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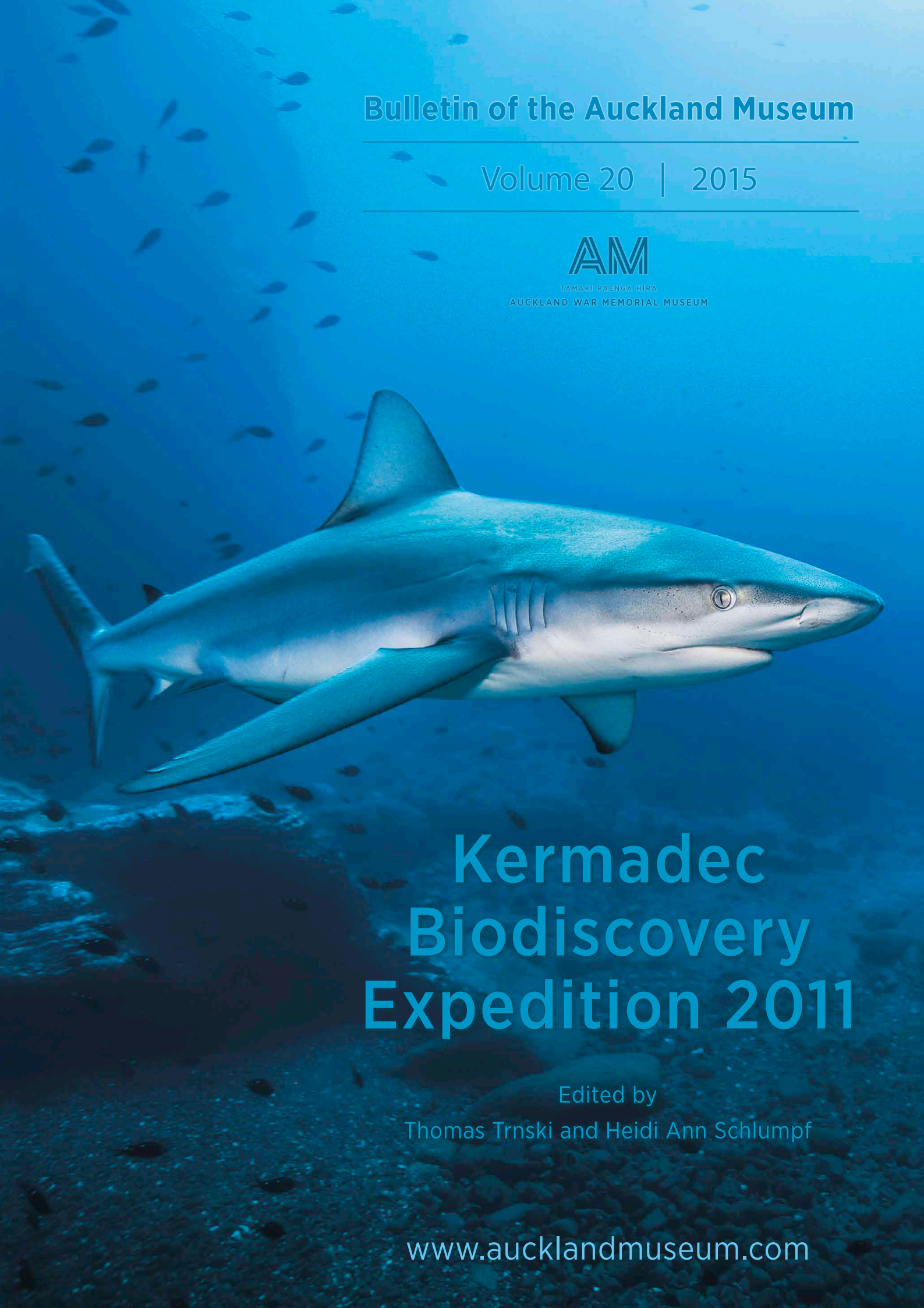

# Kermadec Biodiscovery Expedition 2011

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# Decapod crustacea of the Kermadec Biodiscovery Expedition 2011

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## Abstract
The Kermadec Islands, the only emergent feature of the Kermadec Ridge, mark the northern limit of New Zealand's territorial waters. The decapod crustaceans of the Kermadec Islands have been the subject of sporadic studies. In May 2011, a joint expedition of the Auckland War Memorial Museum, the Australian Museum, Museum of New Zealand Te Papa Tongarewa, and the National Institute of Water and Atmospheric Research surveyed terrestrial and shallow marine habitats around the Kermadec Islands. Fifty-nine species of decapod crustaceans in 49 genera and 26 families are recorded of which five species are new to science: *Anachlorocurtus australis*, *Athanas mendax*, *Gnathophyllum oceanicum*, *Rhynchocinetes okuno*, and *Nanocassiope neozelandica*. Twenty-one species are first records for New Zealand waters and three species are first records for the Kermadec Islands, but already known from mainland New Zealand.

## Keywords
Decapoda; new species; Kermadec Islands; New Zealand

## INTRODUCTION

The Kermadec Islands, the only emergent feature of the Kermadec Ridge, lie about 900 km northeast of Auckland, North Island, New Zealand, and define the northernmost aspect the New Zealand Exclusive Economic Zone. The biota of the Kermadec Islands is of special interest because of the subtropical position of the islands. The decapod crustaceans of the Kermadec Islands have been the subject of sporadic studies, the most important being by Chilton (1911), followed by other studies of Brachyura (Takeda & Webber, 2006; Komatsu & Takeda, 2007; Ahyong, 2008, 2009; McLay, 2009), hermit crabs (Forest *et al.*, 2000). In May 2011, a joint expedition of the Auckland War Memorial Museum, the Australian Museum, Museum of New Zealand Te Papa Tongarewa, and the National Institute of Water and Atmospheric Research surveyed terrestrial and shallow marine habitats around the Kermadec Islands. The present study documents the decapod crustaceans collected. Fifty-nine decapod species in 49 genera and 26 families are recorded of which five species are new to science, 21 species are first records for the New Zealand waters and three species are first records from Kermadec Islands, but already known from mainland New Zealand.

### Materials and Methods
Specimens are deposited in the collections of the Auckland War Memorial Museum, Auckland (AIM) and the Australian Museum, Sydney (AM). Measurements of specimens are in millimetres (mm). Total length (tl), given for some shrimps, is measured from the rostral tip to the tip of the telson. Carapace length (cl) is measured along the dorsal midline and includes the rostrum. Carapace width (cw) is the maximum width. Postorbital carapace length (pcl), measured for some shrimps, is measured from the posterior margin of the orbit to the median posterior margin of the carapace. Shield length (sl) measured for hermit crabs is measured on the dorsal midline. Terminology for carapace regions in crabs follows Serène (1984). Synonymies are restricted to the original citation, primary synoynyms (in most cases), regional and major works. The high level classification follows De Grave *et al.* (2009). Species recorded for the first time from New Zealand waters are marked (*). Species recorded for the first time from the Kermadec Islands, but previously recorded from mainland New Zealand are marked (**).

## SYSTEMATICS

### Infraorder CARIDEA
### Superfamily ALPHEOIDEA
### Family ALPHEIDAE

***Alpheus balaenodigitus* Banner & Banner, 1982***
*Alpheus balaenodigitus* Banner & Banner, 1982: 223–225, fig. 70 [type locality: Port Walcott, Western Australia, Australia]. – De Grave & Fransen, 2011: 379.

**Material examined**. *S side Te Konui Point, Raoul Island*: AIM MA30820, 1 specimen (cl 4.6 mm), 29°18.541'S, 177°53.744'W, 21 m, boulders with coarse sand & gravel, tufting algae, airlift, K2011-19, coll. S. Keable, 14 May 2011.

**Remarks**. The single specimen corresponds well to the type description and represents the first Pacific record of the species.

**Distribution**. Western Australia and now the Kermadec Islands; 15–21 m (Banner & Banner, 1982; this study).

### *Alpheus collumianus* Stimpson, 1860*

*Alpheus collumianus* Stimpson, 1860: 30. – Banner & Banner, 1982: 45–49, fig. 9 [type locality: Bonin Islands (= Ogasawara Islands), Japan]. – Poore, 2004: 104. – De Grave & Fransen, 2011: 381.
*Alpheus Seurati* Coutière, 1905: 881, pl. 75, figs 20–20e [type locality: Marutea, Gambier Archipelago].
*Alpheus Malhaensis* Coutière, 1908: 205 [type locality: Saya de Malha].
*Alpheus collumianus probabilis* Banner, 1956: 338, fig. 10 [type locality: about 1.4 miles offshore, north of Puntan Muchot, Saipan].
*Alpheus collumianus medius* Banner, 1956: 340, fig. 11 [type locality: Saipan].
*Alpheus collumianus inermis* Banner, 1956: 342, fig. 12 [type locality: about 1 mile off Muchot Point, near entrance to Saipan harbor].

**Material examined**. *Fishing Rock landing, Raoul Island*: AIM, 1 ovigerous female (cl 5.3 mm), 29°14.552'S, 177°54.215'W, 5 m, K2011-49-5, scrapings from rock wall, coll. C. Bedford *et al.*, 17 May 2011.

**Remarks**. *Alpheus collumianus* is widespread in the Indo-Pacific and is recorded for the first time from the New Zealand waters.

**Distribution**. Western Indian Ocean to Australia, Japan, French Polynesia and Hawaii; shore to 75 mm (Banner & Banner, 1982).

### *Alpheus richardsoni* Yaldwyn, 1971*

*Alpheus* sp. – Richardson & Yaldwyn, 1958: 37, fig. 35.
*Alpheus richardsoni* Yaldwyn, 1971: 88 [type locality: Mariott Island, Waikare River Inlet, Bay of Islands, New Zealand]. – Poore, 2004: 106, figs 27c, d, 28l, 29s, t, pl.9B. – Yaldwyn & Webber, 2011: 191–192. – De Grave & Fransen, 2011: 389.
*Alpheus euphrosyne richardsoni*. – Banner & Banner, 1982: 139–241, fig. 74. – Miya, 1995: 275–278, fig. 2. – Webber *et al.*, 2010: 224.

**Material examined**. *Stella Passage, W side Curtis Island*: AIM MA30822, 2 specimens (cl 3.0–3.2 mm), 30°32.337'S, 178°33.646'W, 13–15 m, from sponge on rock & cobble field with coarse sand, strong surge, K2011-94, coll. S. Keable & A. Reid, 25 May 2011.

**Remarks**. *Alpheus richardsoni* is common around the northern half of North Island, New Zealand, and is recorded here from the Kermadec Islands for the first time. It is usually a shallow water species, although a single specimen has been recorded at 412 m off the Sydney area (Banner & Banner, 1982). *Alpheus richardsoni* has also been reported from southern Japan (Miya, 1995). As with *Betaeus granulimanus*, reported below, the strongly disjunct distribution of *A. richardsoni* requires further investigation to determine whether the species is truly anti-tropical, whether the northern and southern populations represent similar but distinct species, or whether it has been artificially introduced to one of the regions.

**Distribution**. North Island, New Zealand, the Kermadec Islands and Australia; shore to 24 m and 412 m (Banner & Banner, 1982). Reports of *A. richardsoni* from Japan (Miya, 1995) require confirmation.

### *Alpheus socialis* Heller, 1862

*Alpheus socialis* Heller, 1862: 526 [type locality: Auckland, New Zealand]. – Heller, 1865: 106, pl. 10: fig. 1 – Chilton, 1911: 545, 548–549. – Banner & Banner, 1982: 68–70, fig. 16. – Poore, 2004: 106, figs. 27e, f, 29u–w. – Webber *et al.*, 2010: 224. –Yaldwyn & Webber, 2011: 192. – De Grave & Fransen, 2011: 389.

**Material examined**. *Milne Rocks, Raoul Island*: AIM MA30530, 1 specimen (cl 2. 9 mm), 29°16.942'S, 177°54.171'W, vertical rock wall, rocks, cobble, coarse sand & turfing algae, 21 m, K2011-23-4, coll. A. Reid & S. Keable, 15 Jul 2011.
*Fishing Rock landing, Raoul Island*: AM P88917, 1 male (cl 5.5 mm), 1 ovigerous female (cl 9.2 mm), 29°14.552'S, 177°54.215'W, 1 m, rock pools, K2011-54-4, coll. M. Francis *et al.*, 18 May 2011; AIM MA30656, 1 male (cl 7.9 mm), 29°14.552'S, 177°54.215'W, 1 m, rock pools, K2011-54-2, coll. M. Francis *et al.*, 18 May 2011.
*NW corner North Meyer Island*: AIM MA30657, 1 specimen (cl 3.2 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011.
*W side l'Esperance Rock*: AIM MA30531, 1 specimen (cl 2.7 mm), 31°21.252'S, 178°49.593'W, 12–20 m, rock walls, shelly sediment, sponges & coral scrapings, K2011-99, rotenone, coll. S. Keable & A. Reid, 26 May 2011.

**Remarks**. *Alpheus socialis* has been recorded throughout New Zealand waters including the Kermadec Islands (Chilton, 1911; Yaldwyn & Webber, 2011).

**Distribution**. South-eastern Australia to New Zealand including Lord Howe Island and the Kermadec Islands; shore to 110 m (Banner & Banner, 1982).

### *Athanas mendax* sp. nov. (Figs 1–3)

*?Arete dorsalis*. – Chilton, 1911: 549 [not *Arete dorsalis* Stimpson, 1860].
*Athanas indicus*. – Webber *et al.*, 2010: 224. – Yaldwyn & Webber, 2011: 192 [not *A. indicus* Coutière, 1903].

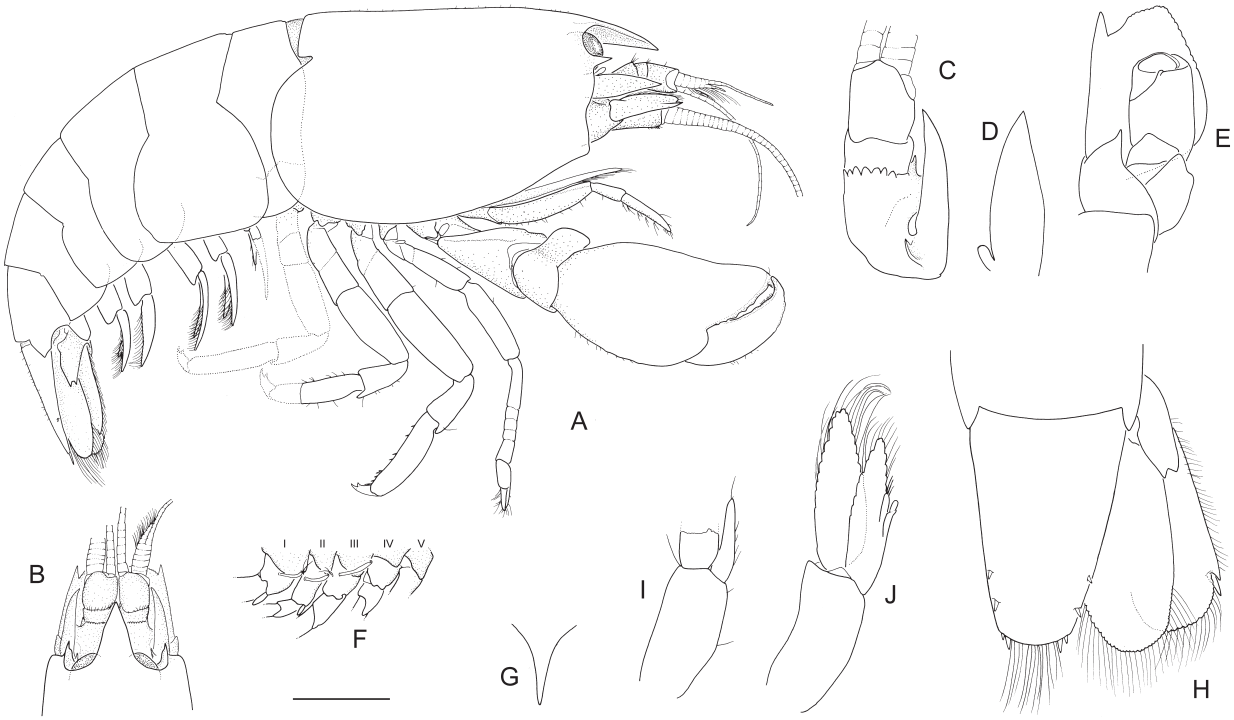


Figure 1. *Athanas mendax* sp. nov., male holotype, cl 3.7 mm, K2011-88-5 (AIM MA73400). ***A***, habitus, right lateral; ***B***, anterior cephalothorax, dorsal; ***C***, right antennule, dorsal view; ***D***, right stylocerite, lateral view; ***E***, right antenna, ventral view; ***F***, pereopods 1–5 coxae; ***G***, abdominal sternite 6 posterior spine; ***H***, telson and right uropod; ***I***, right pleopod 1; ***J***, right pleopod 2. Scale: ***A***, ***B***, ***F*** = 1.0 mm; ***C–E***, ***G–J*** = 0.5 mm.

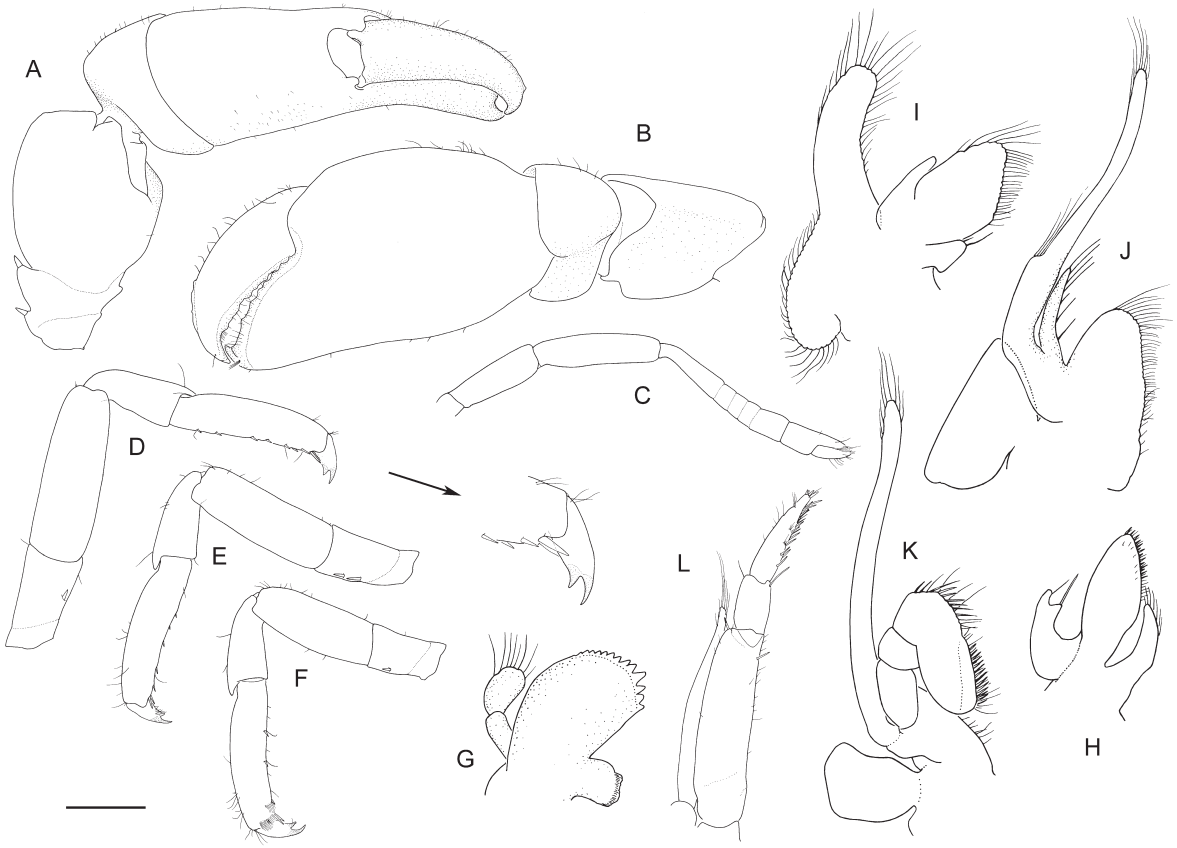


Figure 2. *Athanas mendax* sp. nov.: ***A–F***, ***L***, male holotype, cl 3.7 mm, K2011-88-5 (AIM MA73400); ***H–K***, male paratype, cl 3.0 mm, K2011-88-5 (AM P89048). ***A–B***, right cheliped; ***C–D***, right pereopods 2–3; ***E–F***, left pereopods 4–5; ***G***, right mandible; ***H***, right maxillule; ***I***, right maxilla; ***J–L***, right maxillipeds 1–3. Scale: ***A–F***, ***L*** = 0.5 mm; ***H–K*** = 0.25 mm.

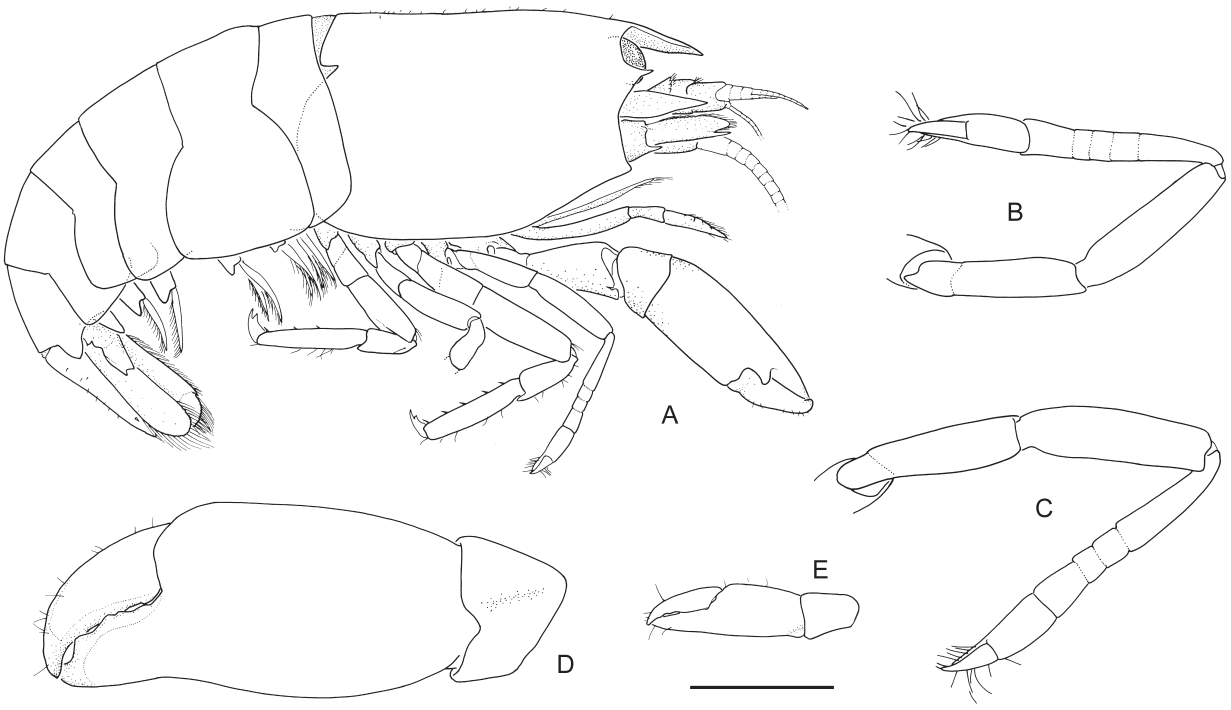


Figure 3. *Athanas mendax* sp. nov. ***A–D***, female, cl 2.5 mm, K2011-67-14 (AM P89049); ***E***, juvenile, cl 1.7 mm, K2011-88-5, #2 (AM P89047). ***A***, habitus, right lateral; ***B***, left pereopod 2; ***C***, right pereopod 2; ***D***, ***E***, right pereopod 1 chela. Scale: ***A*** = 1.0 mm, ***B–E*** = 0.5 mm.

**Type material**. **Holotype**: AIM MA73400, male (cl 3.7 mm), NW side Cheeseman Island, 30°32.096'S, 178°34.183'W, 23 m, with echinoid 1 (*Heliocidaris tuberculata*), K2011-88, coll. S. Keable & A. Reid, 25 May 2011.

**Paratypes**: *Macauley Island*: AIM MA73401, 1 female (cl 2.3 mm), 30°13.464'S, 178°26.337'W, 21 m, under coral rock, K2011-67-5, coll. S. Keable & M. Reid, 21 May 2011; AM P89049, 1 female (cl 2.5 mm), 30°13.464'S, 178°26.337'W, 21 m, under coral rock, K2011-67-14, coll. S. Keable & M. Reid, 21 May 2011. *NW side Cheeseman Island*: AIM MA73402, 1 male (cl 2.7 mm), 7 females (cl 2.1–2.3 mm), 7 juveniles (cl 1.5–2.0 mm), collected with holotype; AM P89047, 2 females (cl 2.1–2.6 mm), 2 juveniles (cl 1.7 mm), collected with holotype; AM P89048, 1 male (cl 3.0 mm), collected with holotype.

**Description.** Rostrum elongate, triangular, dorsoventrally compressed, not extending anteriorly beyond midlength of antennular peduncle article 3; lateral margins straight or weakly convex; dorsally and ventrally unarmed. Carapace subcylindrical, smooth, surface unarmed; minutely and very sparsely setose. Orbit evenly concave; supracorneal spines absent. Extracorneal spine prominent. Infracorneal spines absent. Pterygostomial margin shallowly concave anteriorly, with blunt, obtuse angle. Cardiac notch distinct.

Abdomen smooth, stout, subcylindrical, surface minutely and very sparsely setose; pleura 1–4 ventrally subtruncate, posterolaterally rounded; pleuron 5 posterolaterally angular; sternite 5 unarmed. Abdominal somite 6 about 0.7 length of telson; posterolaterally with articulated, triangular plate; ventrally with slender, posteriorly directed sternal spine.

Telson length 1.5 times width; with 2 pairs of lateral movable spines and 2 pairs of movable spines on posterior margin near posterolateral angle; anteriormost lateral spines arising at posterior one-third of telson; posterior lateral spines placed midway between anterior spines and posterolateral corner of telson; posterior spines with inner pair longer than outer pair; telson posterior margin broadly rounded.

Cornea of eye pigmented, unarmed, largely concealed by carapace.

Antennular peduncle basal article broad, distodorsal margin scalloped, with small distolateral spine; apex of stylocerite reaching midlength of article 3; proximomesial margin of stylocerite with rounded, laterally compressed, anteriorly inclined lobe; dorsolateral flagellum with fused basal portion of about 6 short articles.

Scaphocerite overreaching antennular peduncle; about 1.6 times as long as wide; lateral margin straight, distal spine about twice as long as wide, not reaching anteriorly to apex of blade. Basicerite with stout laterodistal spine. Peduncle almost reaching distal ¾ of scaphocerite.

Mouthparts as figured. Mandible incisor process expanded; palp 2-articulate. Maxilliped 3 well-developed, slender, with epipod. Exopod long, slender, setose distally, overreaching endopod ischiomerus. Endopod ischiomerus slender, sparsely setose medially, longer than combined length of carpus and distal article (fused dactylus and propodus), without distal extensor

spine; twice as long as carpus, flexor margin with setae and movable spines, distally with corneous spines.

Pereopods symmetrical left to right. Pereopod 1 about as long as carapace; sparsely setose; carried directed forwards, not flexed, dactyl opening ventro-laterally, more inflated in adults than in juveniles, possibly slightly more inflated in adult males than females. Dactylus curved, shorter than palm; dorsal margin smooth proximally, slightly irregular distally; occlusal margin irregularly crenulated, occluding with pollex without gape. Propodus pollex occlusal margin irregularly crenulated, with distal and subdistal tooth between which dactyl apex occludes; pollex directed along palmar axis; propodus ventral margin slightly sinuous; propodal-carpal articulation cup-like. Carpus short, unarmed. Ischiomerus stout, trigonal, unarmed mesially; ischium with 2 low, rounded protuberances on extensor and flexor margins, extensor protuberances more pronounced, each bearing a corneous spine. Coxa unarmed. Exopod minute, ovate.

Pereopod 2 overreaching scaphocerite by length of chela. Dactylus about as long as propodal palm; pollex and dactylus occlusal margins unarmed. Carpus about twice as long as chela, comprising 5 articles in adults, 4 in juveniles. Exopod minute, ovate.

Pereopods 3–5 stout, similar in form; relative lengths pereopod 3 > pereopod 4 > pereopod 5. Dactylus stout, about one-third propodus length; biunguiculate, dorsal unguis longer than ventral unguis, evenly tapering to sharp point; ventral unguis broad, trianguloid, evenly tapering. Propodus extensor margin unarmed, broadly curved; flexor margin lined with 5–9, well-spaced movable spines, distalmost paired; pereopod 5 with 2 oblique setal rows distally. Merus distal flexor margin rounded; length 2.9–3.1 times as long as wide (pereopod 3–4), 2.6–2.8 (pereopod 5). Ischium flexor margin usually with 1 movable spine (2 on left pereopod 4 of holotype). Pereopods 1–3 each with epipod.

Male pleopod 1 endopod slender, about half as long as exopod. Male pleopod 2 endopod slightly shorter than exopod; appendix masculina with 3 distal setae, slightly longer than appendix interna.

Uropodal protopod unarmed dorsally, distally bilobed. Exopod with stout laterodistal tooth flanked mesially by longer movable spine. Endopod ovate, unarmed.

**Colour in life**. Not known. Completely faded in preservation.

**Etymology.** Named *mendax*, Latin for deceptive, alluding to the strong resemblance of the new species to species of *Arete*.

