RESURRECTION OF THE GENUS *LAOMENES* A. H. CLARK, 1919 (DECAPODA, CARIDEA, PALAEMONIDAE)

BY

JUNJI OKUNO[1,3]) and YOSHIHISA FUJITA[2,4])

[1]) Coastal Branch of Natural History Museum and Institute, Chiba
123 Yoshio, Katsuura, Chiba 299-5242, Japan

[2]) University Education Center, University of the Ryukyus, 1 Senbaru,
Nishihara-cho, Okinawa 903-0213, Japan

[4]) Marine Learning Center, 2-95-101 Miyagi, Chatan-cho, Okinawa 904-0113, Japan

ABSTRACT

The palaemonid genus *Laomenes* is re-established. The type species, *Periclimenes* (*Corniger*) *ceratophthalmus* Borradaile, associated with crinoids, differs from other *Periclimenes* Costa species at the generic level on the account of the epistome being armed with horns, the posterior rostral carina forming well developed supraorbital eaves, the presence of a supraocular tooth at the edge of the supraocular eaves, the eye with the cornea produced distally, and the mandible with a widened and multidentate incisor process. Three other crinoid associates, *P. amboinensis* (De Man), *P.* (*Corniger*) *cornutus* Borradaile, and *Parapontonia nudirostris* Bruce are now placed in the genus *Laomenes*. The monotypic genus, *Parapontonia* Bruce is considered to be a junior subjective synonym of *Laomenes*. A key and a checklist to the species of *Laomenes* known at present are provided.

RÉSUMÉ

Le genre de Palaemonidae *Laomenes* est rétabli. L'espèce-type *Periclimenes* (*Corniger*) *ceratophthalmus* Borradaile associée à des crinoïdes, diffère des autres espèces de *Periclimenes* Costa au niveau générique par l'épistome pourvu de cornes, la carène rostrale postérieure formant des proéminences supraorbitaires bien développées, la présence d'une dent supra-oculaire sur le bord des proéminences supra oculaires, l'oeil à cornée prolongée distalement, et la mandibule à large processus incisif multidenticulé. Trois autres espèces associées à des crinoïdes, *P. amboinensis* (De Man), *P.* (*Corniger*) *cornutus* Borradaile, et *Parapontonia nudirostris* Bruce sont maintenant placées dans le genre *Laomenes*. Le genre monotypique *Parapontonia* Bruce est considéré comme un synonyme junior subjectif de *Laomenes*. Une clé et une liste des espèces de *Laomenes* connues à ce jour sont fournies.

[3]) Corresponding author; e-mail: okuno@chiba-muse.or.jp

Crustaceana 80 (1): 113-124
Also available online: www.brill.nl/cr

INTRODUCTION

The genus *Periclimenes* Costa, 1844, is the most speciose in the subfamily Pontoniinae Kingsley, 1878. Okuno & Mitsuhashi (2003) recognized that this genus comprised 174 valid species worldwide at that time. Later, Bruce (2004) removed 27 species possessing a median process on the fourth thoracic sternite to two other genera (three to the resurrected genus *Harpilius* Dana, 1852, and 24 to *Kemponia* Bruce, 2004). More recently, the genera *Manipontonia* Bruce, Okuno & Li, 2005 for *Periclimenes psamathe* (De Man, 1888), and *Leptomenes* Bruce, 2006 for *Periclimenes dolichosternum* Okuno & Mitsuhashi, 2003 were newly established on the account of various specialized morphological characters distinct from *Periclimenes* (cf. Bruce et al., 2005; Bruce, 2006). In several remaining *Periclimenes* species, a taxonomic re-evaluation of their generic position is required.

Most *Periclimenes* shrimps are associated with several taxa of marine invertebrates, and 14 Indo-West Pacific species of *Periclimenes* are known as crinoid associates (Bruce, 1982, 1986; Bruce & Zmarzly, 1983; Bruce & Coombes, 1997): *P. affinis* (Zehntner, 1894); *P. alegrias* Bruce, 1986; *P. amboinensis* (De Man, 1888); *P. attenuatus* Bruce, 1971; *P. brocketti* Borradaile, 1915; *P. carinidactylus* Bruce, 1969; *P. ceratophthalmus* Borradaile, 1915; *P. commensalis* Borradaile, 1915; *P. cornutus* Borradaile, 1915; *P. novaecaledoniae* Bruce, 1968; *P. novaffinis* Bruce & Coombes, 1997; *P. pilipes* Bruce & Zmarzly, 1983; *P. ruber* Bruce, 1982; and *P. tenuis* Bruce, 1969. Of these, *P. amboinensis* and *P. ceratophthalmus* are widely distributed in the tropical and subtropical regions of the Indo-West Pacific, and have frequently been reported not only in the scientific literature but also in recently published popular guidebooks for divers and naturalists. During ecological and taxonomic studies on the crinoid-associated decapods in Japanese waters, several specimens of *P. amboinensis* and *P. ceratophthalmus* have been collected. As a result of close examination, we regard these two species to be distinguishable from other species of *Periclimenes* at generic rank, on the account of several morphological characters. Hence, in our opinion they should be placed in a resurrected genus, *Laomenes* A. H. Clark, 1919, previously recognized as a junior synonym of *Periclimenes*.

