Some Pontoniine Shrimps from the Solomon Islands

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Abstract—Seven species of commensal pontoniine shrimps are recorded for the first time from the Solomon Islands. Five species, *Periclimenes lutescens, P. amymone, P. madreporae, Philarius gerlachei* and *Coralliocaris venusta* were associated with corals of the genus *Acropora*. *Periclimenes ceratophthalmus* was found on a crinoid. The single example of *Periclimenes commensalis* was found on a holothurian. This species is normally associated with crinoids and the holothurian is considered to represent a paratenic host only, as this common species has not been previously recorded in association with holothurians.

The caridean fauna of the Solomon Islands has been little studied and there appear to be no records of any pontoniine shrimp from this region in the scientific literature. Through the kindness of Mrs. Wendy Richards, a small collection of shrimps of this subfamily has been made available for study and the results are reported below. In the following report CL. refers to the postorbital carapace length of the specimen. The specimens have been deposited in the collections of the British Museum (Natural History), London.

Systematic Account

Periclimenes lutescens auct. (Fig. 1a–d)

RESTRICTED SYNONYMY:

?*Harpilius lutescens* Kemp, 1922, Rec. Indian Mus., **24**: 235–237, figs. 72–73.

Periclimenes lutescens Holthuis, 1952, Siboga Exped. Mon., *39 a*[10]: 12, 88–91, fig. 35.

MATERIAL EXAMINED: 1♂, 1 ovig. ♀, Uendara, Honiara, from *Acropora* sp. at 3 m, 12 December 1978, (no, 2854).

REMARKS: The pair of specimens correspond closely with the data provided by Kemp (1922). The rostrum in the male (CL. 5.4 mm) is relatively shallow and has seven dorsal and two ventral teeth, with the most distal dorsal tooth small and subterminal. The female (CL. 7.5 mm) has a deeper rostral lamina, with eight dorsal and two ventral teeth, with a small subterminal distal dorsal tooth. In the male a small

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postrostral tubercle is also present.

The sternite of the fourth thoracic sternite in the female is provided with a robust finger-like median process. In the male, the process is relatively longer, more slender, distinctly more acute and curved more anteriorly than in the female. The eighth sternite has a short stout median boss in the male.

Both specimens have the second pairs of pereiopods complete. These are subequal and similar in the female; similar and unequal in the male, with the larger chela much larger than those of the female.

The ambulatory pereiopods have a short robust propod, with dense rows of long simple setae arising from the distolateral border on either side of the dactyl. The distoventral region has some short transverse rows of setae and is devoid of spines. The dactyl is short and robust, strongly curved and with a distinct unguis. Dorsal and lateral sensory setae are absent.

DISTRIBUTION: The distribution of this species is rather unertain due to doubts over some of the earlier identifications and confusion with *P. consobrinus* De Man. Recorded from numerous localities in the Indian Ocean; the Red Sea; Japan and the Great Barrier Reef.

Periclimenes amymone De Man (Fig. 1e–i)

RESTRICTED SYNONYMY:

