

# Proceedings of the 13th International Marine Biological Workshop

## The Marine Fauna and Flora of Moreton Bay, Queensland

Volume 54, Part 1

Editors: Peter J.F. Davie & Julie A. Phillips

Memoirs of the Queensland Museum | **Nature**  
**54(1)**

© The State of Queensland (Queensland Museum)

PO Box 3300, South Brisbane 4101, Australia  
Phone 06 7 3840 7555  
Fax 06 7 3846 1226  
Email [qmlib@qm.qld.gov.au](mailto:qmlib@qm.qld.gov.au)  
Website [www.qm.qld.gov.au](http://www.qm.qld.gov.au)

National Library of Australia card number  
ISSN 0079-8835

### NOTE

Papers published in this volume and in all previous volumes of the Memoirs of the Queensland Museum may be reproduced for scientific research, individual study or other educational purposes. Properly acknowledged quotations may be made but queries regarding the republication of any papers should be addressed to the Editor in Chief. Copies of the journal can be purchased from the Queensland Museum Shop.

A Guide to Authors is displayed at the Queensland Museum web site  
<http://www.qm.qld.gov.au/About+Us/Publications/Memoirs+of+the+Queensland+Museum>

A Queensland Government Project  
Typeset at the Queensland Museum

# Palaemonid shrimps (Crustacea: Decapoda: Caridea) from Moreton Bay, Queensland, Australia

Xinzheng Li

Institute of Oceanology, Chinese Academy of Sciences, Qingdao 266071, China. Email: lixzh@ms.qdio.ac.cn

Citation: Li, X. 2008 12 01. Palaemonid shrimps (Crustacea: Decapoda: Caridea) from Moreton Bay, Queensland, Australia. In, Davie, P.J.F. & Phillips, J.A. (Eds), Proceedings of the Thirteenth International Marine Biological Workshop, The Marine Fauna and Flora of Moreton Bay, Queensland. *Memoirs of the Queensland Museum — Nature* 54(1): 233–251. Brisbane. ISSN 0079–8835.

## ABSTRACT

Nineteen palaemonid species are reported from Moreton Bay, southeastern Queensland. These shrimps were mostly collected during the Thirteenth International Marine Biological Workshop — The Marine Fauna and Flora of Moreton Bay, Queensland. Nine species have not been previously recorded from Moreton Bay. Coloured photographs of living specimens are included. A key to all palaemonid shrimp species found from Moreton Bay is provided. □ *Crustacea; Decapoda; Palaemonidae; taxonomy; Moreton Bay; Queensland; Australia; new records.*

The palaemonid fauna of Moreton Bay, Queensland, has been reported or noted previously by Patton (1966), some papers by Bruce (Bruce 1977a, 1981a, b, 1988, 1998; Bruce & Coombes 1995, 1997) and by Davie (1998, 2002). With the results of the present study, there are now 39 species known from the Bay, including five species of the subfamily Palaemoninae and 34 species of the subfamily Pontoniinae (see Table 1). Of the collection of 19 species reported on here, nine are recorded from this area for the first time (see Table 1).

The present material was all collected as part of The Thirteenth International Marine Biological Workshop — The Marine Fauna and Flora of Moreton Bay, Queensland, held from 7–25 February 2005. All examined material is deposited in the Institute of Oceanology, Chinese Academy of Sciences, Qingdao, China (IOCAS). Synonymies are restricted to significant works, and previous reports from Moreton Bay and the coast of Queensland. Species are listed in alphabetical order within subfamilies.

Previous records of two species, *Periclimenes indicus* and *P. nr obscurus*, by Bruce (1977b) and Wadley (1978) respectively, have now both been attributed to a new species and new genus, *Phycomenes zostericola* Bruce, 2008 (this vol.). A

key to all 39 species known from Moreton Bay is provided later in the paper.

Rostral dentition is given in the form of a formula, e.g. '1+4–6/1–3', means 1 rostral tooth placed on the carapace behind the orbit, 4–6 other dorsal teeth, and 1–3 ventral teeth.

## SYSTEMATIC ACCOUNT

### PALAEMONINAE Rafinesque, 1815

#### *Palaemon serenus* (Heller, 1862) (Fig. 1)

*Leander serenus* Heller, 1862: 527 (type locality: Sydney, Australia); 1865: 110, pl. 10, fig. 5; Hale, 1924: 68; 1927: 59, fig. 54; Kemp, 1925: 292.

*Palaemon serenus* — Holthuis, 1952a: 204; Wadley, 1978: 19, fig. 9g; Davie, 1998: 146, unnumbered colour photo; 2002: 300.

**Material Examined.** North Stradbroke I., Moreton Bay: IOCAS, 5♀, Myora (27°28.092'S, 153°25.323'E), intertidal zone, seagrass bottom, J. Markham, 14.02.2005; IOCAS, 58 specimens, intertidal zone, rocky shore, in pools or holes, Dunwich, X. Li, 19.02.2005.

**Distribution.** Eastern and South Australia; littoral to sublittoral. Previously reported from Moreton Bay by Davie (1998).

**Table 1.** Species list of Palaemonidae found from Moreton Bay (\* = first confirmed record from Moreton Bay).

	<b>Species</b>	<b>Author</b>
1	<i>Macrobrachium intermedium</i> (Stimpson, 1860)	Wadley (1978); Young & Wadley (1979)
2	<i>Macrobrachium novaehollandiae</i> (De Man, 1908)	Davie (1998); Short (2004)
3	<i>Palaemon debilis</i> Dana, 1852	Wadley (1978) ; Young & Wadley (1979)
4	<i>Palaemon serenus</i> (Heller, 1862)	Wadley (1978); Young & Wadley (1979); Davie (1998); <b>present</b>
5	<i>Palaemon serrifer</i> (Stimpson, 1860)	Davie (1998)
6	<i>Anchistus custos</i> (Forskål, 1775)	Davie (1998); <b>present</b>
7	<i>Apopontonia dubia</i> Bruce, 1981	Bruce (1981a)
8	<i>Conchodytes meleagrinae</i> Peters, 1852*	<b>present</b>
9	<i>Coralliocaris graminea</i> (Dana, 1852)	Patton (1966)
10	<i>Coralliocaris superba</i> (Dana, 1852)	Patton (1966)
11	<i>Harpiliopsis beaupresii</i> (Audouin, 1825)*	<b>present</b>
12	<i>Jocaste lucina</i> (Nobili, 1901)	Patton (1966)
13	<i>Kemponia amymone</i> (De Man, 1902)	Patton (1966); <b>present</b>
14	<i>Kemponia anacanthus</i> (Bruce, 1988)	Bruce (1988); <b>present</b>
15	<i>Kemponia andamanensis</i> (Kemp, 1922)	Wadley (1978); Young & Wadley (1979); present
16	<i>Kemponia calmani</i> (Tattersall, 1921)*	<b>present</b>
17	<i>Kemponia elegans</i> (Paulson, 1875)*	<b>present</b>
18	<i>Kemponia grandis</i> (Stimpson, 1860)*	<b>present</b>
19	<i>Kemponia tenuipes</i> (Borradaile, 1898)*	<b>present</b>
20	<i>Laomenes nudirostris</i> (Bruce, 1968)	Bruce (1971); <b>present</b>
21	<i>Onyocaris stradbrokei</i> Bruce, 1998	Bruce (1998)
22	<i>Palaemonella rotumana</i> (Borradaile, 1898)	Bruce (1970a)
23	<i>Palaemonella spinulata</i> Yokoya 1936	Bruce (1983)
24	<i>Periclimenaeus bidentatus</i> Bruce, 1970b	Bruce (1983); <b>present</b>
25	<i>Periclimenaeus hecate</i> (Nobili, 1904)*	<b>present</b>
26	<i>Periclimenaeus myora</i> Bruce, 1998	Bruce (1998)
27	<i>Periclimenaeus zanzibaricus</i> Bruce, 1969a	Bruce (2006)
28	<i>Periclimenes brevicarpalis</i> (Schenkel, 1902)	Davie (1998); <b>present</b>
29	<i>Periclimenes cobourgi</i> Bruce & Coombes, 1995*	<b>present</b>
30	<i>Periclimenes commensalis</i> Borradaile, 1915	(Bruce, 1971)
31	<i>Periclimenes holthuisi</i> Bruce, 1969b	Wadley (1978); Young & Wadley (1979); Davie (1998); <b>present</b>
32	<i>Periclimenes inornatus</i> Kemp, 1922	Patton (1966)
33	<i>Periclimenes ruber</i> Bruce, 1982	Bruce (1982) Bruce, 1982c
34	<i>Periclimenes sarkanae</i> Bruce, 2007	Bruce (2007); <b>present</b>
35	<i>Periclimenes soror</i> Nobili, 1904	Davie (1998)
36	<i>Periclimenes terangeri</i> Bruce, 1998	Bruce (1998)
37	<i>Phycomenes zostericola</i> Bruce, 2008	Bruce (1977b) (' <i>indicus</i> '); Wadley (1978), Young & Wadley (1979) (' <i>nr obscurus</i> '); Bruce, 2008
38	<i>Pontoniopsis comanthi</i> Borradaile, 1915*	<b>present</b>
39	<i>Tuleariocaris holthuisi</i> Hipeau-Jacquotte, 1965	Bruce (1990)

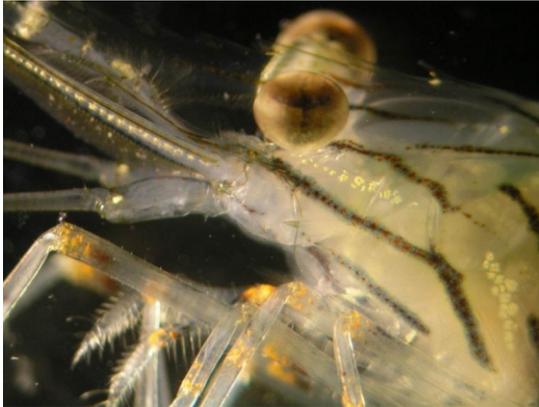


FIG. 1. *Palaemon serenus* (Heller, 1862), Myora anterior carapace and appendages showing colour striping patterns.

**Remarks.** The specimens were semi-transparent in life, with fine brownish red spots and oblique dark stripes on the body surface.

Subfamily PONTONIINAE Kingsley, 1878

*Anchistus custos* (Forsskål, 1775)

(Fig. 2)

*Cancer custos* Forsskål, 1775: 94 (type locality: Al Luhayyah, Yemen).

*Pontonia inflata* H. Milne Edwards, 1840: 633 (type locality: Sri Lanka and Vanikoro, Santa Cruz Is.).

*Anchistia aurantiaca* Dana, 1852: 25 (type locality: Fiji Islands); 1855: 12, pl. 38, fig. 2.

*Harpilius inermis* Miers, 1884: 291, pl. 32, fig. B (type locality: Port Molle, Queensland).

*Pontonia pinnae* Ortman, 1894: 16, pl. 1, fig. 3 (type locality: Tanzania).

*Anchistus custos* – Holthuis, 1952b: 105, figs 43, 44; Morton, 1987: 129, figs 1–3, 6–9; Chace & Bruce, 1993: 72; Bruce & Coombes, 1995: 106; Bruce, 1996: 205; Davie, 1998: 96, unnumbered colour photo; 2002: 305; De Grave, 1999: 129, fig. 3, pl. 1b–c; Li, 2000: 7, fig. 8; Li & Bruce, 2006: 625.