MATERIAL AND METHODS

Illustrations were made with the aid of a drawing tube mounted on a Leica MZ12 stereomicroscope. Postorbital carapace length is abbreviated as CL in the text. The specimens examined in this study are deposited in the Coastal Branch of Natural History Museum and Institute, Chiba (CMNH) and the National Fisheries University, Shimonoseki (NFU).

TAXONOMIC ACCOUNT

Laomenes A. H. Clark, 1919

Corniger Borradaile, 1915: 207. Type species: *Periclimenes* (*Corniger*) *ceratophthalmus* Borradaile, 1915, selected by Borradaile (1917). Invalid junior homonym of *Corniger* Agassiz, 1831 (Pisces) and *Corniger* Boehm, 1879 (Pycnogonida).

Laomenes A. H. Clark, 1919: 199. Replacement name for *Corniger* Borradaile, 1915.

Parapontonia Bruce, 1968: 1148. Type species: *Parapontonia nudirostris* Bruce, 1968, originally designated.

Type species. — *Periclimenes* (*Corniger*) *ceratophthalmus* Borradaile, 1915.

Diagnosis. — Small to medium-sized pontoniine shrimp with subcylindrical but slightly depressed body. Rostrum well developed, acute, dentate or edentate, lateral carina broadly expanded proximally, forming supraorbital eaves; supraocular tooth situated at anterior margin of supraocular eaves. Carapace smooth, glabrous, inferior orbital angle distinct, epigastric spine absent, antennal and hepatic spines present, pterygostomial angle bluntly produced. Ophthalmic somite without interocular beak. Fourth thoracic sternite without median process. Abdominal somites smooth, glabrous, third somite not posteriorly produced. Telson armed dorsally with two pairs of small spines, and three pairs of posterior spines. Antennule normal. Antenna with well developed scaphocerite. Cornea of eye conically produced. Epistome with pair of acute processes. Mandible without palp, with incisor processes widened, multidentate, armed with 5-8 teeth distolaterally. Third maxilliped with rudimentary arthrobranch. First pereiopods slender, cutting borders of fingers simple. Second pereiopods well developed, slightly unequal in length, fingers with cutting borders entire anteriorly, without fine denticles. Ambulatory pereiopods robust, dactyli developed, feebly biunguiculate.

Branchial formula. — Shown in table I.

Range. — Widely distributed in the Indo-West Pacific.

Biology. — The species of the present genus are all obligate associates of crinoids (Echinodermata, Comatulida) mainly recorded form shallow water.

Common name. — Tsunome-yadori-ebi zoku (new Japanese name).

TABLE I

Laomenes A. H. Clark, 1919: branchial formula

	Maxillipeds			Pereiopods				
	I	II	III	I	II	III	IV	V
Pleurobranchs	—	—	—	1	1	1	1	1
Arthrobranchs	—	—	1	—	—	—	—	—
Podobranchs	—	—	—	—	—	—	—	—
Epipods	1	1	—	—	—	—	—	—
Exopods	1	1	1	—	—	—	—	—

DISCUSSION

Bruce (1983) reported that *Periclimenes amboinensis* and *P. ceratophthalmus* possess distinct horns on the epistome (see figs. 1d, 2d). Although other *Periclimenes* species do not have this feature, the presence of the horns has never been used as a key character to aid in the identification of the Indo-Pacific species of *Periclimenes* (cf. Bruce, 1982, 1986; Chace & Bruce, 1993). In addition to the epistomal horns, *P. amboinensis* and *P. ceratophthalmus* share the rostral lateral carina forming well developed supraorbital eaves (figs. 1c, 2c), the presence of the supraocular tooth (figs. 1b, c, 2b, c), the eye with the cornea produced distally (figs. 1c, 2c), and the mandible with a widened and multidentate incisor process. These features link both *P. amboinensis* and *P. ceratophthalmus* with *Parapontonia nudirostris* Bruce, 1968, an Indo-West Pacific crinoid associate, rather than with other *Periclimenes* species (see fig. 3b-d). The genus *Parapontonia* has been considered monotypic (Chace & Bruce, 1993; Bruce, 1994), but sharing these morphological features and behaviour suggest that the three species mentioned above are congeneric. Currently, the main feature separating *P. nudirostris* from both *P. amboinensis* and *P. ceratophthalmus* has been the toothless rostrum (fig. 3b), which is one of the diagnostic characters of *Parapontonia* (cf. Bruce, 1968, 1994). *P. amboinensis*, *P. ceratophthalmus*, and *P. nudirostris* appear to show a steadily decreasing level of rostral dentition, down to zero (figs. 1b, 2b, 3b). Furthermore, as in the case of *Neopontonides* Holthuis, 1951 and *Pseudocoutierea* Holthuis, 1951, the presence or absence of rostral teeth is interspecifically variable within a single genus (see Heard, 1986; d'Udekem d'Acoz, 2001). Thus, we consider that these two *Periclimenes* species cannot be separated from *P. nudirostris* at a generic rank.

