

# Annotated checklist of New Zealand Decapoda (Arthropoda: Crustacea)

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**ABSTRACT:** A checklist of the Recent Decapoda (shrimps, prawns, lobsters, crayfish and crabs) of the New Zealand region is given. It includes 488 named species in 90 families, with 153 (31%) of the species considered endemic. References to New Zealand records and other significant references are given for all species previously recorded from New Zealand. The location of New Zealand material is given for a number of species first recorded in the *New Zealand Inventory of Biodiversity* but with no further data. Information on geographical distribution, habitat range and, in some cases, depth range and colour are given for each species.

**KEYWORDS:** Decapoda, New Zealand, checklist, annotated checklist, shrimp, prawn, lobster, crab.

## Contents

### Introduction

### Methods

### Checklist of New Zealand Decapoda

Suborder DENDROBRANCHIATA Bate, 1888 .....	178
Superfamily PENAEOIDEA Rafinesque, 1815 .....	178
Family ARISTEIDAE Wood-Mason & Alcock, 1891 .....	178
Family BENTHESICYMIDAE Wood-Mason & Alcock, 1891 .....	180
Family PENAEIDAE Rafinesque, 1815 .....	180
Family SICYONIIDAE Ortmann, 1898 .....	181
Family SOLENO CERIDAE Wood-Mason & Alcock, 1891 .....	181
Superfamily SERGESTOIDEA Dana, 1852 .....	181
Family LUCIFERIDAE De Haan, 1849 .....	181
Family SERGESTIDAE Dana, 1852 .....	181
Suborder PLEOCYEMATA Burkenroad, 1963 .....	183
Infraorder STENOPODIDEA Bate, 1888 .....	183
Family SPONGICOLIDAE Schram, 1986 .....	183
Family STENOPODIDAE Claus, 1872 .....	183
Infraorder CARIDEA Dana, 1852 .....	184
Superfamily PASIPHAEOIDEA Dana, 1852 .....	184

Family PASIPHAEIDAE Dana, 1852 .....	184
Superfamily OPLOPHOROIDEA Dana, 1852 .....	185
Family OPLOPHORIDAE Dana, 1852 .....	185
Superfamily ATYOIDEA De Haan, 1849 .....	188
Family ATYIDAE De Haan, 1849.....	188
Superfamily BRESILIOIDEA Calman, 1896.....	188
Family ALVINOCARIDIDAE Christoffersen, 1986.....	188
Family DISCIADIDAE Rathbun, 1902 .....	188
Superfamily NEMATOCARCINOIDEA Smith, 1884 .....	188
Family NEMATOCARCINIDAE Smith, 1884.....	188
Family RHYNCHOCINETIDAE Ortmann, 1890.....	189
Superfamily STYLODACTYLOIDEA Bate, 1888 .....	190
Family STYLODACTYLIDAE Bate, 1888 .....	190
Superfamily CAMPYLONOTOIDEA Sollaud, 1913 .....	190
Family CAMPYLONOTIDAE Sollaud, 1913 .....	190
Superfamily PALAEMONOIDEA Rafinesque, 1815 .....	190
Family PALAEMONIDAE Rafinesque, 1815.....	190
Subfamily PALAEMONINAE Rafinesque, 1815.....	190
Subfamily PONTONIINAE Kingsley, 1879.....	190
Superfamily ALPHEOIDEA Rafinesque, 1815.....	191
Family ALPHEIDAE Rafinesque, 1815 .....	191
Family HIPPOLYTIDAE Dana, 1852 .....	192
Family OGYRIDIDAE Holthuis, 1955 .....	194
Superfamily PROCEOIDEA Ortmann, 1896.....	194
Family PROCESSIDAE Ortmann, 1896.....	194
Superfamily PANDALOIDEA Haworth, 1825.....	195
Family PANDALIDAE Haworth, 1825 .....	195
Superfamily CRANGONOIDEA Haworth, 1825 .....	196
Family CRANGONIDAE Haworth, 1825.....	196
Family GLYPHOCRANGONIDAE Smith, 1884.....	198
Infraorder ASTACIDEA Latreille, 1802 .....	198
Superfamily NEPHROPOIDEA Dana, 1852 .....	198
Family NEPHROPIDAE Dana, 1852.....	198
Superfamily PARASTACOIDEA Huxley, 1879 .....	199
Family PARASTACIDAE Huxley, 1879.....	199
Infraorder AXIIDAE de Saint Laurent, 1979 .....	200
Family AXIIDAE Huxley, 1879.....	200
Family CALLIANASSIDAE Dana, 1852.....	200
Subfamily CALLIANASSINAE Dana, 1852.....	200
Subfamily CALLICHIRINAE Manning & Felder, 1991 .....	201
Subfamily VULCANOCALLIACINAE Dworschak & Cunha, 2007..	201
Family CALOCARIDIDAE Ortmann, 1891 .....	201
Family CTENOCHELIDAE Manning & Felder, 1991 .....	201
Subfamily CTENOCHELINAE Manning & Felder, 1991 .....	201
Family EICONAXIIDAE Sakai & Ohta, 2005 .....	201

Infraorder GEBIIDEA de Saint Laurent, 1979 .....	201
Family LAOMEDIIDAE Borradaile, 1903 .....	201
Family UPOGEBIIDAE Borradaile, 1903 .....	202
Infraorder ACHELATA Scholtz & Richter, 1995 .....	202
Family PALINURIDAE Latreille, 1802 .....	202
Family SCYLLARIDAE Latreille, 1825 .....	204
Subfamily ARCTIDINAE Holthuis, 1985 .....	204
Subfamily IBACINAE Holthuis, 1985 .....	204
Subfamily SCYLLARINAE Latreille, 1825 .....	205
Infraorder POLYCHELIDA Scholtz & Richter, 1995 .....	205
Family POLYCHELIDAE Wood-Mason, 1875 .....	205
Infraorder ANOMURA MacLeay, 1838 .....	207
Superfamily CHIROSTYLOIDEA Ortmann, 1892 .....	207
Family CHIROSTYLIDAE Ortmann, 1892 .....	207
Family EUMUNIDIDAE A. Milne-Edwards & Bouvier, 1900 .....	210
Superfamily GALATHEOIDEA Samouelle, 1819 .....	210
Family GALATHEIDAE Samouelle, 1819 .....	210
Family MUNIDIDAE Ahyong, Baba, Macpherson & Poore, 2010 .....	211
Family MUNIDOPSISAE Whiteaves, 1874 .....	213
Family PORCELLANIDAE Haworth, 1825 .....	214
Superfamily HIPPOIDEA Latreille, 1825 .....	215
Family ALBUNEIDAE Stimpson, 1858 .....	215
Superfamily LITHODOIDEA Samouelle, 1819 .....	215
Family LITHODIDAE Samouelle, 1819 .....	215
Superfamily PAGUROIDEA Latreille, 1802 .....	217
Family DIOGENIDAE Ortmann, 1892 .....	217
Family PAGURIDAE Latreille, 1802 .....	218
Family PARAPAGURIDAE Smith, 1882 .....	222
Family PYLOCHELIDAE Bate, 1888 .....	224
Infraorder BRACHYURA Linnaeus, 1758 .....	224
Section DROMIACEA De Haan, 1833 .....	224
Superfamily DROMIOIDEA De Haan, 1833 .....	224
Family DROMIIDAE De Haan, 1833 .....	224
Family DYNOMENIDAE Ortmann, 1892 .....	225
Superfamily HOMOLODROMIOIDEA Alcock, 1900 .....	225
Family HOMOLODROMIIDAE Alcock, 1900 .....	225
Superfamily HOMOLOIDEA De Haan, 1839 .....	226
Family HOMOLIDAE De Haan, 1839 .....	226
Family LATREILLIIDAE Stimpson, 1858 .....	227
Section RANINOIDA De Haan, 1839 .....	227
Family RANINIDAE De Haan, 1839 .....	227
Subfamily LYREIDINAE Guinot, 1993 .....	227
Subfamily RANINOIDINAE Lörenthey, 1929 .....	227
Section CYCLODORIPPOIDA Ortmann, 1892 .....	227
Family CYMONOMIDAE Bouvier, 1897 .....	227

Section EUBRACHYURA de Saint Laurent, 1980 .....	227
Subsection HETEROTREMATA Guinot, 1977.....	227
Superfamily AETHROIDEA Dana, 1851 .....	227
Family AETHRIDAE Dana, 1851 .....	227
Superfamily BELLIOIDEA Dana, 1852.....	228
Family BELLIIDAE Dana, 1852 .....	228
Superfamily BYTHOGRAEOIDEA Williams, 1980.....	228
Family BYTHOGRAEIDAE Williams, 1980 .....	228
Superfamily CALAPPOIDEA De Haan, 1833 .....	228
Family CALAPPIDAE H. Milne Edwards, 1837.....	228
Superfamily CANCROIDEA Latreille, 1802.....	228
Family ATELECYCLIDAE Ortmann, 1893 .....	228
Family CANCRIDAE Latreille, 1802 .....	229
Superfamily DORIPPOIDEA MacLeay, 1838 .....	230
Family ETHUSIDAE Guinot, 1977.....	230
Superfamily ERIPHIOIDEA MacLeay, 1838.....	230
Family OZIIDAE Dana, 1851 .....	230
Superfamily GONEPLACOIDEA MacLeay, 1838.....	230
Family GONEPLACIDAE MacLeay, 1838 .....	230
Subfamily GONEPLACINAE MacLeay, 1838 .....	230
Family MATHILDELLIDAE Karasawa & Kato, 2003 .....	231
Superfamily LEUCOSIOIDEA Samouelle, 1819 .....	231
Family LEUCOSIIDAE Samouelle, 1819.....	232
Subfamily EBALIINAE Stimpson, 1871 .....	232
Superfamily MAJOIDEA Samouelle, 1819.....	232
Family EPIALTIDAE MacLeay, 1838 .....	232
Subfamily EPIALTINAE MacLeay, 1838 .....	232
Subfamily PISINAE Dana, 1851 .....	232
Family HYMENOSOMATIDAE MacLeay, 1838 .....	233
Family INACHIDAE MacLeay, 1838 .....	235
Family INACHOIDIDAE Dana, 1851 .....	236
Family MAJIDAE Samouelle, 1819 .....	236
Subfamily EURYNOLAMBRINAE Števíć, 1994 .....	236
Subfamily MAJINAE Samouelle, 1819 .....	237
Superfamily PALICOIDEA Bouvier, 1898 .....	239
Family PALICIDAE Bouvier, 1898.....	239
Superfamily PARTHENOPOIDEA MacLeay, 1838 .....	239
Family PARTHENOPIDAE MacLeay, 1838.....	239
Subfamily PARTHENOPINAE MacLeay, 1838.....	239
Superfamily PILUMNOIDEA Samouelle, 1819 .....	240
Family PILUMNIDAE Samouelle, 1819.....	240
Subfamily PILUMNINAE Samouelle, 1819.....	240
Superfamily PORTUNOIDEA Rafinesque, 1815.....	240
Family CARCINIDAE MacLeay, 1838.....	240
Subfamily POLYBIINAE Ortmann, 1893 .....	240

Family GERYONIDAE Colosi, 1923 .....	242
Family MACROPIPIDAE Stephenson & Campbell, 1960 .....	242
Family PORTUNIDAE Rafinesque, 1815 .....	242
Subfamily CAPHYRINAE Paul'son, 1875 .....	242
Subfamily NECRONECTINAE Glaessner, 1928 .....	242
Subfamily PORTUNINAE Rafinesque, 1815 .....	242
Subfamily THALAMITINAE Paul'son, 1875.....	243
Superfamily TRAPEZIOIDEA Miers, 1886.....	243
Family TRAPEZIIDAE Miers, 1886 .....	243
Subfamily CALOCARCININAE Števcíć, 2005 .....	243
Subfamily TRAPEZIINAE Miers, 1886 .....	243
Superfamily XANTHOIDEA MacLeay, 1838.....	244
Family XANTHIDAE MacLeay, 1838 .....	244
Subfamily ACTAEINAE Alcock, 1898.....	244
Subfamily ANTROCARCININAE Ng & Chia, 1994 .....	244
Subfamily CHLORODIELLINAE Ng & Holthuis, 2007.....	244
Subfamily EUXANTHINAE Alcock, 1898.....	244
Subfamily LIOMERINAE T. Sakai, 1976.....	244
Subfamily POLYDECTINAE Dana, 1851.....	244
Subfamily XANTHINAE MacLeay, 1838 .....	244
Subfamily ZALASIINAE Serène, 1968 .....	245
Subfamily ZOSIMINAE Alcock, 1898.....	245
Subsection THORACOTREMATA Guinot, 1977 .....	245
Superfamily CRYPTOCHIROIDEA Paul'son, 1875 .....	245
Family CRYPTOCHIRIDAE Paul'son, 1875 .....	245
Superfamily GRAPSOIDEA MacLeay, 1838 .....	245
Family GRAPSIDAE MacLeay, 1838.....	245
Family PLAGUSIIDAE Dana, 1851 .....	246
Subfamily PERCNINAE Števcíć, 2005.....	246
Subfamily PLAGUSIINAE Dana, 1851.....	246
Family VARUNIDAE H. Milne Edwards, 1853 .....	247
Subfamily CYCLOGRAPSIDAE H. Milne Edwards, 1853 .....	247
Subfamily VARUNINAE H. Milne Edwards, 1853 .....	248
Family XENOGRAPSIDAE Ng, Davie, Schubart & Ng, 2007 .....	248
Superfamily OCYPODOIDEA Rafinesque, 1815.....	248
Family MACROPHTHALMIDAE Dana, 1851 .....	248
Subfamily MACROPHTHALMINAE Dana, 1851 .....	248
Family OCYPODIDAE Rafinesque, 1815 .....	249
Subfamily OCYPODINAE Rafinesque, 1815 .....	249
Superfamily PINNOTHEROIDEA De Haan, 1833 .....	249
Family PINNOTHERIDAE De Haan, 1833 .....	249
Subfamily PINNOTHERINAE De Haan, 1833 .....	249
<b>Acknowledgements</b> .....	249
<b>References</b> .....	250

## Introduction

This annotated checklist provides a list of the Recent Decapoda of the New Zealand region. It grew from unpublished lists of New Zealand decapods written by John Yaldwyn and circulated among specialists between 1973 and 1988. It has been regularly augmented until the present, and includes revisions, name changes, and new species and records for the region, published up to November 2010.

A list of New Zealand decapod species is also included in the second volume of the *New Zealand inventory of biodiversity* (see Webber *et al.* 2010). While this checklist includes most of the species listed in the *Inventory of biodiversity*, a few have been omitted because they have been found only beyond the confines of what we define as the New Zealand region (see Fig. 1). Conversely, and because taxonomic work on southwest Pacific decapods is currently highly active, this checklist includes some additional species described since the *Inventory of biodiversity* was completed.

The New Zealand region is confined within the coordinates 25°S and 57°S, and 157°E and 167°W (Fig. 1), but for our purposes it excludes areas in the northwest of this frame. As perceived here, the New Zealand region includes only the southern portions of the Lord Howe Rise and West Norfolk Ridge, excluding Lord Howe and Norfolk islands and the shallow waters surrounding them. Both areas have species in common with New Zealand but also have shallow, warm-water species not recorded in the New Zealand region. Therefore, the New Zealand region as defined in this paper encompasses features outside New Zealand's economic zone (NZ EEZ), including the Louisville Ridge to the northeast, ridges extending to the north, northwest and southwest, and trenches and abyssal plains that extend away from New Zealand, such as Macquarie Ridge and Macquarie Island, which are in Australian waters. The map in Fig. 1 differentiates only between waters shallower and deeper than 2000 m, to indicate clearly the extent of submarine features of the New Zealand 'continent'.

This checklist includes 488 species in 90 families. Among the named species, 153 (31%) are presently considered to be endemic. Five exotic species are recorded as having been introduced for commercial purposes, and a small number of accidentally introduced species that have become established are also listed. Exotic species that have been found, usually in harbours, but that have not established themselves, are excluded from the list.

## Methods

### Classification

An earlier manuscript of this paper followed the higher classification to decapod family level of Martin & Davis (2001), but fundamental changes have been made since then. Ng *et al.* (2008) updated the classification of the Brachyura, but the primary source of generic and higher classification used here is De Grave *et al.* (2009). However, even this has since been modified in two papers that have expanded the classification of the squat lobsters (Ahyong *et al.* 2010; Schnabel & Ahyong 2010). Further changes can be expected but, in the meantime, the classification of De Grave *et al.* (2009) and subsequent changes are adopted here, uncritically.

### Species included

Considering that many New Zealand decapods also occur in Australian waters, the presence of a species in both countries is noted in each species account in this checklist. Australian records are taken primarily from the *Zoological catalogue of Australia* (Davie 2002a,b) and *Marine decapod Crustacea of southern Australia* (Poore 2004). The latter account is of particular relevance because the temperate waters of southern Australia and New Zealand share many decapod species. Poore's work is an essential reference to these taxa, providing general accounts of families and descriptions of species, including illustrations of the diagnostic characters of each species. Some species are illustrated whole, often for the first time, with excellent drawings, and there are many colour photos.

A number of papers on New Zealand brachyuran species from deep water and, especially, on crabs of the Kermadec Islands have been published in the last five years (e.g. Takeda & Webber 2006; Ahyong 2008; McLay 2009). These papers have added considerably to the number of families, genera and species recorded from New Zealand. The Kermadec Ridge, now more readily included in New Zealand faunal lists than it was prior to the declaration of the '200-mile limit', has been a rich source of new taxa for the region. Further new records can be expected from there and inadequately sampled areas elsewhere, particularly in northern waters.

In 2009, following completion of her Ph.D. on the New Zealand squat lobsters (2009a), Kareen Schnabel published the first comprehensive account of the family Chirostylidae in New Zealand, taking the number of known species from seven to 15 (Schnabel 2009b). She is currently preparing further publications on the Galatheoidea. A very recent



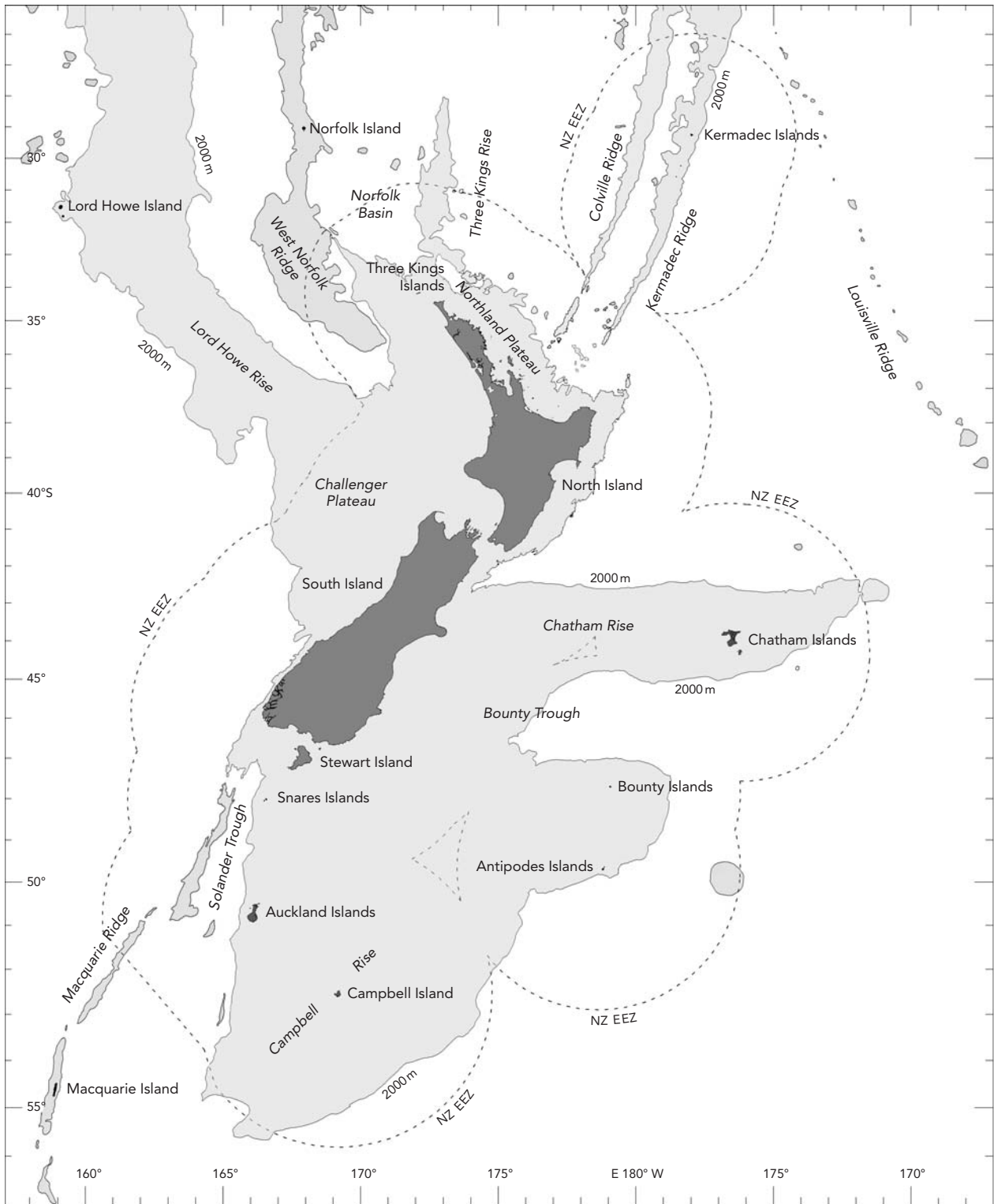


Fig. 1 The New Zealand region, indicating geographic features named in the text.

excellent monograph by Shane Ahyong on the lithodid crabs of Australasia and the Ross Sea (Ahyong 2010b) has completely redefined the New Zealand representatives of this family. Four of the seven species previously listed for New Zealand have remained, while the other three have been subsumed among nine new species from the region. Most recently, in October and November of 2010, both of these authors published papers on squat lobster classification (Ahyong *et al.* 2010; Schnabel & Ahyong 2010), as discussed above.

### Presentation

We give references to New Zealand records (*NZ reference(s)*) for species previously recorded from the region. In addition, to give readers an opportunity to locate illustrations, taxonomy and other biological information, we include references to the same species occurring outside New Zealand (*Other significant reference(s)*). References to figures are drawings unless indicated otherwise, and references to 'photo' indicate black and white photographs unless indicated otherwise.

The list of extant decapod species published by Webber *et al.* in the *New Zealand inventory of biodiversity* (Gordon 2010) includes new records and, as a consequence, no new records are indicated here. Since the species lists in both publications are virtually identical, reference to the *Inventory of biodiversity* is not made under each species account in this checklist. However, a small number of the new records listed in the *Inventory of biodiversity* are not accompanied by any other data; therefore, under those records in this checklist, we include the location of preserved specimens under the heading '*NZ material*', and make reference to the *Inventory of biodiversity*.

Data on geographical distribution, approximate or precise depth ranges and colour are also provided, where available. No references to descriptions or illustrations of larval (zoëa) or post-larval (megalopa) stages of decapods are included. Even so, New Zealand decapod larvae are comparatively well documented (see Webber *et al.* 2010 for lists of names, and references).

Throughout the text, in places where they fit taxonomically, a small number of notes on related subjects are inserted (e.g. a paragraph on lobster introductions appears after the listing of New Zealand Nephropidae). A number of illustrations, most by the authors, representing major taxonomic groups are inserted throughout the text, and are placed at the beginning of each of those groups.

### Abbreviations

EEZ	Exclusive Economic Zone
JCY	John C. Yaldwyn
MNZ	Museum of New Zealand Te Papa Tongarewa, Wellington
NIWA	National Institute of Water and Atmospheric Research, Wellington
NZ	New Zealand

## Checklist of New Zealand Decapoda

### Phylum ARTHROPODA

Subphylum CRUSTACEA Brünnich, 1772

Class MALACOSTRACA Latreille, 1802

Subclass EUMALACOSTRACA

Grobben, 1892

Superorder EUCARIDA Calman, 1904

Order DECAPODA Latreille, 1802

Suborder DENDROBRANCHIATA

Bate, 1888

Superfamily PENAEOIDEA Rafinesque, 1815

Family **ARISTEIDAE** Wood-Mason  
& Alcock, 1891

### *Aristaeomorpha foliacea* (Risso, 1827)

*NZ references*: Richardson & Yaldwyn (1958: 25) fig. 3 (female rostrum); Webber *et al.* (1990b: 8) fig. (whole animal and female rostrum); Webber (2002a: 75) fig. 1 (colour photo).

*Other significant references*: Crosnier (1978: 540) fig. 23a–b (female rostra), fig. 23c (male rostrum), figs 23d–f, 24; Pérez-Farfante & Kensley (1997: 36) fig. 5 (whole female), fig. 6; Dall (2001) fig. 2 (cephalothorax); Davie (2002a: 118) fig. page 117 (whole animal); Poore (2004: 25) fig. 3a (whole animal).

*Distribution*: northern NZ shelf edge and slope; sub-cosmopolitan, including Western, southern and eastern Australia. Fished commercially in Mediterranean and North Atlantic.

*Colour*: uniform pink or red with numerous dark red lensless photophores on ventral surface of body; specific photophore pattern shown in Crosnier (1978) fig. 23e–f.

### *Aristaeopsis edwardsiana* (Johnson, 1867) (Fig. 2)

*NZ references*: Webber *et al.* (1990b: 6) fig. (whole animal as *Plesiopenaeus edwardsianus*); Webber (2002c: 70) fig. 1 (colour photo).



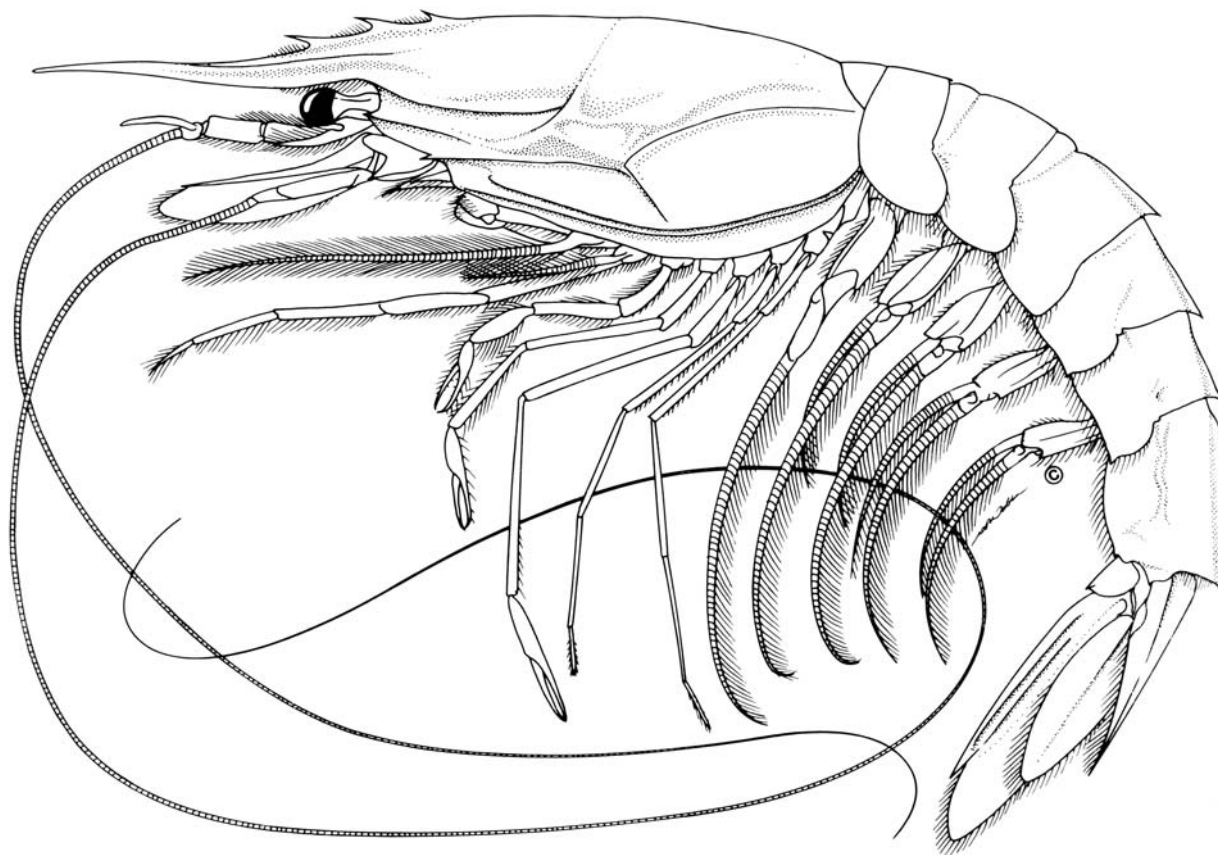


Fig. 2 Superfamily PENAEOIDEA: *Aristaeopsis edwardsiana* (Johnson, 1867) (drawn by W.R. Webber; from Webber *et al.* (1990b); reproduced with permission from New Zealand Ministry of Fisheries, Wellington).

*Other significant references:* Crosnier (1978: 88) figs 31a–c, 32a–c, 33a, as *Plesiopenaeus*; Pérez-Farfante & Kensley (1997: 39) fig. 7 (whole animal), fig. 8; Dall (2001: 413) fig. 3 (cephalothorax); Davie (2002a: 119); Poore (2004: 25) fig. 3b (carapace).

*Distribution:* northern and western NZ; deep water, benthic; Atlantic and Indo-West Pacific.

*Colour and size:* uniform bright red; largest NZ natant decapod.

***Aristeus semidentatus* Bate, 1881**

*NZ reference:* Bate (1888: 305) pl. 49, fig. 1 (whole animal with female rostrum), as *Hemipenaeus semidentatus*.

*Other significant references:* Crosnier (1978: 68); Kensley *et al.* (1987: 280).

*Distribution:* NZ, off Kermadec Islands; deep water; Indo-Pacific.

*Colour:* body pale rose or orange; pigmented lensless photophores on legs.

***Aristeus* sp.**

*NZ material:* specimens in MNZ.

*NZ references:* Webber *et al.* (1990b: 6); Webber (2002b: 71).

*Distribution:* northern and southern NZ, one or more unidentified large *Aristeus* spp., probably distinct from *A. semidentatus*.

***Austropenaeus* cf. *nitidus* (Barnard, 1947)**

*NZ material:* specimens in MNZ from West Norfolk Ridge.

*NZ reference:* Webber *et al.* (2010: 224).

*Other significant references to Austropenaeus nitidus:* Pérez-Farfante & Kensley (1997: 41) fig. 11 (whole animal), fig. 12; Dall (2001: 417) fig. 5 (cephalothorax, antennule); Davie (2002a: 120); Poore (2004: 27) fig. 3d (carapace).

*Distribution of Austropenaeus nitidus:* South Atlantic, southern Indian Ocean, and Western, southern and eastern Australia.

Family BENTHESICYMIDAE  
Wood-Mason & Alcock, 1891

***Benthesicymus cereus* Burkenroad, 1936**

*NZ references:* Bate (1888: 332), as *B. brasiliensis*, but identified specimens not the same as Bate's figured material; Burkenroad (1936: 30) numerous figs; Richardson & Yaldwyn (1958: 25) fig. 4 (carapace).

*Distribution:* off east coast North Island; Atlantic; abyssal-benthic.

***Benthesicymus investigatoris* Alcock & Anderson, 1899**

*NZ references:* Bate (1888: 236), as *B. altus*, but identified specimens not the same as Bate's figured material; Crosnier (1985: 857). *Challenger* specimens from Kermadec stations 170, 171 reidentified as *B. investigatoris* in text on *B. altus*.

*Other significant references:* Crosnier (1978: 21) figs 7c–d, 8c–d, 9–10; Dall (2001: 427) fig. 12 (cephalothorax); Davie (2002a: 125); Poore (2004: 30) fig. 4a (carapace).

*Distribution:* off Kermadec Islands; deep water; Indo-Pacific.

***Gennadas capensis* Calman, 1925**

*NZ material:* specimens in MNZ.

*NZ reference:* Webber *et al.* (2010: 224).

*Other significant references:* Kensley *et al.* (1987: 277); Poore (2004: 30) fig. 4c (petasma, thelycum).

*Distribution:* northern NZ; South Atlantic and southern Indo-Pacific; bathypelagic.

***Gennadas gilchristi* Calman, 1925**

*NZ reference:* Richardson & Yaldwyn (1958: 25) fig. 5.

*Other significant references:* Kensley (1971a: 280) fig. 6; Kensley *et al.* (1987: 39); Dall (2001: 431) fig. 16A–C (carapace anterior, petasma, thelycum); Davie (2002a: 126); Poore (2004: 30) fig. 4d (petasma, thelycum).

*Distribution:* NZ; South Atlantic and southern Indo-Pacific; bathypelagic.

*Colour:* overall bright red with blue patches on abdomen, and numerous deep blue lensless photophores on body and appendages.

***Gennadas incertus* (Balss, 1927)**

*NZ material:* specimens in MNZ.

*NZ reference:* Webber *et al.* (2010: 224).

*Other significant references:* Kensley *et al.* (1987: 278); Dall (2001: 432) fig. 17A–C (carapace anterior, petasma, thelycum); Davie (2002a: 126); Poore (2004: 30) fig. 4h (petasma, thelycum).

*Distribution:* northern NZ; South Atlantic and southern Indo-Pacific; meso- and bathypelagic.

***Gennadas kempfi* Stebbing, 1914**

*NZ reference:* Richardson & Yaldwyn (1958: 25).

*Other significant references:* Kensley (1971a: 285) fig. 8a–e (petasma, thelycum, other diagnostic characters); Kensley *et al.* (1987: 278); Dall (2001: 432) fig. 18A–C (carapace anterior, petasma, thelycum); Davie (2002a: 126); Poore (2004: 30) fig. 4f (petasma, thelycum).

*Distribution:* central NZ; South Atlantic and southern Indo-Pacific; bathypelagic.

*Colour:* overall bright red with no blue on abdomen, but with deep blue lens-less photophores on appendages.

***Gennadas tinayrei* Bouvier, 1906**

*NZ material:* specimens in MNZ.

*NZ reference:* Webber *et al.* (2010: 224).

*Other significant references:* Kensley *et al.* (1987: 279); Dall (2001: 435) fig. 21A–C (carapace anterior, petasma, thelycum); Davie (2002a: 127); Poore (2004: 31) fig. 4i (petasma and thelycum).

*Distribution:* northern NZ; South Atlantic and southern Indo-Pacific; mesopelagic.

Family PENAEIDAE Rafinesque, 1815

***Funchalia villosa* (Bouvier, 1905)**

*NZ material:* specimens in MNZ.

*NZ reference:* Webber *et al.* (2010: 224).

*Other significant references:* Crosnier (1985: 869) fig. 13 (cephalothorax, petasma, appendix masculina), fig. 14b–c (female thoracic sternite); Kensley *et al.* (1987: 281); Davie (2002a: 134); Poore (2004: 35) fig. 5b (carapace).

*Distribution:* NZ; Australia, Atlantic and southern Indian Ocean; pelagic and mesopelagic.

***Funchalia woodwardi* Johnson, 1867**

*NZ references:* Robertson *et al.* (1978: 299); Webber *et al.* (1990b: 140) figs (whole animal; distribution map for *F. villosa* and *F. woodwardi*).

*Other significant references:* Kensley *et al.* (1987: 282); Pérez-Farfante & Kensley (1997: 85) fig. 43 (whole animal), fig. 45 (petasma, thelycum); Davie (2002a: 134); Poore (2004: 35) fig. 5c (carapace).

*Distribution:* northern and southern NZ; Indo-West Pacific and Atlantic; pelagic and mesopelagic.

*Colour:* transparent with areas of pink, orange and yellow.

**Notes:** there was a short-term attempt to farm a 'saltwater king prawn' from Hong Kong, understood to have been the penaeid *Fenneropenaeus chinensis* (Osbeck, 1765), at South Kaipara Heads in the early 1990s. The attempt failed and the stock was destroyed.

Family **SICYONIIDAE** Ortmann, 1898***Sicyonia inflexa*** (Kubo, 1949)

*NZ reference:* Dall (2005: 415).

*Other significant reference:* Kubo (1949: 458) figs 8O, 48D, 77C–I, 79G (diagnostic characters), fig. 159 (female, lateral view), fig. 160 (rostral variation).

*Distribution:* Cape Reinga, West Norfolk and Norfolk ridges, Lord Howe Rise; Indian Ocean, western Pacific, south-west Pacific from Chesterfield Islands to Tonga.

***Sicyonia truncata*** (Kubo, 1949)

*NZ material:* specimens at NIWA.

*NZ reference:* Webber *et al.* (2010: 224).

*Other significant reference:* Dall (2005: 415) (occurrence in northern Tasman Sea); Kubo (1949: 456) figs 8M, 48F, 77A–G, 79J (diagnostic characters), fig. 158 (female, lateral view).

*Distribution:* northeastern NZ and eastern North Island; Norfolk Island, western Indian Ocean, Indonesia, north-west Australia, northern Pacific, and southwest Pacific from Fiji to Chesterfield Reef.

Family **SOLENOCERIDAE**  
Wood-Mason & Alcock, 1891***Haliporoides sibogae*** (de Man, 1907)

*NZ references:* Richardson & Yaldwyn (1958: 24) fig. 2 (carapace), as *Hymenopenaeus*; Webber *et al.* (1990b: 10) fig. (whole animal); (Webber 2002b: 76) fig. 2 (colour photo, whole animal).

*Other significant references:* Crosnier (1978: 108) fig. 36a (carapace), as *Hymenopenaeus* when discussing differences between *H. sibogae sensu stricto* and a new subspecies *H. s. madagascariensis*; Kensley *et al.* (1987: 269) figs 3A–E, 4A–F, 5A–F (diagnostic characters), as subspecies *H. s. australiensis*; Dall (1999: 562) fig. 6B (cephalothorax); Davie (2002a: 166); Poore (2004: 44) fig. 7e (carapace).

*Distribution:* NZ south to Chatham Rise; Indo-West Pacific. Fished commercially in Japan and Australia.

*Colour:* reddish pink with colourless to yellow-orange patches on abdomen.

*Status:* subspecific status of NZ material not yet established.

***Hymenopenaeus halli*** Bruce, 1966

*NZ material:* specimen in MNZ from northwestern Bay of Plenty.

*NZ reference:* Webber *et al.* (2010)

*Other significant references:* Bruce (1966: 216) fig. 1 (whole animal), fig. 2 (diagnostic characters); Kensley *et al.*

(1987); Dall (1999: 566) fig. 8B (cephalothorax); Davie (2002a: 167); Poore (2004: 44) fig. 7f (cephalothorax).

*Distribution:* North Island; Indo-West Pacific, including eastern Australia.

***Hymenopenaeus obliquirostris*** (Bate, 1881)

*NZ references:* Bate (1888: 286) pl. XLI, fig. 2 (whole animal as *Haliporus*); Crosnier (1989: 48) fig. 4a (female thoracic sternite); Crosnier & Dall (2004: 3) fig. 3a (female cephalothorax), fig. 3b (female rostrum), fig. 4a–g (thelycum, female sternites), fig. 5a–e (petasma, petasma distal lobes), fig. 9a (eye).

*Distribution:* off Kermadec Islands; Indo-West Pacific; deep water.

***Solenocera comata*** Stebbing, 1915

*NZ references:* Richardson & Yaldwyn (1958: 24) fig. 1 (cephalothorax), as *S. novaezealandiae*; Webber *et al.* (1990b: 12) fig. (whole animal), as *S. novaezealandiae*.

*Other significant references:* Crosnier (1978: 138) fig. 48b (cephalothorax), figs 49–59 (various characters, compared to other *Solenocera* spp.); Crosnier (1989: 52) (*S. novaezealandiae* synonymised with *S. comata*); Dall (1999: 577) fig. 16 (cephalothorax); Davie (2002a: 169).

*Distribution:* northern NZ, shelf and slope; Indo-West Pacific.

Superfamily **SERGESTOIDEA** Dana, 1852Family **LUCIFERIDAE** De Haan, 1849***Lucifer typus*** H. Milne Edwards, 1837

*NZ references:* Bate (1888: pl. 83) fig. 1 (whole animal); Borradaile (1916: 82), as *Leucifer batei*; Richardson & Yaldwyn (1958: 23) fig. 10 (cephalothorax).

*Other significant references:* Kensley (1971b: 223) fig. 2a–d (cephalothorax, other diagnostic characters); Pérez-Farfante & Kensley (1997: 185) figs 126–127 (whole animal, petasma); Davie (2002a: 129) fig. page 128 (whole animal after Bate 1888); Poore (2004: 45) fig. 7j (male abdominal somite 6).

*Distribution:* northern NZ; Atlantic, Indo-West Pacific, eastern Pacific; pelagic.

Family **SERGESTIDAE** Dana, 1852***Sergestes arcticus*** Krøyer, 1855

*NZ references:* Yaldwyn (1957a: 9) figs 1–5 (diagnostic characters); Webber *et al.* (1990b: 18) fig. (whole animal).

*Other significant references:* Hansen (1922: 62) pl. 1, figs 1–2 (colour figs, whole animal), pl. 3, fig. 3; Kensley (1971b:



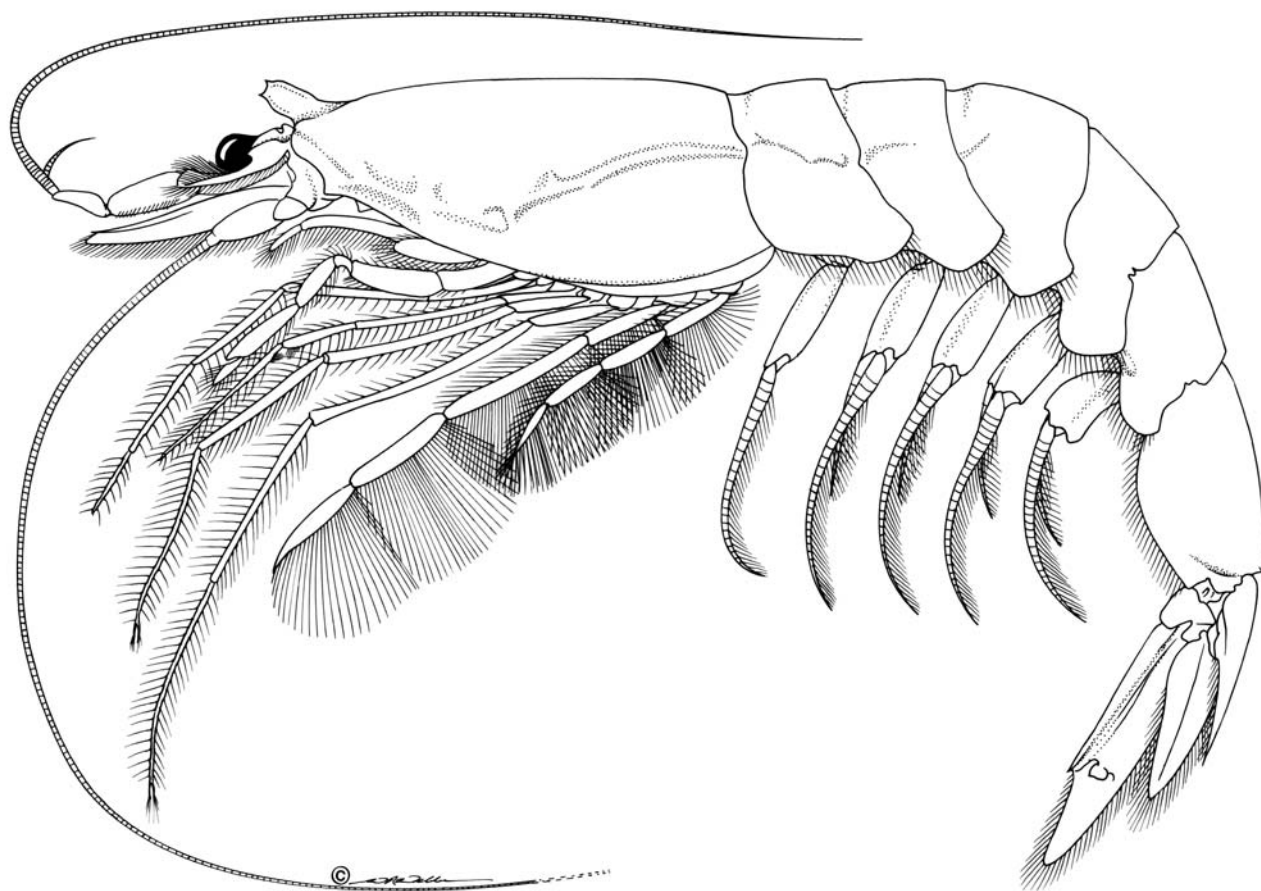


Fig. 3 Superfamily SERGESTOIDEA: *Sergia potens* (Burkenroad, 1940) (drawn by W.R. Webber; from Webber *et al.* (1990b); reproduced with permission from New Zealand Ministry of Fisheries, Wellington).

232) fig. 7a–f (diagnostic characters); Davie (2002a: 155); Poore (2004: 48).

*Distribution*: northern and southern NZ; Atlantic and southern Indo-West Pacific; bathypelagic.

*Colour*: transparent with scattered red chromatophores and bright red organs of Pesta (internal light-producing bodies within the cephalothorax).

***Sergestes disjunctus* Burkenroad, 1940**

*NZ reference*: Burkenroad (1940: 38).

*Other significant references*: Kensley (1971b: 236) fig. 11a–d (diagnostic characters); Wasmer (1993: 57) figs 7–8; Davie (2002a: 156); Poore (2004: 48).

*Distribution*: northern NZ; South Atlantic and southern Indo-West Pacific; bathypelagic.

***Sergestes index* Burkenroad, 1940**

*NZ reference*: Burkenroad (1940: 41).

*Other significant reference*: Pérez-Farfante & Kensley (1997: 197).

*Distribution*: northern NZ; northwest Pacific; bathypelagic.

***Sergestes cf. seminudus* Hansen, 1919**

*NZ references*: Yaldwyn (1957a: 14) fig. 10 (carapace); Richardson & Yaldwyn (1958: 26) fig. 7 (carapace); Robertson *et al.* (1978: 299), as *S. seminudus*.

*Other significant references to Sergestes seminudus*: Hansen (1919: 18) pls 1a–b, 2a–f (diagnostic characters); Sakai & Nakano (1985: 18) figs 1a–e, 2a–e, 3a–f, 4a–f, 5a–d (whole animal, numerous diagnostic characters including petasmas and female sterna); Davie (2002a: 157) fig. page 128 (whole animal after Sakai & Nagano 1985); Poore (2004: 48).

*Distribution of Sergestes seminudus*: Indo-West Pacific; bathypelagic.

*Colour of NZ specimen*: red chromatophores scattered over body and appendages, posterior half of dorsal surface of carapace with purplish-blue cuticular pigment, pigmented internal organs of Pesta present.

***Sergia japonica* (Bate, 1881)**

NZ reference: Yaldwyn (1957a: 22) figs 6–9 (carapace, front, petasma), as *Sergestes* (*Sergia*) *japonicus*.

Other significant references: Sakai & Nakano (1983: 98) figs 2a–e, 3a–c, 4a–f, 5a–f (diagnostic characters), as *Sergestes* (*Sergia*) *japonicus*; Vereshchaka (2000: 91) figs 8, 9A–C, 10A–C (diagnostic characters), fig. 11 (map, distribution), pl. 4A (SEM, petasma); Davie (2002a: 157); Poore (2004: 51) fig. 9f (end of uropodal exopod).

Distribution: NZ; Indo-West Pacific; bathypelagic.

Colour: entire body and appendages bright red; no pigmented lensless photophores present.

***Sergia tenuiremis* (Krøyer, 1855)**

NZ references: Bate (1888: 388) pl. 70, figs 3–4 (whole animal and diagnostic characters), as *Sergestes kroyeri*; Robertson *et al.* (1978: 299), as *Sergestes kroyeri*.

Other significant references: Hansen (1903: 58) pl. 11, fig. 5a–b, as *Sergestes kroyeri*; Vereshchaka (2000: 84) figs 3A–C, 4A,C (diagnostic characters), fig. 5 (map, distribution).

Distribution: off Kermadec Islands and eastern central NZ; bathypelagic.

Note: *Sergestes kroyeri* Bate, 1881, regarded by Vereshchaka (1994, 2000) as a synonym of *Sergia tenuiremis*, is from North Atlantic and north-West Pacific.

***Sergia potens* (Burkenroad, 1940) (Fig. 3)**

NZ references: Yaldwyn (1957a: 15) figs 11–18 (carapace, other diagnostic characters), as *Sergestes* (*Sergia*) *potens*; Webber *et al.* (1990b: 16) fig. (whole animal); Webber (2002c: 71) fig. 2 (colour photo, whole animal).

Other significant references: Kensley (1971b: 253) fig. 19a–f (carapace and other diagnostic characters); Wasmer (1993: 61); Davie (2002a: 158); Poore (2004: 51) fig. 9e–f (front of carapace, uropod tip).

Distribution: northern and southern NZ; South Atlantic and southern Indo-West Pacific; bathypelagic.

Colour: entire body and appendages bright red, with numerous intense purple lensless photophores on ventral surface of body and on appendages; unique specific photophore pattern shown in Yaldwyn (1957a) figs 12–14, 18.

## Suborder PLEOCYEMATA Burkenroad, 1963

## Infraorder STENOPODIDEA Bate, 1888

## Family SPONGICOLIDAE Schram, 1986

***Spongicoloides novaehollandiae* Baba, 1979**

NZ references: Baba (1979: 311) figs 1a–j, 2a–e (diagnostic characters); Poore (2004: 146) fig. 38b–c (carapace).

Distribution: Chatham Rise, 990–1110m; Tasmanian seamounts.

Colour: body almost colourless, cornea yellow.

***Spongiocaris yaldwyni* Bruce & Baba, 1973**

NZ reference: Bruce & Baba (1973: 163) figs 7, 8a–g, 9a–g, 10a–b (whole animal, diagnostic characters).

Distribution: only published record is the holotype taken from inside a hexactinellid sponge (i.e. venus flower basket) in the Bay of Plenty, 585–620 m (hence ‘venus shrimp’ as common name for spongiolid shrimps, *vide* Poore 2004). Additional specimens in MNZ collections from off Raoul Island in the Kermadecs (1190–1225 m), Reinga Ridge northwest of the Three Kings Islands (469–526 m) and Hawke Bay (840–935 m).

## Family STENOPODIDAE Claus, 1872

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

NZ references: Yaldwyn (1968: 279); Doak (1971) pl. 39D (colour photo, with blue egg mass); Yaldwyn (1974: 1044) fig. 1 (colour photo, whole animal).

Other significant references: Gillett & Yaldwyn (1969: 70) pl. 33 (colour photo, whole animal); Healy & Yaldwyn (1970: 52) pl. 24 (colour photo, whole animal); Holthuis (1993: 311) fig. page 316 (whole animal, from Bate 1888); Jones & Morgan (1994: 76) (colour photos, whole animal); Davie (2002a: 177) fig. page 175 (whole animal after Bate 1888); Poore (2004: 149) fig. 38 (rostrum), pl. 11b (colour photo, live specimen in habitat).

Distribution: east coast of Northland, NZ, rocky crevices at diving depths; tropical Indo-Pacific and tropical western Atlantic, shallow water rocky shores and coral reefs.

Colour and biology: *Stenopus hispidus* is the widely distributed and much illustrated ‘banded coral shrimp’ of books and publications on shallow-water tropical marine life. Body white with prominent broad red bands on carapace, abdomen and enlarged chelipeds; white antennae (six branches to each animal) long and obvious; eggs blue. *Stenopus hispidus* is the best known of the fish-cleaning shrimps (*vide* Yaldwyn 1968), attracting fish to their crevice with waving white antennae; the fish remain still while the shrimp picks with its two pairs of small chelae (it does not use the large banded chelipeds for cleaning) at parasites, injured tissue and fungal growths on their bodies and fins. *Stenopus* advertises its services with its antennae but does not appear to venture far from its crevice to clean. It reaches out to the fish that in some

localities appear to congregate around known *Stenopus* cleaning sites, assuming a 'head-down' pose to signal their need to be cleaned.