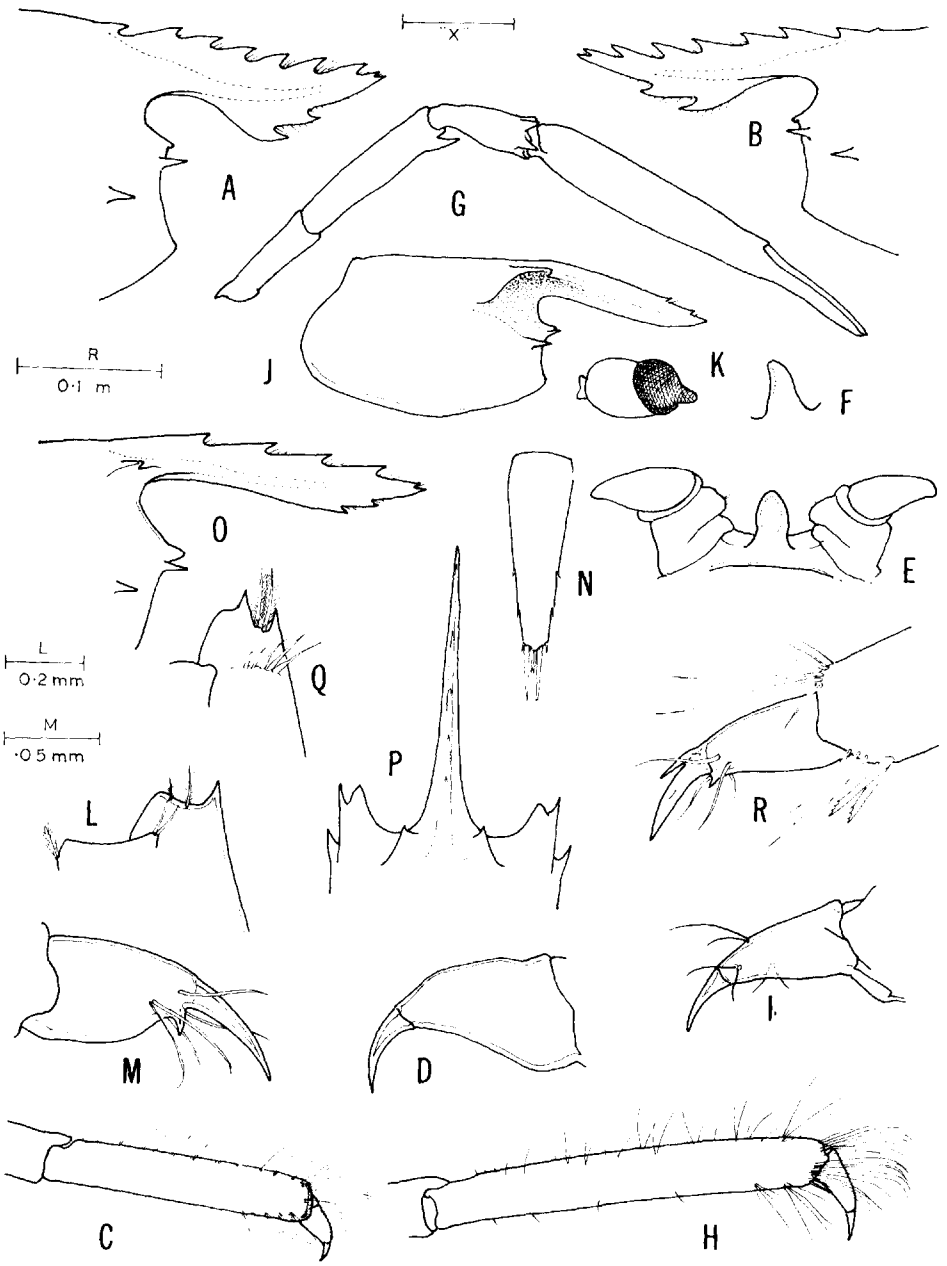
Periclimenes amymone De Man, 1902. Abh. Senckenb. naturf. Ges. **25**: 829–833, pl. 25, fig. 23.

MATERIAL EXAMINED: 11 spms. (2 ovig. ♀), Uendara, Honiara, 3 m, in *Acropora* sp., 12 December 1978, (no. 2860). 1 ovig. ♀, Pori Pori Island, New Georgia Island, in *Acropora*, 10 January 1978, (no. 2857).

REMARKS: The specimens correspond closely to previously published reports. Of the adult specimens, six have a rostral armament of $1/\frac{6}{1}$, and two $1/\frac{6}{2}$. One specimen, the largest (CL. 3.7 mm), has a dentition of $1/\frac{7}{2}$ and one juvenile specimen (CL. 1.4 mm) lacks the epigastric spine, having $0/\frac{6}{2}$.

All specimens are provided with a slender finger-like median process on the fourth thoracic sternite. In the males, the eighth somite is provided with a robust median process, which is only feebly represented in the females. This process is feebly

Fig. 1. *Periclimenes lutescens* auct. A, anterior carapace and rostrum of female. B, *idem*, male. C, propod and dactylus of third pereiopod. D, dactyl of third pereiopod. *Periclimenes amymone* De Man. E, fifth thoracic sternite, male, anterior aspect. F, median process of male fifth thoracic sternite, lateral aspect (anterior to left). G, second pereiopod. H, propod and dactyl of third pereiopod. I, dactyl of third pereiopod. *Periclimenes ceratophthalmus* Borradaile. J, carapace and rostrum. K, eyestalk, dorsal. L, distolateral angle of proximal segment of antennular peduncle.



M, dactyl of third pereiopod. N, telson. *Periclimenes commensalis* Borradaile. O, anterior carapace and rostrum, lateral aspect. P, idem, dorsal. Q, distolateral angle of proximal segment of antennular peduncle. R, distal propod and dactyl of third pereiopod. The scale "x" represents the following lengths: ABG, 2.0 mm; JKN, 0.1 mm; CEFHOP, 0.5 mm; DIQ, 0.25 mm.

concave anteriorly in males.

