

## New rock crab records (Crustacea: Brachyura: Xanthidae) from Christmas and Cocos (Keeling) Islands, Eastern Indian Ocean

Jose Christopher E. Mendoza<sup>1\*</sup>, Robert M. Lasley Jr.<sup>1</sup> & Peter K. L. Ng<sup>1,2</sup>

**Abstract.** The xanthid crab fauna of Christmas Island and the Cocos (Keeling) Islands, Australian territories in the Indian Ocean, is documented. A total of 107 species of xanthid crabs are recorded, with 30 new species records from either or both territories. Two potentially new species are included in this listing, and the taxonomy of *Paractaea rufopunctata plumosa* Guinot, in Sakai, 1976, and *Leptodius planus* Ward, 1934, is discussed.

**Key words.** Christmas Island, Cocos (Keeling) Islands, Decapoda, Xanthidae, checklist, species distribution

### INTRODUCTION

The brachyuran fauna of Christmas Island (CI) and the Cocos (Keeling) Islands (CK) has been documented by previous workers since the early 20<sup>th</sup> century (Calman, 1909; Wood Jones, 1909; Balss, 1934; Ward, 1934; Tweedie, 1947, 1950; George, 1978; Morgan, 2000; Davie, 2002; Orchard, 2012). Collections from the recent expeditions to those islands by the Raffles Museum of Biodiversity Research and the Queensland Museum, with support from the Christmas Island National Park and the relevant Australian authorities, have made it possible to review this fauna. The present work focuses on the xanthid crabs of these islands and provides an updated checklist. The relevant literature containing species records from Christmas Island and the Cocos (Keeling) Islands as well as station records from the recent expeditions to those islands in the years 2010–2012 are summarised in Table 1 for easy reference.

A total of 107 species comprise the combined xanthid crab fauna (Xanthidae sensu Ng et al., 2008) of Christmas (83 spp.) and the Cocos (Keeling) (59 spp.) islands, both Australian territories in the eastern Indian Ocean (Table 1). Of these, 30 are newly recorded from either or both territories (CI = 23 spp.; CK = 11 spp.; CI+CK = 4 spp.); with at least two species new to science, to be described elsewhere. All the xanthid subfamilies except Antrocarcininae Ng & Chia, 1994, Garthiellinae Mendoza & Manuel-Santos, 2012, Glyptoxanthinae Mendoza & Guinot, 2011, and Trichiinae De Haan, 1841 (=Zalasiinae Serène, 1968) are represented.

All material examined are deposited in the Zoological Reference Collection (ZRC) of the Lee Kong Chian Natural History Museum (formerly Raffles Museum of Biodiversity Research), National University of Singapore. Measurements are shown as maximum carapace width (CW) by median carapace length (CL), in millimeters. The following abbreviations are used: coll. – collected by; det. – determined by; I./Is. – island/islands, respectively; juv. – juvenile; ovig. – ovigerous; and stn – station. Terminology of the carapace regions follows Serène (1984). Only new records and those species requiring further comment are treated in the systematic account. Synonymies are restricted to records from Christmas & Cocos (Keeling) islands only, if available. Where possible, colour photographs of whole animals are provided if the live colouration is not known for that species. Illustrations of the G1 are also provided for those species where the G1 morphology is not, or poorly, known.

A necessary note on the station names used in the material examined listing in this paper: for simplicity and uniformity, we have opted to use the alpha numeric codes beginning with “CI1”, “CI2”, and “CI3” to denote Christmas Island stations for the three consecutive trips in 2010, 2011, and 2012, respectively. Likewise, “CK1” and “CK2” are used for Cocos (Keeling) stations for the years 2011 and 2012, respectively. Field labels accompanying the actual specimens may vary only in the year-related station prefix, but not the actual number (e.g., the field label accompanying a specimen from stn CI2-09, may have been written as “CI-09-2011”, that is, station #09 in Christmas Island, collected in the year 2011). A detailed account of the stations is provided elsewhere in this special issue (see Tan et al., 2014).

<sup>1</sup>Department of Biological Sciences, Faculty of Science, National University of Singapore, 14 Science Drive 4, 117543 Singapore; Email: jcmendoza@nus.edu.sg (\*corresponding author JCEM)

<sup>2</sup>Lee Kong Chian Natural History Museum, Faculty of Science National University of Singapore, 6 Science Drive 2, 117546 Singapore

## SYSTEMATIC ACCOUNT

## Superfamily XANTHOIDEA MacLeay, 1838

## Family XANTHIDAE MacLeay, 1838

## Subfamily ACTAEINAE Alcock, 1898

*Actaeodes tomentosus* (H. Milne-Edwards, 1834)

*Actaea tomentosa*, Calman, 1909: 705; Ward, 1934: 19; Tweedie, 1947: 27

*Actaeodes tomentosus*, Morgan, 2000: 121 (table); Davie, 2002: 513

**Material examined. Cocos (Keeling) Is.:** 1 ♂, 31.5 × 19.2 mm (ZRC), stn CK1-02.

**Remarks.** This species is widespread throughout the Indo-West Pacific region (viz. Serène, 1984) and has been reported from Christmas Island (Calman, 1909; Ward, 1934; Morgan, 2000).

New CK record.

*Gaillardiiellus rueppelli* (Krauss, 1843)

(Fig. 1A)

**Material examined. Cocos (Keeling) Is.:** 1 ♀, 20.1 × 14.6 mm (ZRC), stn CK2-09.

**Remarks.** This species, first described from Natal, South Africa (Krauss, 1843), is widespread throughout the Indo-West Pacific region (Guinot, 1976). A related species, *G. superciliaris*, was recorded by Tweedie (1950) from the Cocos (Keeling) Islands, but the present specimen can be confidently excluded from that taxon. Serène's (1984) key to the genus separates it from species such as *G. superciliaris* (Odhner, 1925) and *G. alphonsi* (Nobili, 1905) by the presence of 4 (instead of 3) lobes on the anterolateral margin of the carapace after the exorbital angle and the lack of subdivision of the 3M region of the carapace. Furthermore, the present specimen has relatively sparser and shorter setae on the carapace and pereopods compared to *G. superciliaris* (cf. Guinot, 1976: pl. 16 fig. 3). The present specimen can also be distinguished from the similar *G. orientalis* (Odhner, 1925) by the morphological features of the carapace such as the broad furrows separating the carapace regions, presence of fewer and smaller granules, and absence of tufts of plumose granules on any of the dorsal carapace regions (versus narrower furrows, bigger and compacted granules, and presence of tufts of plumose setae on 1M, 2M in *G. orientalis*; viz. Serène, 1984).

New CK record.

*Paractaea plumosa* Guinot, in Sakai, 1976

(Fig. 1B)

**Material examined. Christmas I.:** 1 ♀, 22.9 × 15.2 mm (ZRC), stn CI1-D02; 1 ♀, 22.1 × 15.0 mm (ZRC), stn CI2-D03(091); 1 ♀, 13.7 × 9.5 mm (ZRC), stn CI2-D15(171).

**Remarks.** Guinot (1969) recognised and described seven subgroups within *Paractaea rufopunctata* (H. Milne-Edwards, 1834), including the nominal subspecies, *P. rufopunctata rufopunctata* (type locality: Mauritius), based on the setation and sculpturing of the dorsal carapace regions, as well as on their geographic distribution. The other six were named as "formes", viz. *P. rufopunctata* forme *illusoria* (Red Sea), *P. rufopunctata* forme *plumosa* (Pacific), *P. rufopunctata* forme *primarathbunae* (Hawaii), *P. rufopunctata* forme *tertiarathbunae* (Hawaii), *P. rufopunctata* forme *intermedia* (Bikini Atoll, Hawaii), *P. rufopunctata* forme *africana* (eastern Atlantic) and *P. rufopunctata* forme *nodosa* (western Atlantic), the last originally described by Stimpson (1860) as *Actaea nodosa*. Serène (1984) also recognised and described three additional "formes" from the western Indian Ocean, namely: *P. rufopunctata* forme *frontalis*, *P. rufopunctata* forme *walteri* and *P. rufopunctata* forme *sanctaeluciaae*. Two of these "formes" were eventually recognised and formally designated as subspecies – *P. rufopunctata plumosa* Guinot, in Sakai, 1976, and *P. rufopunctata africana* Guinot, 1976.