Infraorder CARIDEA Dana, 1852

Superfamily PASIPHAEOIDEA Dana, 1852

Family PASIPHAEIDAE Dana, 1852

***Alainopasiphaea australis* (Hanamura, 1989)**

*NZ reference*: Ah Yong (2010a: 355) fig. 4G–H (anterior of carapace).

*Other significant references*: Hanamura (1989: 59) fig. 5a (holotype ovigerous female body), fig. 5b (paratype male anterior part), figs 6a–h, 7a–h (diagnostic characters), as *Pasiphaea*; Hayashi (2004: 369) fig. 26a (female front of cephalothorax), fig. 26b (abdominal somites 5–6), fig. 26c,d (male P1), fig. 26e (P2), fig. 26f (gills); Poore (2004: 61) fig. 12f (epipod P1), fig. 12g (epipod P2), fig. 12h (chela P2), as *Pasiphaea australis*.

*Distribution*: Chatham Rise and Challenger Plateau, 552–797 m, probably elsewhere in NZ; southern Australia.

***Eupasiphae gilesii* (Wood-Mason, 1892)**

*NZ material*: specimens in MNZ from NZ waters.

*NZ reference*: Webber *et al.* (2010: 225)

*Other significant references*: Kensley (1977: 32) fig. 10B (cephalothorax with appendages of right side); Kensley *et al.* (1987: 293); Crosnier (1988: 786) figs 1, 5a; Hanamura & Evans (1994: 52) fig. 1 (mature male); Davie (2002a: 354); Poore (2004: 59) fig. 12c (carapace).

*Distribution*: NZ; tropical and subtropical waters of Atlantic and Indo-West Pacific, and eastern Pacific off Baja California; bathypelagic.

*Colour*: uniform red.

***Parapasiphae compta* Smith, 1884**

*NZ reference*: Yaldwyn *in* Imber (1973: 652), as ?*Dantecia* sp.

*Other significant reference*: Crosnier (1988: 799) figs 1–3.

*Distribution*: northern NZ, from grey-faced petrel vomit; previously known only from deep water in North Atlantic.

***Parapasiphae sulcatifrons* Smith, 1884**

*NZ reference*: Yaldwyn *in* Imber (1973: 652), as *Parapasiphae* sp.

*Other significant references*: Crosnier & Forest (1973: 142) fig. 41 (carapace); Kensley *et al.* (1987: 293); Holthuis (1993: 27) fig. 8 (whole animal); Davie (2002a: 357) fig. page 353 (whole animal); Poore (2004: 61) fig. 12e (carapace).

*Distribution*: NZ; North and South Atlantic, Indo-Pacific and eastern Pacific; usually deep-water pelagic but also from grey-faced petrel vomit.

*Colour*: uniform red.

***Pasiphaea barnardi* Yaldwyn, 1971**

*NZ references*: Richardson & Yaldwyn (1958: 29) fig. 12 (carapace), as *P. aff. pacifica*; Yaldwyn (1971: 86); Webber (2002c: 71) fig. 3 (colour photo, whole animal).

*Other significant references*: Kensley (1977: 34) figs 11, 12A–L, 13, 14A–B (whole animal, diagnostic characters), as *P. meiringnaudei*; Kensley *et al.* (1987) front pl. A (colour photo, whole animal), as *P. berentsae*, figs 7A–H, 8A–L, 9A–H (diagnostic characters), as *P. berentsae*; Davie (2002a); Poore (2004) fig. 12i (pereopod 2).

*Distribution*: southern NZ; southern Indo-West Pacific and South Atlantic; bathypelagic.

*Colour*: usually uniform red, but abdomen sometimes partly red and partly translucent.

***Pasiphaea burukovskyi* Wasmer, 1993**

*NZ reference*: Wasmer (1993: 79) figs 22–24.

*Distribution*: known only from type locality at edge of Challenger Plateau, west of Cape Farewell; bathypelagic.

***Pasiphaea grandicula* Burukovsky, 1976**

*NZ material*: specimens in MNZ from southern slope of Chatham Rise, southeast of Banks Peninsula, and Challenger Plateau.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Burukovsky (1976: 17) fig. 1; Burukovsky & Romensky (1987: 51) figs 2.3, 3.4; Clarke & Holmes (1987: 23).

*Distribution*: NZ; Southern Ocean, both Atlantic and Pacific sectors; bathypelagic.

***Pasiphaea notosivado* Yaldwyn, 1971**

*NZ references*: Richardson & Yaldwyn (1958: 29) fig. 11 (carapace), as *P. aff. sivado*; Yaldwyn (1971: 29).

*Distribution*: NZ; bathypelagic.

*Colour*: transparent, with irregularly scattered red chromatophores.

***Pasiphaea tarda* Krøyer, 1845**

*NZ material*: specimens in MNZ from NZ waters.

*NZ references*: Webber *et al.* (1990b: 20) fig. (whole animal as *P. barnardi*, but not *P. barnardi* Yaldwyn); Webber *et al.* (2010: 225).



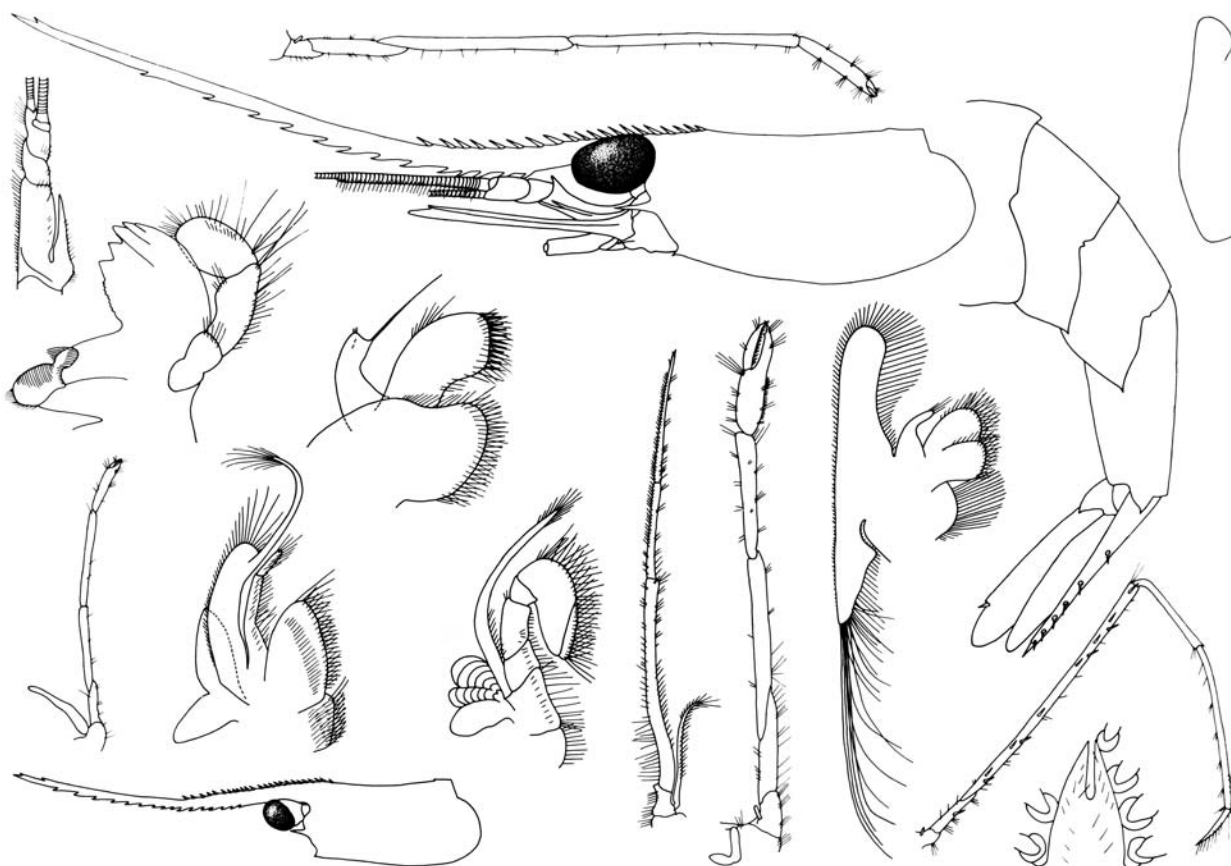


Fig. 4 Infraorder CARIDEA: *Lipkius holthuisi* Yaldwyn, 1960 (drawn by J.C. Yaldwyn; from Yaldwyn (1960); reproduced with permission from National Institute of Water and Atmospheric Research Ltd, Hamilton).

*Other significant references:* Sivertsen & Holthuis (1956: 23) fig. 17a–f (various rostra); Crosnier & Forest (1973: 133) fig. 37a–g (carapace and diagnostic characters), as *P. cf. tarda*; Squires (1990) fig. 61 (whole animal) fig. 62, pl. 1b (colour photo, whole animal); Davie (2002a: 359); Poore (2004: 62).

*Distribution:* NZ; North and South Atlantic, North Pacific and southern Indo-West Pacific; bathypelagic.

*Colour:* uniform red.

***Psathyrocaris infirma* Alcock & Anderson, 1894**

*NZ material:* specimens in MNZ from NZ waters.

*NZ reference:* Webber *et al.* (2010: 225)

*Other significant references:* Holthuis (1951: 14) fig. 2; Crosnier & Forest (1973: 141) fig. 40e; Holthuis (1993: 29) fig. 10 (whole animal).

*Distribution:* NZ; North and South Atlantic, and Indo-West Pacific; bathypelagic.

*Colour:* uniform red.

Superfamily OPLOPHOROIDEA Dana, 1852

Family OPLOPHORIDAE Dana, 1852

***Acanthephyra brevirostris* Smith, 1885**

*NZ material:* *Galathea* bottom station 661, Kermadec Trench, 5230–5340 m, specimen in University Zoological Museum, Copenhagen, identified by JCY in 1974.

*NZ reference:* Webber *et al.* (2010: 225).

*Other significant reference:* Crosnier & Forest (1973: 41) fig. 8c–d.

*Distribution:* NZ; southern Indo-West Pacific, eastern Pacific, and North and South Atlantic; bathypelagic or near benthic.

***Acanthephyra eximia* Smith, 1884**

*NZ references:* Bate (1888: 753) pl. 126, fig. 7 (whole animal), as *A. brachytelsonis*; Richardson & Yaldwyn (1958: 30).

*Other significant references:* Chace (1940: 147) fig. 24 (whole animal); Crosnier & Forest (1973: 34) fig. 7c–d; Chace

(1986: 18) figs 2, 4–6, 9 (appendages compared to other spp.); Davie (2002a: 281).

*Distribution*: northern and central NZ; Indo-Pacific, and North and South Atlantic; bathypelagic.

*Colour*: uniform red.

***Acanthephyra pelagica* (Risso, 1816)**

*NZ references*: Bate (1888: 739) pl. 125, fig. 1 (whole animal as *A. sica*); Richardson & Yaldwyn (1958: 30) fig. 15 (carapace); Webber *et al.* (1990b: 26) fig. (whole animal); Webber (2002b) fig. 4 (colour photo, whole animal).

*Other significant references*: Chace (1986: 8) figs 3–5, 7, 9 (appendages compared to other spp.); Wasmer (1986) figs 7–8; Kensley *et al.* (1987: 284).

*Distribution*: northern and southern NZ; Indo-Pacific, and North and South Atlantic; bathypelagic.

*Colour*: uniform red.

***Acanthephyra quadrispinosa* Kemp, 1939**

*NZ references*: Richardson & Yaldwyn (1958: 30); Webber *et al.* (1990b: 26) fig. (telson compared to *A. pelagica*, map, distribution).

*Other significant references*: Chace (1986: 26) figs 3–5, 7, 10 (appendages compared to other spp.), fig. 14 (whole animal); Wasmer (1986) figs 5, 6; Kensley *et al.* (1987: 284); Poore (2004: 64) figs 13a, 14l (whole animal, telson).

*Distribution*: northern and central NZ; South Atlantic, and Indo-Pacific including Western, southern and eastern Australia; bathypelagic.

*Colour*: uniform red.

***Acanthephyra smithi* Kemp, 1939**

*NZ material*: specimen in MNZ from within EEZ north of Kermadec Islands; additional specimens from beyond EEZ between Kermadecs and Tonga.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Hayashi & Miyake (1969: 62) fig. 2 (whole animal); Chace (1986: 31) figs 3–5, 7, 10 (appendages compared to other spp.); Hanamura (1987) fig. 9a–b; Kensley *et al.* (1987: 285); Davie (2002a: 282); Poore (2004: 66).

*Distribution*: off Kermadec Islands; Indo-West Pacific including Western and eastern Australia; bathypelagic.

***Ephyrina fueirai* Crosnier & Forest, 1973**

*NZ material*: specimens in MNZ from northern NZ waters.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Crosnier & Forest (1973: 73) figs 20b, 21g–h, 22c–d, 23; Chace (1986: 35) fig. 15i–m.

*Distribution*: NZ; Indo-West Pacific and North Atlantic; bathypelagic.

*Colour*: uniform red.

***Heterogenys microphthalma* (Smith, 1885)**

*NZ material*: *Galathea* bottom station 661, Kermadec Trench, 5230–5340 m, specimens in University Zoological Museum, Copenhagen, identified by JCY in 1974.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Crosnier & Forest (1973: 42) fig. 9, as *Acanthephyra microphthalma*; Chace (1986: 38) fig. 20; Holthuis (1993: 35) fig. 13 (animal without legs or pleopods).

*Distribution*: NZ; Indo-Pacific, eastern Pacific and North Atlantic; bathypelagic or near benthic.

***Hymenodora glacialis* (Buchholz, 1874)**

*NZ material*: *Galathea* bottom station 661, Kermadec Trench, 5230–5340 m, specimen in University Zoological Museum, Copenhagen, identified by JCY in 1974.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Crosnier & Forest (1973: 84) fig. 25b; Chace (1986: 42); Wasmer (1986: 48) figs 10a, 11; Holthuis (1993: 35) fig. 14 (whole animal).

*Distribution*: NZ; Indo-Pacific including Pacific sector of Southern Ocean, Western and eastern Australia, eastern Pacific, North and South Atlantic; bathypelagic or near benthic.

***Janicella spinicauda* (A. Milne-Edwards, 1883)**

*NZ material*: specimens in MNZ from within EEZ north-west of Kermadec Islands.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Chace (1986: 44) figs 23, 24; Hanamura (1987: 26) figs 10, 11; Kensley *et al.* (1987: 285); Holthuis (1993: 36) fig. 15 (whole animal); Davie (2002a: 284) fig. page 278 (whole animal, from Boone 1927).

*Distribution*: off Kermadec Islands; Indo-West Pacific including Western and eastern Australia, and tropical Atlantic; bathypelagic.

***Kemphyra corallina* (A. Milne-Edwards, 1883)**

*NZ material*: specimens in NIWA collection from bottom station, 1571–1619 m, within EEZ southwest of Kermadec Islands; in MNZ from West Norfolk Ridge, 1700 m.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Kensley (1968: 314) fig. 15 (whole animal), fig. 17, as *Acanthephyra*; Chace (1986: 44) fig. 25; Holthuis (1993: 37) fig. 16 (whole animal).

*Distribution*: off Kermadec Islands; North and South Atlantic, and Indo-West Pacific; bathypelagic or near benthic.

***Meningodora mollis* Smith, 1882**

*NZ material*: specimen in MNZ from within EEZ northeast of Kermadec Islands.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Crosnier & Forest (1973: 44) fig. 10c; Chace (1986: 50) fig. 26; Kensley *et al.* (1987: 285); Holthuis (1993: 37) fig. 17 (whole animal); Davie (2002a: 284).

*Distribution*: off Kermadec Islands; North and South Atlantic, Indo-West Pacific including eastern Australia, and eastern Pacific; bathypelagic.

***Meningodora vesca* (Smith, 1886)**

*NZ material*: specimens in MNZ from off east coast of North Island.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Crosnier & Forest (1973: 46) fig. 10d; Chace (1986: 50) fig. 27; Kensley *et al.* (1987: 286); Davie (2002a: 284); Poore (2004: 67) fig. 14e (carapace).

*Distribution*: NZ; North and South Atlantic, and Indo-West Pacific; bathypelagic.

*Colour of a NZ specimen*: bluish green.

***Notostomus auriculatus* Barnard, 1950**

*NZ references*: Richardson & Yaldwyn (1958: 31) fig. 16 (carapace), as *N. cf. westergreni*; Webber *et al.* (1990b: 24) figs (whole animal, map, distribution).

*Other significant references*: Macpherson (1984: 51) figs 6B, 7B, 8C–D; Wasmer (1993: 71) figs 14, 17; Davie (2002a: 285); Poore (2004: 67) fig. 13b (whole animal).

*Distribution*: NZ; South Atlantic and southern Indo-West Pacific; bathypelagic.

*Colour*: uniform red.

***Notostomus japonicus* Bate, 1888**

*NZ material*: specimens in MNZ from NZ waters.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Yaldwyn (1963: 149) fig. (photo, whole animal), as *Notostomus* sp.; Stevens & Chace (1965: 278) figs 2–4; Crosnier (1987: 708) fig. 5a.

*Distribution*: NZ; North and South Pacific, and eastern Pacific; bathypelagic.

*Colour*: uniform red.

***Oplophorus novaezeelandiae* de Man, 1931**

*NZ references*: de Man (1931: 369) fig. 1 (whole animal), fig. 20, as *Hoplophorus*; Richardson & Yaldwyn (1958: 30) fig. 14 (carapace); Webber *et al.* (1990b: 22) fig. (whole animal, map, distribution).

*Other significant references*: Crosnier & Forest (1973: 26) fig. 5 (whole animal); Wasmer (1986: 37) figs 3a–c, 4; Kensley *et al.* (1987: 289); Davie (2002a: 286); Poore (2004: 68) fig. 13c (cephalothorax, abdomen without appendages), fig. 14j (scaphocerite).

*Distribution*: NZ; South Atlantic, southern Indo-Pacific including Western, southern and eastern Australia, and southeastern Pacific; bathypelagic.

*Colour*: carapace and anterior part of abdomen mainly red, posterior part of abdomen mainly translucent, eggs red; distinctive pattern of lens-bearing, dark blue-pigmented photophores on body and appendages. This species is capable of discharging short-lived clouds of luminous matter from glands near the mouth.

***Oplophorus spinosus* (Brullé, 1839)**

*NZ references*: Robertson *et al.* (1978: 299), as *O. grimaldii*; Webber *et al.* (1990b: 22) fig. (front, distinguishing features, map, distribution with that of *O. novaezeelandiae*).

*Other significant references*: Kensley *et al.* (1987: 289); Squires (1990: 90) fig. 43 (whole animal), fig. 44; Holthuis (1993: 39) fig. 19 (whole animal); Davie (2002a: 287); Poore (2004: 68) fig. 14k (scaphocerite).

*Distribution*: NZ; North and South Atlantic, Indo-Pacific including eastern Australia, and eastern Pacific; bathypelagic.

***Systellaspis debilis* (A. Milne-Edwards, 1881)**

*NZ references*: Richardson & Yaldwyn (1958: 31) fig. 17 (carapace); Webber *et al.* (1990b: 28) figs (whole animal, map, distribution).

*Other significant references*: Chace (1986: 65) figs 34g–i, 35e–f; Crosnier (1987: 715) figs 9, 10; Kensley *et al.* (1987: 290); Holthuis (1993: 39) fig. 20 (whole animal); Davie (2002a: 287); Poore (2004: 68) fig. 14h,n (carapace, telson).

*Distribution*: NZ; North Atlantic, and Indo-Pacific including Western, southern and eastern Australia; bathypelagic.

*Colour*: partly red, partly translucent; distinctive pattern of dark blue-pigmented photophores on body and appendages.

***Systellaspis pellucida* (Filhol, 1885)**

*NZ reference*: Webber *et al.* (1990b: 28) (map, distribution with that of *S. debilis*).

*Other significant references*: Crosnier & Forest (1973: 92) figs 26c, 27c; Chace (1986: 67) figs 34m–o, 35g–h; Crosnier (1987: 720) figs 12–15; Davie (2002a: 287).

*Distribution*: NZ; North Atlantic, and Indo-West Pacific including Western Australia; bathypelagic or near benthic.

Superfamily ATYOIDEA De Haan, 1849

Family ATYIDAE De Haan, 1849

*Paratya curvirostris* (Heller, 1862)

*NZ references:* Thomson (1903) pl. 29B; Kemp (1917) fig. 4; Bouvier (1925) figs 87–91; Richardson & Yaldwyn (1958: 30) fig. 13 (carapace).

*Distribution:* endemic, fresh waters from Northland to Stewart Island/Rakiura and Chatham Islands. Habitat in lowland streams and estuaries where salinity is less than 20%; upper altitudinal range decreases towards southern limit (*vide* Carpenter 1977: 41). NZ's only freshwater shrimp; estuarine distribution does not overlap with palaemonid shrimp *Palaemon affinis*.

*Colour and biology:* transparent with dense speckling of small dark (mainly blue and red) chromatophores. The species is a protandrous hermaphrodite (*vide* Carpenter 1978: 343) with females larger and darker than smaller, much lighter coloured males.

*Other names used:* *Leander fluviatilis* Thomson, 1879; *Xiphocaridina curvirostris* (Heller, 1862); *Caridina*; *Xiphocaris*.

Superfamily BRESILIOIDEA Calman, 1896

Family ALVINOCARIDIDAE

Christoffersen, 1986

*Alvinocaris alexander* Ahyong, 2009

*NZ reference:* Ahyong (2009b: 777) figs 1A–F, 2A–H, 3A–E (including whole ovigerous female holotype and diagnostic characters of holotype and male paratype).

*Distribution:* endemic, Rumble V Seamount and Brothers Caldera, southern Kermadec volcanic arc, on hydrothermally active areas.

*Colour and structure:* pinkish white, blind, with a thin and flexible exoskeleton.

*Alvinocaris longirostris* Kikuchi & Ohta, 1995

*NZ references:* Webber & Yaldwyn in Wright *et al.* (1998: 342), as *A. cf. lusca*; Webber & Bruce (2002: 6) fig. (whole animal as *Alvinocaris* sp. B); Webber (2004: 5) figs 5, 6a–f (whole female, diagnostic characters); Ahyong (2009b: 776).

*Other significant references:* Kikuchi & Ohta (1995: 772) fig. 1a (whole animal), figs 1b–c, 2–7; Hashimoto (1997: 190) unnumbered upper left fig. (whole animal).

*Distribution:* Brothers Caldera, southern Kermadec volcanic arc, on hydrothermally active areas; Okinawa Trough, Japan.

*Colour and structure:* pinkish white, blind, with a thin and flexible exoskeleton.

*Alvinocaris niwa* Webber, 2004

*NZ references:* Webber & Bruce (2002: 6) fig. (whole animal), as *Alvinocaris* sp. A; Batson (2003: 77) fig. (whole animal, after Webber & Bruce 2002), as *Alvinocaris* sp. A; Webber (2004: 5) fig. 1a–c (holotype male, paratype female), figs 2a–g, 3a–h, 4a–h (diagnostic characters); Ahyong (2009b: 776).

*Distribution:* endemic, Brothers Caldera and Rumble V Seamount, southern Kermadec volcanic arc, on hydrothermally active areas.

*Colour and structure:* pinkish white, blind, with a thin and flexible exoskeleton.

*Nautilocaris saintlaurentae* Komai & Segonzac, 2004

*NZ reference:* Ahyong (2009b: 785) fig. 4A–B (carapaces, two females).

*Other significant reference:* Komai & Segonzac (2004: 1181) fig. 2 (whole female holotype), fig. 3A–F (female holotype, diagnostic characters).

*Distribution:* southern Kermadec Ridge to North Fiji and Lau basins.

Family DISCIADIDAE Rathbun, 1902

*Discias cf. exul* Kemp, 1920

*NZ material:* specimens in MNZ from northern NZ waters.

*NZ reference:* Webber *et al.* (2010: 225).

*Other significant references to Discias exul:* Bruce (1976: 119) fig. 1 (whole animal), figs 2–5; Kemp (1920) figs 1–3, pl. 8 (whole animal).

*Distribution of Discias exul:* Indo-West Pacific (western Indian Ocean, Indonesia, tropical Western and eastern Australia); shallow water, free-swimming or commensal.

Superfamily NEMATOCARCINOIDEA

Smith, 1884

Family NEMATOCARCINIDAE

Smith, 1884

*Lipkius holthuisi* Yaldwyn, 1960 (Fig. 4)

*NZ references:* Yaldwyn (1960: 16) fig. 1; Takeda (1990: 353) fig. 281 (colour photo, whole animal); Webber *et al.* (1990b: 36) fig. (whole animal, map, distribution); Webber (2002b: 77) fig. 5 (colour photo, whole animal); Batson (2003: 132) fig. (colour photo, whole animal).



*Other significant references:* Kensley *et al.* (1987: 304); Holthuis (1993: 79) fig. 69 (whole animal after Webber *et al.* 1990b); Davie (2002a: 272) fig. page 271 (whole animal after Webber *et al.* 1990); Poore (2004: 73) fig. 17a (whole animal).

*Distribution:* NZ; eastern Australia; near benthic on continental slope.

*Colour:* anterior part of body red, abdomen partly red and partly transparent.

***Nematocarcinus cf. exilis* (Bate, 1888)**

*NZ material:* *Galathea* expedition bottom station 661, Kermadec Trench, 5230–5340 m, specimen in University Zoological Museum, Copenhagen, identified by JCY in 1974.

*NZ reference:* Webber *et al.* (2010: 225).

*Other significant reference to Nematocarcinus exilis:* Crosnier & Forest (1973: 116) figs 2d–e, 33d–f.

*Distribution of Nematocarcinus exilis:* Kermadec Trench; North Atlantic; deep water, benthic.

***Nematocarcinus gracilis* Bate, 1888**

*NZ references:* Bate (1888: 815) pl. 132, fig. 8; Richardson & Yaldwyn (1958: 31).

*Other significant references:* Crosnier (1976: 229) fig. 2; Chace (1986: 71) fig. 38; Kensley *et al.* (1987: 291); Davie (2002a: 273); Poore (2004: 75) fig. 17b (front, rostrum).

*Distribution:* off Kermadec Islands; Indo-Pacific including Western and eastern Australia; deep water.

***Nematocarcinus hiatus* Bate, 1888**

*NZ references:* Bate (1888: 821) pl. 132, fig. 12; Richardson & Yaldwyn (1958: 31) fig. 18 (carapace).

*Distribution:* described from a single damaged specimen taken off East Cape at 1280 m with *N. serratus* Bate.

*Status:* possibly a synonym of the more widely distributed Indo-Pacific *N. longirostris* Bate.

***Nematocarcinus longirostris* Bate, 1888**

*NZ material:* *Galathea* expedition bottom station 661, Kermadec Trench, 5230–5340 m, specimen in University Zoological Museum, Copenhagen, identified by JCY in 1974.

*NZ reference:* Webber *et al.* (2010: 225).

*Other significant references:* Bate (1888: 806) pl. 132, fig. 2; Tiefenbacher (1990: 230) (*N. proximatus* synonymised with *N. longirostris*).

*Distribution:* NZ; Indo-Pacific and eastern Pacific; deep-water benthic or near benthic.

***Nematocarcinus novaezealandicus* Burukovsky, 2006**

*NZ reference:* Burukovsky (2006: 441) fig. 1a–d (front and other diagnostic characters).

*Distribution:* endemic, Challenger Plateau and Chatham Rise, 870–1170 m.

***Nematocarcinus serratus* Bate, 1888**

*NZ references:* Bate (1888: 819) pl. 132, fig. 11; Richardson & Yaldwyn (1958: 31) fig. 19 (rostrum).

*Distribution:* described from a single specimen taken from off East Cape at 1280 m with *N. hiatus* Bate, 1888.

***Nematocarcinus undulatipes* Bate, 1888**

*NZ references:* Bate (1888: 801) pl. 130 (whole animal); Richardson & Yaldwyn (1958: 31).

*Other significant references:* Chace (1986: 76) figs 41, 42; Kensley *et al.* (1987: 291); Burukovsky (2002); Davie (2002a: 275); Poore (2004: 75) fig. 17e (front, rostrum).

*Distribution:* off Kermadec Islands; Indo-West Pacific; deep water.

***Nematocarcinus webberi* Burukovsky, 2006**

*NZ reference:* Burukovsky (2006: 444) fig. 2a–d (rostrum, other diagnostic characters).

*Distribution:* endemic, one specimen from Mernoo Bank.

***Nematocarcinus yaldwyni* Burukovsky, 2006**

*NZ reference:* Burukovsky (2006: 441) fig. 3a–e (carapace, other diagnostic characters).

*Distribution:* endemic, east of the North Island.

## Family RHYNCHOCINETIDAE

Ortmann, 1890

***Rhynchocinetes balssi* Gordon, 1936**

*NZ references:* Gordon (1936: 85) fig. 7a–b; Richardson & Yaldwyn (1958: 29).

*Other significant references:* Bruce (1985: 124) fig. 1; Davie (2002a: 373).

*Distribution:* northern NZ; Lord Howe and Norfolk islands in Indo-West Pacific, and Juan Fernandez Islands in eastern Pacific; shelf.

*Other names used:* *Rhynchocinetes typus* H. Milne Edwards, 1837; *Rhynchocinetes rugulosus* Rathbun, 1906.

***Rhynchocinetes ikatere* Yaldwyn, 1971**

*NZ references:* Richardson & Yaldwyn (1958: 29) fig. 25 (carapace), as *Rhynchocinetes* n. sp.; Yaldwyn (1971: 87).

*Distribution:* endemic, northern NZ; shelf.

*Colour:* body and appendages light red with distinctive pattern of bilaterally symmetrical white bands.

## Superfamily STYLODACTYLOIDEA

Bate, 1888

## Family STYLODACTYLIDAE

Bate, 1888

***Stylodactyloides crosnieri* Cleva, 1990**

*NZ reference:* Yaldwyn *in* Cleva (1994: 63) based on specimens in NIWA and MNZ collections from NZ and Kermadec Islands waters.

*Other significant references:* Cleva (1990: 129) fig. 17a–e (diagnostic characters), fig. 18d–e (colour photos, whole animal); Holthuis (1993: 88) fig. 77 (after Cleva 1990); Davie (2002a: 377).

*Distribution:* NZ; New Caledonia, Great Barrier Reef; shelf and slope, benthic.

***Stylodactylus discissipes* Bate, 1888**

*NZ references:* Bate (1888: 851) pl. 138, fig. 1 (whole animal), pl. 138, fig. 2, as *S. orientalis*; Richardson & Yaldwyn (1958: 28); Crosnier & Forest (1973: 131) fig. 36g–h; Chace (1983: 11).

*Distribution:* endemic, known only from three specimens taken off Kermadec Islands in 1100 m.

## Superfamily CAMPYLONOTOIDEA

Sollaud, 1913

## Family CAMPYLONOTIDAE

Sollaud, 1913

***Campylonotus rathbunae* Schmitt, 1926**

*NZ references:* Yaldwyn (1960: 20) figs 2–4 (male rostrum); Webber *et al.* (1990: 40) fig. (whole female); Webber (2002b: 76) fig. 3 (colour photo, whole animal).

*Other significant references:* Schmitt (1926: 373) pl. 67 (whole female); Holthuis (1955: 26) fig. 20a (after Schmitt 1926); Kensley *et al.* (1987: 304); Davie (2002a: 236) fig. page 235 (female, after Schmitt 1926); Poore (2004: 80) fig. 20 (whole animal).

*Distribution:* NZ; eastern and southern Australia; benthic, continental slope.

*Colour and biology:* translucent with irregular pinkish-red blotches, characteristically with rostral tip red and red 'saddle' dorso-laterally on 3rd abdominal segment. The species is a protandrous hermaphrodite, with the rostrum in males almost a straight continuation from dorsal midline of carapace, while in females the rostrum is strongly curved dorsally with dorsal margin more or less evenly concave.

## Superfamily PALAEMONOIDEA

Rafinesque, 1815

## Family PALAEMONIDAE Rafinesque, 1815

## Subfamily PALAEMONINAE

Rafinesque, 1815

***Palaemon affinis* H. Milne Edwards, 1837**

*NZ references:* Holthuis (1950: 76) fig. 16 (not synonymous with eastern Australian *P. serenus* (Heller, 1862)); Holthuis (1952: 204); Yaldwyn (1954a: 171) figs 1–2; Yaldwyn (1957b: 883) figs 1–5 (rostral variation); Yaldwyn (1974: 1043) fig. 3 (colour photo, whole animal); Powell (1987: 32) fig. 172 (whole animal).

*Distribution:* endemic, abundant, intertidal and saline estuary species throughout NZ mainland, Stewart Island/Rakiura and Chatham Islands (but not at Kermadec Islands or Subantarctic Islands; replaced in the latter by hippolytid *Nauticaris marionis*), recorded to depths of c. 4 m.

*Colour:* transparent with narrow, longitudinal, wavy green and red stripes along carapace and abdomen, prominent diagnostic orange and black spot laterally at base of tail fan.

*Other names used:* *Leander affinis* (H. Milne Edwards, 1837); *Leander quoianus* Kemp, 1929.

*Notes:* the wide-ranging tropical and subtropical pelagic palaemonid *Leander tenuicornis* (Say, 1818), often associated with drifting seaweed, has been recorded from NZ by Miers (1876: 86) (as *L. natator*) from specimens in the Natural History Museum, London. No additional specimens have been recorded from NZ since.

The large Indo-Pacific freshwater palaemonid *Macrobrachium lar* (Fabricius, 1798), commonly used for food throughout its range, was recorded from Auckland, NZ, by Heller (1865: 119) (as *Palaemon ornatus*). This is clearly an error as members of this genus do not occur naturally in NZ fresh waters. The equally large *M. rosenbergii* (de Man, 1879), from Southeast Asia, the Malay Archipelago and northern Australia, has been introduced into NZ for prawn farming under controlled conditions in geothermally heated water at Wairakei on the Waikato River, just north of Taupo. The species is considered as unable to survive or breed in unheated NZ fresh waters.

## Subfamily PONTONIINAE Kingsley, 1879

***Hamiger novaezealandiae* (Borradaile, 1916)**

*NZ references:* Borradaile (1916: 87) fig. 4 (whole animal), as *Periclimenes (Hamiger) novaezealandiae*; Bruce (1986:



912) figs 1–4 (whole animal); Holthuis (1993) fig. 130 (whole animal, after Bruce 1986).

*Distribution*: endemic, originally collected by *Terra Nova* expedition, 128 m off North Cape, additional material now known from waters north of NZ

*Other name used*: *Periclimenaeus novaezealandiae* Borradaile, 1916.

***Periclimenes fenneri* Bruce, 2005**

*NZ reference*: Bruce (2005: 5) figs 2A–M, 3A–F, 4A–J (female holotype, diagnostic characters in detail,) fig. 8C (photo, female holotype).

*Distribution*: West Norfolk Ridge, due west of Cape Maria van Diemen.

***Periclimenes tangeroa* Bruce, 2005**

*NZ reference*: Bruce (2005: 12) figs 5A–I, 6A–I, 7A–C (female holotype, diagnostic characters in detail), fig. 8D (photo, female holotype).

*Distribution*: Reinga Ridge, northwest of Three Kings Islands.

***Periclimenes yaldwyni* Holthuis, 1959**

*NZ references*: Richardson & Yaldwyn (1958: 34) fig. 22, (cephalothorax and abdomen), as *P. (Harpilius) batei*; Holthuis (1959: 197), as *P. (Harpilius) yaldwyni*.

*Other significant reference*: Bruce & Cropp (1984: 189) fig. 1 (whole animal).

*Distribution*: abundant shallow-water, sandy-bottom species around NZ mainland, Stewart Island/Rakiura and Chatham Islands coasts (but not Kermadec Islands or Subantarctic Islands); Tasmania; *c.* 3–130 m.

*Colour*: transparent, lightly scattered with green and red chromatophores, eggs greenish.

*Other names used*: *Palaemon audouini* Heller, 1862; *Brachycarpus audouini* (Heller, 1862).

Superfamily ALPHEOIDEA Rafinesque, 1815

Family ALPHEIDAE Rafinesque, 1815

***Alpheopsis garricki* Yaldwyn, 1971**

*NZ references*: Richardson & Yaldwyn (1958: 36), as *Alpheopsis* sp.; Yaldwyn (1971: 87); Chace (1988: 40).

*Distribution*: endemic; shelf to *c.* 200 m.

*Colour*: body transparent with prominent transverse red bands (two bands on carapace, one on each abdominal segment).

*Status*: possibly synonymous with the eastern Australian *Alpheopsis trispinosus* (Stimpson, 1861); see Banner & Banner (1973: 337, fig. 14).

***Alpheus hailstonei* Coutière, 1905**

*NZ material*: specimens from *c.* 80–120 m off Kermadec Islands in MNZ identified by Y. Miya in 1988.

*NZ reference*: Webber *et al.* (2010: 224)

*Other significant references*: Banner & Banner (1982: 38) fig. 6, as member of *Alpheus* ‘*Macrocheles*’ group; Chace (1988: 30); Davie (2002a: 190); Poore (2004: 104) figs 26n–o, 29j (diagnostic characters of carapace front and chela).

*Distribution*: off Kermadec Islands; Indo-Pacific; shelf and slope depths.

***Alpheus novaezealandiae* Miers, 1876**

*NZ references*: Yaldwyn (1957c: 806) figs 1–7; Richardson & Yaldwyn (1958: 37) fig. 34; Powell (1987: 32) fig. 173 (whole animal); Davie (2002a: 195); Poore (2004: 105) figs 26t–u, 29o (diagnostic characters of carapace front and chela).

*Other significant reference*: Banner & Banner (1982: 145) fig. 42, as member of *Alpheus* ‘*Diadema*’ group.

*Distribution*: intertidal mud and sand flats, often under stones, and in shallow water to 25 m, in northern NZ from Bay of Islands south to Manukau Harbour; very few records from NZ waters, has been taken with *Alpheus richardsoni* in Manukau intertidal zone; around all coasts of Australia and at Lord Howe Island, in intertidal zone and shallow water.

*Colour of NZ specimens*: carapace yellowish green, abdomen pinkish brown with a distinct dark, longitudinal mid-dorsal line, dark transverse bands across posterior margin of each segment, and symmetrical white patches dorsally and laterally on each segment. Hands pinkish brown and green.

***Alpheus richardsoni* Yaldwyn, 1971**

*NZ references*: Richardson & Yaldwyn (1958: 37) fig. 35 (carapace, chela), as *Alpheus* sp. ‘*Edwardsii*’ group; Yaldwyn (1971: 88), as *A. richardsoni*; Miller & Batt (1973) fig. 114 (colour photo, whole animal), as *A. richardsoni* on inappropriate broken shell background; Yaldwyn (1974: 1044) cover (colour photo, whole animal as *A. richardsoni* on inappropriate shell background); Powell (1987) fig. 173, as *A. novaezealandiae* but not *A. novaezealandiae* Miers, 1876; Davie (2002a: 198); Poore (2004: 106) figs 27c–d, 28l, 29s–t (diagnostic characters, including whole animal), pl. 9b (colour photo, whole animal).

*Other significant reference*: Banner & Banner (1982: 235) fig. 74, as member of *Alpheus* ‘*Edwardsii*’ group.

*Distribution*: endemic, northern NZ south to about Manukau Harbour on west coast and Tauranga Harbour on east coast; in mangrove swamps and intertidal and shallow-water mudflats, and subtidally to depths of about 12 m.

*Colour and biology*: light green in general colour with alternate bands of light and dark green across abdominal segments, both large and small chelae dorsally green but ventrally pale; eggs olive green and ovigerous females with prominent blue band along edge of abdominal pleura. The deep-burrowing *Alpheus richardsoni* is the classic 'snapping' shrimp, producing the snapping noise that is so characteristic of northern NZ swamps, especially on a falling tide.

#### ***Alpheus socialis* Heller, 1865**

*NZ references*: Thomson (1903: 436) pl. 27B; Richardson & Yaldwyn (1958: 36) fig. 33; Davie (2002a: 199); Poore (2004: 106) figs 27e–f, 29u–w (diagnostic characters of carapace front, some appendages).

*Other significant reference*: Banner & Banner (1982: 68) fig. 16, as member of *Alpheus* 'Sulcatus' group.

*Distribution*: throughout NZ from Northland to Stewart Island/Rakiura, Chatham Islands and Kermadec Islands; southeastern Australia and Lord Howe Island; ranging from rocky intertidal zone to coarse bottoms, to at least 46 m.

*Colour*: carapace and abdomen orange-red to pink, both large and small chelae dorsally orange-red to purple with characteristic, irregularly scattered spots and markings of white, ventrally both chelae pale orange-yellow, eggs greenish. An unusual variant colour pattern seen in both NZ and Australian specimens has both the large and small chelae yellowish white with an irregular, broad, dark W-shaped mark across the dorsal surface of one or both.

**Note**: *Alpheus halesii* Kirk, 1887 was described from the 'East Coast of Wellington Province' (*Transactions of the New Zealand Institute* 19: 194, pl. 6D). The type material cannot be found and the species is specifically unidentifiable. It is possible that the species was based on a specimen of *Alpheus glaber* (Olivi, 1792) from European waters, supplied to Kirk in error.

#### ***Athanas indicus* Coutière, 1903**

*NZ material*: specimens taken commensal with intertidal and shallow-water echinoids at Kermadec Islands in MNZ identified by Y. Miya in 1988.

*NZ reference*: Webber *et al.* (2010: 224).

*Other significant reference*: Banner & Banner (1973: 327) fig. 11.

*Distribution*: Kermadec Islands; Indo-Pacific; commensal with intertidal and shallow-water echinoids and crinoids.

#### ***Betaeopsis aequimanus* (Dana, 1852)**

*NZ references*: Dana (1855) pl. 35, fig. 11a (whole animal), as *Betaeus*, fig. 11b; Thomson (1903: 438), pl. 28A, as *Betaeus*; Richardson & Yaldwyn (1958: 37) fig. 36 (carapace), as *Betaeus*; Yaldwyn (1971: 88); Holthuis (1993) fig. 193 (after Thomson 1903); Anker & Jeng (2002: 570) fig. 1A (whole animal), figs 2–5.

*Other significant reference*: Chace (1988: 69).

*Distribution*: endemic, throughout NZ from Northland to Stewart Island/Rakiura and Chatham Islands, not known from Kermadec or Subantarctic Islands; under stones, intertidal and damp supratidal zones.

*Colour*: most specimens are dark greenish with a light-coloured band along the dorsal midline of the carapace and abdomen; a few are light orange-yellow with no dorsal band; eggs are bright yellow.

### Family HIPPOLYTIDAE Dana, 1852

#### ***Alope spinifrons* (H. Milne Edwards, 1837)**

*NZ references*: Thomson (1903: 440) pl. 28B, as *A. palpalis* and *Merhippolyte spinifrons*; Holthuis (1947: 34); Richardson & Yaldwyn (1958: 36) fig. 30 (carapace); Morton & Miller (1968) pl. 22, fig. 1 (colour sketch, whole animal); Miller & Batt (1973) fig. 88 (colour photo, whole animal).

*Distribution*: endemic, NZ rocky shores from Northland to Stewart Island/Rakiura and Chatham Islands, not known from Kermadec Islands (but see following comment) or Subantarctic Islands; intertidal zone and shallow water (even out of water on shaded intertidal rock faces).

*Kermadec record*: the record of *Alope palpalis* from the Kermadec Islands given in Chilton (1911: 547) probably refers to the wide-ranging Indo-West Pacific and Australian *A. orientalis* (de Man, 1890) but this needs confirmation.

*Colour and biology*: *Alope spinifrons* is negatively phototrophic. Specimens taken from a dark habitat are transparent with irregular, wavy, longitudinal green bands, with some tingeing of red, dorsally and laterally on carapace and abdomen, appendages green. Specimens kept in the light for a short period have wavy, longitudinal red bands dorsally and laterally on carapace and abdomen, with the

green colour mostly suppressed. Mature males develop elongate 3rd maxillipeds, reaching in some cases up to or more than the combined carapace and abdomen length of the individual.

***Bathyhippolyte yaldwyni* Hayashi & Miyake, 1970**

*NZ references:* Hayashi & Miyake (1970: 42) fig. 1 (whole animal), fig. 16; Holthuis (1993: 222) fig. 216 (whole animal, after Hayashi & Miyake 1970).

*Distribution:* endemic, known only from three deep-water bottom stations, off the east coast of the South Island, 220–1110 m.

*Colour:* body yellowish brown; eyes reduced, non-pigmented, orange in life.

***Hippolyte bifidirostris* (Miers, 1876)**

*NZ references:* Miers (1876) pl. 2, fig. 1, as *Virbius bifidirostris*; Richardson & Yaldwyn (1958: 35) fig. 26; Gunson (1993: 49) fig. (black and white sketch of whole animal colour pattern); Davie (2002a: 255).

*Distribution:* endemic, from Northland to Stewart Island/Rakiura and Chatham Islands, not known from Kermadec Islands or Subantarctic Islands; immediate subtidal zone and shallow water, usually associated with algae. Not found together with *Hippolyte multicolorata*.

*Colour:* overall olive brown or green with scattering of small, bright blue spots. Some specimens carry little tufts of pigmented plumose setae on carapace and abdomen; specimens of *Hippolyte* spp. with such setal tufts are referred to as ‘fascigerous’.

***Hippolyte multicolorata* Yaldwyn, 1971**

*NZ references:* Richardson & Yaldwyn (1958: 35) fig. 27 (carapace), as *Hippolyte* n. sp.; Yaldwyn (1971: 90); Yaldwyn (1974: 1041) fig. (colour photo, whole animal).

*Distribution:* endemic, from Northland south to Otago and Chatham Islands, not known from Kermadec Islands nor Subantarctic Islands; immediate subtidal zone and shallow water, usually associated with algae.

*Colour:* specimens from one locality can range from uniform olive brown to light green and even dark red-brown, in each case with or without transparent lateral windows on carapace and abdomen (see Yaldwyn 1974 – colour photo), with or without a lateral brown band along body, and with or without a narrow longitudinal band of white dorsally along rostrum and midline of carapace and abdomen. Rarely, some specimens are transparent with a few longitudinal wavy red lines. Fascigerous specimens are usually light or dark red brown with the setal tufts red.

Specimens change colour readily in captivity depending on lighting and the colours of algae present.

***Lebbeus cristatus* Ah Yong, 2010**

*NZ reference:* Ah Yong (2010a: 341) fig. 1A–G (female holotype, whole animal and diagnostic characters), fig. 2A–I (female holotype, diagnostic characters), fig. 3A (female holotype, colour photo, whole animal).

*Distribution:* endemic, Challenger Plateau.

***Lebbeus wera* Ah Yong, 2009**

*NZ references:* Ah Yong (2009b: 786) fig. 5 (female holotype, whole animal), fig. 6A–E (female holotype, diagnostic characters), fig. 6F–K (male paratype, diagnostic characters), fig. 7A–J (female holotype, diagnostic characters), fig. 7K–L (male paratype, diagnostic characters); Ah Yong (2010a) fig. 3B (female holotype, colour photo, whole animal).

*Distribution:* endemic, Brothers Caldera, southern Kermadec Ridge.

***Leontocaris alexander* Poore, 2009**

*NZ reference:* Ah Yong (2010a: 346).

*Other significant reference:* Poore (2009: 958) fig. 2a–h (female holotype, diagnostic characters), fig. 2i–k (ovigerous female, diagnostic characters), fig. 3a–h (female holotype, details of major cheliped), fig. 4a–i (female holotype, diagnostic characters).

*Distribution:* western Chatham Rise; southeastern Tasmania seamounts.

***Leontocaris amplexipes* Bruce, 1990**

*NZ reference:* Ah Yong (2010a: 346) fig. 4A–B (male carapace), fig. 5A–E (female whole animal, major chela), fig. 6A–L (female, diagnostic characters).

*Other significant reference:* Bruce (1990: 121) fig. 1 (holotype, whole animal), fig. 2A–I (holotype, diagnostic features), fig. 3A–F (holotype, mouthparts), fig. 4A–M (holotype, P1 and P2), fig. 5A–H (holotype, diagnostic characters).

*Distribution:* Chatham Rise; southeastern Tasmania.

***Leontocaris yarramundi* Taylor & Poore, 1998**

*NZ reference:* Ah Yong (2010a: 353) fig. 4D (male, carapace).

*Other significant reference:* Taylor & Poore (1998: 121) fig. 1 (holotype, whole animal), fig. 2A–I (holotype, diagnostic features), fig. 3A–F (holotype, mouthparts), fig. 4A–M (holotype, P1 and P2), fig. 5A–H (holotype, diagnostic characters).

*Distribution:* Chatham Rise; southeastern Tasmanian seamounts.

***Lysmata morelandi* (Yaldwyn, 1971)**

*NZ references:* Yaldwyn (1971: 90), as *Hippolysmata morelandi*; Chace (1997: 73); Hanamura (2008: 94) fig. 4 (Australian female, lateral view), fig. 5 (diagnostic characters).

*Distribution:* northern NZ; southeastern Australia; shallow water.

*Colour and biology:* bright red with three longitudinal lateral white bands on each side of abdomen, two of the bands extending onto branchial region of carapace. Acts as a fish-cleaning shrimp (*vide* Doak 1972: 16).

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

*NZ references:* Kemp (1914: 110) pl. VI, figs 1–4 (cephalothorax, diagnostic characters), as *L. chiltoni*; Holthuis (1947: 65).

*Other significant reference:* Chace (1997: 77).

*Distribution:* Kermadec Islands; Indo-Pacific (Red Sea to Hawai'i) and eastern Pacific (Clipperton Island); littoral.

***Lysmata vittata* (Stimpson, 1860)**

*NZ reference:* Ahyong (2010a: 354) fig. 4e (carapace).

*Distribution:* northern New Zealand; east Africa to Philippines, Japan and Australia; intertidal zone to shelf.

***Merhippolyte chacei* Kensley, Tranter & Griffin, 1987**

*NZ material:* several specimens in MNZ from northern NZ waters, 500–700 m.

*NZ reference:* Webber *et al.* (2010: 225).

*Other significant references:* Kensley *et al.* (1987: 309) figs 18–19; Davie (2002a: 261); Poore (2004: 123) fig. 32f (rostrum).

*Distribution:* northern NZ; described from two specimens taken off New South Wales, 500–680 m.

***Nauticaris marionis* Bate, 1888**

*NZ references:* Thomson (1903: 445) pl. 29A (whole animal), as *N. stewarti*; Richardson & Yaldwyn (1958: 35) fig. 28 (carapace); Holthuis (1947: 6, 31); Holthuis (1993: 245) fig. 241 (whole animal, after Thomson 1903); Davie (2002a: 261); Poore (2004: 124) fig. 32a (whole animal), pl. 9h (colour photo, whole animal).

*Other significant reference:* Bate (1888: 603) pl. 108, fig. 1 (whole animal) but NOT fig. 2 (= *N. magellanica*).

*Distribution:* southern NZ (south of subtropical convergence) from Cook Strait to Stewart Island/Rakiura, c. 50–550 m, and then a common intertidal and shallow-water species in NZ Subantarctic Islands (where it replaces *Palaemon affinis* of the NZ mainland); southern Indian

Ocean (Marion and Prince Edward islands) and off Tasmania.

*Colour:* Cook Strait specimen transparent with irregular rows of red chromatophores on body, these rows diagonal on carapace and transverse on abdomen, eyes dark blue, eggs blue-green.

*Other names used:* *Hippolyte stewarti* Thomson, 1888; *Merhippolyte australis* Hodgson, 1902.

***Tozeuma novaezealandiae* Borradaile, 1916**

*NZ references:* Borradaile (1916: 86) fig. 3 (whole animal); Richardson & Yaldwyn (1958: 35) fig. 29 (carapace); Chace (1997: 94).

