3.0 and 2.5 mm; CL ♀ 3.1 and 3.0 mm.

HOST: *Acropora tubicinaria* (Dana) (Scleractinia).

REMARKS: The rostral dentition in the female is 4–5/1 and in the male is 4–5/2. All specimens have rounded supra orbital margins and a single tooth on the dactylus of the major second pereopods. The specimens are noticeably larger than the examples of *Jocaste lucina* present on the same host. The association with *Acropora tubicinaria* constitutes a new host record.

DISTRIBUTION: Type locality: Kagoshima, Japan. Also known from much of the Indo-West Pacific from East Africa to the Great Barrier Reef, New Caledonia, Caroline Islands, and Marshall Islands.

Jocaste lucina (Nobili, 1901)

Figure 3B

RESTRICTED SYNONYMY:

Coralliocaris lucina Nobili, 1901: 5; 1906: 57.

Jocaste lucina; Holthuis, 1952: 17, 193–195, fig. 94; Patton, 1966: 278–279, fig. 2a; Bruce, 1974: 199, fig. 8.

MATERIAL EXAMINED: One ♂, one ovigerous ♀ with ventral abdominal bopyrid parasite; CL ♂ 2.0 mm; CL ♀ 2.4 mm.

HOST: *Acropora tubicinaria* (Dana) (Scleractinia).

REMARKS: Both specimens have a rostral dentition of 5/2. The supraorbital margins are distinctly angulated, and the dactyls of the second pereopods have two small acute teeth on the cutting edge. It may be noted that in the present specimens of *Jocaste lucina*, the fingers of the minor second pereopod are shorter than the palm; in *J. japonica*, they are slightly longer. The specimens of *J. lucina* are distinctly smaller than the specimens of *J. japonica* from the same host. The female specimen carries only a single ovum in addition to the parasite. The association with *Acropora tubicinaria* represents a new host record.

DISTRIBUTION: Type locality: Eritrea. Common throughout the Indo-West Pacific region from the Red Sea to Tahiti.

Anchistus australis Bruce, 1977

Figure 3A

Anchistus australis Bruce, 1977b: 40, 56–62, figs. 7–9.

MATERIAL EXAMINED: One ovigerous ♀; CL 4.8 mm.

HOST: *Tridacna squamosa* Lamarck (Lamellibranchia).

COLORATION: Transparent whitish, strongly spotted on the body with large well-separated red-blue dots, more or less in transverse rows on the abdomen, less so on the carapace, and less well marked on the second pereopod chelae.

REMARKS: The single specimen has a rostral dentition of 4/1. The rostrum reaches to the middle of the intermediate segment of the antennular peduncle, but the dorsal teeth