Ng et al. (2008: 195, 196, 207) considered most of the forms of *P. rufopunctata* as unavailable names, citing Article 10.2 of the International Code for Zoological Nomenclature, with the exception of *P. nodosa* (Stimpson, 1860) which they raised to full species, and *P. rufopunctata plumosa* and *P. rufopunctata africana*, which they considered valid subspecies. Both subspecies are here recognised as full species on account of the clear morphological distinctions between them and the typical *P. rufopunctata* (viz. Guinot, 1969, 1976; Serène, 1984).

*Paractaea plumosa* has been reported from Japan, Kiribati, Tuvalu, Marutea, the Nicobars, and Madagascar (Guinot, 1969; Serène, 1984). The present specimens, all females, match well with the description by Guinot (1969: 248, fig. 21) and Serène (1984: 124, pl. 26 fig. C), particularly in the carapace having four anterolateral teeth apart from the exorbital angle, a heart-shaped 5L areole, an undivided 1P, and abundant tufts of long setae on the dorsal surface as well as on the ambulatory legs.

New CI record.

*Pseudoliomera lata* (Borradaile, 1902)

(Fig. 1C)

*Actaea lata*, Balss, 1934: 226

*Pseudoliomera lata*, Morgan, 2000: 121 (table)

**Material examined. Christmas I.:** 1 ♀, 9.4 × 6.0 mm (ZRC), stn CI3-17(085).

**Remarks.** This species was first described from the Maldives by Borradaile (1902), and has since been recorded also from Japan (Serène, 1984). *Pseudoliomera lata* was listed by Balss (1934) and Morgan (2000) as occurring in Christmas Island, but was not illustrated or discussed. The present specimen agrees well with the key to the genus by Serène (1984), particularly in the areolation of the carapace and the



Fig. 1. Live colouration. A, *Gaillardiiellus rueppellii* (Krauss, 1843), 1 ♀, 20.1 × 14.6 mm (ZRC), stn CK2-09; B, *Paractaea plumosa* Guinot, in Sakai, 1976, 1 ♀, 22.1 × 15.0 mm (ZRC), stn CI2-D03(091); C, *Pseudoliomera lata* (Borradaile, 1902), 1 ♀, 9.4 × 6.0 mm (ZRC), stn CI3-17(085); D, *Pseudoliomera violacea* (A. Milne-Edwards, 1873), 1 ovig. ♀, 18.5 × 12.5 mm (ZRC), stn CI3-D05; E, *Chlorodiella cytherea* (Dana, 1852), 1 ♂, 12.7 × 8.0 mm (ZRC, RL 17), stn CI3-17(087); F, *Cyclodius drachi* (Guinot, 1964), 1 ♂, 9.8 × 6.6 mm (ZRC, RL 25), stn CI2-D03.

presence of a comb-like row of stiff setae on the dactylus of the first ambulatory leg.

***Pseudoliomera violacea* (A. Milne-Edwards, 1873)**

(Fig. 1D)

**Material examined. Christmas I:** 1 ♂, crushed carapace, not measured (ZRC), stn CI2-D17; 1 ovig. ♀, 18.5 × 12.5 mm (ZRC), stn CI3-D05.

**Remarks.** This rarely encountered species was first described as *Lophactaea violacea* by A. Milne-Edwards (1873), from specimens from New Caledonia. It has since been recorded by Buitendijk (1941) from Ambon, Indonesia. There have been no subsequent records of this species elsewhere. *Pseudoliomera violacea* is separated from other congeners by its purplish colouration, the cristate anterolateral margins of the carapace, and the wide, setae-filled, furrows between the dorsal carapace regions (cf. Serène, 1984).

New CI record.

**Subfamily CHLORODIELLINEAE Ng & Holthuis, 2007**

***Chlorodiella cytherea* Dana, 1852**

(Fig. 1E)

**Material examined. Christmas I:** 1 ♂, 8.8 × 5.7 mm (ZRC, RL 2) stn CI2-17; 2 ♀, 10.5 × 6.3 mm – 8.4 × 5.3 mm (ZRC, RL 4), stn CI1-31; 4 ♂, 11.1 × 6.9 mm – 10.3 × 6.3 mm, 1 ♀, 10.5 × 6.2 mm (ZRC, RL 5), stn CI2-22; 2 ♂, 8.2 × 5.2 mm – 6.8 × 4.3 mm, 2 ♀, 6.7 × 4.2 mm – 5.2 × 3.4 mm (ZRC, RL 6), stn CI2-17; 1 ♂, 4.8 × 3.1 (ZRC, RL 7), stn CI1-31; 1 ♂, 7.0 × 4.8 mm (ZRC, RL 8), stn CI2-09; 1 ovig. ♀, 8.3 × 5.0 mm (ZRC, RL 9), stn CI1-03; 1 ♂, 8.3 × 5.1 mm, 1 ♀, 8.1 × 4.9 mm (ZRC, RL 10), stn CI3-25; 1 ♀, 7.7 × 4.8 mm (ZRC, RL 12), stn CI3-17; 2 ♂, 9.1 × 5.8 mm – 9.5 × 6.3 mm, 1 ♀, 6.0 × 3.8 mm (ZRC, RL 13), stn CI3-14; 1 ♂, 8.2 × 5.1 mm (ZRC, RL 14), stn CI3-15; 1 ♀, 8.1 × 4.9 mm (ZRC, RL 15), stn CI3-14; 1 ♂, 9.3 × 6.2 mm (ZRC, RL 16), stn CI3-14; 1 ♂, 12.7 × 8.0 mm (ZRC, RL 17), stn CI3-17; 1 ♀, 4.1 × 2.7 mm (ZRC, RL 18), stn CI3-13; 2 ♂, 7.2 × 4.5 mm – 7.2 × 4.4 mm, 1 ♀, 9.1 × 5.9 mm (ZRC, RL 19), stn CI3-16; 1 ♂, 5.8 × 3.7 mm, 1 ♀, 8.1 × 5.2 mm (ZRC, RL 21), stn CI3-17; 3 ♂, 4.3 × 2.7 – 10.2 × 6.2 mm, 2 ♀, 6.8 × 4.3 – 7.6 × 5.0 (ZRC, RL 23), stn CI3-15; 5 ♂, 5.7 × 3.6 mm – 10.0 × 6.0 mm, 5 ♀, 6.3 × 3.7 mm – 7.9 × 4.9 mm (ZRC), stn CI3-23.

**Cocos (Keeling) Is.:** 1 ♂, 12.0 × 7.4 mm (ZRC, RL 1), stn CK1-08; 1 ♂, 6.9 × 4.4 mm, 1 ♀, 5.5 × 3.4 mm (ZRC, RL 3) stn CK1-08; 1 ♂, 11.5 × 7.1 mm (ZRC, RL 11), stn CK2-21; 1 ♂, 5.0 × 3.1 mm, 1 ♀, 8.8 × 5.6 (ZRC, RL 20), stn CK2-21; 5 ♂, 9.0 × 5.6 mm – 11.3 × 7.0 mm, 2 ♀, 8.0 × 5.1 mm – 9.8 × 6.0 mm (ZRC, RL 22), stn CK2-21.

**Remarks.** *Chlorodiella cytherea* was described by Dana (1852) from Tuamotu Archipelago, Tahiti and the Hawaiian

Islands, and has subsequently been reported from the Hawaiian Islands to Madagascar. In external morphology, *C. cytherea* is almost indistinguishable from *C. davaoensis* Ward, 1941 and *C. crispileopa* Dai, Yang, Song & Chen, 1986. Dai et al. (1986: 342) provided a table of the distinguishing features of *C. crispileopa* and *C. cytherea*: i.e., carapace, front, second anterolateral tooth, and G1. However, examination of the extensive collection of this species from Christmas Island indicates that these features are variable. Even the G1, which is useful for identification of other chlorodielline species, varies from the distally “curled” *C. crispileopa* form (e.g. RL 1) (Dai & Yang, 1991: 341, fig. 169(1)) to the distally “hook-shaped” *C. cytherea* form (e.g., RL 6, RL 17) (Dai & Yang, 1991: 341, fig. 169(4)). A G1 figure of *C. davaoensis* was not provided by Ward (1941) or since the original description. It is unclear whether these three species are distinct. Examination of the type specimens and material from the type localities is necessary to resolve this problem, and a systematic revision of this species complex and the Chlorodiellinae is being undertaken (RML & PKLN, in prep.). For the moment, the earliest name, *C. cytherea*, is attributed to the specimens reported here as they fit the original description of Dana (1852).