*Distribution:* endemic, off northern tip of Northland south to Auckland Islands; shelf and upper continental slope.

*Colour:* body and appendages mostly red, with red chromatophores mostly concentrated in wavy, longitudinal bands laterally on carapace and abdomen, ventral edges of abdominal terga with intense band of red, and prominent band of red along dorsal midline of rostrum, carapace and abdomen.

*Other name used:* *Angasia novaezealandiae* (Borradaile, 1916).

**Family OGYRIDIDAE Holthuis, 1955*****Ogyrides delli* Yaldwyn, 1971**

*NZ references:* Richardson & Yaldwyn (1958: 36) fig. 31 (carapace), as *Ogyrides* n. sp.; Yaldwyn (1971: 89); Banner & Banner (1982: 289) figs 88–89; Poore (2004: 127) fig. 33a (whole animal).

*Other significant reference:* Davie (2002a: 277).

*Distribution:* NZ, from Northland to Cook Strait and Chatham Islands, c. 5–50 m; eastern Australia (Moreton Bay to Sydney) southern Australia, burrows in sandy bottoms.

*Colour:* transparent with prominent transverse red bands across posterior margins of each abdominal segment.

**Superfamily PROCESSOIDEA Ortmann, 1896****Family PROCESSIDAE Ortmann, 1896*****Processa moana* Yaldwyn, 1971**

*NZ references:* Richardson & Yaldwyn (1958: 34) fig. 32 (carapace), as *Processa?* n. sp.; Yaldwyn (1971: 91).

*Other significant reference:* Noël (1985: 298).

*Distribution:* endemic, northern NZ; shelf, few collections available.

*Colour:* transparent, with scattered red chromatophores, concentrations of red on rostrum, tail fan and some appendages.



## Superfamily PANDALOIDEA Haworth, 1852

## Family PANDALIDAE Haworth, 1825

***Chlorotocus novaezealandiae* (Borradaile, 1916)**

*NZ references:* Borradaile (1916: 84) fig. 2 (whole animal, as *Thalassocaris novaezealandiae*); Richardson & Yaldwyn (1958: 38) fig. 40 (carapace); Crosnier & Forest (1973: 186); Webber *et al.* (1990b: 30) fig. (whole animal); Davie (2002a: 345); Poore (2004: 132) fig. 35a (carapace).

*Other significant reference:* Kensley *et al.* (1987: 312).

*Distribution:* northern and central NZ, from Northland to about 44°S on both coasts of the South Island; eastern Australia (off New South Wales); shelf and upper continental slope.

*Colour:* transparent with red-pink to orange-yellow markings, thoracic appendages red, viscera within body scarlet.

***Heterocarpus laevigatus* Bate, 1888**

*NZ material:* specimen at MNZ from West Norfolk Ridge.

*NZ reference:* Webber *et al.* (2010: 225).

*Other significant references:* Bate (1888: 636) pl. 112, fig. 3 (whole animal); Crosnier & Forest (1973: 195) fig. 61c (lateral view carapace); Chace (1985: 33) fig. 13i; Davie (2002a: 346).

*Distribution:* northern New Zealand; Indo-West Pacific from South Africa and the Arabian Sea to Indonesia, Philippines, western Pacific Islands and Hawai'i, and eastern Atlantic, including Madeira, Cape Verde Islands and off Western Sahara. *Heterocarpus laevigatus* has been taken in several trapping surveys for deep-water commercial shrimps in the western Pacific e.g. off New Guinea, Vanuatu, Fiji, Western Samoa, Tonga, Guam. King (1981: 33) summarises the commercial potential of *Heterocarpus* trapping in the western Pacific where the 'red-tipped shrimp' (*H. laevigatus*) is one of the largest *Heterocarpus* species known and is common in depths of more than 500 m.

***Notopandalus magnoculus* (Bate, 1888)**

*NZ references:* Richardson & Yaldwyn (1958: 37) fig. 37 (carapace), as *Pandalus magnoculus*; Yaldwyn (1960: 29) text fig. 5, figs 1–16; Webber *et al.* (1990b: 34) fig. (whole animal); Holthuis (1993) fig. 269 (whole animal, after Webber *et al.* 1990b).

*Distribution:* endemic, from Northland to Campbell Plateau and Chatham Rise; semi-pelagic and benthic, shelf and slope.

*Colour:* transparent with irregular scattering of red chromatophores over carapace and abdomen, viscera within body scarlet, eggs blue-green.

***Plesionika costelloi* (Yaldwyn, 1971)**

*NZ references:* Richardson & Yaldwyn (1958) fig. 39 (carapace), as *Parapandalus* sp.; Yaldwyn (1971: 91), as *Parapandalus costelloi*; Chace (1985: 46).

*Other significant reference:* Burukovsky (1991: 39) figs 1–3, as *Parapandalus costelloi*.

*Distribution:* northern NZ; southwest Indian Ocean; shelf.

*Colour:* transparent with red rostrum, appendages and viscera, eggs blue.

*Status:* contrary to the statement by Yaldwyn (1971) that *Plesionika costelloi* does not have epipods on the pereopods, the types do have small epipods on the 1st to 4th pereopods and should have been described as a species of *Plesionika sensu stricto* rather than *Parapandalus*. It may be a synonym of *Plesionika edwardsii* (Brandt, 1851) known from off eastern Australia (Kensley *et al.* 1987).

***Plesionika martia* (A. Milne-Edwards, 1883)**

*NZ references:* Richardson & Yaldwyn (1958: 37) fig. 38 (carapace); Webber *et al.* (1990b: 32) fig. (whole animal).

*Other significant references:* Crosnier & Forest (1973: 212) figs 63d, 64e, 66; Chace (1985: 84) fig. 38 (whole animal), fig. 39 (differences between new Philippine subspecies *Plesionika martia orientalis* and closely similar *P. semilaevis* Bate, 1888); Kensley *et al.* (1987: 316); Holthuis (1993) fig. 276 (whole animal); Davie (2002a: 349); Poore (2004: 134) fig. 34c (whole animal).

*Distribution:* northern NZ; widely distributed in Atlantic and Indo-West Pacific; shelf edge and slope.

*Colour:* translucent with scattered red chromatophores concentrated on anterior part of rostrum, on dorsal surface of carapace and abdomen, along posterior edges of abdominal segments, and on mouthparts and tail fan.

*Status:* subspecific status of NZ material not yet established.

***Plesionika spinipes* Bate, 1888**

*NZ references:* Chilton (1911: 547); Richardson & Yaldwyn (1958: 38), as *Parapandalus spinipes*.

*Other significant references:* Bate (1888: 646) pl. 113, fig. 2 (whole animal), fig. 2k, m; Kensley *et al.* (1987: 319); Davie (2002a: 351); Poore (2004: 134) fig. 35f (carapace).

*Distribution:* Kermadec Islands, one specimen washed up on beach; Indo-West Pacific including eastern Australia.

## Superfamily CRANGONOIDEA

Haworth, 1825

## Family CRANGONIDAE Haworth, 1825

***Aegaeon lacazei* (Gourret, 1887)**

*NZ reference*: Richardson & Yaldwyn (1958: 40) fig. 44 (carapace), as *Pontocaris lacazei*.

*Other significant references*: Crosnier & Forest (1973: 250) fig. 81, as *Pontocaris lacazei*; Kensley *et al.* (1987: 327), as *Pontocaris lacazei*; Holthuis (1993) fig. 282 (whole animal); Chan (1996: 278) fig. 3; Davie (2002a: 238); Poore (2004: 137) fig. 36e (carapace).

*Distribution*: northern NZ; eastern North and South Atlantic, and Indo-Pacific including eastern Australia; shelf and slope.

*Colour*: Chan (1996) records the body as varying from yellow to brown with a broad, transverse pale band across carapace, eyes dark brown, tail fan pale with a broad distal red-brown band. Some NZ specimens after preservation had a scattering of reddish-brown chromatophores and brown (i.e. not black) eyes.

*Other names used*: *Aegeon* [*sic*] *cataphractus* (Olivi, 1792); *Pontocaris lacazei* (Gourret, 1887).

***Metacrangon knoxi* (Yaldwyn, 1960)**

*NZ references*: Richardson & Yaldwyn (1958: 40) fig. 43 (carapace), as *Sclerocrangon* n. sp. from Chatham Rise; Yaldwyn (1960: 35) text fig. 7, figs 1–17, as *Sclerocrangon knoxi*; Komai (1997: 670) figs 1E, 8 (partial redescription from type material as member of the *Metacrangon jacqueti* species group).

*Distribution*: endemic, only known from Chatham Rise at c. 400–530 m.

*Colour*: body white, speckled irregularly with red on abdomen and with carapace a darker red, eyes dark brown.

***Metacrangon richardsoni* (Yaldwyn, 1960)**

*NZ references*: Richardson & Yaldwyn (1958: 40) fig. 42, as *Sclerocrangon* n. sp. from Cook Strait; Yaldwyn (1960: 39) text fig. 8, figs 1–7, as *Sclerocrangon richardsoni*; Komai (1995: 902), as member of the informal *Metacrangon minuta* species group.

*Distribution*: endemic, known only from holotype trawled in Cook Strait at c. 1000 m.

*Colour*: carapace dark pink, abdomen and tail fan pale pink, eyes black.

***Parapontophilus* aff. *abyssi* Smith, 1884**

*NZ references*: Bate (1888: 488), as *Pontophilus gracilis* but

NZ specimens not regarded as conspecific with South Atlantic holotype of *P. gracilis* Bate by later authors; Richardson & Yaldwyn (1958: 41) (under replacement name *Pontophilus challengerii* Ortmann, 1893) fig. 48 (after Bate 1888, but now known not to represent NZ material); Crosnier & Forest (1973: 248) (give differences between Bate's NZ specimens and holotype of *P. gracilis* Bate = *P. challengerii* Ortmann); Chace (1984: 51) (Bate's NZ specimens regarded as taxonomically similar to, but different from, *P. gracilis abyssii* Smith).

*Other significant reference to Parapontophilus abyssii*: Komai (2008b: 274) fig. 3A–I (females, Atlantic Ocean, diagnostic characters), figs 34–35 (geographic distribution); Komai (2008b) regards the *Challenger* and Hawke Bay specimens as similar and likely to represent a new species.

*Distribution of Parapontophilus abyssii*: *Challenger* station 168 off east coast of the North Island at c. 2010 m, and possibly off Hawke Bay.

***Parapontophilus junceus* Bate, 1888**

*NZ references*: Richardson & Yaldwyn (1958: 41) fig. 46 (carapace), as *Pontophilus indicus*; Komai (2008b: 279) fig. 5A–J (females, diagnostic characters), fig. 6A–B (anterior carapace, eyes), fig. 20C (photo, eyes), fig. 35 (geographic distribution).

*Other significant references*: Chace (1984: 52) figs 20–22 (*P. occidentalis* var. *indica* de Man is a synonym of *P. junceus*). Bate's (1888) illustration of the holotype of *P. junceus* is 'fanciful' (Chace 1984).

*Distribution*: Bay of Plenty at 542–730 m; Indo-West Pacific including Western Australia; deep water, benthic.

*Colour*: a Bay of Plenty specimen had a pink body and chelipeds with some scattered red-brown chromatophores, eyes almost colourless but with some internal red-brown pigmentation.

***Philocheras acutirostratus* (Yaldwyn, 1960)**

*NZ references*: Richardson & Yaldwyn (1958: 41) fig. 47 (carapace), as *Pontophilus* n. sp. with rostrum acute; Yaldwyn (1960: 41) text fig. 9, figs 1–13, as *Pontophilus acutirostratus*; Zarenkov & Bykhovskiy (1968: 165) fig. 9; Komai (2008a: 394).

*Distribution*: endemic, NZ shelf and slope to at least 730 m.

*Colour*: carapace and abdomen irregularly blotched with reddish-brown chromatophores and with some white patches laterally, prominent transverse dark band across posterior part of 4th abdominal segment and anterior part of 5th segment.



***Philocheras australis* (Thomson, 1879)**

*NZ references:* Kemp (1911: 6) pl. 2, figs 1–5, as *Pontophilus australis*; Ralph & Yaldwyn (1956: 64) fig. 6 (general appearance of whole animal), as *Pontophilus australis*; Richardson & Yaldwyn (1958: 40) fig. 45 (carapace), as *Pontophilus australis*; Komai (2008a: 394).

*Distribution:* endemic, ranging from Northland to Stewart Island/Rakiura and Chatham Islands, not known from Kermadec Islands or Subantarctic Islands; the commonest NZ shallow-water sand shrimp in harbours, inlets and bays, between the intertidal zone and *c.* 20 m.

*Colour:* three main colour patterns are known for this species. The commonest is body pale, closely speckled with dark sand-grain-coloured flecks, giving the shrimp a general sandy colour. A much less common pattern is the general sandy colour as described above with a pair of prominent black patches dorso-laterally on 4th abdominal segment. A rare pattern is lateral surfaces of carapace and 1st to 3rd abdominal segments, and entire 4th to 6th abdominal segments black, with dorsal surfaces of carapace and 1st to 3rd abdominal segments opaque pinkish white.

*Other names used:* *Crangon australis* Thomson, 1879; *Pontophilus australis* (Thomson, 1879).

***Philocheras chiltoni* (Kemp, 1911)**

*NZ references:* Kemp (1911: 5) pl. 2, figs 6–10, as *Pontophilus chiltoni*; Richardson & Yaldwyn (1958: 40) (carapace), as *Pontophilus chiltoni*; Komai (2008a: 395).

*Distribution:* endemic, ranging from Northland to Dusky Sound, not known from Kermadec Islands or Subantarctic Islands; not as common as, but sometimes found with, *Philocheras australis* in harbours, inlets and bays, between the intertidal zone and *c.* 20 m.

*Colour:* two colour patterns have been observed. The commonest is overall blotching with brownish black, while the less common pattern is very similar to the rare pattern described above for *Philocheras australis* – lateral surfaces of carapace, abdomen and entire 4th to 6th abdominal segments black, with dorsal surfaces of carapace and 1st to 3rd abdominal segments opaque pinkish white.

***Philocheras hamiltoni* (Yaldwyn, 1971)**

*NZ references:* Richardson & Yaldwyn (1958: 40) fig. (carapace), as *Pontophilus* n. sp. with rostrum truncated distally; Yaldwyn (1971: 92), as *Pontophilus hamiltoni*; Komai (2008a: 395).

*Distribution:* endemic, not common, ranging from Cook

Strait to Stewart Island/Rakiura, not known from Chatham Islands or Subantarctic Islands; between intertidal zone and *c.* 100 m.

*Colour:* only colour notes available are from a Cook Strait shelf specimen with the lateral dark and dorsal light colour pattern described above for *Philocheras australis* and *P. chiltoni*.

***Philocheras pilosoides* (Stephensen, 1927)**

*NZ references:* Stephensen (1927: 298) fig. 1, as *Pontophilus pilosoides*; Richardson & Yaldwyn (1958: 41) fig. (carapace), as *Pontophilus pilosoides*; Komai (2008a: 395).

*Distribution:* endemic, ranging from Northland to Subantarctic Islands, not known from Kermadec Islands or Chatham Islands; shelf, *c.* 15–190 m.

*Colour:* one specimen from Mernoo Bank, Chatham Rise, was mottled with ‘fawn and red brown’ on collection.

***Philocheras quadrispinosus* (Yaldwyn, 1971)**

*NZ references:* Richardson & Yaldwyn (1958: 41) fig. 50 (carapace), as *Pontophilus* n. sp. with four mid-dorsal spines; Yaldwyn (1971: 93), as *Pontophilus quadrispinosus*; Komai (2008a: 395).

*Distribution:* endemic, known only from one 1932 *Discovery II* expedition station off Cape Reinga, Northland, at *c.* 58 m.

***Philocheras yaldwyni* (Zarenkov, 1968)**

*NZ references:* Richardson & Yaldwyn (1958: 41) fig. 49 (carapace), as *Pontophilus* n. sp. with three evenly spaced mid-dorsal spines; Zarenkov & Bykhovsky (1968: 165) fig. 10, as *Pontophilus yaldwyni*; Komai (2008a: 396).

*Distribution:* endemic, ranging from Northland to southern Fiordland; shelf and upper slope, *c.* 50–335 m.

*Colour:* some preserved specimens showed patches of reddish-brown chromatophores, while one Cook Strait specimen had the lateral dark and dorsal light colour pattern described above for *Philocheras australis* and *P. chiltoni*.

***Prionocrangon curvicaulis* Yaldwyn, 1960**

*NZ references:* Richardson & Yaldwyn (1958: 39) fig. 41, as *Prionocrangon* n. sp.; Yaldwyn (1960: 46) text fig. 10, figs 1–17.

*Other significant reference:* Chace (1984: 57) fig. 24.

*Distribution:* Chatham Rise, *c.* 400–600 m; one specimen recorded from Philippines at 700 m by Chace (1984).

*Colour:* entire body pure white, no chromatophores or pigments present in live specimens, eggs bright yellow.

Family **GLYPHOCRANGONIDAE**

Smith, 1884

***Glyphocrangon caeca* Wood-Mason & Alcock, 1891**

*NZ material*: a specimen in NIWA from Mercury Knoll, Bay of Plenty.

*NZ reference*: Webber *et al.* (2010: 225).

*Other significant references*: Wood-Mason & Alcock (1894) pl. 7, fig. 1 (whole animal, dorsal), pl. 7, fig. 1a (whole animal, lateral); de Man (1920: 241) pl. 20, fig. 61 (whole animal, dorsal); Chace (1984: 6) (key to *Glyphocrangon* species) fig. 10.

*Distribution*: Bay of Plenty; Indian Ocean and Ceram Sea, Indonesia.

*Colour*: the eyes of the NZ specimen are unpigmented.

***Glyphocrangon lowryi* Kensley, Tranter & Griffin, 1987**

*NZ reference*: Takeda (1990: 355) fig. 283 (photo, whole animal).

*Other significant references*: Kensley *et al.* (1987: 322) figs 23, 25D; Komai (2004: 576) figs 99–100 (whole animal); Davie (2002a: 247).

*Distribution*: northern NZ; eastern Australia; continental slopes and seamounts.

*Colour*: preserved NZ specimens are cream or white, with the following parts pink (presumably red in life) – anterior half of rostrum, anterior carapace spines, forward-projecting spines on 1st abdominal segment, posterior transverse edge of each abdominal segment, mouthparts and legs. The eyes are dark brown.

***Glyphocrangon regalis* Bate, 1888**

*NZ references*: Bate (1888: 517) pl. 93, figs 3–4 (both whole animals); Richardson & Yaldwyn (1958: 38).

*Other significant references*: Chace (1984: 7) (key to *Glyphocrangon* spp.) fig. 20; Komai (2004: 542) figs 77–78 (whole animal).

*Distribution*: a fragment of a male was taken from 1097 m off the Kermadec Islands by the *Challenger* expedition; Indonesia, Philippines, east coast South Africa; deep water.

***Glyphocrangon sculpta* (Smith, 1882)**

*NZ material*: several specimens in NIWA from an epibenthic sledge station on the northern edge of Bellona Trough on the western side of the Challenger Plateau at a little over 4000 m. The station is outside the NZ EEZ but clearly within the NZ marine biogeographic region. This is the first record of this deep-water species outside the North and South Atlantic. The extensive increase in the world distribution of *Glyphocrangon sculpta* is confirmed by the

presence of three marginal teeth on the 5th abdominal pleuron, a condition unique to this species.

*Significant references*: Smith (1882: 49) pl. 5, fig. 3 (whole animal, lateral view) pl. 6, fig. 3 (whole animal, dorsal view), pl. 6, fig. 3a–d, as *Rhachocaris sculpta*; Barnard (1950: 719) fig. 134a–d; Holthuis (1971: 279) fig. 2 (whole animal, dorsal and lateral) fig. 3; Chace (1984: 6) (key to *Glyphocrangon* species).

*Distribution*: northwestern NZ; Iceland to West Indies in western Atlantic, and to southern tip of South Africa in eastern Atlantic; deep water (1645–4000 m+).

*Colour*: North Atlantic specimens have rostrum, anterior part of carapace, mouthparts and first three legs red, and some of the carapace and abdominal tubercles as well as the antennules and antennae orange-red. The eyes of New Zealand specimens are pale brown.

Infraorder **ASTACIDEA** Latreille, 1802Superfamily **NEPHROPOIDEA** Dana, 1852Family **NEPHROPIDAE** Dana, 1852***Metanephrops challengerii* (Balss, 1914) (Fig. 5)**

*NZ references*: Bate (1888: 191) pl. 25, fig. 2 (whole animal, NZ specimens mistakenly identified as females of *Nephrops thomsoni* from the Philippines); Yaldwyn (1954b: 722) fig. 1 (whole animal), as *Nephrops challengerii*, fig. 2 (colour pattern); Takeda (1990: 354) fig. 282 (colour photo, whole animal); Holthuis (1991: 72) figs 125a, 140 (whole animal); Webber (2002a: 48) fig. 1 (colour photo, whole animal); Batson (2003: 133) fig. (colour photo, blue egg mass).

*Distribution*: the endemic NZ scampi from around and south of the mainland and around the Chatham Islands; burrows in mud and sandy mud, 140–640 m on shelf and slope. It supports a commercial fishery.

*Colour*: upper surfaces of carapace, abdomen and chelipeds reddish brown; lateral surfaces of carapace and chelipeds white; anterior half of rostrum, postero-lateral corner of branchial region, abdominal terga and tail fan pinkish red; carpus of chelipeds conspicuously bright red, with similarly conspicuous transverse bands of bright red across posterior margin of carapace and posterior margin of abdominal segments; eggs blue.

***Nephropsis submi* Bate, 1888**

*NZ material*: specimens in MNZ from deep water at the edge of the Challenger Plateau and off the west coast of the South Island.

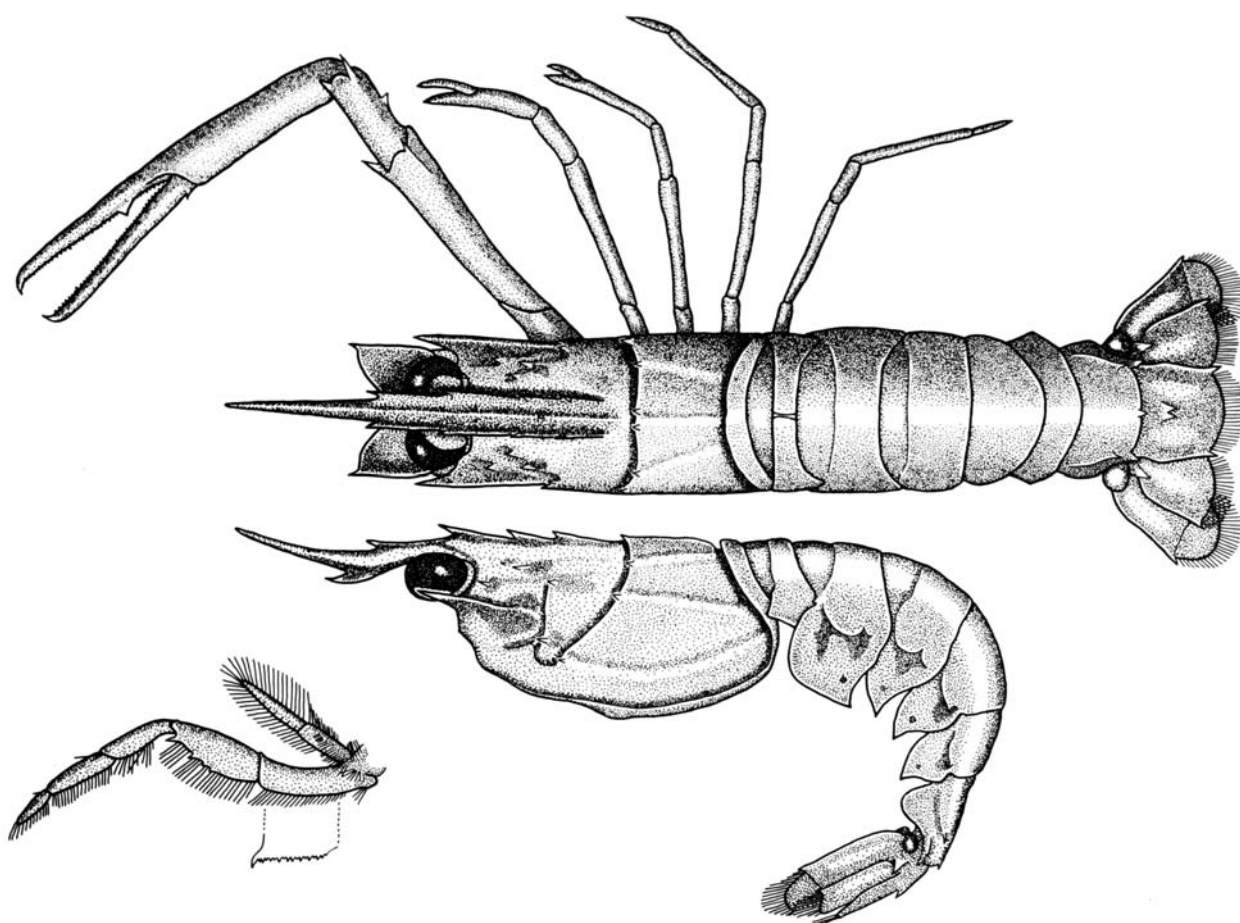


Fig. 5 Infraorder ASTACIDEA: *Metanephrops challengeri* (Bals, 1914) (drawn by J.C. Yaldwyn; from Yaldwyn (1954b); reproduced with permission from the Royal Society of New Zealand).

*NZ references:* Webber (2002a: 49); Webber *et al.* (2010: 225).

*Other significant references:* Macpherson (1990: 306) figs 5b, 7d–f, 8c–d, 16b; Holthuis (1991: 46) fig. 82; Griffin & Stoddart (1995: 234); Davie (2002a: 392); Poore (2004: 166) fig. 43e (carapace anterior).

*Distribution:* NZ; Indo-West Pacific, Western Australia and Lord Howe Rise; c. 700–2000 m+.

*Colour of NZ specimens:* pinkish red, eyes reduced and cornea without pigment.

**Note:** between 1906 and 1918, a well-organised attempt was made to introduce the European lobster, *Homarus gammarus* (Linnaeus, 1758) into NZ coastal waters. Live lobsters were imported from the UK and kept in holding ponds at the Portobello Marine Fish-Hatchery and Biological Station in Otago Harbour. It was estimated that in that period more than 750,000 larvae were hatched out and liberated, many 'in the stage at which they seek the bottom and presumably

try to find shelter' (Thomson & Anderton 1921). Mature adults of both sexes were also liberated, but no traces of free-living European lobsters at any stage of growth have been found in Otago Harbour or in NZ waters during or since this attempted introduction. Some young lobsters were hatched and reared in captivity at Portobello for up to four years and four months. A detailed account of this project is given in Thomson & Anderton (1921), with the name of the lobster given as *Homarus vulgaris* H. Milne Edwards, 1837. The only specimen from this failed venture still in existence can found on display at Otago Museum.

Superfamily PARASTACOIDEA Huxley, 1879

Family PARASTACIDAE Huxley, 1879

*Paranephrops planifrons* White, 1842

*NZ references:* Archey (1915: 298) fig. 1 (whole animal), figs 2, 3, 5, pl. 4, fig. 1 (photo, whole animal); Hopkins (1970: 284) fig. 5 (photo, whole animal); Riek (1972)



fig. 10 (whole animal); Hopkins (1974) fig. 383 (colour photo, whole animal), fig. 385 (colour photos), fig. 388 (colour photo, juvenile); Powell (1987: 34) fig. 182 (whole animal); Webber (2002a: 51) fig. 6 (colour photo, live animal).

*Distribution*: endemic, the northern NZ freshwater crayfish, or koura, found in lakes, ponds, running water and swamps throughout the North Island and in Marlborough, Nelson and right down the west coast of the South Island. Subalpine records (to at least 1300 masl) from Tongariro National Park in the central North Island and Paparoa Ranges in Westland (*vide* Fordham *et al.* 1979: 443; Michaelis 1980: 213). Burrows in suitable habitats, otherwise lives under stones.

*Colour*: body and appendages usually dark greenish brown with some blue highlights; eggs brown, turning red.

***Paranephrops zealandicus* (White, 1847)**

*NZ references*: Archey (1915: 303) fig. 6 (whole animal), figs 7–9, pl. 4, fig. 2 (photo, whole animal), as *P. setosus*; Archey (1915: 306) fig. 10 (whole animal), fig. 11, pl. 4, fig. 3 (photo, whole animal), as *P. zealandicus*; Hopkins (1970: 286) fig. 6 (photo, whole animal), fig. 7; Hopkins (1974: 387) fig. 2 (photo, whole animal).

*Distribution*: endemic, the southern NZ freshwater crayfish, or hairy-handed koura, found in similar habitats to *P. planifrons* down the east coast of the South Island from the Waipara River in north Canterbury to Otago, Southland and Stewart Island/Rakiura, not known from the mountain streams of the Kaikoura Range or on the eastern slopes of the Southern Alps. Some small-scale commercial pond farming occurs in central Otago.

*Colour*: similar to *Paranephrops planifrons*.

*Other names used*: *Astacus zealandicus* White, 1847; *Paranephrops setosus* Hutton, 1873.

**Note**: there was a short-lived attempt to pond farm a Western Australian freshwater crayfish known as the marron, *Cherax tenuimanus* (Smith, 1912), near Warkworth, north of Auckland, in the late 1980s to early 1990s. Concern about the possible escape of marron into waterways led to the total destruction of the farmed stock in 1993. For a general account of the project see Lilly (1992), and for a discussion of legal questions regarding the introduction and farming of marron see Hughes (1988).

Infraorder AXIIDEA de Saint Laurent, 1979  
Family AXIIDAE Huxley, 1879

***Calocarides vigila* Sakai, 1992**

*NZ references*: Sakai (1992: 176) fig. 17 (whole animal), fig. 18; Kensley (1996: 54) fig. 1 (distribution map of *Calocarides* spp.).

*Distribution*: endemic, described from a series of specimens taken in Hawke Bay, Cook Strait and Milford Sound, 74–146 m.

***Calocarides cf. werribee* (Poore & Griffin, 1979)**

*NZ material*: an ovigerous female in MNZ from Omaha Bay, Northland east coast, 41 m.

*NZ reference*: Webber *et al.* (2010: 225).

*Significant references to Calocarides werribee*: Poore & Griffin (1979: 232) figs 5, 6, as *Axiopsis (Axiopsis) werribee*; Sakai (1994: 201), as *Calocarides werribee*; Kensley (1996: 54), as *Axiopsis werribee*; Davie (2002a: 452).

*Distribution of Calocarides werribee*: southeastern Australia (Victoria, Tasmania), 10–25 m.

***Dorphanaxius kermadecensis* (Chilton, 1911)**

*NZ references*: Chilton (1911: 550) figs 1–2, as *Iconaxiopsis kermadecensis*; de Man (1925: 4), as *Axius (Eiconaxius) kermadecensis*; Davie (2002a: 452).

*Distribution*: Kermadec Islands; eastern and southeastern Australia; rock pools.

***Eucalastacus torbeni* Sakai, 1992**

*NZ reference*: Sakai (1992: 170) fig. 11 (whole animal), figs 12–13.

*Distribution*: endemic, described from two specimens, one taken off Raglan, west coast of North Island, and one from Milford Sound, Fiordland, 290–340 m.

***Spongioaxius novaezealandiae* Borradaile, 1916**

*NZ references*: Borradaile (1916: 91) fig. 5 (whole animal), as *Axius novae-zealandiae*; Balss (1933: 87) fig. 1, as *Axius (Axius) novaezealandiae*.

*Distribution*: endemic; Kermadecs, and Three Kings Islands to Campbell Island; shelf and upper slope, often associated with sponges.

Family CALLIANASSIDAE Dana, 1852  
Subfamily CALLIANASSINAE Dana, 1852

***Callianassa filholi* A. Milne-Edwards, 1879**

*NZ references*: Chilton (1907: 461) pl. 16, figs 1–5; Miller & Batt (1973: 117) fig. 138 (colour photo, whole animal); Sakai (1999: 43) fig. 7a–c; Tudge *et al.* (2000: 143);

Webber (2002a: 50) fig. 5 (colour photo, after Miller & Batt 1973).

*Distribution*: endemic, Northland to Foveaux Strait; the common NZ ghost shrimp, deep-burrowing in intertidal sand, sandy mud beaches and shallow water.

*Colour and ecology*: body and appendages pale pink with irregularly shaped transverse red bands on abdominal segments. General ecology covered in Devine (1966).

#### Subfamily CALLICHIRINAE Manning & Felder, 1991

##### *Corallianassa articulata* (Rathbun, 1906)

*NZ reference*: Chilton (1911: 551), as *Callianassa articulata*.

*Other significant references*: Rathbun (1906: 892) fig. 47, as *Callianassa articulata*; de Man (1928: 28) fig. 108, as *Callianassa (Callichirus) articulata*; Sakai (1999: 76) fig. 15a–f, as *Glypturus articulatus*; Tudge *et al.* (2000: 144).

*Distribution*: one specimen recorded from a rock pool on Raoul Island, Kermadecs; described from Hawai'ian Islands in shallow water, also recorded from Gilbert Islands from the littoral.

##### *Corallianassa cf. collaroy* (Poore & Griffin, 1979)

*NZ material*: two specimens of a large callianassid in MNZ from shallow water, Northland east coast; one dug from a vertical mud-lined burrow in gravelly sand at 7 m in Mimiwhangata Bay.

*NZ reference*: Webber *et al.* (2010: 225).

*Significant references to Corallianassa collaroy*: Poore & Griffin (1979: 260) figs 24–25, as *Callianassa collaroy*; Sakai (1999: 98), as *Neocallichirus collaroy*; Tudge *et al.* (2000: 144).

*Distribution of Corallianassa collaroy*: central New South Wales in eastern Australia, Moorea in French Polynesia; burrows in intertidal sand among boulders.

#### Subfamily VULCANOCALLIACINAE Dworschak & Cunha, 2007

##### *Vulcanocalliax* sp.

*NZ reference*: Lörz *et al.* (2008: 1014) (host of sacculinid *Parthenopia* n. sp.).

*Distribution*: endemic, only specimen from cold seep off east coast of North Island.

#### Family CALOCARIDIDAE Ortmann, 1891

##### *Calocaris isochela* Zarenkov, 1989

*NZ reference*: Zarenkov (1989: 25) fig. 2 (whole animal with unnumbered appendage drawings).

*Distribution*: endemic, described from a single female specimen taken on the Campbell Plateau by *Dmitri Mendeleev* in 570 m.

#### Family CTENOCHELIDAE Manning & Felder, 1991

##### Subfamily CTENOCHELINAE Manning & Felder, 1991

##### *Ctenocheles maorianus* Powell, 1949

*NZ references*: Powell (1949: 369) pl. 68, figs 3, 6, 7 (whole animal), figs 4–5; Dell (1955: 149).

*Other significant reference*: Matsuzawa & Hayashi (1997: 45).

*Distribution*: endemic, coastal waters and shelf, southernmost records from harbours and inlets at Banks Peninsula, c. 30–75 m; often represented in reference collections by detached chelae only.

*Colour*: Powell (1949) records the colour as buff, with cheliped palms pink.

#### Family EICONAXIIDAE Sakai & Ohta, 2005

##### *Eiconaxius kermadeci* Bate, 1888

*NZ references*: Bate (1888: 43) pl. 5, fig. 3 (whole animal); de Man (1925: 4), as *Axius (Eiconaxius) kermadeci*.

*Distribution*: endemic, taken by *Challenger* expedition off the Kermadec Islands, 1100 m.

##### *Eiconaxius parvus* Bate, 1888

*NZ reference*: Bate (1888: 44) pl. 5, figs 4–5 (whole animal).

*Other significant reference*: de Man (1925: 4, 42) pl. 3, fig. 7a–f, as *Axius (Eiconaxius) parvus*.

*Distribution*: taken by *Challenger* expedition off Kermadec Islands, 950 m; Indonesia, 560 m.

#### Infraorder GEBIIDEA de Saint Laurent, 1979

##### Family LAOMEDIIDAE Borradaile, 1903

##### *Jaxea novaezealandiae* Wear & Yaldwyn, 1966 (Fig. 6)

*NZ reference*: Wear & Yaldwyn (1966: 4) fig. 1 (whole animal), figs 2–3 (larval stages), fig. 5 (1st post-larval stage).

*Distribution*: endemic, northern and central NZ (Bay of Plenty, Hawke Bay, Wellington Harbour, Cook Strait), burrowing in muddy or sandy bottoms, c. 4–30 m.

*Colour and biology*: body and appendages chalky white with a short, dense pile of fine fur-like setae, giving a soft, indistinct grey appearance. Fine, rust-coloured mineral grains (presumably from substrate) usually enmeshed in the setal fur, giving a superficial appearance of pigmentation. Post-larval juveniles (at about carapace length 6 mm) with eyes

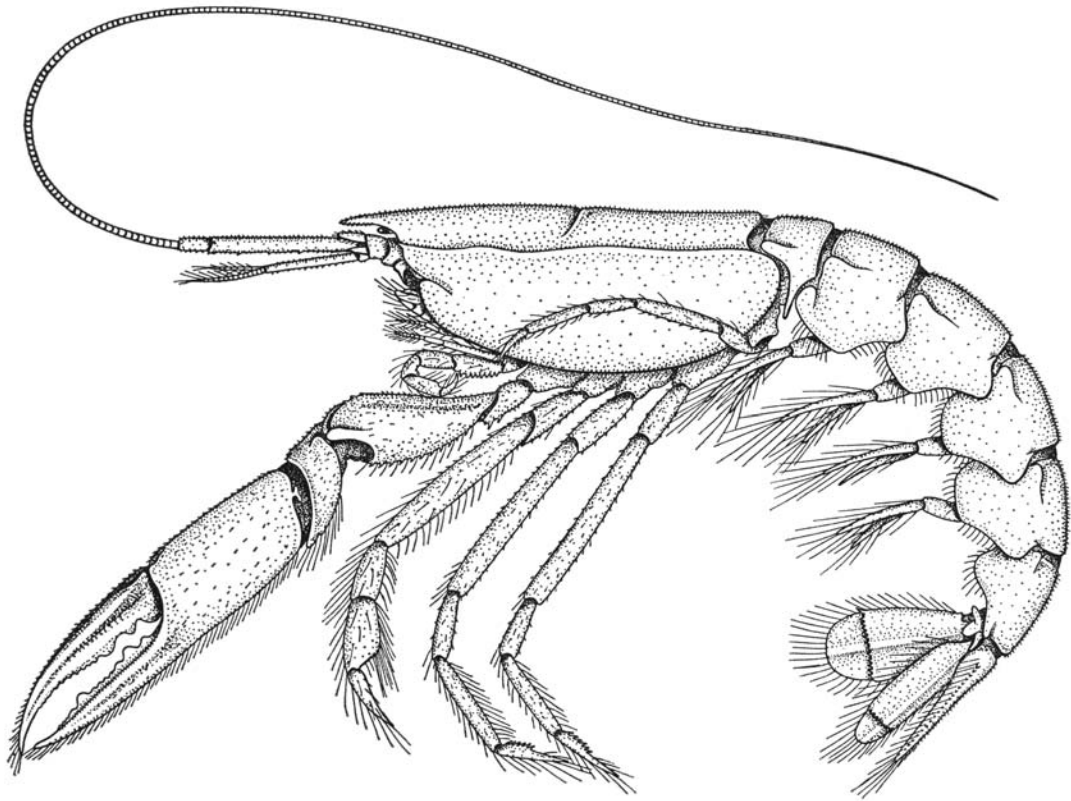


Fig. 6 Infraorder GEBIIDEA: *Jaxea novaezealandiae* Wear & Yaldwyn, 1966 (drawn by R.G. Wear; from Wear & Yaldwyn (1966); reproduced with permission from Dr R.G. Wear, School of Biological Sciences, Victoria University of Wellington).

obvious, cornea black and visible in dorsal view, and with cheliped fingers pearly iridescent. Adults (carapace length up to 16 mm or more) with eyes greatly reduced and not visible in dorsal view.

#### Family UPOGEBIIDAE Borradaile, 1903

##### *Acutigebia danai* (Miers, 1876)

*NZ references:* Chilton (1907: 459), as *Upogebia danai*; Miller & Batt (1973) fig. 139 (photo, whole animal as *Upogebia danai*); Sakai (1982: 69) fig. 146, pl. G, fig. 5, as *Upogebia acutigebia danai*.

*Distribution:* endemic, mainland and Kermadec Islands, burrows in soft sediments in intertidal and shallow subtidal zones.

##### *Upogebia hirtifrons* (White, 1847)

*NZ references:* Chilton (1907: 457); Sakai (1982: 54) figs 11a, 13c–d, pl. E, figs 7–8, as *Upogebia (Upogebia) hirtifrons*.

*Distribution:* endemic, North Island and northern South Island, burrows in soft sediments in intertidal and shallow subtidal zones.

#### Infraorder ACHELATA Scholtz & Richter, 1995

#### Family PALINURIDAE Latreille, 1802

##### *Jasus edwardsii* (Hutton, 1875) (Fig. 7)

*NZ references:* Kensler (1967a: 412) fig. 1 (whole animal); George & Kensler (1970: 293) figs 2, 3, 6, 8 (puerulus and juvenile); Coombs (1974: 726) (whole animal, after Kensler 1967a), pp. 725–732 (colour photos, live animals); Williams (1988: 55) lower fig. (tail sculpture), fig. 56, upper fig. (colour photo, lateral view of tail), as *J. novaehollandiae*, fig. 57, upper fig. (colour illustration, whole animal), fig. 58 (colour photos, dorsal and lateral views of tail), as *J. edwardsii*; Holthuis (1991: 97) figs 186c, 187 (whole animal, after Kensler 1967a), fig. 188 (distribution).

*Other significant references:* Holthuis (1991: 100) fig. 193 (whole animal), as *J. novaehollandiae*, fig. 194 (distribution); Davie (2002a: 424), as *Jasus (Jasus) edwardsii*; Poore (2004: 200) pl. 2 (colour illustration, after McCoy 1887), fig. 13a (live animals in reef crevice), as *Jasus (Jasus) edwardsii*.



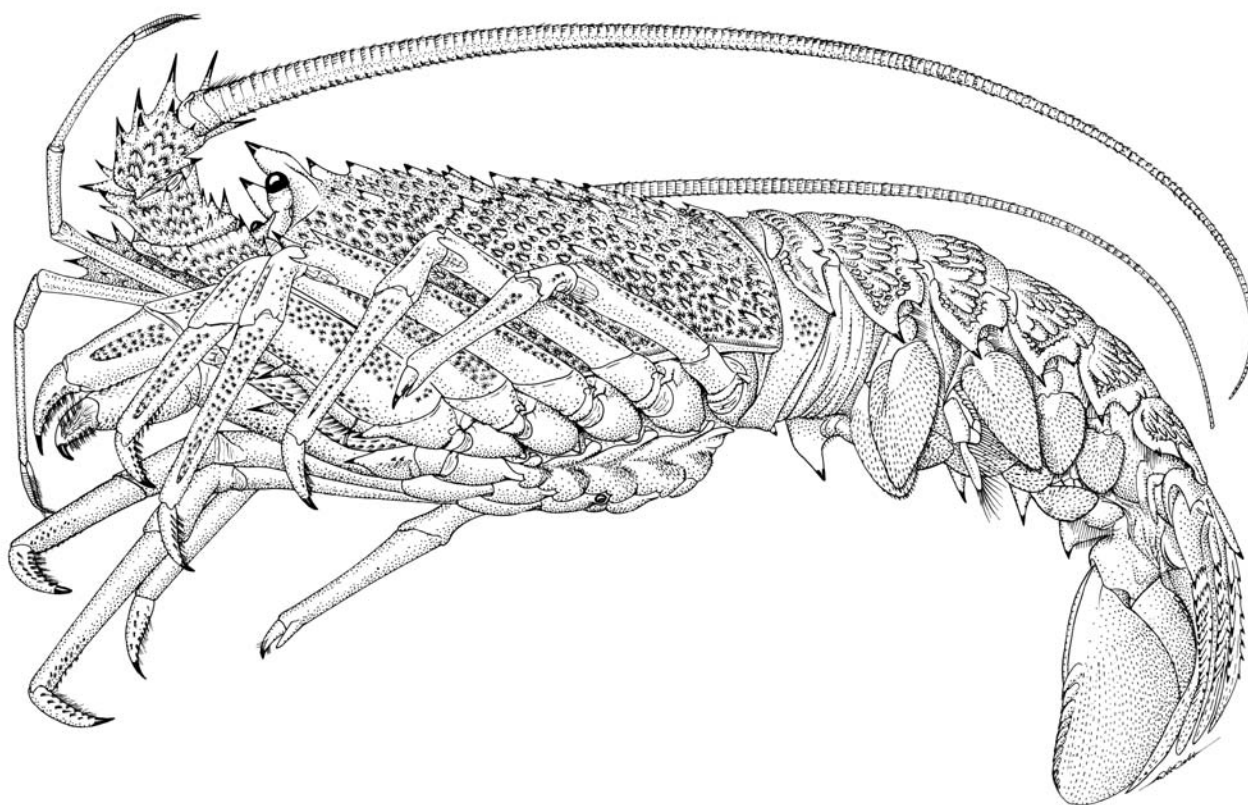


Fig. 7 Infraorder ACHELATA: *Jasus edwardsii* (Hutton, 1875) female (drawn by W.R. Webber; from Webber (1988); reproduced with permission from New Zealand Ministry of Fisheries, Wellington).

**Distribution:** the common NZ rock or spiny lobster (crayfish), found on rocky coasts of North and South islands, Three Kings Islands, Chatham Islands, Stewart Island/Rakiura, and the Snares, Bounty, Antipodes and Auckland islands (southernmost palinurid locality in the world), c. 1–200 m; eastern Australia south from central New South Wales, Tasmania, southern Australia and southern Western Australia, c. 1–150 m. A major commercial species in NZ and Australia.

**Status:** Booth *et al.* (1990: 239) consider it impossible to distinguish *Jasus lalandii* subgroup rock lobster from Australia and New Zealand on the grounds of morphology, colour pattern, life history characters or biochemical genetics, and therefore regard the two populations as one species, placing *Jasus novaehollandiae* Holthuis, 1963 from Australia as a synonym of *J. edwardsii*.

**Colour:** sometimes called the ‘red crayfish’ or ‘red rock lobster’, *Jasus edwardsii* has a body colour ranging from orange-red, through dark red to purple, greenish and bluish, with legs usually paler and lined with red or orange-red.

***Panulirus* sp., probably *P. femoristriga* (Von Martens, 1872)**

**NZ reference:** Booth & Webber (2001: 22) (specimens from Kermadec Islands).

**Other significant references to *Panulirus femoristriga*:** George & Holthuis (1965: 26) pl. 5, fig. a (colour illustration, whole animal); George (1966: 27) middle fig. (colour photo, two whole animals); George (1972: 32) fig. 5 (colour photo, ‘blue spot’ form), fig. 6 (colour photo, ‘white whiskered’ form); Williams (1988) fig. 89 upper (tail sculpture), fig. 89 lower (colour photo, tail); Holthuis (1991: 145) fig. 277b (whole animal), fig. 278 (distribution); Chan & Ng (2001: 123) (nomenclature of *P. femoristriga*); Chan (2010: 159).

**Distribution:** Kermadec Islands; western Pacific from Moluccas to New Guinea, eastern Australia, New Caledonia, Japan and Polynesia; shallow water in rocky areas, and coral reefs.

***Projasus parkeri* (Stebbing, 1902)**

**NZ references:** Webber & Booth (1988: 81) fig. 1 (whole animal, dorsal view), fig. 2 (whole animal, lateral view);

Holthuis (1991: 159) fig. 298 (whole animal, after Webber & Booth 1988), fig. 299 (distribution).

*Other significant references:* Griffin & Stoddart (1995: 236); Davie (2002a: 430); Poore (2004: 203) fig. 57b (carapace).

*Distribution:* northern NZ to Wairarapa, c. 480–970 m; southwestern and southeastern South Africa, southern Indian Ocean including Saint-Paul and Amsterdam islands, and New South Wales.

*Colour:* ‘medium orange to straw-brown’ in Webber & Booth (1988: 86); colour photo of whole animal in Clark *et al.* (1999: 33) fig. 6.

***Sagmariasus verreauxi* (H. Milne Edwards, 1851)**

*NZ references:* Kensler (1967b: 207) fig A (photo, whole animal) figs B–C; Kensler (1967a: 412) fig. 2 (whole animal); Doak (1971) pl. 40 (colour photo, large live animal); Heath & Dell (1971: 42) fig. 120 (colour illustration, whole animal green phase); Coombs (1974) fig. 727 (whole animal, after Kensler 1967a), fig. 729 (colour photo, live animal) (all these NZ references as *Jasus verreauxi*); Holthuis (1991: 105) figs 183, 199 (both figs whole animal, after Kensler 1967a), fig. 200 (distribution); Booth & Webber (2001: 21) (colour photo, whole live green-phase female) (justification for use of generic name *Sagmariasus* in place of *Jasus* as used in NZ and Australian references to this species up to this date); Davie (2002a: 425), as *Jasus (Sagmariasus) verreauxi*; Batson (2003: 134) fig. (colour photo, whole animal); Poore (2004: 200) pl. 3 (colour illustration, after McCoy 1887).

*Distribution:* the NZ and Australian packhorse, smoothtail or green crayfish, living on rocky coasts and sandy or gravel bottoms, c. 1–150 m, with main NZ population from northern North Island south to about Cape Runaway, Bay of Plenty, on the east coast and Manukau Harbour on the west coast; small, isolated populations of immature specimens have also been reported from Hawke Bay, Taranaki, Cook Strait, Kaikoura and Foveaux Strait. Recorded from the Kermadec Islands (but may not be firmly established there) and Three Kings Islands, not known from the Chatham or Subantarctic islands. In Australia, from southern Queensland to Victoria and northern Tasmania. A commercial species in NZ and Australia.

*Colour:* has two colour phases – immature and smaller adult specimens are usually green, while the larger and very large individuals (*Sagmariasus verreauxi* is the largest known palinurid) are yellow or reddish orange in colour.

*Status:* Brasher *et al.* (1992: 53) report genetic differentiation between the Australian and NZ populations of *Sagmariasus verreauxi* with this differentiation supported by gene

diversity analysis. In contrast to the findings of Booth *et al.* (1990) on the Australian and NZ populations of the *Jasus lalandii* subgroup, the preliminary *S. verreauxi* findings suggest ‘that larval exchange between adult populations across the Tasman Sea may be limited’, but they are still known by the same name.

Family **SCYLLARIDAE** Latreille, 1825

Subfamily **ARCTIDINAE** Holthuis, 1985

***Arctides antipodarum* Holthuis, 1960**

*NZ references:* Yaldwyn (1961: 1) fig. 1 (photo, whole animal), fig. 2; Doak (1971) pl. 42 (colour photo, live animal); Holthuis (1991: 175) figs 326a, 327 (whole animal), fig. 328 (distribution); Booth & Webber (2002: 29) (colour photo, whole animal).

*Other significant references:* Davie (2002a: 440) fig. page 438 (after Holthuis 1991); Poore (2004: 209) fig. 58b (whole animal).

*Distribution:* northern North Island rocky coasts, shallow water; eastern Australia (New South Wales); c. 5–150 m.

*Colour:* mottled red and yellow, somewhat obscured by an overall covering of short brown setae, and with a pair of prominent, bright red dorso-lateral patches on the otherwise yellow antero-dorsal half of the 1st abdominal segment (in life, these patches are usually obscured under the posterior margin of the carapace).

***Scyllarides haanii* (De Haan, 1841)**

*NZ reference:* Booth & Webber (2002: 31) fig. (colour photo, whole animal).

*Other significant references:* Holthuis (1991: 189) fig. 359 (photo, whole animal), fig. 360 (distribution); Davie (2002a: 443); Poore (2004: 212) fig. 59j (abdomen).