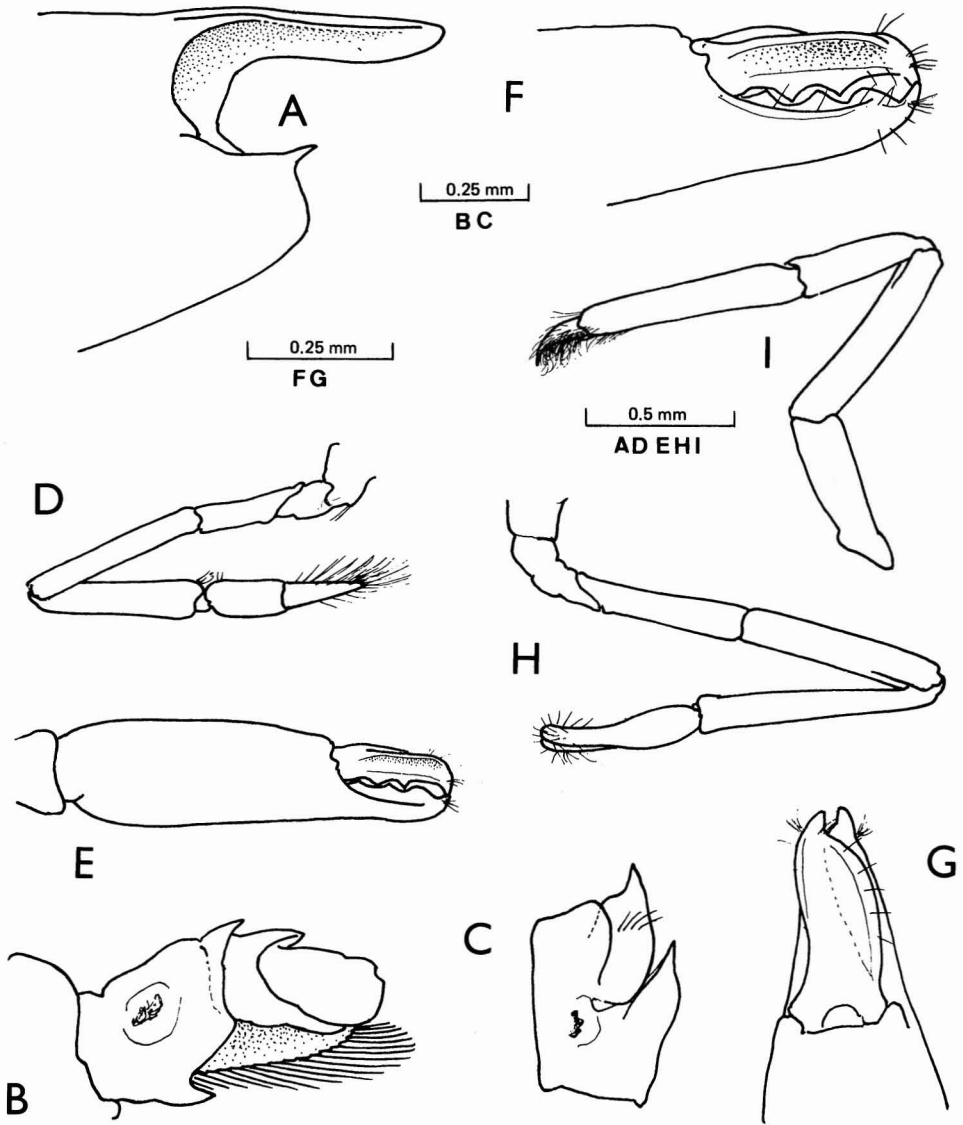


FIGURE 4. *Pontoniopsis comanthi* Borradaile, ovigerous female; A, anterior carapace and rostrum, lateral view; B, antennular peduncle and scaphocerite, medial aspect; C, proximal segment of antennular peduncle, dorsal view; D, first pereiopod; E, chela of major second pereiopod; F, G, fingers of chela of major second pereiopod, lateral and dorsal views; H, minor second pereiopod; I, third pereiopod.

are larger and more acute than previously described. In other respects the specimen conforms with the original specimens. The second pereiopods are subequal.

DISTRIBUTION: Type locality: Capre Cay, Swain Reefs, Queensland, Australia. Not

previously recorded other than from the Australian Great Barrier Reef.