New CI, CK record.

***Cyclodius drachi* (Guinot, 1964)**

(Fig. 1F)

**Material examined. Christmas I:** 1 ♂, 9.8 × 6.6 mm (ZRC 2013.1630), stn CI2-D03.

**Remarks.** This relatively rare chlorodielline species was described from Madagascar and recorded from the Red Sea by Guinot (1964). It has subsequently been reported from Kenya, Mayotte and the Paracel (Xisha) Islands (Serène, 1984; Dai et al., 1986). *Cyclodius drachi* is most similar to *C. nitidus*, especially with respect to carapace morphology. Both are relatively wide and smooth, and have regions defined by deep areolas, making identification difficult. Beyond these features, several authors have differentiated between them based on carapace granulation, division of 2M, granulation of the chelipeds (especially in females), and the shape of the male abdomen (Guinot, 1964; Serène, 1984; Dai et al., 1986). However, these characters are variable in *C. drachi* or difficult to discern, making examination of the male gonopod necessary for accurate identification. The G1 of *C. drachi* is adorned distally with long, plumose setae and has a spatulate tip (versus long, simple setae and a tubular tip in *C. nitidus*) (Serène, 1984: figs. 47, 50). The individual collected from Christmas Island is small and has an underdeveloped G1. Its identity was verified via a comparison of the barcoding region of the mitochondrial gene, COI, between our specimen and several large adults from various localities (RML, unpublished data).

New CI record.

***Pilodius flavus* Rathbun, 1894**

**Material examined. Christmas I.:** 1 ♂, 9.4 × 6.4 mm (ZRC, RL 24), stn CII-D17.

**Remarks.** As presently defined, *Pilodius flavus* (type locality: Hawaiian Islands) has a widespread distribution from the Hawaiian Islands to Madagascar, although it has not been reported from the Red Sea. Clark & Galil (1993) synonymised *Chlorodopsis hawaiiensis* Edmondson, 1962 and *C. melanospinis* Rathbun, 1911, with *P. flavus*, after examining a large series of specimens including types of *P. flavus* and *C. melanospinis*, and material identified by Edmondson (1962) as *C. hawaiiensis*. They concluded that the external morphological differences between *P. flavus* and *C. melanospinis* “appear to be just variation” and stated that the G1s are identical (Clark & Galil, 1993: 1132). The authors did not elaborate on their decision to synonymise *C. melanospinis* under *P. flavus* beyond stating that material identified as *C. hawaiiensis* by Edmondson (1962) “proved to be *P. flavus*.” However, Edmondson’s (1962: 225–226 figs. 21e, 22b) illustrations of the G1s of *P. flavus* and *C. hawaiiensis*, although simplistic, differ from the G1 illustrated by Clark & Galil (1993: 1164, fig. 4D–G). Close scrutiny of numerous specimens indicates there are indeed different G1 morphologies (RML, pers. obs.). Furthermore, COI sequence data from a widespread sample of specimens indicates two divergent “*P. flavus*” clades (RML, unpublished data). There are likely two, or possibly three, species lumped in *P. flavus*. Re-examination of the types and other material examined by these authors is necessary to stabilise the taxonomy of the group and re-determine distributions. The one specimen recorded here from Christmas Island has a G1 like that illustrated by Edmondson (1962: 226, fig. 22b) as *P. flavus*.

New CI record.

**Subfamily CYMOINAE Alcock, 1898*****Cymo andreossi* (Audouin, 1826)**

*Cymo andreossi*, Tweedie, 1950: 123

**Material examined. Christmas I.:** 1 ♂, 6.3 × 5.4 mm, detached carapace (ZRC), stn CI3-16.

**Remarks.** *Cymo andreossi* (type locality: Red Sea) has a wide distribution and has been recorded in the South Africa, Japan, Australia, and the Pacific and Western Indian oceans (Serène, 1984). The present specimen, although partially damaged, agrees well with the key and illustrations in Serène (1984: 32, fig. 7, pl. 2 fig. C). It can be distinguished from the similar *C. melanodactylus* De Haan, 1833, by the entirely white fingers on both chelae and by the form of the G1 (cf. Serène, 1984: fig. 8, pl. 2 fig. B). This species was previously recorded by Tweedie (1950) from the Cocos (Keeling) Is.

New CI record.

***Cymo cerasma* Morgan, 1990**

(Figs. 2A, 6C, D)

**Material examined. Christmas I.:** 1 ♂, 10.6 × 9.6 mm (ZRC), stn CII-D04 (w/ colour photo).

**Cocos (Keeling) Is.:** 1 ♂, 9.6 × 8.6 mm, 2 ♀, 7.5 × 7.0 mm, 11.8 × 10.6 mm (ZRC), CK1-08 (♂ w/ colour photo).

**Remarks.** This species was described by Morgan (1990: 43, fig. 5) from northwestern Australia, and was also mentioned by the same author to be present in Madang, Papua New Guinea although no specimens from there was expressly included among the material examined. The present specimens have the G1 morphology (Fig. 6C, D) typical of the species (cf. Morgan, 1990: fig. 5i, j). Some variation, however, was noted between the CI and CK forms. While the CI specimen agrees well with the illustration and description by Morgan (1990), the CK specimens appear to be more spinose on the carapace, chelipeds and ambulatory legs. Furthermore, the CK specimens are similar to *C. andreossi* except for the G1 morphology and that the fingers of chelae are pigmented, not white (but pigment does not extend into palm in the male, as in *C. melanodactylus*).

New CI, CK record.

***Cymo quadrilobatus* Miers, 1884**

(Fig. 2B)

*Cymo quadrilobatus*, Tweedie, 1950: 123; Davie, 2002: 528

**Material examined. Christmas I.:** 1 ♂, 12.2 × 11.4 mm (ZRC) stn CII-D14(126); 1 ♂, 16.7 × 15.5 mm (ZRC), stn CII-D17(165); 1 ♀, 17.8 × 16.5 mm (ZRC) stn CII-D17(164); 4 ovig. ♀, 12.7 × 11.5 mm – 17.5 × 16.0 mm (ZRC), stn CII-D18/19.

**Cocos (Keeling) Is.:** 2 ♀, 8.8 × 8.6 mm, 11.7 × 11.3 mm (ZRC), stn CK2-12.

**Remarks.** This species was originally described from the Red Sea (Miers, 1884), and has been reported from several localities in the Indo-West Pacific region (viz. Serène, 1984). It was previously reported by Tweedie (1950) from the Cocos (Keeling) Is.

New CI record.

**Subfamily ETISINAE Ortmann, 1893*****Etisus demani* Odhner, 1925**

(Figs. 2C, 6E)

*Etisus demani*, Tweedie, 1947: 31; Morgan, 2000: 122 (table); Davie, 2002: 530

**Material examined. Christmas I.:** 1 ♂, 8.5 × 6.1 mm (ZRC), stn CI2-22; 1 ♂, 22.0 × 14.6 mm (ZRC), 1 ♂, 28.5 × 18.9, 2 ♀, 11.8 × 8.2 mm, 17.5 × 12.0 mm (ZRC) stn CI3-16.