**Material Examined:** North Stradbroke I., Moreton Bay: IOCAS, 4 ♂♂, 4 ovig. ♀♀ & (4 couples), 1 juv., Dunwich (27°29.642'S, 153°23.789'E), intertidal, with *Pinna bicolor*. X. Li and J. Markham, 9.02.2005; IOCAS, 3 ♂♂, 3 ovig. ♀♀, Dunwich (27°29.6'S, 153° 23.8'E), 1.6–2.4m, with *Pinna bicolor*, SCUBA, X. Li, 11.02.2005; IOCAS, ♂, Myora (27°28.092'S, 153° 25.323'E), intertidal, with *Pinna bicolor*, B. Morton, 13.02.2005; IOCAS, 3 ♂♂, 3 ovig. ♀♀, Amity Point (27°24.043'S, 153°28.260'E), 2–7.8m, associated with *Pinna bicolor*, ♀ parasitised by a bopyrid in branchial chamber. SCUBA, X. Li, 14.02.2005; IOCAS, ♂, ovig. ♀, Dunwich (27°29.6'S, 153°23.8'E), intertidal, with *Pinna bicolor*, Daphne

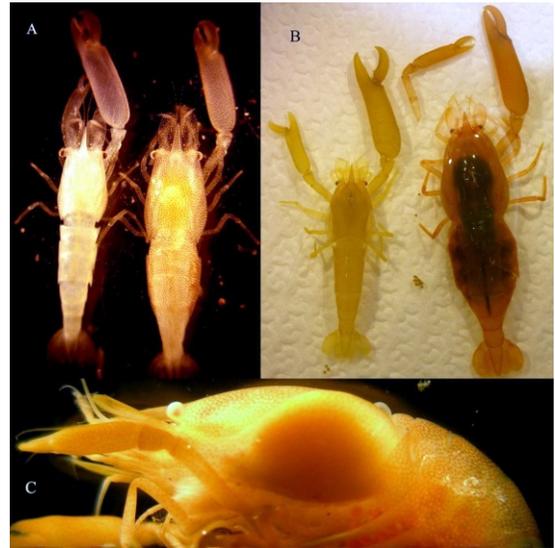


FIG. 2. *Anchistus custos* (Forsskål, 1775) **A**, Shag Rock, male/female pair, dorsal view; **B**, Dunwich, male/female pair, dorsal view; **C**, Amity Point, ovig. ♀, lateral view, showing parasite in branchial chamber.

Fautin, 14.02.2005; IOCAS, 3 ♂♂, 2 ovig. ♀♀, Amity Point (27°24.249'S, 153°26.215'E), 2–5m, associated with *Pinna bicolor*, SCUBA, X. Li, 15.02.2005; IOCAS, 4 ♂♂, 5 ovig. ♀♀, Henderson's Gutter (27°20.879'S, 153°24.715'E), 0.5–1.5m, seagrass bottom, associated with *Pinna bicolor*, snorkeling, X. Li, 17.02.2005; IOCAS, ♂, ovig. ♀, Shag Rock (27°24.855'S, 153°31.599'E), Point Lookout, 7–11m, with *Pinna bicolor*, SCUBA, X. Li, 18.02.2005; IOCAS, ♂, ♀, Shag Rock (27°24.855'S, 153°31.599'E), Point Lookout, 7–11m, with *Atrina (Atrina) vexillum*. X. Li, 18.02.2005; IOCAS, ♂, ovig. ♀, Shag Rock (27°24.476'S, 153°31.504'E), Point Lookout, 6–8m, with *Atrina (Atrina) vexillum*. SCUBA, X. Li, 21.02.2005.

**Distribution.** Known from Red Sea and eastern Africa to Philippines, southward to Australia (South Australia), and eastward to the Caroline Islands and Fiji; littoral to 20m depth. Previously reported from Moreton Bay by Davie (1998).

**Remarks.** Ovigerous females with more than 400 small eggs. Specimens were covered with dense fine red and white spots on the body.

*Conchodytes meleagrinae* Peters, 1852

(Fig. 3)

*Conchodytes meleagrinae* Peters, 1852: 594 (type locality: Mozambique); Bruce, 1977a: 73, fig. 14c, d; Chace & Bruce, 1993: 74; Li, 2000: 25, fig. 26; Davie, 2002: 307; Li & Bruce, 2006: 628.

**Material Examined.** ♂, ovig. ♀, Amity Point (27°24.249'S, 153°26.215'E), North Stradbroke I.,

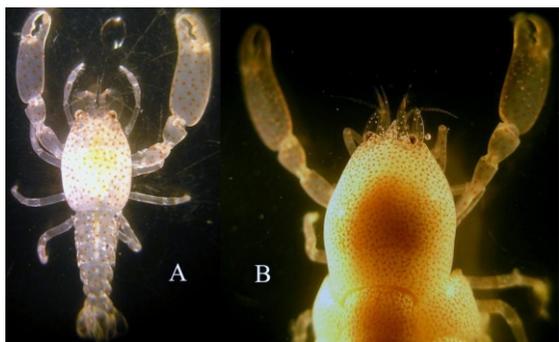


FIG. 3. *Conchodytes meleagrinae* Peters, 1852, Amity Point (27°24.249'S, 153°26.215'E), male/female pair, dorsal view.



FIG. 4. *Harpiliopsis beaupresii* (Audouin, 1825), Shag Rock, ovig. ♀, dorsal view.

Moreton Bay, 2–5m, associated with oyster, *Pinctada margaritifera*, SCUBA, X. Li, 15.02.2005.

**Distribution.** Australia (Great Barrier Reef, northeast Qld, NT, WA); widely distributed in Indo-Pacific Red Sea east to Hawaii; littoral to sublittoral. Not previously from Moreton Bay.

**Remarks.** Specimens were transparent to semi-transparent; body and appendages covered with red and white spots; ovigerous female with more numerous white spots than the male. Ovigerous female with more than 200 eggs.

*Harpiliopsis beaupresii* (Audouin, 1825)  
(Fig. 4)

*Palaemon Beaupresii* Audouin, 1825: 91 (type locality: Egyptian Red Sea); 1827: 276, pl. 10, fig. 4.

*Harpiliopsis beaupresii* – Borradaile, 1917: 324, 379, pl. 55, fig. 21; Holthuis, 1952b: 181, fig. 89.

*Harpiliopsis beaupresii* – Patton, 1966: 276; Bruce, 1976: 124, figs 21, 22; Bruce & Coombes, 1995: 109; Li, 2000: 61, fig. 65; Davie, 2002: 312; Li & Bruce, 2006: 635.

**Material Examined.** ♂, ovig. ♀, Shag Rock (27°24.476'S, 153°31.504'E), Point Lookout, North Stradbroke I., 6–8m, with *Seriotopora* sp., SCUBA, X. Li, 21.02.2005.

**Distribution.** Australia (WA, NT, Qld); widely distributed in the Indo-Pacific from Red Sea, and Madagascar, to Hawaii and Easter I.. Not previously from Moreton Bay.

**Remarks.** Littoral to sublittoral. Body was semi-transparent, slight greenish, with longitudinal dark-red fine stripes; eyestalks and legs with dark-red spots.

*Kemponia amymone* (De Man, 1902)  
(Fig. 5A)

*Periclimenes amymone* De Man, 1902: 829–833, pl. 25 fig. 53 (type locality: Ternate, Indonesia); Bruce, 1977a: 43; 1991: 235; Bruce & Coombes, 1995: 123; Li, 2000: 155, fig. 190; Davie, 2002: 323.

*Periclimenes (Harpilius) amymone* – Holthuis, 1952b: 82, fig. 32; Patton, 1966: 273.

*Kemponia amymone* – Bruce, 2004: 11; Li & Bruce, 2006: 641.

**Material Examined.** 4 ♂♂, 2 ovig. ♀♀, Shag Rock (27°24.476'S, 153°31.504'E), Point Lookout, North Stradbroke I., 6–8m, dead or living (*Seriotopora* sp.) corals, and anemone *Heteractis crispa*, SCUBA, X. Li, 21.02.2005.

**Distribution.** Australia (northwest coast, WA; NT; Great Barrier Reef, northeast coast, Qld); Red Sea, Andaman Islands, New Caledonia, Solomon Islands, Philippines, Marshall Islands,

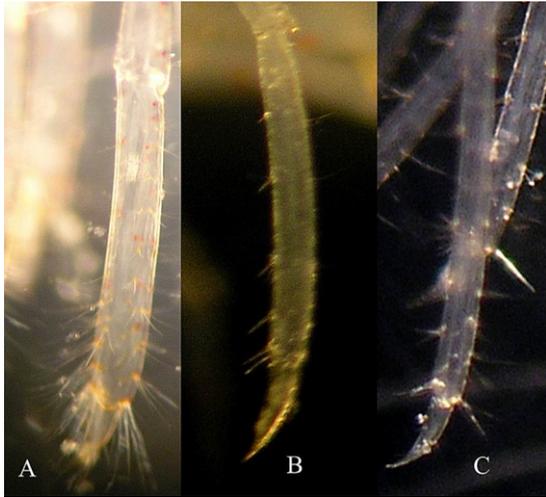


FIG. 5. Propodus and dactylus, ambulatory pereopod. **A**, *Kemponia amymone* (De Man, 1902), Shag Rock; **B**, *K. elegans* (Paulson, 1875), Shag Rock; **C**, *K. grandis* (Stimpson, 1860), Shag Rock.

Nicobar Islands; littoral to sublittoral. Previously reported from Moreton Bay by Patton (1966).

**Remarks.** Specimens were transparent, covered with sparse red spots on the body and appendages. The propodus of the ambulatory pereopods has long setae along the ventral surface, and is without spines.

*Kemponia anacanthus* (Bruce, 1988)

*Periclimenes anacanthus* Bruce, 1988: 105, figs 1–5 (type locality: Polka Point, Moreton Bay, Australia); Bruce & Coombes, 1995: 125, fig. 12a; Li, 2000: 156, fig. 191; Davie, 2002: 323.

*Kemponia anacanthus* – Bruce, 2004: 12; Li & Bruce, 2006: 641.

**Material Examined.** North Stradbroke I., Moreton Bay: IOCAS, ♀♀ (1 ovig.), Dunwich, intertidal, with *Cladiella* sp., X. Li, 11.02.2005; IOCAS, ♂, Dunwich, intertidal, seagrass bottom, X. Li, 11.02.2005; IOCAS, ♂, Dunwich, intertidal, with *Cladiella* sp., X. Li, 12.02.2005; IOCAS, ovig. ♀, Dunwich, intertidal, with sea algae. X. Li, 15.02.2005; IOCAS, 2 ♀♀, Dunwich, intertidal, with red algae, *Acanthophora spicifera*. X. Li, 15.02.2005; IOCAS, 1 juv., Shag Rock (27°24.855'S, 153°31.599'E), Point Lookout, 7–11m, coral reef. SCUBA, X. Li, 18.02.2005.

**Distribution.** Australia (northern coast of NT; central east Qld). Previously recorded from Moreton Bay by Bruce (1988).



FIG. 6. *Kemponia andamanensis* (Kemp, 1922), Myora, intertidal zone, algae, ovig. ♀, dorsal view.