The second pereiopods are as described by De Man. For a species generally referred to the "*P. grandis*" species group (Kemp, 1922), which consists primarily of free-living micropredators, they are remarkably robust and show a general resemblance rather to the form of second pereiopod found in *P. lutescens* auct. or *P. consobrinus* De Man. *P. amymone* is the only species of the "*P. grandis*" group reported to have commensal habits and is an associate of a wide range of coral hosts (Patton, 1966; Bruce, 1977). The carpus is only about 0.42 of the palm length and is about 2.7 times longer than its greatest width. The propods of the ambulatory pereiopods also resemble those of *P. lutescens* and *P. consobrinus*, which are similarly without ventral spines and are distally setose. However, a single slender distoventral spine is present on the propod in *P. amymone*. The dactyls are comparatively short and strongly hooked in all three species also. In other members of the "*P. grandis* group", the propods are provided with numerous ventral spines and the dactyls are slender and feebly hooked. *P. amymone* therefore appears to represent the first stages in the morphological transition between free-living and commensal coral associated species of the genus *Periclimenes*.

DISTRIBUTION: Recorded from the Nicobar Islands, Singapore, Indonesia, the Great Barrier Reef, New Caledonia to Samoa.

Periclimenes ceratophthalmus Borradaile (Fig. 1j n)

RESTRICTED SYNONYMY:

Borradaile, 1915. Ann. Mag. nat. Hist., (8) **15**: 211.-Bruce, 1978, Crustaceana, **34**(3): 251 253, fig. 2.

MATERIAL EXAMINED: 1♂, 3♀, 1 juv. ♀, Ubdi. Harbour, Florida Island, on crinoid at 2 m., (no. 2858).

REMARKS: The larger female specimen (CL. 1.65 mm) has a rostral dentition 2/0 and the two other specimens (CL. 1.3, 1.05 mm) of 3/0. The corneal protuberance is moderately developed in the female, but smaller in the male and juvenile. The orbit is well developed, but deficient posterolaterally, (a feature not shown in Bruce, 1977, figs. 1a). The dorsal telson spines are small, and the accessory spines of the dactyls of the ambulatory legs are well developed, but less so than in the specimen illustrated from the Maldive Islands by Kemp (1922), but longer than the specimen from One Tree Island (Bruce, 1978).

The rostrum of this species shows considerable variation in armament. Borradaile's type specimen, probably a juvenile, had a dentition of 4/0. The specimens described by Kemp (1922) and Holthuis (1952) had 5/0, and the specimens from Palau, reported by Miyake and Fujino (1968) had $\frac{5-6}{1}$. These latter specimens show a rostral armament very similar to the related species *P. cornutus* Borradaile and *P.*

amboinensis De Man with a rostral dentition of $\frac{5-6}{1}$. In contrast, the specimens from the Seychelle Islands (Bruce, 1974) had $\frac{3-4}{0}$, from One Tree, 3/0 and the present specimens 2/0. The form of the orbit and supraorbital spines are not shown in Borradaile's figure of his specimen (Borradaile, 1917, pl. 54 fig. 9a).

In the largest specimen, the telson is slender, with two pairs of small dorsal spines situated at 0.6 and 0.8 of the telson length.

The species is always found in association with crinoids and has been recorded in association with four species of three different genera, *Lamprometra, Dichrometra* and *Stephanometra* (Bruce, in press).

DISTRIBUTION: The species is widely distributed from Kenya and Zanzibar, the Seychelle and the Maldive islands, Indonesia, Torres Straits, the Great Barrier Reef and Caroline Islands.

Periclimenes commensalis Borradaile (Fig. 1o–r)

RESTRICTED SYNONYMY:

Periclimenes (Cristiger) commensalis Borradaile, 1915, Ann. Mag. nat. Hist., (8) **5**: 211.

MATERIAL EXAMINED: 1 juv., SE of Honiara, 19 m, on a holothurian, 10 December 1978 (no. 2861).

REMARKS: The single specimen (CL. 1.2 mm) shows the closest resemblance to the example described and illustrated by Holthuis (1952). The rostrum has five dorsal teeth and two ventral teeth. The distolateral angle of the proximal segment of the antennule is bispinose. The cutting edges of the fingers of the second pereiopods are finely serrated and the distoventral spines of the propods of the ambulatory pereiopods are feebly denticulate distally. The corpus of the dactyls bears a small acute ventral accessory spine and the unguis a long slender dorsal accessory spine.