**Remarks**. *Athanas mendax* is readily distinguished from other congeners by the combination of the stout, unflexed *Arete*-like major chelipeds, absence of supra- and infra- orbital spines, and presence of stout, biunguiculate dactlyi on pereopods 3–5. Superficially, however, *A. mendax* more closely resembles species of *Arete*, especially in major cheliped form. Anker & Jeng (2007) clarified the status of *Arete* with respect to *Athanas*, of which the former has often been considered a synonym of the latter (e.g., Banner & Banner, 1960, 1973; Chace, 1997). The new species is assigned to *Athanas* based on the presence of five carpal articles on pereopod 2 (in adults) and epipods on pereopods 1–3, the two primary characters separating *Athanas* from *Arete*. *Athanas mendax*, however, shares features of both *Arete* and *Athanas* as diagnosed by Anker & Jeng (2007). With *Arete*, the new species shares overall habitus, including the stout, unflexed cheliped 1, unarmed mesial margin of the pereopod 1 coxa, a posteriorly acute rather than rounded pre-anal plate, stout rather than slender pereopod 1–3 dactyli, a weakly developed pereopod 5 propodal brush and similar ecological attributes as a sea urchin associate. With *Athanas*, the new species shares epipods on pereopods 1–3 (instead on 1–2) and five (instead of four) carpal articles in adults, and rounded instead of angular distal flexor margins on the pereopod 3 merus. Intriguingly, however, the number of carpal articles on pereopod 2 varies allometrically, with four articles in juveniles and small specimens to 2.3 mm cl, and five articles in specimens above 2.5 mm cl. One intermediate sized specimen (female, 2.5 mm cl, AM P89049, Fig. 3A–C) has four carpal articles on the right side and five on the left. Kemp (1915) also reported pereopod 2 carpal variation in *Athanas dimorphus*, but did not indicate whether the variation was size related. Apparently, this is the first study to correlate variation in carpal segmentation of pereopod 2 with body size. Additionally, the major chelipeds of *A. mendax* increase in relative size and stoutness with increasing body size. The presence of epipods on pereopods 1–3, however, is a constant feature at all sizes, and could thus be regarded as a more 'fundamental' character of the genus. The combination of a five-segmented pereopod 2 carpus (at least in larger specimens) and epipods on pereopods 1–3 justifies assignment of the new species to *Athanas*. However, the *Arete*-like habitus of *Athanas mendax*, along with its four carpal articles in small specimens means that it could easily be misidentified as a species of *Arete*. The implications for the generic system, given the combination of characters of both *Arete* and *Athanas* in the new species, remain to be explored. Phylogenetic analysis of Alpheidae (Anker *et al.*, 2006) showed *Athanas* sensu lato not to be monophyletic, a problem partially addressed by recognition of *Rugathanas* and rediagnosis of *Arete* and *Athanas* (Anker & Jeng, 2007). Further species level phylogenetic analysis is required to test reciprocal monophyly of *Arete* and *Athanas*.

Variation in *A. mendax* is primarily allometric. Aside from the size-related increase in the segmentation of the pereopod 2 carpus, the stoutness of the major chelipeds changes with body size, becoming massive in the largest specimens (Figs 1A–C, 3). Sexual dimorphism in cheliped size appears slight at most, as observed in *Arete* (Anker & Jeng, 2007). The largest male (holotype) of *A. mendax* has stouter major chelipeds than the largest female, but is also the largest specimen overall, so the differences in may simply be allometric. More specimens are required to determine the extent of sexual dimorphism.

The presence of the small rounded upright lobe on the proximomesial margin of the stylocerite has not been noted for other species of *Athanas* or *Arete*. Its taxonomic significance is presently unclear, warranting further investigation for its presence in other species *Athanas* and *Arete*.

Of the known species of *Athanas*, *A. mendax* appears closest to *A. granti* Coutière, 1908, from southern Australia, sharing anteriorly directed major chelipeds, stout, biunguiculate walking leg dactyli and absence of supracorneal spines on the carapace. Both species are also associated with echinoids. *Athanas mendax* is readily distinguished from *A. granti* by the absence of an infracorneal spine or lobe (a small lobe in *A. granti*), stouter major chelae (length not more than twice height versus 2.3–3.8 times height in *A. granti*; Banner & Banner, 1973), and stouter walking legs (pereopod 3 merus length about 3 times height versus 3.8 in *A. granti*).

Chilton's (1911) provisional record of *Arete dorsalis* Stimpson, 1861, from the Kermadec Islands, said to have the "inner margin of the fixed finger regularly convex and without separate teeth" and which will "probably form a separate species" is probably referable to *A. mendax*. Similarly, the specimens identified as *Arete indicus* Coutière, 1903 (as *Athanas indicus*) by Y. Miya in 1988 from the Kermadec Islands (Yaldwyn & Webber, 2011), proved referable to *Athanas mendax* on re-examination by R. Webber at the author's request.

**Distribution**. Presently known only from the Kermadec Islands; 6–23 m, associated with echinoids.

### *Betaeus granulimanus* Yokoya, 1927*

*Betaeus granulimanus* Yokoya, 1927: 173, pl. 7: figs 17–22 [type locality: Kagoshima Bay]. – Miya, 1972: 30–37, pls 1, 2. – De Grave & Fransen, 2011: 395.
[?] *Betaeus* sp. – Chilton, 1911: 545, 549.
*Betaeus yokoyai* Kubo, 1936: 50, pl. 15 [type locality: Kominato, Japan].
*Betaeus murayamai* Yokoya, 1936: 132, fig. 2 [vicinity of the Misaki Marine Biological Station, Japan].

**Material examined**. *Fishing Rock landing, Raoul Island*: AIM MA30823, 3 males (cl 8.3–10.3 mm), 29°14.552'S, 177°54.215'W, 1 m, rock pools, K2011-54, coll. M. Francis *et al.*, 18 May 2011.

**Remarks**. The present specimens, the first from New Zealand waters (and the southern hemisphere), agree well with Miya's (1972) redescription of *B. granulimanus* from Japan, including allometric changes in the ornamentation of the major cheliped. With addition of the Kermadec records, the apparently strongly disjunct distribution of *B. granulimanus*, like that of *Alpheus richardsoni* (reported above), is enigmatic. In East Asia, *B. granulimanus* appears to be restricted to temperate waters (Miya, 1972), so it is possible that the Kermadec specimens represent a distinct species, closely related to *B. granulimanus*. Specimens from both regions should be directly compared, but at present, the Kermadec specimens are provisionally identified as *B. granulimanus*. Chilton (1911) listed an unidentified species of *Betaeus* from the Kermadec Islands; it may be referable to the present species.

**Distribution**. Temperate Japan and now from the Kermadec Islands.

### *Rugathanas verrucosus* (Banner & Banner, 1960)*

*Athanas verrucosus* Banner & Banner 1960: 147, fig. 4 [type locality: Parry Island, Enewetak, Marshall Islands]. – Banner & Banner 1968: 270.
*Rugathanas verrucosus*. – Anker & Jeng, 2007: 461–464, figs 4, 5, 6b. – De Grave & Fransen, 2011: 401.

**Material examined**. *S side Te Konui Point, Raoul Island*: AM P89272, 1 ovigerous female (cl 3.3 mm), 29°16.384'S, 177°55.580'W, 21–27 m, rock washings, base of sheer rock wall with rubble & coarse sand base, K2011-15-1, coll. S. Keable & M. Reid, 14 May 2011.
*Boat Cove, Raoul Island*: AM P89273, 5 specimens (1.4–2.3 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM, 3 specimens, 29°15.098'S, 177°51.353'W, 10 m, K2011-42-1, coll. A. Ballance & S. Keable, 16 May 2011.
*Stawell Shoal, N of Stella Passage*: AIM, 1 ovigerous female (cl 2.9 mm), 4 specimens (cl 1.1–1.7 mm), 30°31.778'S, 178°33.570'W, 21–24 m, under encrusting coral, K2011-92-1, coll. S. Keable & A. Reid, 25 May 2011.

**Remarks**. The specimens agree well in most respects with published accounts (Banner & Banner, 1960; Anker & Jeng, 2007), including the epipod on pereopods 1–2 and five-segmented pereopod 2 carpus (but see below). None, however, has distinct tubercles on the palm surface as figured by Anker & Jeng (2007: fig. 5b, c), possibly as a result of the small size of the present specimens (largest cl 3.3 versus cl 5.4 mm reported by Anker & Jeng, 2007). Atypically, the largest Kermadec Islands specimen (ovigerous female, cl 3.3.mm) has a four-segmented pereopod 2 carpus on the left side, the right side being normal with five segments. The left pereopod 2 is shorter than the right, so the four-segmented condition in the 3.3 mm female may be the result of regeneration after damage, rather than allometry as in *Athanas mendax* sp. nov., described above. The present specimens represent the first records of *R. verrucosus* from New Zealand waters.

**Distribution**. Enewetak Atoll, Marshall Islands to southern Taiwan, Norfolk Island and now from the Kermadec Islands; shore to 10 m.

### *Synalpheus tumidomanus* (Paul'son, 1875)*

*Alpheus tumido-manus* Paul'son, 1875: 101, pl. 13: fig. 2 [type locality: Red Sea].
*Alpheus tumidomanus var. gracili-manus* Paul'son, 1875: 102, pl. 13: fig. 3–3c [type locality: Red Sea].
*Synalpheus Hululensis* Coutière, 1908: 202 [type locality: Maldives].

*Synalpheus Mac-Cullochi* Coutière, 1908: 203 [type locality: south-western Australia].
*Synalpheus Theophane* De Man, 1910: 292 [type localities: Lumu-lumu shoal, Borneo bank; anchorage north of Salomakiee (Damar) Island; anchorage between Nusa-Besi and the north-east point of Timor].
*Synalpheus anisocheir* Stebbing, 1915: 86, pl. 87 [type locality: Gordon's Bay, False Bay, South Africa].
*Synalpheus japonicus* Yoyoya, 1936: 133, fig. 3 [type locality: vicinity of Misaki Marine Biological Station].
[?] *Synalpheus*. – Chilton, 1911: 545, 549.
*Synalpheus tumidomanus*. – Banner & Banner, 1975: 377–382, fig. 28. – Poore, 2004: 117, figs 28i, 29k', l', pl. 9F.
*Synalpheus tumidomanus tumidomanus*. – De Grave & Fransen, 2011: 411.

**Material examined**. *W side South Meyer Island*: AM P89050, 1 specimen, 29°14.789'S, 177°52.883'W, 10–12 m, commensal on black & yellow crinoids in rock gutter, K2011-3-1, coll. A. Ballance *et al.*, 12 May 2011; AIM, 8 specimens (cl 2.0–4.1 mm), 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-2, coll. S. Keable, 12 May 2011.
*NW corner North Meyer Island*: AIM, 1 specimen (cl 3.0 mm), 29°14.499'S, 177°52.673'W, 13.5–15.5 m, octocoral washings, K2011-10-1, coll. S. Keable, 13 May 2011; AIM, 1 specimen (cl 2.4 mm), 29°14.499'S, 177°52.673'W, 10 m, gutter through reef flat, K2011-62-4, coll. S. Keable & A. Reid, 20 May 2011.
*Boat Cove, Raoul Island*: AIM, 15 specimens, 177°55.6'W, 10 m, K2011-29, coll. A. Ballance & M. Francis, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30519, 1 ovigerous female (cl 6.5 mm), 29°15.098'S, 177°51.353'W, 21 m, encrusted rock, K2011-39-2, coll. S. Keable & A. Reid, 16 May 2011; AIM MA30523, 18 specimens (cl 1.6–5.2 mm), 29°15.098'S, 177°51.353'W, 10 m, K2011-42-4, coll. A. Ballance & S. Keable, 16 May 2011.
*SW side Nugent Island*: AIM MA30524, 2 ovigerous females (6.2–6.9 mm), 3 juveniles, 29°13.891'S, 177°52.219'W, 15–23.7 m, from yellow sponge, 15–23.7 m, K2011-47-2, coll. S. Keable, 17 May 2011.
*Fishing Rock landing, Raoul Island*: AM P88920, 4 specimens (1.3–5.7 mm, largest ovigerous), 29°14.552'S, 177°54.215'W, 5 m, K2011-49-5, scrapings from rock wall, coll. C. Bedford *et al.*, 17 May 2011.
*Macauley Island*: AIM MA30525, 1 specimen, 30°13.464'S, 178°26.337'W, 21 m, under coral rock, K2011-67-5, coll. S. Keable & M. Reid, 21 May 2011.
*Stawell Shoal, N of Stella Passage*: AIM, 1 specimen (cl 2.6 mm), 30°31.778'S, 178°33.570'W, 21–24 m, under encrusting coral, K2011-92-1, coll. S. Keable & A. Reid, 25 May 2011.

**Remarks**. *Synalpheus tumidomanus* is common in the south-western Pacific, including southern Australia, Lord Howe Island and Norfolk Island; it is recorded for the first time from New Zealand waters. One specimen was collected with the crinoid, *Tropimetra* cf *afra* (Hartlaub, 1890).

Chilton (1911) listed an unidentified *Synalpheus* from Coral Bay or Meyer Island; it may be referable to *S. tumidomanus*, which is confirmed herein from many Kermadec Islands localities, including Meyer Island.

**Distribution**. Western Indian Ocean to Australia, the South China Sea, Japan to the Phoenix Islands; shore to 148 m (Banner & Banner, 1975).

## Family HIPPOLYTIDAE

### *Lysmata trisetacea* (Heller, 1861)

*Hippolyte trisetacea* Heller, 1861: 29 [type locality: Red Sea].
*Lysmata pusilla* Heller, 1862: 287, pl. 3: fig. 26 [type locality: Red Sea].
*Hippolysmata paucidens* Rathbun, 1906: 913, pl. 24: fig. 4 [type locality: Waikiki Beach, Oahu, Hawaii].
*Merhippolyte spinifrons*. – Chilton, 1911: 545, 549 [not *M. spinifrons* (H. Milne Edwards, 1837)].
*Lysmata chiltoni* Kemp, 1914: 110, pl. 6: figs 1–4 [type locality: Meyer Island, Kermadec Islands, New Zealand].
*Lysmata trisetacea*. – Chace, 1962: 614–616. – Holthuis, 1972: 33–35. – Chace, 1997: 77–78. – Webber *et al.*, 2010: 225. –Yaldwyn & Webber, 2011: 194. – De Grave & Fransen, 2011: 429.

**Material examined**. *NW corner North Meyer Island*: AIM MA30527, 1 specimen (cl 2.8 mm), 29°14.499'S, 177°52.673'W, 10 m, under rubble, K2011-62-6, coll. S. Keable & A. Reid, 20 May 2011.
*W side Cheeseman Island*: AIM MA30528, 1 juvenile (pcl 2.5 mm), 30°32.096'S, 178°34.183'W, 12–17 m, sheer to very steep rock wall with no invertebrate cover or algae, K2011-76, coll. A. Ballance *et al.*, 23 May 2011.

**Remarks**. Kemp (1914) reported *L. trisetacea* from the Kermadec Islands under the name *L. chiltoni* Kemp, 1914. The present specimens, both juveniles, appear to be referable to *L. trisetacea*. The pereopod 2 carpal segmentation is within the reported range (Chace, 1962; 1997; Holthuis, 1972) at 24 or 25 articles, and the antennular stylocerite reaches the distal end of the basal antennular article. The accessory antennular flagellum is composed of 6 or 7 articles and is slightly shorter than the fused portion, and the rostral formula is 2 + 3/1–2. The pleura on abdominal somites 4 and 5 are posterolaterally angular and acute, respectively. Unusually, however, both specimens have a minute (and easily overlooked) denticle at the pterygostomian margin, which has not been previously been reported for *L. trisetacea*. Whether the pterygostomian denticle is a feature of juvenile *L. trisetacea*, or whether the present specimens belong to a different species remains to be seen.

Yaldwyn & Webber (2011) questioned the accuracy of Chilton's (1911) Kermadec Islands records of *Alope spinifrons* (H. Milne Edwards, 1837) (as *Merhippolyte spinifrons*). Kemp (1914) showed Chilton's Kermadec Islands specimens to be misidentified, making them the types of his *Lysmata chiltoni*.

**Distribution**. Red Sea to the Kermadec Islands, Micronesia, Hawaii and Clipperton Island.

***Lysmata ?vittata* (Stimpson, 1860)****
*Hippolysmata vittata* Stimpson, 1860: 26 [type locality: Hong Kong].
*Nauticaris unirecedens* Spence Bate, 1888: 608, pl. 110: fig. 1 [type locality: Hong Kong].
*Hippolysmata vittata* var. *subtilis* Thallwitz, 1892: 22 [type locality: Cebu, Philippines].
*Hippolysmata durbanensis* Stebbing, 1921: 20, pl. 5 [type locality: Durban Bay, South Africa].
*Lysmata vittata*. – Bruce, 1986: 601–608, figs 23–28. – Ahyong, 2010: 354, fig. 4e. – Webber *et al.*, 2010: 225. – Yaldwyn & Webber, 2011: 194. – De Grave & Fransen, 2011: 430.

**Material examined**. *Cheeseman Shoal*: AM P88906,1 specimen (cl 3.0 mm), 30°32.467'S, 178°34.174'W, 30–35 m, from lush black coral tree and sea whip, very steep rock wall, rotenone, K2011-79-2, coll A. Ballance *et al.*, 24 May 2011.
*NW corner North Meyer Island*: AIM MA30658, 1 specimen (cl 1.5 mm), 29°14.499'S, 177°52.673'W, 10 m, under rubble, K2011-62-5, coll. S. Keable & A. Reid, 20 May 2011.
**Remarks**. The two specimens, both juveniles, appear to represent a second species of *Lysmata* from the Kermadec Islands, different from *L. trisetacea*. They differ from the juveniles referred above to *L. trisetacea* in rostral formula (1 + 4/0–1), a much shorter accessory antennular flagellum (shorter than one-fourth length of the fused portion), a shorter stylocerite that reaches to near the midlength of the basal antennular article and a higher number of pereopod 2 carpal articles (25–27). Moreover, in the 3.0 mm specimen, the pterygostomian spine is distinct (angular in the 1.5 mm specimen) and the pleura of abdominal somites 4 and 5 both have acute terminations (rounded and pointed, respectively in the 1.5 mm specimen). In most of these features, the present specimens are consistent with adult *L. vittata*, to which they are tentatively referred. *Lysmata vittata* is already known from northern North Island, New Zealand (Ahyong, 2010).

**Distribution**. Widespread in the Indo-West Pacific from the western Indian Ocean to Australia, Japan and New Zealand.

## Superfamily NEMATOCARCINOIDEA
## Family RHYNCHOCINETIDAE

***Rhynchocinetes okuno* sp. nov.** (Figs 4, 5, 12A, B)
*Rhynchocinetes rugulosus*. – Chilton, 1911: 545, 548.
*Rhynchocinetes balssi*. – Gordon, 1936: 85–87 [part, New Zealand records only]. – Webber *et al.*, 2010: 225. –Yaldwyn & Webber, 2011: 189. [Not *R. balssi* Gordon, 1936].

**Type material. Holotype:** AIM MA73404, male (pcl 11.7 mm), Milne Rocks, Raoul Island, 29°16.942'S, 177°54.171'W, 26 m, base of vertical rock wall, rocks, cobble, coarse sand & turfing algae, K2011-23-5, coll. C. Bedford *et al.*, 15 May 2011.

**Paratypes:** *Milne Rocks, Raoul Island*: AIM MA73405, 2 females (pcl 7.3–12.6 mm), 1 juvenile (pcl 2.2 mm), collected with holotype; AM P88911, 1 male (pcl 12.3 mm), collected with holotype.
*S side Te Konui Point, Raoul Island*: AIM MA73406, 4 males (pcl 4.9–12.3 mm), Boat Cove, 29°16.384'S, 177°55.580'W, 10–15 m, encrusted sheer rock wall, crevices & overhangs, K2011-14, coll. C. Bedford *et al.*, 14 May 2011.
*W side l'Esperance Rock*: AM P88912, 2 males (pcl 10.2–12.7 mm), 31°21.252'S, 178°49.593'W, 23–28 m, large boulders & overhangs surrounded by sand, K2011-98-1, coll. A. Ballance *et al.*, 26 May 2011; AIM MA73407, 1 male (pcl 5.8 mm), 31°21.252'S, 178°49.593'W, 23–28 m, large boulders & overhangs surrounded by sand, K2011-98, coll. A. Ballance *et al.*, 26 May 2011.
*N side Cheeseman Island*: AM P88905, 1 male (pcl 5.3 mm), 1 ovigerous female (pcl 6.2 mm), 30°30.981'S, 178°34.256'W, 21–25 m, boulders & pinnacles on steep sand slope, rotenone, K2011-82-1, coll. C. Bedford *et al.*, 24 May 2011.
*Stawell Shoal, N of Stella Passage*: AM P88910, 2 males (pcl 5.7–9.1 mm), 1 female (cl 5.5 mm), 30°31.778'S, 178°33.570'W, 28–35 m, steep rock wall, fragile volcanic rock, strong surge, K2011-90-2, coll. A. Ballance *et al.*, 25 May 2011.
*SW side Nugent Island*: AIM MA73408, 2 males (pcl 3.2 mm), 7 females (larger ovigerous, pcl 3.5–5.7 mm), 29°14.550'S, 177°53.688'W, 27–31 m, boulders & rock crevices on coarse sand & gravel, K2011-45, coll. A. Ballance *et al.*, 17 May 2011.
*NW corner North Meyer Island*: AIM MA73409, 1 male (pcl 5.4 mm), 1 juvenile (2.1 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011; AIM MA73410, 1 male (pcl 3.4 mm), 29°14.499'S, 177°52.673'W, 10 m, under rubble, K2011-62-6, coll. S. Keable & A. Reid, 20 May 2011.

**Other material examined.** *Milne Islets, Raoul Island*: AIM MA30765, 1 juvenile (pcl 3.6 mm), 29°16.942'S, 177°54.171'W, 6–13 m, encrusted vertical wall, shallow vertical groove and small holes, K2011-24, coll. C. Bedford *et al.*, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30659, 3 juveniles (pcl 2.5–3.2 mm), 29°15.098'S, 177°51.353'W, 12 m, base of vertical wall with deep crevices, K2011-38, coll. A. Ballance *et al.*, 16 May 2011.
*SW side Nugent Island*: AIM, 1 juvenile (pcl 2.7 mm), 29°14.550'S, 177°53.688'W, 27–31 m, boulders & rock crevices on coarse sand & gravel, K2011-45, coll. A. Ballance *et al.*, 17 May 2011.
*W side Cheeseman Island*: AIM MA30769, 5 juveniles (pcl 2.1–3.4 mm), 30°32.096'S, 178°34.183'W, 12–17 m, sheer to very steep rock wall with no invertebrate cover or algae, K2011-76, coll. A. Ballance *et al.*, 23 May 2011.
*SW side Napier Island*: AIM MA30770, 1 juvenile (pcl 2.2 mm), 29°13.985'S, 177°57.570'W, 10–12 m, steep rock wall with crevices, K2011-9, coll. M. Francis, 13 May 2011.
*Stella Passage, W side Curtis Island*: AIM MA30772, 1 juvenile (pcl 1.9 mm), 30°32.337'S, 178°33.646'W,

13–15 m, from sponge on rock & cobble field with coarse sand, strong surge, K2011-94-2, coll. S. Keable & A. Reid, 25 May 2011.

**Description.** Rostrum longer than carapace (1.14–1.27 pcl males; 1.13–1.26 pcl females), overreaching scaphocerite; laterally compressed, without lateral carina; dorsally with 2 or 3 (usually 2) spines proximally and 3–7 (usually 5 or 6) distally; ventrally with 11–16 spines including apical spine. Carapace finely striated, dorsally with 2 postrostral spines, anteriormost above rostral articulation. Orbit concave; supraorbital spine sharp, prominent. Antennal spine well-developed. Inferior orbital angle with blunt anterior projection slightly above level of antennal spine, apex overreached by antennal spine. Anterior pterygostomian margin slightly sinuous, pterygostomian spine small. Posterolateral margin with low ridge.

Sternites of pereopod 2 and 3 with pair of spines, remaining sternites unarmed.

Abdomen finely striated; tergite 2 with dorsal groove anteriorly; pleura 1–3 rounded; pleuron 4 posterolaterally angular; pleuron 5 posterolaterally spiniform. Abdominal somite 6 about twice as long as somite 5, about three-fourths as long as telson; dorsal length about 1.5 times height; posterolaterally acute, not flared laterally; sternum with slender posteriorly directed spine.

Telson length about 3 times width; with 3 pairs of dorsal movable spines and 3 pairs of movable spines on posterior margin; anteriormost lateral spines arising at anterior one-third of telson; posterior lateral and mesial spines short; intermediate posterior spines more than twice length of mesial posterior spines; telson posterior margin bluntly pointed.

Cornea of eye pigmented, subglobular; ocellus small.

Antennular peduncle basal article longer than wide; with slender distolateral spine reaching midlength of article 3; ventromesial margin with small spine anterior to midlength; apex of stylocerite reaching beyond article 2

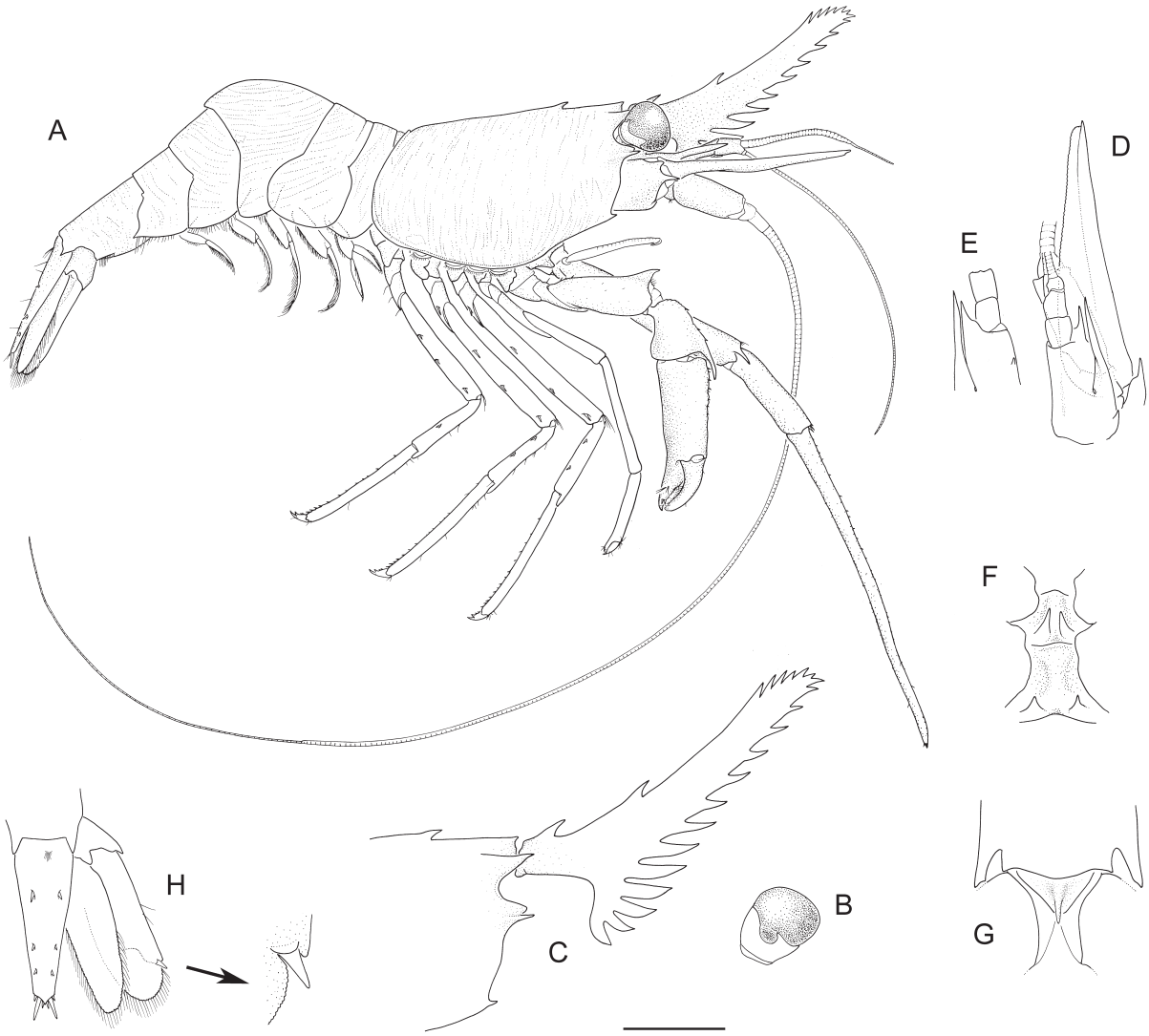


Figure 4. *Rhynchocinetes okuno* sp. nov., male holotype, pcl 11.7 mm, K2011-23 (AIM MA73404): ***A***, habitus, right lateral; ***B***, right eye; ***C***, rostrum and anterior carapace, right lateral view; ***D***, right antennule and antenna, dorsal view; ***E***, right antennules, basal article, ventral view; ***F***, sternites of pereopods 2–3; ***G***, abdominal sternite 6, prenanal spine; ***H***, telson and right uropod, dorsal view. Scale: ***A*** = 5.7 mm; ***B–F***, ***H*** = 4.0 mm; ***G*** = 2.0 mm.

but not beyond article 3 (usually to midlength of article 3).

Scaphocerite overreaching antennular peduncle; length about 4 times width; lateral margin straight, distal spine overreaching apex of blade. Basicerite with slender distolateral spine. Peduncle reaching almost to midlength of scaphocerite.

Mandible with well-developed molar and incisor processes; palp 3-articulated.