Borradaile (1915) proposed the subgenus *Corniger* Borradaile, 1915 for *P.* (*Corniger*) *ceratophthalmus* and *P.* (*C.*) *cornutus*. *P. ceratophthalmus* was designated as the type species of *Corniger* by the original author two years later (Borradaile, 1917). Subsequently, A. H. Clark (1919) established a replacement name, *Laomenes* A. H. Clark, 1919, because Borradaile's (1915) *Corniger* is an invalid junior subjective homonym of *Corniger* Agassiz, 1829 (Pisces) and *Corniger* Boehm, 1879 (Pycnogonida) (see Holthuis, 1955, 1993). Therefore, the type species of *Laomenes* must be recognized as *Periclimenes* (*Corniger*) *ceratophthalmus* (ICZN, 1999: Article 67.8). Since *P. ceratophthalmus* and *P. nudirostris* are considered congeneric in this study, *Parapontonia* becomes a junior synonym of *Laomenes*. The diagnosis of *Laomenes* mentioned above is emended according to the definition of *Parapontonia* proposed by Bruce (1968, 1994).

Periclimenes cornutus is regarded as a species closely related to *P. amboinensis* (see Bruce, 1982, 1986). Bruce (1978) redescribed the holotype of *P. cornutus*, but he did not mention the presence or absence of submedian horns on the epistome.

A sketch of the epistome of the *P. cornutus* holotype kindly provided by Dr. A. J. Bruce, shows that this species should be transferred to *Laomenes* on the account of the presence of this pair of distinct epistomal horns.

The genus *Laomenes* appears closest to *Araiopontonia* Fujino & Miyake, 1970 on the account of the distinct submedian horns on the epistome, the supraorbital eaves and supraocular tooth on the carapace, and the widened and multidentate incisor process of mandible (Fujino & Miyake, 1970). *Araiopontonia* contains a single western Pacific species, *A. odontorhyncha* Fujino & Miyake, 1970, also associated with crinoids. The presence of a hepatic spine clearly distinguishes *Laomenes* from *Araiopontonia*.

In some crinoid-associated species of the genus *Periclimenes* (e.g., *P. commensalis* Borradaile, 1915 and *P. novaecaledoniae* Bruce, 1968), the anterior regions of the cutting borders of the second pereiopodal fingers are shaped as finely pectinate or denticulate (cf. Bruce, 1968, 1971). It is noteworthy that the species of *Laomenes* lack these morphological features.

In the following, a key and a checklist to the currently known species of *Laomenes* are provided:

KEY TO THE SPECIES OF *LAOMENES*

1. Rostrum unarmed dorsally ..... *L. nudirostris*
– Rostrum dorsally dentate 2
2. Rostrum with ventral margin unarmed; hepatic spine exceeding anterior margin of carapace ..... *L. ceratophthalmus*
– Rostrum with ventral margin armed with 1 tooth; hepatic spine posterior to anterior margin of carapace 3
3. Chelae of second pereiopods long and slender; propodi of ambulatory pereiopods with numerous setae ventrodistally ..... *L. amboinensis*
– Chelae of second pereiopods short and stout; propodi of ambulatory pereiopods with a few setae ventrodistally ..... *L. cornutus*

CHECKLIST OF THE SPECIES OF *LAOMENES*

Laomenes amboinensis (De Man, 1888) comb. nov. (fig. 1)

Restricted synonymy.—-

Anchistia amboinensis De Man, 1888: 546, pl. 22a fig. 2.

Periclimenes (*Corniger*) *amboinensis* — Borradaile, 1917: 366.

Periclimenes (*Ancylocaris*) *amboinensis* — Kemp, 1922: 172.

Periclimenes (*Harpilius*) *amboinensis* — Holthuis, 1952: 60.

Periclimenes amboinensis — Bruce, 1983: 874, figs. 1-3, 7E; Chace & Bruce, 1993: 102; Li, 2000: 153, fig. 187 (full synonymy).

Additional material examined. — CMNH-ZC 01244, 1♂, 3.3 mm CL, Kyokucho-hama, Hachijo-jima Island, Izu Islands, 5 m, in association with *Comanthus parvicirrus* (Müller, 1841), 10 September 1997, leg. J. Okuno; CMNH-ZC 01243, 1♂, 2.5 mm CL, CMNH-ZC 01242, 1 ovig.♀, 4.0 mm