The supraorbital spines appear slightly less well developed than in Holthuis' specimen and not fully continuous with the lateral carina of the rostrum. The orbit is only feebly developed as a result.

Periclimenes commensalis is typically a commensal of crinoids and has been found in association with ten species of eight different genera (Bruce, in press). The present association must be considered only as paratenic hosts.

DISTRIBUTION: Recorded from Mozambique, Kenya, Zanzibar, Hong Kong, Lesser Sunda Islands, Caroline Islands, New Caledonia and north east Queensland.

Periclimenes madreporae Bruce (Fig. 2a–f)

RESTRICTED SYNONYMY:

Periclimenes madreporae Bruce, 1969, Zool. Meded. Leiden, **43**(20): 262–263.

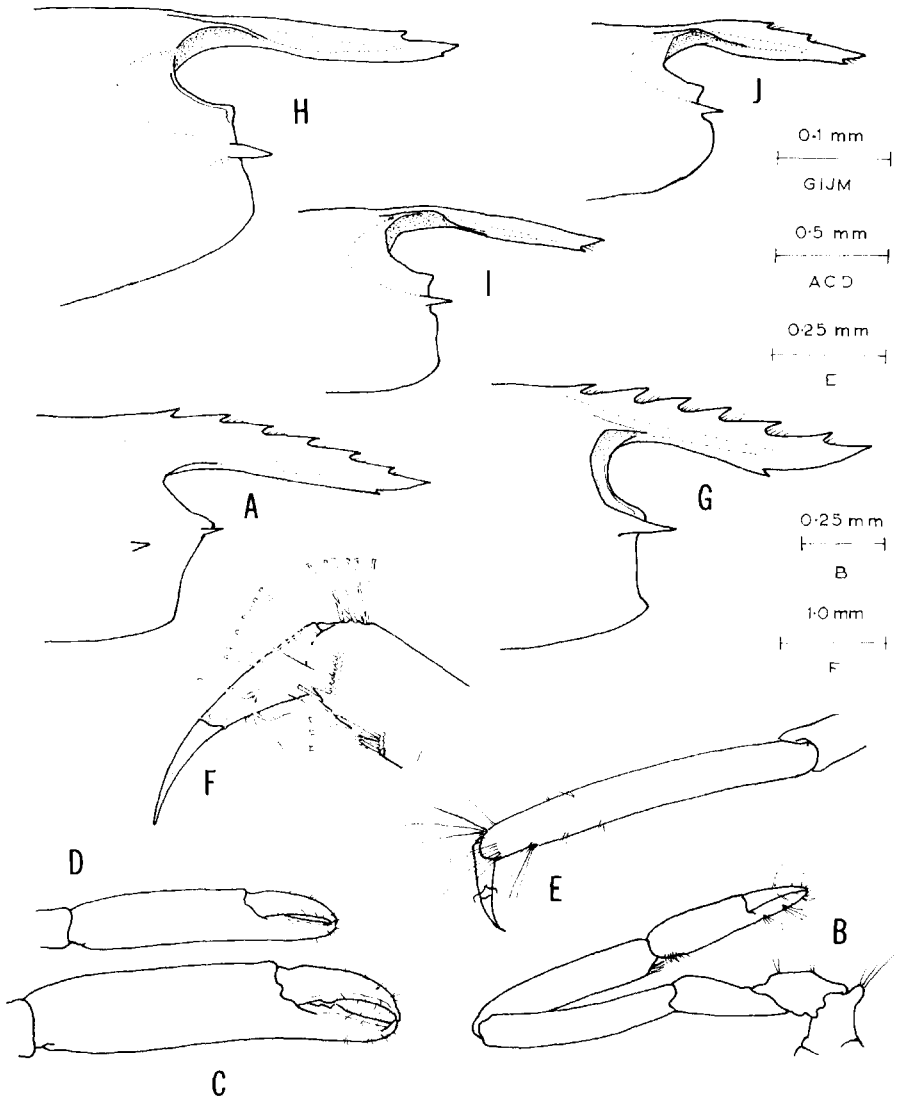


Fig. 2. *Periclimenes madreporae* Bruce. A, anterior carapace and rostrum, ovig. ♀. B, first pereiopod. C, chela of major second pereiopod. D, chela, minor second pereiopod. E, propod and dactyl of third pereiopod. F, dactyl of third pereiopod. *Philarius gerlachei* (Nobili), ovig. ♀. G, anterior carapace and rostrum. *Coralliocaris venusta* Kemp. H, anterior carapace and rostrum, ovig. ♀. I-J, idem, juveniles.