**Remarks.** The specimens were transparent, with sparse fine red spots underneath the body surface. The second pereopods, the sixth abdominal somite, and the telson were white. The male specimens with the body, rostrum and pereopods are distinctly more slender and longer than those of females.

*Kemponia andamanensis* (Kemp, 1922)

(Fig. 6)

*Periclimenes (Ancylocaris) andamanensis* Kemp, 1922: 204, figs 54–57 (type locality: Ross Channel, Andamans).

*Periclimenes (Harpilius) andamanensis* – Holthuis, 1952b: 79.

*Periclimenes andamanensis* – Bruce, 1977c: 269; Li, 2000: 156, fig. 192; Davie, 2002: 323.

*Periclimenes (Harpilius) nr andamanensis* – Wadley, 1978: 19, fig. 9i.

*Kemponia andamanensis* – Bruce, 2004: 12; Li & Bruce, 2006: 642.

*Kemponia cf. andamanensis* – Li *et al.*, 2004: 529, fig. 16.

**Material Examined.** North Stradbroke I., Moreton Bay: IOCAS, 19 ♂♂, 12 ♀♀ (4 ovig.), Myora (27°28.092'S, 153°25.323'E), intertidal zone, seagrass bottom, X. Li, 12.02.2005; IOCAS, 40 specimens (15 ovig. ♀♀), Myora (27°28.092'S, 153°25.323'E), intertidal zone, seagrass bottom, J. Markham, 14.02.2005; IOCAS, 6 ♂♂, Adam's Beach, Dunwich, intertidal zone, seagrass *Zostera copricaorni*, X. Li, 16.02.2005; IOCAS, 17 ♂♂, 8 ovig. ♀♀, Amity Point, intertidal zone, seagrass bottom, X. Li, 20.02.2005; IOCAS, 8 ♂♂, 11 ovig. ♀♀, Myora (27°28.115'S, 153°25.228'E), intertidal zone, seagrass bottom, J. Markham, 20.02.2005; IOCAS, ovig. ♀, Myora, intertidal zone, algae, A. Crowther, 20.02.2005.

**Distribution.** Australia (northeast Qld); Indo-West Pacific; 7–15 m. Previously recorded from Moreton Bay by Wadley (1978).

**Remarks.** Specimens were transparent, with fine sparse yellowish spots on the dorsal surface, and reddish spots beneath the surface of the body. The distal part of the palm and proximal part of the fingers of the second pereiopod were yellow. Merus-carpus and carpus-chela are white yellow. Tail-fan has big white spots. Second pereiopods of males are distinctly more slender and longer than those of females.

#### *Kemponia calmani* (Tattersall, 1921)

*Periclimenes calmani* Tattersall, 1921: 385, pl. 27, fig. 11, pl. 28, figs 14–15 (type locality: Sudan coast, Red Sea); Bruce, 1987: 1415, figs 1–5; Li, 2000: 165, fig. 204.

*Periclimenes (Ancylocaris) calmani* – Kemp, 1922: 176.

*Kemponia calmani* – Bruce, 2004: 13.

**Material Examined.** 2 ♂♂, Dunwich, North Stradbroke I., Moreton Bay, intertidal, with *Cladiella* sp., X. Li, 12.02.2005.



FIG. 7. *Kemponia tenuipes* (Borradaile, 1898) at Amity Point, North Stradbroke Is. (Photo courtesy Rudi Kuitert).

**Distribution.** Australia (Qld); Egypt, Sudan, Malaya, Indonesia, eastern Mediterranean. Not previously recorded from Australian waters.

**Remarks.** Specimens were transparent in life.

#### *Kemponia elegans* (Paulson, 1875)

(Fig. 5B)

*Anchistia elegans* Paulson, 1875: 113, pl. 17, fig. 1 (type locality: Red Sea).

*Periclimenes (Falciger) dubius* Borradaile, 1915: 211 (type locality: Laccadive Islands).

*Periclimenes elegans* – Bruce, 1977a: 42; 1983: 884, 898; Chace & Bruce, 1993: 110; Bruce & Coombes, 1995: 129; Li, 2000: 178, fig. 225; Davie, 2002: 326.

*Kemponia elegans* – Bruce, 2004: 14; Li & Bruce, 2006: 643.

**Material Examined.** 2 ♂♂, 3 ♀♀ (2 ovig.), 2 juvs, Shag Rock (27°24.476'S, 153°31.504'E), Point Lookout, North Stradbroke I., Moreton Bay, 6–8 m, dead or living (*Seriotopora* sp.) corals, and anemone *Heteractis crispa*, SCUBA, X. Li, 21.02.2005.

**Distribution.** Australia (WA, northern coast of NT, Great Barrier Reef and northeast coast of Qld); Indo-west Pacific from the Red Sea and western Indian Ocean to the Marshall Islands and Hawaiian Islands; intertidal to 53 m depth. Not previously recorded from Moreton Bay.

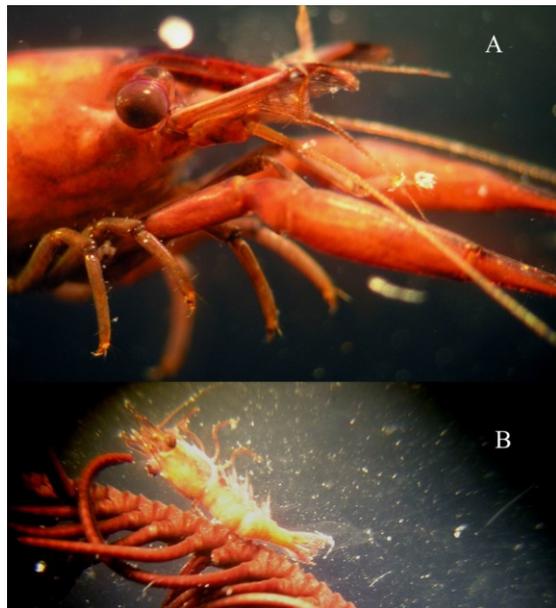


FIG. 8. *Laomenes nudirostris* (Bruce, 1968), Amity Point, ♂: **A**, anterior part of carapace and appendages, lateral view; **B**, with its host featherstar *Cenolia* sp.

**Remarks.** Specimens were transparent in life. The carapace and the merus of the second pereopods are characterised by declining red stripes. The chela, carpus and merus of the second pereopods have even fine brownish tubercles, with dark brownish encircles.

*Kemponia grandis* (Stimpson, 1860)  
(Fig. 5C)

*Anchistia grandis* Stimpson, 1860: 39 (type locality: Ryukyu Islands).

*Periclimenes vitiensis* Borradaile, 1898: 383 (type locality: Viti Levu, Fiji Islands).

*Periclimenes grandis* — Borradaile, 1898: 382; Bruce, 1977a: 42; Chace & Bruce, 1993: 112; Li, 2000: 186, fig. 235; Davie, 2002: 327.

*Kemponia grandis* — Bruce, 2004: 16; Li *et al.* 2004: 530; Li & Bruce, 2006: 644.

**Material Examined.** 2 ♂♂, ♀, Shag Rock (27°24.476'S, 153°31.504'E), Point Lookout, North Stradbroke I., Moreton Bay, 6–8 m, with anemone *Heteractis crispata*, SCUBA, X. Li, 21.02.2005.

**Distribution.** Australia (NT, Qld); widespread in Indo-West Pacific from the Red Sea and east coast of Africa to French Polynesia. Not previously recorded from Moreton Bay.

**Remarks.** Live specimens were transparent; palm, carpus and merus of second pereopods have a red circled stripe respectively.

*Kemponia tenuipes* (Borradaile, 1898)  
(Fig. 7)

*Periclimenes tenuipes* Borradaile, 1898: 384 (type locality: New British); Bruce & Coombes, 1995: 135; Li, 2000: 240, fig. 319; Davie, 2002: 322.

*Periclimenes borradalei* Rathbun, 1904: 34 (unnecessary nom. nov. for *Periclimenes tenuipes* Borradaile, 1898).

*Periclimenes (Falciger) borradalei* — Borradaile, 1917: 324, 372.

*Periclimenes (Ancylocaris) tenuipes* — Kemp, 1922: 220, pl. 8, fig. 11.

*Periclimenes (Harpilius) tenuipes* — Holthuis, 1952b: 84.

*Kemponia tenuipes* — Bruce, 2004: 19.

**Distribution.** Australia (NT, Qld); Indo-West Pacific from East Africa and Red Sea to New Caledonia, Marshall Islands, and Fiji. Not previously recorded from Moreton Bay.

**Remarks.** This record is based on a photo (Fig. 7) taken at Amity Point, North Stradbroke I., in September 1986 by Rudi Kuitert, and used with his kind permission. Unfortunately the specimen was not collected. The photo shows that this species is transparent in life; the second pereopods have orange fingers; bright yellowish to

green or orange strips found on eyes, anterior carapace, tail-fan, and distal carpus of second pereopods; and black circle or stripe on distal meri of second and first pereopods, distal scaphocerite, distal pleuron of sixth abdominal somite and dorsomedian tergum of third abdominal somite. A second photo shows rostral dentition to be 10/5, possibly 10/6 (A.J. Bruce, pers. comm.).

*Laomenes nudirostris* (Bruce, 1968)  
(Fig. 8)

*Parapontonia nudirostris* Bruce, 1968: 1149, figs 1–5 (type locality: Nouméa, New Caledonia); 1981b: 9; 1992: 78, figs 25–27; Li, 2000: 114, fig. 125; Davie, 2002: 318.

*Laomenes nudirostris* — Okuno & Fujita, 2007: 121, fig. 3.

**Material Examined.** ♂, Amity Point (27°24.249'S, 153°26.215'E), North Stradbroke I., Moreton Bay, 2–5m, associated with featherstar *Cenolia* sp., SCUBA, X. Li, 15.02.2005.

**Distribution.** Australia (Qld); New Caledonia; Papua New Guinea?; Japan; Kume I.; Okinawa. First recorded from North Stradbroke I. by Bruce (1981b).

**Remarks.** The specimen agrees well with the descriptions and illustrations of Bruce (1968, 1992), except that the dactylus of the ambulatory pereopods all lack the accessory tooth. On the host featherstar, there was one male and one ovigerous female living on the same host (the female escaped). The body is dark red, similar to its host. After preservation in alcohol for more than one and a half years, the colour still remains dark.

*Periclimenaeus bidentatus* Bruce, 1970

*Periclimenaeus bidentatus* Bruce, 1970b: 305 (type locality: Heron I., Queensland); 1991: 254, fig. 18; Li, 2000: 119, fig. 131; Davie, 2002: 319.

**Material Examined.** 2 ♀♀, Dunwich (27°29.642'S, 153°23.789'E), North Stradbroke I., Moreton Bay, intertidal, with sponge, X. Li, 9.02.2005.

**Distribution.** Australia (northern coast NT, east coast of Qld, Great Barrier Reef, Hibernia Reef, WA); New Caledonia, Papua New Guinea and Zanzibar. Previously recorded from Moreton Bay by Bruce (1983).

**Remarks.** Specimens were transparent in life; appendages have red stripes, and the rostral formula is 6/0.

*Periclimenaeus hecate* (Nobili, 1904)

*Coralliocaris hecate* Nobili, 1904: 232 (type locality: Djibouti).

*Periclimenaeus hecate* — Balss, 1921: 14; Bruce, 1974: 1574, figs 11, 12, 13E; 2002: 577, fig. 8; Li, 2000: 124, fig. 143; Davie, 2002: 320.