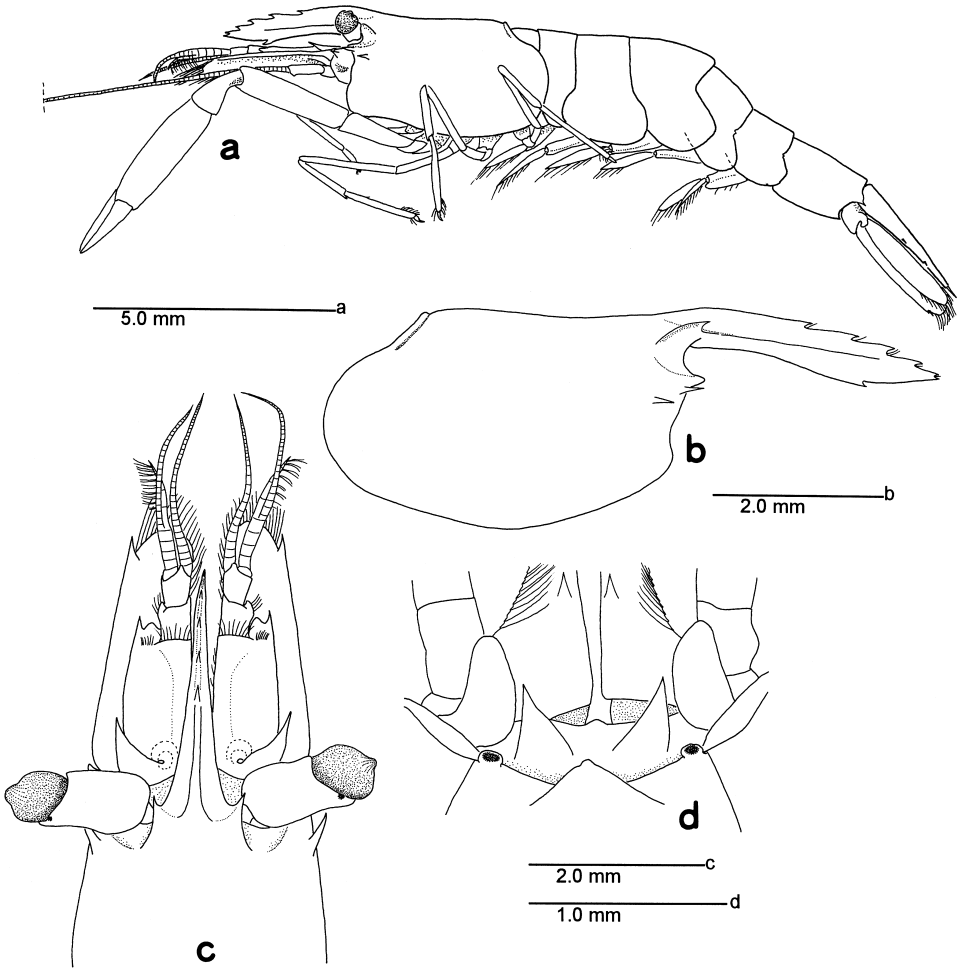

Fig. 1. *Laomenes amboinensis* (De Man, 1888), male (CMNH-ZC 01244): a, entire animal in lateral view; b, carapace and rostrum, lateral view; c, anterior part of carapace, rostrum, and cephalic appendages, dorsal view; d, epistomal region, ventral view.

CL, Aozumi, Hachijo-jima Island, Izu Islands, 15 m, in association with *Comanthina nobilis* (Carpenter, 1884), 10 September 1997, leg. J. Okuno; CMNH-ZC 01049, 1♂, 2.3 mm CL, off north of Hateno-hama, Kume-jima Island, Ryukyu Islands, 15 m, 3 October 2002, leg. T. Kawamoto; CMNH-ZC 01050, 1♂, 2.7 mm CL, same locality as CMNH-ZC 01049, 16 October 2002, leg. T. Kawamoto.

Type data. — Possibly type material no longer extant (cf. Bruce, 1983).

Host. — In the literature, 8 crinoid species have been recorded as hosts of *L. amboinensis*: *Capillaster multiradiatus* (Linnaeus, 1758); *Comantheria briareus* (Bell, 1882); *Comantheria* cf. *rotula* A. H. Clark, 1912; *Comanthina nobilis*; *Comanthus bennetti* (Müller, 1841); *Comanthus parvicirrus*; *Comanthus samoa-*

nus A. H. Clark, 1909; and *Himerometra magnipinna* A. H. Clark, 1908 (cf. Bruce, 1981, 1982, 1983, 1992; Zmarzly, 1984; present report).

Distribution. — Type locality: Ambon, Indonesia (De Man, 1888). Also known from the Maldive Islands, Thailand, Taiwan, Western Australia, the Great Barrier Reef of Australia, New Caledonia, Papua New Guinea, and the Marshall Islands; north to Japan (Bruce, 2003).

Laomenes ceratophthalmus (Borradaile, 1915) comb. nov. (fig. 2)

Restricted synonymy. —
Periclimenes (*Corniger*) *ceratophthalmus* Borradaile, 1915: 211; Borradaile, 1917: 365, pl. 54 fig. 9a, b.
Periclimenes (*Ancylocaris*) *ceratophthalmus* — Kemp, 1922: 172.
Periclimenes (*Periclimenes*) *ceratophthalmus* — Holthuis, 1952: 56, fig. 20.
Periclimenes ceratophthalmus — Bruce, 1978: 251, fig. 2; Bruce, 1983: 880, figs. 4A-D, 5, 6A-D, 7F; Chace & Bruce, 1993: 106; Li, 2000: 167, fig. 206 (full synonymy).

Additional material examined. — CMNH-ZC 02075, 1 ovig.♀, 2.8 mm CL; CMNH-ZC 02071, 1 ovig.♀, 3.2 mm CL; CMNH-ZC 02072, 1♀, 2.4 mm CL; CMNH-ZC 02073, 1♀, 1.7 mm CL; CMNH-ZC 02074, 1♂, 1.9 mm CL; all Maeda-misaki, Onna, Okinawa Island, Ryukyu Islands, 5.9-14.6 m, in association with crinoids of the family Mariametridae, 5 June 2003, leg. Y. Fujita.