*Distribution:* taken by divers at Kermadec Islands and in northern NZ waters; Indo-West Pacific from Red Sea to Western and eastern Australia, Indonesia, Taiwan, southern Japan and Hawaiian Islands.

*Colour:* body with mottled pattern of tan, dark brown and purplish markings on yellow-brown background; purplish markings concentrated and especially distinct on 1st abdominal segment.

Subfamily **IBACINAE** Holthuis, 1985

***Ibacus alticrenatus* Bate, 1888**

*NZ references:* Dell (1955: 148); Atkinson & Boustead (1982: 275) figs 1–7 (stage 1–7 phyllosomas), fig. 8a (nisto), fig. 8b (post-nisto juvenile); Holthuis (1985: 36) fig. 9 (whole animal, after Bate 1888: pl. 9, fig. 2 of NZ syn-

type); Powell (1987: 34) fig. 184 (whole animal); Takeda (1990: 356) fig. 284 (colour photo, whole animal); Holthuis (1991: 200) fig. 382 (whole animal, after Holthuis 1985), fig. 383 (distribution); Booth & Webber (2002: 28) (colour photo, whole animal); Davie (2002a: 440); Poore (2004: 211) fig. 58d (whole animal).

*Other significant reference:* Brown & Holthuis (1998: 120) pl. 2 (colour photo whole animal).

*Distribution:* North Island, northern half of South Island and Chatham Islands; eastern and southern Australia including Tasmania; *c.* 80–700 m.

*Colour and biology:* dorsal surface of carapace and flattened antennal segments red-orange to brown, with darker red spots and marbling, particularly in middle of carapace. All lateral carapace spines tipped with white. First to 5th abdominal segments with anterior border darker red, posterior portion light orange-red; 6th abdominal segment, calcified parts of uropods and telson white; flexible parts of uropods and telson yellow-brown (colour description after Brown & Holthuis 1998, based on Australian material).

#### ***Ibacus brucei* Holthuis, 1977**

*NZ references:* Holthuis (1977: 191) pl. 1 (whole animal), pl. 2 (colour photos, whole animal, dorsal and ventral); Holthuis (1985: 41) fig. 10 (whole animal, after Holthuis 1977), figs 11–12 (photos, whole animal, dorsal and ventral); Holthuis (1991: 202) fig. 386 (whole animal, after Holthuis 1977), fig. 387 (distribution); Davie (2002a: 441); Poore (2004: 211) fig. 59c (carapace, antennae).

*Other significant reference:* Brown & Holthuis (1998: 127) pl. 5 (colour photo, whole animal).

*Distribution:* Kermadec Islands, *c.* 80–120 m (*Galathea* expedition and MNZ collections); eastern Australia (central Queensland south to southern New South Wales), shelf and slope to *c.* 560 m.

*Colour:* dorsal surface of body with yellowish-brown background overlaid by brick red; median area of carapace with numerous brick-red spots merging laterally into solid brick-red coverage with surface pits lighter in colour; entire abdomen brick red with lighter pits; tips of larger lateral teeth on carapace and abdomen, anterior margin of flattened distal segment of antenna and outer margin of uropodal exopod white (colour description after Holthuis 1985, based on Australian material). Brown & Holthuis (1998) described a variant colour pattern on carapace and abdomen of white or beige background overlaid by faint red stippling.

### Subfamily SCYLLARINAE Latreille, 1825

#### ***Antarctus mawsoni* (Bage, 1938)**

*NZ reference:* Webber *et al.* (2010: 225).

*Other significant references:* Bage (1938: 10) pl. 4, figs 2, 2a (whole animal, dorsal and ventral), as *Arctus mawsoni*; Hale (1941: 272) pl. 3, figs 1, 2 (photos, whole animal, dorsal and lateral); Holthuis (2002: 528) (*Antarctus* n. g.); Davie (2002a: 445), as *Scyllarus*; Poore (2004: 209) fig. 58a (whole animal), fig. 59a.

*Distribution:* northern and southern NZ; Tasmania; *c.* 122–440 m.

*Colour:* a specimen from Papanui Canyon off Otago Harbour, 320 m, was salmon pink with some darker markings.

#### ***Antipodartus aoteanus* (Powell, 1949)**

*NZ references:* Powell (1949: 368) pl. 68, figs 1–2 (whole animal, dorsal and lateral as *Scyllarus aoteanus*); Booth & Webber (2002: 28) (colour photo, whole animal, repeated at larger scale on p. 1 as *Scyllarus*); Webber *et al.* (2010: 225).

*Other significant reference:* Holthuis (2002: 551) (*Antipodartus* new generic name).

*Distribution:* endemic, northern NZ, *c.* 20–100 m.

*Colour:* body pinkish brown, carapace darker than abdomen; anterior two-thirds of carapace with overlay of dark red; anterior half of first abdominal segment with distinctive transversely oval red spot dorsally, posterior half of 1st abdominal segment with three longitudinal red bands (one dorsal and a dorsolateral pair), other abdominal segments with some irregular red markings; legs banded with red.

#### ***Bathyarctus* sp.**

*NZ material:* one specimen in MNZ.

*Distribution:* only specimen known from shelf, northeast of Poor Knights Islands.

### Infraorder POLYCHELIDA

Scholtz & Richter, 1995

#### Family POLYCHELIDAE Wood-Mason, 1875

##### ***Pentacheles laevis* Bate, 1878**

*NZ references:* O'Shea *et al.* (1999: 50) fig. 23 (photo, whole animal); Galil (2000: 301) fig. 7 (photos, dorsal view cephalothorax, lateral view abdomen); Webber (2002a: 49) fig. 3 (colour photo, whole animal, based on O'Shea *et al.* 1999: fig. 23); Ahyong (2007: 47) fig. 24B (colour photo, whole animal).



*Other significant references:* Bate (1888: 144) pl. 15, figs 4c, 5; Griffin & Stoddart (1995: 240) fig. 4 (photo, cephalothorax and abdomen), fig. 5, as *Polycheles granulatus*; Ahyong & Brown (2002: 54) fig. 1A–B (colour photos, dorsal and lateral views cephalothorax and abdomen).

*Distribution:* northern NZ; worldwide in Indo-West Pacific, east Pacific, and western and eastern Atlantic; 212–2505 m (Ahyong 2007).

*Colour:* carapace, abdomen and telson pale pink; spines tipped with white; anterior appendages, pereopods and uropods darker pink to red.

***Pentacheles validus* A. Milne-Edwards, 1880**

*NZ references:* Galil (2000: 308) fig. 10 (photos, dorsal view cephalothorax, lateral view abdomen); Ahyong (2007: 49) fig. 24A (colour photo, whole animal).

*Other significant reference:* Ahyong & Brown (2002: 56).

*Distribution:* northern NZ; worldwide in Indo-West Pacific, east Pacific, and western and eastern Atlantic; 914–3365 m (Galil 2000).

***Polycheles enthrix* (Bate, 1878)**

*NZ references:* Bate (1888: 140) pl. 15, fig. 1 (*Challenger* station 170 specimen from off Kermadec Islands – considered by Bate to be the female of his *Polycheles helleri* – was described by Sund (1920: 224) as *Stereomastis kermadecensis*, text figs 14–27, 33 (whole animal), pl. 17 figs 34–36 (whole animal), as *Pentacheles enthrix*; Galil (2000: 322) fig. 16 (photos, dorsal view cephalothorax, lateral view abdomen); Ahyong (2007: 49) fig. 24C (colour photo, whole animal), fig. 25 (anterior margins of carapace).

*Other significant references:* Griffin & Stoddart (1995: 239) fig. 2 (cephalothorax, abdomen), fig. 3 (lateral view abdomen), as *Polycheles enthrix*; Ahyong & Brown (2002: 65) fig. 7C–D (colour photos, dorsal and lateral views cephalothorax and abdomen), type material of *P. enthrix* (Bate) *P. kermadecensis* (Sund) and *P. helleri* Bate designated.

*Distribution:* northern NZ; Fiji and Australia; 229–1152 m (Ahyong & Brown 2002).

*Colour:* body bright red, tail-fan pink, 1st cheliped pink, fingers white.

*Note:* The specific name used by Bate (1878: 280) was ‘*enthrix*’ not ‘*euthrix*’ as used by Willemoes-Suhm (1875: 23). ‘*Willemoesia euthrix*’ Willemoes-Suhm, 1875 is a *nomen nudum*.

***Polycheles kermadecensis* (Sund, 1920)**

*NZ reference:* Ahyong & Brown (2002: 68) figs 7A–B (colour photos, dorsal and lateral cephalothorax and abdomen), figs 8–9.

*Distribution:* taken by *Challenger* expedition off Kermadec Islands; otherwise known only with certainty from eastern Australia.

***Stereomastis nana* (Smith, 1884)**

*NZ reference:* Galil (2000: 329) fig. 19 (photos, dorsal view cephalothorax, lateral view abdomen).

*Other significant reference:* Ahyong & Brown (2002: 71).

*Distribution:* specimens in NIWA collections from Lord Howe Rise; worldwide from Indo-West Pacific (Arabian Sea, Indonesia, southeastern Australia, New Caledonia, Philippines, China Sea and Japan), and North and South Atlantic.

*Colour:* body red with paler cephalothorax.

***Stereomastis sculpta* (Smith, 1880)**

*NZ references:* Galil (2000: 340) fig. 24 (photos, dorsal view cephalothorax, lateral view abdomen); Ahyong (2007: 50) fig. 24A (colour photo, whole animal), as *Polycheles sculptus*.

*Distribution:* West Norfolk Ridge; Australia, Vanuatu, worldwide in Indo-West Pacific, western and eastern Atlantic, and Mediterranean; 200–4000 m (Galil 2000).

*Colour:* body rosy pink.

***Stereomastis submi* (Bate, 1878)**

*NZ references:* Takeda (1990: 358) (photo, whole animal); O’Shea *et al.* (1999: 50) (photo, whole animal); Galil (2000: 344) fig. 25 (photos, dorsal view cephalothorax, lateral view abdomen); Ahyong (2007: 51), as *Polycheles submi*.

*Other significant reference:* Griffin & Stoddart (1995: 249) fig. 12 (photo, whole animal), figs 13–15.

*Distribution:* NZ; southern Indo-Pacific and Atlantic, and Southern Ocean (off South Africa, southern Australia and Chile).

*Colour:* body pale pink, spines of carapace and abdomen darker pink (Australian specimens).

***Stereomastis surda* (Galil, 2000)**

*NZ reference:* Galil (2000: 347) fig. 26 (photos, dorsal view cephalothorax, lateral view abdomen).

*Other significant references:* Griffin & Stoddart (1995: 246) figs 9–11 (photos, whole animal dorsal and lateral), as *Stereomastis phosphorus*; Ahyong & Brown (2002: 75).



*Distribution*: Challenger Plateau and Bay of Plenty outer slope; Indo-West Pacific (Indian Ocean, Western, southern and eastern Australia, New Caledonia, Marquesas Islands and Hawai'i) and Nazca Ridge in southeastern Pacific.

*Colour*: body rose-pink with grey patches on branchial regions; pereopods mainly rose-pink but with proximal half of cheliped merus and distal portion of fingers white (Australian specimens).

***Willemoesia pacifica* Sund, 1920**

*NZ reference*: Galil (2000: 367) fig. 34 (photos, dorsal view cephalothorax, lateral view abdomen).

*Other significant reference*: Griffin & Stoddart (1995: 251) figs 16–17 (whole animal dorsal, lateral view abdomen), as *Willemoesia bonaspei*.

*Distribution*: New Caledonia Trough between West Norfolk Ridge and Lord Howe Rise; Indo-Pacific and Southern Ocean (off South Africa, southern Australia, Kermadec Trench and Juan Fernandez Islands); deep water.

Infraorder ANOMURA MacLeay, 1838

Superfamily CHIROSTYLOIDEA

Ortmann, 1892

Family CHIROSTYLIDAE

Ortmann, 1892

***Chirostylus novaecaledoniae* Baba, 1991**

*NZ reference*: Schnabel (2009a: 24).

*Other significant reference*: Baba (1991: 264) figs 1, 8a (colour photo, whole animal).

*Distribution*: west of Reinga Ridge; New Caledonia; upper slope.

*Colour*: body and appendages carrot orange with white markings on dorsal surface of carapace (New Caledonian material).

***Gastroptychus novaezelandiae* (Baba, 1974)**

*NZ references*: Baba (1974: 381) figs 1, 2; Ahyong *et al.* (2007) fig. 142 (colour photo, whole animal); Schnabel (2009a: 24); Schnabel (2009b: 544) fig. 2A–E (diagnostic characters), fig. 3 (distribution); Rowden *et al.* (2010: 73).

*Distribution*: Northland to southern Campbell Plateau, southwest Pacific, continental slope, 264–732 m (Schnabel 2009b).

*Colour*: carapace, abdomen, chelipeds and walking legs pale brown with red chromatophores; cheliped hand and distal portion of arm and wrist reddish orange. Specimens from Otago were described by Elizabeth Batham as having a pale translucent orange to pale vermilion body with

chelipeds and walking legs orange, broadly banded with pale orange, and with cornea black.

***Gastroptychus rogeri* (Baba, 2000)**

*NZ references*: O'Shea *et al.* (1999: 51) fig. 28 (colour photo, whole animal), as the long-armed 'football jersey squat lobster', *Gastroptychus* sp.; Ahyong *et al.* (2007: 142) fig. (colour photo, whole animal); Schnabel (2009a: 25).

*Other significant reference*: Baba (2000: 246) fig. 1 (photo, whole animal), fig. 2.

*Distribution*: southern Lord Howe Rise, Northland Plateau, Bounty Plateau; Solander Trough, Tasmania; continental shelf and slope, 604–1200 m (Schnabel 2009a).

*Colour*: body white with two broad red bands across carapace and a red band across each abdominal segment, chelipeds and walking legs red.

***Uroptychodes epigaster* Baba, 2004**

*NZ reference*: Schnabel (2009a: 25).

*Other significant reference*: Baba (2004: 104) fig. 5a–k (female holotype, diagnostic characters).

*Distribution*: Reinga Ridge; New Caledonia; 410–700 m (Schnabel 2009a).

***Uroptychodes spinimarginatus* (Henderson, 1885)**

*NZ references*: Henderson (1888: 176) pl. 21, fig. 2 (whole animal), fig. 2a; Schnabel (2009a: 25); Schnabel (2009b: 546) fig. 4A–G (whole animal in parts), fig. 5 (NZ distribution).

*Distribution*: Kermadec Islands; western Pacific from Japan to New Caledonia; slope, 458–952 m (Schnabel 2009a).

***Uroptychus alcocki* Ahyong & Poore, 2004**

*NZ references*: Schnabel (2009a: 25); Schnabel (2009b: 549) fig. 5 (NZ region distribution); Rowden *et al.* (2010: 75). *Other significant reference*: Ahyong & Poore (2004a: 15) fig. 2A–H (diagnostic characters).

*Distribution*: Kermadec Ridge and northern NZ to Chatham Rise; eastern Australia, Tasman Sea, Taiwan, Japan; 64–420 m (Schnabel 2009a).

***Uroptychus australis* (Henderson, 1885)**

*NZ references*: Henderson (1888: 179) pl. 21, fig. 4 (whole animal), pl. 21, fig. 4a–c; Schnabel (2009a: 26); Schnabel (2009b: 551) fig. 5 (NZ region distribution); Rowden *et al.* (2010: 75).

*Other significant reference*: Ahyong & Poore (2004a: 18) fig. 32A–H (diagnostic characters).

*Distribution*: Kermadec Ridge and northern NZ to East Coast; eastern and southern Australia, Indonesia; 331–1395 m (Schnabel 2009a).

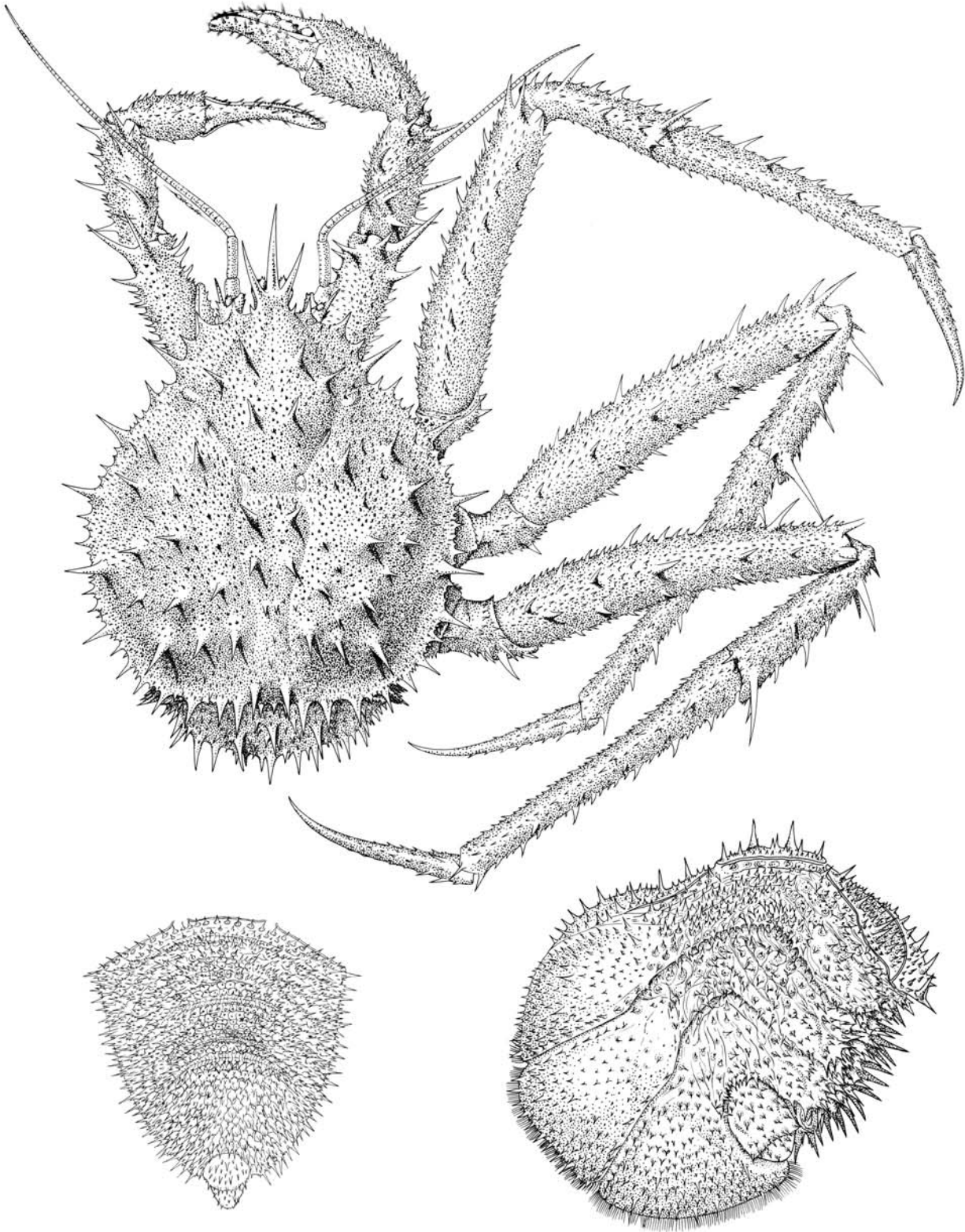


Fig. 8 Infraorder ANOMURA: *Neolithodes brodiei* Dawson & Yaldwyn, 1970 dorsal view of male, and ventral view of male and female abdomens (drawn by W.R. Webber).

***Uroptychus bicavus* Baba & de Saint Laurent, 1992**

NZ reference: Schnabel (2009a: 26).

Other significant reference: Baba & de Saint Laurent (1992: 323) fig. 1a–g (diagnostic characters).

Distribution: southern Norfolk Basin; North Fiji Basin at hydrothermal vent; 2340–2750 m (Schnabel 2009a).

***Uroptychus cardus* Ah Yong & Poore, 2004**

NZ reference: Schnabel (2009a: 27).

Other significant reference: Ah Yong & Poore (2004a: 31) fig. 7A–H (diagnostic characters).

Distribution: northern Chatham Rise; Solander Trough, off Tasmania; 899–120 m (Schnabel 2009a).

***Uroptychus empheres* Ah Yong & Poore, 2004**

NZ reference: Schnabel (2009a: 27).

Other significant reference: Ah Yong & Poore (2004a: 34) fig. 8A–I (diagnostic characters).

Distribution: NZ; Tasmania; 800–900 m (Schnabel 2009a).

***Uroptychus flindersi* Ah Yong & Poore, 2004**

NZ reference: Schnabel (2009a: 27).

Other significant reference: Ah Yong & Poore (2004a: 37) fig. 9A–G (diagnostic characters).

Distribution: northern NZ on West Norfolk Ridge, Reinga Ridge, Pureroa Seamount; Tasmania; 509–714 m (Schnabel 2009a).

***Uroptychus* cf. *gracilimanus* (Henderson, 1885)**

NZ reference: Schnabel (2009a: 27).

Significant reference to *Uroptychus gracilimanus*: Tirimizi (1964: 392) figs 6–9 (diagnostic characters).

Distribution: Bay of Plenty; New South Wales, Japan, east China Sea and Zanzibar; 920–1011 m (Schnabel 2009a).

***Uroptychus kaitara* Schnabel, 2009**

NZ references: Schnabel (2009a: 28); Schnabel (2009b: 553) fig. 6A–N (female holotype), fig. 7 (distribution).

Distribution: endemic, Kermadec Islands; slope.

***Uroptychus longicheles* Ah Yong & Poore, 2004**

NZ reference: Schnabel (2009a: 28).

Other significant reference: Ah Yong & Poore (2004a: 55) fig. 15A–I (diagnostic characters).

Distribution: West Norfolk Ridge, Lord Howe Rise; east of Brisbane; 306–376 m (Schnabel 2009a).

***Uroptychus maori* Borradaile, 1916**

NZ references: Borradaile (1916: 92) fig. 6 (whole animal); Schnabel (2009a: 28); Schnabel (2009b: 555) figs 8A–J, 9A–D (male holotype), fig. 5 (distribution).

Distribution: endemic, West Norfolk Ridge to Bay of Plenty; 180–700 m (Schnabel 2009a).

***Uroptychus novaezealandiae* Borradaile, 1916**

NZ references: Borradaile (1916: 93) fig. 7 (whole animal); Schnabel (2009a: 29); Schnabel (2009b: 559) fig. 10A–G (female holotype), fig. 11 (whole animal, after Borradaile 1916), fig. 5 (NZ region distribution).

Distribution: endemic, North Cape; 120 m (Borradaile 1916).

***Uroptychus paku* Schnabel, 2009**

NZ references: Schnabel (2009a: 29); Schnabel (2009b: 562) fig. 12A–K (female holotype), fig. 7 (distribution).

Distribution: endemic, Kermadec Islands; shelf-slope depths, 122 m (Schnabel 2009a).

***Uroptychus paracrassior* Ah Yong & Poore, 2004**

NZ reference: Schnabel (2009a: 29).

Other significant reference: Ah Yong & Poore (2004a: 66) fig. 19 A–H (diagnostic characters).

Distribution: Reinga Ridge; Queensland; 364–526 m (Schnabel 2009a).

***Uroptychus pilosus* Baba, 1981**

NZ references: Baba (1981: 126) fig. 10a–b (male holotype carapace), fig. 11a–e (male holotype appendages); Schnabel (2009a: 30), as *U. pilosus*; Baba *et al.* (2008: 40) (*Uroptychus* cf. *pilosus* of Ah Yong & Poore (2004a) and Schnabel (2009a) n. sp., in preparation by Baba).

Other significant reference: Ah Yong & Poore (2004a: 71) fig. 21A–I (diagnostic characters).

Distribution: West Norfolk Ridge; eastern Australia (Ah Yong & Poore 2004a; Schnabel 2009a).

***Uroptychus politus* (Henderson, 1885)**

NZ references: Henderson (1888: 178) pl. 6, fig. 2 (whole animal), fig. 2a–b; Baba (1974: 387) fig. 5; Schnabel (2009a: 30); Schnabel (2009b: 564) fig. 5 (NZ region distribution).

Distribution: Kermadec Islands; Loyalty Islands; slope, 1098–1240 m (Schnabel 2009a).

***Uroptychus raymondi* Baba, 2000**

NZ reference: Schnabel (2009a: 30).

Other significant reference: Baba (2000: 250) fig. 3A–I (diagnostic characters).

Distribution: Chatham Rise; Solander Trough, Tasmania, Victoria; 644–1082 m (Schnabel 2009a).

***Uroptychus rutua* Schnabel, 2009**

NZ references: Schnabel (2009a: 30); Schnabel (2009b: 564) fig. 13A–K (female holotype), fig. 7 (distribution).



*Distribution*: endemic, Kermadec Islands; 165–179 m (Schnabel 2009a).

***Uroptychus scambus* Benedict, 1902**

*NZ references*: Schnabel (2009a: 30); Schnabel (2009b: 567) fig. 5 (NZ region distribution).

*Other significant references*: Benedict (1902: 297) fig. 41; Alcock & McGilchrist (1905) pl. 70, fig. 4 (whole animal), pl. 71, fig. 1 (whole animal), pl. 71, fig. 1a–d, as *U. glyphodactylus*.

*Distribution*: northern NZ; Indo-West Pacific; at slope depths and deeper, 296–2084 m (Schnabel 2009a).

***Uroptychus spinirostris* (Ahyong & Poore, 2004)**

*NZ reference*: Schnabel (2009a: 30).

*Other significant reference*: Ahyong & Poore (2004a: 9) fig. 1A–G (diagnostic characters), as *Gastroptychus spinirostris*.

*Distribution*: Northland Plateau, Bay of Plenty, Norfolk Ridge; Queensland; 176–526 m (Schnabel 2009a).

***Uroptychus thermalis* Baba & de Saint Laurent, 1992**

*NZ reference*: Schnabel (2009a: 31).

*Other significant reference*: Baba & de Saint Laurent (1992: 324) fig. 2a–g (diagnostic characters).

*Distribution*: Bay of Plenty; North Fiji Basin (hydrothermal vent), Queensland; 1396–2000 m (Schnabel 2009a).

***Uroptychus toka* Schnabel, 2009**

*NZ references*: Schnabel (2009a: 31); Schnabel (2009b: 568) fig. 14A–K (female holotype), fig. 7 (distribution).

*Distribution*: endemic, Kermadec Ridge; slope, 350 m (Schnabel 2009a).

***Uroptychus tomentosus* Baba, 1974**

*NZ references*: Baba (1974: 384) fig. 3 (whole animal), fig. 4; Schnabel (2009a: 31); Schnabel (2009b: 570) fig. 15A–H (female paratype), fig. 16 (distribution).

*Distribution*: endemic, from off North Cape, around both North and South islands, south to Bounty Plateau; a relatively common species from shelf and upper slope, 80–535 m (Schnabel 2009a).

*Colour*: fresh specimens from Otago waters have been recorded as uniform pale warm pink or pale yellowish pink, while a fresh specimen from Cook Strait was pale salmon pink with cornea pale brown.

***Uroptychus webberi* Schnabel, 2009**

*NZ references*: Schnabel (2009a: 31); Schnabel (2009b: 572) fig. 17A–M (female holotype), fig. 7 (distribution).

*Distribution*: endemic, Kermadec Islands; slope, 610 m (Schnabel 2009a).

***Uroptychus yaldwyni* Schnabel, 2009**

*NZ references*: Schnabel (2009a: 32); Schnabel (2009b: 575) fig. 18A–K (female holotype), fig. 7 (distribution); Rowden *et al.* (2010: 75).

*Distribution*: endemic, Kermadec Islands; slope, 398 m (Schnabel 2009a).

Family **EUMUNIDIDAE**

A. Milne-Edwards & Bouvier, 1900

***Eumunida australis* de Saint Laurent & Macpherson, 1990**

*NZ references*: de Saint Laurent & Macpherson (1990: 664) figs 2d, 4d, 5d, 6d,h, 10d, 11 (photo, whole animal); de Saint Laurent & Poupin (1996: 343, 364); Schnabel (2009a: 24).

*Distribution*: West Norfolk Ridge, Northland Plateau, Bay of Plenty, Challenger Plateau and west coast of South Island; eastern Australia from Queensland to New South Wales; 380–910 m (Schnabel 2009a).

*Other name used*: *Eumunida picta* in Gordon (1930: 742) for the Challenger Plateau specimen, now the holotype of *E. australis*.

Superfamily GALATHEOIDEA

Samouelle, 1819

Family **GALATHEIDAE** Samouelle, 1819

***Allogalatea elegans* (Adams & White, 1848)**

*NZ reference*: Schnabel (2009a: 37).

*Other significant references*: Adams & White (1848) pl. 12 fig. 7 (painting, whole animal); Ahyong (2007: 13).

*Distribution*: Kermadec Islands, Lord Howe Rise; Indo-West Pacific from eastern Africa to Japan, Western Australia and Queensland, and east to Fiji; 0–146 m (Schnabel 2009a).

***Phylladorhynchus ikedai* (Miyake & Baba, 1965)**

*NZ reference*: Schnabel (2009a: 48).

*Other significant reference*: Miyake & Baba (1965: 588) fig. 3 (holotype female carapace, abdomen), fig. 4A–G (as *Galathea ikedai* holotype diagnostic characters).

*Distribution*: West Norfolk Ridge, Norfolk Ridge; Red Sea to southern Japan, New Caledonia to Kei Islands; 55–510 m (Schnabel 2009a).

***Phylladorhynchus integrirostris* (Dana, 1852)**

*NZ reference*: Schnabel (2009a: 48).

*Other significant reference*: Ahyong (2007: 42) fig. 21A–G (female diagnostic characters).



*Distribution*: Kermadec Ridge and Snares Islands, southern Lord Howe Rise, Norfolk Ridge; widespread in Pacific, Atlantic and Indian oceans; 0–570 m (Schnabel 2009a).

***Phylladorhynchus pusillus* (Henderson, 1885)**

*NZ references*: Baba (1969: 4); Haig (1973: 282).

*Other significant references*: Henderson (1888: 121) pl. 12, figs 1, 1a–b, as *Galathea pusilla*, based on eastern Australian material; Miyake & Baba (1967: 234) fig. 6, as *Galathea pusilla*, material from east China Sea; Baba (1991: 486) fig. 4e–f (New Caledonian waters); Davie (2002b: 66); Poore (2004: 238) fig. 66b (carapace); Ah Yong (2007: 42) fig. 20B (colour photo, female), fig. 22A–N (female diagnostic characters), as *P. cf. pusillus*; Schnabel (2009a: 48); Rowden *et al.* (2010: 73).

*Distribution*: widespread around NZ from Norfolk Ridge to southern Campbell Plateau; eastern and western Pacific from Japan to Australia to Chile; 14–2286 m (Schnabel 2009a).

Family **MUNIDIDAE** Ah Yong, Baba,  
Macpherson & Poore, 2010

***Agononida incerta* (Henderson, 1888)**

*NZ reference*: Schnabel (2009a: 36).

*Other significant reference*: Henderson (1888: 130) pl. XIII, fig. 4 (whole animal), pl. XIII, fig. 4a (3rd maxilliped), as *Munida incerta*.

*Distribution*: Kermadec and Colville ridges; southern and eastern Africa, southwest Australia, and western Pacific from Japan to eastern Australia and east to Tonga; 70–754 m (Schnabel 2009a).

***Agononida marini* (Macpherson, 1994)**

*NZ references*: Ah Yong (2007: 11) fig. 6D (colour photo, female); Schnabel (2009a: 36); Rowden *et al.* (2010: 75).

*Other significant references*: Macpherson (1994: 492) fig. 30a–g (diagnostic characters), fig. 77 (colour photos, female paratype), as *Munida marini*; Ah Yong & Poore (2004b: 9).

*Distribution*: northern NZ; New Caledonia and eastern Australia; 315–615 m (Schnabel 2009a).

***Agononida nielbrucei* Vereshchaka, 2005**

*NZ references*: Vereshchaka (2005: 137) fig. 1A–F (diagnostic characters); Ah Yong (2007: 11) fig. 6B (colour photo, female), fig. 6C (colour photo, male); Schnabel (2009a: 36); Rowden *et al.* (2010: 75).

*Distribution*: southern Norfolk and West Norfolk ridges, northeastern NZ, south to Chatham Rise; 69–800 m (Schnabel 2009a).

***Agononida procera* Ah Yong & Poore, 2004**

*NZ reference*: Schnabel (2009a: 37).

*Other significant references*: Ah Yong & Poore (2004b: 10) fig. 1A–F (female holotype); Ah Yong (2007: 13) fig. 6E (colour photo, female).

*Distribution*: Three Kings Ridge, Northland Plateau, Bay of Plenty, Kermadec Islands, southern Lord Howe Rise; eastern Australia and New Caledonia; 450–960 m (Ah Yong 2007).

***Agononida squamosa* (Henderson, 1885)**

*NZ reference*: Schnabel (2009a: 37).

*Other significant reference*: Henderson (1888: 131) pl. XIII, fig. 1 (whole animal), fig. 1a–b (chela, 3rd maxilliped), as *Munida squamosa*.

*Distribution*: West Norfolk Ridge and southern Norfolk Ridge; southwest Pacific from New Caledonia to Admiralty Islands, and Queensland to Tonga; 200–591 m (Schnabel 2009a).

***Munida acacia* Ah Yong, 2007**

*NZ references*: Ah Yong (2007: 15) fig. 9A–I (female holotype), fig. 10A (colour photo, female holotype); Schnabel (2009a: 40).

*Distribution*: West Norfolk Ridge; 508–560 m (Ah Yong 2007).

***Munida chathamensis* Baba, 1974**

*NZ references*: Baba (1974: 388) fig. 6 (whole animal), fig. 7; Schnabel (2009a: 40).

*Distribution*: Chatham Rise to Macquarie Ridge; 990–1697 m (Schnabel 2009a).

*Colour*: body pink to orange, cornea golden (Baba 1974).

***Munida eclepsis* Macpherson, 1994**

*NZ reference*: Schnabel (2009a: 40).

*Other significant reference*: Macpherson (1994: 463) fig. 15a–g (diagnostic characters), fig. 70 (colour photo, female holotype).

*Distribution*: Three Kings Ridge, Kermadecs; New Caledonia, Fiji and Tonga; 142–790 m (Schnabel 2009a).

***Munida endeavourae* Ah Yong & Poore, 2004**

*NZ references*: Vereshchaka (2005: 140) fig. 3A–F (diagnostic characters), as *M. grievae*; Ah Yong (2007: 25) fig. 10E (colour photo, female); Schnabel (2009a: 41).

*Other significant reference*: Ah Yong & Poore (2004b: 29) fig. 5A–I (diagnostic characters).

*Distribution*: far northern New Zealand; southeastern Australia; 554–2756 m (Schnabel 2009a).

***Munida erato* Macpherson, 1994**

*NZ reference:* Schnabel (2009a: 41).

*Other significant reference:* Macpherson (1994: 466) fig. 17a–g (diagnostic characters).

*Distribution:* West Norfolk Ridge, Northland Plateau to East Cape Ridge; New Caledonia and Chesterfield Islands; 209–450 m (Schnabel 2009a).

***Munida exilis* Ah Yong, 2007**

*NZ references:* Ah Yong (2007: 25) fig. 13A–I (female holotype), fig. 14A (colour photo, male paratype); Schnabel (2009a: 41).

*Distribution:* southern Norfolk Ridge and West Norfolk Ridge; 469–800 m (Ah Yong 2007).

***Munida gracilis* Henderson, 1885**

*NZ references:* Henderson (1888: 143) pl. 14, fig. 4 (whole animal), fig. 4a–b; Macpherson (1994: 471) fig. 19; Schnabel (2009a: 41); Rowden *et al.* (2010: 73).

*Distribution:* entire NZ shelf south to Auckland Islands excluding far southern Campbell Plateau, Tasman Sea; 44–1211 m (Schnabel 2009a).

***Munida gregaria* (Fabricius, 1793)**

*NZ references:* Dell (1963a: 63) (whole animal ‘*subrugosa*’ stage); Heath & Dell (1971: 68) fig. 203 (colour illustration, whole animal ‘*gregaria*’ stage); Williams (1973: 197) figs 1–3, pl. 1 (photos, whole animals) (*Munida subrugosa* (White, 1847) shown to be adult of *M. gregaria*); Takeda (1990: 359) fig. 287 (colour photo, whole animal); Batson (2003: 60) fig. (colour photo, mass stranding of ‘*gregaria*’ stage); Davie (2002b: 63); Poore (2004: 234) pl. 13c,f (colour photos, live animals in habitat); Ah Yong & Poore (2004b: 32); Schnabel (2009a: 41).

*Other significant reference:* Matthews (1932: 469) fig. 1, pl. 4, figs 1–6 (Falkland Islands material of *Munida gregaria* and *M. subrugosa* treated as different spp.).

*Distribution:* coastal waters from Cook Strait south to Campbell Island; New South Wales, Tasmania, southern Chile and Argentina, Falkland Islands; 0–1080 m (Schnabel 2009a).

*Status:* the bright red pelagic juvenile (or ‘*gregaria*’) stage of this species forms large shoals in coastal waters and metamorphoses into the benthic adult ‘*subrugosa*’ stage.

***Munida icela* Ah Yong, 2007**

*NZ references:* Ah Yong (2007: 31) fig. 16A–I (diagnostic characters); Schnabel (2009a: 42).

*Distribution:* West Norfolk Ridge; 521–539 m (Ah Yong 2007).

***Munida isos* Ah Yong & Poore, 2004**

*NZ references:* Vereshchaka (2005: 139) fig. 2, as *M. gordonii*; Ah Yong (2007: 31); Schnabel (2009a: 42); Rowden *et al.* (2010: 73).

*Other significant reference:* Ah Yong & Poore (2004b: 34) fig. 6A–I (diagnostic characters).

*Distribution:* Kermadec Ridge to Solander Trough and Macquarie Ridge; New South Wales to Tasmania; ‘typical seamount taxon’, 462–2756 m (Schnabel 2009a).

***Munida kapala* Ah Yong & Poore, 2004**

*NZ references:* Schnabel (2009a: 42); Rowden *et al.* (2010: 75).

*Other significant reference:* Ah Yong & Poore (2004b: 38) fig. 7A–H (diagnostic characters).

*Distribution:* Kermadec Ridge to northern Chatham Rise; eastern Australia; 240–885 m (Schnabel 2009a).

***Munida notialis* Baba, 2005**

*NZ references:* Baba (2005: 117) fig. 45a–l (holotype male diagnostic characters); Schnabel (2009a: 43).

*Distribution:* Fiordland; southeast Australia; 30–290 m (Schnabel 2009a).

***Munida psylla* Macpherson, 1994**

*NZ reference:* Schnabel (2009a: 43).

*Other significant reference:* Macpherson (1994: 517) fig. 42a–g (holotype female diagnostic characters).

*Distribution:* Kermadec Islands; New Caledonia, Loyalty Islands; 38–573 m (Schnabel 2009a).

***Munida spinicruris* Ah Yong & Poore, 2004**

*NZ reference:* Schnabel (2009a: 43).

*Other significant reference:* Ah Yong & Poore (2004b: 42) fig. 8A–I (male holotype diagnostic characters).

*Distribution:* Kermadec Ridge; Tasman Basin; 106–555 m (Schnabel 2009a).

***Munida zebra* Macpherson, 1994**

*NZ reference:* Schnabel (2009a: 44).

*Other significant reference:* Macpherson (1994: 556) fig. 63a–g (diagnostic characters), fig. 89 (colour photo, male holotype).

*Distribution:* Northland Plateau to Bay of Plenty; New Caledonia, Loyalty and Kei islands; 200–600 m (Schnabel 2009a).

***Onconida alaini* Baba & de Saint Laurent, 1996**

*NZ reference:* Schnabel (2009a: 47).

*Other significant reference:* Baba & de Saint Laurent (1996: 483) fig. 4a–c (P5 distal segments male and female),

fig. 26a–k (female holotype diagnostic characters), fig. 33a–b (colour photos, male and female paratypes).

*Distribution*: West Norfolk Ridge; New Caledonia, Solomon and Chesterfield islands; 200–757 m (Schnabel 2009a).

***Paramunida antipodes* Ah Yong & Poore, 2004**

*NZ references*: Schnabel (2009a: 47); Rowden *et al.* (2010: 75).

*Other significant reference*: Ah Yong & Poore (2004b: 65) fig. 16A–G (male holotype diagnostic characters).

*Distribution*: Kermadec Ridge; eastern Australia; 328–590 m (Schnabel 2009a).

***Tasmanida norfolkiae* Ah Yong, 2007**

*NZ references*: Ah Yong (2007: 45) fig. 23A–L (female holotype diagnostic characters); Schnabel (2009a: 49).

*Distribution*: West Norfolk Ridge; 521–539 m (Ah Yong 2007).

Family **MUNIDOPSIDAE** Whiteaves, 1874

***Galacantha quiquei* Macpherson, 2007**

*NZ references*: Ah Yong (2007: 3) fig. 2A–B (colour photos, male); Schnabel (2009a: 38).

*Other significant reference*: Macpherson (2007: 15) fig. 6A–C (photos, holotype male carapace and abdomen), fig. 7A–G (diagnostic characters), fig. 55A (colour photo, male holotype).

*Distribution*: Reinga Basin, New Caledonia Trough; southwest Pacific from Wallis and Futuna to Norfolk Ridge; 835–1478 m (Schnabel 2009a).

***Galacantha rostrata* A. Milne-Edwards, 1880**

*NZ references*: Ah Yong (2007: 4) fig. 2C–D (colour photos, atypical male from West Norfolk Ridge); Schnabel (2009a: 38).

*Other significant references*: Baba & Poore (2002: 239) fig. 5 (female carapace and abdomen); Macpherson (2007: 18) fig. 8A–D (lateral carapace and rostrum).

*Distribution*: New Caledonia Basin, Kermadec Ridge, Bay of Plenty, Hikurangi Trench; cosmopolitan; 1486–3215 m (Schnabel 2009a).

***Galacantha valdiviae* Balss, 1913**

*NZ reference*: Schnabel (2009a: 38).

*Other significant references*: Balss (1913: 224); Macpherson (2007: 29) fig. 15A–C (photos, ovigerous female carapace, abdomen), fig. 16A–E (ovigerous female diagnostic characters).

*Distribution*: Bay of Plenty; Indo-West Pacific from eastern Africa to Japan to Queensland; 955–1644 m (Schnabel 2009a).

***Leiogalathea laevirostris* (Balss, 1913)**

*NZ reference*: Schnabel (2009a: 39).

*Other significant references*: Balss (1913: 221); Ah Yong (2007: 14) fig. 8A–J (female).

*Distribution*: northern and northeastern NZ region, including Lord Howe Rise, Norfolk Ridge, Kermadec Islands, down to Chatham Rise; Indo-Pacific from Madagascar to Japan to Tuamotu; 142–2148 m (Schnabel 2009a).

***Munidopsis antonii* (Filhol, 1884)**

*NZ reference*: Schnabel (2009a: 44).

*Other significant references*: Baba (2005: 132) fig. 52 (photo, syntype female), fig. 53a–b (syntype female carapace), fig. 54a–c, e–f (syntype female diagnostic characters); Osawa & Takeda (2007: 137) figs 3C–D (photos, female); Taylor *et al.* (2010: 9) fig. 3 (carapace compared with that of other *Munidopsis* species).

*Distribution*: Hikurangi Trench, Tasman Basin, New Caledonia Basin; cosmopolitan; 2516–4510 m (Schnabel 2009a).

***Munidopsis bractea* Ah Yong, 2007**

*NZ references*: Ah Yong (2007: 5) fig. 3A (colour photo, whole female), fig. 4A–J (holotype male diagnostic characters); Schnabel (2009a: 44).

*Distribution*: southern Norfolk Ridge, Lord Howe Rise, 430–740 m (Ah Yong 2007).

***Munidopsis ceres* Macpherson, 2007**

*NZ material*: specimens in NIWA collections from Chatham Rise, 487–821 m (Kareen Schnabel, pers. comm. 2010).

*NZ reference*: Rowden *et al.* (2010: 73).

*Other significant reference*: Macpherson (2007: 50) fig. 24A–B (photos, holotype carapace and abdomen), fig. 25A–H (diagnostic characters).

*Distribution*: NZ; New Caledonia; 500–1074 m (Macpherson 2007).

***Munidopsis comarge* Taylor, Ah Yong & Andreakis, 2010**

*N.Z. reference*: Taylor *et al.* (2010: 3) fig. 1A–O (holotype female diagnostic characters).

*Distribution*: southeastern NZ; southeastern and southwestern Australia; 458–1000 m (Taylor *et al.* 2010).

***Munidopsis kaiyoae* Baba, 1974**

*NZ references*: Baba (1974: 390) fig. 8 (whole animal), fig. 9; Schnabel & Bruce (2006: 52) fig. 2 (paratype female right antennule); Schnabel (2009a: 45).

*Distribution*: endemic, eastern NZ from Bay of Plenty to Pukaki Rise, Challenger Plateau, 479–1050 m (Schnabel 2009a).

*Colour*: body white, cornea yellow.

***Munidopsis marginata* (Henderson, 1885)**

*NZ references:* Henderson (1888: 161) pl. 19, fig. 2 (whole animal), pl. 19, fig. 2a, as *Elasmonotus marginatus*; Schnabel & Bruce (2006: 54); Schnabel (2009a: 45).

*Other significant references:* Baba & Poore (2002: 237) fig. 4A (whole carapace, abdomen), figs B–I; Poore (2004: 237), fig. 65d (carapace); Taylor *et al.* (2010: 12) fig. 4 (carapace compared with that of other *Munidopsis* species).

*Distribution:* eastern NZ; eastern Australia; 1750–2308 m (Schnabel 2009a).

*Colour:* body white, cornea orange (fresh female in MNZ from Mernoo Slope carrying 15 relatively large red eggs).

***Munidopsis maunga* Schnabel & Bruce, 2006**

*NZ references:* Schnabel & Bruce (2006: 55) fig. 3A–L (holotype male diagnostic characters); Schnabel (2009a: 45).

*Distribution:* endemic, Kermadec volcanic arc, 636–751 m (Schnabel & Bruce 2006).

***Munidopsis papanui* Schnabel & Bruce, 2006**

*NZ references:* Schnabel & Bruce (2006: 59) figs 4A–J, 5A–D (male holotype diagnostic characters), fig. 6 (photos, whole male holotype and female paratype); Schnabel (2009a: 45).

*Distribution:* endemic, southeastern NZ, 420 m (Schnabel & Bruce 2006).

***Munidopsis proales* Ah Yong & Poore, 2004**

*NZ reference:* Schnabel (2009a: 46).

*Other significant references:* Ah Yong & Poore (2004b: 54) fig. 12A–L (holotype female diagnostic characters); Taylor *et al.* (2010: 12) fig. 4 (carapace compared to that of other *Munidopsis* species).

*Distribution:* Bay of Plenty; Western Australia; 513–1400 m (Schnabel 2009a).

***Munidopsis serricornis* (Lovén, 1852)**

*NZ reference:* Schnabel (2009a: 46); Rowden *et al.* (2010: 73).

*Other significant references:* Lovén (1852: 22); Ah Yong & Poore (2004b); Taylor *et al.* (2010: 12) fig. 4 (carapace compared to that of other *Munidopsis* spp.).

*Distribution:* Bay of Plenty, Chatham Rise, Macquarie Ridge; Tasmania; 392–1100 m (Ah Yong & Poore 2004b; Schnabel 2009a).

***Munidopsis tasmaniae* Ah Yong & Poore, 2004**

*NZ reference:* Schnabel (2009a: 46).

*Other significant references:* Ah Yong & Poore (2004b: 59) fig. 14A–L (male holotype diagnostic characters); Taylor

*et al.* (2010: 12) fig. 4 (carapace compared to that of other *Munidopsis* species).

*Distribution:* northern Chatham Rise, Macquarie Ridge; Tasmania; 119–1135 m (Schnabel 2009a).

***Munidopsis treis* Ah Yong & Poore, 2004**

*NZ reference:* Ah Yong (2007: 10) fig. 3C (colour photo, female).

*Other significant reference:* Ah Yong & Poore (2004b: 62) fig. 15A–L (holotype female diagnostic characters); Taylor *et al.* (2010: 12) fig. 4 (carapace compared to that of other *Munidopsis* species).

*Distribution:* West Norfolk Ridge, Northland Plateau; South Australia, Chesterfield Islands, New Caledonia; 366–912 m (Schnabel 2009a).

***Munidopsis victoriae* Baba & Poore, 2002**

*NZ reference:* Schnabel (2009a: 47).

*Other significant references:* Baba & Poore (2002: 247) figs 11A–B, 12A–I (female holotype diagnostic characters); Taylor *et al.* (2010: 12) fig. 4 (carapace compared to that of other *Munidopsis* species).

*Distribution:* Bay of Plenty to Chatham Rise, Puysegur Bank; Victoria; 690–1270 m (Schnabel 2009a).

**Family PORCELLANIDAE Haworth, 1825*****Pachycheles pisoides* (Heller, 1865)**

*NZ references:* Chilton (1911: 551), as *P. lifuensis*; Haig (1966: 290).

*Other significant references:* Grant & McCulloch (1907: 155) pl. 1, fig. 2 (whole animal from Norfolk Island), pl. 1, fig. 2a; Davie (2002b: 100).

*Distribution:* Kermadec Islands, intertidal zone and shallow water; Indo-West Pacific from Indian Ocean to Western Australia and Norfolk Island, extending through Micronesia to Hawai'i and Tuamotu Islands.

***Petrocheles spinosus* (Miers, 1876)**

*NZ references:* Bennett (1932: 479) pl. 60, fig. 5 (whole animal); Bennett (1964: 99) fig. 105 (photo, whole animal); Haig (1964: 356); McLay (1988: 64) fig. 9a (whole animal), fig. 9b.

*Distribution:* endemic, North and South islands; intertidal zone to 100 m.

*Colour:* grey with bluish tinge, fingertips reddish, spines ochreous.

***Petrolisthes elongatus* (H. Milne Edwards, 1837)**

*NZ references:* Haig (1964: 366); Miller & Batt (1973) fig. 94 (colour photo, whole animal); Jones (1977: 259)



fig. 2A (whole animal), fig. 2B–C; Powell (1987: 36) fig. 173 (whole animal); McLay (1988: 52) fig. 7a (whole animal), fig. 7b–c; Walsby (1990: 125) (two close-up colour photos, filter-feeding); Davie (2002a: 102); Poore (2004: 244) fig. 69c–d (whole animal), pl. 14a (colour photo, whole animal); Osawa (2007: 22) (small male reported from the lagoon in New Caledonia, but this record needs verification because *P. elongatus* is (1) very variable throughout its NZ range, (2) a very shallow-water species, (3) considered to have been accidentally introduced to Tasmania, (4) not otherwise known from New Caledonia).

*Other significant reference:* Poore (2004: 244) fig. 69c (whole animal with right limbs only), fig. 69d, pl. 14a (colour photo, whole animal under rock overhang).

*Distribution:* probably originally endemic to NZ, North and South islands, and Stewart Island/Rakiura, upper littoral to just below low-tide level; Tasmania (most likely introduced with shipments of live Foveaux Strait oysters to Hobart during late 1800s and 1900s, as were a number of other invertebrates – see Dartnell 1969).

*Colour:* variable coloration, from black and blue to greyish, greenish or even pink; 2nd maxillipeds bright blue (see Walsby 1990: 125 upper photo).

***Petrolisthes lamarckii* (Leach, 1820)**

*NZ reference:* Chilton (1911: 551), as *P. lamarckii* var. *rufescens*.

*Other significant references:* Borradaile (1898: 464) pl. 36, fig. 1a–b (whole animal); Haig (1964: 362); Davie (2002b).

*Distribution:* Kermadec Islands, intertidal zone and shallow water; Indo-West Pacific from east Africa to Indonesia, eastern Australia, Philippines, Samoa and Tuamotu Islands.