Maxillule with upper endite expanded with setose margin; palp distally truncated, with 1 distomesial and 3 distolateral setae; lower endite blunt, distally setose.

Maxilla scaphognathite well-developed, marginally setose; palp elongate, slender; distal endite broad, bilobed, setose; proximal endite small, low, individed, setose.

Maxilliped 1 endopod digitiform, with 2 distal setae; exopod with well-developed caridean lobe, margin setose; distal endite large, setose; epipod large, broad.

Maxilliped 2 exopod slender, setose; endopod with quadrate proximal articles and broad, elongate distal article, setose.

Maxilliped 3 well-developed, longer than twice pcl in large males, about 1.5 pcl in females and small males; with 2 arthrobranchs; exopod about half length of endopod ischiomerus in large males, about as long as ischiomerus in females and small males. Endopod ischiomerus elongate, slender, with slender distolateral spine. Carpus unarmed. Dactylopropodus slender, rugose, in females slightly longer than ischiomerus, with 7 corneous spines distally; in large males, much elongated, longer than combined length of carpus and ischiomerus, minutely and coarsely setose, unarmed distally.

Pereopods symmetrical left to right. Pereopod 1 with arthrobranch; pereopods 2–5 without arthrobranchs.

Pereopod 1 proportionally larger and more robust in large males than in females and small males; in large males, reaching anteriorly as far as apex of scaphocerite; dactylus shorter than palm; palm with field of short spinules on proximal extensor margin, finely setose of proximal flexor surface; carpus and merus each with strong distal extensor spine.

Pereopod 2 anteriorly overreaching midlength of scaphocerite. Dactylus occlusal margin lined with comb-like row of slender spines, distally occluding with distal spines of pollex. Palm and remaining articles unarmed.

Pereopods 3–5 slender, similar in form; relative lengths pereopod 3 > pereopod 4 > pereopod 5. Dactylus biunguiculate, dorsal unguis longer, both evenly tapering to sharp point; flexor margin with 2 corneous spines behind unguis. Propodus extensor margin unarmed; flexor margin lined with well-spaced movable spines. Carpus with 2 movable spines (occasionally 1 on pereopod 5) on lateral surface adjacent to flexor margin. Merus with 3 (rarely 2) movable spines on lateral surface adjacent to flexor margin. Ischium with 1 movable spine on pereopods 3–4, unarmed on pereopod 5.

Male pleopod 1 exopod slender, slightly longer than half endopod length; endopod lamellar, with distal point, mesial margin with appendix interna, lateral margin with distinct, rounded lobe. Male pleopod 2 exopod slender, longer than endopod; endopod appendix masculina ovate, slightly shorter than appendix interna, with short marginal setae. Female pleopod 1 exopod shorter

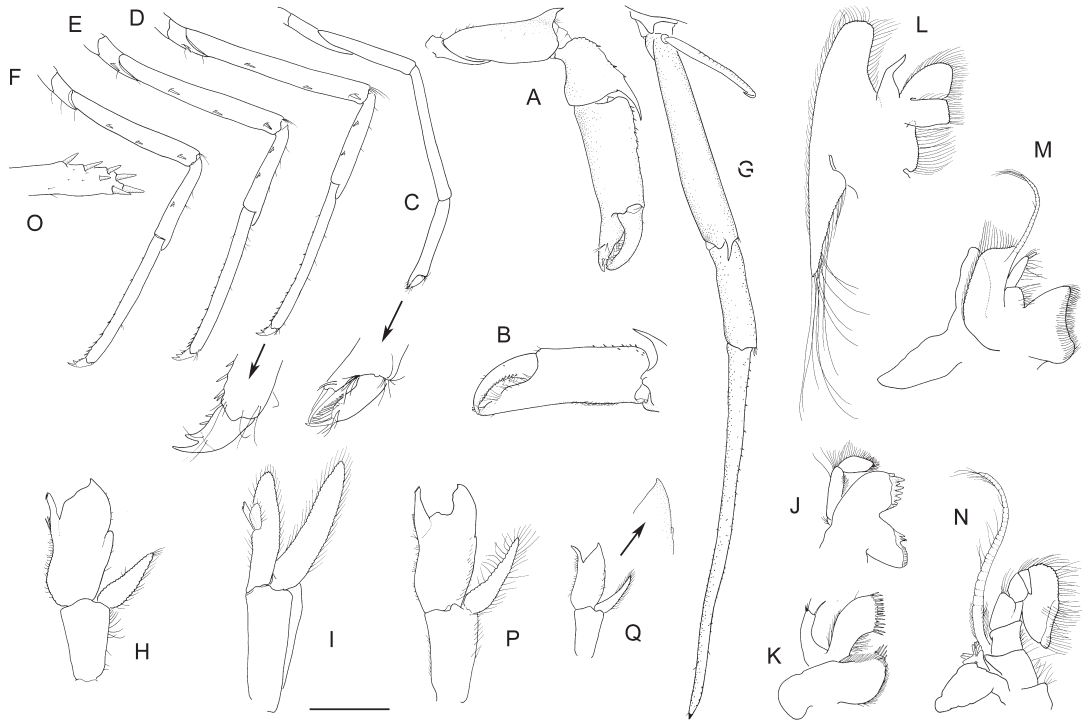


Figure 5. *Rhynchocinetes okuno* sp. nov.: ***A–I***, male holotype, pcl 11.7 mm, K2011-23 (AIM MA73404); ***J–P***, female paratype, pcl 12.6 mm, K2011-23 (AIM MA73405); ***Q***, male paratype, pcl 6.7 mm, K2011-14 (AIM MA73406), right pleopod 1. ***A***, right pereopod 1, lateral view; ***B***, right pereopod 1, chela, mesial view; ***C–F***, right pereopods 2–5; ***G***, right maxilliped 3; ***H***, right pleopod 1; ***I***, right pleopod 2; ***J***, right mandible; ***K***, right maxilla 1; ***L***, right maxilla 2; ***M***, right maxilliped 1; ***N***, right maxilliped 2; ***O***, right maxilliped 3, distal end; ***P–Q***, right pleopod 1. Scale: ***A–G*** = 4.0 mm; ***H–Q*** = 2.0 mm.

than endopod; endopod short marginal notch laterally; usually with appendix interna mesially.

Uropodal protopod unarmed dorsally or ventrally, distolaterally acute; exopod with short laterodistal tooth flanked by longer movable spine mesially; endopod as long as exopod, unarmed.

**Colour in life**. Body deep red-orange overall, covered with well-spaced dark bordered white spots; spots on upper surface of abdominal somites 3–6 often bluish; anterior lateral surface of carapace with two or three faint, pale longitudinal lines below level of antennal spine. Maxillipeds and pereopods dark red with white transverse or diagonal stripes on proximal half, white stripes with yellowish borders. Maxilliped 3 terminal article with distal one-sixth white.

**Etymology**. Named after Junji Okuno, for his many contributions to decapods systematics, especially that of the Rhynchocinetidae.

**Remarks**. *Rhynchocinetes okuno* sp. nov. resembles *R. balssi* Gordon, 1936 [type locality: Juan Fernandez] and differs from all other congeners in lacking arthrobranchs on pereopods 2–5. The two species, however, differ in the form of the male pleopod 1 endopod, colour pattern, ventral rostral spination and possibly, maximum body size. In *R. okuno*, the male pleopod 1 endopod has a distinct lobe on the outer margin (absent in *R. balssi*), and the ventral spination of the rostrum occupies a higher range with minimal overlap (12 or 13 teeth in *R. balssi*, 11–16, usually 13 or more in *R. okuno*) (Balss, 1922; Holthuis, 1972). In *R. okuno*, the ventral rostral spination is always 12 or more except in juveniles and two males (pcl 3.4 mm, AIM MA73410; pcl 5.3 mm, AM P88905). *Rhynchocinetes okuno* might also attain a larger body size, with specimens reaching at least 57 mm (K2011-23 female paratype). In contrast, *R. balssi* is regarded as a small species, with the maximum recorded size from Juan Fernandez at 8 mm pcl and 41 mm total length (ovigerous female holotype; Balss, 1922; Gordon, 1936); males of *R. balssi* from the eastern Pacific are not yet known to have hypertrophied third maxillipeds (but see below). The colour pattern of the two species differs significantly, with *R. balssi* having a striped posterior carapace and abdomen in contrast to the sparsely spotted, non-striped body of *R. okuno*.

*Rhynchocinetes balssi* has been recorded from the eastern Pacific (Juan Fernandez and Easter Island) and southwestern Pacific (New Zealand and Lord Howe Island). The southwestern Pacific records appear to be based on other species. Given the discovery of *R. okuno* at the Kermadec Islands, records attributed to *R. balssi* from New Zealand (Chilton, 1911, Kermadec Islands; Borradaile 1916, ovigerous female, off North Cape, 128 m; Gordon, 1936, female, off North Cape, 80 m) are almost certainly referable to *R. okuno*.

Lord Howe Island *R. balssi* might not represent *R. balssi* sensu stricto. Like *R. balssi*, arthrobranchs are absent from pereopods 2–4 in the Lord Howe Island form, and the colour pattern appears to be similar based

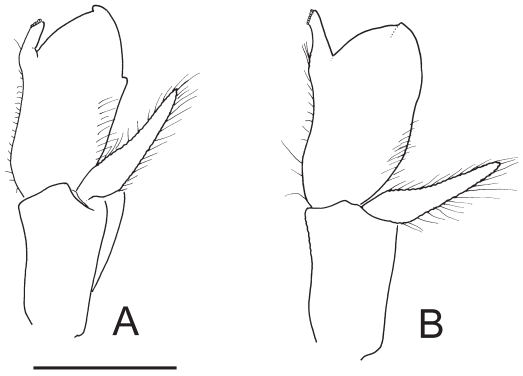


Figure 6. *Rhynchocinetes* cf. *balssi*, Lord Howe Island, right pleopod 1 (AM P84951): *A*, male pcl 9.6 mm; *B*, male pcl 10.2 mm. Scale = 2.0 mm.

on the descriptions of preserved material (Holthuis, 1972; Bruce, 1985) and a colour figure of a Lord Howe Island specimen (Coleman 2002: 50). The Lord Howe Island form, however, appears to differ from *R. balssi* sensu stricto in ventral rostral spination with 10 or 11 versus 12 or 13 spines, respectively; having a low (occasionally absent) lateral lobe on the pleopod 1 endopod of males (Fig. 6) (absent in topotypic *R. balssi* according to Gordon, 1936); and hypertrophied third maxillipeds and chelipeds, dimorphism that is yet to be recorded from Juan Fernandez. The Lord Howe Island '*R. balssi*', however, is not referrable to *R. okuno*, having a markedly different colour pattern (striped versus spotted in *R. okuno*), fewer ventral rostral spines (10 or 11 versus 11–16, usually 13 or 14), the low or absent (versus prominent) lateral lobe on the male pleopod 1 endopod (Fig. 6), and possibly smaller maximum body size (tl 44 mm versus 57 mm). Only juveniles and two small males (pcl 3.4 mm, 5.3 mm) of *R. okuno* had 11 ventral rostral spines whereas even the largest *R. balssi* from Lord Howe Island (pcl 10.2 mm, tl 44 mm) had 11 ventral rostral spines. The largest Lord Howe Island specimen is tl 44 mm compared to tl 57 mm for *R. okuno*. The status of the Lord Howe Island *R. 'balssi'* relative to the Juan Fernandez population requires further study. The strongly disjunct distribution currently attributed to *R. balssi* (eastern Pacific and Tasman Sea, but not at intermediate localities) also suggests that the two forms might not be conspecific. The Lord Howe Island form might represent an undescribed species, but is not further treated here pending further study.

Variation in the type series of *R. okuno* is typical for *Rhynchocinetes*. The hypertrophied third maxillipeds of male *R. okuno* are evident in large males (pcl 9–10 mm). The appendix masculina on the pleopod 2 endopod is developed in males 3.2 mm pcl and above, and lateral lobe on the male pleopod 1 endopod is evident in males exceeding 4.9 mm pcl. The proportional length of the stylocerite increases with body size, reaching the midlength of antennular article 3 by pcl 4.4–4.9 mm, and to the end of article 3 or beyond by pcl 7.5 mm. An appendix interna is often present on the pleopod 1 endopod of female *R. okuno* (four of six females examined), as

documented for *R. balssi* and *R. rigens* (Gordon, 1936). Rostral spination generally correlates with body size.

*Rhynchocinetes okuno* differs from its other New Zealand congener, *R. ikatere*, by the sharp and well-developed, instead of blunt and reduced, supraorbital spines, absence of arthrobranchs on pereopod 2, greater rostral spination (3–7, usually 5 or 6 distal dorsal and 12–16 ventral versus 3 or 4 distal dorsal and 10 or 11 ventral spines) and colour pattern, in which the body is sparsely spotted and without stripes in contrast to *R. ikatere* with numerous spots on the abdomen and a two distinct transverse stripes (one across the posterior carapace and one across the anterior abdomen).

**Distribution**. The Kermadec Islands and probably off North Cape, North Island, New Zealand; 6–128 m.

## Superfamily PALAEMONOIDEA
## Family GNATHOPHYLLIDAE

***Gnathophyllum oceanicum* sp. nov.** *(Figs 7, 8, 12C)*
*Gnathophyllum taylori*. – Ahyong, 2003: 237 [Elizabeth Reef specimen only, not *G. taylori* Ahyong, 2003].
**Type material**. **Holotype:** AIM MA73411, male (cl 4.2 mm, pcl 2.9 mm), Macauley Island, 30°13.464'S, 178°26.337'W, 21 m, under coral rock, K2011-67-7, coll. S. Keable & M. Reid, 21 May 2011.

**Other material examined.** *SW Elizabeth Reef, Tasman Sea*: AM P38007, 1 ovigerous female (cl 5.5 mm, pcl 3.8 mm), 29°57.7'S, 159°02.8'E, outer slope, among coral heads and overhangs, coll. A. Gill & S. Reader, 11 Dec 1987.

**Description**. Rostrum not overreaching basal antennular article, with 5 dorsal teeth and minute subdistal ventral denticle; posteriormost tooth at or slightly behind level of posterior orbital margin. Carapace with orbit without narrow posterodorsal sinus. Antennal spine well-developed, arising slightly submarginally. Inferior orbital angle with blunt anterior projection at level of antennal spine, extending anteriorly slightly beyond apex of antennal spine. Pterygostomian angle rounded, obtuse, produced anteriorly distinctly beyond antennal spine.

Abdomen smooth, subcylindrical, pleura 1–4 rounded; pleuron 5 posterolaterally triangular; medial margin of somite 3 rounded, slightly overhanging somite 4. Abdominal somite 6 three-fourths length of telson; height about three-fourths length. Telson length 2.1–2.4 times width; with 2 pairs of lateral movable spines and 3 pairs of movable spines on posterior margin; anteriormost lateral spines arising slightly behind midlength of telson; posterior lateral spines arising well anterior to outer pair of posterior spines; intermediate posterior spines more than twice length of lateral posterior spines; mesial posterior spines somewhat soft; telson posterior margin bluntly pointed.

Cornea of eye pigmented; with blunt apical tubercle.

Antennular peduncle basal article, longer than wide, with stout distolateral spine, not overreaching article 2; apex of stylocerite not reaching base of article 2; ventromesial margin with spine at midlength; dorsolateral flagellum with thickened basal portion of 8 short articles, mesial branch uni-articulated, very short, arising at eigthth article.

Scaphocerite overreaching antennular peduncle; about twice as long as wide; lateral margin straight, distal spine about twice as long as wide, not reaching to apex of blade. Basicerite unarmed. Peduncle not reaching midlength of scaphocerite.

Mandible without incisor process; palp absent.

Maxillule with upper endite expanded with double row of robust setae mesially, setose laterally; lower endite small, blunt, distally setose; palp broad basally, tapering, distally forming slender falcate hook, with blunt rounded lobe on inner margin.

Maxilla apparently without endites; scaphognathite well-developed, marginally setose; palp elongate, distally tapered, non-setose.

Maxilliped 1 with well-developed caridean lobe, endopod slender, distally setose, not reaching beyond exopod flagellum; endite large, setose.

Maxilliped 2 exopod slender, distally setose; endopod with broad basal articles and elongate, curved distal article, setose on outer margin.

Maxilliped 3 well-developed; endopod ischiomerus operculiform, setose medially, sparsely setose laterally; exopod long, slender, setose distally and proximolaterally; ischiomerus completely fused with basis.

Pereopods symmetrical left to right.

Pereopod 1 distinctly overreaching scaphocerite by length of chela and half length of carpus; occlusal margins of dactylus and pollex smooth; dactylus slightly longer than palm.

Pereopod 2 overreaching scaphocerite by length of chela and carpus. Pollex and dactylus occlusal margins with low blunt teeth on proximal third to half, otherwise smooth. Propodus palm about twice dactylus length. Carpus about three times as long as wide; slightly longer than half palm length. Merus about as long as ischiobasis, slightly longer than carpus.

Pereopods 3–5 slender, similar in form; relative lengths pereopod 4 > pereopod 5 > pereopod 3. Dactylus biunguiculate, dorsal unguis slender, evenly tapering to sharp point; ventral unguis shorter than dorsal unguis, broad, trianguloid, evenly tapering. Distal half of propodus flexor margin with 2 pairs movable spines distally followed by 2–4 single movable spines. Merus 5.9–6.3 times as long as wide.

Male pleopod 2 endopod as long as exopod; appendix masculina shorter than appendix interna, with 4 long distal setae.

Uropodal protopod unarmed dorsally or ventrally; exopod with stout laterodistal tooth flanked by smaller movable spine mesially; endopod ovate, unarmed.

**Colour in life**. Body transparent with 6 broad, transverse, lemon-yellow bands, bordered by narrow black stripe: 3 bands on carapace, 3 bands on abdomen. Pereopod 1 with scattered dark speckling on ischium proximal portion of merus. Pereopod 2 transparent with diffuse white speckling. Pereopods 3–5, abdominal somites 5–6 and tail-fan transparent. Eye-stalk with short black stripes.

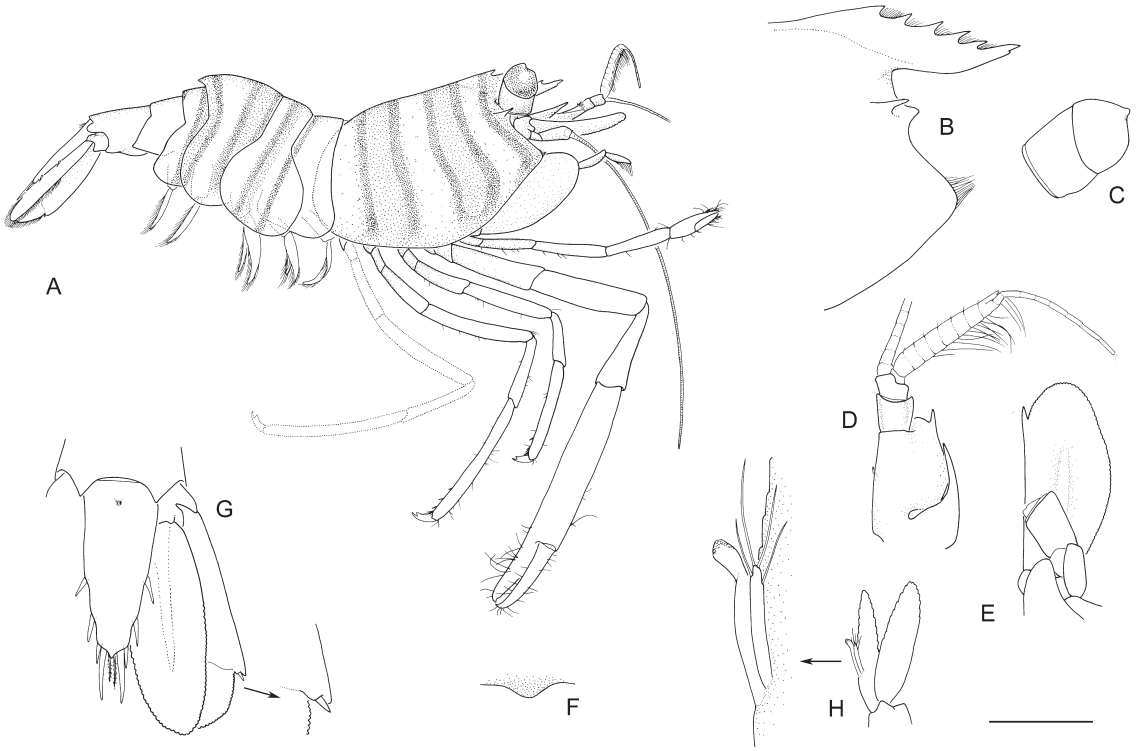


Figure 7. *Gnathophyllum oceanicum* sp. nov., male holotype, cl 4.2 mm, pcl 2.9 mm, K2011-67-7 (AIM MA73411). ***A***, habitus, right lateral; ***B***, anterior carapace, right lateral; ***C***, right eye; ***D***, right antennule, dorsal view; ***E***, right antenna, ventral view; ***F***, abdominal tergite 3 posterior median margin, dorsal; ***G***, telson and right uropod; ***H***, right pleopod 2. Scale: ***A*** = 2.0 mm; ***B–H*** = 1.0 mm.

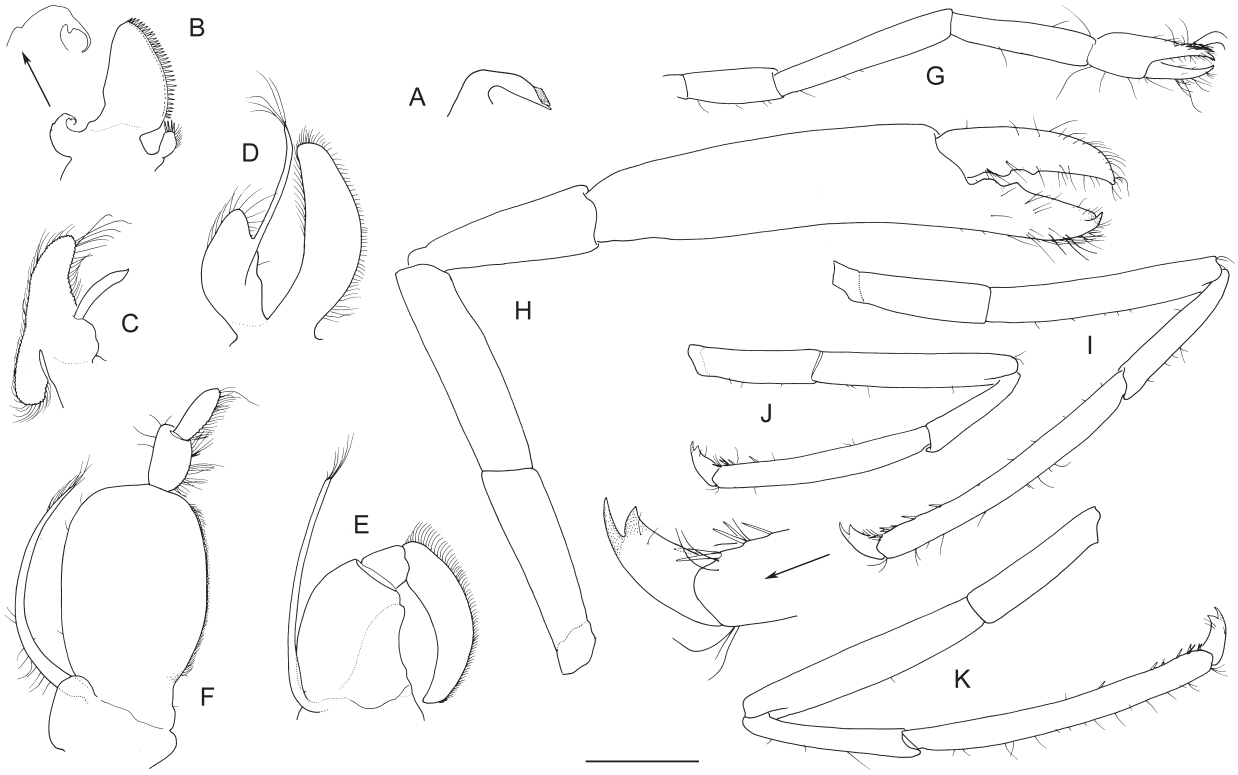


Figure 8. *Gnathophyllum oceanicum* sp. nov., male holotype, cl 4.2 mm, pcl 2.9 mm, K2011-67-7 (AIM MA73411). ***A***, right mandible; ***B***, right maxillule; ***C***, right maxilla; ***D–F***, right maxillipeds 1–3; ***G–J***, right pereopods 1–4; ***K***, left pereopod 5. Scale = 1.0 mm.

**Etymology.** Named for the oceanic distribution of the new species, in contrast to the similar species, *G. taylori*, which occurs in coastal habitats.

**Remarks**. *Gnathophyllum oceanicum* sp. nov. is the fourth species of the genus to be recognised from the Indo-West Pacific. It differs from *G. precipuum* Titgen, 1989 from Hawai'i in having five instead of two dorsal rostral teeth and a banded rather than spotted colour pattern; and from the widespread *G. americanum* Guérin-Meneville, 1855 in having the posteriormost dorsal rostral tooth at or slightly behind, instead of distinctly in advance of the orbital margin, and white speckled rather than darkly banded chelipeds. *Gnathophyllum oceanicum* is most similar to the eastern Australian *G. taylori* Ahyong, 2003, sharing similar dorsal rostral ornamentation and dark stripes on the body. It differs from *G. taylori* in the more slender cheliped 2 carpus (about three times as long as wide versus twice as long as wide), proportionally longer cheliped 2 palm (about twice as long as the dactylus versus about 1 ½ times as long), more elongate basal antennal article, more slender telson and most obviously, body colouration. In life, the body of *G. taylori* is a uniform, translucent, dull pale yellow marked by narrow, widely spaced black-brown, transverse bands. The body of *Gnathophyllum oceanicum* is transparent, with three broad, lemon yellow bands bordered by thin black stripes.

*Gnathophyllum taylori* was originally reported from the south-eastern Australian coast and Elizabeth Reef, Tasman Sea (Ahyong, 2003). Re-examination of the type series of *G. taylori* revealed that the Elizabeth Reef specimen, although in poor condition, is referrable to *G. oceanicum*. *Gnathophyllum taylori* apparently occurs on coastal, nearshore reefs off south-eastern Australia, whereas *G. oceanicus* occurs on oceanic reefs at the Kermadec Islands and Elizabeth Reef.

**Distribution**. Kermadec Islands and Elizabeth Reef, Tasman Sea; 21 m.

## Superfamily PANDALOIDEA
## Family PANDALIDAE

***Anachlorocurtis australis* sp. nov.** (Figs 9, 10)

**Type material**. **Holotype**: AIM MA73412, ovigerous female (pcl 2.2 mm), SW side Nugent Island, 29°13.891'S, 177°52.219'W, 15–23.7 m, from antipatharian, K2011-47-1, coll. S. Keable, 17 May 2011.

**Paratypes**: AIM MA73413, 1 ovigerous female (pcl 2.1 mm), 1 male (pcl 1.8 mm), collected with holotype.

**Description**. Rostrum in females laterally compressed, short, deep, subquadrate; with 4–6 short anterior spines, of which upper second or third extend furthest forward; rostral apex reaching slightly beyond mid-length of basal antennular article; upright, triangular postrostral crest, laterally compressed, at level of posterior margin of orbit, anterior margin with 3 or 4 anteriorly directed spines, posterior margin unarmed, basally with small tubercle. Rostrum in males simple, triangular, apex pointed; postrostral crest low, with 2 anterior spines. Carapace elongate, subcylindrical; orbit concave, delimited ventrally by slender antennal spine; pterygostomian margin bluntly angular. Dorsal margin with upright process slightly behind carapace midlength, triangular, laterally compressed, apex forming anteriorly recurved spine, largest in females; upper posterior margin with low tubercle. Posterolateral margin with low ridge.

Abdomen smooth, pleura 1–5 rounded to subtruncate ventrally, rounded posterolaterally; transversely rounded dorsally, not carinate; somite 3 with dorsal hump, margin straight for much of length in lateral view, slightly overhanging somite 2. Somites 4 and 5 with shallow, transverse notch slightly posterior to posterior one-half and one-third of dorsal margin, respectively. Somite 6 about as long as telson; length 2.5–2.6 times height (female), 2.7 (male); posteroventral angle acute.

Telson slender, flattened, 4.0–4.3 times as long as wide (females), 3.7 (male); with 3 pairs of lateral movable spines; posterior margin rounded, with 10 movable spines along posterior margin, outer first and third movable spines shorter than remainder; anterior lateral spines arising anterior to midlength of telson.

Cornea of eye pigmented, with blunt apical tubercle, about 0.8 length of stalk, extending anteriorly almost to end of basal antennular article.

Antennular peduncle basal article slender, more than twice as long as combined length of articles 2 and 3; stylocerite flattened, distomesially right-angled, distolateral spine reaching to midlength of basal article; articles 2 and 3 subequal, unarmed. Flagella subequal in length; similar in both sexes; upper, mesial flagellum of 9 articles; lower, lateral flagellum of 6 articles, proximal 4 articles swollen.

Scaphocerite overreaching antennular peduncle; almost 3 times as long as wide; lateral margin straight, distal spine not reaching to apex of blade. Basicerite with slender laterodistal spine. Peduncular reaching almost to midlength of scaphocerite.

Mandible with molar and incisor processes; palp absent.

Maxillule with upper endite expanded with setose margin; palp distally truncated, with 2 distal setae; lower endite blunt, distally setose.

Maxilla scaphognathite well-developed, marginally setose; palp short, slender, with 2 apical setae; distal endite broad, bilobed, setose; proximal endite small, undivided, setose.