Type data. — Juvenile holotype deposited at the University Museum of Zoology, University of Cambridge, U.K. (AR.3.1920) (see Bruce, 1978).

Host. — In the literature, 5 crinoid species have been recorded as hosts of *L. ceratophthalmus*: *Dichrometra afra* A. H. Clark, 1912; *Himerometra robustipinna*; *Lamprometra klunzingeri* (Hartlaub, 1890); *Stephanometra indica* (Smith, 1876); and *S. spicata* (Carpenter, 1881) (cf. Bruce, 1981, 1982, 1983).

Distribution. — Type locality: Malé Atoll, Maldive Islands, Indian Ocean (Borradaile, 1915). Widely distributed in the tropical Indo-West Pacific, viz., Kenya, Zanzibar, the Seychelles, Indonesia, the Great Barrier Reef of Australia, Papua New Guinea, the Palau Islands, and the Solomon Islands (De Grave, 2000); north to the Ryukyu Islands, Japan (present study).

Remarks. — The previous reports on *L. ceratophthalmus* seem to contain two taxa (Y. Fujita, unpubl. data). Thus, further study on the taxonomy of *L. ceratophthalmus* is necessary.

Laomenes cornutus (Borradaile, 1915) comb. nov.

Restricted synonymy. —
Periclimenes (*Corniger*) *cornutus* Borradaile, 1915: 211; Borradaile, 1917: 365, pl. 54 fig. 10a, b.
Periclimenes (*Ancylocaris*) *cornutus* — Kemp, 1922: 172.
Periclimenes cornutus — Bruce, 1978: 259, figs. 1C, 5; Li, 2000: 172, fig. 213 (full synonymy).

Type data. — Male holotype deposited at the University Museum of Zoology, University of Cambridge, U.K. (AR.3.1920) (see Bruce, 1978).