**Cocos (Keeling) Is.:** 1 ♂, 15.7 × 10.6 mm (ZRC), stn CK1-18.

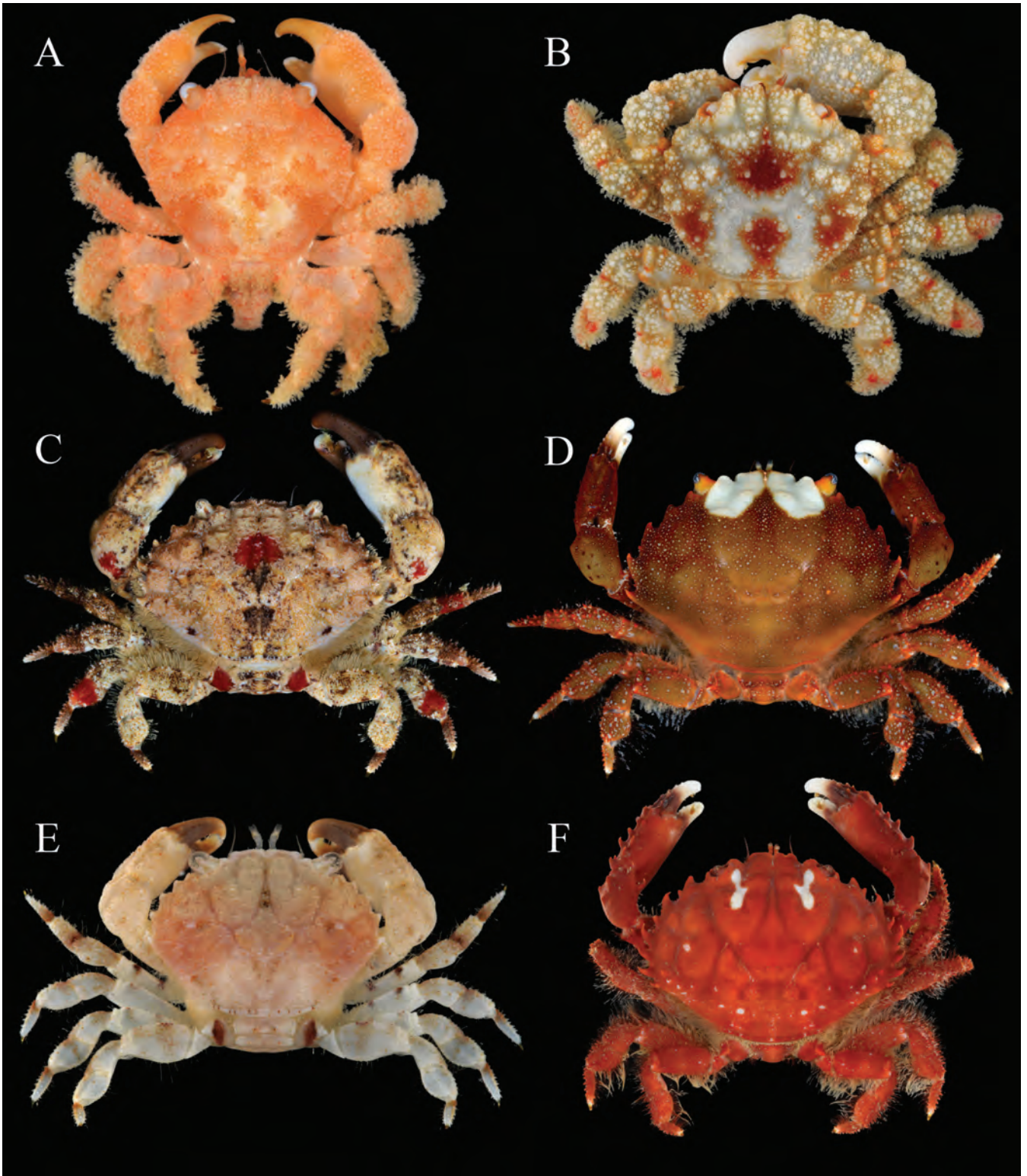


Fig. 2. Live colouration. A, *Cymo cerasma* Morgan, 1990, 1 ♂, 10.6 × 9.6 mm (ZRC), stn CI1-D04; B, *Cymo quadrilobatus* Miers, 1884, 1 ♂, 16.7 × 15.5 mm (ZRC), stn CI1-D17(165); C, *Etisus demani* Odhner, 1925, 1 ♂, 28.5 × 18.9 (ZRC) stn CI3-16(071); D, *Etisus dentatus* (Herbst, 1785), 1 juv. ♂, 19.4 × 14.4 mm (ZRC), stn CI3-16(072); E, *Etisus odhneri* Takeda, 1971, 1 ♂, 11.2 × 8.0 mm (ZRC), stn CI1-D17(158); F, *Etisus splendidus* Rathbun, 1906, 1 ♀, 45.8 × 32.7 mm (ZRC), stn CI1-D17(169).

**Remarks.** This species, originally described from Samoa (see Odhner, 1925), has been previously reported from Christmas Island (Tweedie, 1947; Morgan, 2000). It is a wide-ranging species, having been recorded from the Red Sea and the western Indian Ocean to the Hawaiian Islands and the Tuamotus. The present specimens are from Christmas and the Cocos (Keeling) islands. The G1 of the CI and CK specimens (Fig. 6E) is similar in morphology to that illustrated for *E. demani* by Takeda (1971: fig. 3C, D), based on a specimen of unspecified provenance, originally deposited at the Zoological Laboratory, Kyushu University (now transferred to the Kitakyushu Museum of Natural History & Human History). The very slender tip of the G1 has a long apical lobe, where the free border is lined with small, T-shaped evaginations. In contrast, the G1 illustrated by Serène (1984: fig. 140), based on a specimen from Madagascar, has a much shorter apical lobe, without the T-shaped evaginations on the border (which is entire instead).

New CK record.

***Etisus dentatus* (Herbst, 1785)**

(Fig. 2D)

*Etisus dentatus*, Tweedie, 1950: 120; Davie, 2002: 530

**Material examined. Christmas I:** 1 ♂, 72.0 × 49.6 mm (ZRC), stn CI3-14(028); 1 ♂, 57.3 × 40.4 mm (ZRC), stn CI3-14; 1 juv. ♂, 19.4 × 14.4 mm (ZRC), stn CI3-16(072). **Cocos (Keeling) Is.:** 1 juv. ♂, 26.3 × 18.9 mm (ZRC), stn CK2-21.

**Remarks.** *Etisus dentatus* is a widespread Indo-Pacific species, occurring from the Red Sea and western Indian Ocean all the way to the Hawaiian Islands (Serène, 1984). It belongs to that subgroup of *Etisus* spp. that are large with a smooth, reddish carapace and distinct, curved teeth, interspersed with smaller teeth, on the carapace anterolateral margin, and with spinous ambulatory propodi and dactyli. This species was previously recorded by Tweedie (1950) from the Cocos (Keeling) Islands. The juvenile form is figured here (Fig. 2D).

New CI record.

***Etisus frontalis* Dana, 1852**

(Fig. 6A)

**Material examined. Cocos (Keeling) Is.:** 1 ♀, 8.2 × 5.8 mm (ZRC), stn CK1-18.

**Remarks.** This species was originally described from the Sulu Archipelago in the Philippines (Dana, 1852) and has also been recorded with certainty from Aldabra and Hikueru (Tuamotu Archipelago) (Guinot, 1964; Serène, 1984). The sole specimen reported here (Fig. 6A), a female, can be distinguished from the similar (and co-occurring) *E. electra* mainly by the less distinctly quadridentate front, and also by having the mesial and lateral teeth of the frontal lobes more level (versus strongly quadridentate, mesial teeth more

advanced than lateral in *E. electra*). The present specimen agrees well with illustrations by Guinot (1964: fig. 23, pl. 5 fig. 2) and Serène (1984: pl. 31 fig. E). Also, Guinot (1964) provided additional characters in the carapace supraorbital margin, chelipeds, and G1 that can be used to differentiate the two species.

New CK record.

***Etisus odhneri* Takeda, 1971**

(Figs. 2E, 6F)

**Material examined. Christmas Is:** 1 ♂, 11.2 × 8.0 mm (ZRC), stn CI1-D17(158); 1 ♂, 10.4 × 7.4 mm (ZRC), stn CI1-D17(160); 1 ♀, 7.0 × 5.1 mm (ZRC), stn CI2-D12.

**Cocos (Keeling) Is.:** 1 ♂, 12.5 × 8.8 mm (ZRC), stn CK2-03.

**Remarks.** This species was described from Palau by Takeda (1971), and has also been reported from coast of Kenya (Serène, 1984). It can be distinguished from the similar *E. demani* by the less prominent dorsal carapace areolae, the absence of prominent intercalating denticles between the teeth of the anterolateral margins of the carapace, and by the G1 morphology (see Fig. 6F).