***Petrolisthes novaezelandiae* Filhol, 1885**

*NZ references:* Bennett (1932: 476) pl. 60, figs 3–4 (whole animal); Haig (1964: 364); McLay (1988: 60) fig. 8a (whole female), fig. 8b (whole male).

*Distribution:* endemic, North and South islands, Stewart Island/Rakiura, intertidal zone (rarely) to 75 m.

*Colour:* males reddish, females greyish with red spots.

Superfamily HIPPOIDEA Latreille, 1825

Family ALBUNEIDAE Stimpson, 1858

***Albunea microps* Miers, 1878**

*NZ reference:* Chilton (1911: 551).

*Other significant references:* Thomassin (1969: 140) fig. 2 (whole animal), fig. 3b, but NOT pl. 2; Boyko & Harvey

(1999: 383) figs 1, 4; Boyko (2002: 246) figs 81–82 (including 81A whole carapace); Davie (2002b: 27).

*Distribution:* Kermadec Islands, 25 m; Indo-West Pacific including eastern Australia, Madagascar to Indonesian and Philippine archipelagos, and to New Caledonian and Japanese waters.

*Colour:* in preservative, light pink (Japanese material).

Superfamily LITHODOIDEA Samouelle, 1819

Family LITHODIDAE Samouelle, 1819

Until 2009 there were thought to be about seven species of Lithodidae in New Zealand waters. Ah Yong (2010b) published a revision of the Australasian and Ross Sea lithodids, which lists 13 species in the New Zealand region. This revision described new species and synonymised some other species previously thought to be in our fauna. The 13 species are listed and annotated below, but readers are referred to Ah Yong (2010b) for details of the taxonomic changes and for full synonymies.

***Lithodes aotearoa* Ah Yong, 2010**

*NZ references:* Dell (1963a: 62) fig. (whole animal); Yaldwyn & Dawson (1970: 279) fig. 1 (photo, adult male), fig. 2 (photos, carapace and abdominal somite 2); McLay (1988: 22) fig. 1a–e (whole animal and diagnostic characters); Takeda (1990: 360) fig. 288 (colour photo, whole animal); Webber (1997: 81) fig. 4 (photo, whole animal); O'Shea *et al.* (1999: 49) fig. 15 (colour photo, whole animal); Webber & Naylor (2004a) fig. 78 (colour photo, whole animal), fig. 79 (rostrum); Naylor *et al.* (2005: 41) figs (colour photo, whole animal and diagnostic characters); Ah Yong *et al.* (2007: 154) fig. (colour photo, whole animal and diagnostic characters), as *Lithodes murrayi*; Ah Yong (2010b: 16) figs 5–11 (photos, male holotype and several adult and juvenile specimens of both sexes), fig. 12 (distribution), cover photo, pl. 1A–B (colour photos, male holotype and female), pl. 4C (colour photo, live animal in Kaikoura Canyon).

*Distribution:* endemic, southern West Norfolk Ridge to southern Campbell Rise including Challenger Plateau and Chatham Rise, and Louisville Ridge, c. 250–1500 m (Ah Yong 2010b).

*Colour:* body and appendages purple to bright red.

***Lithodes jessica* Ah Yong, 2010**

*NZ reference:* Ah Yong (2010b: 41) figs 21–25 (photos, female holotype, male paratype, diagnostic characters), fig. 26 (distribution).

*Distribution*: northern NZ from southern Lord Howe Rise to southeast of Hawke Bay; Ritchie Bank area; 680–1100 m (Ahyong 2010b).

***Lithodes macquariae* Ahyong, 2010**

*NZ reference*: Ahyong (2010b: 48) figs 27–30 (photos, male holotype, female paratype, juvenile paratype, diagnostic characters), fig. 31 (distribution), pl. 2E (colour photo juvenile female).

*Distribution*: south and southwest of NZ, Macquarie Ridge, Solander Trough and vicinity of Auckland Islands; 16–1140 m (Ahyong 2010b).

*Colour*: overall deep red (Ahyong 2010b).

***Lithodes robertsoni* Ahyong, 2010**

*NZ reference*: Ahyong (2010b: 66) figs 38–42 (photos, male holotype, female paratype, male paratype, male specimen, diagnostic characters), fig. 31 (distribution), pl. 1F (colour photo, male holotype).

*Distribution*: endemic, mid-southern NZ, Challenger Plateau to Chatham Rise to Bounty Trough to Snares Islands; 935–1259 m (Ahyong 2010b).

*Colour*: overall deep red (Ahyong 2010b).

***Neolithodes brodiei* Dawson & Yaldwyn, 1970 (Fig. 8)**

*NZ references*: Dawson & Yaldwyn (1970: 227); Dawson & Yaldwyn (1985: 70); Dawson (1989: 318) frontispiece (photo, whole juvenile); McLay (1988: 36) fig. 3 (female and chelae); Takeda (1990: 361) fig. 289 (colour photo, whole animal); Webber (1997: 81) fig. 1 (colour photo, adult), fig. 2 (photo, juvenile), fig. 3; Batson (2003: 137) fig. (colour photo, whole animal); Clark & Rowden (2004: 25) (off Balleny Islands, Antarctica, but record needs to be confirmed; misspelt as *brodei*); Webber & Naylor (2004a: 79) figs (colour photos, whole animal, rostrum); Naylor *et al.* (2005: 39) figs (colour photos, whole animal and rostrum); Ahyong *et al.* (2007: 155) figs (colour photos, whole animal and rostrum); Ahyong (2010b: 74) figs 43–47 (photos, males, females, juveniles, diagnostic characters), fig. 48 (distribution), pl. 2A (colour photo, ovigerous female).

*Distribution*: NZ region from southern Norfolk Ridge to Campbell Plateau, southern Louisville Ridge; 950–1150 m (Ahyong 2010b).

*Colour*: body, spines, chelipeds and walking legs uniform bright red.

***Neolithodes bronwynae* Ahyong, 2010**

*NZ reference*: Ahyong (2010b: 83) figs 48–51 (photos, male holotype whole animal and diagnostic characters),

fig. 52 (photos, male paratype), pl. 2B (colour photo, male holotype).

*Distribution*: Bay of Plenty, Lord Howe Rise; 1515–1920 m (Ahyong 2010b).

*Colour*: overall deep red (Ahyong 2010b).

***Paralomis dawsoni* Macpherson, 2001**

*NZ references*: McLay (1988: 42), as *Paralomis* n. sp.; O’Shea *et al.* (1999: 49) fig. 16 (colour photo, whole animal as *Paralomis* sp.); Kay (2002) (colour photo, whole animal front view); Webber & Naylor (2004b: 62) fig. (colour photo, whole animal); Naylor *et al.* (2005: 46) fig. (colour photo, whole animal); Ahyong *et al.* (2007: 156) fig. (colour photo, whole animal); Dawson (2008: 7) fig. 8 (colour photo, dorso-lateral view); Ahyong (2010b: 116) figs 67–72A (photos, males, females, juvenile, diagnostic characters), fig. 73 (distribution), pl. 3B (colour photo, male).

*Other significant references*: Macpherson (1990: 225) fig. 2c (photo, whole female) fig. 4, as *Paralomis* sp.; Macpherson (2001: 802) fig. 4A (photo, whole female), fig. 4B–C (described from New Caledonian material trapped outside reef).

*Distribution*: northern Challenger Plateau and continental slope off eastern North Island; New Caledonia; deep water.

*Colour*: body and appendages orange-red with yellow in grooves, between carapace pustules, and between cheliped and leg spines.

***Paralomis echidna* Ahyong, 2010**

*NZ reference*: Ahyong (2010b: 125) figs 74–76 (photos, female holotype), fig. 77A–E (diagnostic characters), figs 78–80 (photos, ovigerous female and male), fig. 81 (distribution).

*Distribution*: Tasman Sea on southern Norfolk Ridge; Gascoyne Seamount and off Victoria; 636–817 m (Ahyong 2010b).

***Paralomis hirtella* de Saint Laurent & Macpherson, 1997**

*NZ references*: Clark & O’Shea (2001: 15) (a small-bodied *Paralomis* ‘similar to but not conspecific with *P. jamsteci*’ and different from *P. dawsoni*); Webber & Naylor (2004b: 63) fig. (colour photo, whole animal), as *P. aff. jamsteci*; Dawson (2008: 1) (first record in NZ waters) figs 1–5 (colour photos, male and female); Ahyong (2010b: 142) figs 88–91 (photos, male, female, juveniles of both sexes), fig. 81 (distribution), pl. 4B (numerous crabs in situ on Monowai Caldera).

*Other significant reference*: de Saint Laurent & Macpherson (1997: 722) fig. 1 (photo, whole male), figs 2–3 (described

from hydrothermal environments in the Lau and North Fiji basins, southwest Pacific).

*Distribution*: southern Kermadec Ridge (Brothers and Monowai seamounts); Lau and North Fiji basins; deep hydrothermal waters (Ahyong 2010b).

*Colour*: uniformly creamy white in preservative. Often with light brown iron precipitates on external cuticle (Ahyong 2010b). See also colour of specimens illustrated by Dawson (2008).

***Paralomis poorei* Ahyong, 2010**

*NZ reference*: Ahyong (2010b: 148) figs 92–94 (photos, male holotype), fig. 95A–D (diagnostic characters), fig. 96 (photos, ovigerous female, paratype male, juvenile males), fig. 81 (distribution), pl. 3E (colour photo, juvenile male paratype).

*Distribution*: seamounts on Chatham Rise, southeastern Australia and southwestern Australia; 900–1156 m (Ahyong 2010b).

*Colour*: translucent pink-orange overall (Ahyong 2010b).

***Paralomis staplesi* Ahyong, 2010**

*NZ reference*: Ahyong (2010b: 156) figs 98–100 (photos, male holotype), fig. 81 (distribution), pl. 3H (colour photo, male holotype).

*Distribution*: Kermadec Ridge; Tasmania; 1958–2312 m (Ahyong 2010b).

*Colour*: overall purplish-red (Ahyong 2010b).

***Paralomis webberi* Ahyong, 2010**

*NZ reference*: Ahyong (2010b: 169), figs 109–111 (photos, ovigerous female holotype), fig. 112A–E (female holotype diagnostic characters), fig. 81 (distribution).

*Distribution*: endemic, Rumble III Seamount, southern Kermadec Ridge, 532–1255 m (Ahyong 2010b).

***Paralomis zealandica* Dawson & Yaldwyn, 1971**

*NZ references*: Dawson & Yaldwyn (1971: 51) fig. 1 (whole animal dorsal and ventral); McLay (1988: 40) fig. 4 (whole animal); Dawson (1989: 318); Webber (1997: 82); O'Shea *et al.* (1999: 49) fig. 17 (colour photo, whole animal); Batson (2003: 137) fig. (colour photo, whole animal); Webber & Naylor (2004b: 62) fig. (colour photo, whole animal); Naylor *et al.* (2005: 46) fig. (colour photo, whole animal); Ahyong *et al.* (2007: 156) fig. (colour photo, whole animal); Ahyong (2010b: 175) figs 114–118 (photos, males including holotype, females, small specimens), fig. 119 (distribution), pl. 2F (colour photo, female), pl. 4F (colour photo, live animal on bottom).

*Distribution*: endemic, eastern central, southeastern and southern NZ; 254–1212 m (Ahyong 2010b).

*Colour*: body and appendages ivory with peach-coloured tinges, spines on carapace and appendages pinkish red.

Superfamily PAGUROIDEA Latreille, 1802

Family DIOGENIDAE Ortmann, 1892

***Calcinus imperialis* Whitelegge, 1901**

*NZ reference*: Forest & McLaughlin (2000: 79) fig. 25.

*Other significant references*: Davie (2002b: 40); Poore (2004: 253) fig. 71b (chela).

*Distribution*: Kermadec Islands, 7–30 m; Indo-West Pacific from Cocos and Christmas islands through Philippine Islands and Japan, southeastern Australia, Lord Howe and Norfolk islands, New Caledonia, French Polynesia and Hawai'i.

*Colour*: anterior region of carapace olive green, spotted or margined with blue; chelipeds brownish grey or olive, spines purplish blue; free finger with two red spots, one on each side near base; walking legs ringed with black or brown, olive green or yellow, dactyls white with medium black or brown ring (from Lord Howe Island and French Polynesian material).

***Cancellus frontalis* Forest & McLaughlin, 2000**

*NZ reference*: Forest & McLaughlin (2000: 97) fig. 32.

*Distribution*: endemic, Kermadec Islands; 275–402 m.

***Cancellus laticoxa* Forest & McLaughlin, 2000**

*NZ reference*: Forest & McLaughlin (2000: 90) figs 28, 29.

*Distribution*: endemic, north and east coasts of North Island; 49–200 m.

*Colour*: in preservative, carapace tinted red or yellow with patches of white and red; eye stalks yellow; chelipeds and walking legs pink and red.

***Cancellus rhynchogonus* Forest & McLaughlin, 2000**

*NZ reference*: Forest & McLaughlin (2000: 94) fig. 31.

*Distribution*: endemic, Kermadec Islands; 84–146 m or deeper.

*Colour*: in preservative, carapace with reddish patches; eye stalks reddish orange; chelipeds and walking legs spotted with red.

*Shelter*: pumice pebbles.

***Cancellus sphaerogonus* Forest & McLaughlin, 2000**

*NZ reference*: Forest & McLaughlin (2000: 92) fig. 30.

*Distribution*: endemic, off east coast of North Island; 341–373 m.

*Colour*: in preservative, carapace pinkish yellow.

***Dardanus arrosor* (Herbst, 1796)**

*NZ reference:* Forest & McLaughlin (2000: 81) fig. 26, pl. 2, fig. 3 (colour photo, live animal in shell).

*Other significant references:* Davie (2002b: 46); Poore (2004: 257) fig. 71i–j, pl. 15c (colour photo, whole animal).

*Distribution:* northern and southern NZ shelf, 15–165 m or deeper; tropical and warm temperate eastern Atlantic, and Indo-West Pacific from South Africa to Japan and eastern Australia.

*Colour:* carapace reddish yellow with vivid red and white patches; eye stalks pink with proximal red ring, a mid-length pink ring and a distal pink ring; chelipeds and walking legs yellowish red to violet red; setae yellow.

*Shelter:* gastropod shells.

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

*NZ reference:* Forest & McLaughlin (2000: 85) fig. 27.

*Other significant reference:* Davie (2002b: 48).

*Distribution:* Kermadec Islands, shallow shelf; Indo-West Pacific from Bay of Bengal to Indonesia and Vietnam.

*Colour:* carapace grey-green mixed with violet and yellow; eye stalks with longitudinal dorsal stripe of grey-green outlined with white and lateral stripe of violet-carmine; chelipeds with yellow bands and carmine spines; walking legs with yellow and violet-grey patches and bands (from Vietnamese material).

***Paguristes barbatus* (Heller, 1862)**

*NZ reference:* Forest & McLaughlin (2000: 59) figs 16–17.

*Distribution:* endemic, northern NZ; 20–37 m.

*Colour:* carapace and appendages brown; eye stalks blue; chelipeds and walking legs brown, tipped with black.

*Shelter:* gastropod shells.

***Paguristes pilosus* (H. Milne Edwards, 1836)**

*NZ references:* Schembri & McLay (1983: 28) fig. 5a–b (chela); Forest & McLaughlin (2000: 67) figs 21, 22a–b, 23a,c,e,g, pl. 2, figs 1–2 (colour photo, live animals in shells).

*Distribution:* endemic, North Island and north and east coasts of South Island (south to Otago); 15–201 m.

*Colour:* eye stalks whitish; chelipeds whitish at base, pale orange at extremity of fingers; walking legs white, tinged with orange.

*Shelter:* gastropod shells.

***Paguristes setosus* (H. Milne Edwards, 1848)**

*NZ reference:* Forest & McLaughlin (2000: 73) figs 22c–d, 23b,d,f, 24, pl. 1, fig. 3 (colour photo, live animal in shell).

*Distribution:* endemic, North and South islands; intertidal zone to 24 m.

*Colour:* overall colour orange-red with thick greyish-yellow setal fur; eye stalks red with narrow white band adjacent to black corneas; cheliped finger tips and walking leg dactyl tips black.

*Shelter:* gastropod shells.

***Paguristes subpilosus* Henderson, 1888**

*NZ reference:* Forest & McLaughlin (2000: 63) figs 18–20, pl. 1, fig. 2 (colour photo, live animal in shell).

*Distribution:* endemic, North and South islands, Chatham Islands; 18–400 m.

*Colour:* carapace, chelipeds and walking legs light orange-red with some more intense red patches; eye stalks intense purple with a white border between purple stalk and black cornea.

*Shelter:* gastropod shells.

Family **PAGURIDAE** Latreille, 1802***Bathypaguropsis cruentus* de Saint Laurent & McLaughlin, 2000**

*NZ reference:* de Saint Laurent & McLaughlin (2000: 117) figs 37a,c–e, 38a–c.

*Distribution:* endemic, southern North Island shelf; 12–88 m.

*Colour:* left cheliped and distal segments of walking legs blood red.

*Shelter:* gastropod shells.

***Bathypaguropsis yaldwyni* McLaughlin, 1994**

*NZ references:* Schembri & McLay (1983: 28) figs 7a–b (left and right chelae), as ‘Pagurid smooth apricot’ n. gen., n. sp.; McLaughlin (1994: 471) figs 1A, 2–3; de Saint Laurent & McLaughlin (2000: 120) figs 37b,d,f, 38b,d; Poore (2004: 272) fig. 77a (chela).

*Distribution:* northern and southern NZ; southeastern Australia and Tasmania; 256–695 m.

*Colour:* eye stalks, chelipeds and walking legs uniform light orange-brown.

*Shelter:* gastropod shells.

***Catapagurus spinicarpus* de Saint Laurent & McLaughlin, 2000**

*NZ reference:* de Saint Laurent & McLaughlin (2000: 146) fig. 46.

*Distribution:* endemic, Kermadec Islands; 149–165 m.

***Diacanthurus ecpHYma* McLaughlin & Forest, 1997**

*NZ reference:* de Saint Laurent & McLaughlin (2000: 142) fig. 45.



*Other significant reference:* Davie (2002b: 78).

*Distribution:* Kermadec Islands, 155–201 m; Western Australia and New Caledonia.

*Colour:* in preservative, chelipeds reddish orange, walking legs reddish orange on white background (from New Caledonian material).

***Diacanthurus rubricatus* (Henderson, 1888)**

*NZ references:* Schembri & McLay (1983: 28) fig. 21 (left chela), fig. 24 (eye stalk), as '*Pagurus rubricatus*'; de Saint Laurent & McLaughlin (2000: 139) fig. 44, pl. 3, fig. 4 (colour photo, live animal in shell), front cover (same colour photo enlarged); Batson (2003: 136) fig. (different colour photo of live animal in shell).

*Distribution:* endemic, northern and southern NZ, Chatham Islands; 15–2134 m.

*Colour:* eye stalks (short and wide) white with red longitudinal stripe ventrally; antennae uniform reddish brown; chelipeds and walking legs yellow-brown to white with bright red bands distally on meri, bright red patch proximally and purple longitudinal stripe dorsally on carpi.

*Shelter:* gastropod shells often bearing hydrozoans or anemones.

***Diacanthurus spinulimanus* (Miers, 1876)**

*NZ references:* Schembri & McLay (1983: 28) fig. 20 (left chela), fig. 25 (eye stalk), as '*Pagurus spinulimanus*'; de Saint Laurent & McLaughlin (2000: 135) fig. 43, pl. 3, fig. 2 (colour photo, live animal in shell).

*Distribution:* endemic, northern and southern NZ, Chatham Islands; 2–274 m.

*Colour:* eye stalks (long and narrow) white with median pale orange band; antennae reddish brown with numerous regularly spaced white bands; chelipeds and walking legs orange-brown with distinctive purple and dark red patches at articulation of carpi and meri.

*Shelter:* gastropod shells, often bearing anemones. Several individuals of a commensal sphaeromatid isopod commonly found within shell shelters.

***Lophopagurus (Australeremus) cookii* (Filhol, 1883)**

*NZ references:* Schembri & McLay (1983: 28) fig. 10a–b (left and right chelae), fig. 11 (chelae slotted together to form operculum), as *Australeremus cookii*; McLaughlin & Gunn (1992: 70) fig. 9, as *Australeremus cookii*; de Saint Laurent & McLaughlin (2000: 166) fig. 53, pl. 4, fig. 4 (colour photo, live animal in shell).

*Distribution:* endemic, northern and southern NZ; 11–267 m or deeper.

*Colour:* eye stalks white with yellow or brown markings; antennae red with numerous narrow white bands; 2nd and 3rd maxillipeds vivid deep blue; chelipeds and walking legs reddish brown with red patch on palm of chelae.

*Shelter:* gastropod shells, bryozoan tubes and scaphopod shells.

***Lophopagurus (Australeremus) cristatus* (H. Milne Edwards, 1836)**

*NZ references:* McLaughlin & Gunn (1992: 77) fig. 11, as *Australeremus cristatus*; de Saint Laurent & McLaughlin (2000: 171) fig. 55.

*Distribution:* endemic, eastern NZ; 30–274 m.

*Colour:* in preservative, a red-orange patch at articulation of fixed and free fingers of both chelae.

*Shelter:* gastropod shells.

***Lophopagurus (Australeremus) eltaninae* (McLaughlin & Gunn, 1992)**

*NZ references:* McLaughlin & Gunn (1992: 92) fig. 15, as *Australeremus eltaninae*; de Saint Laurent & McLaughlin (2000: 181) fig. 59.

*Distribution:* endemic, northern NZ; 31–146 m or deeper.

*Colour:* in preservative, eye stalks mottled orange-red; cheliped hands overall reddish orange, marginal teeth darker; walking legs with reddish-orange bands.

*Shelter:* usually bryozoan tubes but sometimes pieces of sponge.

***Lophopagurus (Australeremus) kirkii* (Filhol, 1883)**

*NZ references:* McLaughlin & Gunn (1992: 80) fig. 12, as *Australeremus kirkii*; de Saint Laurent & McLaughlin (2000: 174) fig. 56, pl. 5, fig. 4 (colour photo, live animal in shell).

*Distribution:* endemic, northern and southern NZ; 2–88 m.

*Colour:* in preservative, eye stalks white; chelipeds mainly red-orange; walking legs orange.

***Lophopagurus (Australeremus) laurentae* (McLaughlin & Gunn, 1992)**

*NZ references:* Schembri & McLay (1983: 28) fig. 13a–b (left and right chelae), as *Pylopagurus* n. sp.; McLaughlin & Gunn (1992: 74) figs 8A,C,E, 10, as *Australeremus laurentae*; de Saint Laurent & McLaughlin (2000: 169) fig. 54, pl. 5, fig. 3 (colour photo live animal in bryozoan tube).

*Distribution:* endemic, northern and southern NZ, Chatham Islands; 7–144 m.

*Colour*: eye stalks uniform pale brown; antennae purple-brown with narrow white bars; chelipeds and walking legs purple-brown with white mottling.

*Shelter*: often found in bryozoan tubes.

***Lophopagurus (Australeremus) stewarti* (Filhol, 1883)**

*NZ references*: Schembri & McLay (1983: 28) fig. 12a–b (left and right chelae), fig. 14 (dactyl of left 1st walking leg), as *Pylopagurus stewarti*; McLaughlin & Gunn (1992: 83) fig. 8B,D,F,13, as *Australeremus stewarti*; de Saint Laurent & McLaughlin (2000: 179) fig. 58, pl. 5, figs 1–2 (colour photos, live animals in bryozoan tubes).

*Distribution*: endemic, western North Island and eastern South Island; 28–1280 m.

*Colour*: eye stalks pale orange; antennae reddish with narrow white bands; chelipeds reddish pink to orange with purple band on meri; walking legs orange with white bands.

*Shelter*: bryozoan and polychaete worm tubes, scaphopod shells and, occasionally, gastropod shells.

***Lophopagurus (Australeremus) triserratus* (Ortmann, 1892)**

*NZ reference*: de Saint Laurent & McLaughlin (2000: 177) fig. 57.

*Other significant references*: McLaughlin & Gunn (1992: 87) fig. 1, pl. 1 (photo, whole animal from Japan), as *Australeremus triserratus*; Poore (2004: 274) fig. 77f (right cheliped), as *Lophopagurus triserratus*.

*Distribution*: Bay of Plenty, 110–183 m; China, Japan and Indonesia, and southeastern Australia.

*Colour*: NZ material in preservative with carapace and legs reddish brown and with a pair of dark reddish-brown spots before and after cervical groove.

*Shelter*: includes serpulid worm tubes.

***Lophopagurus (Lophopagurus) foresti* McLaughlin & Gunn, 1992**

*NZ references*: Schembri & McLay (1983: 28) figs 8a–b (left and right chelae), as *Lophopagurus 'thompsoni'*; McLaughlin & Gunn (1992: 52) figs 1A,C,E, 3; de Saint Laurent & McLaughlin (2000: 161) fig. 51, pl. 4, fig. 3 (colour photo, live animal in shell).

*Distribution*: endemic, northern and southern NZ; intertidal zone to 220 m or deeper.

*Colour*: cheliped free and fixed fingers, and also walking legs with longitudinal vermilion stripes; in preservative, these stripes appear orange.

*Shelter*: gastropod shells, sometimes bearing anemones.

***Lophopagurus (Lophopagurus) lacertosus* (Henderson, 1888)**

*NZ references*: McLaughlin & Gunn (1992: 61) fig. 6; de Saint Laurent & McLaughlin (2000: 153) fig. 48, pl. 4, fig. 2 (colour photo, live animal in shell).

*Distribution*: endemic, northern and southern NZ, Subantarctic Islands; 36–790 m or deeper.

*Colour*: chelipeds and walking legs orange-red with white markings.

*Shelter*: gastropod shells.

***Lophopagurus (Lophopagurus) ?nanus* (Henderson, 1888)**

*NZ reference*: de Saint Laurent & McLaughlin (2000: 156) fig. 49.

*Other significant references*: McLaughlin & Gunn (1992: 65) figs 1B,D,F, 7; Davie (2002b: 80); Poore (2004: 274) fig. 77d–e (left cheliped), pl. 16d (colour photo, live animal in mollusc shelter), as *Lophopagurus nanus*.

*Distribution*: northwest of Three Kings Islands, Wanganella Bank; southeastern Australia and Tasmania.

***Lophopagurus (Lophopagurus) nodulosus* McLaughlin & Gunn, 1992**

*NZ references*: Schembri & McLay (1983: 28) figs 9a–b (left and right chelae), as *Lophopagurus* n. sp.; McLaughlin & Gunn (1992: 55) fig. 4A–H; de Saint Laurent & McLaughlin (2000: 163) fig. 52.

*Distribution*: endemic, southeastern South Island and Subantarctic Islands; 11–400 m.

*Colour*: antennae reddish with narrow white bands; chelipeds and walking legs reddish orange with darker bands.

***Lophopagurus (Lophopagurus) pumilis* de Saint Laurent & McLaughlin, 2000**

*NZ references*: Schembri & McLay (1983: 28), as *Pagurus* n. sp. B; de Saint Laurent & McLaughlin (2000: 150) fig. 47, pl. 3, fig. 1 (colour photo, live animal in shell).

*Distribution*: endemic, northern and southern NZ; 4–187 m.

*Colour*: eye stalks white with irregular maroon and greenish stripes; chelipeds greenish with white markings; walking legs with alternating bands of green-brown, maroon and yellow, also with longitudinal maroon stripes.

*Shelter*: gastropod shells or, occasionally, bryozoan tubes.

***Lophopagurus (Lophopagurus) thompsoni* (Filhol, 1885)**

*NZ references*: McLaughlin & Gunn (1992: 47) fig. 2; de Saint Laurent & McLaughlin (2000: 157) fig. 50, pl. 4, fig. 1 (colour photo, live animals in shells).

*Distribution*: endemic, northern and southern NZ; 40–1951 m or deeper.

*Colour*: eye stalks orange-red proximally, blue distally; antennae strongly barred with dark reddish brown and white; chelipeds and walking legs orange-red with longitudinal reddish stripes and white areas.

*Shelter*: gastropod shells.

?*Michelopagurus* sp.

*NZ reference*: de Saint Laurent & McLaughlin (2000: 132) fig. 42.

*Distribution*: endemic, known only from a single NIWA station in northern Bay of Plenty, 400–585 m.

*Pagurixus hectori* (Filhol, 1883)

*NZ references*: Schembri & McLay (1983: 28) fig. 26a–b (chelae; misspelt as *Pagurixis*); de Saint Laurent & McLaughlin (2000: 184) fig. 60, pl. 6, fig. 4 (colour photo, live animal in shell).

*Distribution*: endemic, northern and southern NZ, Subantarctic Islands; intertidal zone to 18 m.

*Colour*: eye stalks with pale blue, orange and white bands; antennae dark reddish with narrow white bands; chelipeds dark brown with narrow blue band at base of carpus, dactyls and fixed fingers pale blue; walking legs with pale blue, then dark brown, then pale orange bands distally on each segment.

*Shelter*: gastropod shells.

*Pagurixus kermadecensis* de Saint Laurent & McLaughlin, 2000

*NZ reference*: de Saint Laurent & McLaughlin (2000: 187) fig. 61.

*Distribution*: endemic, Kermadec Islands and northern NZ; intertidal zone.

*Colour*: in preservative, chelipeds and walking legs red.

*Shelter*: gastropod shells.

*Pagurodes inarmatus* Henderson, 1888

*NZ reference*: de Saint Laurent & McLaughlin (2000: 129) fig. 41.

*Distribution*: off eastern coasts of North and South islands, Chatham Islands, 1165–3250 m; western Indian Ocean, Marion Island in southern Indian Ocean, Great Australian Bight.

*Shelter*: gastropod shells, sometimes with encrusting anemones.

*Pagurojacquiesia polymorpha* (de Saint Laurent & McLaughlin, 1999)

*NZ reference*: de Saint Laurent & McLaughlin (2000: 127) fig. 40.

*Distribution*: Kermadec Islands, 165–274 m; Philippine Archipelago, New Caledonia and Vanuatu.

*Colour*: in preservative, eye stalks orange; chelipeds whitish with orange band at mid-length of both fixed and free fingers, palms orange; walking legs whitish with three orange bands on dactyls (based on holotype from Vanuatu).

*Shelter*: gastropod shells.

*Pagurus albidianthus* de Saint Laurent & McLaughlin, 2000

*NZ references*: Schembri & McLay (1983: 28) fig. 19 (dactyl of left 1st walking leg), as *Pagurus* n. sp. A; de Saint Laurent & McLaughlin (2000: 199) fig. 65, pl. 6, fig. 3 (colour photo, live animal in shell).

*Distribution*: endemic, North and South islands; 3–28 m.

*Colour*: eye stalks pale brown; antennae pale brown with faint white bands; chelipeds and walking legs mainly white with longitudinal pink stripes laterally and medially, and pale blue patches dorsally.

*Shelter*: gastropod shells.

*Pagurus iridocarpus* de Saint Laurent & McLaughlin, 2000

*NZ reference*: de Saint Laurent & McLaughlin (2000: 192) fig. 63.

*Distribution*: endemic, Kermadec Islands; 84–113 m.

*Colour*: not known, but specific name refers to partially uncalcified area of iridescent integument on dorsal surface of right cheliped carpus (also sometimes present on left cheliped carpus).

*Shelter*: gastropod shells.

*Pagurus novizealandiae* (Dana, 1852)

*NZ references*: Schembri & McLay (1983: 28) fig. 17 (right cheliped), as *P. novizealandiae*; de Saint Laurent & McLaughlin (2000: 196) pl. 6, fig. 2 (colour photo, live animal in shell).

*Distribution*: endemic, northern and southern NZ, Auckland Islands; intertidal zone to 28 m.

*Colour*: eye stalks pale bluish green proximally, white distally; antennae yellow with black stripes; chelipeds and walking legs bluish green with bright blue bands at carpal-meral articulation and tufts of golden setae.

*Shelter*: gastropod shells.

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

*NZ reference:* de Saint Laurent & McLaughlin (2000: 190) fig. 62.

*Other significant references:* Davie (2002b: 84); Poore (2004: 276) fig. 78a (right cheliped), pl. 16g (colour photo, live animal in mollusc shelter).

*Distribution:* Kermadec Islands, ?intertidal zone; Western and southeastern Australia.

*Colour:* carapace orange-red with darker red-violet patches; eye stalks pale pink with band of orange at mid-length; antennae orange; chelipeds with free finger orange or orange-violet, fingertip cream, carpus and merus orange or orange-red, spines and tubercles on chelipeds pale; 1st and 2nd walking legs with segments distinctly banded with red or maroon at mid-length, dactyls violet distally (based on Australian material).

*Shelter:* gastropod shells.

***Pagurus traversi* (Filhol, 1885)**

*NZ references:* Schembri & McLay (1983: 28) fig. 23 (left chela); de Saint Laurent & McLaughlin (2000: 206) fig. 66, pl. 6, fig. 1 (colour photo, live animal in shell).

*Distribution:* endemic, eastern North and South islands, Stewart Island/Rakiura; intertidal zone to 15 m.

*Colour:* eye stalks greenish blue with lighter markings; antennae dark red with narrow white bars; antennules orange; chelipeds and walking legs dark blue-green with small pale blue spots and pale blue patches at carpal-meral articulations.

*Shelter:* gastropod shells.

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

*NZ reference:* de Saint Laurent & McLaughlin (2000: 107) fig. 34.

*Distribution:* Kermadec Islands; New Caledonia; intertidal zone.

*Shelter:* single valve of bivalve shells, or limpet shells.

***Porcellanopagurus edwardsi* Filhol, 1885**

*NZ references:* Forest (1951: 83) fig. 1 (whole animal), figs 2–12; McLay (1988: 48) fig. 6a–d (male, modified after Forest 1951); de Saint Laurent & McLaughlin (2000: 110) fig. 35 (whole animal).

*Distribution:* endemic, southern South Island, Stewart Island/Rakiura, Subantarctic Islands; 1–198 m or deeper.

*Colour:* in preservative, overall reddish orange.

*Shelter:* single valve of bivalve shells (for more detailed information on bivalve shells used as shelter by *Porcellanopagurus edwardsi*, see McLay 1988: 50).

***Porcellanopagurus filholi* de Saint Laurent & McLaughlin, 2000**

*NZ references:* Borradaile (1916: 111) fig. 1 (whole ovigerous female), figs 2, 3, 5–8, 10A, 13a, as *P. ?edwardsi*; de Saint Laurent & McLaughlin (2000: 114) fig. 36, pl. 3, fig. 3 (colour photo, live animal under bivalve shell).

*Distribution:* northern and central NZ, Chatham Islands; eastern Australia, New Caledonia; 79–1392 m or deeper.

*Colour:* chelipeds and walking legs orange-red.

*Shelter:* single valve of bivalve shells, or limpet shells (sometimes with covering of colonial hydrozoan).

***Porcellanopagurus tridentatus* Whitelegge, 1900**

*NZ reference:* de Saint Laurent & McLaughlin (2000: 105) fig. 33.

*Other significant references:* Davie (2002b: 85); Poore (2004: 276) fig. 78d (dorsal view carapace and abdomen), pl. 16h (colour photo, whole animal carrying single valve of bivalve shell as shelter).

*Distribution:* Kermadec Islands, 138–140 m or deeper; eastern Australia, Lord Howe and Norfolk islands, New Caledonia.

***Propagurus deprofundis* (Stebbing, 1924)**

*NZ reference:* de Saint Laurent & McLaughlin (2000: 123) fig. 39.

*Other significant references:* Davie (2002b: 85); Poore (2004: 277) fig. 78c–e (right cheliped, P2 dactyl).

*Distribution:* Norfolk Ridge to western and eastern North and South islands, Chatham Rise, 304–891 m; south-eastern South Africa, Tasmania, southeastern Australia, Philippine Archipelago, Hawai'i.

*Colour:* in preservative, carapace with orange patches; eye stalks orange; chelipeds whitish with orange band at mid-length of both free and fixed fingers, palms and other segments with orange patches; walking legs whitish with three orange bands on dactyls, propodi with orange band at mid-length and orange spot on lateral face proximally, other segments with orange patches.

*Shelter:* gastropod shells.

**Family PARAPAGURIDAE Smith, 1882*****Oncopagurus* sp.**

*NZ reference:* Lemaitre (2000: 218) fig. 69.

*Distribution:* endemic, known only from one damaged specimen from Kermadec Islands, 320 m.

*Shelter:* gastropod shell.



***Paragiopagurus diogenes* (Whitelegge, 1900)**

*NZ reference:* Lemaitre (2000: 219) fig. 70 (eastern Australian specimen).

*Other significant references:* Davie (2002b: 90); Poore (2004: 282) fig. 81e (right cheliped) pl. 17a (colour photo, live animal in mollusc shelter).

*Distribution:* Kermadec Islands, 219–274 m; China, Japan, Australia.

*Colour:* general colour orange or reddish; chelipeds with fingers creamy white, dorsal surface of carpus and hand orange or reddish, and iridescent; walking legs orange or reddish; carpi of chelipeds and walking legs with dark red band proximally (based on Australian material).

*Shelter:* gastropod shells.

***Paragiopagurus hirsutus* (de Saint Laurent, 1972)**

*NZ reference:* Lemaitre (2000: 221) fig. 71 (eastern Australian specimen).

*Other significant reference:* Davie (2002b: 90).

*Distribution:* eastern slope of Norfolk Ridge, 357–487 m; Indo-West Pacific, questionably off eastern South Africa, unquestionably from China Sea, Philippine Archipelago, Australia.

*Shelter:* gastropod shells.

***Parapagurus abyssorum* (Filhol, 1885)**

*NZ reference:* Lemaitre (2000: 224) fig. 72 (North Atlantic specimen).

*Distribution:* *Galathea* station 575, eastern Tasman Sea, 3710 m; North Atlantic, western and southeastern Pacific; recorded range 2500–4360 m.

*Shelter:* formed by *Epizoanthus* species, or occasionally actinians.

***Parapagurus bouvieri* Stebbing, 1910**

*NZ reference:* Lemaitre (2000: 225) fig. 73.

*Other significant references:* Davie (2002b: 90); Poore (2004: 284) fig. 79 (animal in zoanthid shelter), fig. 81f–i, pl. 17b (colour photo, animal in zoanthid shelter).

*Distribution:* recorded in NZ waters from one specimen, Bay of Plenty, depth unknown; southeastern Atlantic, southwestern Indian Ocean and southern Australia.

*Colour:* carapace pinkish, cornea dark crimson, antennae pink, basal segments of chelipeds with reddish patches, 1st and 2nd walking legs red with conspicuous white stripe along upper and lower margins (based on South African material).

*Shelter:* formed by zoanthids, usually *Epizoanthus* species.

***Parapagurus latimanus* Henderson, 1888**

*NZ reference:* Lemaitre (2000: 229) fig. 75 (specimen from northeast of Chatham Islands, not from ‘SE Pacific’ as stated in caption).

*Other significant references:* Davie (2002b: 91); Poore (2004: 284) fig. 81j–k (walking leg 4 propod and dactyl).

*Distribution:* northern and southern NZ including Challenger Plateau and Chatham Rise at 413–2500 m; western Indian Ocean, southern Australia, Indonesian Archipelago, Japan, New Caledonia.

*Shelter:* formed by zoanthids, usually *Epizoanthus* species.

***Parapagurus richeri* Lemaitre, 1999**

*NZ reference:* Lemaitre (2000: 227) fig. 74 (New Caledonian specimen).

*Other significant references:* Davie (2002b: 91); Poore (2004: 284) fig. 81l (walking leg 4 propod and dactyl).

*Distribution:* *Galathea* station in Kermadec Trench, 2640 m; southeastern Indian Ocean, South China Sea, central and western Pacific.

*Shelter:* gastropod shells (often with anthozoan polyps), occasionally scaphopod shells.

***Sympagurus dimorphus* (Studer, 1883)**

*NZ reference:* Lemaitre (2000: 214) fig. 68, pl. 7 (colour photo, live animal in shell).

*Other significant references:* Davie (2002b: 920); Poore (2004: 285) fig. 82b,e (right cheliped, walking leg 4 propod and dactyl).

*Distribution:* the commonest NZ parapagurid; northern and southern NZ including Challenger Plateau, northern Campbell Plateau, Chatham Rise, 210–984 m or deeper; southern South Atlantic, southern Indian Ocean, western and eastern South Pacific.

*Colour:* overall colour cream with some orange-red markings.

*Shelter:* gastropod shells, usually with attached actinian or zoanthid polyps.

***Sympagurus burkenroadi* Thompson, 1943**

*NZ references:* Lemaitre (2000: 211) fig. 67a–k (Western Australian specimen diagnostic characters); Lemaitre (2004: 134) (*S. papposus* synonymised with *S. burkenroadi*).

*Other significant reference:* Davie (2002b: 92).

*Distribution:* only NZ record is from a single collection in Bay of Plenty, depth unknown; western Indian Ocean, Indonesian Archipelago and Australia.

*Shelter:* formed by zoanthids, usually *Epizoanthus* species.

Family **PYLOCHELIDAE** Bate, 1888***Cheiroplatea pumicicola*** Forest, 1987

*NZ references:* Forest (1987: 108) figs 3b, 5e, 23, 24a–e, 31, pl. 6, figs E–F, pl. 9; Forest & McLaughlin (2000: 36) figs 6–7.

*Distribution:* Kermadec Islands, 490–1156 m; New Caledonia.

*Shelter:* burrows in rounded pumice pebbles.

***Pylocheles mortensenii*** Boas, 1926

*NZ references:* Forest (1987: 51) fig. 2a (whole animal in schematic pumice burrow), figs 3a, 5a–b, 7a, 8, 9a–d, 10a–b, 12, 41a, pl. 2, fig. C (Japanese specimen); Forest & McLaughlin (2000: 33) fig. 5.

*Other significant reference:* Davie (2002b: 111).

*Distribution:* Kermadec Islands, 320 m, and Tasman Bay in northern South Island, depth not recorded; Indo-West Pacific from Indonesia to Japan and Australia.

*Colour:* uniformly intense rose (from Japanese material).

*Shelter:* non-NZ specimens recorded from excavations in sponge, coral, limestone and pumice pieces.

***Trizocheles brachyops*** Forest & de Saint Laurent, 1987

*NZ references:* Forest (1987: 186) figs 47b, 61d, 62, 63a; Forest & McLaughlin (2000: 52) figs 13a–e, 14.

*Distribution:* southeast of Lord Howe Rise, off Kermadec Islands and southeast coast of North Island, 565–950 m.

*Shelter:* Kermadec specimens from burrows in pumice.

***Trizocheles perplexus*** Forest, 1987

*NZ references:* Forest (1987: 208) figs 47f, 59e, 66f; Forest & McLaughlin (2000: 41) figs 8–9.

*Distribution:* endemic, Kermadec Islands, 398–590 m, and Tasman Bay, northern South Island.

***Trizocheles pilgrimi*** Forest & McLaughlin, 2000

*NZ reference:* Forest & McLaughlin (2000: 54) fig. 15.

*Distribution:* Kermadec Islands, 545–590 m; New Caledonia.

***Trizocheles spinosus*** (Henderson, 1888)

*NZ references:* Batham (1970: 45) fig. 1, pl. 1 (photos, whole animal), as *Myxtopagurus* n. sp.; Probert *et al.* (1979: 381), as *Mixtopagurus spinosus*; Schembri & McLay (1983: 28), as *Mixtopagurus* n. sp.; Forest (1987: 205) figs 4d, 6c–d, 47e, 66i, 69d, 71a–b (b from New Caledonian specimen), pl. 2A (photo, whole animal), pls 3D, 5C–E; Forest & McLaughlin (2000: 49) figs 10a, 12a–e, 13f–l, pl. 1, fig. 1 (colour photo, live animal in shell), figs 10b, 11, 12f–h, 13j–k, as *T. spinosus spinosus*; Poore (2004: 287);

McLaughlin & Lemaitre (2008: 53) fig. 1a–i (metazoea, diagnostic features); McLaughlin & Lemaitre (2009: 203) (*T. spinosus bathamae* and *T. s. spinosus* merged under current name).

*Other significant references:* Forest (1987: 202) figs 47d, 66g, 69c, 70 (southeastern Australian specimens); Davie (2002b: 112) fig. page 109 (whole animal, after Henderson 1888); Poore (2004: 287) fig. 83 (whole animal).

*Distribution:* North, South and Chatham islands, 127–550 m; eastern and southeastern Australia, New Caledonia.

*Colour:* carapace whitish with diffuse orange blotches; eye stalks light orange, cornea dark brown; chelipeds and walking legs white and orange, irregularly mottled and barred (Batham 1970, for Otago specimens).

*Shelter:* found in pumice, sponges and gastropod shells.

## Infraorder BRACHYURA Linnaeus, 1758

## Section DROMIACEA De Haan, 1833

## Superfamily DROMIOIDEA De Haan, 1833

Family **DROMIIDAE** De Haan, 1833***Lewindromia unidentata*** (Rüppell, 1830)

*NZ references:* Chilton (1911: 554), as *Dromia unidentata*; McLay (1993: 192) figs 7, 18a (photo, whole animal), as *Cryptodromiopsis unidentata*; Guinot & Tavares (2003: 74) fig. 11a–c (male and female sterna, male abdomen); Takeda & Webber (2006: 232), as *Cryptodromiopsis unidentata*.

*Other significant references:* McLay (1993: 192) fig. 8a–k (diagnostic characters of carapace, abdomen and appendages), as *Cryptodromiopsis*; Davie (2002b: 161), as *Cryptodromiopsis*; Ng *et al.* (2008: 35).

*Distribution:* Kermadec Islands on subtidal coral; Indo-Pacific from Red Sea and east Africa, through Southeast Asia, Indonesia, eastern Australia and New Caledonia to Japan, Hawai'i and Easter Island; shallow water and shelf.

*Shelter:* caps of sponges, ascidians, actinians or colonial cnidarians.

***Metadromia wilsoni*** (Fulton & Grant, 1902)

*NZ references:* Dell (1968: 14) figs 5–7, pl. 2 (photo, whole animal as *Petalomera wilsoni*); McLay (1988: 68) fig. 10a (whole animal), fig. 10b–f, as *P. wilsoni*; McLay (1991: 470) figs 6, 7, 8, pl. 1B (photo, whole animal as *P. wilsoni*); McLay (2009: 15) fig. 4a–b (colour photos, whole male, dorsal, anterior).

*Other significant references:* McLay (1993: 156) fig. 16e (photo, whole animal); Ikeda (1998: 57) pl. 3, figs 1–4 (colour photos, whole animals); Davie (2002b: 162), as

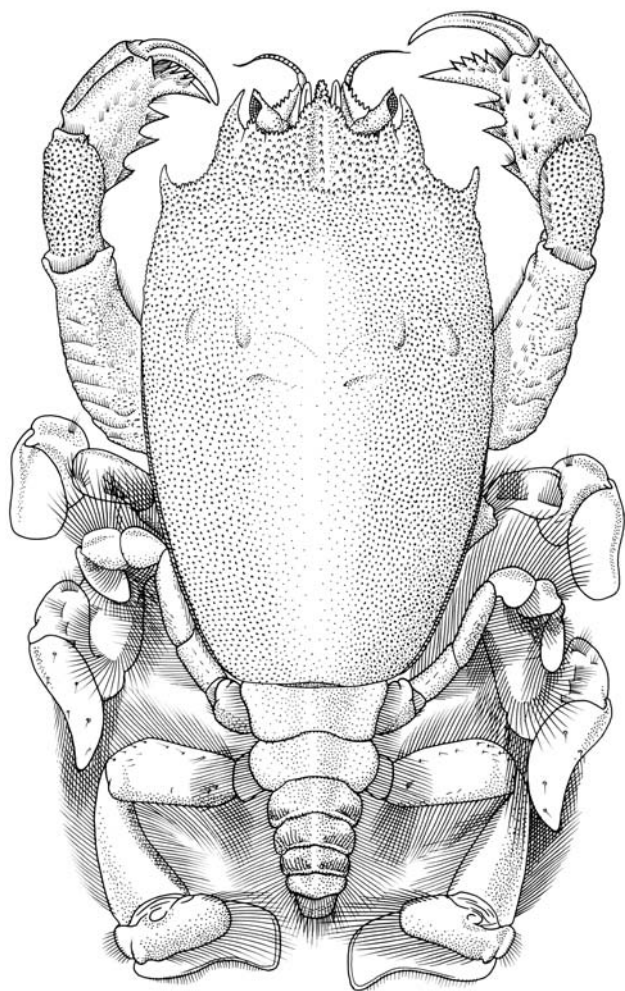


Fig. 9 Infraorder BRACHYURA: *Notosceles pepeke* Dawson & Yaldwyn, 2000 (drawn by W.R. Webber; from Dawson & Yaldwyn (2000)).

*Dromia wilsoni*; Poore (2004: 304) fig. 84b (whole animal), pl. 17f (colour photo, whole animal), fig. 84b (whole animal), pl. 17f (colour photo, whole animal without cap).

*Distribution*: northern NZ south to Tasman Bay and Kaikoura (not known from Kermadec or Chatham islands); St Helena in South Atlantic, Indo-Pacific from South Africa to southern and eastern Australia, New Caledonia, Japan and French Polynesia; shallow water, shelf and slope.

*Colour*: shaggy covering of dark khaki setae over entire animal; cap may be brightly coloured.

*Shelter*: small specimens carry sponge or ascidian caps (see Dell 1974: 1244 for colour photo of crab carrying red

ascidian cap). Large specimens have not been recorded carrying caps.

***Tumidodromia dormia* (Linnaeus, 1763)**

*NZ reference*: McLay (2009: 19) figs 5a–b (colour photos, whole male, dorsal, anterior), fig. 6a–b (colour photos, male sternite, female sternite).

*Other significant reference*: Davie (2002b: 162), as *Dromia dormia*.

*Distribution*: Kermadec Islands; Indo-West Pacific.

Family **DYNOMENIDAE**

Ortmann, 1892

***Dynomene pilumnoides* Alcock, 1900**

*NZ reference*: McLay (2009: 12) fig. 3a–b (colour photos, whole female, whole male, dorsal).

*Other significant references*: McLay (1999: 494) figs 3c–d, 8d–e, 12e–f, 14c (electron micrographs, diagnostic characters), fig. 17d (photo, whole ovigerous female), fig. 21a–g (diagnostic characters); Davie (2002b: 168) fig. page 167 (whole animal); Poore (2004: 308) fig. 88a,c (carapace, chela); Ng *et al.* (2008: 37).

*Distribution*: Monowai Seamount north of Kermadec Islands; New South Wales, Indo-West Pacific.

*Colour*: red to yellowish.

***Metadynomene tanensis* (Yokoya, 1933)**

*NZ reference*: McLay (2009: 11) fig. 2a–b (colour photos, whole ovigerous female, dorsal, anterior).

*Other significant references*: McLay (1999: 521) figs 4d, 6c, 7f, 9d–e, 13c,e–f, 14e (electron micrographs, diagnostic characters), fig. 25b (photo, female), fig. 27a–g (diagnostic characters); Ng *et al.* (2008: 37).

*Distribution*: East Cape; western Pacific from Taiwan to Vanuatu.

Superfamily **HOMOLODROMIOIDEA**

Alcock, 1900

Family **HOMOLODROMIIDAE**

Alcock, 1900

***Dicranodromia delli* Ahyong, 2008**

*NZ references*: Ahyong (2008: 7) figs 2A–B, 3A–D (ovigerous female holotype, whole animal and parts), fig. 4 (front, maxilliped 3, P5 dactyl); McLay (2009: 8) fig. 1a (colour photo, antero-lateral view).

*Distribution*: endemic, Bay of Plenty to Chatham Rise.



***Dicranodromia spinulata* Guinot, 1995**

*NZ references:* Ahyong (2008: 11) fig. 1C (photo, whole male, dorsal); McLay (2009: 6) fig. 1b (colour photo, antero-lateral view).

*Other significant references:* Guinot (1995: 225) figs 21A–C, 22A–B, 25D; Ng *et al.* (2008: 39).

*Distribution:* from east of North Cape to Chatham Rise; New Caledonia.