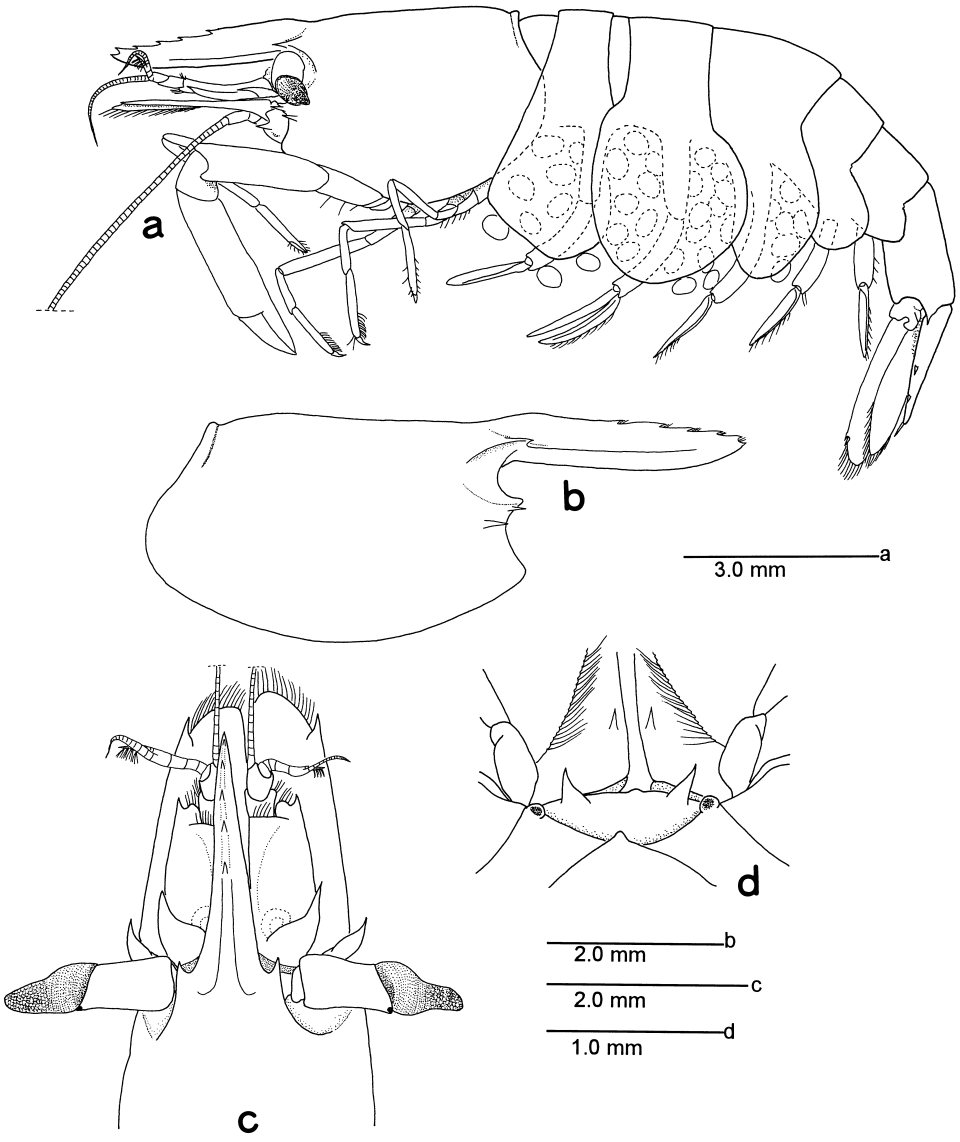

Fig. 2. *Laomenes ceratophthalmus* (Borradaile, 1915), ovigerous female (CMNH-ZC 02071): a, entire animal in lateral view; b, carapace and rostrum, lateral view; c, anterior part of carapace, rostrum, and cephalic appendages, dorsal view; d, epistomal region, ventral view.

Host. — Previously not identified (Bruce, 1982).

Distribution. — Type locality: Malé Atoll, Maldive Islands, Indian Ocean (Borradaile, 1915). Previously known only from the Maldive Islands (Bruce, 1982).

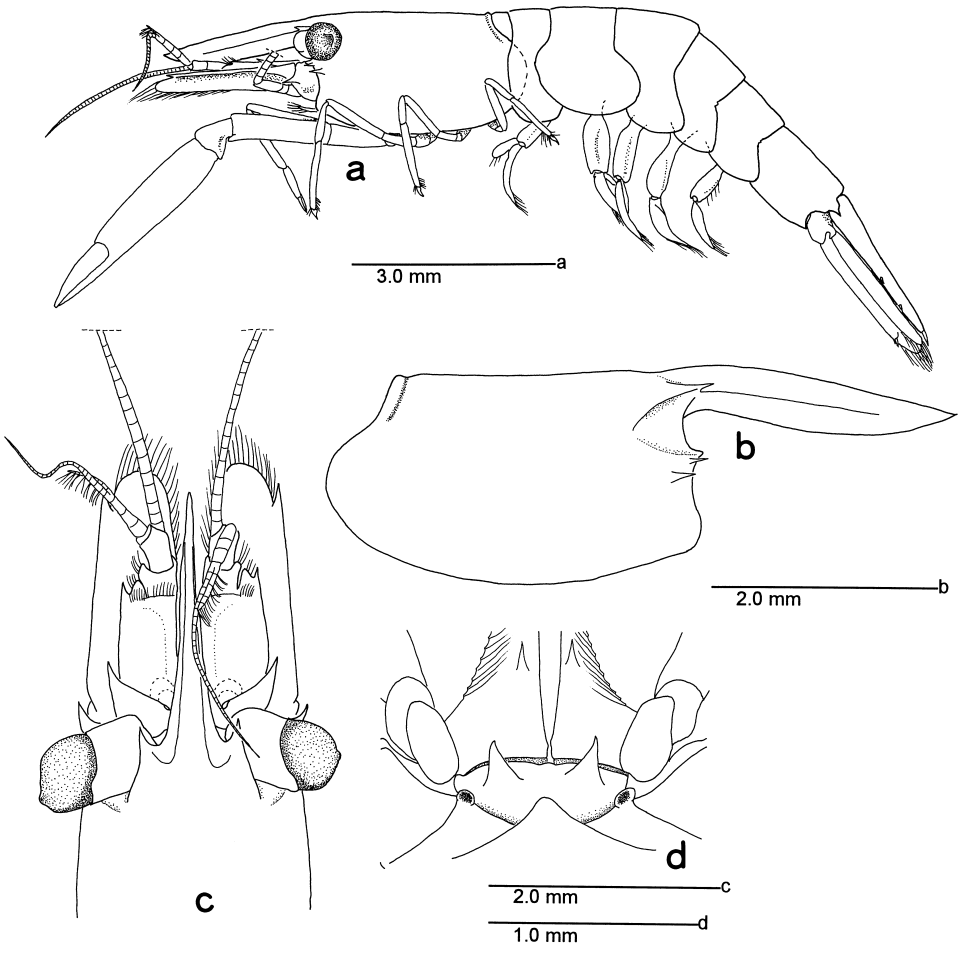

Fig. 3. *Laomenes nudirostris* (Bruce, 1968), male (CMNH-ZC 01200): a, entire animal in lateral view; b, carapace and rostrum, lateral view; c, anterior part of carapace, rostrum, and cephalic appendages, dorsal view; d, epistomal region, ventral view.

Remarks. — A redescription of *L. cornutus* based on additional specimens is required.

Laomenes nudirostris (Bruce, 1968) comb. nov. (fig. 3)

Restricted synonymy. —
Parapontonia nudirostris Bruce, 1968: 1149, figs. 1-5; Li, 2000: 114, fig. 125 (full synonymy).