New CI, CK record.

***Etisus splendidus* Rathbun, 1906**

(Fig. 2F)

**Material examined. Christmas I:** 1 ♀, 45.8 × 32.7 mm (ZRC), stn CI1-D17(169).

**Remarks.** This large species was first described from the Hawaiian Islands by Rathbun (1906) and has been recorded throughout the Indo-West Pacific region from the Red Sea to the central Pacific Islands (Serène, 1984). It can readily be distinguished from the similar *E. dentatus* by the presence of a low double-crest, bearing low, blunt spines, on the superior margin of the cheliped palm, and the presence of two (not one), subequal spines on the inner angle of the cheliped carpus.

New CI record.

**Subfamily EUXANTHINAE Alcock, 1898**

***Euxanthus* aff. *exsculptus***

*Euxanthus exsculptus*, Tweedie, 1950: 115, fig. 2a; Davie, 2002: 543 (in part). Not *Cancer exsculptus* Herbst, 1790

**Material examined. Cocos (Keeling) Is.:** 5 ♂, 35.5 × 23.6 mm – 52.2 × 34.0 mm, 3 ♀, 31.9 × 21.1 – 51.6 × 34.2 mm (ZRC 1965.11.9.34-41), Pulo Cheplok, coll. C. Gibson-Hill, 1941, Balss det. as *E. exsculptus*.

**Remarks.** This species was not collected during the three recent expeditions (2010–2012) but was recorded from Cocos (Keeling) Is. by Tweedie (1950) as *Euxanthus*

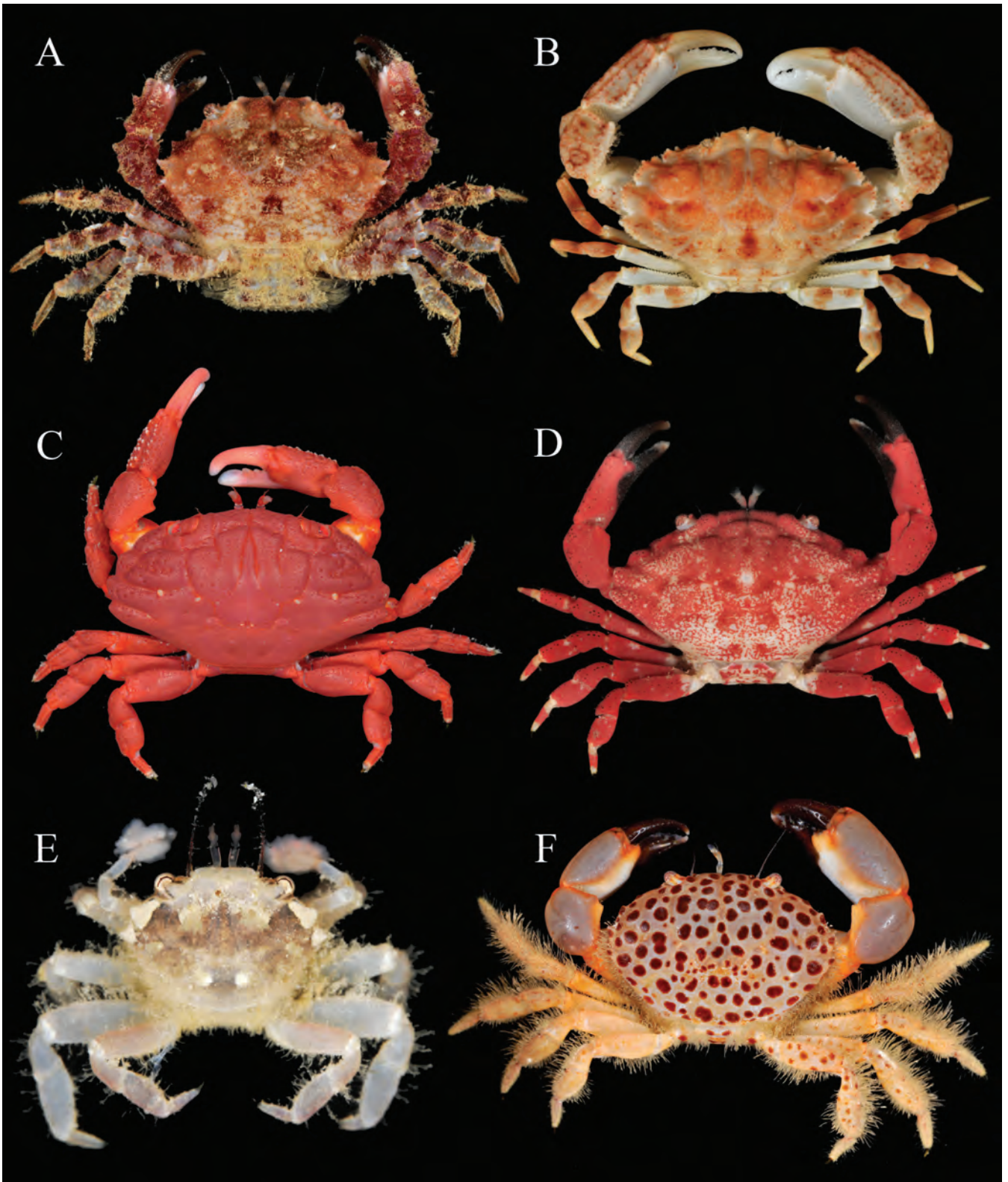


Fig. 3. Live colouration. A, *Medaeus elegans* A. Milne-Edwards, 1867, 1 ovig. ♀, 10.6 × 7.4 mm (ZRC), stn CI3-D01; B, *Paramedaeus* sp., 1 ♂, 21.7 × 13.1 mm (ZRC), stn CI3-D08(154); C, *Liomera simpsonii* (A. Milne-Edwards, 1865), 1 ♂, 15.5 × 8.9 mm (ZRC), stn CI2-D03(094); D, *Liomera virgata* (Rathbun, 1906), 1 ♂, 14.6 × 8.2 mm (ZRC), stn CI3-D02; E, *Lybia leptochelis* (Zehntner, 1894), 1 ♂, 5.1 × 3.6 mm (ZRC), stn CI2-D08(132); F, *Lachnopodus ponapensis* (Rathbun, 1907), 1 ♂, 18.0 × 12.1 mm (ZRC) stn CI3-23.



*exsculptus* (Herbst, 1790), based on material from the extensive collections of C.A. Gibson-Hill. Examination of these same specimens by one of the present authors (JCEM), however, has revealed some variation in the carapace and G1 morphology from that described for *E. exsculptus* sensu stricto (lectotype designated by K. Sakai, 1999). The Cocos (Keeling) Is. material, along with specimens from other localities in the Indian Ocean will be described as a distinct species in a larger work focusing on the revision of the subfamily Euxanthinae (JCEM & PKLN, in prep.).

***Medaeus elegans* A. Milne-Edwards, 1867**  
(Figs. 3A, 7E)

**Material examined. Christmas I.:** 1 ovig. ♀, 10.6 × 7.4 mm (ZRC), stn CI3-D01.

**Cocos (Keeling) Is.:** 1 ♂, 13.0 × 8.9 mm (ZRC), stn CK2-12; 1 ♂, 12.3 × 8.2 mm (ZRC), stn CK2-13

**Remarks.** This species was first described by A. Milne-Edwards (1867) from New Caledonia. It has since been reported from the Hawaiian Islands, Gilbert Islands, Marshall Islands, and the Philippines (Edmondson, 1962; Guinot, 1967; Garth et al., 1987; Mendoza & Ng, 2010). Mendoza & Ng (2010) commented that this taxon needs to be revised as it is likely to represent a species complex. With more material available from other localities throughout the Indo-West Pacific region, it is now possible to elucidate the taxonomy of *Medaeus*. The revision of this genus is part of a larger work focusing on the revision of the subfamily Euxanthinae (JCEM & PKLN, in prep.). The present specimens constitute the first record of this species from the Indian Ocean.

New CI, CK record.