***Homolodromia kai* Guinot, 1993**

*NZ references:* Dawson (2002: 6) figs 1c, 2c–d, pl 1a (whole animal), figs 1d–f, 2a–f, 3 (distribution map), as *Homolodromia* spp.; Ahyong (2008: 11) fig. 1B (photo, whole male, dorsal).

*Other significant references:* Guinot (1995: 197) figs 5B, 9 (photo, whole animal), fig. 10; Ho & Ng (1999: 1123) fig. 1 (whole animal); Poore (2004: 311) fig. 89e (carapace); Ng *et al.* (2008: 39).

*Distribution:* northeastern NZ; South China Sea, Indonesia, New Caledonia and Vanuatu; continental slope.

## Superfamily HOMOLOIDEA De Haan, 1839

## Family HOMOLIDAE De Haan, 1839

***Dagnaudus petterdi* (Grant, 1905)**

*NZ references:* Dell (1955: 147) fig. 1 (photos, whole animal), as *Latreillopsis petterdi*; Takeda & Miyake (1969: 159) figs 1a–c, pl. 1, figs A–B (photos, whole males), as *L. petterdi*; McLay (1988: 78) fig. 13 (whole male), as *Paromola petterdi*; Takeda (1990: 363) fig. 291 (colour photo, whole animal as *L. petterdi*); Ahyong (2008: 5) fig. 1A (photo, whole male, dorsal).

*Other significant references:* Guinot & Richer de Forges (1995: 418) figs 44, 45a (photo, whole male from New Caledonia), fig. 45b–e (photo, whole male from New South Wales); Davie (2002b: 234); Poore (2004: 312) fig. 90a (whole animal, dorsal); Ng *et al.* (2008: 40).

*Distribution:* northern to southern NZ; Western, southern and eastern Australia, New Caledonia; shelf edge and slope.

*Colour:* body and appendages pale, mottled with red, walking legs with obvious red bands and red dactyls, cheliped fingers and cornea black.

***Homola orientalis* Henderson, 1888**

*NZ references:* Yaldwyn & Dawson (1976: 92) fig. 1 (photo, whole animal); McLay (1988: 72) fig. 11a–d (whole animal).

*Other significant references:* Guinot & Richer de Forges (1995: 331) figs 9e, 10, 12A–B, 13h, 16c (photos, whole animal from Hawai'i), fig. 16d (photo, holotype from Philippines), fig. 16e (photo, whole animal from French Polynesia), fig. 16f; Davie (2002b: 235) fig. page 233 (whole animal); Poore (2004: 312) fig. 89d (carapace); Ng *et al.* (2008: 40).

*Distribution:* one specimen from Bay of Plenty, 256 m; Indo-Pacific from east Africa and Gulf of Aden, through Indian Ocean, southern and eastern Australia, Philippines and New Caledonia to Japan, Hawai'i and French Polynesia; shelf and slope.

*Colour:* body and appendages red or orange, cheliped hand pale, cheliped fingers black (Ikeda 1998: pl. 6c – colour photos, whole animals).

***Homola ranunculus* Guinot & Richer de Forges, 1995**

*NZ material:* two specimens in MNZ from Kiwi Seamount, Three Kings Rise, 538–677 m.

*NZ reference:* Webber *et al.* (2010: 226).

*Other significant references:* Guinot & Richer de Forges (1995: 344) figs 13g, 15, 16a (photo, whole animal), fig. 16b (photo, carapace); Ng *et al.* (2008: 40).

*Distribution:* Three Kings Rise, Norfolk Ridge; New Caledonia.

***Homolochunia kullar* Griffin & Brown, 1976**

*NZ material:* one NZ specimen from off North Cape, 620–635 m.

*NZ reference:* Webber *et al.* (2010: 226).

*Other significant references:* Griffin & Brown (1976: 249) figs 1–3 (photos, whole animal dorsal and ventral); Guinot & Richer de Forges (1995: 432) figs 49, 50a–b (photo, whole animal), fig. 51g; Davie (2002b: 235); Poore (2004: 314) fig. 89c (carapace); Ng *et al.* (2008: 40).

*Distribution:* northern NZ; eastern Australia, New Caledonia.

***Yaldwynopsis spinimanus* (Griffin, 1965)**

*NZ references:* Griffin (1965: 87) fig. 1 (photo, whole animal), fig. 2, as *Paromola spinimana*; McLay (1988: 82) fig. 14a (whole animal), fig. 14b–e, as *Paromola spinimana*.

*Other significant references:* Guinot & Richer de Forges (1995: 437) figs 52, 53a (photo, whole animal from Japan), figs 53b,g, 54; Davie (2002b: 237); Ng *et al.* (2008: 41).

*Distribution:* northern NZ mainland shelf; Japan, ?eastern Australia, ?Hawai'i.

*Colour:* carapace and legs uniform bright orange, cheliped fingers black.



Family **LATREILLIIDAE** Stimpson, 1858***Eplumula australiensis*** (Henderson, 1888)

*NZ references:* Dell (1963b: 245) fig. 1 (whole animal), figs 2–3, as *Latreillia australiensis*; McLay (1988: 76) fig. 12a (whole animal), fig. 12b–c, as *Latreillia australiensis*; Castro *et al.* (2003: 605) fig. 2 (whole animal), figs 3A, 4 (distribution map).

*Other significant references:* Williams (1982: 230) fig. 8 (distribution map); Davie (2002b: 250) fig. page 249 (whole animal); Poore (2004: 316), fig. 9 (whole animal, dorsal), pl. 18d (colour photo, whole animal); Ng *et al.* (2008: 41).

*Distribution:* northern NZ (not known from Kermadecs); southwestern, southern and eastern Australia; shelf and slope.

*Colour:* white and purplish with red markings.

## Section RANINOIDA De Haan, 1839

Family **RANINIDAE** De Haan, 1839

## Subfamily LYREIDINAE Guinot, 1993

***Lyreidus tridentatus*** De Haan, 1841

*NZ references:* Griffin (1970a: 94) fig. 1 (distribution map), figs 2–5, 6a,e,f,j–n,o, 7a–b, 8a–b,f–g, pl. 7A (photos, whole animal from Queensland); McLay (1988: 84) fig. 15a (whole animal), fig. 15b–e; Dawson & Yaldwyn (1994: 8) (bibliography); Takeda & Webber (2006: 192) fig. 1A (photo, whole young male, dorsal); Ah Yong (2008: 11) fig. 1E (photo, female), fig. 28F (colour photo, male).

*Other significant references:* Sakai (1976) pl. 21, fig. 2 (colour illustration, whole animal); Feldmann (1992: 945) fig. 1 (photos, whole male dorsal and ventral); Davie (2002b: 486) fig. page 486 (whole animal); Poore (2004: 322) fig. 94a (whole animal, dorsal) pl. 18e (colour photo, whole live animal, lateral); Ng *et al.* (2008: 42).

*Distribution:* Kermadec Islands, North Island south to Cape Campbell in northern South Island or possibly to Banks Peninsula, shelf and slope; western Pacific, Australia and New Caledonia to Japan.

*Colour:* body and appendages pinkish orange.

## Subfamily RANINOIDINAE Lörenthey, 1929

***Notosceles pepeke*** Dawson & Yaldwyn, 2000 (Fig. 9)

*NZ reference:* Dawson & Yaldwyn (2000: 54) fig. 1 (whole animal), figs 2–6.

*Other significant reference:* Ng *et al.* (2008: 42).

*Distribution:* endemic, northern NZ, Kermadec Islands; shelf and upper slope.

## Section CYCLODORIPPOIDA Ortmann, 1892

Family **CYMONOMIDAE** Bouvier, 1897***Cyonomus aequilonius*** Dell, 1971

*NZ references:* Dell (1971: 59) figs 11–15; McLay (1988: 92) fig. 17; Ah Yong & Brown (2003: 1372); Ah Yong (2008: 12) fig. 1F (photo, whole animal).

*Other significant reference:* Ng *et al.* (2008: 32).

*Distribution:* endemic, one specimen from Bay of Plenty, 730 m.

***Cyonomus bathamae*** Dell, 1971

*NZ references:* Dell (1971: 56) figs 1, 2 (whole male), figs 3, 4 (whole female), figs 5–10; McLay (1988: 88) fig. 16a (whole male), fig. 16b–c (whole female), fig. 16d.

*Other significant reference:* Ng *et al.* (2008: 32).

*Distribution:* endemic, southern NZ, Chatham Rise south to Otago; slope.

***Cyonomus clarki*** Ah Yong, 2008

*NZ reference:* Ah Yong (2008: 13) fig. 1D (photo, whole animal, ovigerous female holotype), fig. 6A–D (whole animal and parts).

*Distribution:* endemic, northern Chatham Rise.

## Section EUBRACHYURA de Saint Laurent, 1980

## Subsection HETEROTREMATA Guinot, 1977

## Superfamily AETHROIDEA Dana, 1851

Family **AETHRIDAE** Dana, 1851***Actaeomorpha erosa*** Miers, 1877

*NZ references:* Chilton (1911: 555); Takeda & Webber (2006: 198) fig. 5A (photo, male, dorsal).

*Other significant references:* Barnard (1950: 361) fig. 69a–b; Sakai (1976: 293) fig. 165 (whole animal); Ng *et al.* (2008: 44).

*Distribution:* Kermadec Islands on coral and dredged to 22 m; Indo-Pacific, from Natal and Mauritius to Western and northern Australia, Japan, Hawai'i; sandy bottoms near coral reefs.

Superfamily BELLIOIDEA Dana, 1852

Family BELLIIDAE Dana, 1852

*Heterozius rotundifrons* A. Milne-Edwards, 1867

*NZ references:* Miller & Batt (1973: 74) fig. 93 (colour photo, live male and female); Dell (1974: 1244) (colour photo, whole female with egg mass); Guinot (1976: 28) figs 2D, 5J–K, 6J–L, 7D, 8D, 9D, 10D, 11C, 12E, 13G–I, pl. 1, figs 6–10 (photo, whole male); Jones (1978: 783) fig. 2a (whole male), fig. 2b–c (carapace outline female), fig. 2d; McLay (1988: 252) fig. 56a (whole male), fig. 56b; Walsby (1990: 124) (colour photos, live females).

*Other significant references:* Salva & Feldmann (2001: 18) fig. 13C–D (photos, whole animal dorsal and ventral); Ng *et al.* (2008: 46) fig. 23 (colour photo).

*Distribution:* endemic, North, South and Chatham islands (not known from Kermadecs); littoral and intertidal zones.

*Colour:* body and appendages pinkish to olive green, often coated with fine mud; cheliped fingers pale yellow, female egg mass bright red.

Superfamily BYTHOGRAEOIDEA Williams,

1980

Family BYTHOGRAEIDAE Williams,

1980

*Gandalfus puia* McLay, 2007

*NZ references:* Clark & O'Shea (2001: 15), as *Bythograea* n. sp.; McLay (2007: 5) figs 1A–F, 2A–G (carapace and appendages), figs 3A–B, 4A–B (photos, male holotype dorsal and frontal), fig. 5A–D (photos, male gonopods); Ah Yong (2008: 26) fig. 5C (photo, holotype male, whole animal).

*Other significant reference:* Ng *et al.* (2008: 47).

*Distribution:* endemic, Kermadec Ridge from Bay of Plenty to Kermadec Islands.

Superfamily CALAPPOIDEA De Haan,

1833

Family CALAPPIDAE H. Milne Edwards,

1837

*Mursia microspina* Davie & Short, 1989

*NZ reference:* McLay (2009: 360) fig. 16a–b (colour photos, female, dorsal, anterior), fig. 17a–b (colour photos, female ventral, dorsal), fig. 18a–b (colour photos, male, ventral, anterior).

*Other significant references:* Davie & Short (1989: 172) figs 9–10 (photo, whole animal); Galil (1993: 365) fig. 4e (photo, whole animal), figs 6h–i, 8e–f, 12 (colour photo, whole animal); Davie (2002b: 128); Ng *et al.* (2008: 49).

*Distribution:* northern NZ including Kermadec Islands, slope; eastern Australia, New Caledonia, Japan.

*Colour:* carapace and appendages light to medium peach colour; margin of buccal cavity with two orange-red spots; inner face of cheliped palms with strong red patch.

Superfamily CANCROIDEA Latreille,

1802

Family ATELECYCLIDAE Ortmann,

1893

*Pteropeltarion novaezelandiae* Dell, 1972

*NZ references:* Dell (1972: 56) figs 1–9, 10–11 (photos, whole male dorsal and ventral); McLay 1988: 184, fig. 42a (whole female), fig. 42b–e; Guinot (1989: 350) pl. 5, fig. G (photo, whole male, incorrectly labelled *Trichopeltarion novaezelandiae*).

*Other significant references:* Salva & Feldmann (2001: 51) fig. 31A–B (photos, whole animal dorsal and ventral); Ng *et al.* (2008: 51).

*Distribution:* endemic, northern and southern NZ including Campbell Plateau (not known from Kermadecs), slope.

*Colour:* white in preservative.

*Trichopeltarion fantasticum* Richardson & Dell, 1964

*NZ references:* Richardson & Dell (1964: 148) figs 1–10 (including carapace outlines of immature specimens), fig. 11 (whole male); Takeda & Miyake (1969: 163) pl. 3, fig. B (photo, whole male); Dell (1974: 1240) fig. 3 (colour photo, whole male); McLay (1988: 186) fig. 43a (whole male), fig. 43 b–d; Takeda (1990: 371) fig. 299 (colour photo, whole male); Ah Yong (2008: 16) fig. 5A (photo, male, whole animal), fig. 28C (colour photo, female, whole animal).

*Other significant references:* Salva & Feldmann (2001: 37) fig. 16A–F (photos, whole animals showing change in carapace shape with increasing size), fig. 17A (photo, whole mature male with enlarged cheliped), fig. 20A–B (photos, mature female dorsal and ventral); Ng *et al.* (2008: 51).

*Distribution:* endemic, northern and southern NZ including Chatham Rise (not known from Kermadecs); shelf and slope.

*Colour:* carapace and legs greyish white, hairs on legs yellowish orange, cornea reddish orange.

***Trichopeltarion janetae* Ahyong, 2008**

*NZ references:* Ahyong (2008: 17) fig. 7A–B (photos, male holotype, whole animal and carapace), fig. 8A–F (photos, holotype appendages), fig. 9A–E (photos, holotype anterior and female paratype), fig. 10A–B (photos, male paratype whole animal and female paratype whole animal), fig. 11A–C (holotype appendages); McLay (2009: 34) fig. 15 (colour photo, female whole animal).

*Distribution:* Bay of Plenty seamounts, Chatham Rise, Bollons Seamount; Tasmanian seamounts.

Family **CANCRIDAE** Latreille, 1802***Glebocarcinus amphioetus* (Rathbun, 1898)**

*NZ material:* found during a NIWA 2001–03 survey of alien invasive species in NZ ports. Probably accidentally introduced on Asian fishing boats; two size classes present, suggesting establishment and breeding, though no adults yet collected.

*NZ references:* McLay (2004: 21); Webber *et al.* (2010: 226).

*Other significant references:* Rathbun (1930: 205) pl. 91, figs 1–5 (photos, whole animals); Sakai (1976: 319) pl. 109, figs 1–8 (colour illustrations, whole animals); Nations (1979: 154) fig. 183 (use of subgenus *Glebocarcinus*), figs 2, 4 (distribution maps); Ng *et al.* (2008: 53).

*Distribution:* Gisborne and Bluff harbours; previously known from rocky beaches and shallow water of Japan and northern China, southern California, Baja California and Gulf of California, Mexico.

*Colour:* juveniles with various strongly contrasting carapace patterns of dark red, yellow and blue. Adult carapace mottled with dark green around areas of tubercles, chelipeds streaked with dark green and walking legs irregularly banded with dark green (Japanese specimens).

***Metacarcinus novaezealandiae* (Hombron & Jacquinot, 1846)**

*NZ references:* McNeill & Ward (1930: 377) pl. 61, figs 3–6 (photo, whole juveniles), fig. 7 (photo, whole male from Tasmania); Heath & Dell (1971: 40) fig. 112 (colour illustration, whole animal); Miller & Batt (1973: 73) fig. 90 (colour photo, whole animal); Nations (1979: 180, 184) (use of subgenus *Metacarcinus*), figs 6, 15 (distribution maps, misspelt as *Cancer novaezealandiae*); Powell (1987: 36) fig. 189 (whole animal), as *C. novaezealandiae*; McLay (1988) fig. 44a–b (whole male).

*Other significant references:* Davie (2002b: 133) fig. page 167 (whole animal); Poore (2004: 402) fig. 124a (whole

animal), pl. 22b (colour photo, whole animal); Ng *et al.* (2008: 53).

*Distribution:* northern and southern NZ including Chatham and Auckland islands (not known from Kermadecs), intertidal zone and shallow shelf; southeastern Australia and Tasmania (Poore 2004). Probably accidentally introduced to Australia from NZ with oysters (see Dartnall 1969 for discussion of introductions to Tasmania).

*Colour:* dark brown or dark red with darker rim around carapace margin, cheliped finger tips black, walking legs banded with red; juvenile crabs may be dark green with dark brown spots.

***Romaleon gibbosulum* (De Haan, 1835)**

*NZ material:* a new record for NZ in 2004, found during a NIWA survey of alien invasive species in NZ ports. Probably accidentally introduced on Asian fishing boats; two size classes present, suggesting establishment and breeding, though no adults yet collected.

*NZ references:* McLay (2004: 21); Webber *et al.* (2010: 226).

*Other significant references:* Sakai (1976: 318) pl. 108, figs 1–2 (colour illustrations, whole animals); Nations (1979: 154, 184) fig. 3 (distribution map) (use of subgenus *Romaleon*), as *Cancer (R.) gibbosulum* and incorrectly attributed to ‘Rathbun 1898’; Ng *et al.* (2008: 53).

*Distribution:* Wellington, Lyttelton and Timaru harbours; previously known from shallow water, Japan and northern China.

*Colour:* Juveniles with carapace mottled with green and yellow, walking legs banded with red on pale background. Adults with purplish-red patches around areas of tubercles, chelipeds and walking legs irregularly streaked and banded with red (Japanese specimens).

**Note:** between 1907 and 1914, a small-scale organised attempt was made to introduce the European edible crab *Cancer pagurus* Linnaeus, 1758 to NZ coastal waters. Live crabs were imported from the UK and kept in holding ponds at the Portobello Marine Fish-Hatchery and Biological Station in Otago Harbour. It was estimated that several million larvae were hatched out and liberated in the harbour over those years. Mature adults of both sexes were also liberated, but no trace of free-living European edible crabs have been found in Otago Harbour or in other NZ waters during or since the attempted introduction. A detailed account of this project is given in Thomson & Anderton (1921), including a photo of a whole *C. pagurus* on p. 49.

Superfamily DORIPPOIDEA MacLeay, 1838  
Family **ETHUSIDAE** Guinot, 1977

***Ethusina castro*** Ah Yong, 2008

*NZ reference*: Ah Yong (2008: 26) fig. 12A (photo, ovigerous holotype female), fig. 13A–B (photos, female holotype, anterior and ventral), fig. 14A–E (holotype female, parts), fig. 28A–B (colour photos, female holotype, dorsal, ventral).

*Distribution*: endemic, Gisborne Knolls northeast of New Zealand.

***Ethusina rowdeni*** Ah Yong, 2008

*NZ reference*: Ah Yong (2008: 29) fig. 12B (photo, holotype male), fig. 13C–D (photos, male holotype, anterior and ventral), fig. 14F–L (holotype male, parts).

*Distribution*: endemic, Whakatane Seamount, eastern New Zealand.

Superfamily ERIPHIOIDEA MacLeay,  
1838

Family **OZIIDAE** Dana, 1851

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

*NZ reference*: Takeda & Webber (2006: 216) fig. 13A (photo, ovigerous female, dorsal).

*Other significant references*: Davie & Ng (2000: 267) fig. 1A–B (photos, male lectotype, dorsal and ventral), fig. 2A–B (photos, female, dorsal and frontal), figs 3A, 4A (photos, orbit and maxilliped 3), fig. 5 (male gonopods); Davie (2002b: 180) fig. page 179 (whole animal); Ng *et al.* (2008: 65).

*Distribution*: Kermadec Islands; New South Wales, Lord Howe Island, Norfolk Island.

***Ozius truncatus*** H. Milne Edwards, 1834

*NZ references*: Chilton (1911: 556), as *Ozius lobatus*; Heath & Dell (1971: 40) fig. 114 (colour illustration, whole animal); Miller & Batt (1973: 73) fig. 91 (colour photo, whole animal); McLay (1988: 234) fig. 52a (whole male), fig. 52b–c; Takeda & Webber (2006: 216) fig. 13B (photo, male dorsal).

*Other significant references*: Hale (1927: 160) fig. 161 (whole animal); Davie (2002b: 182); Poore (2004: 452) fig. 145i (whole animal), pl. 24g (colour photo, whole animal from front); Ng *et al.* (2008: 65).

*Distribution*: northern NZ from Kermadec Islands south to about Cook Strait; Norfolk and Lord Howe islands, Western and southern Australia; intertidal zone.

*Colour*: body dark reddish brown above, paler below; both free and fixed fingers of chelae black, walking legs reddish brown with golden fringe of hairs.

Superfamily GONEPLACOIDEA  
MacLeay, 1838

Family **GONEPLACIDAE** MacLeay, 1838  
Subfamily GONEPLACINAE MacLeay, 1838

***Goneplax marivenae*** Komatsu & Takeda, 2004

*NZ reference*: Takeda & Webber (2006: 221) fig. 16A (photo, male dorsal), as *Goneplax*.

*Other significant references*: Komatsu & Takeda (2004: 1244) figs 1a–k, 2a–f, 3a–e (carapace, abdomen, sternum and all appendages); Castro (2007: 693) fig. 28A (photo, female), fig. 29 (thoracic sternum), as *Goneplacoides marivenae*; Ng *et al.* (2008: 80).

*Distribution*: Kermadec Islands; Philippine Islands.

***Neommatocarcinus huttoni*** (Filhol, 1886)

*NZ references*: Bennett (1964: 74) figs 79–83, 135 (photo, whole animal), as *Ommatocarcinus macgillivrayi*; Takeda & Miyake (1969: 175) figs 5–6, pl. 2, fig. A (photo, whole male); Jenkins (1975: 46) fig. 9, pl. 7, fig. 3a (photo, male carapace), figs 3b–c, 4a–b, as *Ommatocarcinus huttoni*; McLay (1988: 262) fig. 58a (whole male), fig. 58b; Takeda (1990: 375) fig. 303 (photo, whole animal), as *Ommatocarcinus huttoni*.

*Other significant reference*: Ng *et al.* (2008: 80).

*Distribution*: endemic, northern and southern NZ including Chatham Islands (not known from Kermadecs); shelf and slope.

*Colour*: McLay (1988: 262) regards *Neommatocarcinus huttoni* as ‘one of New Zealand’s most beautiful crabs’, in the sense of being ‘colourful’. He describes the colour as carapace yellowish vermillion, gastric region darker, white behind orbit and postero-lateral margins, gastro-cardiac boundary purple, infra-orbital lobe and anterior margin of buccal cavern brick red; chelipeds and walking legs mainly creamy white, cheliped merus brick red on upper border, proximal two-thirds of inside surface yellow, remainder of merus purple, cheliped carpus with purple outer surface, upper border of palm orange, upper border of walking leg meri purplish red, upper and lower borders of carpi and upper border of propodi pale purple.

***Pycnoplax meridionalis*** (Rathbun, 1923)

*NZ reference*: Ah Yong (2008: 33) fig. 15A (photo, male), fig. 29A (colour photo, male).



*Other significant references:* Rathbun (1923: 99) pl. 18, fig. 1 (whole male), figs 2, 3 (photo, whole male ventral view), fig. 4 (photo, whole female ventral view); Davie (2002b: 194) fig. page 189 (whole animal), as *Carcinoplax*; Castro (2007: 669); Ng *et al.* (2008: 80), as *Carcinoplax*.

*Distribution:* northern NZ (not known from Kermadecs), upper slope; southeastern and southern Australia, shelf and upper slope.

*Colour:* body pale in preservative with most (in males) or at least distal half (in females) of both free and fixed fingers dark blackish brown (in contrast to *Pycnoplax victoriensis*).

***Pycnoplax victoriensis* (Rathbun, 1923)**

*NZ references:* Dell (1960: 4) pl. 1, lower (photo, whole animal); Takeda & Miyake (1969: 172); McLay (1988: 258) fig. 57a (whole male) fig. 57b–d; Takeda (1990: 374) fig. 302 (photo, whole animal); Ah Yong (2008: 34) fig. 15B (photo, female), fig. 29B (colour photo, male).

*Other significant references:* Rathbun (1923: 101) pl. 19, fig. 1 (whole male), figs 2, 3 (photo, whole male, ventral); Davie (2002b: 194), as *Carcinoplax*; Castro (2007: 671) fig. 18 (photo, female thoracic sternum); Ng *et al.* (2008: 80), as ‘*Carcinoplax*’.

*Distribution:* northern and southern NZ including Chatham Rise (not known from Kermadecs), outer shelf and slope; southeastern and southern Australia.

*Colour:* carapace and chelipeds pale pink with dark yellow along frontal margins; only tips (in contrast to *Pycnoplax meridionalis*) of both cheliped fingers pale blackish brown; walking legs creamy white, with distal parts of meri pink.

***Thyraplax truncata* Castro, 2007**

*NZ reference:* Ah Yong (2009a: 66) fig. 1A–C (whole female and parts), as *Thyraplax*.

*Other significant reference:* Castro (2007: 683) fig. 25A–D (male holotype carapace, abdomen, gonopods), fig. 26 (photo, male holotype).

*Distribution:* Kermadec Islands; Fiji, New Caledonia.

Family **MATHILDELLIDAE**

Karasawa & Kato, 2003

***Intesius richeri* Crosnier & Ng, 2004**

*NZ reference:* Ah Yong (2008: 42) fig. 15C–G (photos, female, cephalothorax dorsal, ventral, and chelae).

*Other significant references:* Crosnier & Ng (2004: 266) fig. 2 (colour photo, male holotype), fig. 3A (photo, front portion of carapace), figs 4A–B, 5A–D (abdomen and diagnostic appendages); Ng *et al.* (2008: 83).

*Distribution:* southern Kermadec Ridge, Norfolk Ridge.

***Mathildella mclayi* Ah Yong, 2008**

*NZ reference:* Ah Yong (2008: 43) figs 19–20 (photos, male, whole and parts), fig. 21 (male holotype, parts), fig. 29C (colour photo, whole female paratype).

*Distribution:* endemic, southern Kermadec Ridge.

***Neopilumnoplax nieli* Ah Yong, 2008**

*NZ reference:* Ah Yong (2008: 48) figs 22–23 (photos, male holotype, whole and parts), fig. 24 (male holotype, parts), fig. 29D (colour photo, whole male paratype).

*Distribution:* southern Kermadec Ridge to Chatham Rise, at cold seeps; southeastern and southwestern Australia.

Superfamily **LEUCOSIOIDEA**

Samouelle, 1819

Family **LEUCOSIIDAE** Samouelle,

1819

Subfamily **EBALIINAE** Stimpson, 1871

***Bellidilia cheesmani* (Filhol, 1886)**

*NZ references:* Bennett (1964: 20) figs 1–4, 107, as *Ebalia laevis*; Takeda & Miyake (1969: 161) figs 2a–c, as *Ebalia laevis*; McLay (1988: 94) fig. 18a (whole animal), fig. 18b–c, as *Ebalia laevis*; Takeda (1990: 364) fig. 292 (colour photo, whole animal), as *Ebalia laevis*; Tan (1995: 473) figs 2, 4e–f as *Dittosa cheesmani*; Ah Yong (2008: 38) fig. 17A–B (photos, male and ovigerous female).

*Other significant reference:* Ng *et al.* (2008: 89).

*Distribution:* endemic, North, South and Chatham islands (not known from Kermadecs); shelf and slope.

*Colour:* body and appendages pale with heavy mottling of red-brown, cornea black.

***Ebalia humilis* Takeda, 1977**

*NZ reference:* Komatsu & Takeda (2007: 61) fig. 1A (photo, ovigerous female dorsal).

*Distribution:* Kermadec Islands; Ogasawara Islands, Japan; 31–84 m.

***Ebalia jordani* Rathbun, 1906**

*NZ reference:* Komatsu & Takeda (2007: 62) fig. 1B (photo, female dorsal).

*Distribution:* Kermadec Islands; Hawai‘i; 55–385 m.

***Ebalia tuberculosa* (A. Milne-Edwards, 1873)**

*NZ references:* Miers (1886: 306) pl. 25, figs 1, 1a (whole animal); Stephenson (1970: 193) fig. 1 (photo, whole animal); Ah Yong (2008: 38) fig. 17A–B (photos, male and female).

*Other significant references:* Barnard (1950: 368) fig. 70h–k; Davie (2002b: 260) fig. b on page 256 (whole animal); Poore (2004: 336) fig. 98e (whole animal); Ng *et al.* (2008: 90).

*Distribution:* northern NZ, south to western approaches to Cook Strait (not known from Kermadecs), outer shelf and slope; South Africa, Western, southern and eastern Australia, Hawai‘i.

***Ebalia webberi* Komatsu & Takeda, 2007**

*NZ reference:* Komatsu & Takeda (2007: 62) fig. 2A–B (photos, male holotype dorsal and ventral), fig. 3a–i (diagnostic characters).

*Distribution:* endemic, Kermadec Islands; 110–146 m.

***Merocryptus lambriformis* A. Milne-Edwards, 1873**

*NZ references:* Bennett (1964: 22) fig. 108 (photo, male and female, ventral); McLay (1988: 98) fig. 19a (whole animal), fig. 19b–c.

*Other significant references:* Rathbun (1923: 133) pl. 32, figs 2–3 (photos, whole male and female); Davie (2002b: 260); Poore (2004: 336) fig. 98f (whole animal), pl. 19e (colour photo, whole animal); Ng *et al.* (2008: 91).

*Distribution:* northern NZ (not known from Kermadecs), shelf and upper slope; western Pacific, southern and eastern Australia to Japan and Samoa.

*Colour:* mottled reddish purple (Australian specimen).

***Tanaoa distinctus* (Rathbun, 1894)**

*NZ reference:* Galil (2003: 402) fig. 1B (photo, whole animal), fig. 3C–D.

*Other significant reference:* Ng *et al.* (2008: 94).

*Distribution:* northern Kermadec Ridge, slope; western and central Pacific, from Wallis and Guam to Hawai‘i, Samoa and Society Islands.

*Colour:* NZ specimens recorded as orange-red in life.

***Tanaoa pustulosus* (Wood-Mason, 1891)**

*NZ references:* Yaldwyn & Dawson (1976: 95) fig. 2 (photo, whole animal), figs 3–5, as *Randallia pustulosa*; McLay (1988: 100) fig. 20 (whole animal), as *Randallia pustulosa*; McLay (2009: 25) figs 7–9 (colour photos, male, female, dorsal, anterior, ventral).

*Other significant references:* Doflein (1904: 42) pl. 14, figs 1–5 (photos, male and female whole animals, dorsal and ventral) but NOT fig. 6, as *Randallia pustulosa*; Chen (1989: 217) fig. 15a (whole immature male), fig. 15b–f, pl. 4, fig. 1 (photo, whole animal), as *Randallia pustulosa*; Galil (2003: 404) fig. 1D (photo, whole male), fig. 3G–H; Ng *et al.* (2008: 94).

*Distribution:* northern NZ (not known from Kermadecs), slope; Indo-West Pacific, from east Africa to Western Australia, Indonesia, Japan.

*Colour:* in preservative, NZ specimens have red tubercles on a pinkish-orange body.

Superfamily MAJOIDEA Samouelle, 1819

Family EPIALTIDAE MacLeay, 1838

Subfamily EPIALTINAE MacLeay, 1838

***Huenia heraldica* (De Haan, 1837)**

*NZ references:* Chilton (1911: 562) (one small specimen from Kermadec Islands, 22 m), as *Maja (Huenia) proteus*; Takeda & Webber (2006: 194) fig. 2A (photo, female).

*Other significant references:* Sakai (1976: 207) fig. 112a–c, pl. 71, figs 1–2 (colour illustrations, whole male and female); Griffin & Tranter (1986a: 84) fig. 24c–d; Davie (2002b: 284); Ng *et al.* (2008: 100).

*Distribution:* Kermadec Islands; western Pacific, from northwestern and eastern Australia to Indonesia and Japan; shallow water.

*Colour:* carapace and appendages pale, mottled with dark green (Japanese specimens).

*Status:* Chilton's (1911a) record from the Kermadecs is not reviewed in Griffin & Tranter (1986a).

Subfamily PISINAE Dana, 1851

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

*NZ references:* Griffin & Tranter (1986a: 163) figs 32d–f, 54a–f; Davie (2002b: 325); Takeda & Webber (2006: 195) fig. 3C (photo, whole female).

*Other significant reference:* Ng *et al.* (2008: 103).

*Distribution:* Kermadec Islands, shallow shelf; Middleton Reef (Tasman Sea), Lord Howe Island.

***Oxypleurodon wanganella* Webber & Richer de Forges, 1995**

*NZ reference:* Webber & Richer de Forges (1995: 510) fig. 4C–E (photo, whole animal), figs 5A–B, 6A–C, fig. 7 left.

*Other significant reference:* Ng *et al.* (2008: 105).

*Distribution:* endemic, Wanganella Bank; slope.

***Rochinia abyongi* McLay, 2009**

*NZ reference:* McLay (2009: 30) fig. 12a–b (colour photos, male holotype, dorsal and ventral), fig. 13a–g (male holotype, carapace, abdomen, appendages).

*Distribution:* endemic, southern Kermadec Ridge.

***Rochinia riversandersoni* (Alcock, 1895)**

*NZ references:* Yaldwyn & Dawson (1976: 98) figs 6–9 (photos, female and male dorsal, female lateral, and male ventral); McLay (2009: 30) (indicates presence of *R. riversandersoni* at Kermadecs).

*Other significant references:* Griffin & Tranter (1986a: 175) (key to 29 Indo-West Pacific *Rochinia* spp.); Griffin & Tranter (1986b: 366) (key to 5 species of the *R. riversandersoni* group; NZ record named as *Rochinia* ‘Kermadec species’); Ng *et al.* (2008: 105).

*Distribution:* southern end of Three Kings Ridge, Kermadec Islands; slope. Distribution of *Rochinia riversandersoni sensu lato*, Indo-West Pacific, from east Africa to Philippines and South China Sea.

Family **HYMENOSOMATIDAE**

MacLeay, 1838

***Amarinus lacustris* (Chilton, 1882)**

*NZ references:* Melrose (1975: 84) fig. 41A (whole male), fig. 41B–K, as *Haliscarcinus lacustris*; Lucas (1980: 201) fig. 4D (carapace outline of female), figs 7B, 10E; Powell (1987: 32) fig. 173 (whole animal), as *H. lacustris*; McLay (1988: 345) fig. 72a (whole male), fig. 72b–d; Davie (2002b: 242); Poore (2004: 393) fig. 119b (carapace).

*Other significant reference:* Ng *et al.* (2008: 108).

*Distribution:* northern NZ mainland south to Hamilton (only freshwater crab in NZ); Norfolk and Lord Howe islands, southeastern Australia (Victoria, South Australia and Tasmania); freshwater lakes and streams.

*Colour:* brown or reddish brown.

***Elamena longirostris* Filhol, 1885**

*NZ references:* Takeda & Miyake (1969: 181) fig. 7a (carapace outline of female), fig. 7b–f; Melrose (1975: 93) fig. 45A (whole male), fig. 45B–C; McLay (1988: 350) fig. 73a (whole male), fig. 73b–d.

*Other significant reference:* Ng *et al.* (2008: 108).

*Distribution:* endemic, northern and southern NZ (not known from Kermadecs or Chathams); shallow coastal water and shelf.

*Colour:* general colour pale brown; carapace greyish brown, walking legs darker brown.

***Elamena momona* Melrose, 1975**

*NZ references:* Melrose (1975: 102) fig. 51A (whole male), figs 51B–G, 52; McLay (1988: 352) fig. 74a (whole male), fig. 74b–e.

*Other significant reference:* Ng *et al.* (2008: 108).

*Distribution:* endemic, northern and southern NZ (not known from Kermadecs or Chathams).

***Elamena producta* Kirk, 1878**

*NZ references:* Melrose (1975: 95) fig. 46A (whole male), fig. 46B–C (carapace outlines of immature males), fig. 46D–E (whole female), fig. 46F–I, figs 47–49, 50 (photos, live animals), pl. 1, fig. B (colour illustration, whole female); McLay (1988: 354) fig. 75a (whole male), fig. 75b–e.

*Other significant references:* Ng *et al.* (2008: 108); Teske *et al.* (2009: 28) (molecular sequence data testing relationships of some hymenosomatid genera).

*Distribution:* endemic, northern and southern NZ, Chatham Islands (not known from Kermadecs), intertidal rock pools (often reported from within shells of living paua *Haliotis iris*).

*Colour:* carapace varying from blackish brown to olive brown, red-brown, purple, cream (e.g. Melrose 1975: pl. 1, fig. B) or white, with varying symmetrical transverse streaks or circular patches of contrasting colour; striking white patches often present at base of last pair of walking legs (e.g. Melrose 1975: fig. 50c); chelipeds and walking legs purple with white bands and patches; cheliped fingers white distally, and walking leg dactyls with two white bands.

***Haliscarcinus cookii* Filhol, 1885**

*NZ references:* Melrose (1975: 44) figs 1–2 (carapace and abdomen with external anatomy labelled), figs 3–4 (mouthparts with morphological details labelled), fig. 16A (whole male), fig. 16B–H (whole female dorsal and ventral), fig. 16I–J, figs 17–18, 21 (photos, live animals), pl. 2, figs A–D, F (colour illustrations, whole males and females); McLay (1988: 358) fig. 76a (whole male), fig. 76b–e.

*Other significant references:* Ng *et al.* (2008: 108); Teske *et al.* (2009: 28) (molecular sequence data testing relationships of some hymenodomatid genera).

*Distribution:* endemic, northern and southern NZ, Chatham Islands (not known from Kermadecs); intertidal zone and shallow water.

*Colour:* carapace coloration varies greatly (e.g. Melrose 1975: pl. 2). In males, carapace is black or brown, usually with splotches of white, yellow, green or orange; in females, carapace ranges from white through yellow brown or reddish yellow to green or black with splotches or marks of contrasting colours; chelipeds and legs usually banded in both sexes.

***Halicarcinus innominatus* Richardson, 1949**

*NZ references:* Melrose (1975: 26) figs 5–7 (mouthparts with morphological details labelled), fig. 8A (whole male), fig. 8B–C (whole female, dorsal and ventral), figs 9–11, pl. 1, figs C–F (colour illustrations, whole females and males); Lucas (1980: 182); McLay (1988: 362) fig. 77a (whole male), fig. 77b–d; Davie (2002b: 245); Poore (2004: 394) fig. 120c (carapace).

*Other significant references:* Ng *et al.* (2008: 108); Teske *et al.* (2009: 28) (molecular sequence data testing relationships of some hymenosomatid genera).

*Distribution:* northern and southern NZ, Chatham Islands (not known from Kermadecs), intertidal zone, usually associated with the mussel *Perna*; Tasmania (probably accidentally introduced from NZ with oysters – see Dartnall 1969 for discussion of introductions to Tasmania).

*Colour:* light or dark brown; mature males usually dark brown, especially along central area of carapace, rest of carapace tinged with blue-grey, green or red (e.g. Melrose 1975: pl. 1, fig. D); females frequently with disruptive coloration of yellow, white or brown patches (e.g. Melrose 1975: pl. 1, fig. C).

***Halicarcinus planatus* (Fabricius, 1775)**

*NZ references:* Bennett (1964: 86) fig. 128 (photo, whole male from Kerguelen); Melrose (1975: 34) fig. 12A (carapace outline of male), figs 12B–F, 13; McLay (1988: 370) fig. 79a (carapace outline of male) fig. 79b–e; Davie (2002b: 246); Poore (2004: 395) fig. 121d (front and dorsal).

*Other significant references:* Garth (1958: 31) pl. 1, fig. 1 (photo, whole male dorsal and ventral from Chile); Richer de Forges (1977: 71) figs 1–5, 8 (photo, whole male dorsal and ventral from Kerguelen); Ng *et al.* (2008: 108).

*Distribution:* Auckland and Campbell islands, intertidal and shallow water; circum-subantarctic in southern Chile, Straits of Magellan, Falkland Islands, South Orkneys, and Prince Edward, Kerguelen and Macquarie islands.

*Colour:* slate blue, greyish brown or reddish brown with banded legs (Chilean specimens).

***Halicarcinus tongi* Melrose, 1975**

*NZ references:* Melrose (1975: 88) fig. 43A (whole male), fig. 43B (whole female), figs 43C–G, 44; McLay (1988: 374) fig. 80a (whole male), fig. 80b–d.

*Other significant reference:* Ng *et al.* (2008: 108).

*Distribution:* endemic, North Island and northern South

Island, Antipodes Islands (not known from Kermadecs nor Chathams), shelf and upper slope.

*Colour:* greyish brown or yellow-brown in preservative.

***Halicarcinus varius* (Dana, 1851)**

*NZ references:* Melrose (1975: 59) fig. 25A (whole male), figs 25B, 26A (whole female), figs 26B–E, 27–28, pl. 2, fig. E (colour illustration, whole female); McLay (1988: 376) fig. 81a (whole male), fig. 81b–d.

*Other significant references:* Ng *et al.* (2008: 108); Teske *et al.* (2009: 28) (molecular sequence data testing relationships of some hymenosomatid genera).

*Distribution:* endemic, northern and southern NZ, Chatham Islands (not known from Kermadecs); intertidal zone and shallow water.

*Colour:* carapace of large males predominantly dark brown, of smaller males and females pale green; cheliped fingers with red or orange band proximally and white tips, walking legs without bands; white or yellow blotches often present at base of last pair of legs.

***Halicarcinus whitei* (Miers, 1876)**

*NZ references:* Melrose (1975: 69) fig. 31A (whole male), figs 31B–E, 32, 33, 35 (photos, live animals), pl. 1, fig. A (colour illustration, whole immature male); McLay (1988: 380) fig. 82a (whole male), fig. 82b–d.

*Other significant reference:* Ng *et al.* (2008: 108).

*Distribution:* endemic, northern and southern NZ (not known from Kermadecs or Chathams); intertidal zone and shallow water.

*Colour:* carapace green, yellow, grey or brown, often speckled with white or black; dactyls of legs white distally, red band across cheliped fingers, dark bands sometimes present on walking legs. Carapace and chelipeds with felt of fine, dark hairs, increasing in density with crab size and maturity (e.g. Melrose 1975: fig. 35).

***Halimena aotearoa* Melrose, 1975**

*NZ references:* Melrose (1975: 106) fig. 53A (whole female), fig. 53B (whole immature male), figs 53C–J, 54; Lucas & Hicks (1981: 1) fig. 1; McLay (1988: 384) fig. 83a (whole immature male), fig. 83b–d.

*Other significant reference:* Ng *et al.* (2008: 108).

*Distribution:* endemic, northern and southern NZ (not known from Kermadecs or Chathams), sub-littoral zone and shallow water.

*Colour:* carapace reddish brown with pale brown or cream patches, red band across carapace at base of rostrum; tips of dactyls white.



***Hymenosoma depressum* Hombron & Jacquinot, 1846**

*NZ references:* Melrose (1975: 110) fig. 55A–B (whole female), fig. 55C (carapace outline of male), figs 55D, 56–58, as *Cyclohombromia depressa*; Lucas (1980: 166); McLay (1988: 386) fig. 84a (whole female), fig. 84b–d.

*Other significant references:* Ng *et al.* (2008: 109); Teske *et al.* (2009: 28) (molecular sequence data testing relationships of some hymenosomatid genera).

*Distribution:* endemic, northern and southern NZ, Auckland Islands (not known from Kermadecs or Chathams); intertidal zone and shallow water.

*Colour:* carapace and legs with pattern of black and yellow chromatophores, cheliped fingers black, walking leg dactyls orange or yellow.

***Neohymenicus pubescens* (Dana, 1851)**

*NZ references:* Melrose (1975: 77) fig. 36A (whole male), fig. 36B–C (whole female), figs 36D–F, 37–40 (photos, living animals), as *Halicarcinus pubescens*; Lucas (1980: 208); McLay (1988: 390) fig. 85a (whole male), fig. 85b–d.

*Other significant references:* Ng *et al.* (2008: 109); Teske *et al.* (2009: 28) (molecular sequence data testing relationships of some hymenodomatid genera).

*Distribution:* endemic, northern and southern NZ (not known from Kermadecs or Chathams); intertidal zone and shallow water.

*Colour:* grey-brown or yellow-brown.

Family **INACHIDAE** MacLeay, 1838***Achaeus akanensis* Sakai, 1938**

*NZ reference:* Griffin & Tranter (1986a: 5) figs 1a–f, 5a–b.

*Other significant references:* Davie (2002b: 290); Ng *et al.* (2008: 110).

*Distribution:* Kermadec Islands (one record from *Galathea* expedition, 60 m); western Pacific, northern Australia, Indonesia, Philippines, Japan.

***Achaeus curvirostris* (A. Milne-Edwards, 1873)**

*NZ references:* Griffin (1965: 38) text figs 1–8 (whole animal and diagnostic characters), as *A. fissifrons*; Griffin (1966: 38) fig. 5.1–8 (including whole animal), fig. 19.3–4, as *A. fissifrons*; Griffin & Tranter (1986a: 9); McLay (1988: 118) fig. 26a (whole animal), fig. 26b–c; Takeda & Webber (2006: 192) fig. 1B (photo, male).

*Other significant references:* Davie (2002b: 291); Poore (2004: 358) fig. 106a (whole animal); Ng *et al.* (2008: 110).

*Distribution:* northern and central NZ, south to Farewell Spit, Kermadec Islands, shelf; Indo-West Pacific from east Africa to Australia, Philippines and Japan.

***Achaeus kermadecensis* Webber & Takeda, 2005**

*NZ reference:* Webber & Takeda (2005: 45) fig. 1a (whole animal, dorsal), fig. 1b (cephalothorax, dorsal), fig. 1c (cephalothorax and abdomen, ventral).

*Other significant reference:* Ng *et al.* (2008: 110).

*Distribution:* endemic, Raoul Island (Kermadec Islands); 100 m+.

***Cyrtomaia cornuta* Richer de Forges & Guinot, 1988**

*NZ references:* Webber & Richer de Forges (1995: 509); Ahyong (2008: 35) fig. 16A (photo, male cephalothorax, dorsal).

*Other significant references:* Richer de Forges & Guinot (1988: 44) figs 3A–C, pl. 2a (photo, whole animal), pls b–c; Ng *et al.* (2008: 110).

*Distribution:* northern North Island (not known from Kermadecs), slope; northern Norfolk Ridge (south of New Caledonia).

***Cyrtomaia lamellata* Rathbun, 1906**

*NZ references:* Guinot & Richer de Forges (1982: 69) figs 45, 46, 49A (photo, whole animal), figs 49B,F, 52B, as *C. hispidata*; Griffin & Tranter (1986a: 26); McLay (1988: 104) fig. 22a (whole animal), fig. 22b–d; Takeda & Webber (2006: 194) fig. 1C (photo, young male).

*Other significant reference:* Ng *et al.* (2008: 111).

*Distribution:* northern and southern NZ (not known from Kermadecs), shelf; northern and western Pacific, from Hawai'i to Japan, Indonesia and New Caledonia.

***Dorhynchus ramusculus* (Baker, 1906)**

*NZ references:* Griffin (1966) fig. 4.1–6 (including whole animal); Griffin & Tranter (1986a: 21); McLay (1988: 116) fig. 25a (whole animal), fig. 25b–d; Davie (2002b: 293); Ahyong (2008: 36) fig. 16B–C (photos, cephalothorax, lateral and dorsal); McLay (2009: 26) fig. 10a–b (colour photos, male, dorsal and ventral).

*Other significant references:* Poore (2004: 360) fig. 108j (anterior region, ventral); Ng *et al.* (2008: 111).

*Distribution:* northern NZ, slope; southern Australia.

***Platymaia maoria* Dell, 1963**

*NZ references:* Dell (1963b: 248) fig. 4 (whole animal), figs 5–13; McLay (1988: 108) fig. 23a (whole animal), fig. 23b–d; Takeda (1990: 365) fig. 293 (colour photo, whole animal); Ahyong (2008: 37) fig. 16D (photo, female cephalothorax, dorsal).

*Other significant references:* Griffin & Tranter (1986a: 46) fig. 10g–h, pl. 5a; Davie (2002b: 296); Poore (2004: 364) fig. 109e–f (front dorsal, lateral); Ng *et al.* (2008: 112).

*Distribution:* northern NZ including Challenger Plateau (not known from Kermadecs); eastern Australia; slope.

*Colour:* carapace pale pinkish red, walking legs pale with a broad red band on carpus and merus.

***Platymaia wyvillethomsoni* Miers, 1886**

*NZ reference:* Takeda & Webber (2006: 194) fig. 1d (photo, carapace).

*Other significant references:* Griffin & Tranter (1986a: 47) fig. 10c–d, pl. 5b; Davie (2002b: 297); Poore (2004: 364) fig. 107c (whole animal), fig. 109g–i (front dorsal, lateral and orbit) (includes *Platymaia* aff. *wyvillethomsoni* Miers, 1886 in the fauna of southern Australia); Ng *et al.* (2008: 112).

*Distribution:* Kermadec Islands (not known from mainland New Zealand); Japan, Philippines, Indonesia and, probably, South Australia.

***Trichoplatus buttoni* A. Milne-Edwards, 1876**

*NZ references:* Griffin (1966: 30) fig. 3.1–9 (including whole animal), fig. 19.1–2, as *Naxia buttoni*; Griffin & Tranter (1986a: 61); McLay (1988: 130) fig. 30a (whole animal), fig. 30b.

*Other significant reference:* Ng *et al.* (2008: 112).

*Distribution:* endemic, North, South and Chatham islands (not known from Kermadecs); low-tide level to about 60 m.

***Vitjazmaia latidactyla* Zarenkov, 1994**

*NZ references:* Webber & Richer de Forges (1995: 503) figs 1–2, 3A (photo, whole animal), figs 3B–C, 4A; Poore (2004: 365) fig. 109j (front dorsal); Ahyong (2008: 37) fig. 16E (photo, female cephalothorax, dorsal).

*Other significant reference:* Ng *et al.* (2008: 112).

*Distribution:* Wanganella Bank, northern and central NZ including Challenger Plateau, Chatham Rise and Chatham Islands (not known from Kermadecs), slope to at least 1290 m (one of the deepest majids known, but see *Teratomaia richardsoni* in list below recorded from c. 7000 m); western Indian Ocean, southern and eastern Australia, Lord Howe Rise.

*Colour:* spines of rostrum and carapace bright red-orange, remainder of carapace, female abdomen and most dorsal surfaces of legs unpigmented; male abdomen, sternum and tips of cheliped fingers light orange-red; 3rd to 5th walking legs with carpus, propodus and dactyl light red-

orange dorsally, strongly red-orange ventrally. Freshly caught animals are often dun (grey-brown) overall due to a covering of fine silt caught amongst the small setae of the carapace and legs (*vide* Webber & Richer de Forges 1995).

Family **INACHOIDIDAE** Dana, 1851

***Pyromaia tuberculata* (Lockington, 1877)**

*NZ references:* Webber & Wear (1981: 370) figs 209–210 (whole zoea, one lateral and posterior), figs 211–217; McLay (1988: 112) fig. 24 (whole animal); McLay (2004: 21); McLay (2009: 29) fig. 11 (colour photo, female); Poore (2004: 366) fig. 110 (whole animal), pl. 20c (colour photo, whole animal).