Maxilliped 1 endopod digitiform, with 2 distal setae; exopod forming well-developed caridean lobe, margin setose, flagellum absent; endite rudimentary; epipod large, broadly triangular.

Maxilliped 2 endopod with setose terminal article (possibly fused dactylopropodus); merus with 1 distal seta, partially fused with ischium; exopod absent; epipod well-developed, subovate.

Maxilliped 3 well-developed, slender, reaching anteriorly to midlength of scaphocerite; ultimate article slightly longer than penultimate article, with rows of short setae and movable spines on dorsal surface of distal two-thirds; antepenultimate article about 3 times

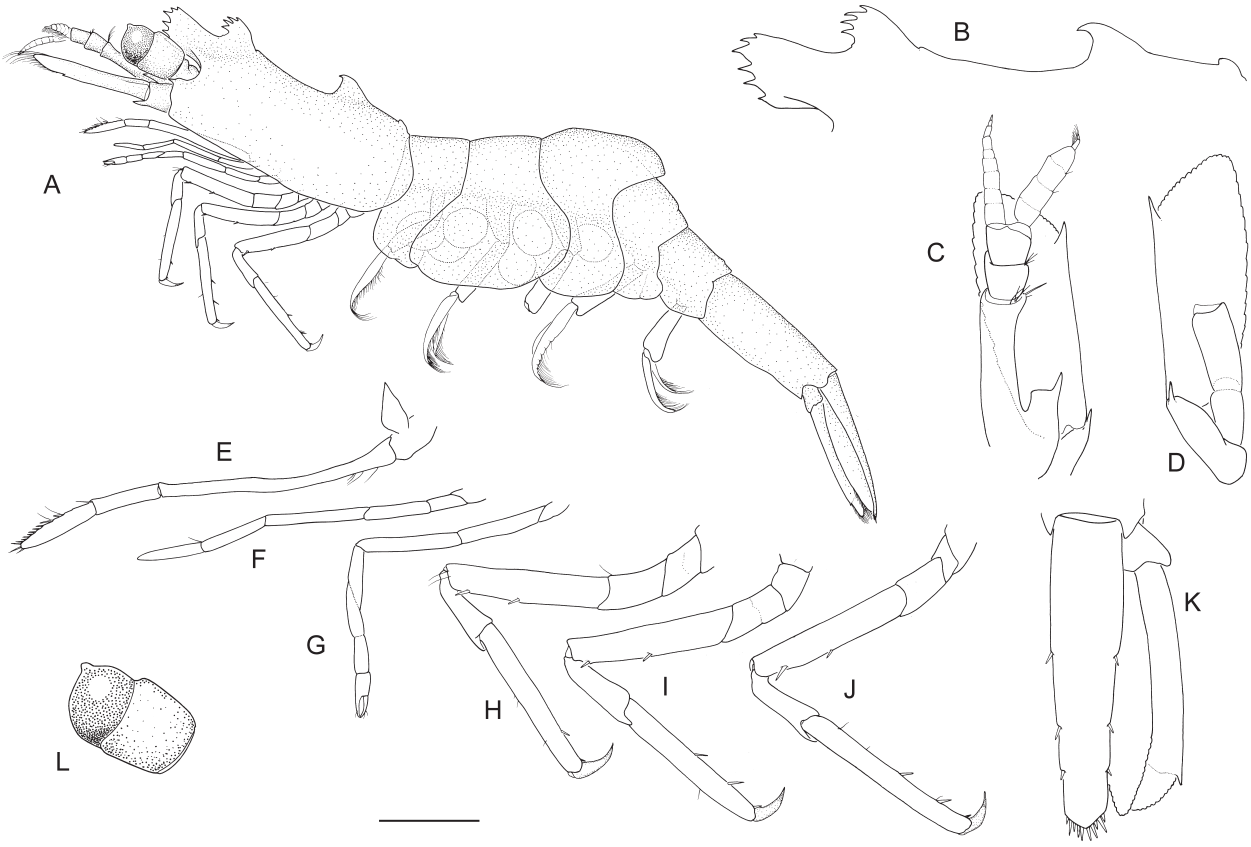


Figure 9. *Anachlorocurtis australis* sp. nov., ovigerous female holotype, pcl 2.2.mm, K2011-47-1 (AIM MA73412). ***A***, habitus, left lateral view; ***B***, carapace outline, left lateral; ***C***, right antennule and antenna, dorsal; ***D***, right antenna, ventral view; ***E***, right maxilliped 3; ***F–J***, right pereopods 1–5; ***K***, telson and right uropod, dorsal; ***L***, left eye. Scale: ***A*** = 1.0 mm; ***B–L*** = 0.5 mm.

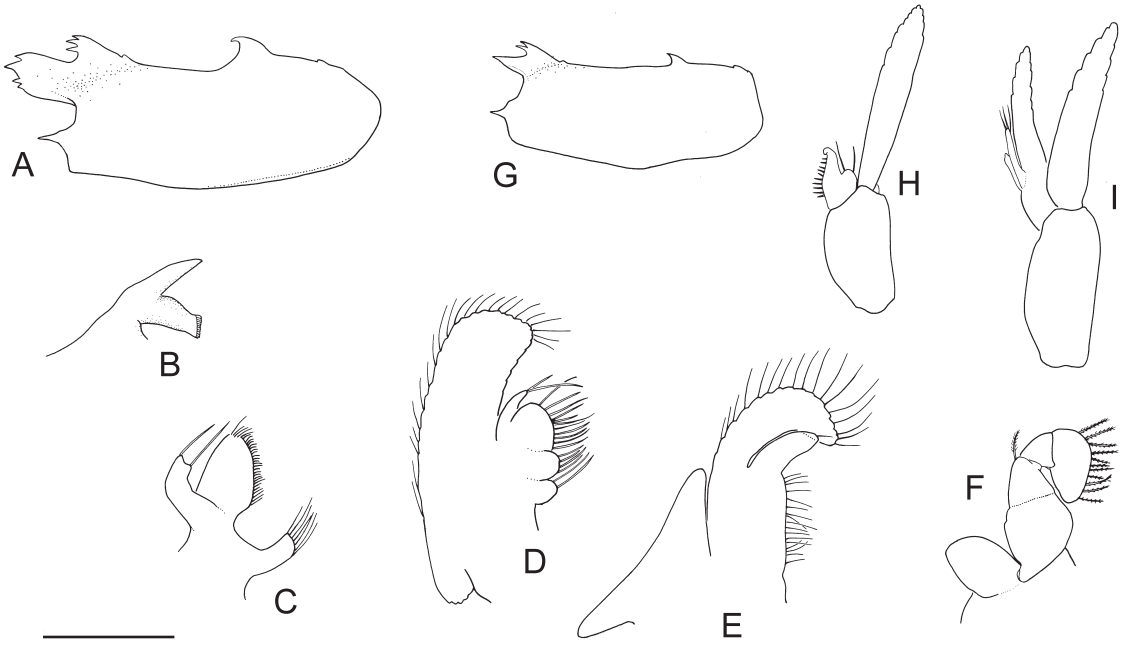


Figure 10. *Anachlorocurtis australis* sp. nov.: ***A–F***, ovigerous female paratype, pcl 2.1 mm, K2011-47-1 (AIM MA73413); ***G–I***, male paratype, pcl 1.8 mm, K2011-47-1 (AIM MA73413). ***A***, ***G***, carapace, left lateral; ***B***, right mandible; ***C***, right maxillule; ***D***, right maxilla; ***E***, right maxilliped 1; ***F***, right maxilliped 2; ***H***, right pleopod 1; ***I***, right pleopod 2. Scale: ***A***, ***G*** = 1.0 mm; ***B–F*** = 0.23 mm; ***H–I***, 0.5 mm.

as long as ultimate article, proximally setose; exopod absent; epipod triangular.

Pereopods symmetrical left to right. Pereopod 1 slender, not chelate, reaching anteriorly as far as rostral apex. Dactylus as long as propodus and merus. Carpus as long as combined ischium and merus length.

Pereopod 2 slender, reaching anteriorly slightly beyond pereopod 1. Dactylus as long as propodus palm. Carpus about 3 times as long as chela, 3-articulate, proximal 2 articles with oblique articulation. Merus as long as ischium, two-thirds as long as carpus.

Pereopods 3–5 similar in form, slender but stouter than pereopods 1 and 2, almost glabrous; relative lengths pereopod 5 > pereopod 4 > pereopod 3; pereopod 3 reaching midlength of scaphocerite. Dactylus curved, uni-unguiculate, evenly tapering to sharp point. Distal half of propodus with 1–2 (pereopod 3) or 3 movable spines (pereopods 4–5) along flexor margin including small distal spine adjacent to dactyl articulation. Merus about 5 times as long as high, with 2 movable spines on lateral surface along distal half of flexor margin on pereopods 3–4, 1 or 2 movable spines (usually 1) on pereopod 5. Propodus about 8 times as long as high. Dactyli 3.8–4.0 times as long as high.

Male pleopod 1 endopod about one-third length of exopod; with 2 distolateral setae; with mesial row of 10 setae. Male pleopod 2 endopod slightly shorter than exopod; appendix masculina longer than appendix interna, with 3 distal setae.

Uropodal protopod unarmed dorsally or ventrally; exopod with stout laterodistal tooth, diaeresis distinct; endopod slender, unarmed.

**Etymology**.Named *australis*, Latin for southern, alluding to the southern hemisphere occurrence of the new species, contrasting with the northern hemisphere distribution of *A. commensalis* and *A. occidentalis*.

**Remarks**. *Anachlorocurtis australis* sp. nov. is the third species in the genus after the type species, *A. commensalis* Hayashi, 1975, from Japan and Taiwan, and *A. occidentalis* Horká, De Grave & Ďuriš, 2014, recently described from the Red Sea. All are of diminutive size and commensal with antipatharian corals. *Anachlorocurtis australis* is most similar to *A. occidentalis*, and together, they differ from *A. commensalis* in the more elongate cornea (more than 0.8 as long as stalk versus about half as long as stalk), distinctly humped abdominal tergite 3 with a flat dorsal margin (Fig. 9A), rather than rounded as in *A. commensalis*; in the more elongate abdominal somite 6 (dorsal length 2.5–2.7 times height versus 2.0) (Fig. 9A); in the greater number of setae on the mesial margin of the male pleopod 1 endopod (9 or 10 versus 3) (Fig. 10H); and in the length of the appendix masculina on pleopod 2 (longer than rather than shorter than the appendix interna) (Fig. 10I). *Anachlorocurtis australis* differs from *A. occidentalis* in having less slender pereopods 3–5 in which the propodi are eight times as long as high (versus 10) and dactyli 3.8–4.0 times as long as high (versus 5.5). In the pereopod 3–5 proportions, *A. australis* approaches *A. commensalis*.

The two females of *Anachlorocurtis australis* differ only slightly in the anterior spination of the rostral and post-rostral teeth. The carapace ornamentation of the male paratype is less developed than in the adult females (Fig. 10G); the posterior-most tooth presents as only small protrusion. Similar sexual dimorphism was reported by Hayashi (1975b) and Horká *et al.* (2014) for *A. commensalis* and *A. occidentalis*, respectively.

**Distribution**. Presently known only from the Kermadec Islands; 15–23.7 m, associated with antipatharian corals.

### *Plesionika laurentae* Chan & Crosnier, 1991*

*Plesionika laurentae* Chan & Crosnier, 1991: 431–433, figs 6, 24 [type locality: Chesterfield Islands, Coral Sea]. – De Grave & Fransen, 2011: 449.

**Material examined.** *W side Macauley Island*: AIM MA30660, 1 female (cl 43.6 mm, pcl 11.5 mm), 30°13.548'S, 178°26.416'W, 40–120 m, K2011-73, trap, coll. S. Keable, 21–22 May 2011; AM P89656, 1 female (cl 45.7 mm, pcl 13.7 mm), 30°13.548'S, 178°26.416'W, 40–120 m, K2011-73-1, trap, coll. S. Keable, 21–22 May 2011.

**Remarks.** *Plesionika laurentae* was described from New Caledonia and is confirmed for the first time from New Zealand waters. The pereopod 2 carpus is composed of 23–24 articles and rostral spination includes 53–55 dorsal and 32–33 ventral spines.

**Distribution**. New Caledonia, Chesterfield Islands, eastern Australia and now the Kermadec Islands; 150–320 m (Chan & Crosnier, 1991).

## Superfamily PROCESSOIDEA
## Family PROCESSIDAE

### *Clytomanningus molaris* (Chace, 1955)*

*Processa molaris* Chace, 1955: 11, fig. 5 [type locality: Rongelap Atoll, Marshall Islands]. – Hayashi, 1975a: 124–127, figs 29, 30.
*Clytomanningus molaris*. – Chace, 1997: 34. – De Grave & Fransen, 2011: 436.

**Material examined**. *Boat Cove, Raoul Island*: AIM MA30661, 1 ovigerous female (cl 2.3 mm), 29°16.381'S, 177°55.6'W, 10 m, airlift from side of boulder, K2011-28-1, coll. S. Keable, 15 May 2011; AM P89039, 1 ovigerous female (cl 2.3 mm), 29°16.381'S, 177°55.6'W, 10 m, airlift from sediment between rocks, K2011-28-2, coll. S. Keable, 15 May 2011.
*Macauley Island*: AIM MA30662, 3 specimens, 30°13.663'S, 178°26.339'W, 21.2 m, airlift on side and top of rock, K2011-70-3, coll. S. Keable & A. Reid, 21 May 2011.

**Remarks**. The specimens agree well with published accounts (Chace, 1955; Hayashi, 1975a) and constitute the first record of the genus and species from New Zealand waters. Specimens of the present series have 6 articles on the pereopod 2 carpus.

**Distribution**. Red Sea and Kenya to the Indonesia, the Philippines, Marshall Islands and now from the Kermadec Islands.

### *Processa australiensis* Baker, 1907*

*Processa australiensis* Baker, 1907: 185, pl. 26: fig. 2–2e. – Hayashi, 1975a: 86–89, fig. 13. – Poore, 2004: 128, fig. 33b. – De Grave & Fransen, 2011: 437.

**Material examined**. *Boat Cove, Raoul Island*: AIM, 1 male (cl 2.1 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29, coll. A. Ballance & M. Francis, 15 May 2011.
*NW corner North Meyer Island*: AIM, 1 male (cl 1.6 mm), 1 ovigerous female (cl 2.8 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011.

**Remarks**. The specimens represent the first records of *P. australiensis* from New Zealand waters. The fifth abdominal pleuron is acutely pointed in the two larger specimens, and with a minute spine in the smallest specimen (male, cl 1.6 mm).

**Distribution**. Western Indian Ocean Indonesia, the Philippines, southern and eastern Australia and now the Kermadec Islands.

## Infraorder STENOPODIDEA
## Family STENOPODIDIDAE

### *Stenopus hispidus* (Olivier, 1811)**

*Palaemon hispidus* Olivier, 1811: 666 [type locality: unknown].
*Stenopus hispidus*. – Yaldwyn, 1968: 279. – Doak, 1971: 82, 84, pl. 39D. – Yaldwyn, 1974: 1044, fig. 1. – Webber *et al.*, 2010: 225. – Yaldwyn & Webber, 2011: 183. – De Grave & Fransen, 2011: 253.

**Material examined**. *W side l'Esperance Rock*: AIM MA30825, 1 male (pcl 10.7 mm), 31°21.252'S, 178°49.593'W, 12–20 m, rock walls, shelly sediment, sponges & coral scrapings, K2011-99, rotenone, coll. S. Keable & A. Reid, 26 May 2011.
*W side Macauley Island*: AIM MA30827, 1 ovigerous female (pcl 11.9 mm), 1 juvenile (ocl 4.1 mm), 30°13.704'S, 178°26.433'W, 21–24.7 mm, boulders surrounded by coarse sand & gravel, K2011-71, rotenone, coll. S. Keable & A. Reid, 22 May 2011;
*NW corner North Meyer Island*: AM P89342, 1 male (pcl 6.8 mm), 29°14.489'S, 177°52.723'W, 16–18 m, rocky bottom with sand, gravel, coral & seaweeds, K2011-57-1, rotenone, coll. C. Bedford *et al.*, 19 May 2011.

**Remarks**. Previous New Zealand records of *S. hispidus* are from the northern North Island (Yaldwyn, 1968, 1974); the present specimens are the first for the Kermadec Islands. For a full list of the primary synonyms of *Stenopus hispidus*, see Davie (2002) and De Grave & Fransen (2011).

**Distribution**. Western Atlantic and Indo-Pacific including Australia, northern New Zealand and now from the Kermadec Islands; shore to 210 m.

## Infraorder ACHELATA
## Family SCYLLARIDAE

### *Arctides antipodarum* Holthuis, 1960** (Fig. 12D)

*Arctides antipodarum* Holthuis, 1960: 154 [type locality: Malabar, New South Wales, Australia]. – Yaldwyn 1961: 1, 3, figs 1, 2. – Holthuis, 1991: 175, figs 326a, 327. – Poore 2004: 209, fig. 58b. – Holthuis, 2006: 427–430, fig. 3. – Webber *et al.*, 2010: 225. –Yaldwyn & Webber, 2011: 204.
*Arctites antipodum* [sic]. – Doak, 1971: 88, pl. 42.

**Material examined**. *W side l'Esperance Rock*: AM P89657, 1 male (cl 90.7 mm), 31°21.252'S, 178°49.593'W, 23–28 m, large boulders & overhangs surrounded by sand, K2011-98, coll. T. Trnski, 26 May 2011.
*Milne Islets, Raoul Island*: AIM MA30828, 1 male (cl 83.7 mm), 29°16.942'S, 177°54.171'W, 6–13 m, encrusted vertical wall, K2011-24, coll. C. Struthers, 15 May 2011.
*Stawell Shoal, N of Stella Passage*: AIM MA30829, 1 male (cl 64.8 mm), 30°31.778'S, 178°33.570'W, 28–35 m, fragile volcanic rock, very steep rock wall, strong surge, K2011-90, coll. M. McGrouther, 25 May 2011.

**Remarks**. *Arctides antipodarum* has been recorded from North Island, New Zealand, but the present records are the first for the Kermadec Islands.

**Distribution**. Eastern Australia and northern New Zealand including the Kermadec Islands; 5–140 m (Holthuis, 2006).

## Infraorder AXIIDEA
## Family CALLIANASSIDAE

### *Paratrypaea* sp.*

**Material examined**. *Macauley Island*: AIM MA30542, 1 ?female (cl 2.3 mm), 30°13.464'S, 178°26.337'W, 21 m, under coral rock, K2011-67-8, coll. S. Keable & M. Reid, 21 May 2011.

**Remarks**. The tiny specimen is in poor condition and lacks the major first cheliped. Many details that can be observed agree with *Paratrypaea bouvieri* (Nobili, 1904) as reported by Komai & Tachikawa (2008) for Japanese material including antennular article proportions, the shape and proportions of the maxilliped 3 ischiomerus, minor cheliped 1 with the carpus longer than the palm, the distally subtruncate telson with a small median spinule, uniramous 2-segmented pleopod 1, and biramous pleopod 2. The Kermadec Islands specimen differs from *Paratrypaea bouvieri*, however, in having a triangular but not spiniform rostrum and eyes appearing to be anteriorly angular rather than rounded.

*Corallianassa articulata* (Rathbun, 1906) is the only other callianassid previously reported from the Kermadec Islands (Chilton, 1911).

## Infraorder ANOMURA
## Superfamily GALATHEOIDEA
## Family GALATHEIDAE

### *Allogalathea inermis* Cabezas, Macpherson & Machordom, 2011*

*Allogalathea inermis* Cabezas, Macpherson & Machordom, 2011: 260–261, figs 4, 6C [type locality: New Caledonia].

**Material examined**. *W side South Meyer Island*: AM P89043, 3 males (cl 4.0–6.1 mm), 5 females (cl 2.4–8.3 mm), 29°14.789'S, 177°52.883'W, 10–12 m, commensal on black & yellow crinoids in rock gutter, K2011-3-1, coll. A. Ballance *et al.*, 12 May 2011; AIM, 1 male (cl 4.5 mm), 1 female (cl 3.6 mm), 29°14.789'S, 177°52.883'W, 10–12 m, on black & yellow crinoids, K2011-3-5, coll. A. Ballance *et al.*, 12 May 2011; AIM MA30663, 6 specimens (cl 2.0–5.5 mm), 29°14.789'S, 177°52.883'W, 10–12 m, black crinoids from rock face, K2011-3-5, coll. A. Ballance *et al.*, 12 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30664, 1 male (cl 8.7 mm), 1 ovigerous female (cl 7.8 mm), 29°15.098'S, 177°51.353'W, 10 m, sediment, K2011-42-7, coll. S. Keable, 16 May 2011.

**Remarks**. The specimens accord well with the type description, and are the first records of *A. inermis* from New Zealand waters. The specimens, taken from the crinoid, *Tropimetra* cf *afra* (Hartlaub, 1890), had uniformly dark colouration.

**Distribution**. Mozambique to Japan, Thailand, Indonesia, Vanuatu, New Caledonia, the Chesterfield Islands, and now from the Kermadec Islands, New Zealand; 44–120 m (Cabezas *et al.*, 2011).

### *Phylladiorhynchus integrirostris* (Dana, 1852)

*Galathea integrirostris* Dana, 1852: 482 [type locality: Hawaiian Islands].
*Phylladiorhynchus integrirostris*. – Baba, 1991: 485–487, fig. 4c, d; 2005: 304–305 [synonymy]. – Ahyong, 2007: 42, fig. 21. – Webber *et al.*, 2010: 226.

**Material examined**. *W side South Meyer Island*: AIM MA30532, 1 male, 29°14.800'S, 177°52.906'W, 21 m, among algae, K2011-2-1, 12 May 2011.
*Milne Rocks, Raoul Island*: AM P88923, 1 specimen (cl 2.2 mm), 29°16.942'S, 177°54.171'W, vertical rock wall, rocks, cobble, coarse sand & turfing algae, 21 m, K2011-23-4, coll. A. Reid & S. Keable, 15 Jul 2011.
*Boat Cove, Raoul Island*: AIM MA30533, 1 male (cl 1.8 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*W side Cheeseman Island*: AIM MA30534, 1 female (cl 2.2 mm), 30°32.096'S, 178°34.183'W, 24 m, K2011-77-2, coll. S. Keable & A. Reid, 23 May 2011.

**Remarks**. All specimens have two epigastric spines, diagnostic of *P. integrirostris*. They represent the first records of *P. integrirostris* from the Kermadec Islands.

**Distribution**. Western Indian Ocean to Lord Howe Island, the Kermadec Islands, the Ogasawara Islands, Marshall Islands, Hawaiian Islands, Easter Island and Juan Fernández; intertidal to 160 m (Baba 2005; Ahyong 2007).

## Family PORCELLANIDAE

### *Pachycheles pisoides* (Heller, 1865)

*Porcellana pisoides* Heller, 1865: 73, pl. 6: fig. 3 [type locality: Nicobar Islands].
*Pachycheles lifuensis* Borradaile, 1900: 424, fig. 3 [type locality: Lifou, Loyalty Islands]. – Chilton, 1911: 546, 551.
*Pachycheles pisoides*. – Osawa & Chan, 2010: 111–112, figs 80–82. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 214.

**Material examined**. *W side South Meyer Island*: AIM MA30535, 2 specimens, 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-2, coll. S. Keable, 12 May 2011.
*S side Te Konui Point, Raoul Island*: AIM MA30665, 1 female (cl 2.2 mm, cw 2.3 mm), 29°16.384'S, 177°55.580'W, 21–27 m, rock washings, base of sheer rock wall with rubble & coarse sand base, K2011-15-1, coll. S. Keable & M. Reid, 14 May 2011.
*Boat Cove, Raoul Island*: AIM MA30537, 5 specimens, 29°16.381'S, 177°55.6'W, 10 m, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30538, 1 female (cl 7.0 mm, cw 7.6 mm), 29°15.098'S, 177°51.353'W, 21 m, encrusted rock, K2011-39, coll. S. Keable & A. Reid, 16 May 2011; AM P88907, 2 males (cl 2.6 mm, cw 2.7 mm; cl 5.9 mm, cw 6.1 mm), 2 ovigerous female (cl 6.5 mm, cw 7.5 mm; cl 6.9 mm, cw 7.6 mm), 29°15.098'S, 177°51.353'W, 10 m, K2011-42-9, coll. A. Ballance & S. Keable, 16 May 2011.
*SW side Nugent Island*: AIM MA30539, 9 specimens, 29°13.891'S, 177°52.219'W, 15–23.7 m, K2011-47-2, coll. S. Keable, 17 May 2011; AM P89044, 1 male (cl 3.3 mm, cw 3.3 mm), 1 ovigerous female (cl 7.1 mm, cw 7.8 mm), 29°13.891'S, 177°52.219'W, 15–23.7 m, yellow sponge, K2011-47-5, coll. S. Keable & A. Reid, 17 May 2011.
*Fishing Rock landing, Raoul Island*: AIM MA30540, 10 specimens, 29°14.552'S, 177°54.215'W, 5 m, K2011-49, scrapings from rock wall, coll. C. Bedford *et al.*, 17 May 2011.

**Remarks**. This widespread Indo-West Pacific species was recorded the Kermadec Islands by Chilton (1911) under the name *P. lifuensis*.

**Distribution**. Western Indian Ocean to French Polynesia and Hawaii including Taiwan, Australia, Lifou and now the Kermadec Islands, New Zealand; intertidal to 27 m.

### *Petrolisthes extremus* Kropp & Haig, 1994

*Petrolisthes lamarckii var. rufescens.* – Chilton, 1911: 546, 551.
*Petrolisthes* sp. – Coleman, 1987: 111.
*Petrolisthes lamarckii.* – Webber *et al.*, 2010: 226.

– Yaldwyn & Webber, 2011: 215.
*Petrolisthes extremus* Kropp & Haig, 1994: 312, fig. 1 [type locality: Guam, Mariana Islands]. – Osawa & Chan, 2010: 129–130, figs 96, 97.

**Material examined**. *W side South Meyer Island*: AIM MA30543, 1 male (cl 2.6 mm, cw 2.4 mm), 29°14.789'S, 177°52.883'W, 10–12 m, commensal on black & yellow crinoids in rock gutter, K2011-3-1, coll. A. Ballance *et al.*, 12 May 2011; AM P88922, 1 female (cl 3.4 mm, cw 2.9 mm), 29°14.789'S, 177°52.883'W, 10–12 m, K2011-3-5, black crinoids from rock face, coll. A. Ballance *et al.*, 12 May 2011.
*NW corner North Meyer Island*: AIM MA30544, 1 female (cl 3.2 mm, cw 3.0 mm), 29°14.499'S, 177°52.673'W, 13.5–15.5 m, octocoral washings, K2011-10-3, coll. S. Keable & A. Reid, 13 May 2011;
*S side Te Konui Point, Raoul Island*: AIM MA30545, 1 male (cl 2.3 mm, cw 2.1 mm), 29°18.541'S, 177°53.744'W, 7–11 m, encrusted vertical rock wall, K2011-18-1, coll. S. Keable & A. Reid, 14 May 2011.
*Milne Rocks, Raoul Island*: AM P88928, 1 male (cl 6.8 mm, cw 6.6.mm, with abdominal parasite), 29°16.942'S, 177°54.171'W, base of vertical rock wall, among encrusted rocks, 21 m, K2011-23-3, coll. A. Reid & S. Keable, 15 May 2011; AIM MA30546, 1 male (cl 4.4 mm, cw 4.1 mm), 1 female (cl 3.8 mm, cw 3.5 mm), 29°16.942'S, 177°54.171'W, 21 m, encrusted rocks, K2011-23-2, coll. S. Keable & A. Reid, 15 May 2011.
*Boat Cove, Raoul Island*: AIM MA30547, 1 male (cl 5.4 mm), 29°16.381'S, 177°55.6'W, 10 m, encrusted rubble, K2011-29-2, coll. A. Reid, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AM P88904, 4 females (cl 2.1 mm, cw 1.6 mm to cl 3.7 mm, cw 3.3 mm), 29°15.098'S, 177°51.353'W, 10 m, K2011-42-8, 16 May 2011.
*Fishing Rock landing, Raoul Island*: AIM MA30551, 1 specimen, 29°14.552'S, 177°54.215'W, 5 m, K2011-49-7, scrapings from rock wall, 17 May 2011.
*NW corner North Meyer Island*: AIM MA30553, 3 males, 1 female, 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011; AIM MA30554, 1 male (cl 6.6 mm), 29°14.489'S, 177°52.723'W, 16–18 m, rocky bottom with sand, gravel, coral & seaweeds, K2011-57, rotenone, coll. C. Bedford, 19 May 2011; AIM MA30555, 1 male, 3 females, 29°14.499'S, 177°52.673'W, 10 m, under rubble, K2011-62-6, coll. S. Keable & A. Reid, 20 May 2011; AM P88931, 1 female (cl 4.9 mm, cw 4.5 mm), 29°14.499'S, 177°52.673'W, 10 m, K2011-62-1, coll. S. Keable & A. Reid, 20 May 2011.
*Macauley Island*: AM P88916, 3 males (cl 3.7 mm, cw 3.2 mm to cl 4.6 mm, cw 4.4 mm), 3 females (cl 3.2 mm, cw 2.7 mm; cl 4.1 mm, cw 3.7 mm; cl 8.2 mm, cw 7.7 mm), 30°13.464'S, 178°26.337'W, 21 m, K2011-67-5, under coral & rock, coll. S. Keable & A. Reid, 21 May 2011.
*W side l'Esperance Rock*: AIM MA30556, 1 specimen (cl 3.1 mm, cw 2.7 mm), 31°21.252'S, 178°49.593'W, 12–20 m, coral scraping, K2011-99-3, coll. S. Keable & M. Reid, 26 May 2011.