**Material Examined.** IOCAS, ♂, Shag Rock (27° 24.855'S, 153°31.599'E), Point Lookout, North Stradbroke I., Moreton Bay, coral reef, 7–11 m, SCUBA, X. Li, 18.02.2005.

**Distribution.** Australia (northeast coast Qld, Great Barrier Reef, northwest coast of WA); many localities of Indo-West Pacific. Not previously recorded from Moreton Bay.

**Remarks.** Specimen was transparent in life. The rostral formula is 4/0.

*Periclimenes brevicarpalis* (Schenkel, 1902)  
(Fig. 9)

*Periclimenes amboinensis* Zehntner, 1894: 206, pl. 9, fig. 27 (non *Periclimenes amboinensis* de Man, 1888).

*Ancylocaris brevicarpalis* Schenkel, 1902: 563, pl. 13, fig. 21 (type locality: Amboina, Indonesia).

*Palaemonella aberrans* Nobili, 1904: 234 (type locality: Djibouti).

*Harpilius latirostris* Lenz, 1905: 380, pl. 47, fig. 14–14b (type locality: Zanzibar).

*Periclimenes potina* Nobili, 1905: 159 (type locality: southeast coast of Arabia).

*Periclimenes hermitensis* Rathbun, 1914: 655, pl. 1, figs 1–3 (type locality: Monte Bello I.).

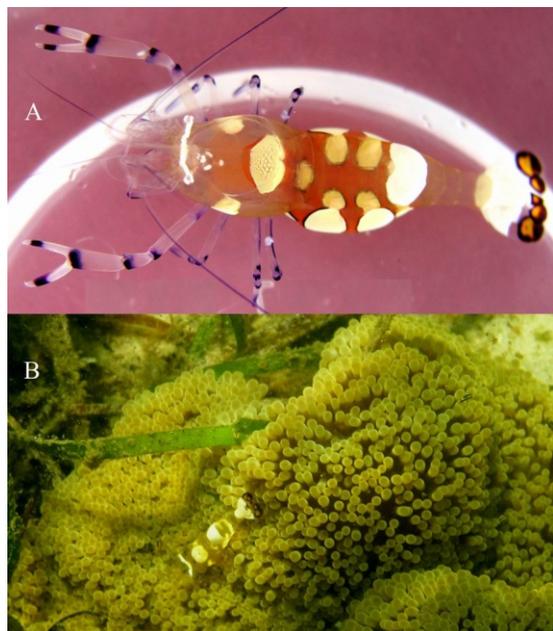


FIG. 9. *Periclimenes brevicarpalis* (Schenkel, 1902). **A**, Dunwich, ovig. ♀, dorsal view; **B**, Henderson's Gutter, ovig. ♀, shows association with host anemone *Stichodactyla haddoni*.

*Periclimenes (Ancylocaris) brevicarpalis* — Kemp, 1922: 185–191, figs 40–42, pls 67.

*Periclimenes (Harpilius) brevicarpalis* — Holthuis, 1952b: 69–73, fig. 27.

*Periclimenes brevicarpalis* — Bruce, 1991: 236; Chace & Bruce, 1993: 104; Bruce & Coombes, 1995: 125; Davie, 1998: 211, unnumbered colour photo; 2002: 324; Li, 2000: 161, fig. 199; Li & Bruce, 2006: 676.

**Material Examined.** North Stradbroke I., Moreton Bay: IOCAS, 2 ♂♂, Dunwich (27°29.6'S, 153° 23.8'E), intertidal, with anemone *Stichodactyla haddoni*, X. Li, 11.02.2005; IOCAS, 3 ♂♂, ovig. ♀, Henderson's Gutter (27°20.879'S, 153°24.715'E), 0.5–1.5 m, seagrass bottom, associated with anemone *Stichodactyla haddoni*, snorkelling, X. Li, 17.02.2005.

**Distribution.** Australia (northern coast of NT, Great Barrier Reef and northeast coast of Qld); widespread in Indo-west central Pacific. Previously recorded from Moreton Bay by Davie (1998).

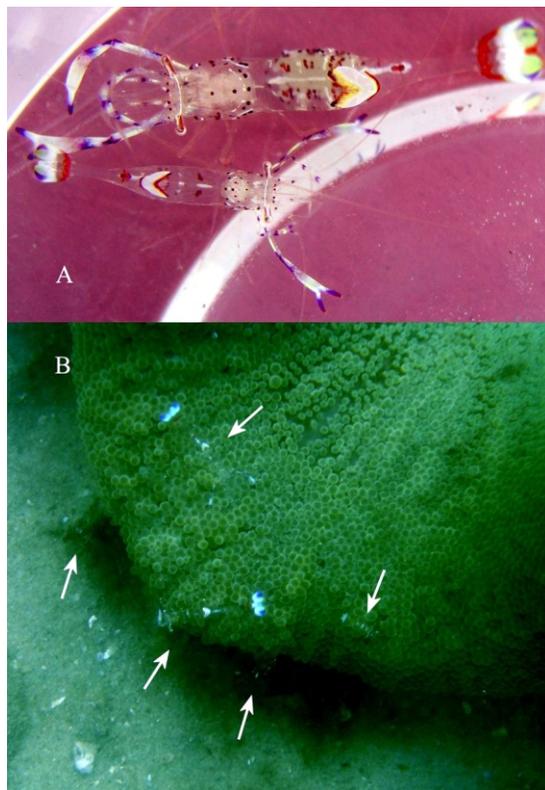


FIG. 10. *Periclimenes holthuisi* Bruce, 1969. **A**, Dunwich, male/female pair in dorsal view; **B**, Dunwich, intertidal, 12.02.2005, group of the shrimps showing the association with host anemone *Stichodactyla haddoni*.

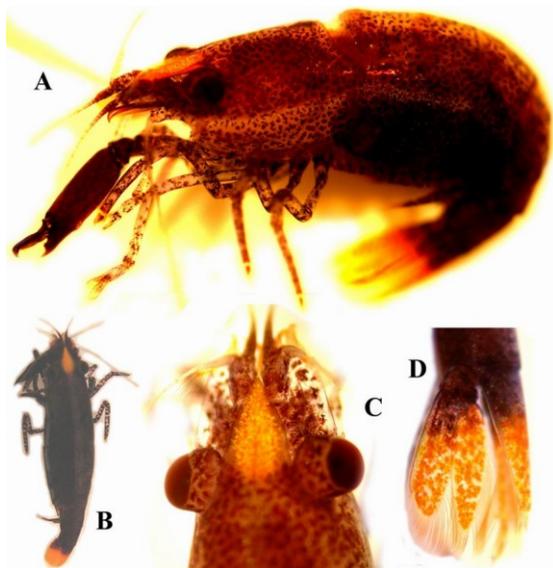


FIG. 11. *Pontoniopsis comanthi* Borradaile, 1915, Shag Rock, ovig. ♀. **A**, body, lateral view; **B**, body, low magnification, dorsal view; **C**, anterior part of carapace, dorsal view; **D**, tailfan, lateral view.

***Periclimenes cobourgi* Bruce & Coombes, 1995**

*Periclimenes cobourgi* Bruce & Coombes, 1995: 125, figs 10–11 (type locality: Cobourg Peninsula, NT, Australia); Li, 2000: 168, fig. 207; Davie, 2002: 325.

**Material Examined.** North Stradbroke I., Moreton Bay: IOCAS, 4 ♀♀ (2 ovig.), Dunwich, intertidal seagrass, X. Li, 11.02.2005; IOCAS, ovig. ♀, Dunwich, intertidal seagrass, with *Cladiella* sp. [Alcyonacea], X. Li, 12.02.2005; IOCAS, 248 specs (72 ovig. ♀♀), Myora (27°28.092'S, 153°25.323'E), intertidal zone, seagrass, X. Li, 12.02.2005; IOCAS, ♂, 11 ♀♀ (10 ovig.), Myora (27°28.092'S, 153°25.323'E), intertidal zone, seagrass, J. Markham, 14.02.2005; IOCAS, 4 ♂♂, 8 ♀♀ (4 ovig.), Adam's Beach, Dunwich, intertidal zone, seagrass *Zostera capricorni*, X. Li, 16.02.2005; IOCAS, 101 specs (46 ovig. ♀♀), Amity Point, intertidal, seagrass, X. Li, 20.02.2005.

**Distribution.** Previously recorded from the type locality, Cobourg Peninsula, NT, Australia. This is the second record for the species.

**Remarks.** The peculiar stout anterior median process on the fourth sternite of these specimens is typical of both *Periclimenes indicus* (Kemp, 1915) and *Periclimenes cobourgi* Bruce & Coombes, 1995. The following characters agree more closely with *P. cobourgi*: 1) rostral dentition 1 + 5–6 (mostly 6)/0–2 (mostly 2, rarely 0); 2) rostrum reaches or overreaches distal end of

antennule peduncle; with dorsal margin usually slightly convex; 3) epigastric spine located at about anterior 0.3 of carapace length; 4) hepatic spine located in high, anterior position; 5) anterolateral angle of branchiostegite usually bluntly obtuse, not protruding; 6) eye stalk c. 0.4 of carapace length, reaching to about proximal 0.4 of rostrum; 7) corneal diameter c. 0.22 of carapace length, 0.6 of stalk length; 8) accessory pigment spot on feebly raised tubercle; 9) upper flagellum of antennule with proximal 7–8 segments fused; shorter ramus includes 2–3 segments; scaphocerite slightly exceeds antennular peduncle; 10) ambulatory pereopod with long ventral spines on distal half of propodus; 11) spines are more or less as long as the propodus depth; 12) distoventral pair of spines are usually less than and sometimes as long as half the dactylar length; 13) dactylus with accessory tooth is usually longer than half the unguis; 14) telson with posterior margin has a small acute median process.

***Periclimenes holthuisi* Bruce, 1969**

(Fig. 10)

*Urocaris longicaudata* Pearson, 1905: 78, pls 1, fig. 5. (non *U. longicaudatus* Stimpson, 1860)

*Periclimenes (Periclimenes) aesopius* Holthuis, 1952b: 34, figs 5, 6. (non *Anchistia aesopia* Bate, 1863)

*Periclimenes holthuisi* Bruce, 1969b: 258 (type locality: Hong Kong); Chace & Bruce, 1993: 113; Bruce & Coombes, 1995: 130; Davie, 1998: 97, unnumbered colour photo; 2002: 327; Li, 2000: 190, fig. 241.

*Periclimenes (Periclimenes) holthuisi* — Wadley, 1978: 19, fig. 9j.

**Material Examined.** North Stradbroke I., Moreton Bay: IOCAS, ♂, ♀, Dunwich, intertidal, with anemone *Stichodactyla haddoni*, X. Li, 9.02.2005; IOCAS, 6 ♂♂, 9 ♀♀ (2 ovig.), Dunwich (27°29.6'S, 153°23.8'E), intertidal, with anemone *Stichodactyla haddoni*, X. Li, 11.02.2005; IOCAS, 3 ♀♀, Dunwich, intertidal, with anemone *Stichodactyla haddoni*, X. Li, 12.02.2005; IOCAS, ♂, ♀, Henderson's Gutter (27°20.879'S, 153°24.715'E), 0.5–1.5 m, seagrass bottom, associated with anemone *Stichodactyla haddoni*, snorkeling, X. Li, 17.02.2005.