***Paramedaeus* sp.**  
(Fig. 3B)

**Material examined. Christmas I.:** 1 ♂, 21.7 × 13.1 mm (ZRC), stn CI3-D08(154).

**Remarks.** A single male specimen was collected from Christmas Island. The carapace morphology is starkly different from other *Paramedaeus* species reported from the Indian Ocean (e.g., *P. octogesimus* Ng & Clark, 2002, *P. simplex* (A. Milne-Edwards, 1873)), particularly in the dentition of the anterolateral margin of the carapace. While in those species the four anterolateral teeth are acutely triangular and well separated from each other by V-shaped troughs, the CI specimen has more obtuse teeth barely separated by narrow clefts. The specimen was collected from beneath a limestone rock about 30 m from the entrance to Thundercliff Cave. As the cavern bent almost 90 degrees just after this entrance, the habitat was quite dark even at daytime. This specimen has been found to be conspecific with another male from Guam I., and both will be described as new in a forthcoming revision of the subfamily Euxanthinae (JCEM & PKLN, in prep.).

New CI record.

**Subfamily LIOMERINAE Sakai, 1976**

***Liomera stimpsonii* (A. Milne-Edwards, 1865)**  
(Fig. 3C)

*Carpilodes stimpsonii*, Tweedie, 1950: 113

*Liomera stimpsoni*, Davie, 2002: 544

**Material examined. Christmas I.:** 1 ♂, 15.5 × 8.9 mm (ZRC), stn CI2-D03(094); 1 ♀, 7.9 × 4.6 mm, 2 juv., 4.7 × 3.1 mm, 4.8 × 3.2 mm (ZRC), stn CI2-D15; 1 ♂, 12.0 × 7.0 mm, 1 ♀, 17.4 × 10.3 mm (ZRC), stn CI2-D18(196); 2 ♂, 11.9 × 7.0 mm, 14.2 × 8.1 mm, 1 ♀, 12.1 × 7.2 mm, 1 ovig. ♀, 13.2 × 7.7 mm (ZRC), stn CI3-D05.

**Remarks.** This species was previously recorded from the Cocos (Keeling) Islands by Tweedie (1950).

New CI record.

***Liomera virgata* (Rathbun, 1906)**  
(Figs. 3D, 6G–I)

**Material examined. Christmas I.:** 1 ovig. ♀, 10.8 × 6.2 mm (ZRC), stn CI2-D17; 1 ♂, 14.6 × 8.2 mm (ZRC), stn CI3-D02.

**Remarks.** The present specimens agree well with the description and figure of the type, collected from Au'au Channel, Hawaiian Islands (cf. Rathbun, 1906: 843, pl. 8 fig. 3). This species has also been reported from the Amirante Islands and Holothuria Bank, South China Sea (Serène, 1984). The live colouration (Fig. 3D) and the G1 morphology (Fig. 6G–I) for this species are reported for the first time.

New CI Record.

**Subfamily POLYDECTINAE Dana, 1851**

***Lybia leptochelis* (Zehntner, 1894)**  
(Fig. 3E)

**Material examined. Christmas I.:** 1 ♂, 5.1 × 3.6 mm (ZRC), stn CI2-D08(132).

**Remarks.** The present specimen agrees well with the descriptions and figures in Guinot (1976: 71, figs. 16C, 21E, F, 22C, pl. 2 fig. 2) and Mendoza & Ng (2011: 52, fig. 1A). There are nine teeth on each of the fingers of the chelae, although the most distal tooth is much smaller than the rest. The second and third anterolateral teeth are pronounced and distinctly angular, and there is a tiny, vestigial tooth behind the third anterolateral tooth. This species has been reported from Ambon, Indonesia (type locality), Mozambique (Serène, 1984) and the Philippines (Mendoza & Ng, 2011).

New CI record.

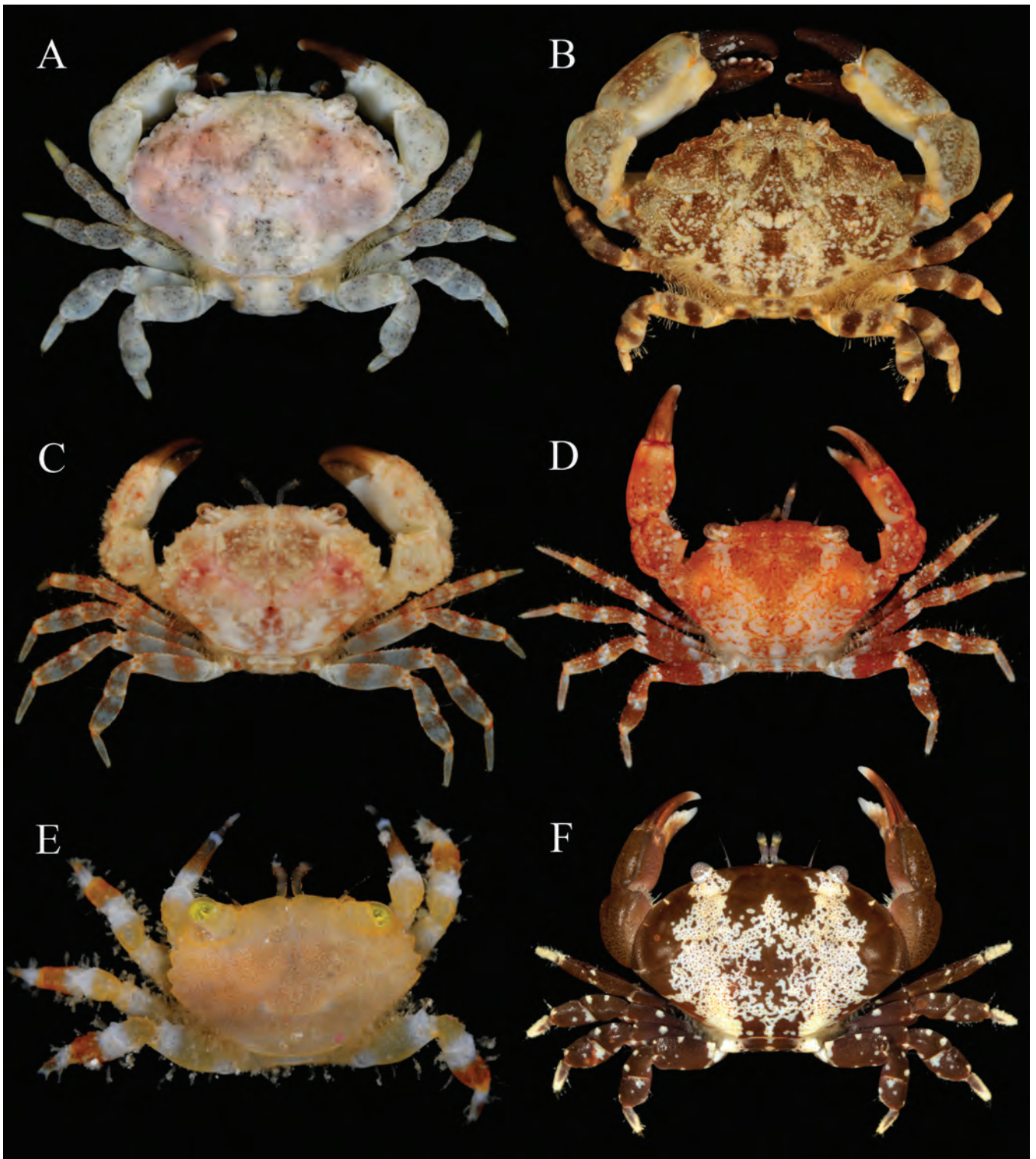


Fig. 4. Live colouration. A, *Leptodius planus* Ward, 1934, 1 ♀, 10.2 × 7.0 mm (ZRC), stn CK2-21; B, *Macromedaeus crassimanus* (A. Milne-Edwards, 1867), 1 ♂, 32.8 × 21.3 mm (ZRC), stn CI3-15; C, *Nanocassiope alcocki* (Rathbun, 1902), 1 ♀, 9.8 × 6.5 mm (ZRC), stn CI3-D08(157); D, *Paraxanthias* aff. *elegans*, 1 ♂, 7.5 × 5.1 mm (ZRC), stn CI3-D02; E, *Xanthias cherbonnieri* Guinot, 1964, 1 ♂, 4.5 × 3.0 mm (ZRC), stn CI2-D18; F, *Platypodia anaglypta* (Heller, 1861), 1 ♂, 13.6 × 9.0 mm (ZRC), stn CI3-15(050).