**Remarks**. Kropp & Haig (1994) recorded *P. extremus* from the Kermadec Islands as part of the type series. Chilton's (1911) report of *Petrolisthes rufescens* (Heller, 1861) (as *P. lamarckii* var. *rufescens*) occurring "under stones on Meyer Island" evidently refers to *P. extremus*. As noted by Chilton (1911), the meri of the walking legs are dorsally spinose in the Kermadec Islands material, a feature of *P. extremus*, but not *Petrolisthes rufescens*. Moreover, *P. extremus* is common intertidally at Meyer Island, whereas *P. rufescens* is an Indian Ocean species (Werding & Hiller, 2007).

Specimens of *P. extremus* were usually taken from under stones or amongst fouling, and occasionally in association with the crinoid, *Tropimetra* cf *afra* (Hartlaub, 1890) and unidentified octocorals.

**Distribution**.Cocos Keeling Islands to Taiwan, the Ryukyus, Guam, Lord Howe Island, Norfolk Island, the Kermadec Islands and Easter Island; shore to 25 m (Coleman, 1987).

## Superfamily PAGUROIDEA
## Family DIOGENIDAE

### *Calcinus sirius* Morgan, 1991*

*Calcinus sirius* Morgan, 1991: 899–903, figs 49–55 [type locality: Dunscombe Bay, Norfolk Island]. –Poupin & McLaughlin, 1998: 11, 24.

**Material examined.** *W side South Meyer Island*: AIM MA30831, 1 male (sl 5.3 mm), Meyer Island, 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-2, coll. S. Keable, 12 May 2011.
*S side Te Konui Point, Raoul Island*: AM P88903, 1 female (sl 4.4 mm), 29°16.384'S, 177°55.580'W, 21–27 m, rock washings, base of sheer rock wall with rubble & coarse sand base, K2011-15-10, coll. S. Keable & A. Reid, 14 May 2011.

**Remarks.** The specimen agrees well with the type description, including colour pattern, with uniform colouration of the walking legs, and distal setae of the walking legs (pereopods 2 and 3) that do not form a distinct brush (Morgan, 1991; Poupin & McLaughlin, 1998). *Calcinus sirius* is recorded for the first time from New Zealand waters and is the second species of the genus from the area. *Calcinus imperialis* Whitelegge, 1901, also occurs at Meyer Island, but is separable from *C. sirius* by the well-developed brush of setae on the flexor margins of the pereopod 3 dactylus and propodus (versus sparsely setose).

**Distribution**. Tasman Sea (Norfolk Island, Lord Howe Island, Elizabeth and Middleton reefs), and now from the Kermadec Islands; 2–27 m (Morgan, 1991; this study).

### *Dardanus gemmatus* (H. Milne Edwards, 1848)*

*Pagurus gemmatus* H. Milne Edwards, 1848: 60 [type locality: Marquesas Islands].
*Dardanus gemmatus*. – McLaughlin *et al.* 2007: 81–82.

**Material examined**. *S side Te Konui Point, Raoul Island*: AIM MA30832, 1 ovigerous female (cl 14.3 mm), 29°16.384'S, 177°55.580'W, 21–27 m, base of sheer rock wall with rubble & coarse sand base, K2011-15, coll. S. Keable & A. Reid, 14 May 2011; AM P89653, 1 male (sl 15.5 mm), 29°16.384'S, 177°55.580'W, 21–27 m, base of sheer rock wall with rubble & coarse sand base, K2011-15, coll. S. Keable & A. Reid, 14 May 2011.
*NW corner North Meyer Island*: AIM MA30835, 1 male (sl 15.7 mm), 29°14.499'S, 177°52.673'W, 10 m, near fish station, K2011-10, coll. S. Keable & A. Read, 13 May 2011.

**Remarks.** *Dardanus gemmatus* is recorded for the first time from New Zealand waters.

**Distribution.** Indian Ocean to French Polynesia and Hawaii, including Japan, Taiwan and now the Kermadec Islands, New Zealand; 10–50, possibly 100 m (McLaughlin *et al.*, 2007).

### *Dardanus hessii* (Miers, 1884)

*Pagurus hessii* Miers, 1884: 264, pl. 28: fig. 4 [type locality: Arafura Sea, northwestern Australia].
*Clibanarius striolatus*. – Chilton, 1911: 546, 552 [not *C. striolatus* Dana, 1851].
*Dardanus hessii*. – Forest & McLaughlin, 2000: 85–87, fig. 27.

**Material**. *W side South Meyer Island*: AIM MA30838, 1 male (sl 16.6 mm), 29°14.789'S, 177°52.883'W, 10–12 m, rock lined gutter, K2011-3, coll. S. Keable *et al.*, 12 May 2011.
*S side Te Konui Point, Raoul Island*: AIM MA30839, 1 male (sl 11.3 mm), 29°16.384'S, 177°55.580'W, 21–27 m, rock washings, base of sheer rock wall with rubble & coarse sand base, K2011-15, coll. S. Keable & A. Reid, 14 May 2011.
*Milne Rocks, Raoul Island*: AIM MA30841, 1 male (sl 9.0 mm), 1 female (sl 11.9 mm), 29°16.942'S, 177°54.171'W, base of vertical rock wall, among encrusted rocks, 21 m, K2011-23-1, coll. S. Keable, 15 May 2011.
*Boat Cove, Raoul Island*: AIM MA30557, 1 juvenile male (sl 1.9 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-3, coll. S. Keable & A. Reid, 15 May 2011; AIM MA30843, 1 male (sl 7.2 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-4, coll. S. Keable & A. Reid, 15 May 2011; AIM MA30844, 2 males (sl 22.8–26.7 mm), 29°16.791'S, 177°53.615'W, 20 m, K2011-34, trap 6, coll. M. Jolly *et al.*, 16 May 2011.
*N of Fishing Rock, Raoul Island*: AM P89658, 15 males (sl 9.6–18.3 mm), 2 females (sl 10.0–13.5 mm), 29°14.857'S, 177°54.005'W, 20–70 m, K2011-44-1, traps, coll. S. Keable & A. Reid, 16–17 May 2011; AIM MA30845, 12 males (sl 10.3–18.1 mm), 1 female (sl 14.8 mm), 29°14.857'S, 177°54.005'W, 20–70 m, K2011-44, traps, coll. S. Keable & A. Reid, 16–17 May 2011; AM P89651, 2 males (sl 18.0–19.5 mm), 29°14.857'S, 177°54.005'W, 20–70 m, K2011-44-1, traps, coll. S. Keable & A. Reid, 16–17 May 2011.
*SW side Nugent Island*: AIM MA30846, 1 male (sl 17.7 mm), 29°13.891'S, 177°52.219'W, 15–23.7 m, K2011-47, traps, coll. S. Keable, 17 May 2011.
*NW corner North Meyer Island*: AIM MA30847, 1 male (sl 17.8 mm), 29°14.499'S, 177°52.673'W, 10 m, gutter through reef flat, K2011-62, coll. S. Keable & A. Reid, 20 May 2011.
*W side Macauley Island*: AIM MA30848, 1 male (sl 19.6 mm), 30°13.548'S, 178°26.416'W, 40–120 m, K2011-73, trap, coll. S. Keable, 21–22 May 2011.

**Remarks**. *Dardanus hessii* was first recorded from the Kermadec Islands by Chilton (1911) misidentified as *Clibanarius striolatus*.

**Distribution.** Gulf of Oman to the Maldives, the Andaman Sea, Australia, Indonesia, Vietnam and the Kermadec Islands, New Zealand; 15–55 m (Forest & McLaughlin, 2000).

### *Dardanus lagopodes* (Forskål, 1775)*

*Cancer lagopodes* Forskål, 1775: 93 [type locality: unknown].
*Dardanus lagopodes*. – McLaughlin *et al.*, 2007: 91–93.

**Material examined**. *W side South Meyer Island*: AM P89652, 3 males (sl 9.1–12.3 mm), 2 females (sl 10.9–15.4 mm), 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-1, coll. S. Keable & A. Reid, 12 May 2011.
*Boat Cove, Raoul Island*: AIM MA30849, 1 male (sl 12.3 mm), 1 juvenile (sl 2.0 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29, coll. A. Ballance & M. Francis, 15 May 2011; AIM MA30850, 1 female (sl 8.4 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-4, coll. S. Keable & A. Reid, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30851, 1 male (sl 12.9 mm), 21–23.6 m, K2011-37, coll. T. Trnski, 16 May 2011.
*NW corner North Meyer Island*: AM P89655, 1 female (sl 13.1 mm), 29°14.419'S, 177°52.673'W, 6–15 m, bioeroded dead coral wall, K2011-56-1, coll. S. Keable, 19 May 2011.
*N Meyer Island*: AIM MA30852, 1 male (sl 8.8 mm), K2011?.

**Remarks**. *Dardanus lagopodes* is recorded from New Zealand waters for the first time and represent the 'red knee' form (McLaughlin *et al.* 2007).

**Distribution**. Western Indian Ocean to French Polynesia including Japan, Taiwan, Australia and now the Kermadec Islands, New Zealand.

### *Dardanus pedunculatus* (Herbst, 1804)*

*Cancer pedunculatus* Herbst, 1804: 25, pl. 61, fig. 3 [type locality: East Indies].
*Dardanus pedunculatus*. – McLaughlin *et al.*, 2007: 83–84.

**Material examined**. *Boat Cove, Raoul Island*: AIM MA30853, 1 ovigerous female (sl 15.5 mm), 29°16.796'S, 177°53.773'W, 20 m, K2011-33, trap 2, coll. M. Jolly *et al.*, 16 May 2011.

**Remarks.** Shell completely covered in sea anemones. The single specimen represents the first record of the species from New Zealand waters.

**Distribution.** Hawaii to the Seychelles including southern Japan, Taiwan, eastern Australia and now the Kermadec Islands; 10–100 m (McLaughlin *et al.*, 2007)

## Family PAGURIDAE

### *Paguritta gracilipes* Melin, 1939*

*Paguritta gracilipes* Melin, 1939: 51, figs 31, 31 [type locality: Taki-ura, Bonin Islands (=Ogasawara Islands)]. – McLaughlin & Lemaitre, 1993: 296–305, figs 1, 2 (part). – Komai & Okuno, 2001: 5–9, figs 1–5.
*Eupagurus hectori*. – Chilton, 1911: 553, footnote.

**Material examined**. *W side South Meyer Island*: AIM MA30558, 4 females (sl 1.0–1.8 mm), Meyer Island, 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-2, coll. S. Keable, 12 May 2011.
*NW corner North Meyer Island*: AM P88934, 1 specimen, 29°14.499'S, 177°52.673'W, 13.5–15.5 m, octocoral washings, K2011-10-3, coll. S. Keable & A. Reid, 13 May 2011; AIM MA30559, 16 specimens, 29°14.499'S, 177°52.673'W, 13.5–15.5 m, encrusted rubble, K2011-10-2, coll. S. Keable & A. Reid, 13 May 2011.
*Milne Rocks, Raoul Island*: AIM MA30560, 1 male (sl 1.1 mm), 3 females (sl 1.0–1.5 mm), 29°16.942'S, 177°54.171'W, vertical rock wall, rocks, cobble, coarse sand & turfing algae, 21 m, K2011-23-4, coll. A. Reid & S. Keable, 15 Jul 2011; AM P88929, 5 males (sl 1.5–2.8 mm), 1 ovigerous female (sl 2.2 mm; eggs at black eye stage), 29°16.942'S, 177°54.171'W, 21 m, encrusted rocks, K2011-23-3, coll. S. Keable & A. Reid, 15 May 2011.
*Boat Cove, Raoul Island*: AIM MA30562, 30 specimens, 29°16.381'S, 177°55.6'W, 10 m, encrusted rubble, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30563, 1 female (sl 3.9 mm), 29°15.098'S, 177°51.353'W, 21 m, encrusted rock, K2011-39, coll. S. Keable & A. Reid, 16 May 2011;
*Fishing Rock landing, Raoul Island*: AIM MA30565, 5 specimens, 29°14.552'S, 177°54.215'W, 5 m, K2011-49-7, scrapings from rock wall, 17 May 2011.
*NW corner North Meyer Island*: AIM MA30566, 3 males (sl 1.0–1.8 mm), 1 female (sl 2.3 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011; AM P88921, 10 specimens, 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-5, coll. S. Keable & A. Reid, 19 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30569, 8 specimens, 29°15.098'S, 177°51.353'W, 10 m, K2011-42, coll. A. Ballance & S. Keable, 16 May 2011.
*NW corner North Meyer Island*: AIM MA30570, 2 specimens, 29°14.499'S, 177°52.673'W, 10 m, rubble, K2011-62-7, coll. S. Keable & A. Reid, 20 May 2011.
*Macauley Island*: AIM MA30572, 1 specimen, 30°13.663'S, 178°26.339'W, 21.2 m, airlift on side and top of rock, K2011-70-3, coll. S. Keable & A. Reid, 21 May 2011.
*W side Macauley Island*: AIM MA30574, 2 specimens, 30°13.704'S, 178°26.433'W, 21–24.7 mm, encrusting organisms, K2011-71-3, coll. S. Keable & A. Reid, 22 May 2011.
*W side Cheeseman Island*: AIM MA30576, 4 specimens, 30°32.096'S, 178°34.183'W, 24 m, K2011-77-2, coll. S. Keable & A. Reid, 23 May 2011.
*Stawell Shoal, N of Stella Passage*: AIM MA30579, 1 specimen, 30°31.778'S, 178°33.570'W, 21–24 m, under encrusting coral, K2011-92-1, coll. S. Keable & A. Reid, 25 May 2011.
*W side l'Esperance Rock*: AM P88925, 5 specimens, 31°21.252'S, 178°49.593'W, 12–20 m, coral scraping, K2011-99-3, coll. S. Keable & M. Reid, 26 May 2011.

**Remarks**. The Kermadec specimens agree closely with the redescription of *P. gracilipes* by Komai & Okuno (2001) including preserved colour pattern. All have relatively smooth surfaces on the cheliped palms and 5–8 dactyl spines on the walking legs.

Chilton (1911: 553, footnote) reported specimens from Meyer Island of a small hermit crab that "in general resembles *Eupagurus*, but has the abdomen straight, though soft, and the telson and uropoda symmetrical". Chilton (1911) appears to be referring to *Paguritta gracilipes*, which is common at Meyer Island and the only hermit crab known from the area with a straight, soft, symmetrical abdomen and uropods.

**Distribution.** Southern Japan including the Ogasawara Islands, and now from the Kermadec Islands; subtidal to 21 m.

### *Pagurixus kermadecensis* de Saint Laurent & McLaughlin, 2000

*Pagurixus kermadecensis* de Saint Laurent & McLaughlin, 2000: 187–189, fig. 61 [type locality: Meyer or Raoul Island, Kermadec Islands]. – Webber *et al.*, 2010: 226.–Yaldwyn & Webber, 2011: 221.

**Material examined**. *W side South Meyer Island*: AIM MA30580, 13 specimens, 29°14.800'S, 177°52.906'W, 21 m, among algae, K2011-2-1, 12 May 2011.
*NW corner North Meyer Island*: AIM MA30581, 8 specimens, 29°14.499'S, 177°52.673'W, 13.5–15.5 m, K2011-10-5, clumping red algae, coll. S. Keable & A. Reid, 13 May 2011.
*S side Te Konui Point, Raoul Island*: AIM MA30582, 4 specimens, 29°18.541'S, 177°53.744'W, 21 m, airlift, sediment between rocks and boulders, K2011-19-2, coll. S. Keable, 14 May 2011.
*Milne Rocks, Raoul Island*: AIM MA30585, 4 specimens, 29°16.942'S, 177°54.171'W, 21 m, encrusted rocks, K2011-23-2, coll. S. Keable & A. Reid, 15 May 2011.
*Boat Cove, Raoul Island*: AIM MA30586, 40 specimens, 29°16.381'S, 177°55.6'W, 10 m, airlift on sediment and rocks, K2011-28-2, coll. S. Keable, 15 May 2011; AIM MA30591, 9 specimens, 29°16.381'S, 177°55.6'W, 10 m, encrusted rubble, K2011-29-1, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30587, 2 specimens, 29°15.098'S, 177°51.353'W, 10 m,

K2011-42-1, coll. A. Ballance & S. Keable, 16 May 2011.
*Fishing Rock landing, Raoul Island*: AIM MA30588, 2 males (sl 1.6–1.7 mm), 1 ovigerous female (sl 1.4 mm), 1 specimen, 29°14.552'S, 177°54.215'W, 5 m, K2011-49-7, scrapings from rock wall, coll. C. Bedford *et al.*, 17 May 2011.
*NW corner North Meyer Island*: AIM MA30592, 7 specimens, 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-5, coll. S. Keable & A. Reid, 19 May 2011; AIM MA30589, 2 specimens, 29°14.499'S, 177°52.673'W, side of gutter, airlift, K2011-61-1, coll. S. Keable, 20 May 2011; AIM MA30590, 1 specimen, 29°14.499'S, 177°52.673'W, rubble, gutter through reef flat, K2011-62-7, coll. S. Keable & A. Reid, 20 May 2011.
*Macauley Island*: AIM MA30593, 6 specimens, 30°13.464'S, 178°26.337'W, 21 m, under coral & rock, K2011-67-5, coll. S. Keable & A. Reid, 21 May 2011; AM P88930, 4 specimens, Macauley Island, 30°13.464'S, 178°26.337'W, 21 m, under coral & rock, K2011-67, coll. S. Keable & A. Reid, 21 May 2011.
*NW side Cheeseman Island*: AM P88908, 6 specimens, 30°32.096'S, 178°34.183'W, 23 m, K2011-88-1, coll. S. Keable & A. Reid, 25 May 2011.
*Stella Passage, W side Curtis Island*: AM P88915, 1 male (sl 2.5 mm), 1 ovigerous female (sl 2.3 mm), 30°32.337'S, 178°33.646'W, 13–15 m, rock & cobble field with coarse sand, strong surge, K2011-94-3, coll. S. Keable & A. Reid, 25 May 2011.

**Remarks.** The specimens accord well with the type description (Saint Laurent & McLaughlin, 2000).

**Distribution.** Presently known only from the Kermadec Islands.

### *Pagurus sinuatus* (Stimpson, 1858)

*Eupagurus sinuatus* Stimpson, 1858d: 250 [type locality: Port Jackson, Australia]. – Chilton, 1911: 546, 553.
*Pagurus sinuatus*. – Saint Laurent & McLaughlin, 2000: 190–192, fig. 62. – Poore, 2004: 276. Fig. 78, pl. 16g. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 222.

**Material examined**. *S side Te Konui Point, Raoul Island*: AIM MA30854, 1 female (sl 5.0 mm), 29°16.384'S, 177°55.580'W, 21–27 m, rock washings, base of sheer rock wall with rubble & coarse sand base, K2011-15, coll. S. Keable & M. Reid, 14 May 2011.
*NW corner North Meyer Island*: AM P88913, 1 female (sl 4.8 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011; AIM MA30594, 1 female (sl 5.3 mm), 29°14.499'S, 177°52.673'W, 10 m, K2011-62, coll. S. Keable & A. Reid, 20 May 2011.
*Cheeseman Shoal*: AIM MA30595, 1 male (sl 5.7 mm), 30°32.453'S, 178°34.155'W, 17–24 m, rocky reef, K2011-81, coll. S. Keable & A. Reid, 24 May 2011.
*NW side Cheeseman Island*: AM P88933, 1 female (sl 5.1 mm), 30°32.096'S, 178°34.183'W, 23 m, K2011-88-1, coll. S. Keable & A. Reid, 25 May 2011; AIM MA30597, 3 specimens, 30°32.096'S, 178°34.183'W, 23 m, K2011-88, coll. S. Keable & A. Reid, 25 May 2011.
*Stella Passage, W side Curtis Island*: AM P88914, 1 male (sl 6.8 mm), 30°32.337'S, 178°33.646'W, 13–15 m, from sponge on rock & cobble field with coarse sand, strong surge, K2011-94-3, coll. S. Keable & A. Reid, 25 May 2011.

**Remarks.** The species was first recorded from the Kermadec Islands by Chilton (1911) under the name *Eupagurus sinuatus.*

**Distribution**. Southern Australia to the Kermadec Islands; shore to 20 m (Poore, 2004).

### *Porcellanopagurus chiltoni* de Saint Laurent & McLaughlin, 2000

*Porcellanopagurus tridentatus*. – Chilton, 1911: 546, 552–553 [not *P. tridentatus* Whitelegge, 1900].
*Porcellanopagurus chiltoni* de Saint Laurent & McLaughlin, 2000: 107–110, fig. 34 [type locality: Kermadec Islands]. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 222.

**Material.** *NW corner North Meyer Island*: AIM MA30604, 1 male (sl 1.3 mm, with rhizocephalan parasite), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-5, coll. S. Keable & A. Reid, 19 May 2011.

**Remarks**. The single specimen is infected by an unidentified rhizocephalan parasite.

**Distribution**. Kermadec Islands; shore to 15 m.

### *Porcellanopagurus tridentatus* Whitelegge, 1900

*Porcellano-pagurus tridentatus* Whitelegge, 1900: 181, fig. 13, 13b [type locality: off Wata Mooli (= Wattamolla), Australia].
*Porcellanopagurus tridentatus*. – Saint Laurent & McLaughlin, 2000: 105–107, fig. 33. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 222.

**Material.** *Boat Cove, Raoul Island*: AM P88926, 4 males (sl 1.4–4.0 mm), 29°16.381'S, 177°55.6'W, 10 m, encrusted rubble, K2011-29-1, 15 May 2011.
*W side South Meyer Island*: AIM MA30605, 1 male (sl 1.3 mm), 29°14.800'S, 177°52.906'W, 21 m, among algae, K2011-2-1, 12 May 2011.
*NW corner North Meyer Island*: AIM MA30609, 1 male (sl 1.2 mm), 29°14.499'S, 177°52.673'W, side of gutter, airlift, K2011-61-1, coll. S. Keable, 20 May 2011.

**Remarks**. The present specimens of *P. tridentatus*, all minute, agree well with recent accounts of the species (McLaughlin, 2000; Saint Laurent & McLaughlin, 2000), including the minimally setose cheliped palms and pereopodal dactyli that are as long as their respective propodi. As indicated by Komai & Takeda (2006), distinguishing *P. tridentatus* from *P. japonicus* Balss, 1913 can be difficult owing to overlap between the two

species in the aforementioned cheliped and walking leg features. Komai & Takeda (2006), however, identified the relative length of the cardiac sulci on the carapace, being very short in in *P. japonicus* (about 0.2 length of the posterior carapace versus about half in the length in *P. tridentatus*; this feature appears to be reliable in separating the two species. Additionally, the *P. tridentatus* differs subtly from *P. japonicus* in the less slender rostral apex.

Saint Laurent & McLaughlin (2000) first recorded *P. tridentatus* from the Kermadec Islands at 138–165 m depth; Chilton's (1911) Kermadec record of the species was a based on *P. chiltoni*, above. The present series were all collected at 10–21 m depth, extending the known bathymetric range of *P. tridentatus* into much shallow water.

**Distribution**. Eastern Australia including Lord Howe and Norfolk islands to the Kermadec Islands and New Caledonia; 10–628 m (Poore, 2004; this study).

## Infraorder BRACHYURA
## Superfamily AETHROIDEA
## Family AETHRIDAE

### *Actaeomorpha erosa* Miers, 1877

*Actaeomorpha erosa* Miers, 1877: 183–185 [type locality: Port Curtis, Australia]. – Chilton, 1911: 546, 555. – Takeda & Webber, 2006: 198, 232, fig. 5A. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 227.

**Material examined**. *S side Te Konui Point, Raoul Island*: AM P89043, 1 male (cl 7.8 mm, cw 9.0 mm), 29°16.384'S, 177°55.580'W, 21–27 m, rock washings, base of sheer rock wall with rubble & coarse sand base, K2011-15-1, coll. S. Keable & M. Reid, 14 May 2011.
*Boat Cove, Raoul Island*: AIM MA30611, 1 female (cl 7.8 mm, cw 9.1 mm), 1 specimen (cl 2.6 mm, cw 2.9 mm), 29°16.381'S, 177°55.6'W, 10 m, airlift from sediment between rocks, K2011-28-2, coll. S. Keable, 15 May 2011; AM P88927, 1 male (cl 7.9 mm, cw 9.2 mm), 3 females (cl 5.7 mm, cw 6.7 mm; cl 5.2 mm, cw 6.0 mm), 29°16.381'S, 177°55.6'W, 10 m, encrusted rubble, K2011-29-1, 15 May 2011.
*NW corner North Meyer Island*: AIM, 1 male (cl 5.3 mm, cw 6.3 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. S. Keable & A. Reid, 19 May 2011.
*W side Cheeseman Island*: AIM MA30615, 4 specimens, 30°32.096'S, 178°34.183'W, 24 m, K2011-77-2, coll. S. Keable & A. Reid, 23 May 2011.
*Stawell Shoal, N of Stella Passage*: AM P88926, 2 females (cl 2.7 mm, cw 2.8 mm; cl 7.6 mm, cw 9.0 mm), 30°31.778'S, 178°33.570'W, 21–24 m, under encrusting coral on rock, K2011-92-8, coll. S. Keable & A. Reid, 25 May 2011.
*W side l'Esperance Rock*: AIM, 3 specimens (cl 2.5 mm, cw 2.6 mm to cl 5.4 mm, cw 6.2 mm), 31°21.252'S, 178°49.593'W, 12–20 m, coral scraping, K2011-99-3, coll. S. Keable & M. Reid, 26 May 2011.

**Remarks**. Chilton (1911) and Takeda & Webber (2006) recorded *A. erosa* from the Kermadec Islands. Most specimens in the present series are juveniles, exhibiting allometric change in carapace shape. Smallest specimens are octagonal and almost as long as wide, becoming proportionally wider with increasing size.

**Distribution**. East Africa to Australia, the Kermadec Islands, Japan and Hawaii; 6–27 m.

## Superfamily ERIPHIOIDEA
## Family OZIIDAE

### *Bountiana norfolcensis* (Grant & McCulloch, 1907)

*Eriphia norfolcensis* Grant & McCulloch, 1907: 151, pl. 1: fig. 1, 1a,b [type locality: Norfolk Island]. – Chilton, 1911: 546, 557.
*Bountiana norfolcenis*. – Takeda & Webber, 2006: 216, 233, fig. 13A. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 230.

**Material examined**. *W side South Meyer Island*: AIM, 1 male (cl 3.4 mm, cw 4.8 mm), 1 female (cl 10.2 mm, cw 14.3 mm), Meyer Island, 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-2, coll. S. Keable, 12 May 2011.
*Fishing Rock landing, Raoul Island*: AIM MA30666, 1 juvenile female (cl 2.7 mm, cw 3.7 mm), 29°14.552'S, 177°54.215'W, 1 m, rock pools, K2011-54-1, coll. M. Francis *et al.*, 18 May 2011.

**Remarks**. Chilton (1911) first recorded the species from the Kermadec Islands.

**Distribution**. Lord Howe Island, Norfolk Island and the Kermadec Islands.

## Superfamily LEUCOSIOIDEA
## Family LEUCOSIIDAE

### *Ebalia humilis* Takeda, 1977

*Ebalia humilis* Takeda, 1977: 115– figs 2A, B, 3B–D [type locality: Chichi-jima, Ogasawara Islands, Japan]. – Komatsu & Takeda, 2007: 61–62, fig. 1A. – Yaldwyn & Webber, 2011: 232.

**Material examined**. *Herald Islands, W side North Chanter Island*: AIM MA30616, 2 males (both cl 1.5 mm, cw 1.7 mm), 29°15.098'S, 177°51.353'W, 10 m, sediment, K2011-42-5, coll. S. Keable, 16 May 2011.

**Remarks**. Komatsu & Takeda (2007) first reported *E. humilis* from the Kermadec Islands. The present specimens are similar to the ovigerous female reported by Komatsu & Takeda (2007) in having weakly indicated metabranchial swellings, but differ in having distinct surface granulation (as in the Japanese type material).

**Distribution**. The Ogasawara Islands, Japan, and the Kermadec Islands, New Zealand; 10–84 m (Komatsu & Takeda, 2007; this study).

**Superfamily MAJOIDEA**
**Family EPIALTIDAE**

***Huenia heraldica* (de Haan, 1837)**
*Maja (Huenia) elongata* De Haan, 1837: pl. 23, figs 4, 5, pl. G [type locality: Japan].
*Maja (Huenia) heraldica* De Haan, 1837: pl. 23, fig. 6, pl. G [type locality: Japan].
*Maja (Huenia) proteus* De Haan, 1839: 95 [type locality: Japan].
*Huenia proteus*. – Chilton, 1911: 546, 562. – Griffin & Tranter, 1986: 84, 86, 87, fig. 24c, d.
*Huenia heraldica*. – Takeda & Webber, 2006: 194–195, 232, fig. 2A. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 232.

**Material examined**. *NW corner North Meyer Island*: AM P89042, 1 male (cl 8.4 mm), 29°14.499'S, 177°52.673'W, 13.5–15.5 m, octocoral washings, K2011-10-1, coll. S. Keable, 13 May 2011; AIM MA30668, 1 male (cl 5.2 mm, cw 3.6 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011.
*Macauley Island*: AIM MA30670, 1 male (cl 8.4 mm, cw 5.1 mm), 30°13.464'S, 178°26.337'W, 21 m, K2011-67-4, coll. S. Keable & M. Reid, 21 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30618, 1 male (cl 10.9 mm), 29°15.098'S, 177°51.353'W, K2011-39, 18 m, coll. M. Francis, 16 May 2011.

**Remarks.** The specimens agree well in most respects with Griffin & Tranter's (1986) account of the *H. heraldica* (as *H. proteus*), although the pereopod 2 carpus bears a tubercle instead of distinct carina; the male gonopod 1 agrees with the account in Takeda (1973).