**Distribution.** Australia (northern coast of NT, Great Barrier Reef, east coast Qld); Indo-West Pacific from eastern Africa to Japan, New Caledonian and Marshall Islands. Previously recorded from Moreton Bay by Davie (1998).

**Remarks.** This species usually occurs in small groups associated with its host — this is in contrast with *Periclimenes brevicarpalis*, that is only ever found living as a heterosexual pair on its host anemone.

*Periclimenes sarkanae* Bruce, 2007

*Periclimenes sarkanae* Bruce, 2007: 61, figs 1–5 (type locality: Fisherman I., Moreton Bay, Australia).

**Material Examined.** North Stradbroke I., Moreton Bay: IOCAS, 11 ♂♂, 4 ♀♀ (3 ovig.), Dunwich, intertidal, with *Cladiella* sp., X. Li, 11.02.2005; IOCAS, ♀, Dunwich, intertidal, seagrass bottom, X. Li, 11.02.2005; IOCAS, 3 ♂♂, 4 ♀♀ (2 ovig.), Dunwich, intertidal, with anemone *Stichodactyla haddoni*, X. Li, 11.02.2005; IOCAS, 6 ♂♂, 11 ♀♀ (4 ovig.), Dunwich, intertidal, with *Cladiella* sp., X. Li, 12.02.2005; IOCAS, ovig. ♀, Dunwich, intertidal, with anemone *Stichodactyla haddoni*, X. Li, 12.02.2005; IOCAS, ovig. ♀, Dunwich, intertidal, with algae, X. Li, 15.02.2005.

**Distribution.** Only known from the type locality, Moreton Bay.

**Remarks.** The specimens agree well with the original description and illustrations of Bruce (2007). They were transparent in life, with small red spots on base of legs, and more or less on the body surface.

*Pontoniopsis comanthi* Borradaile, 1915

(Fig. 11)

*Pontoniopsis comanthi* Borradaile, 1915: 213 (type locality: Torres Strait); 1917: 377, pl. 57, fig. 27; Holthuis, 1952b: 153, figs 70, 71; Bruce, 1981c: 396, figs 3d, 4, 5; Li, 2000: 276, fig. 369; Davie, 2002: 337.

**Material Examined.** North Stradbroke I., Moreton Bay: ovig. ♀, Shag Rock (27°24.855'S, 153°31.599'E), Point Lookout, 7–11m, coral reef, associated with featherstar *Cenolia* sp., SCUBA, X. Li, 18.02.2005.

**Distribution.** Australia (northeast coast of Qld, Tasman Sea); Indo-West Pacific from Red Sea to Japan and Kiribati. Not previously recorded from Moreton Bay.

**Remarks.** In life the body was covered with dense dark red spots and stripes; the rostrum, tail-fan, dactylus of ambulatory pereopods, and the distal part of the antennules are covered with sparse big orange yellow spots. Its colour pattern is similar to its host.

#### KEY TO THE PALAEMONIDAE OF MORETON BAY

1. Posterior margin of telson with two pairs of spines and one or more pairs of setae; base of third maxilliped with pleurobranch; mandible with three-segmented palp; carapace with branchiostegal suture; fourth thoracic sternite with distinct median process between first pereopods; dactylus of ambulatory pereio-

pods simple; rostrum straight, without elevated basal crest. Palaemoninae . . . . . 2

- Posterior margin of telson with three pairs of posterior spines; base of third maxilliped without pleurobranch. Pontoniinae . . . . . 6
- 2. Carapace with hepatic spine, without branchiostegal spine; distal part of posterior margin of propodus of fifth pereopod with numerous transverse rows of setae; second pereopod with carpus longer than merus, fingers without row of enlarged tubercles at inner side of cutting edge, with at most one or two teeth on proximal part of cutting edge, rest of cutting edge entire . . . . . *Macrobrachium* . . . . . 3
  - Carapace without hepatic spine, but with branchiostegal spine. *Palaemon* . . . . . 4
- 3. Second pereopod with fingers two fifths as long as palm. . . . . *Macrobrachium novaehollandiae* (De Man, 1908)
  - Second pereopod with fingers three quarters as long as palm. . . . . *Macrobrachium intermedium* (Stimpson, 1860)
- 4. Second pereopod with carpus less than twice, longer than 1.5 times as long as chela; dorsal rostral teeth discontinuous, distal half entire except for subapical tooth; upper antennular flagellum with fused part subequal to, or longer than, free part of shorter ramus; scaphocerite at least as long as carapace; first pleopod of male with margin of endopod entire, without appendix. R: 1+1–7+1/3–10. . . . . *Palaemon debilis* Dana, 1852
  - Second pereopod with carpus shorter than chela; branchiostegal spine inserted on margin of carapace. . . . . 5
- 5. Upper antennular flagellum with fused part less than half as long as free part of shorter ramus, shorter ramus subequal to antennular peduncle; second pereopod with carpus more than two-thirds as long as chela; rostrum deep, much expanded at level of first ventral tooth, with less than seven ventral teeth. R: 2–3+9–13/2–5. . . . . *Palaemon serrifer* (Stimpson, 1860)
  - Upper antennular flagellum with fused part more than half as long as free part of shorter ramus; second pereopod with fingers much longer than half as long as palm, carpus shorter than chela; only one tooth of dorsal rostral series situated on carapace posterior to level of orbital margin; basal

- antennular segment with distolateral spine not overreaching adjacent convex distal margin. R: 2-3 + 6-9/3-4. . . . . *Palaemon serenus* (Heller, 1862)
6. Mandible with palp; carapace with hepatic spine; transverse ridge on fifth thoracic sternite usually with pair of long, slender, acute submedian processes; second pereiopod with merus armed with sharp distoventral tooth. *Palaemonella* . . . . . 7
    - Mandible without palp; carapace with or without hepatic spine; transverse ridge on fifth thoracic sternite, if present at all, without pair of long, slender, acute submedian processes; second pereiopod with merus usually unarmed distoventrally; all maxillipeds provided with exopods. . . . . 8
  7. Carapace with supraorbital spine; second pereiopod with ischium distoventrally unarmed; rostrum 0.9 times as long as carapace, exceeding end of third segment of antennular peduncle. R: 2+5/2 . . . . . *Palaemonella spinulata* Yokoya, 1936
    - Carapace without supraorbital spine, usually with supraorbital tubercle; second pereiopod with carpus armed distally with one or two marginal teeth; dactylus of ambulatory stout, no longer than six times basal depth; third pereiopod with flexor margin of dactylus regularly concave, not sinuous, distoventral propodal spines long. . . . . *Palaemonella rotumana* (Borradaile, 1898)
  8. Carapace with hepatic spine. . . . . 9
    - Carapace without hepatic spine, without postorbital spines. . . . . 29
  9. Epistome with a pair of horns; rostral lateral carina forming well developed supraorbital eaves, supraorbital tooth present; eye with cornea more or less produced distally as a papilla-like project (ogival); mandible with incisor process widened and multidentate; rostrum unarmed dorsally. *Laomenes* . . . . . *Laomenes nudirostris* (Bruce, 1968)
    - Epistome without horns. . . . . 10
  10. Dactyli of ambulatory pereiopods with hoof-shaped basal protuberance not disappearing from view when dactyl bent backwards; body strongly depressed; rostrum armed with teeth; major second pereiopod with two or three teeth on opposable margin of movable finger; rostrum with lateral carina rather abruptly expanded posteriorly into bluntly subrectangular supraorbital eave. *Jocaste*. . . . . *Jocaste lucina* (Nobili, 1901)
    - Dactyli of ambulatory pereiopods without basal protuberance, sometimes broadened in basal region, but broadened part disappears in slit of propodus when dactylus bend backwards. . . . . 11
  11. Pleura of at least fourth and fifth abdominal somites produced as distinct sharp point; ambulatory pereiopods robust, with stout simple hooked dactylus; body strongly depressed; ventral margin of rostrum armed with teeth; carapace with antennal spine considerably ventral to orbital angle, at same level as hepatic spine; second pereiopod dactylus with lateral carina and one tooth on opposable margin, fixed finger with 2 teeth, ischium with 1 distal spine on extensor margin and 2 on flexor margin. *Harpiliopsis* . . . . . *Harpiliopsis beaupresii* (Audouin, 1825)
    - Pleura of first five abdominal somites broadly rounded or bluntly pointed, never produced as sharp point; hepatic spine not moveable; rostrum laterally compressed, never flattened dorsally, so not T-shaped in transverse section, armed with teeth. . . . . 12
  12. Basal part of rostrum with narrow lateral wings, which narrow gradually or abruptly into compressed distal part, with small dorsal teeth; ventral rostral margin unarmed; postorbital groove distinct, bordered posteriorly by postorbital carina extending from lateral margin of rostrum to near hepatic spine; carina from antennal spine extending in direction of hepatic spine; ischium and merus of ambulatory pereiopods fused. *Tuleariocaris* . . . . . *Tuleariocaris holthuisi* Hipeau-Jacquotte, 1965
    - Rostrum without lateral wings, with conspicuous dorsal and/or ventral teeth; postorbital groove, if present, narrow, indistinct; ischium and merus of ambulatory pereiopods not fused, propodi usually spinulate; antennal spine present; second pereiopods with fingers subequal or shorter than palm, without sound-producing fossae; carapace with or without supraorbital spine; third thoracic sternite normal, not greatly elongated. . . . . 13
  13. Fourth thoracic sternite with slender, finger-like median process; ambulatory pereiopods with dactylus simple, long,