**Subfamily XANTHINAE MacLeay, 1838*****Lachnopus ponapensis* (Rathbun, 1907)**

(Figs. 3F, 7B–D)

*Paraxanthias haematostictus* Ward, 1934: 20, pl. 2 fig. 3, 3a  
*Paraxanthias ponapensis*, Tweedie, 1947: 29  
*Lachnopus ponapensis*, Morgan, 2000: 121 (table); Davie, 2002: 550

**Material examined. Christmas I.:** 1 ♂, 8.3 × 5.7 mm (ZRC), stn CI1-13; 1 ♂, 15.4 × 10.4 mm (ZRC), stn CI2-09 [024]; 1 ♂, 8.7 × 6.1 mm (ZRC), stn CI2-17 [075]; 3 ♂, 11.0 × 7.7 mm – 29.0 × 12.7 mm, 2 ♀, 11.4 × 8.0 mm, 16.0 × 10.9 mm (ZRC), stn CI2-22; 1 ♂, 18.0 × 12.1 mm (ZRC) stn CI3-23(095), 1 ♂, 18.6 × 13.0 mm (ZRC), stn CI3-23; 1 ♂, 7.5 × 5.3 mm (ZRC), stn CI3-25.

**Remarks.** This species was first recorded from Christmas Island as *Paraxanthias haematostictus*, a new species described by Ward (1934). It was later synonymised under *Paraxanthias ponapensis* (Rathbun, 1907) (type locality: Ponape, Caroline Islands) by Tweedie (1947) after careful comparison of the types of both species. Morgan (2000) reflected the latest accepted assignment of this species to the genus *Lachnopus* Stimpson, 1858. This species is most readily distinguished from other species of *Lachnopus* by its distinctly spotted carapace (Fig. 3F). The G1 is illustrated here (Fig. 7B–D) for the first time.

***Leptodius planus* Ward, 1934**

(Figs. 4A, 7A)

*Leptodius planus* Ward, 1934: 14, pl. 3 fig. 6, 6a  
*Xantho gracilis*, Tweedie, 1950: 114  
*Leptodius gracilis*, Balss, 1938: 52; Tweedie, 1947: 28; Morgan, 2000: 121 (table)

**Material examined. Christmas I.:** 1 ♀, 7.2 × 4.8 mm (ZRC), stn CI3-13.

**Cocos (Keeling) Is.:** 1 ♂, 17.5 × 11.1 mm (ZRC), stn CK1-08; 1 ♀, 10.2 × 7.0 mm (ZRC), stn CK2-21.

**Remarks.** *Leptodius planus* was originally described by Ward (1934) based on specimens from Christmas Island. Balss (1938) synonymised *L. planus* under *Leptodius gracilis* Dana, 1852 (type locality: Wake Island, northern Pacific), and the two are indeed similar in having a relatively smooth carapace with the dorsal regions poorly defined, and in having four teeth on the anterolateral margin of the carapace. Although Ng et al. (2008), listed *L. planus* as distinct from *L. gracilis*, they did not provide a reason for their action. Initial unpublished results from an ongoing revision of the genus *Leptodius* by the first and last authors, in collaboration with Lee Sang-kyu (Korea), show that the two are distinct species. There appears to be a consistent difference in the morphology of the distal portions of the G1 in these two species: in *L. gracilis* the apical lobe is in a continuous curve

with the immediately preceding portion of the G1 (cf. Forest & Guinot, 1961: fig. 58; Serène, 1984: fig. 107), whereas in *L. planus*, the apical lobe forms a small curve distinct from the curvature of the immediately preceding portion of the G1 (Fig. 7A). Furthermore, the teeth on the anterolateral margin of the carapace are broader and more uniform in *L. planus*. The records of “*L. gracilis*” by Tweedie (1950) and Morgan (2000) from Cocos (Keeling) and Christmas islands, respectively, are here considered to be *L. planus*.

***Macromedaeus crassimanus* (A. Milne-Edwards, 1867)**

(Fig. 4B)

**Material examined. Christmas I.:** 1 ♂, 32.8 × 21.3 mm (ZRC), stn CI3-15; 1 ♀, 26.8 × 17.8 mm (ZRC), stn CI3-16.

**Remarks.** This species was originally described from New Caledonia (A. Milne-Edwards, 1867), and has a widespread distribution, from Hawaii, Samoa and Tahiti all the way to the Red Sea (Dai & Yang, 1991). The G1 of the present specimen differs from that illustrated for the smaller male syntype (MNHN; 28 × 18 mm) (cf. Serène, 1984: fig. 103) in having a more extended and tapered distal tip (versus bluntly rounded). It is more similar to the G1 illustrated by Dai & Yang (1991: fig. 151(2)) from a male from the Paracel (Xisha) Is., South China Sea. In all other respects, the present specimens agree well with the description and illustrations of *M. crassimanus*.

New CI record.

***Macromedaeus quinquedentatus* (Krauss, 1843)**

**Material examined. Christmas I.:** 1 ovig. ♀, 13.3 × 8.9 mm (ZRC), stn CI3-23.

**Remarks.** *Macromedaeus quinquedentatus* (type locality: South Africa) has been reported from localities in the Indian and Pacific oceans (see Serène, 1984). The key by Serène (1984) separates this species from the similar *M. crassimanus* by the proportions of the carapace width and the fronto-orbital width, the dorsal areolation of the carapace, and most indicatively, the G1 morphology. In the absence of a male specimen, it appears that the best way to separate *M. quinquedentatus* from *M. crassimanus* is by taking note of the degree of areolation of the carapace regions. In *M. quinquedentatus*, the areolae are sharper and more acute, and the grooves are wider and deeper. In addition, the supero-external margin of the chelar palm has four prominent tubercles (versus merely rugose and without tubercles in *M. crassimanus*), and the external surface of the chelar palm has two longitudinal, granulate ridges (versus smooth and without ridges in *M. crassimanus*). Furthermore, the ovigerous female reported here is much smaller at maturity than the preceding species.

New CI record.