**Distribution.** Northern Australia, the Kermadec Islands, Indonesia and Japan; shore to 30 m (Davie, 2002).

***Menaethius monoceros* (Latreille, 1825)**
*Pisa monoceros* Latreille, 1825: 139 [type locality: Mauritius].
*Inachus arabicus* Rüppell, 1830: 24, pl. 5 fig. 5, pl. 6 fig. 19 [type locality: Red Sea].
*Menaethius subserratus* Adams & White, 1848: 18, pl. 4 figs 1, 2 [type locality: Philippines].
*Menaethius porcellus* Adams & White, 1848: 19 [type locality: Mauritius].
*Menaethius tuberculatus* Adams & White, 1848: 19 [type locality: Mauritius].
*Menaethius angustus* Dana, 1852: 120, 121: 19 [type locality: unknown].
*Menaethius depressus* Dana, 1852: 121: pl. 4 fig 6 [type localities: Sulu Sea, Philippines, and Upolu, Samoa].
*Menaethius areolatus* Dana, 1852: 124 [type locality: Sulu Sea, Philippines].
*Menaethius inornatus* Dana, 1852: 125 [type locality: Lahaina, Hawai'i].
*Menaethius dentatus* Stimpson, 1858a: 219 [type locality: Amakirrima Isles, Ryukyu Islands, Japan].
*Menaethius rugosus* A. Milne-Edwards, 1862: F7, pl. 17 fig 2 [type locality: Réunion].
*Menaethius monoceros*. – Sakai, 1938: 263–264, pl. 26, fig. 3. – Griffin & Tranter, 1986: 89–90. – Davie, 2002: 285–286.

**Material examined**. *Macauley Island*: AIM, 1 ovigerous female (cl 7.1 mm, cw 5.6 mm), 30°13.663'S, 178°26.339'W, 21.2 m, airlift, K2011-70-2, coll. S. Keable & A. Reid, 21 May 2011.

**Remarks**. The single specimen, an adult female, represents the first record of the genus and species from New Zealand waters. The specimen has pronounced lateral carapace spines (one hepatic, two branchial), sometimes reported for *M. monoceros*, as in Japanese material described and figured by Sakai (1938: pl. 26, fig. 3) as *M. monoceros*. *Menathius monoceros* requires revision; it may represent a species complex.
**Distribution**.Widespread in the Indo-West Pacific from the western Indian Ocean to Japan, Australia and Hawaii and now from the Kermadec Islands, New Zealand; intertidal to 90 m (Griffin & Tranter, 1986).

***Xenocarcinus conicus* (A. Milne-Edwards, 1865)***
*Huenioides conica* A. Milne-Edwards, 1865a: 145–146, pl. 4: fig. 3 [type locality: Indian Ocean].
*Xenocarcinus tuberculatus* var. *alcocki* Laurie, 1906: 371–372 [type locality: Dutch Modragam Paar].
*Xenocarcinus nakazawai* Sakai, 1938: 325–327, fig. 52 [type locality: Tanabe Bay, Japan].
*Xenocarcinus conicus*. – Griffin & Tranter, 1986: 100–103, fig. 30c, d.

**Material examined**. *NW corner North Meyer Island*: AIM MA30619, 1 female (cl 22.3 mm), 29°14.499'S, 177°52.673'W, 13.5–15.5 m, K2011-10-8, from antipatharian, coll. S. Keable & A. Reid, 13 May 2011.
*SW side Nugent Island*: AIM MA30671, 1 female (cl 8.4 mm), 177°52.219'W, 15–23.7 m, from antipatharian, 15–23.7 m, K2011-47, coll. S. Keable, 17 May 2011.
*Stawell Shoal, N of Stella Passage*: AIM MA30673, 1 juvenile female (cl 5.2 mm), 30°31.778'S, 178°33.570'W, 21–24 m, from black coral, K2011-92, coll. S. Keable & A. Reid, 25 May 2011; AM P89038, 11 specimens (cl 4.2–9.6 mm), 30°31.778'S, 178°33.570'W, 21–24 m, from black coral, K2011-92-9, coll. S. Keable & A. Reid, 25 May 2011.

**Remarks**. The specimens constitute the first records of the species from New Zealand waters and conform well to Griffin & Tranter's (1986) detailed account of the species. The rostrum is proportionally shorter in smaller specimens ranging from about 0.25 total carapace length at cl 4.2 mm, to about 0.40 at cl 22.3 mm. All specimens, however, have the preorbital tubercle, anterolateral spine on the basal antennal article and spinose extensor margins of the walking legs, diagnostic of the species. *Xenocarcinus conicus* is commensal with antipatharian corals.

**Distribution**. Western Indian Ocean to Indonesia, Japan and now the Kermadec Islands, New Zealand.

## Family MAJIDAE

### *Leptomaia tuberculata* Griffin & Tranter, 1986

*Leptomaia tuberculata* Griffin & Tranter, 1986: 163–165, figs 32d–f, 54 [type locality: Middleton Reef, Tasman Sea]. – Takeda & Webber, 2006: 195, 232, fig. 3C. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 232.

**Material examined**. *NW corner North Meyer Island*: AIM MA30617, 1 male (cl 6.0 mm), 29°14.499'S, 177°52.673'W, 13.5–15.5 m, K2011-10-5, clumping red algae, coll. S. Keable & A. Reid, 13 May 2011.

**Remarks**. *Leptomaia tuberculata* was first recorded from the Kermadec Islands as part of the type series (Griffin & Tranter, 1986).
**Distribution**. Tasman Sea and the Kermadec Islands; 21.5–85 m (Griffin & Tranter, 1986).

### *Schizophroida hilensis* (Rathbun, 1906)

*Schizophrys hilensis* Rathbun, 1906: 882, fig. 38 [type locality: Hawaii]. – Chilton, 1911: 546, 562–563.
*Schizophroida manazaruana* Sakai, 1933: 140, fig. 1 [type locality: Simoda, Japan].
*Schizophroida hilensis*. – Griffin & Tranter, 1986: 238–243, fig. 68c, d, pl. 19. – Takeda & Webber, 2006: 196, 232, fig. 3A. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 239.

**Material examined**. *W side North Meyer Island*: AM P89041, 1 juvenile male (cl 5.3 mm), Dept of Conservation landing site, 29°14.674'S, 177°52.688'W, 1 m, intertidal pools, K2011-5-6, coll. T. Trnski, 12 May 2011.
*Boat Cove, Raoul Island*: AIM, 4 males (cl 5.0–11.6 mm), 29°16.381'S, 177°55.6'W, 10 m, encrusted rubble, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AIM MA30620, 1 juvenile male (cl 4.8 mm, cw 3.5 mm), 29°15.098'S, 177°51.353'W, 10 m, K2011-42-1, coll. A. Ballance & S. Keable, 16 May 2011.
*SW side Nugent Island*: AIM MA30623, 1 male (cl 4.8 mm, cw 2.8 mm), 29°13.891'S, 177°52.219'W, 15–23.7 m, from yellow sponge, 15–23.7 m, K2011-47-2, coll. S. Keable, 17 May 2011.
*Fishing Rock landing, Raoul Island*: AM P89040, 1 male (cl 6.0 mm), 29°14.552'S, 177°54.215'W, 5 m, K2011-49-1, scrapings from rock wall, 17 May 2011; AM P89274, 6 males (cl 4.6–13.0 mm), 2 females (cl 7.6–9.4 mm), 29°14.552'S, 177°54.215'W, 5 m, K2011-49-4, scrapings from rock wall, 17 May 2011.
*Macauley Island*: AIM MA30624, 1 female (cl 7.7 mm, cw 4.7 mm), 30°13.464'S, 178°26.337'W, 21 m, K2011-67-6, coll. S. Keable & M. Reid, 21 May 2011.
*W side Cheeseman Island*: AIM MA30625, 1 specimen, 30°32.096'S, 178°34.183'W, 24 m, K2011-77-1, coll. S. Keable & A. Reid, 23 May 2011.
*Stawell Shoal, N of Stella Passage*: AM P88937, 1 male (cl 3.7 mm), 30°31.778'S, 178°33.570'W, 21–24 m, under encrusting coral on rock, K2011-92-8, coll. S. Keable & A. Reid, 25 May 2011.
*W side l'Esperance Rock*: AM P88909, 3 males (cl 4.3–11.1 mm), 4 females (cl 7.6–14.2 mm), 31°21.252'S, 178°49.593'W, 12–20 m, rock walls, shelly sediment, sponges & coral scrapings, K2011-99-13, coll. S. Keable & A. Reid, 26 May 2011.

**Remarks**. The species was first reported from the Kermadec Islands by Chilton (1911).

**Distribution**. Hawaii to New Caledonia, the Kermadec Islands, Norfolk Island and Lord Howe Island; intertidal to 24 m.

## Superfamily PILUMNOIDEA
## Family PILUMNIDAE

### *Pilumnus novaezealandiae* Filhol, 1885

*Pilumnus novaezelandiae* Filhol, 1885: 375, pl. 44: figs 1, 2 [type locality: Stewart Island or Massacre Bay, New Zealand]. – McLay, 1988: 248–251, fig. 55. – Takeda & Webber, 2006: 218–220, 233, fig. 15A, B. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 240.
*Pilumnus spinosus* Filhol, 1885: 377, pl. 44, fig. 9 [type locality: New Zealand].
*Pilumnus maori* Borradaile, 1916: 99, fig. 10 [type locality: North Cape, New Zealand].

**Material examined**. *Herald Islands, W side North Chanter Island*: AIM MA30626, 1 female (cl 4.5 mm, cw 6.1 mm; cl 2.3 mm, cw 2.8 mm), 29°15.098'S, 177°51.353'W, 10 m, K2011-42-1, coll. A. Ballance & S. Keable, 16 May 2011.

**Remarks**. This species is common around mainland New Zealand, and was first recorded from the Kermadec islands by Takeda & Webber (2006).

**Distribution**. The Kermadec Islands and mainland New Zealand south to Stewart Island; shore to 130 m (McLay, 1988).

## Superfamily PORTUNOIDEA
## Family PORTUNIDAE

### *Caphyra acheronae* Takeda & Webber, 2006

*Caphyra acheronae* Takeda & Webber, 2006: 198–200, 232, fig. 4 [type locality: Sunday Island, Kermadec Islands, New Zealand]. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 242.

**Material examined**. *W side South Meyer Island*: AIM MA30674, 1 male, Meyer Island, 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-2, coll. S. Keable, 12 May 2011.
*NW corner North Meyer Island*: AM P89046, 1 male (cl 4.0 mm), 2 females (cl 3.4–3.6 mm), 29°14.499'S, 177°52.673'W, 13.5–15.5 m, octocoral washings,

K2011-10-3, coll. S. Keable & A. Reid, 13 May 2011.
*Boat Cove, Raoul Island*: AIM MA30676, 1 male (cl 3.7 mm, cw 4.8 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*Fishing Rock landing, Raoul Island*: AM P88924, 1 male (cl 2.3 mm, cw 3.0 mm), 2 females (cl 8.4 mm, cw 9.8 mm; cl 4.1 mm, cw 4.9 mm), 29°14.552'S, 177°54.215'W, 5 m, K2011-49-10, scrapings from rock wall, 17 May 2011.
*NW corner North Meyer Island*: AIM MA30627, 2 females (cl 5.2 mm, cw 6.6 mm; cl 5.4 mm, cw 7.1 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011.

**Remarks**. The specimens conform well to the type description (Takeda & Webber 2006).

**Distribution**. Known only from the Kermadec Islands; 5–15 m.

## Superfamily TRAPEZIOIDEA
## Family TRAPEZIIDAE

### *Trapezia cymodoce* (Herbst, 1801)
*Cancer cymodoce* Herbst, 1801: 22, pl. 51: fig. 5 [type locality: Singapore].
*Trapezia dentifrons* Latreille, 1828: 695 [type locality: unknown].
*Trapezia coerulea* Rüppell, 1830: 27, pl. 5: fig. 7, pl. 6: fig. 22 [type locality: El Tur, Red Sea].
*Grapsillus dentatus* MacLeay, 1838: 67, pl. 3 [type locality: Cape of Good Hope, South Africa].
*Trapezia hirtipes* Hombron & Jacquinot, 1846: pl. 4, figs 14–16 [type locality: Tuamotu Archipelago, French Polynesia].
*Trapezia dentata var. subintegra* Dana, 1852: 259, pl. 15: fig. 7a, b [type locality: Tuamotu Archipelago, French Polynesia].
*Trapezia cymodoce* var. *ornatus* Chen, 1933: 108, fig. 53 [type locality: Sri Lanka].
*Trapezia cymodoce*. – Castro, 1997: 73–78, fig. 2A, B, pls 2A, 3A. – Castro *et al.*, 2004: 41, 43, 45–47, pls 2C, D, 3A. – Takeda & Webber, 2006: 221.

**Material examined.** *NW corner North Meyer Island*: AIM MA30628, 1 male (cl 3.3 mm, cw 4.2 mm), 29°14.499'S, 177°52.673'W, 10 m, rubble, K2011-62-7, coll. S. Keable & A. Reid, 20 May 2011.

**Remarks**. The incomplete juvenile male, lacking pereopods, is identified with *T. cymodoce* on the basis of the sinuous frontal margin of the carapace and suture separating thoracic sternites 2 and 3 (Castro, 1997). Takeda & Webber (2006) first recorded *T. cymodoce* from the Kermadec Islands.

**Distribution**. Widespread in the Indo-West Pacific from the western Indian Ocean to Australia, the Kermadec Islands, Japan and French Polynesia.

## Superfamily XANTHOIDEA
## Family XANTHIDAE

### *Banareia armata* A. Milne-Edwards, 1869
*Banareia armata* A. Milne-Edwards, 1869: 168, pl. 8 [type locality: New Caledonia]. – Chilton, 1911: 546, 557. – Takeda & Webber, 2006: 233. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 246.

**Material examined**. *NW corner North Meyer Island*: AIM MA30630, 1 female (cl 10.3 mm, cw 14.0 mm), 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-4, coll. A. Reid & S. Keable, 19 May 2011.

**Remarks**. The present specimen corroborates Chilton's (1911) earlier record from the Kermadec Islands.

**Distribution**. Andaman Sea to New Caledonia and the Kermadec Islands.

### *Gaillardiellus bathus* Davie, 1997
*Gaillardiellus bathus* Davie, 1997: 339–342, figs 1, 15c [type locality: New Caledonia]. – Takeda & Webber, 2006: 204, 233, fig. 7A. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 244.

**Material examined**. *W side l'Esperance Rock*: AIM MA30677, 1 male (cl 6.6 mm, cw 9.6 mm), 31°21.252'S, 178°49.593'W, 12–20 m, sponge, K2011-99-2, coll. S. Keable & A. Reid, 26 May 2011.

**Remarks**. Takeda & Webber (2006) first recorded the species from the Kermadec Islands. *Gaillardiellus bathus* was previously known only from depths exceeding 100 m, so the present record from extend the known bathymetric range into significantly shallower depths.

**Distribution**. New Caledonia and the Kermadec Islands; 12–312 m (Davie, 1997; Takeda & Webber, 2006; this study).

### *Gaillardiellus rueppelli* (Krauss, 1843)
*Cancer (Aegle) rueppelli* Krauss, 1843: 28, pl. 1, fig.1 [type locality: Natal, South Africa].
*Actaea pilosa* Stimpson, 1858b: 33 [type locality: Hong Kong].
*Gaillardiellus rueppelli*. – Takeda & Webber, 2006: 204, 233, fig. 7B. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 244.

**Material examined**. *W side Cheeseman Island*: AIM MA30631, 5 specimens (cl 2.5 mm, cw 3.2 mm; cl 4.3 mm, cw 6.0 mm), 30°32.096'S, 178°34.183'W, 24 m, K2011-77-1, coll. S. Keable & A. Reid, 23 May 2011.

**Remarks**. Takeda & Webber (2006) first recorded the species from the Kermadec Islands.

**Distribution**. South Africa to Australia, Japan, Samoa and the Kermadec Islands; 24–29 m.

***Medaeops serenei* Ng & McLay, 2007***
*Medaeops serenei* Ng & McLay, 2007: 44–48, figs 4–7 [type locality: NW Kermadec Ridge]. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 244.

**Material examined**. *Boat Cove, Raoul Island*: AIM, 1 male (cl 4.9 mm, cw 7.3 mm), 177°55.6'W, 10 m, airlift from sediment between rocks, K2011-28-2, coll. S. Keable, 15 May 2011; AM P88918, 1 female (cl 8.2 mm, cw 12.6 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-5, coll. A. Ballance & M. Francis, 15 May 2011.
*NW corner North Meyer Island*: AIM MA30650, 1 female (cl 4.5 mm, cw 7.0 mm), 29°14.499'S, 177°52.673'W, under coral & rock, K2011-61-5, coll. S. Keable & A. Reid, 20 May 2011.

**Remarks**. The present specimens are considerably smaller than the type series (cw 23.8–29.0 mm; Ng & McLay 2007), and have correspondingly less pronounced dorsal ornamentation. Ng & McLay (2007) described *M. serenei* from 139–236 m depth, so the present records from 10 m extend the known bathymetric range into significantly shallower water.

**Distribution**. Northwest Kermadec Ridge including the Kermadec Islands; 10–236 m (Ng & McLay, 2007; this study).

***Nanocassiope neozelandica* sp. nov.** (Fig. 11)
*Nanocassiope* sp. – Takeda & Webber, 2006: 210. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 245.

**Type material**. **Holotype**: AIM MA73414, male ( cl 5.2 mm, cw 7.6 mm), Boat Cove, Raoul Island, 29°16.381'S, 177°55.6'W, 10 m, airlift from sediment between rocks, K2011-28-2, coll. S. Keable, 15 May 2011.

**Paratypes**: AIM MA73415, *W side South Meyer Island*: 3 specimens, 29°14.800'S, 177°52.906'W, 21 m, among algae, K2011-2-1, 12 May 2011; AIM MA73416, 2 specimens, 29°14.789'S, 177°52.883'W, 10–12 m, rubble, K2011-3-2, coll. S. Keable, 12 May 2011.
*NW corner North Meyer Island*: AIM MA73417, 3 specimens, 29°14.499'S, 177°52.673'W, 13.5–15.5 m, octocoral washings, K2011-10-3, coll. S. Keable & A. Reid, 13 May 2011.
*S side Te Konui Point, Raoul Island*: AIM MA73418, 1 male (cl 1.6 mm, cw 2.3 mm), 29°18.541'S, 177°53.744'W, 7–11 m, encrusted vertical rock wall,

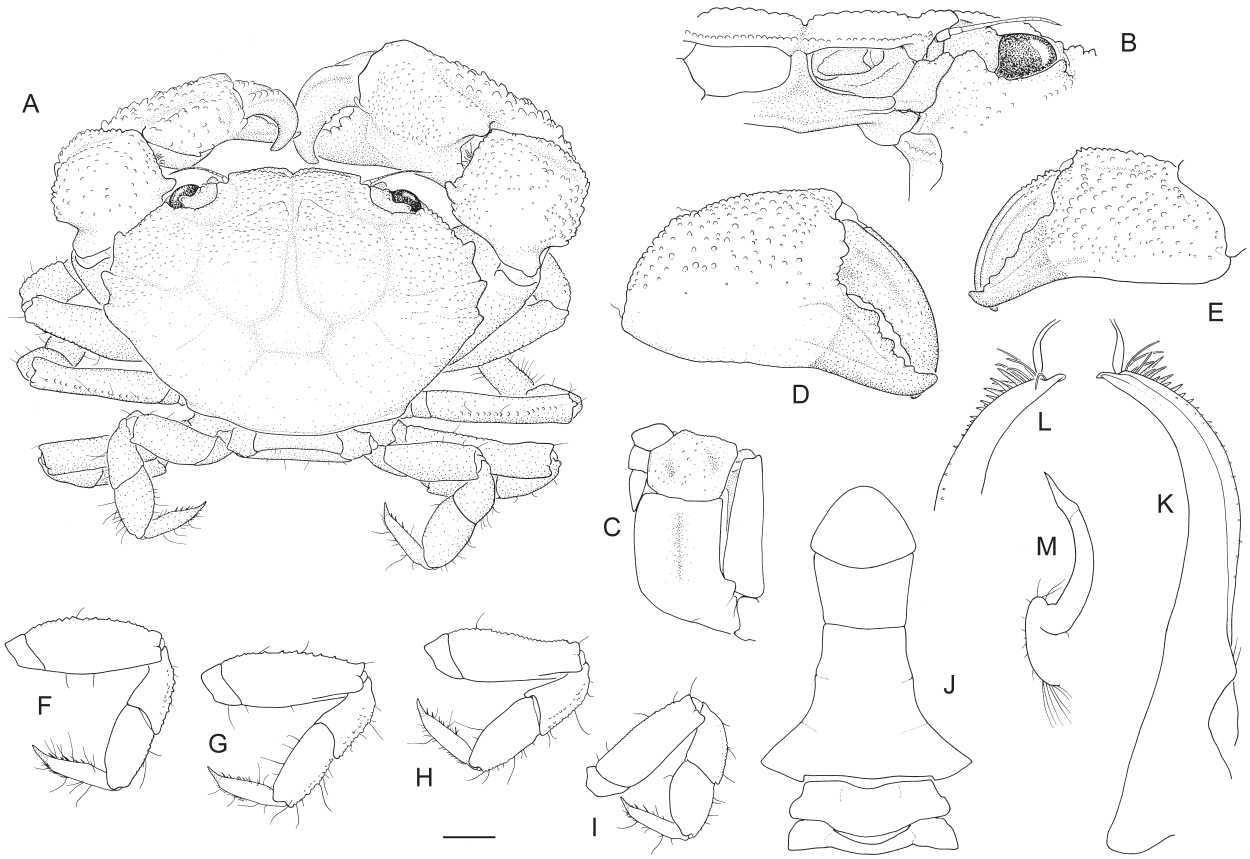


Figure 11. *Nanocassiope neozelandica* sp. nov., male holotype, cl 5.2 mm, cw 7.6 mm, K2011-28-2 (AIM MA73414). *A*, dorsal habitus; *B*, anterior carapace; *C*, right maxilliped 3; *D*, right chela; *E*, left chela; *F–I*, right pereopods 2–5; *J*, abdomen; *K*, right G1, abdominal view; *L*, tip of right G1, sterna view; *M*, right G2, abdominal view. Scale: *A*, *D–I* = 1.0 mm; *B*, *C*, *J* = 0.5 mm; *K–M* = 0.25 mm.

K2011-18-1, coll. S. Keable & A. Reid, 14 May 2011.
*Boat Cove, Raoul Island*: AIM MA73419, 7 males (cl 2.3 mm, cw 3.0 mm; cl 4.3 mm, cw 6.4 mm), 8 females (cl 1.5 cw 2.0 mm; cl 3.7 mm, cw 5.3 mm), 29°16.381'S, 177°55.6'W, 10 m, encrusted rubble, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*Herald Islands, W side North Chanter Island*: AM P89294, 1 male (cl 2.2 mm, cw 3.2 mm), 2 females (cl 3.0 mm, cw 4.4 mm; cl 3.6 mm, cw 5.1 mm), 29°15.098'S, 177°51.353'W, 10 m, K2011-42-1, coll. A. Ballance & S. Keable, 16 May 2011.
*Fishing Rock landing, Raoul Island*: AIM MA73420, 4 specimens, 29°14.552'S, 177°54.215'W, 5 m, K2011-49, scrapings from rock wall, coll. C. Bedford *et al.*, 17 May 2011.
*NW corner North Meyer Island*: AIM MA73421, 5 specimens, 29°14.419'S, 177°52.673'W, 6–15 m, rock wall scrapings with 1–2 m wide canyon, K2011-56-5, coll. S. Keable & A. Reid, 19 May 2011.
*Macauley Island*: AIM MA73422, 1 male (cl 4.2 mm, cw 6.0 mm), 30°13.663'S, 178°26.339'W, 21.2 m, airlift on side and top of rock, K2011-70-3, coll. S. Keable & A. Reid, 21 May 2011.
*W side Cheeseman Island*: AM P89295, 3 females (cl 1.5 mm, cw 2.0 mm; cl 3.6 mm, cw 5.5 mm), 30°32.096'S, 178°34.183'W, 24 m, K2011-77-2, coll. S. Keable & A. Reid, 23 May 2011.
*W side l'Esperance Rock*: AM P89293, 1 male (cl 4.7 mm, cw 6.9 mm), 1 female (cl 2.5 mm, cw 3.3 mm), 31°21.252'S, 178°49.593'W, 12–20 m, from sponge, K2011-99-2, coll. S. Keable & A. Reid, 26 May 2011.

**Description.** Carapace about 1.5 times wider than long; finely granular over anterior half, receding posterolaterally; surface glabrous; convex anteriorly, more-or-less flat from side to side across postero-branchial regions. Regions marked by shallow, smooth grooves; 1F and 2F confluent, coarsely granular; 1M slightly swollen, poorly demarcated; 2M broad, undivided, anterior half granular; anterior prolongation of 3M narrow, distinctly marked, posteriorly 3M less clearly marked; 4M continuous with 3M; 1L not defined; 2L and 3L confluent, indistinctly marked; 4L and 5L indistinct, faintly separated. Anterolateral margin carapace with three blunt teeth; first broad, bluntly, triangular, broadly separated from exorbital angle by distance approximately equal to half frontal width; margin between exorbital angle and first anterolateral tooth strongly granular; second anterolateral tooth similar to first; third anterolateral tooth slightly smaller than second. Greatest carapace width across second and third anterolateral teeth. Posterolateral margin strongly convergent, straight or slightly convex, about as long as anterolateral margin. Posterior margin with low ridge. Front not produced, divided into two faintly convex lobes by shallow median notch; laterally clearly separated from supra-orbital angles by right-angled notch. Supra-orbital border granular; with two shallow fissures. Infra-orbital margin weakly granular, with small, blunt, triangular tooth mesially; deep broad notch below exorbital angle. Eyestalk with 2 or 3 tubercles adjacent to cornea and tubercle on distal extension over cornea. Basal antennal article smooth or minutely granular, in point contact with ventrolateral prolongation of front; flagellum about as long as orbital width. Basal antennular article with row of granules, flagellum folding slightly obliquely. Anterior margins of epistome smooth.

Maxilliped 3 endopod merus about half length of ischium, wider than long, anterolateral angle slightly produced, rounded, surface sparsely granular; ischium about 1.4 times longer than wide, with shallow median sulcus. Exopod straight, margins converging distally, not overreaching merus.

Chelipeds unequal. Major cheliped carpus surface granular, coarsest on outer surface; inner margin with strong, blunt tooth at inner angle, flanked by one or more enlarged tubercles. Propodus inflated, high, height c. 0.5 times length (including pollex); palm granular on upper surface and upper half of inner and outer surfaces, granule size diminishing ventrally; broad shallow depression on upper outer margin; pollex relatively straight, occlusal margin with rounded teeth. Pollex and dactylus darkly coloured, not extending onto palm. Dactylus curved, with smooth dorsal ridge; occlusal margin sinuous, with low teeth increasing in size proximally, and larger, blunt, proximal tooth.

Minor cheliped carpus similar to that of major cheliped. Propodus coarsely granular on upper surface, extending onto upper half of inner surface and most of outer surface; ventral surface smooth or rugose, but not granular. Pollex and dactylus with thin, occlusal margins; that of pollex unevenly toothed, and of dactylus, sinuous. Dactylus granular proximally.

Pereopods 2–5 (walking legs) similar in form, sparsely setose. Pereopod 4 about as long as carapace width, relative lengths: pereopod 3> pereopod 2 = pereopod 4 > pereopod 5. Merus, carpus and propodus with smooth flexor margins, extensor margins coarsely granular on pereopods 2–3, weaker on pereopods 4–5. Dactyli about as long as respective propodi, slender with corneous unguis, flexor margins with several corneous spines and setae. Pereopod 4–5 merus length about 2.6 times height.

Sternites 3–4 fused, separated by broad, shallow groove, demarcation indicated laterally by short incision. Sternite 4 with long median fissure.

Male abdomen smooth, widest at somite 3; somites 3–5 fused, margins convex; somite 6 about 1.7 times wider than long, margins straight, divergent distally; telson rounded, about 1.3 times wider than long, moderately sunken into and slightly wider than somite 6.

Gonopod 1 (G1) slender, evenly curved, relatively narrow distally mucronate, apex narrow; distally with two long sinuous upright setae and cluster of 4 or 5 setae, most weakly curved, few distinctly recurved; with row of graded, spines or spiniform tubercles along distal half, shortest proximally, becoming longer distally. Gonopod 2 (G2) evenly curved, distally styliform, about one-third length of G1.

**Colour in life.** Not known. Largely faded in preservative; cheliped fingers darkly pigmented.

**Etymology**. Named *neozelandica* for its New Zealand distribution.

**Remarks**. Takeda & Webber (2006) reported several specimens of an unidentified xanthid from the Kermadec Islands as *Nanocassiope* sp. That species is herein recognised as a new species, *Nanocassiope neozelandica*. *Nanocassiope neozelandica* is most similar to *N. granulipes* (Sakai, 1939) from Japan and *N. tridentata* Davie, 1995, from Indonesia and Japan. The new species resembles *N. granulipes* in the granulation of the cheliped palms and the form and distal setation of the male G1, but is readily distinguished by having 3 instead of 4 anterolateral carapace teeth and having a slender anterior extension to region 3M on the carapace. *Nanocassiope neozelandica* shares three anterolateral carapace teeth with *N. tridentata*, in contrast to the four anterolateral teeth present in other species of the genus. *Nanocassiope neozelandica*, however, differs from *N. tridentata* in the following features: the third anterolateral tooth on the carapace is prominent rather than minute; the cheliped palms are less granulose, being smooth on the lower half in the major cheliped and smooth ventrally in the minor cheliped, rather than granulose over the entire surface; the walking legs are stouter in the new species, with the pereopod 5 merus about 2.6 times as long as wide versus 3.3 in *N. tridentata*; the G1 differs in form and ornamentation. The G1 of *N. neozelandica* is slender and evenly curved rather than stout and obtusely bent at the distal one-third, the row of spiniform tubercles along the distal half are graded (becoming longer distally) rather than of similar size, and most of the long distal setae are weakly curved rather than strongly recurved along the gonopod axis.