- slender, not hook-like; first pereopod with fingers simple, not subspatulate. *Kemponia* . . . . . 14
- Fourth thoracic sternite without slender median process; ambulatory pereopods with dactylus simple or biunguiculate, sometimes more ornate, corpus without acute dorso-distal accessory spinules; first pereopod with fingers sometimes subspatulate. . . . . 20
14. Second pereopod merus unarmed. . . . . 15
- Second pereopod merus with distoventral tooth; ischium distoventrally unarmed; distal tooth of scaphocerite distinctly exceeding lamella. . . . . 16
15. Supraorbital spine present; second pereopod with carpus much longer than palm. R: 1+6–9/2–3. . . . .
- . . . . . *Kemponia anacanthus* (Bruce, 1988)
  - Supraorbital spine absent; second pereopods well developed, carpus subequal or longer than palm length, chelae more than 0.9 times carapace length, fingers with distinct diasternal notches; slenderly built species; one rostral dorsal tooth situated on carapace posterior to orbital margin; distolateral angle of basal antennular segment with distolateral tooth only; ambulatory dactylus about 0.35 times propodal length. R: 1+7–8/4–5. . . . .
  - . . . . . *Kemponia calmani* (Tattersall, 1921)
16. Supraorbital spine absent; rostrum sinuous, upcurved, greatly exceeding scaphocerite; ambulatory propods segmented, non-spinulate; distal margin of carpus of second pereopod with one obscure teeth; R: 1+8–11/6–9. . . . .
- . . . . . *K. tenuipes* (Borradaile, 1898)
  - Supraorbital spine present; rostrum not sinuous, not greatly exceeding scaphocerite; ambulatory propods spinulate or not, non-segmented; distal margin of second pereopod carpus with 1–2 acute teeth. . . . . 17
17. Rostrum shallow; ambulatory pereopods long and slender, fifth exceeding scaphocerite; carpus of male second pereopod subequal to, or shorter than, merus. R: 1+6–8/2–4. . . . .
- . . . . . *Kemponia andamanensis* (Kemp, 1922)
  - Rostrum moderately deep; ambulatory pereopods relatively stout, fifth not exceeding scaphocerite. . . . . 18
18. Carpus of second pereopod with single disto-medial tooth only. R: 1+5–9/2–5. *Kemponia grandis* (Stimpson, 1860)
- Carpus of second pereopod with two acute distal teeth. . . . . 19
19. Ambulatory pereopods with propodi strongly spinulate; chela of second pereopod (male only?) finely tuberculate. R: 1+5–7/2–3. . . . .
- . . . . . *Kemponia elegans* (Paulson, 1875)
  - Ambulatory pereopods with propodi with small distoventral spine only; chela of second pereopod not tuberculate. R: 1+6–7/3. . . . .
  - . . . . . *Kemponia anymone* (De Man, 1902)
20. Fourth thoracic sternite with distinct acute transverse median process; second pereopods remarkably poorly developed; ambulatory dactyli distinctly biunguiculate. R: 1+4–6/1–3. *Phycomenes* . . . . .
- . . . . . *Phycomenes zostericola* Bruce, 2008
  - Fourth thoracic sternite without transverse median process; second pereopods usually well developed; ambulatory dactyli simple or biunguiculate, sometimes more ornate. *Periclimenes* . . . . . 21
21. Carapace with supraorbital or postorbital tooth; all dorsal rostral teeth situated on rostrum anterior to posterior orbital margin, with 1–3 ventral teeth; basal antennular segment armed with two distolateral spines; second pereopod with fingers about as long as palm. . . . .
- . . . . . *Periclimenes commensalis* Borradaile, 1915
  - Carapace without supraorbital or postorbital tooth, at most with obscure tubercle. . . . . 22
22. Epigastric spine or posterior-most tooth of dorsal rostral series arising from carapace at or posterior to level of hepatic spine. . . . . 23
- Posterior-most tooth of dorsal rostral series arising from carapace at or anterior to level of hepatic spine, not widely separated from rest of series; second pereopod without acute distal tooth on flexor margin of merus; hepatic spine not extending beyond anterior margin of carapace; telson with two pairs of dorsal spines; ambulatory propodi without longitudinal rows of clusters of long setae on flexor margin. . . . . 26
23. Third abdominal tergite with posterior margin minute denticulate; third pereopod dactylus clearly biunguiculate, propodus sparsely setose, two similar long distoventral spines about 0.3 times dactylar length. R: 1–2+7–8/2–3. . . . .
- . . . . . *Periclimenes sarkanae* Bruce, 2007

- Third abdominal tergite with posterior margin entire; second pereopod without distal tooth on flexor margin of merus; rostrum not extremely deep, dorsal and ventral margins if convex never strongly, dorsal margin not serrated with small equidistant teeth; third pereopod with dactylus biunguiculate; orbital angle subovate, with or without acute tip; posterior-most tooth of dorsal rostral series more widely separated from next anterior tooth than any other pairs of adjacent teeth. . . . . 24
- 24. Abdomen with low, compressed median prominence on third somite; antennal scale less than three times as long as wide, with lateral margin straight; hepatic spine larger than antennal spine; body slender; median margin of coxae of third and fourth pereopods unarmed, ambulatory dactyli with unguis markedly longer than accessory tooth, two or more spines on the ventral margin of propodi distributed along length; carpus of second pereopod shorter than palm, both fingers with proximal diastema (distinct proximal concavities), dentition 1/1; patch on tergum of third abdominal somite V-shaped in dorsal view, anterior and posterior margins fringed with red lines; carpus of first pereopod distinctly shorter than chela; cornea with ocellus, ophthalmic somite with ‘bec oclair’; antepenultimate segment of third maxilliped without distolateral spine. R: 1-2+7-9/1-2. . . . . *Periclimenes holthuisi* Bruce, 1969
- Abdomen without compressed prominence on third somite. . . . . 25
- 25. Second pereopods unequal, dissimilar, carpus distinctly shorter than palm; rostrum with dorsal margin convex but not as a strongly arched lamella, ventral margin armed with two teeth, not small, placed posterior to level of at least one dorsal marginal tooth; epigastric spine and posterior-most rostral tooth articulated; first pereopod chela slightly shorter than carpus, distinctly shorter than merus, not longer than carpus; propodus of third pereopod armed distally with three pairs of long slender spines, length exceeding distal propodal width, and single long ventral spine, with two distal pairs only. R: 2+7/2. . . . . *Periclimenes terangeri* Bruce, 1998
- Second pereopod with carpus more than 1/2 as long as palm, merus of major second pereopod not overreaching rostrum; rostrum not very deep, horizontal, not exceeding intermediate segment of antennular peduncle, ventral margin armed with small teeth, placed below or anterior to foremost dorsal marginal tooth; pereopods not remarkable elongate and slender; antennal scale more than three times as long as wide; body size relatively small; fingers of first pereopod not much longer than palm; epigastric spine at anterior 0.3 of carapace length; telson with small acute median process on posterior margin. R: 1+7/0. . . . . *Periclimenes cobourgi* Bruce & Coombes, 1995
- 26. Third pereopod with dactylus biunguiculate, accessory tooth minute, without denticle on flexor margin of dactylus; basal antennular segment armed with 2 or 3 distolateral teeth, stylocerite not reaching as far as articulation of second peduncle segment; antennal spine directed anteriorly, not dorsally; rostrum not typically palaemonoid, compressed, dorsal teeth anteriorly crowded, ventrally with convex keel and lacking teeth; sixth abdominal somite less than twice as long as fifth; antennal scale about 2.3 times longer than wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade, fingers of first pereopod pectinate on opposable margins. R: 10-13/0. . . . . *Periclimenes soror* Nobili, 1904
- Third pereopod with dactylus simple, not biunguiculate; second pereopod with fingers subequal to or shorter than palm; first pereopod with fingers usually subequal to palm; fourth thoracic sternite without large linguiform median plate; unguis of ambulatory dactylus unarmed. . . . . 27
- 27. Rostrum with midrib directed somewhat anteroventrally, not overreaching antennal scale, dorsal margin of rostrum faintly convex, all dorsal rostral teeth confined to rostrum anterior to orbital margin, posterior-most dorsal rostral tooth not distinctly smaller than anterior teeth; third pereopod without subdistal projection on flexor margin of dactylus; anterior pair of telson dorso-lateral spines situated at about a third of length; hepatic spine arising only slightly below level of antennal spine; sixth abdom-

- inal somite 1.5 times as long as fifth; first pereopod with fingers pectinate on opposable margins; second pereopod with carpus little longer than distal width; body larger. Associated with giant anemones; almost completely colourless. . . . .  
 . . . . . *Periclimenes inornatus* Kemp, 1922
- Rostrum with midrib nearly horizontal, directed more anteriorly than anteroventrally, dorsal margin distinctly convex. . . 28
28. First pereopod with fingers pectinate on opposable margins; second pereopod with fingers nearly as long as palm, carpus 1.5 times longer than distal width. . . . .  
 . . . . . *Periclimenes brevicarpalis* (Schenkel, 1902)
- First pereopod with fingers not pectinate on opposable margins, simple, not subspatulate; second pereopods markedly unequal, cutting edges of fingers with one tooth on dactylus and two on fixed finger; rostrum relatively shallow. . . . .  
 . . . . . *Periclimenes ruber* Bruce, 1982
29. Dactyli of ambulatory pereopods with distinct basal protuberance not disappearing from view when dactylus bent backward. . . . . 30
- Dactyli of ambulatory pereopods without basal protuberance, base of dactylus sometimes broadened, but broadened part disappearing in slit of propodus when dactylus bent backward; rostrum may be reduced but not almost obsolete; scaphocerite not aciculate, lamella not obsolete; first pereopods equal, carpus not segmented. . . . 32
30. Basal protuberance on dactylus of ambulatory pereopods compressed or rounded, not hoof-shaped; body rounded or depressed; antennal spine absent; rostrum depressed, toothless; fingers of second pereopod normal, not excavated on inner surface; ambulatory dactylus armed with two strong, divergent, spine-like teeth, basal process well developed, without marginal tooth; lateral posterior spines of telson situated at apex; first pereopod with carpus distinctly shorter than merus; rostrum not reaching end of scale. *Conchodytes* . . . . .  
 . . . . . *Conchodytes meleagrinae* Peters, 1852
- Basal protuberance on dactylus of ambulatory pereopods hoof-shaped; body strongly depressed; antennal spine present. *Coralliocaris* . . . . . 31
31. Lateral margin of dactylus of second pereopod strongly convex and semi-circular; first pereopods slender, chela about four times as long as wide; basis of first pleopod with flattened setae on dorsal surface in males and young; posterior ventral angle of fifth abdominal somite acute. R: 4-5/1-2. . . . .  
 . . . . . *Coralliocaris graminea* (Dana, 1852)
- Lateral margin of dactylus of second pereopod abruptly angled, cutting edge of fixed finger with 2 teeth; third maxilliped with penultimate segment less than twice as long as wide; dactylus of third to fifth pereopods tipped with small projection, hook-shaped protuberance strong. R: 4-5/1-2. . . . .  
 . . . . . *Coralliocaris superba* (Dana, 1852)
32. Rostrum depressed, toothless, lateral carinae distinctly expanded, reaching well beyond eyes; pterygostomial angle rounded, not distinctly produced anteriorly; antennal spine present; second pereopods very unequal, fingers of major distinctly dentate, dactylus with flange-like ridge in upper half of lateral surface, carpus of major cup-shaped, hardly longer than wide, carpus of minor slender, more than four times longer than wide; both pairs of dorsolateral telson spines very small, placed in posterior half of telson; peduncles of eyestalks not fully exposed dorsally, orbit developed, with postorbital notch, inferior orbital angle indistinct; first segment of antennular peduncle with massive ventromedial tooth; first maxilliped with palp; third maxilliped without arthrobranch; first pereopod with fingers spatulate; third pereopod with dactylus not compressed, corpus not distally laminar, distinctly bidentate, unguis indistinct, propodus without strong denticulate club-shaped distoventral and ventral spines. *Pontoniopsis* . . . . .  
 . . . . . *Pontoniopsis comanthi* Borradaile, 1915
- Rostrum laterally compressed, usually with teeth. . . . . 33
33. Second pereopods equal or unequal, fingers without molar-like tooth and fossae; dactylus of third pereopod similar to those of fourth and fifth, not more than four times long than broad, less than half as long as propodus; if dorsal teeth present on rostrum then all anterior to orbital margin. . . . . 34