Additional material examined. — NFU 530-2-2377, 1♀, 5.1 mm CL, Ando-no-hana, Shio-no-misaki, southern tip of Kii Peninsula, Honshu, in association with *Tropiometra afra* (Hartlaub, 1890), 25 June 1973, leg. K.-I. Hayashi; CMNH-ZC 01722, 1 ovig.♀, 5.8 mm CL, Kurasaki, Kasari Bay, northern part of Amami-ohshima Island, Ryukyu Islands, 10 m, in association with *Tropiometra afra*,

6 July 2004, leg. J. Okuno; CMNH-ZC 01199, 1♂, 2.1 mm CL, CMNH-ZC 01200, 1♂, 2.7 mm CL, off Kitahara, Kume-jima Island, Ryukyu Islands, 5-20 m, 5 February 2003, leg. T. Kawamoto.

Type data. — Male holotype and single female paratype deposited at the Muséum National d'Histoire Naturelle, Paris (see Bruce, 1968).

Host. — In the literature, 3 species and one subspecies of crinoids have been recorded as hosts of *L. nudirostris*: *Himerometra robustipinna*; *Pontiometra andersoni* (Carpenter, 1889); *Tropiometra afra*; and *Tropiometra afra afra* (cf. Bruce, 1968, 1971, 1981, 1982, 1992).

Distribution. — Type locality: Tiaré Bay, Nouméa, New Caledonia (Bruce, 1968). Also known from Japan, Indonesia, and the Great Barrier Reef of Australia (Bruce, 1994).

Remarks. — Bruce (1992) reported a juvenile specimen (1.1 mm CL) from Lizard Island, Australia, as *P. nudirostris*. However, this specimen, associated with *Himerometra robustipinna*, seems to be referable to an other species of *Laomenes* on the account of possessing three distal teeth on the dorsal margin of the rostrum in his figure (Bruce, 1992: 81, fig. 27A, B).

ACKNOWLEDGEMENTS

We wish to express our sincere gratitude to the skillful Japanese divers, Messrs. H. Kanehara, S. Kato, and T. Kawamoto for their kind help in obtaining the present specimens. Our cordial thanks go to Dr. A. J. Bruce for information on the holotype of *Periclimenes cornutus*, and for his valuable comments on an early draft of this manuscript. Grateful acknowledgements are extended to Dr. K.-I. Hayashi for his help and warmest hospitality during the senior author's stay in his laboratory at Shimonoseki.

REFERENCES

BORRADAILE, L. A., 1915. Notes on Carides. Ann. Mag. nat. Hist., (8) **15**: 205-213.

— —, 1917. On the Pontoniinae. The Percy Sladen Trust Expedition to the Indian Ocean in 1905, under the leadership of Mr. J. Stanley Gardiner. Trans. Linnean Soc. London, (Zool.) (2) **17**: 323-396, pls. 52-57.

BRUCE, A. J., 1968. A report on some pontoniid shrimps from New Caledonia (Crustacea, Decapoda, Natantia). Bull. Mus. natn. Hist. nat., Paris, (2) **39**(6): 1148-1171.

— —, 1971. Records of some rare pontoniinid shrimps from Australian waters, with remarks upon the mouthparts of some species of the genus *Periclimenes* Costa, 1844. Zool. Meded., Leiden, **114**: 1-32.

— —, 1978. The re-examination of some pontoniine shrimp types first described by L. A. Borradaile (Decapoda, Palaemonidae). Crustaceana, **34**(3): 251-268.

— —, 1981. Pontoniine shrimps of Heron Island. Atoll Res. Bull., **245**: 1-33.

— —, 1982. The shrimps associated with Indo-West Pacific echinoderms, with the description of a new species in the genus *Periclimenes* Costa, 1844 (Crustacea: Pontoniinae). Australian Mus. Mem., **16**: 191-216.

— —, 1983. Expédition Rumphius II (1975). Crustacés parasites, commensaux, etc. In: TH. MONOD (ed.), IX, Crustacés Décapodes (1ére partie: Natantia Pontoniinae). Bull. Mus. natn. Hist. nat., Paris, (4, A) **5**(3): 871-902.

— —, 1986. Three new species of commensal shrimps from Port Essington, Arnhem Land, Northern Australia (Crustacea: Decapoda Palaemonidae). The Beagle, Occ. Pap. Northern Territory Mus. Arts Sci., **3**(1): 143-166.

— —, 1992. Two new species of *Periclimenes* (Crustacea: Decapoda: Palaemonidae) from Lizard Island, Queensland, with notes on some related taxa. Rec. Australian Mus., **44**: 45-84.

— —, 1994. A synopsis of the Indo-Pacific genera of the Pontoniinae (Crustacea: Decapoda: Palaemonidae): 1-172. (Koeltz Scientific Books, Königstein).

— —, 2003. The pontoniine shrimp fauna of Hong Kong and the South China Sea (Crustacea: Decapoda: Palaemonidae): 209-257. In: B. MORTON (ed.), Perspectives on marine environment change in Hong Kong and southern China, 1977-2001. Proceedings of an International Workshop Reunion Conference, Hong Kong, 21-26 October 2001. (Hong Kong University Press, Hong Kong).

— —, 2004. A partial revision of the genus *Periclimenes* Costa, 1884 [sic] (Crustacea: Decapoda: Palaemonidae). Zootaxa, **582**: 1-26.