Takeda & Webber (2006) expressed reservations about the generic placement of the new species because most species of *Nanocassiope* have a relatively stout G1, with the distal setae strongly recurved along the G1 axis. The form and distal setation of the G1 of *N. neozelandica*, however, approaches that of *N. granulipes*, and is thus retained in *Nanocassiope*.

The holotype of *N. neozelandica* is the largest known specimen of species. Variation is size related, with the granulation of the carapace and pereopods more pronounced in smaller specimens.

*Nanocassiope neozelandica* is a small species and is apparently common at the Kermadec Islands. Unfortunately, most specimens examined are juveniles and no ovigerous females were taken in 2011. Takeda & Webber (2006), however, reported ovigerous females at cl 3.8 mm, cw 5.7 mm. The male holotype is the largest specimen with cl 5.2 mm, cw 7.6 mm.

**Distribution**. Presently known only from the Kermadec Islands; 5–24 m.

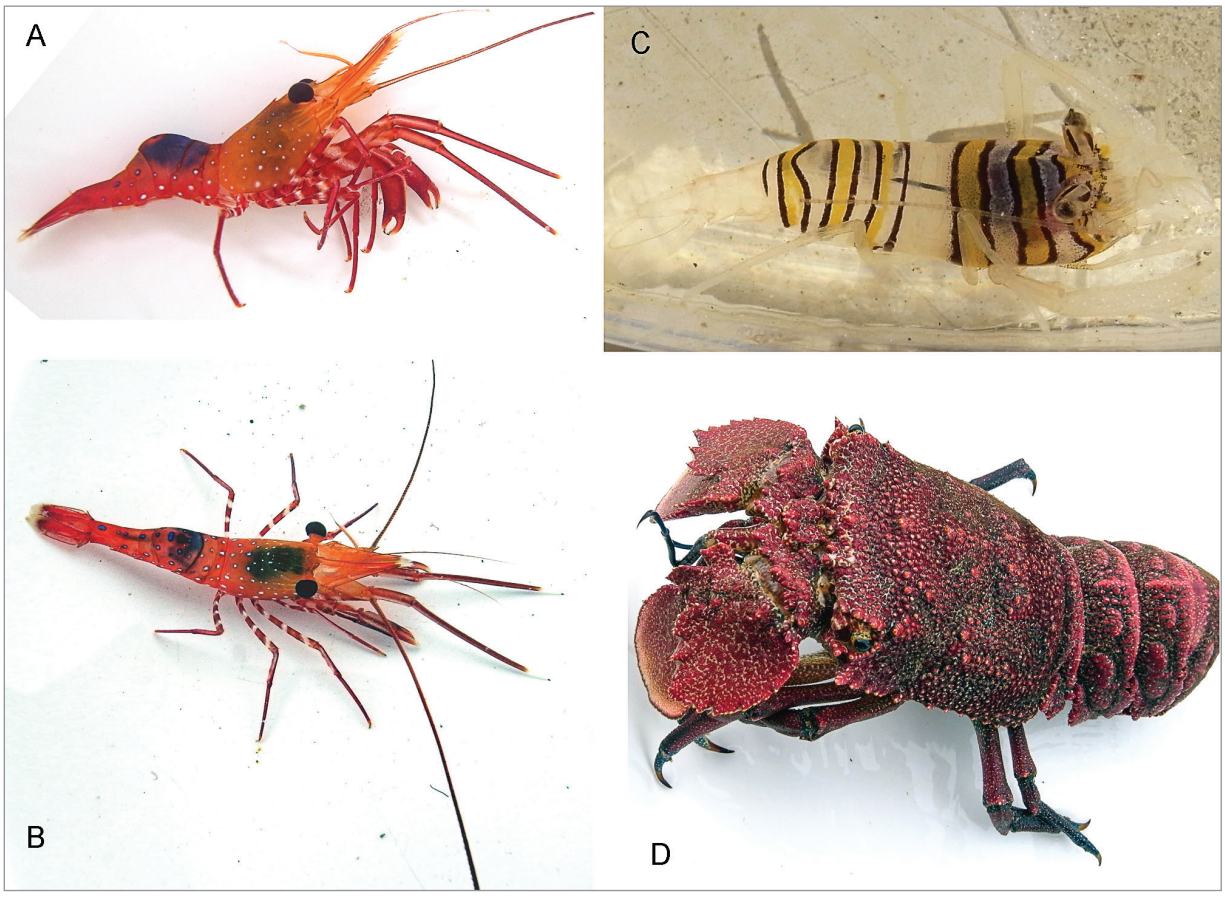


Figure 12. *A, Rhynchocinetes okuno* sp. nov., male holotype (AIM MA73404). *B, Rhynchocinetes okuno* sp. nov., male paratype, pcl 12.7 mm (K2011-98) (AM P88912). *C, Gnathophyllum oceanicum* sp. nov., male holotype (AIM MA73411). *D, Arctides antipodarum*, male, cl 90.7 mm (AM P89657), K2011-98. *Photos: A. Reid.*

***Novactaea modesta* (De Man, 1888)***
*Actaeodes modestus* De Man, 1888: 257 [type locality: Amboina, Indonesia]. – Davie, 2002: 513.
*Actaea pulchella* var. *modesta* Odhner, 1925: 40–41, pl. 2: fig. 17.
?*Novactaea modesta*. – Ng *et al.*, 2008: 195.

**Material examined**. *Fishing Rock landing, Raoul Island*: AIM MA30634, 1 male (cl 10.3 mm, cw 14.4 mm), 29°14.552'S, 177°54.215'W, 5 m, K2011-49-4, scrapings from rock wall, coll. C. Bedford *et al.*, 17 May 2011.
*W side l'Esperance Rock*: AIM MA30635, 1 female (cl 19.7 mm, cw 27.2 mm), 31°21.252'S, 178°49.593'W, 12–20 m, coral scrapings, K2011-99-1, coll. A. Reid, 26 May 2011; AM P88935, 1 damaged male, 2 females (cl 11.2 mm, cw 15.3 mm; cl 13.0 mm, cw 17.9 mm), 31°21.252'S, 178°49.593'W, 12–20 m, coral scrapings, K2011-99-1, coll. A. Reid, 26 May 2011.

**Remarks**. The specimens agree well with published accounts and represent the first records for New Zealand waters.

**Distribution**. Gulf of Thailand, Hainan Island (China), Indonesia, northern Australia and now from the Kermadec Islands.

***Palapedia truncatifrons* (Sakai, 1974)***
*Kraussia truncatifrons* Sakai, 1974: 90, 99 [type locality: Kii Peninsula, Japan].
*Palapedia truncatifrons*. – Okuno & Takeda, 2006: 16–19, figs 1, 2.

**Material examined**. *Boat Cove, Raoul Island*: AIM MA30855, 1 male (cl 15.1 mm, cw 18.8 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29, coll. A. Ballance & M. Francis, 15 May 2011.

**Remarks**. The single specimen, the first from New Zealand waters, agrees well with the redescription of the species by Okuno & Takeda (2006).

**Distribution**. Japan and now from the Kermadec Islands, New Zealand; 10–26 m (Okuno & Takeda, 2006; this study).

***Pilodius nigrocrinitus* Stimpson, 1858**
*Pilodius nigrocrinitus* Stimpson, 1858b: 34 [type locality: Simoda, Japan]. – Clark & Galil, 1993: 1139–1142, figs 9A–G, 35A, 42B–C. –Takeda & Webber, 2006: 233. – Yaldwyn & Webber, 2011: 244.
*Chlorodopsis melanochirus* A. Milne-Edwards, 1873: 228, pl. 8: fig. 5 [type locality: New Caledonia].
*Chlorodopsis melanochira*. – Chilton, 1911: 546, 557.
*Pilodius nigrichrinitus*. – Webber *et al.*, 2010: 227.

**Material examined**. *Boat Cove, Raoul Island*: AM P88919, 1 female (cl 6.5 mm, cw 9.3 mm), 177°55.6'W, 10 m, airlift from sediment between rocks, K2011-28-2, coll. S. Keable, 15 May 2011; AIM MA30636, 3 males (cl 2.6 mm, cw 3.4 mm; cl 3.9 mm, cw 5.2 mm), 29°16.381'S, 177°55.6'W, 10 m, K2011-29-1, coll. A. Reid *et al.*, 15 May 2011.
*Fishing Rock landing, Raoul Island*: AIM MA30640, 1 male (cl 11.8 mm, cw 17.7 mm), 29°14.552'S, 177°54.215'W, 5 m, K2011-49, scrapings from rock wall, coll. C. Bedford *et al.*, 17 May 2011.
*Macauley Island*: AIM, 1 male (cl 2.4 mm, cw 3.2 mm), 30°13.464'S, 178°26.337'W, 21 m, K2011-67-6, coll. S. Keable & M. Reid, 21 May 2011.

**Remarks**. Chilton (1911) first recorded *Pilodius nigrocrinitus* (as *Chlorodopsis melanochira*) from the Kermadec Islands.

**Distribution**. Andaman Sea to Australia, Japan, the Kermadec Islands, Hawaiian Islands and French Polynesia; 5–21 m.

***Pseudoliomera helleri* (A. Milne-Edwards, 1865)**
*Actaea helleri* A. Milne-Edwards, 1865b: 270, pl. 17: fig. 3 [type locality: unknown].
*Pseudoliomera helleri*. – Takeda & Webber, 2006: 212, 233, fig. 9C, D. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 245.

**Material examined**. *NW corner North Meyer Island*: AIM MA30643, 1 male (cl 8.2 mm, cw 12.7 mm), 29°14.499'S, 177°52.673'W, under coral & rock, 10 m, K2011-61-5, coll. S. Keable & A. Reid, 20 May 2011.
*W side l'Esperance Rock*: AIM MA30645, 1 male (cl 5.9 mm, cw 8.7 mm), 31°21.252'S, 178°49.593'W, 12–20 m, rock walls, shelly sediment, sponges & coral scrapings, K2011-99, rotenone, coll. S. Keable & A. Reid, 26 May 2011.
**Remarks**. Takeda & Webber (2006) first reported *P. helleri* from the Kermadec Islands.

**Distribution**. Western Indian Ocean to Indonesia, Australia, Japan and the Kermadec Islands; 10–35 m (Davie, 2002; this study).

**Superfamily GRAPSOIDEA**
**Family GRAPSIDAE**

***Geograpsus grayi* (H. Milne Edwards, 1853)**
*Grapsus grayi* H. Milne Edwards, 1853: 170 [type locality: Australia].
*Geograpsus rubidus* Stimpson, 1858c: 103 [type locality: Bonin Islands = Ogasawara Islands].
*Geograpsus longitarsis minikoiensis* Borradaile, 1901: 66, fig. 12 [type locality: Minikoi Island].
*Geograpsus viaderi* Ward, 1942: 106, pl. 6: fig. 8 [type locality: Salomon, Chagos Archipelago].
*Geograpsus grayi*. – Chilton, 1911: 546, 560. – Takeda & Webber, 2006: 225, 233 fig. 18B. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 245.

**Material examined**. *L'Esperance Rock*: AIM, 2 females (cl 11.3 mm, cw 13.7 mm; cl 18.2 mm, cw 22.3 mm), under boulder on summit, coll. P. de Lange & W. Chinn, 26 May 2011.

**Remarks**. First recorded from the Kermadec Islands by Chilton (1911).

**Distribution**. East Africa to Australia, Japan, New Caledonia and the Kermadec Islands and North Island, New Zealand; semi-terrestrial.

***Leptograpsus variegatus* (Fabricius, 1793)**
*Cancer variegatus* Fabricius, 1793: 234 [type locality: "In Americae Meridionalis Insulis"].
*Grapsus personatus* Lamarck, 1818: 249 [type locality: Australia].
*Grapsus strigilatus* White, 1842: 78 [type locality: New Zealand].
*Grapsus planifrons* Dana, 1852: 338, pl. 21, fig. 3a–e [type locality: Chile].
*Leptograpsus ansoni* H. Milne Edwards, 1853: 172 [type locality: Juan Fernandez].
*Leptograpsus gayi* H. Milne Edwards, 1853: 172 [type locality: Chile].
*Leptograpsus verreauxi* H. Milne Edwards, 1853: 172 [type locality: Australia].
*Sesarma pentagona* Hutton, 1875: 41 [type locality: New Zealand].
*Leptograpsus variegatus*. – Chilton, 1911: 546, 560. – McLay, 1988: 266–270, fig. 59. – Takeda & Webber, 2006: 225, 227, 233, fig. 18C. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 245.

**Material examined**. *Egeria Rock*: AIM MA30857, 1 female (cl 37.6 mm, cw 44.3 mm), rock pool, coll. W. Chinn & P. de Lange, 13 May 2011.
*Macauley Island*: AM P89654, 1 female (cl 50.9 mm, cw 60.6 mm), K2011-113-1, coll. P. de Lange, 22 May 2011.
*North Meyer Island*: AIM MA30858, 2 females (cl 43.3 mm, cw 49.8 mm; cl 48.4 mm, cw 56.9 mm), W side of island, Dept of Conservation landing site, 29°14.674'S, 177°52.688'W, 1 m, intertidal rock pools, K2011-5, coll. T. Trnski, 12 May 2011; AIM MA30859, 1 male (cl 57.4 mm, cw 63.0 mm), shore party, 12 May 2011.
*Fishing Rock landing, Raoul Island*: AIM MA30860, 2 males (cl 7.6 mm, cw 9.0 mm; cl 11.0, cw 12.8 mm), 29°14.552'S, 177°54.215'W, 1 m, rock pools, K2011-54, coll. S. Keable & A. Reid, 18 May 2011.

**Remarks**. *Leptograpsus variegatus* is a common intertidal species in New Zealand waters and was first reported from the Kermadec Islands by Chilton (1911).

**Distribution**. Wide ranging in the Indo-Pacific south of the Tropic of Capricorn, from Western Australia to New Zealand and Chile; intertidal (Davie, 2002).

***Planes major* (MacLeay, 1838)**
*Nautilograpsus major* MacLeay, 1838: 66 [type locality: Cape of Good Hope]. – Ng & Ahyong, 2001: 96–97, fig. 6A, B.
*Planes cyaneus* Dana, 1851: 250 [type locality: Pacific Ocean, 28°N, 174°E]. – McLay, 1988: 318–321, fig. 67.
*Nautilograpsus angustatus* Stimpson, 1858c: 103 [type locality: North Pacific Ocean, 34°N, 151°W].
*Planes major*. – Takeda & Webber, 2006: 229, 234, fig. 20C. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 246.

**Material examined.** *Stella Passage, W side Curtis Island*: AIM MA30646, 1 male (cl 9.2 mm, cw 9.6 mm), 30°32.286'S, 178°33.723'W, on floating bottle, K2011-93-2, coll. W. Chinn *et al.*, 25 May 2011.

**Remarks**. First recorded from the Kermadec Islands by Takeda & Webber (2006).

**Distribution.** Widespread in the Indo-Pacific region and Atlantic Ocean.

***Planes marinus* Rathbun, 1914**
*Planes marinus* Rathbun, 1914: 120–121, pl. 3 [type locality: west of Lower California, 23°49'N, 127°50'W]. – McLay, 1988: 322–324, fig. 68. – Takeda & Webber, 2006: 229, 234, fig. 20B. – Webber *et al.*, 2010: 226. – Yaldwyn & Webber, 2011: 246.

**Material examined**. *NW side North Meyer Island*: AIM MA30647, 1 male (cl 5.0 mm, cw 6.4 mm), 29°14.674'S, 177°52.688'W, 1.3 m, rock pool, rotenone, K2011-11, coll. M. McGrouther *et al.*, 13 May 2011.

**Remarks**. The single specimen is soft and in poor condition. *Planes marinus* was first recorded from the Kermadec Islands by Takeda & Webber (2006).

**Distribution.** Widespread in the Indo-Pacific region and Atlantic Ocean. In New Zealand, from the Kermadec Islands, North Island and the Chatham Islands.

**Family PERCNIDAE**

***Percnon planissimum* (Herbst, 1804)**
*Cancer planissimus* Herbst, 1804: 3, pl. 59, fig. 3 [type locality: East India].
*Plagusia clavimana* Latreille, 1806: 34 [type locality: unknown].
*Plagusia serripes* Lamarck, 1818: 247 [type locality: unknown].
*Acanthopus tenuifrons* H. Milne Edwards, 1853: 180 [type locality: Nuka Hiva, Marquesas, French Polynesia].
*Percnon pilimanus*. – Chilton, 1911: 546, 559–560 [not *P. pilimanus* (A. Milne-Edwards, 1873) = *Percon affine* (H. Milne Edwards, 1853].
*Percnon planissimum*. – Takeda & Webber, 2006: 227, 233, fig. 19A. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 246.

**Material examined**. *NW corner North Meyer Island*: AIM, 1 juvenile male (cl 8.0 mm, cw 7.0 mm), 29°14.499'S, 177°52.673'W, 10 m, gutter through reef flat, K2011-62-6, coll. S. Keable & A. Reid, 20 May 2011.
*W side Cheeseman Island*: AIM MA30648, 1 juvenile female (cl 6.3 mm, cw 5.7 mm), 30°32.096'S, 178°34.183'W, 24 m, K2011-77-1, coll. S. Keable & A. Reid, 23 May 2011.
*Stella Passage, W side Curtis Island*: AM P89275, 6 females (cl 6.4 mm, cw 5.7 mm; cl 6.2 mm, cw 5.5 mm),

178°33.646'W, 13–15 m, from sponge on rock & cobble field with coarse sand, strong surge, K2011-94-3, coll. S. Keable & A. Reid, 25 May 2011.

**Remarks**. First recorded from the Kermadec Islands by Chilton (1911) under the name *Percon pilimanus*.

**Distribution**. Western Indian Ocean to Australia, Japan, the Hawaiian Islands and Cape Verde Islands.

### Family PLAGUSIIDAE

***Plagusia squamosa* (Herbst, 1790)**
*Cancer squamosa* Herbst, 1790: 260, pl. 20, fig. 113 [type locality: East Indies].
*Grapse tuberculatus* Latreille in Milbert, 1812: 275 [type locality: East Indies].
*Plagusia tuberculata* Lamarck, 1818: 246 [type locality: East Indies]. – Chilton, 1911: 546, 558. – Takeda & Webber, 2006: 229, 234, fig. 19C.
*Plagusia orientalis* Stimpson, 1858c: 103 [type locality: Hong Kong].
*Plagusia depressa tuberculata*. – McLay, 1988: 276–278, fig. 61.
*Plagusia squamosa*. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 247.

**Material examined**. *Between Egeria Rock and North Meyer Island, from floating Pohutakawa log*: AM P88932, 2 females (cl 19.2 mm, cw 20.9 mm; ovigerous cl 21.3 mm, cw 22.5 mm), K2011-104-2, coll. S. Keable, 13 May 2011; AIM MA30861, 2 males (cl 15.4 mm, cw 16.3 mm; cl 25.5 mm, cw 26.7mm), 6 females (cl 18.8 mm, cw 20.1 mm; cl 21.7 mm, cw 22.5 mm), K2011-104-2, coll. S. Keable, 13 May 2011.

**Remarks**. The species was first recorded from the Kermadec Islands by Chilton (1911) as *Plagusia tuberculata*.

**Distribution**. Tropical Indo-West Pacific and eastern Pacific including Australia, Norfolk Island, the Kermadec Islands and northern North Island, New Zealand; shore to about 10 m (McLay, 1988).

### Family VARUNIDAE

***Cyclograpsus insularum* Campbell & Griffin &, 1966**
*Cyclograpsus lavauxi*. – Chilton, 1911: 560–561 [not *C. lavauxi* H. Milne Edwards, 1853].
*Cyclograpsus insularum* Campbell & Griffin, 1966: 156, pl. 21: fig. 4, pl. 23: fig. 8 [type locality: Little Slope, Lord Howe Island]. – McLay, 1988: 306–308, fig. 65. – Takeda & Webber, 2006: 225, 233, fig. 18A. – Webber *et al.*, 2010: 227. – Yaldwyn & Webber, 2011: 247–248.

**Material examined**. *Fishing Rock landing, Raoul Island*: AIM MA30862, 2 males (cl 10.6 mm, cw 12.3 mm; cl 13.4, cw 15.7 mm), 1 female (cl 11.1 mm, cw 13.2 mm), 29°14.552'S, 177°54.215'W, 1 m, rock pools, K2011-54, coll. S. Keable & A. Reid, 18 May 2011.

**Distribution**. Lord Howe Island, Norfolk Island, Kermadec Islands and northern North Island, New Zealand; intertidal.

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## REFERENCES

Adams, A. and A. White 1848. Crustacea. Pp. 1–66, pls 1–8, *in*: Adams, A. (ed.) *Zoology of the Voyage of the H.M.S. Samarang, under the command of Captain Sir Edwrad Belcher, C.B., F.R.A.S., F.G.S, during the years 1843–1846*. Reeve & Benham, London.

Ahyong, S.T. 2003. *Gnathophyllum taylori*, a new species of caridean shrimp from southeastern Australia (Crustacea: Decapoda: Gnathophyllidae). *Memoirs of Museum Victoria* 60: 237–242.

Ahyong, S.T. 2007. Decapod Crustacea collected by the NORFANZ Expedition from the northern Tasman Sea: Galatheidae and Polychelidae. *Zootaxa* 1393: 1–54.

Ahyong, S.T. 2008. Deepwater crabs from seamounts and chemosynthetic habitats off eastern New Zealand (Crustacea: Decapoda: Brachyura). *Zootaxa* 1708: 1–72.

Ahyong, S.T. 2009. First records of *Thryaplax* Castro, 2007 and *Calocarcinus* Calman, 1909 (Crustacea: Decapoda: Brachyura) from the Kermadec Islands, New Zealand. *Zootaxa* 1982: 66–68.

Ahyong, S.T. 2010. New species and new records of Caridea (Hippolytidae, Pasiphaeidae) from New Zealand. *Zootaxa* 2372: 341–357.

Anker, A., S.T. Ahyong, P.Y. Noël and A.R. Palmer 2006. Morphological phylogeny of the alpheid shrimps: parallel preadaptation and the origin of a key morphological innovation-the snapping claw. *Evolution* 60: 2507–2528.

Anker, A. and M.S. Jeng 2007. Establishment of a new genus for *Arete borradailei* Coutière, 1903 and *Athanas verrucosus* Banner and Banner, 1960, with redefinitions of *Arete* Stimpson, 1860 and *Athanas* Leach, 1814 (Crustacea: Decapoda: Alpheidae). *Zoological Studies* 46: 454–472.

Baba, K. 1991. Crustacea Decapoda: *Alainius* gen. nov., *Leiogalathea* Baba, 1969, and *Phylladiorhynchus* Baba, 1969 (Galatheidae) from New Caledonia. Pp. 479–491, *in*: Crosnier, A. (ed.) *Résultats des Campagnes MUSORSTOM, volume 9. Mémoires du Muséum National d'Histoire Naturelle, Paris (A)*, 152.

Baba, K. 2005. Deep-sea chirostylid and galatheid crustaceans (Decapoda: Anomura) from the Indo-West Pacific,

with a list of species. *Galathea Reports* 20: 1–317.

Baker, W.H. 1907. Notes on South Australian Decapoda Crustacea. Part V. *Transactions, Proceedings and Report of the Royal Society of South Australia* 31: 173–191.

Balss, H. 1922. 38. Decapoden von Juan Fernandez. Pp. 329–340, *in*: Skottsberg, C. (ed.) *The Natural History of Juan Fernandez and Easter Island*, 3. Almqvist & Wiksells, Uppsala.

Banner, A.H. 1956. Contributions to the knowledge of the alpheid shrimp of the Pacific Ocean. Part I. Collections from the Mariana Archipelago. *Pacific Science* 10: 318–373.

Banner, A.H. and D.M. Banner, D.M. 1960. Contributions to the knowledge of the alpheid shrimp of the Pacific Ocean. Part V. The Indo-Pacific members of the genus *Athanas*. *Pacific Science* 14: 129–155.

Banner, A.H. and D.M. Banner 1968. Three new species of the genus *Alpheus* (Decapoda, Alpheidae) from the International Indian Ocean Expedition. *Crustaceana* 15: 141–148.

Banner, D.M. and A.H. Banner 1973. The alpheid shrimp of Australia. Part I: The lower genera. *Records of the Australian Museum* 28: 291–382.

Banner, D.M. and A.H. Banner 1975. The alpheid shrimp of Australia. Part 2: the genus *Synalpheus*. *Records of the Australian Museum* 29: 267–389.

Banner, D.M. and A.H. Banner 1982. The alpheid shrimp of Australia Part III: The remaining alpheids, principally the genus *Alpheus*, and the family Ogyrididae. *Records of the Australian Museum* 34: 1–357.

Borradaile, L.A. 1900. On the Stomatopoda and Macrura brought by Dr Willey from the South Seas. Pp. 395–428, *in*: Willey, A. (ed.) *Zoological Results based on the material from New Britain, New Guinea, Loyalty Islands and elsewhere, collected during the years 1895, 1896, and 1897*. Cambridge University Press, Cambridge.

Borradaile, L.A. 1901. Land Crustaceans. Pp. 64–100, pl. 3, *in*: Gardiner, J.S. (ed.) *The Fauna and Geography of the Maldive and Laccadive Archipelagoes. Being the account of the work carried on and of the Collections made by an Expedition during the years 1899 and 1900*. University Press, Cambridge.

Borradaile, L.A. 1916. Crustacea. Part 1. – Decapoda. *British Antarctic "Terra Nova" Expedition, Natural History Reports, Zoology* 3: 75–110.

Bruce, A.J. 1985. Caridean shrimps from Lord Howe Island. *The Beagle, Occasional Papers of the Northern Territory Museum of Arts and Sciences* 1: 123–130.

Bruce, A.J. 1986. Redescriptions of five Hong Kong carideans first described by William Stimpson, 1860. Pp. 569–610, *in*: Morton, B. (ed.) *Proceedings of the Second International marine biological workshop: the marine fauna and flora of Hong Kong and Southern China*, 1986.

Cabezas, P., E. Macpherson and A. Machordom 2011. *Allogalathea* (Decapoda: Galatheidae): a monospecific genus of squat lobsters? *Zoological Journal of the Linnean Society* 162: 245–270.

Campbell, B.M. and D.J.G. Griffin 1966. The Australian Sesarminae (Crustacea: Brachyura): genera *Helice*, *Helograpsus* nov., *Cyclograpsus* and *Paragrapsus*. *Memoirs of the Queensland Museum*, 14: 127–174.

Castro, P. 1997. Trapeziid crabs (Brachyura: Xanthoidea: Trapeziidae) of New Caledonia, eastern Australia, and the Coral Sea. Pp. 59–107, *in*: Richer de Forges, B. (ed.) *Les fonds meubles des lagons de Nouvelle-Calédonie (Sédimentologie, Benthos). Études & Thèses*, 3. ORSTOM, Paris.

Castro, P., NG, P.K.L. & Ahyong, S.T. 2004. Phylogeny and systematics of the Trapeziidae Miers, 1886 (Crustacea: Brachyura), with the description of a new family. *Zootaxa* 643: 1–70.

Chace, F.A., Jr. 1955. Notes on shrimps from the Marshall Islands. *Proceedings of the United States National Museum* 105 (3349): 1–22.

Chace, F.A., Jr. 1962. The non-brachyuran decapod crustaceans of Clipperton Island. *Proceedings of the United States National Museum* 113: 605–635.

Chace, F.A., Jr. 1997. The caridean shrimps (Crustacea: Decapoda) of the Albatross Philippine Expedition, 1907–1910, part 7: families Atyidae, Eugonatonotidae, Rhynchocinetidae, Bathypalaemonellidae, Processidae, and Hippolytidae. *Smithsonian Contributions to Zoology* 587, i–iv, 1–106, figs. 1–29.

Chan, T.Y. and A. Crosnier 1991. Crustacea Decapoda: Studies of the *Plesionika narval* (Fabricius, 1787) group (Pandalidae) with descriptions of six new species. Pp. 413–461, *in*: Crosnier, A. (ed.) *Résultats des Campagnes MUSORSTOM, vol. 9. Mémoires du Muséum national d'Histoire naturelle (A) Zoologie*, 152.

Chen, P.S. 1933. Zur Morphologie und Histologie der Respirations-organe von *Grapsus grapsus* L., nebst einer Liste Krabben der Sammlung Plate von Ceylon und Südindien. *Jenaische Zeitschrift für Naturwissenschaft* 68: 31–116.

Chilton, C. 1911. The Crustacea of the Kermadec Islands. *Transactions and Proceedings of the Royal Society of New Zealand* 43: 544–573.

Clark, P.F. and B.S. Galil 1993. A revision of the xanthid genus *Pilodius* Dana, 1851 (Crustacea: Brachyura: Xanthoidea). *Journal of Natural History* 27: 1119–1206.

Coleman, N. 1987. *Australian Sea Life South of 30°S*. Doubleday, Sydney. 288 pp.

Coleman, N. 2002. *Lord Howe Island Marine Park – World Heritage Wildlife Guide*. Neville Coleman's Underwater Geographic, Springwood, Queensland. 96 pp.