MATERIAL EXAMINED: 1 ♂, 1 ovig. ♀, Uendara, Honiara, on *Acropora* sp. at 3 m, 12 December 1978 (no. 2859).

REMARKS: The present material agrees closely with specimens from near the type locality and with the published information (Patton, 1966; Bruce, 1969). Both

specimens (CL. 1.2, 1.5 mm) have a rostral dentition of 6/1, as occurs in topotypical specimens. The first pereiopod is fairly robust, with carpus and merus subequal, both distinctly exceeding the length of the chela, which has slender, feebly spatulate fingers which are equal to about 0.6 of the palm length. The basis has a small ventromedian process with three distal setae. The fourth thoracic sternite bears a low transverse ridge with a small pair of short blunt submedian teeth. The second pereiopods show some variation and are probably asymmetrical. The major chela is robust, with the fingers equal to about half the palm length. The fingers bear small hooked tips and the cutting edges are armed with a single blunt proximal tooth on the dactylus opposing a pair of blunt teeth, of which the distal is larger, on the fixed finger. The minor chela is similar but less robust and with the fingers unarmed. The ambulatory pereiopods are slender, with the propod devoid of spines except for the very small peg like terminal and preterminal ventral spines. The dactylus is about 0.28 of the propod length. The unguis is feebly demarkated, equal to about 0.75 of the corpus length. The corpus has two pairs of well developed lateral setae.

This species is known to associate with a variety of corals, including also *Stylophora, Pocillopora, Seriatopora* and *Turbinaria* (Patton, 1966; Bruce, 1977).

DISTRIBUTION: Previously recorded only from the Capricorn Islands, or the southern Great Barrier Reef.

Philarius gerlachei (Nobili) (Fig. 2g)

RESTRICTED SYNONYMY:

Harpilius gerlachei Nobili, 1905, Bull. Mus. Hist. Nat. Paris, **11**: 160.

MATERIAL EXAMINED: 1 ovig. ♀, Furona Island, Santa Isabella, in *Acropora* sp. at 2 m, 2 January 1979 (no. 2856).

REMARKS: The single example agrees closely with the redescription of the species given by Kemp (1922), except that the rostrum is provided with six dorsal teeth, of which the first is situated on the carapace posterior to the orbital margin. The rim of the orbit is noticeably well defined. The carpus of the second pereiopod is unarmed and the merus bears only a feeble distoventral spine. The cutting edges of the fingers of the chelae are also feebly armed. Although adult, the specimen is very small, with a postorbital carapace length of 3.1 mm; total length about 11 mm.

The species is a characteristic associate of corals of the genus *Acropora* and has been reported in association with eight different species (Bruce, 1977). It is distinctly less common than *Coralliocaris superba, C. graminea* and *Periclimenes lutescens*.

DISTRIBUTION: Red Sea, Persian Gulf, Kenya, Zanzibar, Madagascar, Comoro Islands, Seychelle Islands southern India, Great Barrier Reef; Marshall, Gilbert and Samoan Islands.

Coralliocaris venusta Kemp (Fig. 2h–j)

RESTRICTED SYNONYMY:

Coralliocaris venusta Kemp, 1922, Rec. Indian Mus., **24**: 274–276, figs. 100–101.

MATERIAL EXAMINED: 1 ovig. ♀, 2 juv., Uendara, Honiara, in *Acropora* sp. at 3 m, 12 December 1978, (no. 2855).

REMARKS: The specimens agree closely with the original description of the species by Kemp (1922). The ovigerous female (CL. 3.0 mm) has a single small dorsal rostral tooth and a minute indication of a preterminal ventral tooth. Both second pereiopods are present and are similar to those of the type material except that the distoventral spine of the merus and the ventral spine of the carpus, although distinct, are rather blunt, and the upper distal border of the carpus is without crenulations. The smaller specimens (CLs. 2.1, 1.7 mm) have a rostral dentition of 0/1 and 2/1 respectively.

This species exhibits two clour forms, but in the present material no trace of the colour pattern remains. The species is associated with corals of the genus *Acropora*, having been reported from six different species (Bruce, 1977). It is not yet apparent if the two colour forms have preferences for particular coral hosts.

DISTRIBUTION: Red Sea, Kenya, Zanzibar, Tanganyika, Madagascar, Comoro, Seychelle and Maldive Islands, south India, Indonesia, Great Barrier Reef, Ryukyu and Samoan Islands.

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