*Other significant references:* Rathbun (1925: 133) pl. 10, fig. 3 (photo, whole female), pl. 218, fig. 104 (whole male and diagnostic characters); Garth (1958: 85) pl. E, fig. 7, pl. 6, fig. 1 (photo, whole animal); Sakai (1971: 142) fig. 4 (whole male), fig. 5 (male anterior pleopods); Sakai (1976: 168) fig. 92a (whole animal), fig. 92b, pl. 51, fig. 2 (colour illustration, whole animal); Davie (2002b: 300) fig. page 299 (whole animal); Ng *et al.* (2008: 115).

*Distribution:* accidentally introduced to NZ (possibly on ships from Japan) and established in Waitemata and Whangarei harbours and Firth of Thames; accidentally introduced to Western Australia (probably from Japan) and to Japan (probably from western North America); possibly accidentally introduced from southern Brazil to Argentine continental shelf of western Atlantic; natural range northern California to Pacific coast of Colombia, shallow water and shelf.

*Colour:* body and appendages pale with greenish-blue markings (Japanese specimens).

Family **MAJIDAE** Samouelle, 1819

Subfamily **EURYNOLAMBRINAE**

Števcíć, 1994

***Eurynolambrus australis* H. Milne Edwards & Lucas, 1841**

*NZ references:* Krefft (1952: 574) figs 1–12 (including carapace outlines of juvenile and adult crabs); Griffin (1966: 46) fig. 8.1–8 (including whole male); Miller & Batt (1973: 73) fig. 92 (colour photo, whole animal); Dell (1974: 1240) fig. (colour photo, whole animal); Griffin & Tranter (1986a: 104, 116); McLay (1988: 124) fig. 28a (whole male), fig. 28b–c.

*Other significant reference:* Ng *et al.* (2008: 116).

*Distribution*: endemic, northern and southern NZ, Chatham Islands (not known from Kermadec or Subantarctic islands); intertidal zone and inner shelf.

*Colour*: carapace orange or purplish red, flecked with white; legs mottled red with white markings, cheliped fingers purple with inner edge of fixed finger and tip of free finger white.

### Subfamily MAJINAE Samouelle, 1819

#### *Eurynome bituberculata* Griffin, 1964

*NZ references*: Griffin (1966: 43) figs 6.1–5, 7.1–4 (including whole male), fig. 20.1–2; McLay (1988: 102) fig. 21a (whole animal), fig. 21b–e; Ah Yong (2008: 40) fig. 18A (photo, whole animal).

*Other significant reference*: Ng *et al.* (2008: 116).

*Distribution*: endemic, North Island (not known from Kermadecs), outer shelf.

*Colour*: carapace and appendages salmon pink, tubercles white.

#### *Jacquinotia edwardsii* (Jacquinot, 1853)

*NZ references*: Griffin (1963: 237) figs 1–3, 4 (whole juvenile crab) (juveniles originally described as *Campbellia kohli* Balss); Griffin (1966: 86) fig. 18.1–10 (including whole male), fig. 23.5–6; Dell (1974: 1237) fig. (colour photo, whole animal); McLay (1988: 176) fig. 41a (whole male), fig. 41b–d; Takeda (1990: 369) fig. 297 (colour photo, whole male).

*Other significant reference*: Ng *et al.* (2008: 116).

*Distribution*: endemic, southern NZ (northern limit Kaikoura) including Chatham and Subantarctic islands; intertidal zone and shallow water at Subantarctic Islands, ranging down to upper slope at more northerly latitudes.

*Colour*: carapace orange-red; chelipeds and walking legs orange-red to yellowish white with large red blotches on upper surface of cheliped palm and merus; walking legs with irregular bright red band on merus, scattered red patches on other segments and with dactyl tips black.

#### *Leptomithrax australis* (Jacquinot, 1853)

*NZ references*: Griffin (1966: 66) figs 13.1–8 (including whole male), figs 14.7–10, 14.15–17, fig. 22.3–4; Webb (1972: 31) pls 17–18 (photos, whole female and male); Griffin & Tranter (1986a: 208) (key to all 13 known *Leptomithrax* spp.); McLay (1988: 148) fig. 34a (whole male), fig. 34b–d.

*Other significant reference*: Ng *et al.* (2008: 117).

*Distribution*: endemic, southern NZ (Cook Strait south

including Chatham and Subantarctic islands, intertidal zone to mid-shelf.

*Colour*: carapace orange-red to dark red; cheliped palm (especially in males, see Webb 1972: pl. 18) with a characteristic white pattern in the form of an irregular network on a red background (this white pattern is structural and does not disappear after preservation), fingers white; walking legs pale with some orange red markings.

#### *Leptomithrax garricki* Griffin, 1966

*NZ references*: Griffin (1966: 69) figs 14.11–12, 14.18–20, 22.5–6, pl. 1 (photos, whole male, dorsal and ventral), pl. 2 (photos, whole female, dorsal and ventral); Takeda & Miyake (1969: 185) pl. 3, fig. A (photo, whole male); Dell (1974: 1239) (photo, whole male, ventral); McLay (1988: 152) fig. 35a (whole male), fig. 35b–g; Takeda (1990: 367) fig. 295 (photo, whole animal); Ah Yong (2008: 42) fig. 18B (photo, whole animal).

*Other significant reference*: Ng *et al.* (2008: 117).

*Distribution*: endemic, central NZ and Chatham Rise, outer shelf and slope.

*Colour*: carapace yellowish brown to greenish white, mottled with bright red; cheliped with orange tubercles and bright red markings on palm; walking legs with irregular orange markings.

#### *Leptomithrax longimanus* (Miers, 1876)

*NZ references*: Griffin (1966: 62) fig. 12.1–7 (including whole male), figs 14.1–6, 14.13–14, 22.1–2; McLay (1988: 156) fig. 36a (whole animal), fig. 36b–d.

*Other significant reference*: Ng *et al.* (2008: 117).

*Distribution*: northern and southern NZ (not known from Kermadecs); intertidal zone to shelf and slope; Middleton Reef (north of Lord Howe Island).

*Colour*: carapace and walking legs yellowish brown, chelipeds in adult male dark brown with yellowish markings on palm.

#### *Leptomithrax longipes* (Thomson, 1902)

*NZ references*: Chilton (1911b: 289) pl. LVIII, figs 1–3 (photos, specimens with *Balanus decorus* on carapaces); Bennett (1964: 54) figs 35, 49, 50 (showing distinctive white swelling on outer face of 3rd maxilliped), figs 51, 121 (photo, whole male); Griffin (1966: 75) fig. 15.1–12 (including whole male), fig. 23.1–2, frontispiece (photo, whole male); McLay (1988: 160) fig. 37a (whole male), fig. 37b–d; Takeda (1990: 366) fig. 294 (colour photo, whole male); O'Shea *et al.* (1999: 50) fig. 19 (colour photo, whole male).

*Other significant reference:* Ng *et al.* (2008: 117).

*Distribution:* northern and southern NZ and Chatham Rise (not known from Kermadecs), Macquarie Island; shelf and slope.

*Colour:* carapace and legs (except for cheliped hands) pale yellowish white, mottled with bright red; hands white with prominent, irregularly oval, bright red patch on inside of palm; walking legs with red-banded segments; distinctive white swelling on each 3rd maxilliped (see Dell 1963a: 31–32) can be used to confirm specific identification.

***Leptomithrax tuberculatus mortenseni* Bennett, 1964**

*NZ references:* Bennett (1964: 52) figs 36, 46–48, 119–120 (photo, whole male dorsal and ventral), as *Leptomithrax* (*Australomithrax*) *mortenseni*; Griffin (1966: 73) fig. 20.3–4, as *Leptomithrax* (*Austromithrax*) *mortenseni*; McLay (1988: 166) fig. 38a (outline whole animal), fig. 38b–e.

*Distribution:* endemic, northern NZ and Kermadec Islands; inner shelf. *Leptomithrax t. tuberculatus* (Whitelegge, 1900) is known from southeastern Australia.

***Naxia spinosa* (Hess, 1865)**

*NZ references:* Chilton (1911: 562), as *Halimus spinosus*; Griffin & Tranter (1986a: 219) figs 74e–f, 75e–f; Takeda & Webber (2006: 196) fig. 2C–D (photos, male with camouflage, and cleared of camouflage).

*Other significant references:* Hale (1927: 127) fig. 125 (photo, whole animal); Poore (2004: 375) fig. 115e–f (left anterior, dorsal and ventral), fig. 116c (maxilliped 3); Ng *et al.* (2008: 117).

*Distribution:* Kermadec Islands, intertidal zone; southwestern, southern and southeastern Australia, littoral zone.

***Notomithrax minor* (Filhol, 1885)**

*NZ references:* Borradaile (1916: 105) fig. 15 (whole juvenile as *Paramithrax parvus*); Griffin (1966: 53) fig. 10.1–12 (including whole male), fig. 21.3–4; Griffin & Tranter (1986a: 220) (key to all four known *Notomithrax* species); McLay (1988: 134) fig. 31a (whole male), fig. 31b–d; Davie (2002b: 307); Poore (2004: 376) fig. 113e (carapace), pl. 21c (colour photo, whole animal with camouflage).

*Other significant reference:* Ng *et al.* (2008: 117).

*Distribution:* northern and southern NZ (not known from Kermadecs), intertidal zone and shallow shelf, most often found in harbours; southeastern Australia including Tasmania.

*Colour:* body and appendages pale yellowish; upper surfaces of chelae dark red or purple, tips of fingers white; carapace

and walking legs thickly covered with brownish hairs. Individuals often with attached green or red algae, or attached sponges.

***Notomithrax peronii* (H. Milne Edwards, 1834)**

*NZ references:* Griffin (1966: 50) fig. 9.1–12 (including whole male), fig. 21.1–2; McLay (1988: 138) fig. 32a (whole male), fig. 32b–d.

*Other significant reference:* Ng *et al.* (2008: 117).

*Distribution:* endemic, northern and southern NZ, Chatham Islands (not known from Kermadecs); intertidal zone and inner shelf.

*Colour:* chelipeds greenish brown, tips of fingers white, carapace and walking legs with brownish hairs. Individuals often covered with attached green or red algae.

***Notomithrax spinosus* (Miers, 1879)**

*NZ references:* Griffin & Tranter (1986a: 221) figs 73e–g, 76a–d (including male carapace); Takeda & Webber (2006: 196) fig. 2B (photo, male).

*Other significant references:* Miers (1879: 9) pl. 4, fig. 5 (whole animal as *Paramithrax spinosus*); Ng *et al.* (2008: 117).

*Distribution:* Kermadec Islands (two records from *Galathea* expedition); Norfolk Island; shelf.

***Notomithrax ursus* (Herbst, 1788)**

*NZ references:* Griffin (1966: 57) fig. 11.1–12 (including whole male), fig. 21.5–6; Heath & Dell (1971: 38) fig. 107 (colour illustration, whole animal); McLay (1988: 142) fig. 33a (whole male), fig. 33b–d; Davie (2002b: 307); Poore (2004: 376) fig. 113f (carapace), pl. 21d (colour photo, whole animal).

*Other significant reference:* Ng *et al.* (2008: 117).

*Distribution:* northern and southern NZ, Chatham Islands (not known from Kermadecs); southeastern Australia; intertidal zone and inner shelf.

*Colour:* chelipeds orange to dark red, upper surface of cheliped palm with irregular white mark or cluster of irregular white marks, tips of fingers white; sternum and base of legs often dark blue with bilaterally symmetrical white markings; carapace and walking legs with brownish hairs. Individuals often covered with attached green, red or brown algae.

***Prismatopus filholi* (A. Milne-Edwards, 1876)**

*NZ references:* Dell (1960: 2) figs 1, 4–6, pl. 1 (photo, whole animal), as *Acanthophrys filholi*; Griffin (1966: 82) fig. 17.1–12 (including whole male), fig. 20.5–6, as *Chlorinoides filholi*; Griffin & Tranter (1986a: 253) (key to all 12 known *Thacanophrys* spp.); McLay (1988: 172)



fig. 40a (whole male), fig. 40b–d; Takeda (1990: 370) fig. 298 (colour photo, whole male).

*Other significant reference:* Ng *et al.* (2008: 118).

*Distribution:* endemic, northern and southern NZ, Chatham Islands, Subantarctic Islands (not known from Kermadecs); shelf and slope.

*Colour:* body and appendages reddish orange, cheliped fingers mainly pale.

***Prismatopus goldsboroughi* (Rathbun, 1906)**

*NZ references:* Griffin & Tranter (1986a: 257) fig. 92c, as *Thacanophrys goldsboroughi*; Takeda & Webber (2006: 197) fig. 3B (photo, male), as *Thacanophrys goldsboroughi*.

*Other significant references:* Griffin (1970b: 67) figs 1a, 2a–g, 4b,c,f, as *Chlorinoides goldsboroughi*; Davie (2002b: 309); Poore (2004: 379) fig. 113i (carapace); Ng *et al.* (2008: 118).

*Distribution:* Kermadec Islands (several specimens from *Galathea* expedition); southeastern Australia, Hawai'i; shelf.

***Schizophroidea hilensis* (Rathbun, 1906)**

*NZ references:* Chilton (1911: 562), as *Schizophrys hilensis*; Griffin & Tranter (1986a: 238) fig. 68c–d, pl. 19 (photos, whole male dorsal and ventral); Takeda & Webber (2006: 196) fig. 3A (photo, female).

*Other significant references:* Sakai (1976: 245) pl. 89, fig. 2 (colour illustration, whole animal), as *S. manazuruana*; Davie (2002b: 311); Poore (2004: 380) fig. 114c (carapace); Ng *et al.* (2008: 118).

*Distribution:* Kermadec Islands, intertidal zone and shallow water; eastern Australia, New Caledonia, Lord Howe Island, Japan, Hawai'i.

*Colour:* body and appendages pink patterned with red (Japanese specimen).

***Teratomaia richardsoni* (Dell, 1960)**

*NZ references:* Dell (1960: 2) pl. 2, fig. 3 (photos, whole immature female, dorsal and ventral), as *Leptomithrax richardsoni*; Griffin (1966: 79) figs 16.1–7, 23.3–4, pls 3–4 (photos, whole mature male and female, dorsal and ventral), as *Leptomithrax richardsoni*; Griffin & Tranter (1986b: 368) fig. 14 (photo, whole immature female from Tasmania (note: *Galathea* station 651, Kermadec Trench, is 32°10'S, 177°14'W, not E as stated on page 368) at c. 7000 m, see Bruun 1957: 45); McLay (1988: 170) fig. 39a (whole immature female), fig. 39b–f; Takeda (1990: 368) fig. 296 (colour photo, whole animal with

covering of mud on carapace and most of legs); O'Shea *et al.* (1999: 50) fig. 20 (colour photo, whole male).

*Other significant reference:* Ng *et al.* (2008: 118).

*Distribution:* Kermadec Trench, Challenger Plateau, Chatham Rise, Campbell and Bounty plateaus, slope down to c. 7000 m (deepest majid known); Tasmanian slope.

*Colour:* carapace yellowish white; chelipeds and walking legs yellowish white, mottled with red.

Superfamily PALICOIDEA Bouvier, 1898

Family PALICIDAE Bouvier, 1898

***Pseudopalicus declivis* Castro, 2000**

*NZ material:* one specimen in NIWA from Wanganella Bank.

*NZ reference:* Webber *et al.* (2010: 227).

*Other significant references:* Castro (2000: 458) fig. 5c (photo, whole female), fig. 6 (including carapace outline), fig. 55 (distribution map); Ng *et al.* (2008: 128).

*Distribution:* Wanganella Bank; New Caledonia, Banda Sea, South China Sea; upper slope.

***Pseudopalicus oahuensis* (Rathbun, 1906)**

*NZ reference:* Takeda & Webber (2006: 223) fig. 16B (photo, female with legs detached).

*Other significant references:* Davie (2002b: 371); Ng *et al.* (2008: 128) fig. 97 (colour photo, whole animal).

*Distribution:* Kermadec Islands; Hawai'i, Taiwan to Banda Sea, Coral Sea, Chesterfield Bank, French Polynesia.

***Pseudopalicus undulatus* Castro, 2000**

*NZ reference:* McLay (2009: 33) fig. 14a–b (colour photos, female, dorsal and frontal).

*Other significant references:* Castro (2000: 483) fig. 12f (photo, male paratype), fig. 14a–e (carapace and other diagnostic characters), fig. 53 (distribution map); Ng *et al.* (2008: 128).

*Distribution:* east of North Cape; western Pacific from Fiji to Japan.

Superfamily PARTHENOPOIDEA

MacLeay, 1838

Family PARTHENOPIDAE MacLeay, 1838

Subfamily PARTHENOPINAE MacLeay, 1838

***Garthambrus allisoni* (Garth, 1992)**

*NZ references:* Takeda & Webber (2007: 147) fig. 1 (photo, female carapace), as *Platylambrus*; McLay & Tan (2009: 11) fig. 5C–D (gonopods), fig. 9B (photo, whole female).

*Other significant references:* Garth (1992: 790) fig. 5 (male holotype, whole animal, abdomen and appendages); Ng *et al.* (2008: 130).

*Distribution:* Kermadec Islands (southwest Pacific) to Easter Island (southeastern Pacific).

***Garthambrus tani* Ah Yong, 2008**

*NZ references:* Clark & O'Shea (2001: 15), as 'the bizarre parthenopid *Tutankhamen*, also newly reported from New Zealand waters'; Ah Yong (2008) figs 25A–B, 26A–F (photos, male holotype, whole animal, various views, and chelae), fig. 27A–H (abdomens and appendages); McLay & Tan (2009: 22) fig. 8A–B (gonopods), fig. 14A–C (photos, male, whole animal, anterior and lateral carapace).

*Distribution:* northeast of New Zealand on Tumokemoke Seamount and Kermadec Islands; New Caledonia.

***Platylambrus constrictus* (Takeda & Webber, 2007)**

*NZ reference:* Takeda & Webber (2007: 148) fig. 2A (whole male, dorsal), fig. 2B (whole male, ventral), fig. 3A–F, as *Pseudolambrus*.

*Distribution:* endemic, Kermadec Islands.

Superfamily PILUMNOIDEA Samouelle, 1819

Family PILUMNIDAE Samouelle, 1819

Subfamily PILUMNINAE Samouelle, 1819

***Actumnus griffini* Takeda & Webber, 2006**

*NZ reference:* Takeda & Webber (2006: 218) fig. 14 (photos, male holotype, dorsal, ventral and frontal).

*Other significant reference:* Ng *et al.* (2008: 139).

*Distribution:* endemic, Kermadec Islands.

***Heteropilumnus fimbriatus* (H. Milne Edwards, 1834)**

*NZ references:* Chilton (1911: 557), as *Pilumnus*; Takeda & Webber (2006: 233), as *Pilumnus*.

*Other significant references:* Davie (2002b: 425); Poore (2004: 458) fig. 147a (carapace and right-side pereopods), pl. 25e (colour photo, whole animal).

*Distribution:* Kermadec Islands; eastern Australia from Queensland to Tasmania; intertidal zone to shallow shelf.

***Pilumnopus serratifrons* (Kinahan, 1856)**

*NZ references:* Dell (1968: 19) figs 1–4, pl. 3 (photo, whole male); McLay (1988: 240) fig. 53a–b (whole male, dorsal and frontal); Davie (1989: 138) figs 5A–I, 6 (photo, whole male, frontal and dorsal); Davie (2002b: 414); Poore (2004: 452) fig. 145i (whole animal), pl. 24g (colour photo, anterior).

*Other significant references:* Hale (1927: 161) fig. 162 (photo, whole animal), as *Heteropanope serratifrons*; Ng *et al.* (2008: 140).

*Distribution:* from northernmost NZ, south to Auckland (not known from Kermadecs), under stones etc. on muddy intertidal areas; southern and eastern Australia.

*Colour:* carapace brown, cheliped fingers dark brown, walking legs reddish brown; colour often obscured by muddy sediment.

***Pilumnus lumpinus* Bennett, 1964**

*NZ references:* Bennett (1964: 72) figs 69, 76–78, 134 (photo, whole male); McLay (1988: 244) fig. 54a (whole male), fig. 54b–e; Walsby (1990: 122), fig. (colour photo, whole animal).

*Other significant reference:* Ng *et al.* (2008: 142).

*Distribution:* endemic, North Island and northern South Island south to Banks Peninsula, Chatham Islands (not known from Kermadecs); intertidal zone and shallow water.

*Colour:* body and appendages covered with a short mat of yellowish setae, usually coated in muddy sediment; cheliped fingers dark brown or black.

***Pilumnus novaezealandiae* Filhol, 1885**

*NZ references:* Borradaile (1916: 99) fig. 10a (whole male), fig. 10b, as *Pilumnus maori*; Bennett (1964: 70) figs 70, 73 (carapace outline of whole animal), figs 74–75, fig. 133 (photo, whole animal); McLay (1988: 248) fig. 55a (whole male), fig. 55b–d; Walsby (1990: 122) (colour photo, whole animal); Takeda & Webber (2006: 218) fig. 15a–b (photos, juvenile, dorsal and ventral).

*Other significant reference:* Ng *et al.* (2008: 142).

*Distribution:* endemic, North, South and Chatham islands (not known from Kermadecs); intertidal zone and inner shelf.

*Colour:* body and appendages covered with a mixture of long and short setae, giving an irregular bristly appearance; cheliped fingers black.

Superfamily PORTUNOIDEA

Rafinesque, 1815

Family CARCINIDAE MacLeay, 1838

Subfamily POLYBIINAE Ortmann, 1893

***Liocarcinus corrugatus* (Pennant, 1777)**

*NZ references:* Borradaile (1916: 97) fig. 9a (whole female), fig. 9b, as *Portunus corrugatus*; Stephenson (1972: 23), as *Macropipus*; McLay (1988: 216) fig. 48a (whole male),

fig. 48b–d; Takeda & Webber (2006: 200) fig. 5B (photo, juvenile); McLay (2009: 43) fig. 21a–b (colour photos, male, female).

*Other significant references:* Stephenson & Campbell (1960: 92) figs 1E, 2G, pl. 2, fig. 4 (whole animal), pl. 5, fig. G, as *Macropipus corrugatus*; Ingle (1980: 94) fig. 36 (carapace outline of female), pl. 9, fig. a (photo, whole male); Davie (2002b: 459); Poore (2004: 413) fig. 130a (whole animal), pl. 22, figs f–g (colour photos, individual and mating group); Ng *et al.* (2008: 149).

*Distribution:* northern NZ including the Kermadecs, tidal flats and shelf; North Atlantic, Mediterranean, Indo-West Pacific from Red Sea to Australia and Japan.

*Colour:* variable colour patterns, ranging from white to mottled grey and white, to grey, sometimes with a white stripe down middle of carapace; chelipeds and walking leg dactyls with a red band.

#### ***Ovalipes catharus* (White, 1843)**

*NZ references:* Chilton (1911: 554), as *O. bipustulatus*; Stephenson & Rees (1968: 224) figs 1c, 2c, 3c, 4c, pl. 36A (photo, whole animal), pls 38E–F, 42C; Stephenson (1972: 23); Miller & Batt (1973: 116) fig. 112 (colour photo, whole animal); Dell (1974: 1242) fig. (photo, whole animal); Powell (1987: 35) fig. 187 (whole animal); McLay (1988: 200) fig. 45a (whole male), fig. 45b–d; Walsby (1990: 121) fig. (photo, whole female ventral view with orange egg mass); Davie (2002b: 460); Poore (2004: 416) fig. 131b (carapace front outline); McLay (2009) fig. 20b (colour photo, female).

*Other significant reference:* Ng *et al.* (2008: 150).

*Distribution:* northern and southern NZ including Chatham Islands (not known from Kermadec or Subantarctic islands), surf zone and shelf; southern Australia (Victoria and South Australia).

*Colour:* carapace pale orange background densely covered with dark red-brown dots concentrated in four spots (a smaller antero-branchial pair and a larger postero-lateral pair) in a central butterfly-shaped gastroducardiac mark, and along the lateral edges of the antero-lateral teeth; chelipeds with dark red-brown marking on dorsal longitudinal ridges, walking legs pale orange; ventral surfaces white; female egg mass bright orange.

*Other names used:* *Ovalipes bipustulatus* (A. Milne-Edwards, 1861); *Ovalipes punctatus* (De Haan, 1833).

#### ***Ovalipes elongatus* Stephenson & Rees, 1968**

*NZ references:* Chilton (1911: 554), as *O. bipustulatus*; Stephenson & Rees (1968: 232) fig. 1E, pl. 36, fig. B

(photo, whole animal), pls 39C–D, 42E; Stephenson (1972: 23); McLay (2004: 21); Takeda & Webber (2006: 200) fig. 5D (photo, young male); McLay (2009: 41) fig. 20a (colour photo, male).

*Other significant references:* Bennett (1966: 140) pl. 101a (photo, holotype from Lord Howe Island), as *Ovalipes* sp. *vide* Stephenson & Rees 1968; Davie (2002b: 460); Ng *et al.* (2008: 150).

*Distribution:* Kermadec Islands, northern half of the North Island; Lord Howe Island.

*Colour:* similar to *Ovalipes catharus* but a lot paler, and with dark areas not as strongly marked (C.L. McLay, pers. comm. 2004).

#### ***Ovalipes mollerii* (Ward, 1933)**

*NZ references:* Stephenson (1972: 24); Dawson & Yaldwyn (1974: 1); McLay (1988: 210) fig. 46a (whole male) fig. 46b–d; O'Shea *et al.* (1999: 49) fig. 18 (colour photo, whole animal); Stevens *et al.* (2000: 57) (colour photo, whole animal); Davie (2002b: 460); Poore (2004: 416) fig. 131e (carapace front outline), pl. 23c (colour photo, whole animal); Ahyong (2008: 60) fig. 5B (photo, male).

*Other significant references:* Stephenson & Rees (1968: 237) figs 1H, 2G, 3G, 4G, pl. 37, fig. A (photo, whole animal), figs 40B, 41B, 42H; Jones & Morgan (1994: 161) fig. (colour photo, whole animal); Ng *et al.* (2008: 150).

*Distribution:* northern NZ, south to Chatham Rise (not known from Kermadecs), Louisville Ridge (outside NZ EEZ), shelf and slope; eastern and southeastern Australia.

*Colour:* carapace and 3rd and 4th walking legs pale with orange markings; cheliped hand and fingers red; dactyls and propodi of 1st and 2nd walking legs red; carapace and upper surface of chelipeds and legs strongly iridescent. Large specimens with a pair of conspicuously thin, semi-transparent areas of cuticle on posterior half of carapace.

### Family GERYONIDAE Colosi, 1923

#### ***Chaceon bicolor* Manning & Holthuis, 1989**

*NZ references:* Manning *et al.* (1990: 605); Dawson & Webber (1991: 2); Webber *et al.* (1990a: 10) fig. (photo, whole animal).

*Other significant references:* Griffin & Brown (1976: 256) figs 7–8 (photos, whole male, dorsal and ventral from Australia), fig. 9, as *Geryon affinis*; Sakai (1978: 9) figs 18, 19, pl. 2, fig. D (colour photo, whole animal from Emperor Seamount Chain), as *Geryon affinis*; Davie (2002b: 188) fig. page 187 (whole animal); Poore (2004: 406) fig. 126 (carapace); Ng *et al.* (2008: 147).

*Distribution*: northeast and east of North Island (not known from Kermadecs), slope (in shallower depths than *Chaceon yaldwyni*); western Pacific from eastern Australia and New Caledonia to Emperor Seamount Chain in central Pacific.  
*Colour*: carapace varying from uniform tan to shades of purple, chelipeds and legs yellowish brown.

***Chaceon yaldwyni* Manning, Dawson & Webber, 1990**

*NZ references*: Manning *et al.* (1990: 602) fig. 1a (photo, whole male), figs 1b–c, 2; Takeda (1990: 376) fig. 304 (photo, whole female), as *Chaceon* sp.; Dawson & Webber (1991: 2); Ah Yong (2008: 31) fig. 17E (photo, male), fig. 28E (colour photo, male).

*Other significant reference*: Ng *et al.* (2008: 147).

*Distribution*: endemic, off eastern North Island and northeast of Chatham Islands, Louisville Ridge; 1040–1276 m.

*Colour*: carapace uniform yellowish red.

Family **MACROPIPIDAE** Stephenson & Campbell, 1960

***Nectocarcinus antarcticus* (Hombron & Jacquinot, 1846)**

*NZ references*: Dell *et al.* (1970: 54) fig. 1b (carapace outline of male), figs 2b,e, 3c–d, pl. 2 (photos, whole male, dorsal and ventral); Stephenson (1972: 21); McLay (1988: 220) fig. 49a (whole male), fig. 49b–d; Takeda (1990: 372) fig. 300 (colour photo, whole animal); McLay (2009: 46) fig. 23a–b (colour photos, immature male, female), fig. 24a–b (colour photos, mature male, female).

*Other significant reference*: Ng *et al.* (2008: 148).

*Distribution*: endemic, northern and southern NZ including Chatham and Subantarctic islands (not known from Kermadecs); sub-littoral zone to 550 m.

*Colour*: carapace and dorsal surface of chelipeds and walking legs mottled with dark red over a background of pinkish red; no trace of iridescence but with some white marks on ridges and spines; fingers of chelae dark red on longitudinal ridges; dark coloured tomentum on carapace and sternum gives *N. antarcticus* a ‘hairy’ rather than smooth appearance.

***Nectocarcinus bennetti* Takeda & Miyake, 1969**

*NZ references*: Takeda & Miyake (1969: 166) figs 3, 4a–b, pl. 2, fig. B (photo, whole male); Dell *et al.* (1970: 52) fig. 1a (carapace outline of male), figs 2a,c–d, 3a–b, pl. 1 (photos, whole male, dorsal and ventral); McLay (1988: 224) fig. 50a (whole male), fig. 50b–d; Takeda (1990: 373) fig. 301 (colour photo, whole animal).

*Other significant reference*: Ng *et al.* (2008: 148).

*Distribution*: endemic, southern NZ from Chatham Rise south to Campbell Island; sublittoral zone to 480 m.

*Colour*: carapace and dorsal surface of chelipeds mainly purplish red with areas of pink iridescence; walking legs and ventral surfaces of body and legs pale off-white to dirty cream; main areas of iridescence are across front of carapace, in a broad band along each antero-lateral margin, and over entire dorsal surface of cheliped wrist, palm and free finger; very little dark tomentum present on carapace or sternum gives *Nectocarcinus bennetti* a smooth rather than ‘hairy’ appearance, in contrast to *N. antarcticus*.

Family **PORTUNIDAE** Rafinesque, 1815  
 Subfamily **CAPHYRINAE** Paulson, 1875

***Capbyra acheronae* Takeda & Webber 2006**

*NZ reference*: Takeda & Webber (2006: 198) fig. 4A–D (photos, male holotype, dorsal and antero-ventral, female paratype, dorsal and antero-dorsal).

*Distribution*: endemic, Kermadec Islands.

Subfamily **NECRONECTINAE**  
 Glaessner, 1928

***Scylla serrata* (Forskål, 1775)**

*NZ references*: Dell (1964b) figs 59–60 (photo, carapace); Manikiam (1967) fig. 1 (photo, whole animal); Poore (2004: 42) fig. 133b–d (carapace outline, cheliped).

*Other significant references*: Stephenson & Campbell (1960: 111) fig. 2N, pl. 4, fig. 4 (photo, whole animal), figs 5N, 6C; Jones & Morgan (1994: 156) fig. (colour photos, whole animal); Davie (2002b: 470) fig. page 462 (whole animal); Ng *et al.* (2008: 153).

*Distribution*: northern NZ mainland, possibly recently introduced naturally or accidentally, and possibly more than once (breeding in NZ waters not yet proven); Indo-West Pacific from east Africa to Australia, Japan and French Polynesia; estuarine, burrowing in intertidal zone and shallow water.

*Colour*: variable, dark green or purplish brown with paler patches on chelipeds and walking legs (Australian specimens).

Subfamily **PORTUNINAE** Rafinesque, 1815

***Portunus pelagicus* (Linnaeus, 1758)**

*NZ references*: Dell (1964a: 303) fig. (photo, whole animal); McLay (1988: 212) fig. 47a (whole male), fig. 47b–c; Poore



(2004: 419) fig. 132e (carapace), pl. 23d–e (colour photos, live animals in defensive and burrowing postures).

*Other significant references:* Stephenson & Campbell (1959: 96) figs 2A, 3A, 4A, 5A, pl. 1, fig. 1; Jones & Morgan (1994: 159) fig. (colour photo, whole animal); Davie (2002b: 467); Ng *et al.* (2008: 152).

*Distribution:* northern NZ mainland, possibly recently introduced naturally or accidentally, and possibly more than once (may not breed in NZ waters); Indo-West Pacific from east Africa to Japan, Australia and French Polynesia; intertidal zone and shallow water.

*Colour:* carapace purplish brown with variable symmetrical blue mottling; chelipeds and walking legs purple to blue with pale mottling (Australian specimens).

### Subfamily THALAMITINAE Paulson, 1875

#### *Charybdis japonica* (A. Milne-Edwards, 1861)

*NZ references:* Webber (2001: 80) figs 1–2 (colour photos, whole male dorsal and ventral), as *Charybdis* sp.; Gust (2002: 3) (large numbers of *Charybdis japonica* taken in Waitemata Harbour during NIWA biosecurity survey in April 2002); Smith *et al.* (2003: 753) fig. 2A–D (colour photos, whole animals), fig. 3A–D, F–G; Poore (2004: 425) fig. 135d (carapace outline), fig. 137a,g (antenna and cheliped).

*Other significant references:* Leene (1938: 30) fig. 5 (whole female), figs 6–7; Sakai (1965: 121) pl. 59, fig. 1 (colour illustration, whole animal); Sakai (1976: 355) pl. 123, fig. 1 (colour illustration, whole male); Wee & Ng (1995: 34) fig. 15A (whole female), fig. 15B–E; Ng *et al.* (2008: 153).

*Distribution:* Waitemata Harbour, Firth of Thames; Red Sea to Southeast Asia, China and Japan; shallow coastal waters.

*Colour of NZ specimens:* pattern of colour and markings constant but colour and intensities variable; dorsal surfaces of carapace and appendages from pale green and off-white through olive green to deep chestnut with purple markings. Light yellowish-orange markings present towards tips of legs and inner cheliped, ranging to more extensive areas of orange-chestnut dorsally on appendages and carapace. Ventral surfaces of body and appendages white to off-white. Hands with free fingers dark pinkish olive, teeth along cutting edge of fixed fingers and often entire distal third of each fixed finger similarly dark pinkish olive.

#### *Thalamita danae* Stimpson, 1858

*NZ reference:* McLay (2009: 46) fig. 22a (photo, male, from Stephenson & Hudson 1957: pl. 3, fig. 1).

*Other significant references:* Stephenson (1972: 46); Davie (2002b: 478) fig. page 471 (whole animal); Poore (2004: 429) fig. 136a (carapace outline), fig. 137n (chela); Ng *et al.* (2008: 154).

*Distribution:* Kermadec Islands; Indo-West Pacific from Red Sea to Japan and French Polynesia.

#### *Thalamita macropus* Montgomery, 1931

*NZ reference:* Takeda & Webber (2006: 201) fig. 5C (photo, male).

*Other significant references:* Stephenson (1972: 46); Davie (2002b: 479); Poore (2004: 429) fig. 136c (carapace outline); Ng *et al.* (2008: 154).

*Distribution:* Kermadec Islands; Abrolhos Islands (Western Australia) around Northern Territory to New South Wales.

### Superfamily TRAPEZIOIDEA Miers, 1886

#### Family TRAPEZIIDAE Miers, 1886

#### Subfamily CALOCARCININAE Števcic, 2005

##### *Calocarcinus africanus* Calman, 1909

*NZ reference:* Ahyong (2009a: 66) fig. 1D (juvenile female).

*Other significant reference:* Ng *et al.* (2008: 185).

*Distribution:* Kermadec Islands; western Indian Ocean to western Pacific Ocean.

#### Subfamily TRAPEZIINAE Miers, 1886

##### *Trapezia cymodoce* (Herbst, 1801)

*NZ reference:* Takeda & Webber (2006: 221) fig. 15C (photo, small male, dorsal).

*Other significant references:* Davie (2002b: 498) fig. page 493 (whole animal); Poore (2004: 480) fig. 152b (carapace and chelipeds outline); Ng *et al.* (2008: 186).

*Distribution:* Kermadec Islands; Western Australia, Indo-West Pacific.

##### *Trapezia guttata* Rüppell, 1830

*NZ reference:* Takeda & Webber (2006: 221).

*Other significant references:* Davie (2002b: 500); Ng *et al.* (2008: 186).

*Distribution:* Kermadec Islands; Indo-West Pacific.

##### *Trapezia septata* Dana, 1852

*NZ references:* Chilton (1911: 556), as *Trapezia ferruginia* var. *areolata* Dana, 1852; Takeda & Webber (2006: 221).

*Other significant references:* Davie (2002b: 501); Poore (2004: 481) fig. 152d (carapace and chelipeds outline); Ng *et al.* (2008: 186).

*Distribution:* Kermadec Islands; Indo-West Pacific.

Superfamily XANTHOIDEA MacLeay,  
1838

Family XANTHIDAE MacLeay, 1838

Subfamily ACTAEINAE Alcock, 1898

***Gaillardiellus bathus* Davie, 1997**

*NZ reference:* Takeda & Webber (2006: 204) fig. 7A (photo, female).

*Other significant references:* Davie (1997: 339) fig. 1a–g (male holotype diagnostic characters), fig. 15c (photo, male holotype); Ng *et al.* (2008: 195).

*Distribution:* Kermadec Islands; New Caledonia.

***Gaillardiellus rueppelli* (Krauss, 1843)**

*NZ reference:* Takeda & Webber (2006: 204) fig. 7B (photo, male).

*Other significant references:* Davie (2002b: 514); Ng *et al.* (2008: 195).

*Distribution:* Kermadec Islands; Indo-West Pacific from South Africa to Japan and Australia.

Subfamily ANTROCARCININAE  
Ng & Chia, 1994

***Antrocarcinus petrosus* Ng & Chia, 1994**

*NZ reference:* Takeda & Webber (2006: 201) fig. 6A (photo, male).

*Other significant references:* Ng & Chia (1994: 707) figs 1A–C, 2A–C, 3A–C (photos, male holotype and female paratype, dorsal, frontal, ventral, and chelae), fig. 4 (diagnostic characters); Ng *et al.* (2008: 196).

*Distribution:* Kermadec Islands; New Caledonia.

Subfamily CHLORODIELLINAE  
Ng & Holthuis, 2007

***Pilodius nigrobrinitus* Stimpson, 1859**

*NZ references:* Chilton (1911: 557), as *Chlorodopsis melanochira* A. Milne-Edwards, 1873; Sakai (1976: 461) fig. 284a–b (male and male pleopod), pl. 164 fig. 2 (colour painting, male); Takeda & Webber (2006: 233).

*Distribution:* Kermadec Islands; western Pacific from Japan to Australia and east to Fiji; shallow rocky waters.

Subfamily EUXANTHINAE Alcock,  
1898

***Medaeops serenei* Ng & McLay, 2007**

*NZ reference:* Ng & McLay (2007: 44) fig. 4A–C (photos, holotype male, dorsal, frontal and ventral), fig. 5A–B (photos, paratype female chelae), fig. 6A–E (carapace and chelae), fig. 7A–E (appendages).

*Distribution:* endemic, Kermadec Ridge.

***Miersiella haswelli* (Miers, 1886)**

*NZ references:* Takeda & Webber (2006: 208) fig. 9B (photo, male); Ah Yong (2008: 61), fig. 5F (photo, male), fig. 29E–F (colour photos, male, ovigerous female).

*Other significant references:* Davie (2002b: 536); Poore (2004: 472) fig. 150f (carapace); Ng *et al.* (2008: 199).

*Distribution:* Kermadec Islands; Japan, Christmas Island (Indian Ocean), New South Wales.

Subfamily LIOMERINAE T. Sakai, 1976

***Liomera yaldwyni* Takeda & Webber, 2006**

*NZ reference:* Takeda & Webber (2006) fig. 8A–B (photo, male holotype, dorsal).

*Other significant reference:* Ng *et al.* (2008: 201).

*Distribution:* endemic, Kermadec Islands.

Subfamily POLYDECTINAE Dana, 1851

***Lybia leptochelis* (Zehntner, 1894)**

*NZ reference:* Takeda & Webber (2006: 208) fig. 9A (photo, male dorsal, with appendages detached).

*Other significant reference:* Ng *et al.* (2008: 201).

*Distribution:* Kermadec Islands; Fiji to Indonesia.

Subfamily XANTHINAE MacLeay, 1838

***Euryxanthops chiltoni* Ng & McLay, 2007**

*NZ reference:* Ng & McLay (2007: 38) fig. 1A–C (photos, holotype female, dorsal and frontal, buccal cavity), fig. 2A–C (photos, holotype female, ventral, and chelae), fig. 3A–F (holotype female carapace, appendages).

*Distribution:* endemic, Kermadec Islands.

***Leptodius nudipes* (Dana, 1852)**

*NZ references:* Chilton (1911: 555), as *Xantho*; Takeda & Webber (2006: 233).

*Other significant references:* Davie (2002b: 551); Ng *et al.* (2008: 203).

*Distribution:* Kermadec Islands; West Pacific.

***Nanocassiope* sp.**

*NZ reference:* Takeda & Webber (2006: 210) (identification tentative; more material required).

*Distribution:* Kermadec Islands.

***Pseudoliomera helleri* (A. Milne-Edwards, 1865)**

*NZ reference:* Takeda & Webber (2006: 212) fig. 9C–D (photos, male, dorsal, and female, antero-ventral).

*Other significant references:* Davie (2002b: 516); Poore (2004: 464) fig. 148e (chela); Ng *et al.* (2008: 196).

*Distribution:* Kermadec Islands; Indo-West Pacific.

***Serenius actaeoides* (A. Milne-Edwards, 1873)**

*NZ references:* Chilton (1911: 557), as *Lophactaea*; Takeda & Webber (2006: 233).

*Distribution:* Kermadec Islands; Indo-West Pacific.

***Xanthias dawsoni* Takeda & Webber, 2006**

*NZ reference:* Takeda & Webber (2006: 212) fig. 11A–B (photos, male holotype, dorsal and ventral), fig. 12A–C (photos, male paratypes, dorsal and ventral).

*Other significant reference:* Ng *et al.* (2008: 204).

*Distribution:* endemic, Kermadec Islands.

***Xanthias lamarckii* (H. Milne Edwards, 1834)**

*NZ references:* Chilton (1911: 556), as *Xanthodes*; Takeda & Webber (2006: 233).

*Other significant references:* Davie (2002b: 555) fig. page 505 (whole animal); Poore (2004: 474); Ng *et al.* (2008: 204).

*Distribution:* Kermadec Islands; Indo-West Pacific.

## Subfamily ZALASIINAE Serène, 1968

***Banareia armata* A. Milne-Edwards, 1869**

*NZ references:* Chilton (1911: 557); Takeda & Webber (2006: 233).

*Other significant references:* Davie (2002b: 557); Ng *et al.* (2008: 205).

*Distribution:* Kermadec Islands; Indo-West Pacific.

***Banareia banareias* (Rathbun, 1911)**

*NZ reference:* Takeda & Webber (2006: 204) fig. 6B–C (photos, female, dorsal and frontal).

*Other significant references:* Davie (2002b: 558); Ng *et al.* (2008: 205).

*Distribution:* Kermadec Islands; Indo-West Pacific.

## Subfamily ZOSIMINAE Alcock, 1898

***Platypodia delli* Takeda & Webber, 2006**

*NZ reference:* Takeda & Webber (2006: 210) fig. 10A–D (photos, male holotype, dorsal, chelae and P5).

*Other significant reference:* Ng *et al.* (2008: 206).

*Distribution:* endemic, Kermadec Islands.

## Subsection THORACOTREMATA Guinot, 1977

## Superfamily CRYPTOCHIROIDEA Paul'son, 1875

## Family CRYPTOCHIRIDAE Paul'son, 1875

***Cryptochirus coralliodytes* Heller, 1861**

*NZ references:* Chilton (1911: 561); Takeda & Webber (2006: 234).

*Other significant references:* Fize & Serène (1957: 31) figs 4A–D, 5A–E (carapace outlines), pl. 1, figs 3–6 (including photos of female and male carapace), pl. 2, figs 1–2 (photos, whole female, dorsal and ventral), pl. 3 (photo, whole male), pl. 10, fig. A (photo, typical hole bored in brain coral), pl. 14, figs A–H (including colour illustrations of whole males and females); Davie (2002b: 142); Poore (2004: 483) fig. 153 (whole animal); Ng *et al.* (2008: 212).

*Distribution:* Kermadec Islands; Indo-West Pacific from east Africa to northeastern Australia and Hawai'i; lives exclusively in brain corals of the family Faviidae.

*Colour:* variable, several colour forms recorded; carapace usually pale greenish grey, cornea black, cheliped hands dark with longitudinal red streaks (Vietnamese specimens).

## Superfamily GRAPSOIDEA MacLeay, 1838

## Family GRAPSIDAE MacLeay, 1838

***Geograpsus grayi* (H. Milne Edwards, 1853)**

*NZ references:* Chilton (1911: 560); Takeda & Webber (2006: 225) fig. 18B (photo, male).

*Other significant references:* Banerjee (1960: 159) figs 1f, 3n–p; Crosnier (1965: 18) fig. 13 (carapace outline), figs 14, 17–18; Davie (2002b: 213); Ng *et al.* (2008: 216).

*Distribution:* only land crab in NZ EEZ, burrowing in forest and rocky slopes on Sunday, Meyer and Herald islands in northern Kermadecs (Chilton 1911a), and on Macauley and Curtis islands in southern Kermadecs (JCY collections, November 1970); Indo-West Pacific, from east Africa to Australia, Japan and Polynesia.

***Leptograpsus variegatus* (Fabricius, 1793)**

*NZ references:* Chilton (1911: 560); Morton & Miller (1968: 89) pl. 22, fig. 5 (colour illustration, whole animal); Griffin (1973: 416) figs 1–3 (carapace outlines, showing changes in carapace shape with growth), figs 4–5, 6 left (photo, whole male), fig. 6 right (Australian specimens); Miller &

Batt (1973: 65) fig. 13 (colour photo, whole male); McLay (1988: 266) fig. 59a (whole male), fig. 59 b–c; Walsby (1990: 114–115) figs (colour photos, live specimens feeding); Takeda & Webber (2006: 225) fig. 18C (photo, young female).

*Other significant references:* Jones & Morgan (1994: 182–183) (colour photos, live animals); Davie (2002b: 215); Poore (2004: 507) fig. 161c,g (carapace, orbit), fig. 162f (male abdomen); Ng *et al.* (2008: 217).

*Distribution:* North Island and northern part of South Island (south to Kaikoura and Westport), Kermadec Islands, intertidal zone on rocky shores, occasionally ranging a little above high-tide level; Australia (Western, southern and eastern), Middleton Reef (north of Lord Howe Island), Norfolk Island, Easter Island, Juan Fernandez Islands, and west coast of South America from Paita, Peru, south to Valparaiso, Chile.

*Colour:* variable; carapace red and yellow, mixed or dotted with violet-red, or sometimes whitish. Some specimens bluish grey, transversely lined and blotched with black or red; cheliped palm, fixed finger and outer surface of hand white.

***Pachygrapsus minutus* A. Milne-Edwards, 1873**

*NZ reference:* Takeda & Webber (2006: 227) fig. 20A (photo, male).

*Other significant references:* Davie (2002b: 218) fig. page 212 (whole animal); Ng *et al.* (2008: 217).

*Distribution:* Kermadec Islands; widespread in Indo-West Pacific.

***Planes major* (MacLeay, 1838)**

*NZ references:* Dell (1968: 21); McLay (1988: 318) fig. 67a (whole male), fig. 67b–d; Walsby (1990: 123) fig. (colour photo, live animal among goose barnacles on flotsam), as *P. cyaneus*; Takeda & Webber (2006: 229) fig. 20C (photo, female).

*Other significant references:* Chace (1951: 88) fig. 1b (whole male), figs 2b,e,h,m–o, 3i–n (carapace outlines, showing changes with growth); Sivertsen & Holthuis (1956: 50) pl. 1 fig. 4, pl. 2, figs 1–4 (all figs colour illustrations of whole crab), as *P. minutus*; Davie (2002b: 219); Poore (2004: 508) fig. 161e (carapace), fig. 162c (walking leg); Ng *et al.* (2008: 217).

*Distribution:* North Island south to a little north of Cook Strait, Kermadec Islands; Indo-West Pacific, east Pacific, and North and South Atlantic, from Madagascar to Western and eastern Australia, Japan, Hawai'i, west coast of North and South America, Caribbean, Azores, Madeira

and Canary Islands in the mid-Atlantic, and from St Helena in the South Atlantic; oceanic, often washed ashore clinging to floating objects.

*Colour:* variable and usually protective, matching floating flotsam to which they are clinging. Overall colours recorded include blue, greenish, bluish grey mottled with brown, yellowish clouded with brown, and reddish brown.

***Planes marinus* Rathbun, 1914**

*NZ references:* Dell (1963c: 180) fig. 1 (whole male), figs 2–3, as *Pachygrapsus marinus*; Chace (1966: 646); Dell (1968: 21); McLay (1988: 322) fig. 68a (whole male), fig. 68b–d; Takeda & Webber (2006: 229) fig. 20B (photo, male).

*Other significant references:* Chace (1951: 92) fig. 1c (whole male), figs 2c,f,i,p,q,r, 3o–t (carapace outlines, showing changes with growth), as *Pachygrapsus marinus*; Ng *et al.* (2008: 217).

*Distribution:* North Island south to Cook Strait, Kermadec and Chatham islands; Indo-West Pacific, east Pacific and South Atlantic including St Helena, from Madagascar to Australia, Japan and west coast of North America; oceanic, often washed ashore clinging to floating objects.

*Colour:* dark reddish brown.

Family **PLAGUSIIDAE** Dana, 1851  
Subfamily **PERCNINAE** Števcíć, 2005

***Percnon planissimum* (Herbst, 1804)**

*NZ references:* Chilton (1911: 559), as *P. pilimanus*; Takeda & Webber (2006: 227) fig. 19A (photo, male); McLay (2009: 49) fig. 25a–b (colour photos, male and female), fig. 26a–b (colour photos, live specimens in habitat at Poor Knights Islands).

*Other significant references:* Edmondson (1959: 194) figs 24, 25a (photo, whole animal), as *P. pilimanus*; Crosnier (1965: 86) fig. 132 (carapace outline), figs 133, 137, 142, 147, 148, pl. 7 fig. 1 (photo, whole animal as *P. affine*); Davie (2002b: 439) fig. page 436 (whole animal), as *P. affine*; Ng *et al.* (2008: 219).

*Distribution:* Kermadec Islands and northern North Island; widespread throughout Indo-West Pacific.

Subfamily **PLAGUSIINAE** Dana, 1851

***Miersiograpsus australiensis* Türkay, 1978**

*NZ reference:* Ahyong (2008: 60) fig. 5D (photo, male).

*Other significant references:* Davie (2002b: 438); Poore (2004: 513) fig. 164e (carapace and chelae outline); Ng *et al.* (2008: 218).



*Distribution*: east of North Island; southeastern Australia, New Caledonia.

***Plagusia chabrus* (Linnaeus, 1758)**

*NZ references*: Heath & Dell (1971: 38) fig. 111 (colour illustration, whole animal); Griffin (1973: 426) figs 7a–g, i–n, p–u, 8a, c–g, 9a–f, 10a–c, 14A (photo, whole male), fig. 15A; Dell (1974: 1241) (colour photo, live animal in crevice); Dawson (1987: 40); McLay (1988: 272) fig. 60a (whole male), fig. 60b–e; Walsby (1990: 113) (colour photos, live animals); Poore (2004: 513) fig. 164a–b (whole animal, chela), pl. 29g (colour photo, live animal, frontal); Takeda & Webber (2006: 227) fig. 19B (photo, male).

*Other significant references*: Davie (2002b: 440); Ng *et al.* (2008: 218).