- Second pereopods very unequal in size and shape, dactylus of major with molar-shaped tooth, fixed finger with fossae; exopod of uropod with distolateral tooth and mobile spine medially; carapace without post-antennal spines. *Periclimenaeus*. . . . . 36
- 34. Exopod of uropod with several slender teeth on external margin and external part of diaeresis; supraorbital teeth absent. R: 5/1. *Apopontonia* . . . . .  
     . . . . . *Apopontonia dubia* Bruce, 1981
- Outer margin of uropodal exopod straight, ending in single posterior tooth, with single, very small, uncurved movable spine at its inner side on extreme outer part of diaeresis; telson normally with two pairs of dorsal spines; posterolateral angle of sixth abdominal somite rounded or triangular, not spinous. . . . . 35
- 35. Telson with anterior pair of dorsal spines on anterior half; dactylus of ambulatory pereopods, apart from end claws, with many small denticles on posterior margin; palm of first pereopods about four times as long as fingers; rostrum unarmed; ventral angle of orbit rounded, not spinose; second pereopod with distal tooth on flexor margins of merus and ischium, fixed finger at most indistinctly and unequally bifid at distal end; cornea of eye hemispherical; third pereopod with dactylus unarmed on flexor margin of unguis. *Onycocaris* . . . . .  
     . . . . . *Onycocaris stradbrokei* Bruce, 1998
- Telson with both pairs of dorsal spinules in posterior half; dactylus of ambulatory pereopods simple; palm of first pereopods about as long as fingers, chela unusually curled to form open tube; rostrum distally compressed laterally, unarmed; antennal spine usually present; carapace with minute antennal spine; third maxilliped with antepenultimate segment about twice as wide as penultimate segment. *Anchistus* . . . . .  
     . . . . . *Anchistus custos* (Forskål, 1775)
- 36. Distal cutting edge of dactylus of minor second pereopod denticulate; unguis of dactylus of third pereopod without transverse rows of small tubercles proximodorsally, corpus distally unarmed. . . . . 37
- Distal part of cutting edge of dactylus of minor second pereopod entire; distal part of cutting edge of dactylus of major second pereopod entire; small species. . . . . 38
- 37. Dactylus of ambulatory pereopods without acute tooth on proximal border of corpus; dactylus of major second pereopod at most slightly longer than fixed finger; dactylus of minor second pereopod with about 40 small teeth along whole cutting edge. R: 4–5/0. . . . .  
     . . . . . *Periclimenaeus hecate* (Nobili, 1904)
- Dactylus of ambulatory pereopods with acute tooth on proximal border of corpus; dactylus of third pereopod with proximal tooth perpendicular to margin, propodus without spines except for two distolateral ones; dactylus of major second pereopod with cutting edge entire. R: 3/0. . . . .  
     . . . . . *Periclimenaeus myora* Bruce, 1998
- 38. Carapace with acute supraorbital spine, but not very large; first pereopod short and stout, merus not far exceeding scaphocerite; body about 10 mm total length; rostrum armed with less than eight teeth; dactyli of ambulatory pereopods normal, not very elongate and slender, much less than half of propodus length, unsegmented, without small blunt teeth on distoventral margin. . . . .  
     . . . . . *Periclimenaeus zanzibaricus* Bruce, 1969
- Carapace without distinct supraorbital or supraocular spines, with supraorbital tubercle; dorsal surfaces of chelae of second pereopods not armed with long slender spines, at most with small tubercles or denticles, tips of dactyli distinctly doubled; dactylus of first pereopods of similar length to fixed finger, palm not distinctly ventromedially curved. . . . .  
     . . . . . *Periclimenaeus bidentatus* Bruce, 1970

ACKNOWLEDGEMENTS

I am mostly grateful to Peter Davie (Queensland Museum) for inviting me to participate the Moreton Bay Workshop and his kind assistance during my stay in Brisbane, and for carefully reviewing the format and English expression of the manuscript. I am indebted to all the marine biological colleagues who participated in the workshop and helped me to collect material and/or identify the host of the shrimp. Thanks are due to Dr A. J. Bruce, for kindly reviewing the manuscript, and giving many suggestions

and assistance to the present work, and to Rudi Kuitert for allowing me to use his photo of *Kemponia tenuipes*. This study was supported by the Knowledge Innovation Program of the Chinese Academy of Sciences (IOCAS No. O72715) and the National Natural Science Foundation of China (No. 40676088).

#### LITERATURE CITED

- Audouin V. 1825. Explication sommaire des planches de Crustacés de l'Égypte et de la Syrie, publiées par Jules-César Savigny, membre de l'Institut: offrant un exposé des caractères naturels des genres avec la distinction des espèces. Description de l'Égypte ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française. *Histoire naturelle* 1(4): 77–98.
1825. Explication sommaire des planches de Crustacés de l'Égypte et de la Syrie, publiées par Jules-César Savigny, membre de l'Institut: offrant un exposé des caractères naturels des genres avec la distinction des espèces. Description de l'Égypte ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française. Ed. 2, vol. 22: 249–290, atlas *Histoire naturelle* 2(Crustacea): pls 1–13.
- Balss, H. 1921. Stomatopoda, Macrura, Paguridea und Galatheidea. Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910–13, XXIX. *Kungliga Svenska Vetenskapsakademiens Handlingar* 61(10): 1–24, figs 1–12.
- Borradaile, L.A. 1898. A revision of the Pontoniidae. *Annals and Magazine of Natural History* (7) 2: 376–391.
1915. Notes on Carides. *Annals and Magazine of Natural History* (8) 15: 205–213.
1917. The Percy Sladen Trust Expedition to the Indian Ocean in 1905, under the Leadership of Mr. J. Stanley Gardiner, M. A., Vol. 6, VIII: On the Pontoniinae. *The Transactions of the Linnean Society of London* (2) 17(3): 323–396, pls 52–57.
- Bruce, A.J. 1968. A report on some pontoniid shrimp from New Caledonia (Crustacea Decapoda Natantia). *Bulletin du Muséum National d'Histoire Naturelle* (2) 39(6): 1148–1171, figs 1–10.
- 1969a. Preliminary descriptions of ten new species of the genus *Periclimenaeus* Borradaile, 1915 (Crustacea, Decapoda, Natantia, Pontoniinae). *Zoologische Mededelingen, Leiden* 44(12): 159–176.
- 1969b. Preliminary descriptions of sixteen new species of the genus *Periclimenes* Costa, 1844 (Crustacea, Decapoda Natantia, Pontoniinae). *Zoologische Mededelingen, Leiden* 43(20): 253–278.
- 1970a. Observations on the Indo-West Pacific species of the genus *Palaemonella* Dana, 1852 (Decapoda, Pontoniinae). *Crustaceana* 19(3): 273–287, figs 1–7, pl. 1.
- 1970b. Further preliminary descriptions of new species of the genus *Periclimenaeus* Borradaile, 1915, (Crustacea, Decapoda Natantia, Pontoniinae). *Zoologische Mededelingen, Leiden* 44(21): 305–315.
1971. Records of some rare pontoniid shrimps from Australian waters, with remarks upon the mouthparts of some species of the genus *Periclimenes* Costa, 1844. *Zoologische Verhandlungen, Leiden* 114: 1–32, figs 1–9.
1974. Observations upon some specimens of the genus *Periclimenaeus* Borradaile (Decapoda Natantia, Pontoniinae) originally described by G. Nobili. *Bulletin du Muséum National d'Histoire Naturelle* (3), 258, 180: 1557–1583, figs 1–15.
1976. A report on some pontoniid shrimps collected from the Seychelles Islands by the F. R. V. Manihine, 1972, with a review of the Seychelles pontoniid shrimp fauna. *Zoological Journal of the Linnean Society* 59: 89–153, figs 1–30.
- 1977a. Pontoniine shrimps in the collections of the Australian Museum. *Records of the Australian Museum* 31(2): 39–81, figs 1–16.
- 1977b. A redescription of *Periclimenes aesopius* (Bate, 1863) (Crustacea: Decapoda) with remarks on related species. *The Australian Zoologist* 19(2): 217–231, figs 1–34.
- 1977c. Notes on some Indo-Pacific Pontoniinae, XXX. Some *Periclimenes* species from Madagascar (Decapoda Caridea). *Crustaceana* 33(3): 265–274, figs 1–5.
- 1981a. Notes on some Indo-Pacific Pontoniinae, XXXVIII. *Apopontonia dubia* sp. nov., from a southern Queensland sponge host. *Crustaceana* 41 (3): 225–232, figs 1–3.
- 1981b. Pontoniine shrimps of Heron Island. *Atoll Research Bulletin* 245: 1–33.
- 1981c. Pontoniine shrimps from the Great Astrolabe Reef, Fiji. *Pacific Science* 34(4): 389–400, figs 1–5.
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 Museum Memoir* 16: 191–216, figs 1–8.
1983. Expédition Rumphius II (1975). Crustacés parasites, commensaux, etc. (Th. Monod ed.), IX: Crustacés Décapodes (1ère partie: Natantia Pontoniinae). *Bulletin du Muséum National d'Histoire Naturelle, Paris* 5, sect. A, 3: 871–902, figs 1–10.

1987. Re-descriptions of two little-known Indo-West Pacific palaemonid shrimps, *Periclimenes calmani* Tattersall and *P. delagoae* Barnard. *Journal of Natural History* **21**: 1415–1432, figs 1–9.
1988. A new palaemonid shrimp from the Zosterabeds of Moreton Bay, Queensland, Australia (Decapoda: Palaemonidae). *The Beagle, Records of the Northern Territory Museum of Arts and Sciences* **5**: 105–114, figs 1–5.
1990. Recent additions to the pontoniine shrimp fauna of Australia. *The Beagle, Records of the Museums and Art Galleries of the Northern Territory* **7**(2): 9–20, fig. 1.
1991. Shallow-water Palaemonoid shrimps from New Caledonia (Crustacea: Decapoda). In, Richer de Forges, B. (Ed.), *Le benthos des fonds meubles des lagons de Nouvelle-Calédonie*, **1**. Études et Thèses; Paris, ORSTOM: 211–279, figs 1–31.
1992. Two new species of *Periclimenes* Crustacea: Decapoda: Palaemonidae) from Lizard Island, Queensland, with notes on some related taxa. *Records of the Australian Museum* **44**: 45–84, figs 1–27.
1996. Crustacea Decapoda: Palaemonid shrimps from the Indo-West Pacific region, mainly from New Caledonia. In, A. Crosnier (Ed.), *Résultats des Campagnes MUSORSTOM*, **15**. Mémoires du Muséum national d'Histoire naturelle **168**: 197–267, figs 1–31.
1998. Pontoniine shrimps from Moreton Bay, Queensland (Crustacea: Decapoda: Pontoniine). *Memoirs of the Queensland Museum* **42**(2): 387–398, figs 1–5.
2002. A redescription of *Periclimenaeus tridentatus* (Miers, 1884), based on specimens from Port Essington, Northern Territory, and a note on *P. hecate* (Nobili, 1904) (Crustacea: Decapoda: Pontoniinae), with a key for the preliminary identification of the tunicate-associated species of *Periclimenaeus* Borradaile. *Journal of Natural History* **36**(5): 565–584, figs 1–8.
2004. A partial revision of the genus *Periclimenes* Costa, 1884 (Crustacea: Decapoda: Palaemonidae). *Zootaxa* **582**: 1–26.
2007. *Periclimenes sarkanae* sp. nov., a new pontoniine shrimp from Moreton Bay, Queensland (Crustacea: Decapoda: Palaemonidae). *Zootaxa* **1393**: 61–68, figs 1–5.
2008. *Phycomenes zostericola* gen. nov., sp. nov., a new pontoniine shrimp from Moreton Bay. In, Davie, P.J.F. & Phillips, J.A. (Eds), Proceedings of The Thirteenth International Marine Biological Workshop, The Marine Fauna and Flora of Moreton Bay, Queensland. *Memoirs of the Queensland Museum – Nature* **54**(1): 219–232.
- Bruce, A.J. & Coombes, K.E. 1995. The palaemonoid shrimp fauna (Crustacea: Decapoda: Caridea) of the Cobourg Peninsula, Northern Territory. *The Beagle, Occasional Papers of the Northern Territory, Museum of Arts and Sciences* **12**: 101–144, figs 1–12.
1997. An annotated checklist of the Caridea (Crustacea, Decapoda) of Darwin Harbour, with descriptions of three new species of *Periclimenes* Palaemonidae: Pontoniinae). Pp 301–337, figs 1–7. In, Hanley, J.R., Caswell, G., Megirian, D. & Larson, H.K. (Eds), *Proceedings of the Sixth International Marine Biological Workshop. The Marine Fauna and Flora of Darwin Harbour, Northern Territory, Australia*. (Museums and Art Galleries of the Northern Territory and the Australian Marine Sciences Association: Darwin).
- Chace, F.A., Jr. & Bruce, A.J. 1993. The caridean shrimps (Crustacea: Decapoda) of the Albatross Philippine Expedition 1907–1910, Part 6: Superfamily Palaemonoidea). *Smithsonian Contributions to Zoology* **543**: 152 pp., 23 figs.
- Dana, J. D. 1852. Conspectus of the Crustacea of the Exploring Expedition under Capt. C. Wilkes U. S. N. *Proceedings of the Academy of Natural Sciences of Philadelphia* **1852**: 10–28.
1855. Crustacea. In, *United States Exploring Expedition during the Years 1838, 1839, 1840, 1841, 1842, under the Command of Charles Wilkes, U. S. N.*, Atlas: 1–27, 96 plates. Philadelphia.
- Davie, P.J.F. 2002. Crustacea: Malacostraca: Phyllocarida, Hoplocarida, Eucarida (Part 1). In, Wells, A. and Houston, W. W. K. (Eds.) *Zoological Catalogue of Australia*. Vol. **19.3A**. Melbourne: CRIRO Publishing, Australia, xii, 551 pages.
1998. *Wild Guide to Moreton Bay*. (Queensland Museum: South Brisbane). 408 pp.
- De Grave, S. 1999. Pontoniinae (Crustacea: Decapoda: Palaemonidae) associated with bivalve mollusks from Hansa Bay, Papua New Guinea. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Biologie* **69**: 125–141.
- De Man, J.G. 1902. Die von Herrn Professor Kükenthal in Indischen Archipel gesammelten Dekapoden und Stomatopoden. In, Kükenthal, W., *Ergebnisse einer zoologischen Forschungsreise in den Molukken un Borneo. Abhandlungen der Senckenbergischen naturforschenden Gesellschaft* **25**(3): 467–929, pls 19–27.
1908. Description of a species of *Palaemon* from near Sydney, probably either a new species or the adult form of *Palaemon* (*Eupalaemon*) *danae* Heller. *Annals and Magazine of Natural History* **1**: 363–370.
- Forsskål, P. 1775. *Descriptiones Animalium, Avium, Amphibiorum, Piscium, Insectorum, Vermium; quae in Itinere Orientali Observavit*. (Haunia: Heineck et Faber). Pp. 19 + xxxii + 164.