— —, 2006. A new genus, *Leptomenes*, for the pontoniine shrimp *Periclimenes dolichosternum* Okuno & Mitsuhashi, 2003 (Crustacea: Decapoda: Palaemonidae). Cah. Biol. mar., **47**: 223-225.

BRUCE, A. J. & K. E. COOMBES, 1997. An annotated check-list of the caridean shrimps (Crustacea: Decapoda) of Darwin Harbour, with descriptions of three new species of *Periclimenes* (Palaemonidae: Pontoniinae): 301-377. In: J. R. HANLEY, G. CASWELL, G. MEGIRIAN & H. K. LARSON (eds.), Proceedings of the Sixth International Marine Biological Workshop. The marine flora and fauna of Darwin Harbor, Northern Territory, Australia. (Museum and Art Galleries of the Northern Territory and the Australian Marine Science Association, Darwin).

BRUCE, A. J., J. OKUNO & X.-Z. LI, 2005. *Manipontonia* gen. nov., a new pontoniine shrimp genus for *Periclimenes psamathe* (De Man) (Crustacea: Decapoda: Palaemonidae). Zootaxa, **926**: 1-11.

BRUCE, A. J. & D. L. ZMARZLY, 1983. *Periclimenes pilipes*, new species, a crinoid associate from Enewetak Atoll, Marshall Islands (Crustacea: Decapoda: Pontoniinae). Journ. Crust. Biol., **3**(4): 644-654.

CHACE, F. A., JR. & A. J. BRUCE, 1993. The caridean shrimps (Crustacea: Decapoda) of the Albatross Philippine Expedition 1907-1910, part 6: superfamily Palaemonoidea. Smithson. Contr. Zool., **543**: i-iiv, 1-152.

CLARK, A. H., 1919. Some necessary changes in crustacean nomenclature. Proc. biol. Soc. Washington, **32**: 199.

DE GRAVE, S., 2000. Caridean shrimps (Crustacea, Decapoda) from Hansa Bay, Papua New Guinea: Palaemonidae and Gnathophyllidae. Bull. Inst. Royal Sci. nat. Belgique, **70**: 119-148.

FUJINO, T. & S. MIYAKE, 1970. *Araiopontonia odontorhyncha* gen. et sp. nov., a new shrimp from the Ryukyu Islands, Japan (Decapoda, Palaemonidae, Pontoniinae). OHMU, Occ. Pap. zool. Lab., Facul. Agr., Kyushu Univ., Fukuoka, Japan, **3**(1): 1-10.

HEARD, R. W., 1986. Pontoniine shrimps (Decapoda: Caridea: Palaemonidae) of the northwest Atlantic. I. The genus *Neopontonides* Holthuis, 1951, with the description of *N. chacei*, new species, and the erection of *Pseudopontonides*, new genus, to receive *N. principis* Criales, 1980. Journ. Crust. Biol., **6**(3): 471-484.

HOLTHUIS, L. B., 1952. The Decapoda of the Siboga Expedition, part XI. The Palaemonidae collected by the Siboga and Snellius expeditions with remarks on other species, part II: subfamily Pontoniinae. Siboga Exped. Mon., **39**(a10): 1-254.

— —, 1955. The recent genera of the caridean and stenopodidean shrimps (class Crustacea, order Decapoda, supersection Natantia) with keys for their determination. Zool. Verh., Leiden, **26**: 1-157.

— —, 1993. The recent genera of the caridean and stenopodidean shrimps (Crustacea, Decapoda) with an appendix on the order Amphionidacea: 1-328. (Nationaal Natuurhistorisch Museum, Leiden).

INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE, 1999. International code of zoological nomenclature (4th ed.): 1-306. (The International Trust for Zoological Nomenclature, London).

KEMP, S., 1922. Notes on Crustacea Decapoda in the Indian Museum. XV. Pontoniinae. Rec. Indian Mus., **24**: 113-288, pls. 3-9.

LI, X.-Z., 2000. Catalog of the genera and species of Pontoniinae Kingsley, 1878 (Decapoda, Palaemonidae): 1-319. (Xueyuan Press, Beijing).

MAN, J. G. DE, 1888. Bericht über die von Herrn Dr. J. Brock im indischen Archipel gesammelten Decapoden und Stomatopoden. Arch. Naturgesch., **53**(1): 215-600, pls. 7-22a.

OKUNO, J. & M. MITSUHASHI, 2003. A new species of the genus *Periclimenes* Costa, 1844 (Crustacea: Decapoda: Palaemonidae) from the Ryukyu Islands, southern Japan. Proc. biol. Soc. Washington, **116**(2): 487-496.

UDEKEM D'ACOZ, C. D', 2001. Description of *Pseudocoutierea wirtzi* sp. nov., a new cnidarian-associated pontoniine shrimp from Cape Verde Islands, with decalcified meral swellings in walking legs (Crustacea, Decapoda, Caridea). Bull. Inst. Royal Sci. nat. Belgique, **70**: 69-90.

ZMARZLY, D. L., 1984. Distribution and ecology of shallow-water crinoids at Enewetak Atoll, Marshall Islands, with an annotated checklist of their symbionts. Pacific Sci., **38**(2): 105-122.

First received 21 July 2006.
Final version accepted 22 August 2006.