*Distribution*: North, South, Kermadec and Chatham islands, low-tide level on rocky shores down to about 25 m; Indo-West Pacific and east Pacific, both west and east coasts of South Africa to Western, southern and eastern Australia, Lord Howe and Norfolk islands, Tonga, Juan Fernandez Islands and Chile.

*Colour*: carapace, chelipeds and legs various shades of red, naked ridges on dorsal surfaces darker, ridges and tubercles on front and chelipeds white; setae yellowish; ventral surfaces pale or cream.

***Plagusia dentipes* De Haan, 1835**

*NZ references*: Chilton (1911: 558); Dawson (1987: 41).

*Other significant references*: Sakai (1965: 205) pl. 99 (colour illustration, whole male); Griffin (1973: 434) figs 7h, o, v, 8b, h, 9g, 10d–f, 14B (photo, whole male), fig. 15B; Davie (2002b: 440); Ng *et al.* (2008: 218).

*Distribution*: Kermadec Islands, intertidal on rocky shores (not known from NZ mainland, Chatham Islands or Subantarctic Islands); western Pacific from Japan, Korea and Taiwan to Norfolk and Lord Howe islands, and to Easter Island.

*Colour*: carapace, chelipeds and walking legs with irregular patchwork of red and purple; ridges and tubercles on front and hands white.

***Plagusia squamosa* (Herbst, 1790)**

*NZ references*: Chilton (1911: 558), as *P. tuberculata*; Foster & Willan (1979: 147) fig. 3h (photo, whole animal); Dawson (1987: 42) fig. 1a (photo, whole animal with legs detached, dorsal), fig. 1b (photo, whole animal, ventral view), fig. 1c–f, as *P. depressa tuberculata*; McLay (1988: 276) fig. 61a–b (whole male), as *P. depressa tuberculata*;

Takeda & Webber (2006: 229) fig. 19C (photo, male), as *Plagusia tuberculata* Lamarck, 1818.

*Other significant references*: Crosnier (1965: 80) pl. 7, fig. 3 (photo, whole carapace); Sakai (1965: 206) pl. 100, fig. 1 (colour illustration, whole male); Tinker (1965: 126) fig. 51 (photos, whole male, dorsal and ventral); Schubart & Ng (2000: 334) fig. 3A (photo, whole male lectotype), fig. 3B (photo, whole female paralectotype); Davie (2002b: 441); Ng *et al.* (2008: 218).

*Distribution*: Kermadec Islands on subtidal rocks, northern NZ off Whangarei on long-line floats and off Taranaki on oil-platform piles (Maui Field); Indo-West Pacific and east Pacific, from east Africa, Red Sea and Indian Ocean to Australia, Norfolk Island, Indonesia, Japan, Hawai'i and Baja California, often found on driftwood.

*Colour*: carapace, chelipeds and walking legs reddish purple; cheliped fingers and palm pale; setae on carapace yellow.

Family **VARUNIDAE** A. Milne-Edwards, 1853

Subfamily **CYCLOGRAPSIDAE**

H. Milne Edwards, 1853

***Austrohelice crassa* (Dana, 1851)**

*NZ references*: Beer (1959: 197) fig. 1A (illustration, threat attitude), fig. 1C (illustration, ritualised fighting); Fielder & Jones (1978: 41) fig. 1 (illustration, feeding pose), fig. 2, as *Helice crassa*; McLay (1988: 294) fig. 64a (whole male), fig. 64b, as *Helice crassa*; Walsby (1990: 118–119) (several colour photos, live animals), as *Helice crassa*.

*Other significant reference*: Ng *et al.* (2008: 226).

*Distribution*: endemic, North and South islands (not known from Kermadecs); intertidal zone, burrowing in estuarine mud and sand flats (e.g. Nye 1977: fig. 2).

*Colour*: carapace grey to olive green, blue-green and brown, margins yellow; chelipeds and walking legs dark green, edged with yellow.

***Cyclograpsus insularum* Campbell & Griffin, 1966**

*NZ references*: Campbell & Griffin (1966: 156) figs 2C, 7, pl. 21, fig. 4 (photo, whole animal), pl. 23, fig. 8; Dell & Marshall (1967: 1) fig. 2 (carapace outline); Bacon (1971: 415) fig. 1 lower (photo, whole animal), table 1; McLay (1988: 306) fig. 65a (whole animal), fig. 65b–e; Davie (2002b: 209); Takeda & Webber (2006: 225) fig. 18A (photo, male).

*Other significant reference*: Ng *et al.* (2008: 226).

*Distribution*: North Island from North Cape to East Cape, Kermadec Islands, under stones at high water neap-tide

level to mid-tide level (e.g. Bacon 1971: fig. 5); Lord Howe and Norfolk islands, eastern Australia.

*Colour*: anterior half of carapace brown or purple, grading to pale brown posteriorly; large specimens may be fawn.

***Cyclograpsus lavauxi* H. Milne Edwards, 1853**

*NZ references*: Campbell & Griffin (1966: 143) figs 3B, 5B, pl. 20, fig. 4 (photo, whole animal), pl. 23, fig. 4; Dell & Marshall (1967: 2) fig. 1 (carapace outline); Bacon (1971: 415) fig. 1 upper (photo, whole animal), table 1; McLay (1988: 310) fig. 66a (whole male), fig. 66b–c; Walsby (1990: 112) (colour photo, live animal).

*Other significant reference*: Ng *et al.* (2008: 226).

*Distribution*: endemic, Kermadecs, North and South islands; high-tide level, overlapping with *Cyclograpsus insularum* but usually higher on shore.

*Colour*: carapace varying from slate blue through bluish grey and fawn to yellowish brown, speckled with dark reddish brown, pale ventrally.

Subfamily VARUNINAE

H. Milne Edwards, 1853

***Hemigrapsus crenulatus* (H. Milne Edwards, 1837)**

*NZ references*: Bennett (1964: 81) figs 95, 136 (photos, whole animal); McLay (1988: 286) fig. 63a (whole male), fig. 63b–d.

*Other significant references*: Rathbun (1918: 266) pl. 68 (whole male, dorsal and ventral, from Patagonia); Garth *et al.* (1967: 184); Retamal (1981) fig. 196 (whole animal from Chile); Ng *et al.* (2008: 228).

*Distribution*: northern and southern NZ (not known from Kermadecs), mid-tide level and very shallow water, estuaries and sheltered harbours; southern Chile and west coast of Patagonia.

*Colour*: carapace greenish yellow with white patches, covered with very small dark purple or reddish-brown spots; upper surface of chelipeds marked with dark purple-brown, fingers white with dark brown tips; inner surface of cheliped palm and fingers with obvious mat of dense hairs (hence its common name of hairy-handed crab).

***Hemigrapsus sexdentatus* (H. Milne Edwards, 1837)**

*NZ references*: Richardson (1949: 130); Bennett (1964: 82) figs 94, 137, 138 (photos, whole ovigerous female, dorsal and ventral); Morton & Miller (1968: 89) pl. 23, fig. 1 (colour illustration, whole animal), as *H. edwardsii*; Miller & Batt (1973: 73) fig. 89 (colour photo, whole animal), as *H. edwardsii*; Gunson (1993: 53) (colour illustration,

whole animal); McLay (1988: 280) fig. 62a–d (whole male), as *H. edwardsii*; Walsby (1990: 123) upper fig., as *H. edwardsii*; McLay & Schubart (2004: 699) (synonymy, record as *H. sexdentatus*) fig. 1 (photo, male).

*Other significant reference*: Ng *et al.* (2008: 228).

*Distribution*: endemic, northern and southern NZ (not known from Kermadecs); commonest NZ shore crab, high-tide to mid-tide level on sheltered rocky, stony or muddy shores.

*Colour*: two different colour types are known. Lightly coloured crabs have extensive light or dark chestnut-red markings on carapace and chelipeds over a grey or cream background; dark-coloured crabs have extensive dark purple or purplish black markings on carapace and chelipeds, as well as banded walking legs; cheliped fingers and lower parts of palm in both colour types white.

Family XENOGRAPSIDAE Ng, Davie,  
Schubart & Ng, 2007

***Xenograpsus ngatama* McLay, 2007**

*NZ references*: McLay (2003: 13) fig. (colour photo, whole animal); McLay (2007: 15) fig. 6A–F, 7A–E (carapace and appendages), figs 8A–B, 9A–B (photos, male holotype, dorsal and frontal); Ah Yong (2008: 61) fig. 5E (photo, male).

*Other significant reference*: Ng *et al.* (2008: 232).

*Significant reference to genus Xenograpsus*: Takeda & Kurata (1977: 100) (*Xenograpsus* n. gen. from volcanically active, newly formed island in the Ogasawara or Bonin Islands south of Tokyo).

*Distribution*: endemic, southern Kermadec Ridge.

*Colour*: complex pattern of symmetrical red markings on pinkish-yellow background across dorsal surface of carapace and legs (from photo of preserved specimen in McLay 2003).

Superfamily OCYPODOIDEA

Rafinesque, 1815

Family MACROPHTHALMIDAE

Dana, 1851

Subfamily MACROPHTHALMINAE

Dana, 1851

***Macrophthalmus (Hemiplax) hirtipes* (Jacquinot, 1853)**

*NZ references*: Beer (1959: 197) fig. 1B (threat behaviour), fig. 1D (ritualised fighting), as *Hemiplax hirtipes*; Barnes (1967: 236) fig. 12a–d, pl. 3, fig. D (whole male); Nye

(1974: 244) fig. 2 (photos, burrow excavation); McLay (1988: 336) fig. 71a (whole male), fig. 71b–c.

*Other significant reference:* Ng *et al.* (2008: 237).

*Distribution:* endemic, North and South islands (not known from Kermadecs), burrowing from mid- to low-tide level in mudflats of harbours and estuaries, also at shallow-water depths (30–40 m) at hydrothermal vents in Bay of Plenty.

*Colour:* carapace dark green with scattered dark brown spots, margin dark brown, eye stalks white with dark brown patches, legs yellow-green, and chelipeds red dorsally and white ventrally.

## Family OCYPODIDAE Rafinesque, 1815

### Subfamily OCYPODINAE Rafinesque, 1815

#### *Ocypode pallidula* Jacquinot, 1846

*NZ references:* Takeda & Webber (2006: 223) fig. 17A–C (photos, male, dorsal and ventral, and chela); McLay (2009: 53) fig. 27a–b (colour photos, female, dorsal and ventral), fig. 28a–b (colour photos, male and female, frontal), fig. 29a–b (colour photo, male, frontal; chelae with stridulating ridges).

*Other significant references:* Davie (2002b: 358); Ng *et al.* (2008: 240).

*Distribution:* Kermadec Islands; widespread intertidal species of the Indo-West Pacific.

## Superfamily PINNOTHEROIDEA

De Haan, 1833

### Family PINNOTHERIDAE De Haan, 1833

#### Subfamily PINNOTHERINAE De Haan, 1833

#### *Nepinnotheres atrinicola* Page, 1983

*NZ references:* Page (1983: 158) fig. 2I–J (stage one zoea), fig. 3A (whole hard-stage male), fig. 3B–H (whole mature female), fig. 3I–J; McLay (1988: 326) fig. 69a (whole hard-stage male, after Page 1983), fig. 69b–d (whole mature female, after Page 1983), fig. 69e–g (specific name incorrectly spelt ‘*atrinicola*’) (all references as *Pinnotheres*); Ahyong & Ng (2008: 67) (justification for transferring it to *Nepinnotheres*).

*Distribution:* endemic, North and South islands (not known from Kermadecs); typically commensal, however, McLay (1988: 328) prefers to call pinnotherids ‘parasitic’. Recorded in the horse mussel *Atrina zelandica*, but has been found in several ‘surf clam’ species; intertidal zone and on shelf.

*Colour:* males have a pale orange carapace with grey or cream splotches separated by orange bands, and with an orange stripe along centre; chelipeds orange with grey patches; walking legs with orange margins or banded orange and grey. Mature females unpigmented.

#### *Nepinnotheres novaezelandiae* Filhol, 1885

*NZ references:* Scott (1961: 307) fig. 1 (outline of pigmented carapace), figs 4, 6; Jones (1977: 145) fig. 1a (whole pre-hard stage), figs 1b–h, 2a–i, 3a (whole hard-stage male), figs 3b–j, 4a–i, 5a–b (whole female), figs 5c–g, 6a–d, 7a–e (whole adult female, combined dorsal and ventral views); Page (1983: 152) fig. 1A (whole hard-stage male), figs 1B–H (whole mature female), figs 1I–J, 2A–H (stage one zoea); McLay (1988: 330) fig. 70a (whole hard-stage male, after Page 1983), fig. 70b–d (whole mature female, after Page 1983), fig. 70e–g; Walsby (1990) fig. page 116 (colour photo, whole dead male and ovigerous female in the mussel *Perna canaliculus*), fig. page 117 (colour photo, whole live animal in *Perna*); Palmer (1995: 1071); Davie (2002b: 433) (all references as *Pinnotheres*); Ahyong & Ng (2008: 67) (first report of an androgynous male of this species, and justification for transferring it to *Nepinnotheres*).

*Distribution:* endemic, North, South and Chatham islands (not known from Kermadecs), typically commensal (or ‘parasitic’) in mussels *Perna canaliculus* and *Mytilus galloprovincialis*, but has been found in other bivalves (e.g. *Crassostrea*, *Paphies*, *Austrovenus*); intertidal zone and shallow shelf.

*Colour:* anterior half of carapace in hard-stage males and females orange-brown with white spots and cream areas, posterior half with white spots on a mauve and yellow background, chelipeds yellowish brown; mature females creamy white.

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## Index to families, subfamilies, genera, subgenera, species and subspecies

<i>abyssi</i> .....	196	<i>Antrocarcinus</i> .....	244	<i>Benthesicymus</i> .....	180
<i>abyssorum</i> .....	223	<i>aoteanus</i> .....	205	<i>berentsae</i> .....	184
<i>acacia</i> .....	211	<i>aotearoa</i> .....	215, 234	<i>Betaeopsis</i> .....	192
<i>Acanthephyra</i> .....	185, 186	<i>arcticus</i> .....	181	<i>Betaeus</i> .....	192
<i>Acanthophrys</i> .....	238	<i>Arctides</i> .....	204	<i>bicavus</i> .....	209
<i>Achaeus</i> .....	235	ARCTIDINAE.....	173, 204	<i>bicolor</i> .....	241
<i>acheronae</i> .....	242	<i>Arctus</i> .....	205	<i>bifidirostris</i> .....	193
ACTAEINAE.....	175, 244	<i>areolata</i> .....	243	<i>bipustulatus</i> .....	241
<i>actaeoides</i> .....	245	<i>Aristaeomorpha</i> .....	178	<i>bituberculata</i> .....	237
<i>Actaeomorpha</i> .....	227	<i>Aristaeopsis</i> .....	178, 179	<i>bonaspei</i> .....	207
<i>Actumnus</i> .....	240	ARISTEIDAE.....	171, 178	<i>Bountiana</i> .....	230
<i>Acutigebia</i> .....	202	<i>Aristeus</i> .....	179	<i>bouvieri</i> .....	223
<i>acutigebia</i> .....	202	<i>armata</i> .....	245	<i>Brachycarpus</i> .....	191
<i>acutirostratus</i> .....	196	<i>arrosor</i> .....	218	<i>brachyops</i> .....	224
<i>Aegaeon</i> .....	196	<i>articulata</i> .....	201	<i>brachytelsonis</i> .....	185
<i>aequilonius</i> .....	227	<i>articulatus</i> .....	201	<i>bractea</i> .....	213
<i>aequimanus</i> .....	192	<i>Astacus</i> .....	200	<i>brasiliensis</i> .....	180
AETHRIDAE.....	174, 227	ATELECYCLIDAE.....	174, 228	<i>brevirostris</i> .....	185
<i>affine</i> .....	246	<i>Athanas</i> .....	192	<i>brodiei</i> .....	208, 216
<i>affinis</i> .....	188, 190, 194, 241	<i>atrinicola</i> .....	249	<i>bronwynae</i> .....	216
<i>africanus</i> .....	243	ATYIDAE.....	172, 188	<i>brucei</i> .....	205
<i>Agononida</i> .....	211	<i>audouini</i> .....	191	<i>burkenroadi</i> .....	223
<i>ahyongi</i> .....	232	<i>auriculatus</i> .....	187	<i>burukovskyi</i> .....	184
<i>akanensis</i> .....	235	<i>Australeremus</i> .....	219, 220	BYTHOGRAEIDAE.....	174, 228
<i>alaini</i> .....	212	<i>australiensis</i> .....	182, 227, 246	<i>caeca</i> .....	198
<i>Alainopasiphaea</i> .....	184	<i>australis</i> .....	184, 194, 197, 208, 210, 236, 237	CALAPPIDAE.....	174, 228
<i>albidianthus</i> .....	221	<i>Australomithrax</i> .....	238	<i>Calcinus</i> .....	217
<i>Albunea</i> .....	215	<i>Austrohelice</i> .....	247	<i>Callianassa</i> .....	200, 201
ALBUNEIDAE.....	173, 215	<i>Austropenaeus</i> .....	179	CALLIANASSIDAE.....	172, 200
<i>alcocki</i> .....	207	<i>australiensis</i> .....	181, 277, 246	CALLIANASSINAE.....	172, 200
<i>alexander</i> .....	188, 193	AXIIDAE.....	172, 200	CALLICHIRINAE.....	172, 201
<i>Allogalathea</i> .....	210	AXIIDEA.....	172, 200	<i>Callichirus</i> .....	201
<i>allisoni</i> .....	239	<i>Axiopsis</i> .....	200	CALOCARCININAE.....	175, 243
<i>Alope</i> .....	192	<i>Axius</i> .....	200, 201	<i>Calocarcinus</i> .....	243
ALPHEIDAE.....	172, 191	<i>balsi</i> .....	189	<i>Calocarides</i> .....	200
<i>Alpheopsis</i> .....	191	<i>Banareia</i> .....	245	<i>Calocaris</i> .....	201
<i>Alpheus</i> .....	191, 192	<i>banareias</i> .....	245	<i>Campbellia</i> .....	237
<i>alticrenatus</i> .....	204	<i>barbatus</i> .....	218	CAMPYLONOTIDAE.....	172, 190
<i>altus</i> .....	180	<i>barnardi</i> .....	184, 185	<i>Campylonotus</i> .....	190
ALVINOCARIDIDAE.....	172, 188	<i>batei</i> .....	181, 191	<i>Cancellus</i> .....	217
<i>Alvinocaris</i> .....	188	<i>bathamae</i> .....	224, 227	<i>Cancer</i> .....	229
<i>Amarinus</i> .....	233	<i>bathus</i> .....	244	CANCRIDAE.....	174, 229
<i>amphioetus</i> .....	229	<i>Bathyarctus</i> .....	205	<i>capensis</i> .....	180
<i>amplectipes</i> .....	193	<i>Bathyhippolyte</i> .....	193	<i>Caphyra</i> .....	242
<i>Angasia</i> .....	194	<i>Bathypaguropsis</i> .....	218	CAPHYRINAE.....	175, 242
<i>antarcticus</i> .....	242	<i>Bellidilia</i> .....	231	CARCINIDAE.....	174, 240
<i>Antarctus</i> .....	205	BELLIIDAE.....	174, 228	<i>Carcinoplax</i> .....	231
<i>Antipodarctus</i> .....	205	<i>bennetti</i> .....	242	<i>cardus</i> .....	209
<i>antipodarum</i> .....	204	BENTHESICYMIDAE.....	171, 180	<i>Caridina</i> .....	188
<i>antipodes</i> .....	213	<i>Antrocarcinus</i> .....	244	<i>castro</i> .....	230
<i>antonii</i> .....	213	<i>aoteanus</i> .....	205	<i>Catapagurus</i> .....	218
ANTROCARCININAE.....	175, 244	<i>aotearoa</i> .....	215, 234	<i>cataphractus</i> .....	196



<i>catharus</i> .....	241	<i>Cyrtomaia</i> .....	235	EPIALTIDAE.....	174, 232
<i>ceres</i> .....	213	<i>Dagnaudus</i> .....	226	EPIALTINAE.....	174, 232
<i>ceruus</i> .....	180	<i>danae</i> .....	243	<i>epigaster</i> .....	207
<i>chabrus</i> .....	247	<i>danai</i> .....	202	<i>Eplumula</i> .....	227
<i>chacei</i> .....	194	<i>Dantecia</i> .....	184	<i>erato</i> .....	212
<i>Chaceon</i> .....	241, 242	<i>Dardanus</i> .....	218	<i>erosa</i> .....	227
<i>challengeri</i> .....	196, 198, 199	<i>dawsoni</i> .....	216, 245	ETHUSIDAE.....	274, 230
<i>Charybdis</i> .....	243	<i>debilis</i> .....	187	<i>Ethusina</i> .....	230
<i>chathamensis</i> .....	211	<i>declivis</i> .....	239	<i>Eucalastacus</i> .....	200
<i>cheesmani</i> .....	231	<i>delli</i> .....	194, 225, 245	<i>Eumunida</i> .....	210
<i>Cheiroplatea</i> .....	224	<i>dentipes</i> .....	247	EUMUNIDIDAE.....	273, 210
<i>Cherax</i> .....	200	<i>depressa</i> .....	235, 247	<i>Eupasiphae</i> .....	184
<i>chiltoni</i> .....	194, 197, 222, 244	<i>depressum</i> .....	235	EURYNOLAMBRINAE.....	174, 236
<i>chinensis</i> .....	180	<i>deprofundis</i> .....	222	<i>Eurynolambrus</i> .....	236
CHIROSTYLIDAE.....	173, 176, 207	<i>Diacanthurus</i> .....	218, 219	<i>Eurynome</i> .....	237
<i>Chirostylus</i> .....	207	<i>Dicranodromia</i> .....	225, 226	<i>Euryxanthops</i> .....	244
<i>Chlorinoides</i> .....	238, 239	<i>dimorphus</i> .....	223	<i>euthrix</i> .....	206
CHLORODIELLINAE.....	175, 244	<i>diogenes</i> .....	223	EUXANTHINAE.....	175, 244
<i>Chlorotocus</i> .....	195	DIOGENIDAE.....	173, 217	<i>exilis</i> .....	189, 212
<i>clarki</i> .....	227	DISCIADIDAE.....	172, 188	<i>eximia</i> .....	185
<i>collaroy</i> .....	201	<i>Discias</i> .....	188	<i>exul</i> .....	188
<i>comarge</i> .....	213	<i>discissipes</i> .....	190	<i>fantasticum</i> .....	228
<i>comata</i> .....	181	<i>disjunctus</i> .....	182	<i>femoristriga</i> .....	203
<i>compta</i> .....	184	<i>distinctus</i> .....	232	<i>fenneri</i> .....	191
<i>constrictus</i> .....	240	<i>Dittosa</i> .....	231	<i>ferruginia</i> .....	243
<i>cookii</i> .....	219, 233	<i>Dorhynchus</i> .....	235	<i>Fenneropenaeus</i> .....	180
<i>Corallianassa</i> .....	201	<i>dormia</i> .....	225	<i>figueirai</i> .....	186
<i>corallina</i> .....	186	<i>Dorphinaxius</i> .....	200	<i>filholi</i> .....	200, 222, 238
<i>coralliodytes</i> .....	245	<i>Dromia</i> .....	224, 225	<i>fimbriatus</i> .....	240
<i>cornuta</i> .....	235	DROMIIDAE.....	173, 224	<i>fissifrons</i> .....	235
<i>corrugatus</i> .....	240, 241	<i>Dynomene</i> .....	225	<i>flindersi</i> .....	209
<i>costelloi</i> .....	195	DYNOMENIDAE.....	173, 225	<i>fluviatilis</i> .....	188
<i>Crangon</i> .....	197	<i>Ebalia</i> .....	231, 232	<i>foliacea</i> .....	178
CRANGONIDAE.....	172, 196	EBALIINAE.....	174, 231	<i>foresti</i> .....	220
<i>crassa</i> .....	247	<i>echidna</i> .....	216	<i>frontalis</i> .....	217
<i>crenulatus</i> .....	248	<i>ecleipsis</i> .....	211	<i>Funchalia</i> .....	180
<i>cristatus</i> .....	193, 219	<i>ecphyma</i> .....	218	<i>Gaillardiiellus</i> .....	244
<i>crosnieri</i> .....	190	<i>edwardsi</i> .....	222, 248	<i>Galacantha</i> .....	213
<i>cruentus</i> .....	218	<i>edwardsiana</i> .....	178, 179	<i>Galathea</i> .....	211
CRYPTOCHIRIDAE.....	175, 245	<i>edwardsianus</i> .....	178	GALATHEIDAE.....	173, 210
<i>Cryptochirus</i> .....	245	<i>Edwardsii</i> .....	191	<i>gammarus</i> .....	199
<i>Cryptodromiopsis</i> .....	224	<i>edwardsii</i> .....	195, 202, 203, 237, 248	<i>Gandalfus</i> .....	228
<i>Ctenocheles</i> .....	201	<i>Eiconaxius</i> .....	200, 201	<i>garricki</i> .....	191, 237
CTENOCHELIDAE.....	172, 201	<i>Elamena</i> .....	233	<i>Garthambrus</i> .....	239, 240
CTENOCHELINAE.....	172, 201	<i>Elasmonotus</i> .....	214	<i>Gastroptychus</i> .....	207, 210
<i>curvicaulis</i> .....	197	<i>elegans</i> .....	210	<i>Gennadas</i> .....	180
<i>curvirostris</i> .....	188, 235	<i>elongatus</i> .....	214, 215, 241	<i>Geograpsus</i> .....	245
CYCLOGRAPSIDAE.....	175, 247	<i>eltaninae</i> .....	219	<i>Geryon</i> .....	241
<i>Cyclograpsus</i> .....	247, 248	<i>empheres</i> .....	209	GERYONIDAE.....	175, 241
<i>Cyclohombrobia</i> .....	235	<i>endeavourae</i> .....	211	<i>gibbosulum</i> .....	229
<i>cymodoce</i> .....	243	<i>enthrix</i> .....	206	<i>gibbosulus</i> .....	229
CYMONOMIDAE.....	173, 227	<i>Ephyrina</i> .....	186	<i>gilchristi</i> .....	180
<i>Cymonomus</i> .....	227			<i>gilesii</i> .....	184

<i>glaber</i> .....	192	<i>hirtifrons</i> .....	202	<i>jessica</i> .....	215
<i>glacialis</i> .....	186	<i>hirtipes</i> .....	248	<i>jordani</i> .....	231
<i>Glebocarcinus</i> .....	229	<i>hispidia</i> .....	235	<i>junceus</i> .....	196
<i>Glyphocrangon</i> .....	198	<i>hispidus</i> .....	183	<i>kai</i> .....	226
GLYPHOCRANGONIDAE.....	172, 198	<i>holthuisi</i> .....	185, 188	<i>kaitara</i> .....	209
<i>goldsbroughi</i> .....	239	<i>Homarus</i> .....	199	<i>kaiyoae</i> .....	213
GONEPLACIDAE.....	174, 230	<i>Homola</i> .....	226	<i>kapala</i> .....	212
GONEPLACINAE.....	174, 230	HOMOLIDAE.....	173, 226	<i>Kemphyra</i> .....	186
<i>Goneplacoides</i> .....	230	<i>Homolochunia</i> .....	226	<i>kempi</i> .....	180
<i>Goneplax</i> .....	230	<i>Homolodromia</i> .....	226	<i>kermadecensis</i> .....	200, 206, 221, 235
<i>gracilimanus</i> .....	209	HOMOLODROMIIDAE ...	173, 225	<i>kermadeci</i> .....	201
<i>gracilis</i> .....	189, 196, 212	<i>Hoplophorus</i> .....	187	<i>kirkii</i> .....	219
<i>grandicula</i> .....	184	<i>Huenia</i> .....	232	<i>knoxi</i> .....	196
<i>granulatus</i> .....	206	<i>humilis</i> .....	231	<i>kohli</i> .....	237
GRAPSIDAE.....	175, 245	<i>huttoni</i> .....	230, 236	<i>kroyeri</i> .....	183
<i>grayi</i> .....	245	<i>Hymenodora</i> .....	186	<i>kullar</i> .....	226
<i>gregaria</i> .....	212	<i>Hymenopenaeus</i> .....	181	<i>lacazei</i> .....	196
<i>griffini</i> .....	240	<i>Hymenosoma</i> .....	235	<i>lacertosus</i> .....	220
<i>grimaldii</i> .....	187	HYMENOSOMATIDAE ...	174, 233	<i>lacustris</i> .....	233
<i>guttata</i> .....	243	IBACINAE.....	173, 204	<i>laevigatus</i> .....	195
<i>haanii</i> .....	204	<i>Ibacus</i> .....	204, 265	<i>laevirostris</i> .....	213
<i>hailstonei</i> .....	191	<i>icela</i> .....	212	<i>laevis</i> .....	205, 231
<i>halesii</i> .....	192	<i>Iconaxiopsis</i> .....	200	<i>lalandii</i> .....	203, 204
<i>Halicarcinus</i> .....	233, 234, 235	<i>ikatere</i> .....	189	<i>lamarckii</i> .....	215, 245
<i>Halimena</i> .....	234	<i>ikedai</i> .....	210	<i>lambriiformis</i> .....	232
<i>Halimus</i> .....	238	<i>imperialis</i> .....	217	<i>lamellata</i> .....	235
<i>Haliporoides</i> .....	181	INACHIDAE.....	174, 235	LAOMEDIIDAE.....	173, 201
<i>Haliporus</i> .....	181	INACHOIDIDAE.....	174, 236	<i>lar</i> .....	190
<i>halli</i> .....	181	<i>inarmatus</i> .....	221	<i>laticoxa</i> .....	217
<i>Hamiger</i> .....	190	<i>incerta</i> .....	211	<i>latidactyla</i> .....	236
<i>hamiltoni</i> .....	197	<i>incertus</i> .....	180	<i>latimanus</i> .....	223
<i>Harpilius</i> .....	191	<i>index</i> .....	182	<i>Latreillia</i> .....	227
<i>haswelli</i> .....	244	<i>indica</i> .....	196	LATREILLIIDAE.....	173, 227
<i>hectori</i> .....	221	<i>indicus</i> .....	192, 196	<i>Latreillopsis</i> .....	226
<i>Helice</i> .....	247	<i>infirma</i> .....	185	<i>laurentae</i> .....	219
<i>helleri</i> .....	206, 245	<i>inflexa</i> .....	181	<i>lavauxi</i> .....	248
<i>Hemigrapsus</i> .....	248	<i>innominatus</i> .....	234	<i>Leander</i> .....	188, 190
<i>Hemipenaeus</i> .....	179	<i>insularum</i> .....	247, 248	<i>Lebbeus</i> .....	193
<i>Hemiplax</i> .....	248	<i>integrirostris</i> .....	210	<i>Leiogalathea</i> .....	213
<i>heraldica</i> .....	232	<i>Intesius</i> .....	231	<i>Leontocaris</i> .....	193
<i>hessii</i> .....	218	<i>investigatori</i> .....	180	<i>leptochelis</i> .....	244
<i>Heterocarpus</i> .....	195	<i>iridocarpus</i> .....	220	<i>Leptodius</i> .....	244
<i>Heterogenys</i> .....	186	<i>isochela</i> .....	201	<i>Leptograpsus</i> .....	245
<i>Heteropanope</i> .....	240	<i>isos</i> .....	212	<i>Leptomaia</i> .....	232
<i>Heteropilumnus</i> .....	240	<i>jacqueti</i> .....	196	<i>Leptomithrax</i> .....	237, 238, 239
<i>Heterozius</i> .....	228	<i>Jacquinotia</i> .....	237	<i>Leucifer</i> .....	181
<i>hiatus</i> .....	189	<i>jamsteci</i> .....	216	<i>Lewindromia</i> .....	224
<i>hilensis</i> .....	239	<i>janetae</i> .....	229	LEUCOSIIDAE.....	174, 231
<i>Hippolysmata</i> .....	194	<i>Janicella</i> .....	186	<i>lifuensis</i> .....	214
<i>Hippolyte</i> .....	193, 194	<i>japonica</i> .....	183, 243	<i>Liocarcinus</i> .....	240
HIPPOLYTIDAE.....	172, 192	<i>japonicus</i> .....	183, 187	<i>Liomera</i> .....	244
<i>hirsutus</i> .....	223	<i>Jasus</i> .....	202, 203, 204	LIOMERINAE.....	175, 244
<i>hirtella</i> .....	216	<i>Jaxea</i> .....	201, 202		

<i>Lipkius</i> .....	185, 188	<i>meridionalis</i> .....	230, 231	<i>nigrochrinitus</i> .....	244
<i>Lithodes</i> .....	215, 216	<i>Merocryptus</i> .....	232	<i>nitidus</i> .....	179
LITHODIDAE.....	173, 215	<i>Metacarcinus</i> .....	229	<i>niwa</i> .....	188
<i>lobatus</i> .....	230	<i>Metacrangon</i> .....	196	<i>nodulosus</i> .....	220
<i>longicheles</i> .....	209	<i>Metadromia</i> .....	224	<i>norfolcensis</i> .....	230
<i>longimanus</i> .....	237	<i>Metadynomene</i> .....	225	<i>norfolkae</i> .....	213
<i>longipes</i> .....	237	<i>Metanephrops</i> .....	198, 199	<i>notialis</i> .....	212, 238
<i>longirostris</i> .....	188, 189, 233	<i>Michelopagurus</i> .....	221	<i>Notomithrax</i> .....	195
<i>Lophactaea</i> .....	245	<i>microphthalma</i> .....	186	<i>Notopandalus</i> .....	195
<i>Lophopagurus</i> .....	219, 220	<i>microps</i> .....	215	<i>Notosceles</i> .....	225, 227
<i>lowryi</i> .....	198	<i>microspina</i> .....	228	<i>notosivado</i> .....	184
<i>Lucifer</i> .....	181	<i>Miersiella</i> .....	244	<i>Notostomus</i> .....	187
LUCIFERIDAE.....	171, 181	<i>Miersiograpsus</i> .....	246	<i>novaecaledoniae</i> .....	207
<i>lumpinus</i> .....	240	<i>minor</i> .....	238	<i>novaeollandiae</i> .....	202, 203
<i>lusca</i> .....	188	<i>minuta</i> .....	196	<i>novaezealandiae</i> .....	181, 190, 191, 194, 195, 200, 201, 202, 209, 229, 240
<i>Lybia</i> .....	244	<i>minutus</i> .....	246	<i>novaezeelandiae</i> .....	187
LYREIDINAE.....	173, 227	<i>moana</i> .....	194	<i>novaezeelandiae</i> .....	183, 200, 207, 215, 228, 229, 249
<i>Lyreidus</i> .....	227	<i>molleri</i> .....	241	<i>novizealandiae</i> .....	221
<i>Lysmata</i> .....	194	<i>mollis</i> .....	187	<i>novaezealandicus</i> .....	189
<i>macgillivrayi</i> .....	230	<i>momona</i> .....	233	<i>nudipes</i> .....	224
<i>macquariae</i> .....	216	<i>morelandi</i> .....	194	<i>oahuensis</i> .....	239
<i>Macrobrachium</i> .....	190	<i>mortenseni</i> .....	238	<i>obliquirostris</i> .....	181
MACROPHTHALMIDAE.....	175, 248	<i>mortensenii</i> .....	224	<i>occidentalis</i> .....	196
MACROPHTHALMINAE.....	175, 248	<i>multicolorata</i> .....	193	<i>Ocypode</i> .....	249
<i>Macrophthalmus</i> .....	248	<i>Munida</i> .....	211, 212	OCYPODIDAE.....	175, 249
MACROPIPIDAE.....	175, 242	MUNIDIDAE.....	173, 211	OCYPODINAE.....	175, 249
<i>Macropipus</i> .....	240, 241	<i>Munidopsis</i> .....	213, 214	<i>Ogyrides</i> .....	194
<i>macropus</i> .....	243	MUNIDOPSIDAE.....	173, 213	OGYRIDIDAE.....	172, 194
<i>madagascariensis</i> .....	181	<i>murrayi</i> .....	215	<i>Ommatocarcinus</i> .....	230
<i>magellanica</i> .....	194	<i>Mursia</i> .....	228	<i>Onconida</i> .....	212
<i>magnoculus</i> .....	195	<i>Myxtopagurus</i> .....	224	<i>Oncopagurus2</i> .....	222
MAJIDAE.....	174, 236	<i>nana</i> .....	206	OPLOPHORIDAE.....	172, 185
MAJINAE.....	174, 236	<i>nanus</i> .....	220	<i>Oplophorus</i> .....	187
<i>major</i> .....	246	<i>Nanocassiope</i> .....	245	<i>orientalis</i> .....	190, 192, 195, 226
<i>manazuruana</i> .....	239	<i>natator</i> .....	190	<i>ornatus</i> .....	190
<i>maori</i> .....	209, 240	<i>Nauticaris</i> .....	190, 194	<i>Ovalipes</i> .....	241
<i>maoria</i> .....	235	<i>Nautilocaris</i> .....	188	<i>Oxypleurodon</i> .....	232
<i>maorianus</i> .....	201	<i>Naxia</i> .....	236, 238	OZIIDAE.....	174, 230
<i>marginata</i> .....	214	NECRONECTINAE.....	175, 242	<i>Ozius</i> .....	230
<i>marginatus</i> .....	214	<i>Nectocarcinus</i> .....	242	<i>Pachycheles</i> .....	214
<i>marini</i> .....	211	NEMATOCARCINIDAE.....	172, 188	<i>Pachygrapsus</i> .....	246
<i>marinus</i> .....	246	<i>Nematocarcinus</i> .....	189	<i>pacifica</i> .....	184, 207
<i>marionis</i> .....	190, 194	<i>Neocallichirus</i> .....	201	<i>puia</i> .....	228
<i>marivenae</i> .....	230	<i>Neohymenicus</i> .....	235	PAGURIDAE.....	173, 218
<i>martia</i> .....	195	<i>Neolithodes</i> .....	208, 216	<i>Paguristes</i> .....	218
<i>Mathildella</i> .....	231	<i>Neommatocarcinus</i> .....	230	<i>Pagurixus</i> .....	221
MATHILDELLIDAE.....	174, 231	<i>Neopilumnoplax</i> .....	231	<i>Pagurodes</i> .....	221
<i>maunga</i> .....	214	NEPHROPIDAE.....	172, 178, 198	<i>Pagurojaquesia</i> .....	221
<i>mawsoni</i> .....	205	<i>Nephrops</i> .....	198	<i>Pagurus</i> .....	219, 220, 221, 222
<i>mclayi</i> .....	231	<i>Nephropsis</i> .....	198		
<i>Medaeops</i> .....	244	<i>Nepinnotheres</i> .....	249		
<i>meiringnaudei</i> .....	184	<i>ngatama</i> .....	248		
<i>Meningodora</i> .....	187	<i>nielbrucei</i> .....	211		
<i>Merhippolyte</i> .....	192, 194	<i>nieli</i> .....	231		

<i>pagurus</i> .....	229	<i>Pilodius</i> .....	244	<i>Pteropeltarion</i> .....	228
<i>paku</i> .....	229	<i>pilosoides</i> .....	197	<i>pubescens</i> .....	235
<i>Palaemon</i> .....	188, 190, 191, 194	<i>pilosus</i> .....	209, 218	<i>puia</i> .....	228
PALAEEMONIDAE .....	172, 190	PILUMNIDAE .....	174, 240	<i>pumicicola</i> .....	224
PALAEEMONINAE .....	172, 190	PILUMNINAE .....	174, 240	<i>pumilis</i> .....	220
PALICIDAE .....	174, 239	<i>pilumnooides</i> .....	225	<i>pusilla</i> .....	211
PALINURIDAE .....	173, 202	<i>Pilumnopeus</i> .....	240	<i>pusillus</i> .....	211
<i>pallidula</i> .....	249	<i>Pilumnus</i> .....	240	<i>pustulosus</i> .....	232
<i>palpalis</i> .....	192	<i>Pinnotheres</i> .....	249	<i>Pycnoplax</i> .....	230, 231
PANDALIDAE .....	172, 195	PINNOTHERIDAE .....	175, 249	<i>Pylocheles</i> .....	224
<i>Pandalus</i> .....	195	PINNOTHERINAE .....	175, 249	PYLOCHELIDAE .....	173, 224
<i>Panulirus</i> .....	203	PISINAE .....	174, 232	<i>Pyromaia</i> .....	236
<i>papanui</i> .....	214	<i>pisoides</i> .....	214	<i>quadrispinosa</i> .....	186
<i>paracrassior</i> .....	209	<i>Plagusia</i> .....	247	<i>quadrispinosus</i> .....	197
<i>Paragiopagurus</i> .....	223	PLAGUSIIDAE .....	175, 246	<i>quiquei</i> .....	213
<i>Paralomis</i> .....	216, 217	PLAGUSIINAE .....	175, 246	<i>quoianus</i> .....	190
<i>Paramithrax</i> .....	238	<i>planatus</i> .....	234	<i>ramusculus</i> .....	235
<i>Paramunida</i> .....	213	<i>Planes</i> .....	246	<i>Randallia</i> .....	232
<i>Paranephrops</i> .....	199, 200	<i>planifrons</i> .....	199, 200	RANINIDAE .....	173, 227
PARAPAGURIDAE .....	173, 222	<i>planissimum</i> .....	246	RANINOIDINAE .....	173, 227
<i>Parapagurus</i> .....	223	<i>Platylambrus</i> .....	239, 240	<i>ranunculus</i> .....	226
<i>Parapandalus</i> .....	195	<i>Platymaia</i> .....	235, 236	<i>rathbunae</i> .....	190
<i>Parapasiphae</i> .....	184	<i>Platypodia</i> .....	245	<i>raymondi</i> .....	209
<i>Parapontophilus</i> .....	196	<i>Plesionika</i> .....	195	<i>regalis</i> .....	198
PARASTACIDAE .....	172, 199	<i>Plesiopenaeus</i> .....	178, 179	<i>Rhachocaris</i> .....	198
<i>Paratya</i> .....	188	<i>politus</i> .....	209	<i>Rhynchocinetes</i> .....	189
<i>parkeri</i> .....	203	POLYBIINAE .....	174, 240	RHYNCHOCINETIDAE ...	172, 189
<i>Paromola</i> .....	226	<i>Polycheles</i> .....	206	<i>rhynchogonus</i> .....	217
PARTHENOPIDAE .....	174, 239	POLYCHELIDAE .....	173, 205	<i>richardsoni</i> .....	191, 192, 196, 236, 239
PARTHENOPINAE .....	174, 239	POLYDECTINAE .....	175, 244	<i>richeri</i> .....	223, 231
<i>parvus</i> .....	201, 238	<i>polymorpha</i> .....	221	<i>riversandersoni</i> .....	233
<i>Pasiphaea</i> .....	184	<i>Pontocaris</i> .....	196	<i>robertsoni</i> .....	216
PASIPHAEIDAE .....	172, 184	PONTONIINAE .....	172, 190	<i>Rochinia</i> .....	232, 233
<i>pelagica</i> .....	186	<i>Pontophilus</i> .....	196, 197	<i>rogeri</i> .....	207
<i>pelagicus</i> .....	224	<i>poorei</i> .....	217	<i>Romaleon</i> .....	229
<i>pellucida</i> .....	187	PORCELLANIDAE .....	173, 241	<i>rosenbergii</i> .....	190
PENAEIDAE .....	171, 180	<i>Porcellanopagurus</i> .....	222	<i>rostrata</i> .....	213
<i>Pentacheles</i> .....	205, 206	PORTUNIDAE .....	175, 242	<i>rotundifrons</i> .....	228
<i>pepeke</i> .....	225, 227	PORTUNINAE .....	175, 242	<i>rowdeni</i> .....	230
PERCNINAE .....	175, 246	<i>Portunus</i> .....	240, 242	<i>rubricatus</i> .....	219
<i>Percnon</i> .....	246	<i>potens</i> .....	182, 183	<i>rueppelli</i> .....	244
<i>Periclimenes</i> .....	190, 191	<i>Prionocrangon</i> .....	197	<i>rufescens</i> .....	215
<i>peronii</i> .....	238	<i>Prismatopus</i> .....	238, 239	<i>rugulosus</i> .....	189
<i>perplexus</i> .....	224	<i>proales</i> .....	214	<i>rutua</i> .....	209
<i>Petalomera</i> .....	224	<i>procera</i> .....	211	<i>Sagmariasus</i> .....	204
<i>Petrocheles</i> .....	214	<i>Processa</i> .....	194	<i>saintlaurentae</i> .....	188
<i>Petrolisthes</i> .....	214, 215	PROCESSIDAE .....	172, 194	<i>scambus</i> .....	210
<i>petrosus</i> .....	244	<i>producta</i> .....	233	<i>Schizophrorida</i> .....	239
<i>petterdi</i> .....	226	<i>Projasus</i> .....	203	<i>Schizophrys</i> .....	239
<i>Philocheras</i> .....	196, 197	<i>Propagurus</i> .....	222	<i>Sclerocrangon</i> .....	196
<i>phosphorus</i> .....	206	<i>proteus</i> .....	232	<i>sculpta</i> .....	198, 206
<i>Phylladorhynchus</i> .....	210, 211	<i>proximatus</i> .....	189	<i>sculptus</i> .....	206
<i>picta</i> .....	210	<i>Psathyrocaris</i> .....	185		
<i>pilgrimi</i> .....	224	<i>Pseudoliomera</i> .....	245		
<i>pilimanus</i> .....	246	<i>Pseudopalicus</i> .....	239		
		<i>psylla</i> .....	212		



<i>Scylla</i> .....	242	<i>stewarti</i> .....	194, 220	<i>Tutankhamen</i> .....	240
SCYLLARIDAE.....	173, 204	STYLODACTYLIDAE.....	172, 190	<i>typus</i> .....	181, 189
<i>Scyllarides</i> .....	204	<i>Stylodactyloides</i> .....	190	<i>undulatipes</i> .....	189
SCYLLARINAE.....	173, 205	<i>Stylodactylus</i> .....	190	<i>undulatus</i> .....	239
<i>Scyllarus</i> .....	205	<i>subpilosus</i> .....	218	<i>unidentata</i> .....	224
<i>semidentatus</i> .....	179	<i>subrugosa</i> .....	212	<i>Upogebia</i> .....	202
<i>semilaevis</i> .....	195	<i>submi</i> .....	198, 206	UPOGEBIIDAE.....	173, 202
<i>seminudus</i> .....	182	<i>sulcatifrons</i> .....	184	<i>Uroptychus</i> .....	207, 209, 210
<i>septata</i> .....	243	<i>surda</i> .....	206	<i>ursus</i> .....	238
<i>serenei</i> .....	244	<i>Sympagurus</i> .....	223	<i>valdiviae</i> .....	213
<i>Serenius</i> .....	245	<i>Systellaspis</i> .....	187	<i>validus</i> .....	206
<i>serenus</i> .....	190	<i>Tanaoa</i> .....	232	<i>variegatus</i> .....	245
<i>Sergestes</i> .....	181, 182, 183	<i>tanensis</i> .....	225	<i>varius</i> .....	234
SERGESTIDAE.....	171, 181	<i>tangeroa</i> .....	191	VARUNIDAE.....	175, 247
<i>Sergia</i> .....	182, 183	<i>tani</i> .....	240	VARUNINAE.....	175, 248
<i>serrata</i> .....	242	<i>tarda</i> .....	184, 185	<i>verreauxi</i> .....	204
<i>serratifrons</i> .....	240	<i>tasmaniae</i> .....	214	<i>vesca</i> .....	187
<i>serratus</i> .....	189	<i>Tasmanida</i> .....	213	<i>victoriae</i> .....	214
<i>serricornis</i> .....	214	<i>tenuicornis</i> .....	190	<i>victoriensis</i> .....	231
<i>setosus</i> .....	200, 218	<i>tenuimanus</i> .....	200	<i>vigila</i> .....	200
<i>sexdentatus</i> .....	248	<i>tenuiremis</i> .....	183	<i>villosa</i> .....	180
<i>sibogae</i> .....	181	<i>Teratomaia</i> .....	236, 239	<i>Virbius</i> .....	193
<i>sica</i> .....	186	<i>Thacanophrys</i> .....	238, 239	<i>Vitjazmaia</i> .....	236
<i>Sicyonia</i> .....	181	<i>Thalamita</i> .....	243	<i>vittata</i> .....	194
SICYONIIDAE.....	171, 181	THALAMITINAE.....	175, 243	<i>vulgaris</i> .....	199
<i>sinuatus</i> .....	222	<i>Thalassocaris</i> .....	195	VULCANOCALLIACINAE.....	172, 201
<i>sivado</i> .....	184	<i>thermalis</i> .....	210	<i>Vulcanocalliax</i> .....	201
<i>smithi</i> .....	186	<i>thompsoni</i> .....	220	<i>wanganella</i> .....	232
<i>socialis</i> .....	192	<i>thomsoni</i> .....	198	<i>webberi</i> .....	189, 210, 217, 232
<i>Solenocera</i> .....	181	<i>Thyraplax</i> .....	231	<i>wera</i> .....	193
SOLENOCERIDAE.....	171, 181	<i>tinayrei</i> .....	180	<i>werribee</i> .....	200
<i>sphaerogonus</i> .....	217	<i>toka</i> .....	210	<i>westergreni</i> .....	187
<i>spinicarpus</i> .....	218	<i>tomentosus</i> .....	210	<i>whitei</i> .....	234
<i>spinicauda</i> .....	186	<i>tongi</i> .....	234	<i>Willemoesia</i> .....	206, 207
<i>spinicruris</i> .....	212	<i>torbeni</i> .....	200	<i>wilsoni</i> .....	224, 225
<i>spinifrons</i> .....	192	<i>Tozeuma</i> .....	194	<i>woodwardi</i> .....	180
<i>spinimana</i> .....	226	<i>Trapezia</i> .....	243	<i>wyvillethomsoni</i> .....	236
<i>spinimanus</i> .....	226	TRAPEZIIDAE.....	175, 243	<i>Xanthias</i> .....	245
<i>spinimarginatus</i> .....	207	TRAPEZIINAE.....	175, 243	XANTHIDAE.....	175, 244
<i>spinipes</i> .....	195	<i>traversi</i> .....	222	XANTHINAE.....	175, 244
<i>spinirostris</i> .....	210	<i>treis</i> .....	214	<i>Xantho</i> .....	244
<i>spinosa</i> .....	238	<i>Trichopeltarion</i> .....	228, 229	<i>Xanthodes</i> .....	245
<i>spinosus</i> .....	187, 214, 224, 238	<i>Trichoplatus</i> .....	236	XENOGRAPSIDAE.....	175, 248
<i>spinulata</i> .....	226	<i>tridentatus</i> .....	222, 227	<i>Xenograpsus</i> .....	248
<i>spinulimanus</i> .....	219	<i>triserratus</i> .....	220	<i>Xiphocaridina</i> .....	188
SPONGICOLIDAE.....	171, 183	<i>trisetacea</i> .....	194	<i>Xiphocaris</i> .....	188
<i>Spongicoloides</i> .....	183	<i>trispinosus</i> .....	191	<i>yaldwyni</i> .....	183, 189, 191, 193, 197, 210, 218, 242, 244
<i>Spongioaxius</i> .....	200	<i>Trizocheles</i> .....	224	<i>Yaldwynopsis</i> .....	226
<i>Spongiocaris</i> .....	183	<i>truncata</i> .....	181, 231		
<i>squamosa</i> .....	211, 247	<i>truncatus</i> .....	230		
<i>staplesi</i> .....	217	<i>tuberculata</i> .....	232, 236, 247		
STENOPODIDAE.....	171, 183	<i>tuberculatus</i> .....	238		
<i>Stenopus</i> .....	183, 184	<i>tuberculosa</i> .....	231		
<i>Stereomastis</i> .....	206	<i>Tumidodromia</i> .....	225		

<i>yarramundi</i> .....	193
ZALASIINAE.....	175, 245
<i>zealandica</i> .....	217
<i>zealandicus</i> .....	189, 200
<i>zebra</i> .....	212
ZOSIMINAE .....	175, 245