- Milne Edwards, H. 1840. *Histoire naturelle des Crustacés, comprenant l'anatomie, la physiologie et la classification de ces animaux*, Vol. 3: 638 pp.
- Hale, H.M. 1924. The Flora and Fauna of Nuyts Archipelago and the Investigator Group. No. 16. – The Crustacea. *Transactions and Proceedings of the Royal Society of South Australia* 48: 67–73, figs 1–2, pls IV–V.
1927. *The Crustaceans of South Australia*. Parts I & II. (Harrison Weir: Adelaide). 380 pp., 364 figs.
- Heller, C. 1862. Neue Crustaceen, gesammelt während der Weltumseglung der k.k. Fregatte Novara. Zweiter vorläufiger Bericht. *Verhandlungen des Kaiserlich-königlichen Zoologisch-botanischen Gesellschaft in Wien* 12: 519–528.
1865. *Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair*. Zoologischer Theil, *Crustaceen* 2(3): 1–280, pls 1–25.
- Hippeau-Jacquotte, R. 1965. Notes de faunistique et de biologie marines de Madagascar, III – Un nouveau decapode nageur (Pontoniinae) associée aux oursins dans la région de Tulear: *Tuleariocaris holthuisi* nov. gen. et nov. sp. *Recueil des Travaux de la Station Marine d'Endoume Bulletin* 37(53): 247–259, pls I–V.
- Holthuis, L.B. 1952a. On some Indo-West Pacific Palaemoninae (Crustacea Decapoda Caridea). *Zoologische Mededelingen* 31(18): 201–211, pl. XV.
- 1952b. 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-Expeditie* 39a(10): 254 pp., 110 figs.
- Kemp, S. 1915. Fauna of the Chilka Lake. Crustacea Decapoda. *Memoirs of the Indian Museum* 5: 201–325, 2 pls, text-figs.
1922. Notes on Crustacea Decapoda in the Indian Museum, XV: Pontoniinae. *Records of the Indian Museum* 24(2): 113–288, figs 1–105, pls 3–9.
1925. Notes on Crustacea Decapoda in the Indian Museum, XVII: On various Caridea. *Records of the Indian Museum* 27(4): 249–343, figs 1–24.
- Kingsley, J.S. 1878. List of the North American Crustacea belonging to the sub-order Caridea. *Bulletin of the Essex Institute* 10(4, 5, 6): 53–71.
- Lenz, H. 1905. Ostafrikanische Dekapoden und Stomatopoden gesammelt von Herrn Prof. Dr. A. Voeltzkow. In, Voeltzkow, A., *Wissenschaftliche Ergebnisse der Reisen in Madagaskar un Ostafrika in den Jahren 1889–95*. Vol. III. *Abhandlungen der Senckenbergischen naturforschenden Gesellschaft* 27(4): 341–392, pls 47, 48.
- Li, X. 2000. *Catalog of the Genera and Species of Pontoniinae Kingsley, 1878*, i–iv, 1–319, figs 1–408. (Xueyuan Press: Beijing).
- Li, X. & Bruce, A.J. 2006. Further Indo-West Pacific palaemonoid shrimps (Crustacea: Decapoda: Palaemonoidea), principally from the New Caledonian region. *Journal of Natural History* 40(11–12): 611–738, figs 1–31.
- Li, X., Bruce, A.J. & Manning, R.B. 2004. Some palaemonoid shrimps (Crustacea: Decapoda) from northern South China Sea, with descriptions of two new species. *The Raffles Bulletin of Zoology* 52(2): 513–553, figs 1–33.
- Miers, E. J. 1884. Crustacea. In, *Report of the Zoological Collections made in the Indo-Pacific Ocean during the Voyage of H. M. S. 'Alert', 1881–1882*, pp. 178–575, pls 18–34.
- Morton, B. 1987. Temporal host segregation by *Anthistus custos* and *Conchodytes monodactylus* (Crustacea: Pontoniinae) of *Pinna bicolor* (Bivalvia: Pinnidae) in Hong Kong. *Asian Marine Biology* 4: 129–140, figs 1–9.
- Nobili, G. 1901. Decapodi e Stomatopodi Eritrei del Museo Zoologico dell'Università di Napoli. *Annuario del Museo Zoologico della R. Università di Napoli*, new series 1(3): 1–20.
1904. Diagnoses préliminaires de vingt-huit espèces nouvelles de Stomatopodes et Décapodes Macroures de la mer Rouge. *Bulletin de Muséum d'Histoire Naturelle, Paris* 10(5): 228–238.
1905. Décapodes nouveaux des côtes d'Arabie et du Golfe Persique. (Diagnoses préliminaires). *Bulletin du Muséum d'Histoire Naturelle* 11: 158–164, 1 fig.
- Okuno, J. & Fujita, Y. 2007. Resurrection of the genus *Laomenes* A. H. Clark, 1919 (Decapoda, Caridea, Palaemonidae). *Crustaceana* 80(1): 113–124, figs 1–3.
- Ortman, A. 1894. Crustaceen. In, Semon, R., *Zoologische Forschungsreisen in Australien und dem Malayischen Archipel*. V. *Denkschriften Medizinisch-Naturwissenschaftliche Gesellschaft zu Jena* 8: 3–80, pls 1–3.
- Patton, W.K. 1966. Decapod Crustacea commensal with Queensland branching corals. *Crustaceana* 10(3): 271–295, figs 1–3.
- Paulson, O. 1875. *Investigations on the Crustacea of the Red Sea with Notes on Crustacea of the adjacent Seas*. Part I. *Podophthalmata and Edriophthalmata (Cumacea)*, pp. i–xiv, 1–144, pls 1–21. (Ukraine: Kiev).
- Pearson, O. 1905. Report on the Macrura Collected by Professor Herdman, at Ceylon, in 1902. Supplementary Report 24. In W. A. Herdman, *Report to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Manaar* 4: 65–92, pls 1, 2.

## Palaemonid Shrimps of Moreton Bay

- Peters, W. 1852. *Conchodytes*, eine neue in Muscheln lebende Gattung von Garneelen. *Berichte über die zur Bekanntmachung geeigneten Verhandlungen der K. Preuss. Akademie der Wissenschaften zu Berlin* **1852**: 588–595.
- Rafinesque, C.S. 1815. *Analyse de la Nature ou Tableau de l'Univers et des Corps organisés*. 1–224. (Palermo).
- Rathbun, M.J. 1904. Decapod Crustaceans of the Northwest Coast of North America. *Harriman Alaska Expedition* **10**: 1–190, figs 1–95, pls 1–10.
1914. Stalk-eyed crustaceans collected at the Monte Bello Islands. *Proceedings of the Zoological Society of London* **1914**: 653–664.
- Schenkel, E. 1902. Beitrag zur Kenntnis der Dekapodenfauna von Celebes. *Verhandlungen der Naturforschenden Gesellschaft in Basel* **13**: 485–585, pls 7–13.
- Short, J.W. 2004. A revision of Australian river prawns, *Macrobrachium* (Crustacea: Decapoda: Palaemonidae). *Hydrobiologia* **525**: 1–100, figs 1–37.
- Stimpson, W. 1860. Prodrômus descriptionis animalium evertibratorum, quae in expeditione ad Oceanum Pacificum septentrionalem, a Republica Federata missa Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit. *Proceedings of the Academy of Natural Sciences of Philadelphia* **1860**: 22–48.
- Tattersall, W.M. 1921. Report on the Stomatopoda and Macrurous Decapoda collected by Mr. Cyril crassland in the Sudanese Red sea. *Journal of the Linnean Society of London, Zoology* **34**: 345–398, pls 27, 28.
- Wadley, V.A., 1978. A checklist and illustrated key to the epibenthic shrimps (Decapoda: Natantia) of Moreton Bay, Queensland. *CSIRO Division of Fisheries and Oceanography* **99**: 1–24, figs 1–10.
- Yokoya, Y. 1936. Some rare and new species of decapod crustaceans found in the vicinity of the Misaki Marine Biological Station. *Japanese Journal of Zoology* **7**(1): 129–146, figs 1–4.
- Young, P.C. & Wadley, V.A. 1979. Distribution of shallow-water epibenthic macrofauna in Moreton Bay, Queensland, Australia. *Marine Biology* **53**: 83–97.
- Zehntner, L. 1894. Crustacés de l'Archipel Malais. Voyage de M. Bedot et C. Pictet dans l'Archipel Malais. *Revue Suisse de Zoologie et Annales du Musée d'Histoire Naturelle de Genève* **2**: 135–214, pls 7–9.