Coutière, H. 1903. Note sur quelques Alpheidæ des Maldives et Laquedives. *Bulletin de la Société Philomathique de Paris* (9)5: 72–90.

Coutière, H. 1905. Les Alpheidae. Pp. 852–921, pls 70–87, *in*: Gardiner, J.S. (ed.) *The Fauna and Geography of the Maldive and Laccadive Archipelagoes. Being the account of the work carried on and of the Collections made by an Expedition during the years 1899 and 1900*. University Press, Cambridge.

Coutière, H. 1908. Sur quelques nouvelles espèces d'Alpheidæ. *Bulletin de la Société Philomathique de Paris* (9)10: 191–216.

Coutière, H. 1909.The American species of snapping shrimps of the genus *Synalpheus*. *Proceedings of the United States National Museum* 36: 1–93.

Dana, J.D. 1851. Conspectus crustaceorum quae in Orbis Terrarum circumnavigatione, Carolo Wilkes e classe Reipublicae Foederatae Duce, lexit et descripsit.

*Proceedings of the Academy of Natural Sciences, Philadelphia* 5: 247–254.

Dana, J.D. 1852. Crustacea. *United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842 under the command of Charles Wilkes, U.S.N.,* 13, part 1, i–viii + 1–685.

Davie, P.J.F. 1995. Two new species of *Nanocassiope* from the Western Pacific (Crustacea, Brachyura, Xanthidae). *Bulletin du Muséum national d'Histoire naturelle, Paris* (4)17: 201–210.

Davie, P.J.F. 1997. Crustacea Decapoda: Deep water Xanthoidea from the south-western Pacific and the western Indian Ocean. Pp. 337–387, *in*: A. Crosnier (ed.) *Résultats des campagnes MUSORSTOM, 18. Mémoires du Muséum national d'Histoire naturelle*, *Paris* 176.

Davie, P.J.F. 2002. Crustacea: Malacostraca: Eucarida (Part 2): Decapoda – Anomura, Brachyura. *Zoological Catalogue of Australia* 19.3B. CSIRO Publishing, Melbourne. xiv + 641 pp.

De Grave, S. and C.H.J.M. Fransen 2011. Carideorum Catalogus: the Recent Species of the Dendrobranchiate, Stenopodidean, Procarididean and Caridean Shrimps (Crustacea: Decapoda). *Zoologische Mededelingen, Leiden* 85: 195–589.

De Grave, S., N.D. Pentcheff, S.T. Ahyong, T.Y. Chan, K.A. Crandall, P.C. Dworschak, D.L. Felder, R.M. Feldmann, C.H.J.M. Fransen, L.Y.D. Goulding, R. Lemaitre, M.E.Y. Low, J.W. Martin, P.K.L. Ng, C.E. Schweitzer, S.H. Tan, D. Tshudy and R. Wetzer 2009. A classification of living and fossil genera of decapod Crustaceans. *Raffles Bulletin of Zoology* Supplement 21: 1–109.

Doak, W. 1971. *Beneath New Zealand Seas*. A.H. & A.W. Reed, Wellington. 113 pp.

Fabricius, J.C. 1793. *Entomologia Systematica Emendata et Aucta, Secundum Classes, Ordines, Genera, Species, adiectis Synonymis, Locis, Observationibus, Descriptionibus* 2: i–viii, l–519, Hafniae.

Filhol, H. 1885. 1. Zoologie. 3. Crustacés. In: *Recherches zoologiques, botaniques et géologiques faites à l'île Campbell et en Nouvelle-Zelande. Recueil de Mémoires, Rapports et Documents relatifs à l'Observation du Passage de Vénus sur le Soleil du 9 Décembre 1874. Mission de île Campbell*. Zoologie, 3(2)1: 349–510. Institut de France, Académie des Sciences, Paris.

Forest, J. and P.A. Mclaughlin 2000. Superfamily Coenobitoidea. Pp. 31–101, *in*: Forest, J., M. de Saint Laurent, P.A. McLaughlin and R. Lemaitre, R. (eds.), *The Marine Fauna of New Zealand: Paguridea (Decapoda: Anomura) exclusive of the Lithodidae.* NIWA Biodiversity Memoir, 114.

Forest, J., M. de Saint Laurent, P.A. Mclaughlin and R. Lemaitre (eds) 2000. *The Marine Fauna of New Zealand: Paguridea (Decapoda: Anomura) exclusive of the Lithodidae.* NIWA Biodiversity Memoir 114: 1–250.

Forskål, P. 1775. *Descriptiones Animalium, Avium, Amphibiorum, Piscium, Insectorum, Vermium; Quae in Itinere Orientali Observavit Petrus Forskål. Post Mortem Auctoris Edidit Carsten Niebuhr. Adjuncta est Material Medica Kahirina.* Heineck & Faber, Hafniae [= Copenhagen], 9 + xxxii + 164 pp, 1 map.

Grant, F.E. and A.R. Mcculloch 1907. Decapod Crustacea from Norfolk Island. *Proceedings of the Linnaean Society of New South Wales* 32(1): 151–156, pl. 1.

Griffin, D.J.G. and H.A. Tranter. 1986. The Decapoda Brachyura of the Siboga Expedition. Part VIII. Majidae. *Siboga-Expeditie Monograph* 39: 1–335.

Guérin-Méneville, F.E. 1855–1856. Animales articulados con piés articulados. In: de la Sagra, R., Historia fisica politica y natural de la isla de Cuba. Segunda Parte. *Historia Natural*. *Tomo VII (Crustaceos, Aragnides é Insectos) [1856]. Tomo VIII (Atlas de Zoologia) [1855]*: i–xxxii, 1–371, pls 1–20. Paris.

Gordon, I. 1936. On the macruran genus *Rhynchocinetes*, with description of a new species. *Proceedings of the Zoological Society of London* 1936: 75–88.

Haan, W. de, 1833–1850. Crustacea. Pp. i–xxxi, ix–xvi, 1–243, Plates A–J, L–Q, 1–55. *In*: von Siebold, P.F. (ed.) *Fauna Japonica sive Descriptio Animalium, quae in Itinere per Japoniam, Jussu et Auspiciis Superiorum, qui Summum in India Batava Imperium Tenent, Suspecto, Annis 1823–1830 Collegit, Notis, Observationibus et Adumbrationibus Illustravit*. Lugduni-Batavorum.

Hayashi, K.I. 1975a. The Indo-West Pacific Processidae (Crustacea, Decapoda, Caridea). *Journal of the Shimonoseki University of Fisheries* 24: 47–145.

Hayashi, K.I. 1975b. *Anachlorocurtis commensalis* gen. nov., sp. nov. (Crustacea, Decapoda, Pandalidae), a new pandalid shrimp associated with antipatharian corals from Central Japan. *Annotationes Zoologicae Japonenses* 48: 172–182.

Heller, C. 1861. Synopsis der im rothen Meere vorkommenden Crustaceen. *Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien* 11: 1–32.

Heller, C. 1862. Beiträge zur näheren Kenntnis der Macrouren. *Sitzungsberichte der Akademie der Wissenschaften in Wien, mathematisch-physikalische Klasse* 45: 389–426, pls 1–2.

Heller, C. 1865. Crustaceen. Pp. 1–280, pls 1–25 (issued separately in 1865, bound with other parts in 1868), *in*: *Reise der Österreichischen Fregatte Novara un die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorf-Urbair. Zoologischer Teil*. Kaiserlich-Königliche Hof- und Staatsdruckerei, Wien.

Herbst, J.F.W. 1782–1804. *Versuch einer Naturgeschichte der Krabben und Krebse nebst einer Systematischen Beschreibung ihrer Verschiedenen Aeten*. Volumes 1–3, 515 pp., 62 pls. Gottlieb August Lange, Berlin & Stralsund.

Holthuis, L.B. 1960. Preliminary descriptions of one new genus, twelve new species and three new subspecies of scyllarid lobsters (Crustacea Decapoda Macrura). *Proceedings of the Biological Society of Washington* 73: 147–154.

Holthuis, L.B. 1972. The Crustacea Decapoda Macrura (the Alpheidae excepted) of Easter Island. *Zoologische Mededelingen, Leiden* 46: 29–54, pls 1, 2.

Holthuis, L.B. 1991. *Marine lobsters of the world. An annotated and illustrated catalogue of species of interest to fisheries known to date.* FAO species catalogue, vol. 13, and FAO Fisheries Synopsis 125: 1–292. FAO, Rome.

Holthuis, L.B. 2006. Revision of the genus *Arctides* Holthuis, 1960 (Crustacea, Decapoda, Scyllaridae). *Zoosystema* 28: 417–433.

Hombron, J.B. and H. Jacquinot, 1842–1853. *Atlas. Crustacés*. Pls. 1–9, *in*: *Zoologie. Voyage au Pôle Sud et dans l'Océanie sur les corvettes l'Astrolabe et la Zélée; exécuté par ordre du Roi pendent les années 1837–1838–1839–1840, sous le commandement de M. J. Dumont-D'Urville, Capitaine de vaissau*. Gide et J. Baudry, Paris.

Horká, I., S. De Grave and Z. Ďuriš 2014. A new species of shrimp of the genus *Anachlorocurtis* Hayashi, 1975 from the Red Sea, with range extension of *A. commensalis* Hayashi, 1975 (Crustacea, Decapoda, Pandalidae). *ZooKeys* 407: 9–28.

Hutton, F.W. 1875. Description of two new species Crustacea from New Zealand. *Transactions and Proceedings of the New Zealand Institute* 7: 279–280.

Kemp, S. 1914. Notes on Crustacea Decapoda in the Indian Museum. V. Hippolytidae. *Records of the Indian Museum* 10: 81–129, pls 1–7.

Kemp, S. 1915. The fauna of the Chilka Lake, Crustacea, Decapoda. *Memoirs of the Indian Museum* 5: 199–326, pls. 12, 13.

Komai, T. and H. Tachikawa 2008. Thalssinidean shrimps (Crustacea: Decapoda) from the Ogasawara Islands, Japan. *Natural History Research* 10(1): 19–52.

Komai, T. and M. Takeda 2006. A review of the pagurid hermit crab (Decapoda: Anomura: Paguroidea) fauna of the Sagami Sea, Central Japan. *Memoirs of the National Science Museum, Tokyo* 41: 71–144.

Komai, T. and J. Okuno 2001. Revisiting *Paguritta gracilipes* (Crustacea: Decapoda: Anomura: Paguridae), with description of its coloration in life. *Species Diversity* 6: 295–307.

Komatsu, H. and M. Takeda 2007. First record of leucosiid crabs (Crustacea: Decapoda: Brachyura) from the Kermadec Islands, with description of a new species. *Bulletin of the National Science Museum, Tokyo, series A* 33: 61–66.

Krauss, F. 1843. Die Südafrikanischen Crustaceen. Eine Zusammenstellung aller bekannten Malacostraca, Bemerkungen über deren Lebensweise und geographische Verbtreitung, nebst Beschreibung und Abbildung mehrer neuen Arten. Stuttgart. Pp. 1–68, pl. 1–4,

Kropp, R.K. and J. Haig 1994. *Petrolisthes extremus*, a new porcelain crab (Decapoda: Anomura: Porcellanidae) from the Indo-West Pacific. *Proceedings of the Biological Society of Washington* 107: 312–317.

Kubo, I. 1936. A description of a new alpheoid shrimp from Japan. *Journal of the Imperial Fisheries Institute, Tokyo* 31: 43–46.

Lamarck, J.B.P.A. de. 1818. *Histoire naturelle des Animaux sans Vertébres, presentant les caracteres généraux et particuliers de ces animaux, leur distribution, leurs classes, leurs familles, leurs genres, et la citation des principales espèces qui s'y rapportent; précédée d'une Introduction offrant la determination des caractères essentiels de l'Animal, sa distinction du végétal et des autres corps naturels, enfin, l'Exposition des principles fondamentaux de la Zoologie.* Vol. 5: 1–612.

Latreille, P.A. 1806. Genera crustaceorum et Insectorum secundum ordinem naturalem in familias disposita. *Parisiis et Argentorati* 1: i–xviii, 1–302, pls 1–16.

Latreille, P.A. 1812. Crustacés et insects. Pp. 270–280 *in*: Milbert, J. (ed.) *Voyage pittoresque à l'Île-de France, au cap de Bonne-Espérance et à l'Ile de Ténériffe, par M.J. Milbert. Peintre embarqué sur la corvette le Géographe, et Directeur des gravures de la partie le historique du Voyage aux Terres-Australes. Avec un Atlas, compose de trios cartes géographiques, et de quarante-cinq vues pittoresques déssinéssur les lieux, et gravées en partie par l'auteur*. Volume 2. A. Nepveu, Paris. Crustacés.

Latreille, P.A. 1825. *Entomologie, ou Histoire Naturelle des Crustacés, des Arachnides et des Insectes. Encyclopédie Méthodique, Histoire Naturelle* 10(1): 1–344. Paris.

Latreille, P.A. 1828. Trapézie. *In*: *Entomologie, ou Histoire Naturelle des Crustacés, des Arachnides et des Insectes. Encyclopédie Méthodique, Histoire Naturelle* 10(2): 695–696. Paris.

Laurie, R.D. 1906. Report on the Brachyura collected by Professor Herdman, at Ceylon, in 1902. Pp. 349–432, pls 1–2, *in*: Herdman, W. A. (ed.) *Report to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Manaar with Supplementary Reports Upon the Marine Biology of Ceylon by Other Naturalists, Part 5,* Supplementary Report 40.

MacLeay, W.S. 1838. On the brachyurous decapod Crustacea brought from the Cape by Dr. Smith. Pp. 53–71, 2 pls, *in*: Smith, A. (ed.), *Illustrations of the Annulosa of South Africa; being a portion of the objects of natural history chiefly collected during an expedition into the interior of South Africa, under the direction of Dr. Andrew Smith, in the years 1834, 1835. and 1836; fitted out by "The Cape of Good Hope Association for Exploring Central Africa"*. Smith, Elder, and Co., London.

Man, J.G. de. 1888. Bericht über die von Herrn Dr. J. Brock im indischen Archipel gesammelten Decapoden und Stomatopoden. *Archiv für Naturgeschichte* 53(1): 289–600, pls 11–22a.

Man, J.G. de. 1910. Diagnoses of new species of macrurous decapod Crustacea from the "Siboga-Expedition". *Tijdschrift der Nederlandsche Dierkundige Vereeniging* (2) 11: 287–319.

McLaughlin, P.A. 1991. Crustacea Decapoda: *Porcellanopagurus* Filhol and *Solitariopagurus* Türkay (Paguridae), from the New Caledonian area, Vanuatu and the Marquesas: new records, new species. Pp. 389–414, *in*: Crosnier, A. (ed.) *Résultats des Campagnes MUSORSTOM, volume 21. Mémoires du Muséum National d'Histoire Naturelle, Paris (A)*, 184.

McLaughlin, P.A., D.L. Rahayu, T. Komai, and T.Y. Chan 2007. *A Catalog of the Hermit Crabs of Taiwan*. National Taiwan Ocean University, Keelung. 365 pp.

McLaughlin, P.A. and R. Lemaitre 1993. A review of the hermit crab genus *Paguritta* (Decapoda: Anomura: Paguridae) with descriptions of three new species. *Raffles Bulletin of Zoology* 41: 1–29.

McLay, C.L. 1988. Crabs of New Zealand. *Leigh Laboratory Bulletin* 22: i–iv, 1–463.

McLay, C.L. 2009. New records of crabs (Decapoda: Brachyura) from the New Zealand region, including

a new species of *Rochinia* A. Milne-Edwards, 1875 (Majidae), and a revision of the genus *Dromia* Weber, 1795 (Dromiidae). *Zootaxa* 2111: 1–66.

Melin, G. 1939. Paguriden und Galatheiden von Prof. Dr. Sixten Bocks Expedition nach den Bonin-Inseln 1914. *Kungliga Svenska Vetenskapsakademiens Handlingar* 18: 1–119.

Miers, E. J. 1877. On *Actaeomorpha erosa*, a new genus and species of Crustacea. *Journal of the Linnean Society of London, Zoology* 13: 183–185, pl. 14.

Miers, E.J. 1884. Crustacea. *Report on the zoological collections made in the Indo-Pacific Ocean during the voyage of H.M.S. "Alert," 1881–2*, 178–322, 513–575, pls 18–35, 46–52.

Milne-Edwards, A. 1862. Faune carcinologique de l'île de la Réunion, Annexe F de Maillard. Pp. F1–F16, pls 17–19, *in*: Maillard, L. (ed.) *Notes sur l'île de la Réunion (Bourbon), Paris*.

Milne-Edwards, A. 1865a. Description de quelques Crustacés nouveaux: appurtenant a la tribu des Maiens. *Annales de la Société Entomologique de France* 5: 133–147, pls 1–5.

Milne-Edwards, A. 1865b. Études zoologiques sur les crustacés récents de la famille des cancériens. Première partie. Cancérides. Pirimélides. Carpilides. *Nouvelles Archives du Muséum d'Histoire naturelle* (Paris) 1: 177–308, pls 11–19.

Milne-Edwards, A. 1869. Description d'un nouveau genre de Crustacé Cancérien. *Annales de la Societé entomologique de France, 4e série* 9: 167–169, pl. 8.

Milne-Edwards, A. 1873. Descriptions des quelques crustacés nouveaux ou peu connus provenant du Musée de M. C. Godeffroy. *Journal du Muséum Godeffroy* 1: 77–88.

Milne Edwards, H. 1848. Note sur quelques nouvelles espèces du genre Pagure. *Annales des Sciences Naturelles Zoologie, Paris* (3)10: 59–64.

Milne Edwards, H. 1853. Mémoire sur la famille des Ocypodides. Suite (1). Deuxiéme Tribu Principale. *Annales des Sciences Naturelles, 3e série* 20: 163–228, pls 6–11.

Miya, Y. 1972. The Alpheidae (Crustacea, Decapoda) of Japan and its adjacent waters. Part I. *Publications from the Amakusa Marine Biology Laboratory* 3: 23–101, pls 1–14.

Miya, Y. 1995. Four species of *Alpheus* from intertidal and shallow water mudflats in the Sea of Ariake, Kyushu, Japan (Crustacea, Decapoda, Alpheidae). *Bulletin of the Faculty of Liberal Arts, Nagasaki University (Natural Sciences)* 35 (Special Issue): 271–288.

Morgan, G.J. 1991. A review of the hermit crab genus *Calcinus* Dana (Crustacea: Decapoda: Diogenidae) from Australia, with descriptions of two new species. *Invertebrate Taxonomy* 5: 869–913.

Ng, P.K.L. and S.T. Ahyong 2001. The Brachyuran Crab Types in the MacLeay Collection. *Raffles Bulletin of Zoology* 49(1): 83–100.

Ng, P.K.L., D. Guinot and P.J.F. Davie 2008. Systema Brachyurorum: part I. An annotated checklist of extant brachyuran crabs of the world. *Raffles Bulletin of Zoology*, Supplement 17: 1–286.

Ng, P.K.L. and C.L. McLay 2007. Two new species of deep-water xanthid crabs of the genera *Euryxanthops* Garth & Kim, 1983, and *Medaeops* Guinot, 1967 (Crustacea: Decapoda: Brachyura: Xanthidae) from New Zealand. *Zootaxa* 1505, 37–50.

Nobili, G. 1904. Diagnoses preliminaries de vingthuit espéces nouvelles de stomatopodes et de décapodes macroures de la mer Rouge. *Bulletin du Muséum national d'Histoire naturelle, Paris* 10: 228–237.

Odhner, T. 1925. Monographierte Gattungen der Krabbenfamilie Xanthidae. I. *Göteborgs Kungliga Vetenskaps- och Vitterhets-Samhälles Handlingar* (4) 29(1): 1–92, figs. 1–7, pls 1–5.

Okuno, J. and M. Takeda 2006. *Validity of Palapedia truncatifrons* (Sakai, 1974) (Crustacea, Decapoda, Brachyura, Xanthidae). *Bulletin of the National Museum of Natural Sciences*, *Series A* 32(1): 15–22.

Olivier, A.G. 1811. Suite de l'Introduction à l'Histoire Naturelle des Insectes. Palèmon. Pp. 656–670, *in*: Olivier, A.G. (ed.), *Encyclopédie Méthodique. Histoire Naturelle. Insectes*, volume 8. H. Agasse, Imprimeur-Libraire, Paris.

Osawa, M. & Chan, T.Y. 2010. Part III. Porcellanidae (Porecelain crabs). Pp. 67–181, *in*: Chan, T.-Y. (ed.) *Crustacean Fauna of Taiwan: Crab-like Anomurans (Hippodea, Lithodoidea and Porcellanidae)*. National Taiwan Ocean University, Keelung.

Paul'son, O. 1875. *Studies on Crustacea of the Red Sea with notes regarding other seas. Part I. Podophthalmata and Edriophthalmata (Cumacea)*. S.V. Kul'zhenko, Kiev, i–xiv, 1–144, pl. 1–21. [In Russian].

Poore, G.C.B. 2004. *Marine Decapod Crustacea of Southern Australia: a guide to identification with chapter on Stomatopoda by Shane Ahyong*. CSIRO Publishing, Melbourne. 574 pp.

Poupin, J. and P.A. McLaughlin. 1998. Additional records of *Calcinus* species (Decapoda: Anomura: Diogenidae) from French Polynesia with description of three new species and a key to Indo-West Pacific species of the genus. *Crustacean Research* 27: 9–27.

Rathbun, M.J. 1906. The Brachyura and Macrura of the Hawaiian Islands. *Bulletin of the United States Fish Commission, Washington* 23: 827–930, pls. 1–24.

Rathbun, M. J. 1914. New genera and species of American brachyrhynchous crabs. *Proceedings of the United States National Museum* 47(2047): 117–129, pls 1–10.

Richardson, L.R. and J.C. Yaldwyn 1958. A guide ot the natant decapod Crustacea (shrimps and prawns) of New Zealand. *Tuatara* 7: 17–41.

Rüppell, E. 1830. *Beschreibung und Abbilding von 24 Arten kurzschwänzigen Krabben, als Beitrag zur Naturgeschichte des Rothen Meeres*. H. L. Brönner, Frankfurt, 28 pp.

Saint Laurent, M. de and P.A. McLaughlin 2000. Superfamily Paguroidea. Pp. 104–209, *in*: Forest, J., M. de Saint Laurent, P.A. McLaughlin and R. Lemaitre (eds.) *The Marine Fauna of New Zealand: Paguridea (Decapoda: Anomura) exclusive of the Lithodidae.* NIWA Biodiversity Memoir, 114.

Sakai, T. 1933. A new genus and some new species of crabs from Simoda. *Science Reports of the Tokyo Bunrika Daigaku* (B) 12**:** 137–144, text figs 1–3, pl. 8.

Sakai, T. 1938. Brachygnatha Oxyrhyncha. *Studies on the Crabs of Japan* 3: 193–364, pls 20–41. Yokendo, Tokyo.

Sakai, T. 1939. Brachygnatha, Brachyrhyncha. *Studies on the Crabs of Japan* 4: 365–741, pls 42–111. Yokendo, Tokyo.

Sakai, T. 1974. Notes from the carcinological fauna of Japan (V). *Researches on Crustacea* 6: 86–102, frontispiece. [In English and Japanese].

Serène, R. 1984. Crustacés Décapodes Brachyoures de l'Océan Indien occidental et de la Mer Rouge. Xanthoidea: Xanthidae et Trapeziidae. Addendum Carpiliidae et Menippidae – A. Crosnier. *Faune Tropicale* 24: 1–400, pls. 1–48.

Spence Bate, C. 1888. Report on the Crustacea Macrura collected by the Challenger during the years 1873–76. *Report on the Scientific Results of the Voyage of H.M.S. "Challenger" during the years 1873–76* 24: i–xc, 1–942, pls 1–157.

Stebbing, T.R.R. 1915. South African Crustacea. Part VIII of S.A. Crustacea, for the Marine Investigations in South Africa. *Annals of the South African Museum* 15: 57–103, pls 13–25.

Stebbing, T.R.R. 1921. Some Crustacea of Natal. *Annals of the Durban Museum* 3: 12–26, pl. 1–5.

Stimpson, W. 1858a. Crustacea Maioidea. Prodromus descriptionis animalium evertebratorum quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers ducibus, observavit et descripsit. Pars III. *Proceedings of the Academy of Natural Science of Philadelphia* 9: 216–221.

Stimpson, W. 1858b. Crustacea Cancroidea et Corystoidea. Prodromus descriptionis animalium evertebratorum quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers ducibus, observavit et descripsit. Pars IV. *Proceedings of the Academy of Natural Science of Philadelphia* 10: 31–40.

Stimpson, W. 1858c. Crustacea Ocypodoidea. Prodromus descriptionis animalium evertebratorum quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers ducibus, observavit et descripsit. Pars V. *Proceedings of the Academy of Natural Science of Philadelphia* 10: 93–110. (39–56 on separate).

Stimpson, W. 1858d. Crustacea Anomoura. Prodromus descriptionis animalium evertebratorum quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers ducibus, observavit et descripsit. Pars VII. *Proceedings of the Academy of Natural Science of Philadelphia* 10: 225–252. (63–90 on separate).

Stimpson, W. 1860. Crustacea Macrura. Prodromus descriptionis animalium evertebratorum, quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republic Federata missa, Cadwaladore Ringgold et Johanne Rodgers Ducibus, observavit et descripsit. Pars VIII, *Proceedings of the Academy of Natural Sciences of Philadelphia* 12: 22–47. [91–116 on separate]

Takeda, M. 1973. Studies on the Crustacea Brachyura of the Palau Islands I. Dromiidae, Dynomenidae, Calappidae, Leucosiidae, Hymenosomatidae, Majidae and Parthenopidae. *Bulletin Liberal Arts & Science Course, Nihon University School of Medicine* 1: 75–122.

Takeda, M. 1977. Crabs of the Ogasawara Islands, V. A collection made by dredging. *Memoirs of the National Science Museum*, *Tokyo* 10: 113–140, pls 112–117.

Takeda, M. & Webber, W.R. 2006. Crabs from the Kermadec Islands in the South Pacific. Pp. 191–237, *in*: Tomida, Y., T. Kubodera, S. Akiyama and T. Kityama (eds) *Proceedings of the 7th and 8th Symposia on Collection Building and Natural History Studies in Asia and the Pacific Rim*. *National Science Museum Monographs*, 34.

Thallwitz, J. 1892. Decapoden-Studien, insbesondere basirt auf A.B. Meyer's Sammlungen im Ostindischen Archipel, nebst einer Aufzählung der Decapoden und Stomatopoden des Dresdener Museums. *Abhandlungen und Berichte des Königlichen Zoologischen und Anthropologisch-Etnographischen Museums zu Dresden* 3: 1–56, unnumbered plate. [Dated 1890/91, published 1892].

Titgen, R.H. 1989. Gnathophyllid shrimp of the Hawaiian Islands, with the description of a new species of *Gnathophyllum* (Decapoda, Gnathophyllidae). *Crustaceana* 56: 200–210.

Ward, M. 1942. Notes on the Crustacea of the Desjardins Museum, Mauritius Institute, with descriptions of new genera. *Bulletin of the Mauritius Institute* 2(2): 49–108, pls 1–2.

Webber, W.R., G.D. Fenwick, J.M. Bradford-Grieve, S.H. Eager, J.S. Buckeridge, G.C.B. Poore, E.W. Dawson, L. Watling, J.B. Jones, J.B.J., Wells, N.L. Bruce, S.T. Ahyong, K. Larsen, M.A. Chapman, J. Olesen, J.-S. Ho, J.D. Green, R.J. Shiel, C.E.F. Rocha, A.N. Lörz, G.J. Bird and W.A. Charleston 2010. Phylum Arthropoda. Subphylum Crustacea: shrimps, crabs, lobsters, barnacles, slaters, and kin. Pp. 98–232, *in*: Gordon, D.P. (ed.) *New Zealand Inventory of Biodiversity, Volume 2. Kingdom Animalia: Chaetognatha, Ecdysozoa, Ichnofossils*. Canterbury University Press, Christchurch.

Werding, B. and A. Hiller 2007. The Porcellanidae (Crustacea: Decapoda: Anomura) of the Red Sea with description of a new species of *Petrolisthes*. *Zootaxa* 1460: 1–24.

White, A. 1842. Description of an orthopterous insect and two new species of Crustacea, from New Zealand, in the collections of the British Museum. Pp. 78–79, *in*: Gray, J.E. (ed.), *The Zoological Miscellany*. London.

Whitelegge, T. 1900. Scientific results of the trawling expedition of H.M.C.S. Thetis, off the coasts of New South Wales, in February and March 1898, 2. Crustacea, 1. *Memoirs of the Australian Museum* 4: 135–199, pls 32–35.

Yaldwyn, J.C. 1961. A scyllarid lobster, *Arctides antipodarum* Holthuis, new to New Zealand waters. *Records of the Dominion Museum* 4(1): 1–6.

Yaldwyn, J.C. 1968. Records of, and observations on, the coral shrimp genus *Stenopus* in Australia, New Zealand and the south-west Pacific. *Australian Zoologist* 14(3): 277–289.

Yaldwyn, J.C. 1971. Preliminary descriptions of a new genus and twelve new species of natant decapod

Crustacea from New Zealand. *Records of the Dominion Museum* 7: 85–94.

Yaldwyn, J.C. 1974. Shrimps and prawns. *New Zealand's Nature Heritage* 38: 1041–1046.

Yaldwyn, J.C. and W.R. Webber 2011. Annotated checklist of New Zealand Decapoda (Arthropoda: Crustacea). *Tuhinga* 22: 171–272.

Yokoya, Y. 1927. Notes on two alpheoid shrimps from Japan. Journal of the College of Agriculture. *Tokyo Imperial University* 9: 171–176, pl. 7.

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: 129–146.

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