Pontoniopsis comanthi Borradaile, 1915

Figures 3D, 4, 5

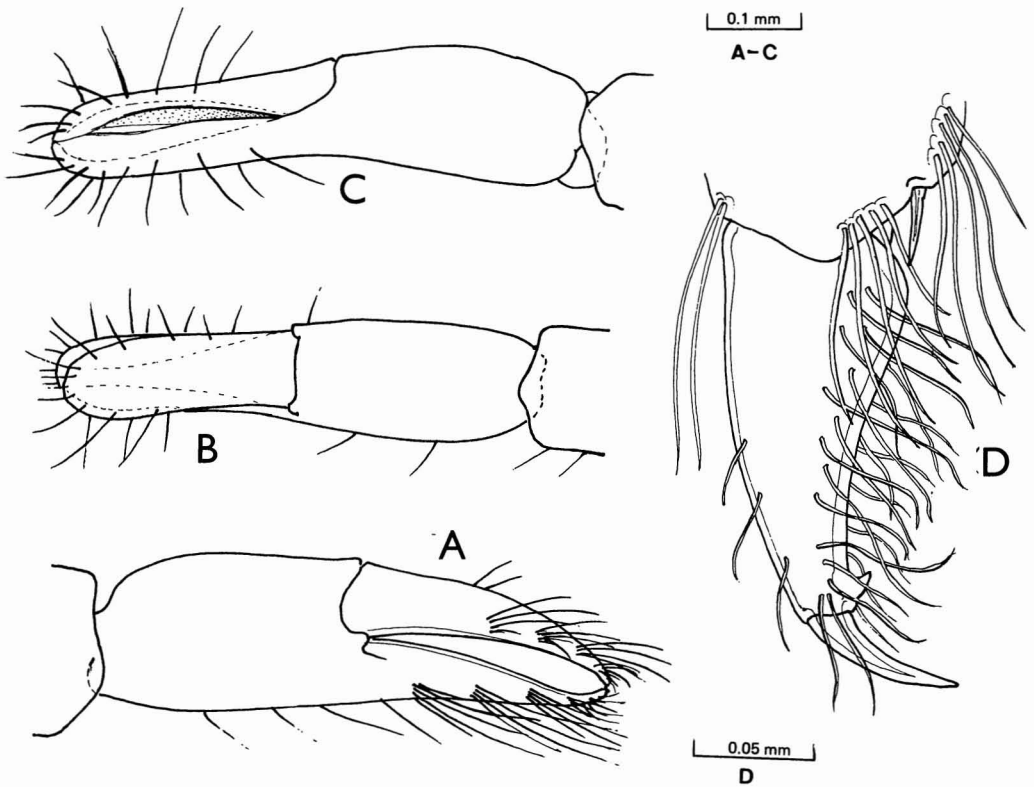


FIGURE 5. *Pontoniopsis comanthi* Borradaile, ovigerous female; A, chela of first pereiopod; B, C, chela of minor second pereiopod, dorsal and lateral views; D, dactyl of third pereiopod.

RESTRICTED SYNONYMY:

Pontoniopsis comanthi Borradaile, 1915: 213; 1917:377, pl. 57 fig. 27; Holthuis, 1952:15, 153–156, figs. 70–71; 1958:9–10, fig. 3; Bruce, 1976b:61, fig. 10.

MATERIAL EXAMINED: One ovigerous ♀; CL 1.2 mm.

HOST: *Comanthus samoanus* A. H. Clark (Crinoidea).

COLORATION: Dark purple-black.

REMARKS: The single example was found on the same host as the specimen of *Periclimenes commensalis*. The rostrum is less acute than shown in Holthuis' figure 70. The orbit is very well developed, with only a feeble indication of a posterior orbital notch. The proximal segment of the antennular peduncle is armed with a large acute ven-

tromedial tooth and the distolateral angle is a broad lobe with a large acute lateral tooth. The first pereiopod is normal, with the palm about twice as long as deep and rather compressed. The fingers are subequal to the palm length, slender, straight, tapering with feebly hooked tips, and without distinct cutting edges. Numerous groups of long serrate setae are present on the sides of the fingers. The coxa has a very small setose ventral process. The major second pereiopod is as previously described. The dactyl bears a well-developed medial flange and has two large acute teeth on the cutting edge. The fixed finger has a lateral cutting edge with two large acute teeth proximally and a rounded tooth distally. The tips of the fingers are strongly hooked. The carpus is unarmed, but the merus bears a large distoventral tooth. The minor second pereiopod is reduced and slender. The chela has the fingers subequal

to the palm, broad, distally spatulate and gaping, with entire cutting edges and small feebly developed teeth distally. The palm is slightly swollen, about twice as long as wide. The carpus is about 8.0 times longer than wide, feebly enlarged distally, and 1.5 times the length of the chela. The merus is unarmed, 5.8 times longer than wide, and about 0.83 of the length of the carpus. The ischium, basis, and coxa are normal. The ambulatory pereiopods are slender. The third has a slender dactyl, equal to about 0.3 of the propod length. The unguis is distinct, slender, and strongly curved, equal to 0.4 of the corpus, which is about 2.2 times longer than deep and strongly compressed and tapering strongly distally. The ventral border is sinuous, with a small preterminal recurved accessory tooth, and with large numbers of long filamentous setae that largely obscure the ventral border of the dactyl. The propod is about 5.2 times longer than deep, tapering feebly distally, unarmed except for a single small distoventral spine. The merus, ischium, basis, and coxa are normal, and fourth and fifth pereiopods are similar to the third.

The present specimen differs from Holthuis' specimen in the blunter rostrum; the more slender form of the first pereiopods and the minor second pereiopod; the expanded spatulate tips to the fingers; and the carpus clearly longer than the chela. The distoventral angle of the propod of the third pereiopod is provided with a small spine. As only a single example from the host from Ndravuni Island is available, these differences are provisionally attributed to individual variations.

The specimen carries only 19 ova, about 0.7 mm in length.

DISTRIBUTION: Type locality: Mabuaig, Torres Straits. Also reported from the Red Sea, East Africa, Indonesia, the Great Barrier Reef, and the Mariana and Gilbert Islands.

DISCUSSION

Of the twelve species recorded above, only one species, *Periclimenes soror*, of very wide-

spread Indo-West Pacific distribution, has been previously recorded from the Fijian region. Three of the species, *Periclimenes inornatus*, *Platycaris latirostris*, and *Ischnopontonia lophos*, are recorded from Oceania for the first time; and *Anchistus australis* is recorded for the first time outside Australian waters.

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