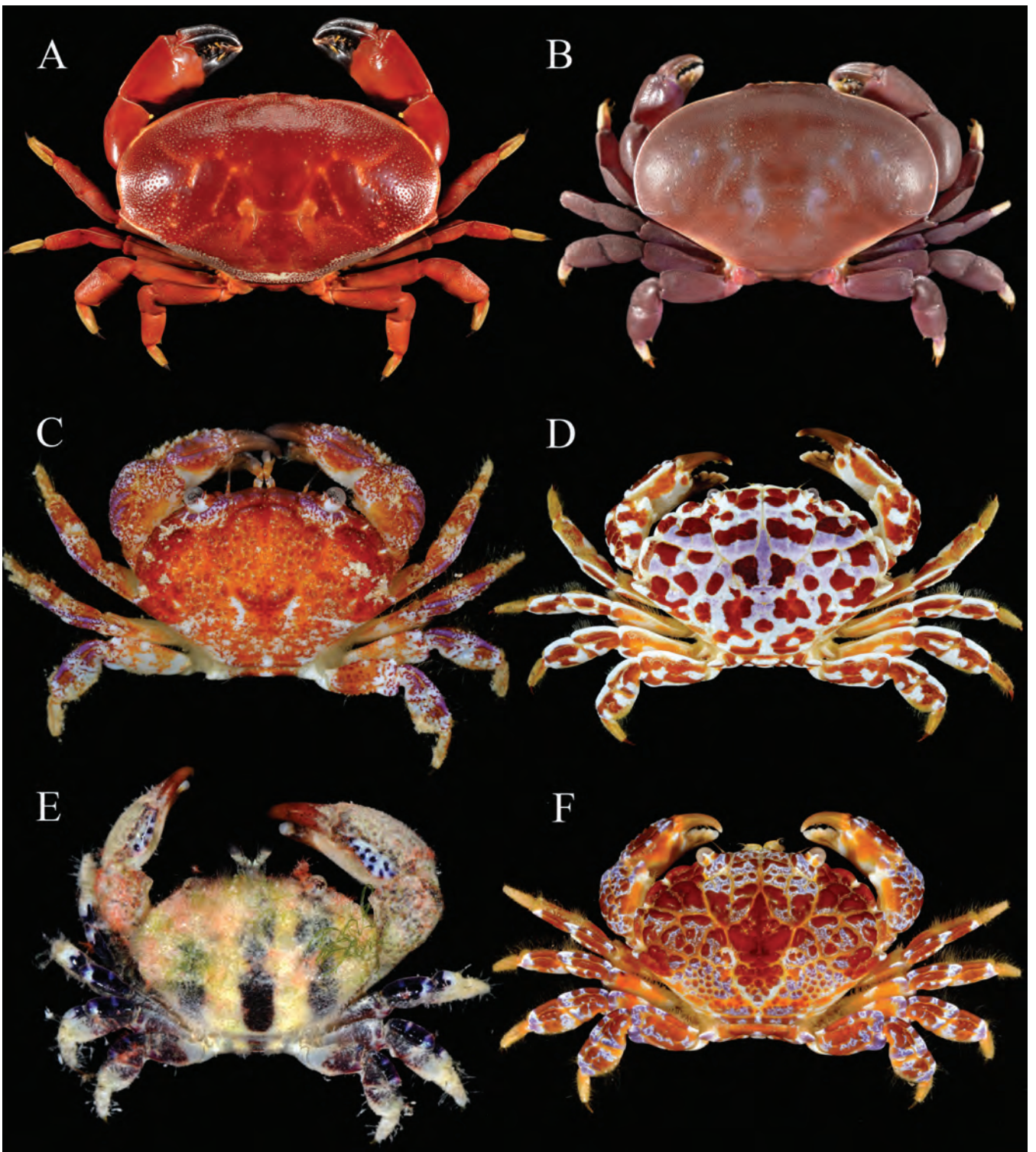


Fig. 5. Live colouration. A, *Atergatis dilatatus* De Haan, 1835, 1 ♂, 137.0 × 81.7 mm (ZRC), stn CI3-D04; B, *Atergatis latissimus* (H. Milne-Edwards, 1834), 1 ♀, 28.6 × 18.2 mm (ZRC), stn CI1-31; C, *Zosimus actaeoides* (A. Milne-Edwards, 1867), 1 ♂, 17.8 × 12.2 mm (ZRC), stn CK2-18; D, *Zosimus aeneus* (Linnaeus, 1758), 1 ♂ (ZRC), stn CK2-17; E, *Zozymodes xanthoides* (Krauss, 1843), 1 ♂, 7.1 × 4.6 mm (ZRC), stn CK2-09; F, *Zosimus aeneus* (Linnaeus, 1758), 1 ♂ (ZRC), stn CI3-25.

***Nanocassiope alcocki* (Rathbun, 1902)**

(Fig. 4C)

*Nanocassiope alcocki*, Morgan, 2000: 121 (table).

**Material examined. Christmas I.:** 1 juv. ♂, 4.0 × 2.8 mm (ZRC), stn CI3-D02; 1 ♀, 9.8 × 6.5 mm (ZRC), stn CI3-D08(157).

**Remarks.** This species was previously described from the Maldives (Nallandu) by Rathbun (1902) and has been recorded from Christmas Island by Morgan (2000), but was neither illustrated nor remarked upon. The present specimens agree well with the description and illustrations for *N. alcocki* (cf. Rathbun, 1902: 128, figs. 9, 10; Serène, 1984: 209, pl. 28 fig. F). It is notable that this species was collected at diving depth (<30 m) in Christmas Island, as it is usually collected by trawl at greater depths (≥100 m) in other localities (e.g., Serène, 1984: 209).

***Nanocassiope tridentata* Davie, 1995**

(Fig. 6B)

**Material examined. Cocos (Keeling) Is.:** 1 ovig. ♀, 5.2 × 3.5 mm (ZRC), stn CK2-12.

**Remarks.** This species was previously known only from the type locality, Ambon Bay, Indonesia. In the present specimen, a small, ovigerous female, the first anterolateral tooth after the exorbital tooth is much reduced, making the carapace anterolateral margin appear tridentate. This is one of the main diagnostic features of *N. tridentata* (cf. Davie, 1995: 205, fig. 2A).

New CK record.

***Paraxanthias aff. elegans***

(Figs. 4D, 7G)

**Material examined. Christmas I.:** 1 ♂, 7.5 × 5.1 mm (ZRC), stn CI3-D02.

**Remarks.** The present specimen is most similar to *Paraxanthias elegans* (Stimpson, 1858) (type locality: Shimoda, Japan) in the subhexagonal carapace, the dorsal surface of which is smooth and glabrous, with the regions slightly defined. The carapace anterolateral margin is likewise armed with four small, but well defined, teeth posterior to the exorbital angle. The carpi of the chelipeds are prominently granular (cf. Stimpson, 1907: pl. 5 fig. 3; Sakai, 1976: fig. 226, pl. 155 fig. 2; Dai & Yang, 1991: pl. 38 fig. 5). The G1 is slender and curved, with long, supple, and plumose subterminal setae; the distal tip is bent at an angle (cf. Forest & Guinot, 1961: fig. 72a, b; Dai & Yang, 1991: fig. 156B(3)).

The specimen from Christmas I. differs, however, in having the external surface of the chelar palm smooth and without longitudinal rows of granules, and in having relatively longer and more slender ambulatory legs. The live colouration is

also different from that recorded for *P. elegans*. In the colour plates of T. Sakai (e.g., Sakai, 1935: pl. 47 fig. 1; 1976: pl. 155 fig. 2), *P. elegans* is shown to have a uniformly purplish colouration in the dorsal aspect of carapace and pereopods, except for the cheliped fingers which are dark brown. On the other hand, the CI specimen is vividly reddish-orange, with white and yellow mottling, and the ambulatory legs have a whitish banding pattern at the joints between the articles (Fig. 4D). This male has not been described as a new species because examination of more specimens from Christmas I. and also from other localities might provide additional information. The first author has observed similar forms from the Philippines and Taiwan, which warrants a comprehensive approach in elucidating the taxonomy of this species.

New CI record.

***Xanthias cherbonnieri* Guinot, 1964**

(Figs. 4E, 7F)

**Material examined. Christmas I.:** 1 ♂, 4.5 × 3.0 mm (ZRC), stn CI2-D18.

**Remarks.** This species was first described from Aldabra, and has been subsequently reported from Réunion (Guinot, 1964; Serène, 1984). The CI specimen agrees with the description for *X. cherbonnieri*, particularly of the carapace and ambulatory legs (Guinot, 1964: 34, pl. 2 figs. 1–4; Serène, 1984: 196, pl. 27 fig. D). It differs from the type, however, in having aberrant chelipeds where the palm and fingers are much more slender than normal (Fig. 4E). Furthermore, the abdomen appears wider than what is usually seen in male *Xanthias* spp., and, although there is a pair of well-developed G1s and G2s, the 3<sup>rd</sup> to 5<sup>th</sup> pleomeres also have unspecialised, immature pleopods. The G1 (Fig. 7F) is quite short and simple, with a few spiniform subterminal setae. This G1 morphology is different from that of the type species of the genus, *X. granosomanus* Dana, 1852 (= *X. lamarcki* (H. Milne-Edwards, 1834)), where the G1 is quite long, slender and has long, plumose subterminal setae, and is, instead, more similar to that of *X. latifrons* (De Man, 1887) (cf. Serène, 1984: figs. 112, 117).

New CI record.

**Subfamily Zosiminae Alcock, 1898**

***Atergatis dilatatus* De Haan, 1835**

(Fig. 5A, 8A–C)

**Material examined. Christmas I.:** 1 ♂, 137.0 × 81.7 mm (ZRC), stn CI3-D04.

**Remarks.** The present specimen, a large male, agrees well with the description and illustrations of *Atergatis dilatatus* De Haan, 1835 (type locality: seas of China or Japan, no specific locality) (cf. De Haan, 1835: 46, pl. 14 fig. 2; Serène, 1984: 148, pl. 21 fig. C). The G1 is illustrated here for the first time (Fig. 8A–C). This species has also been

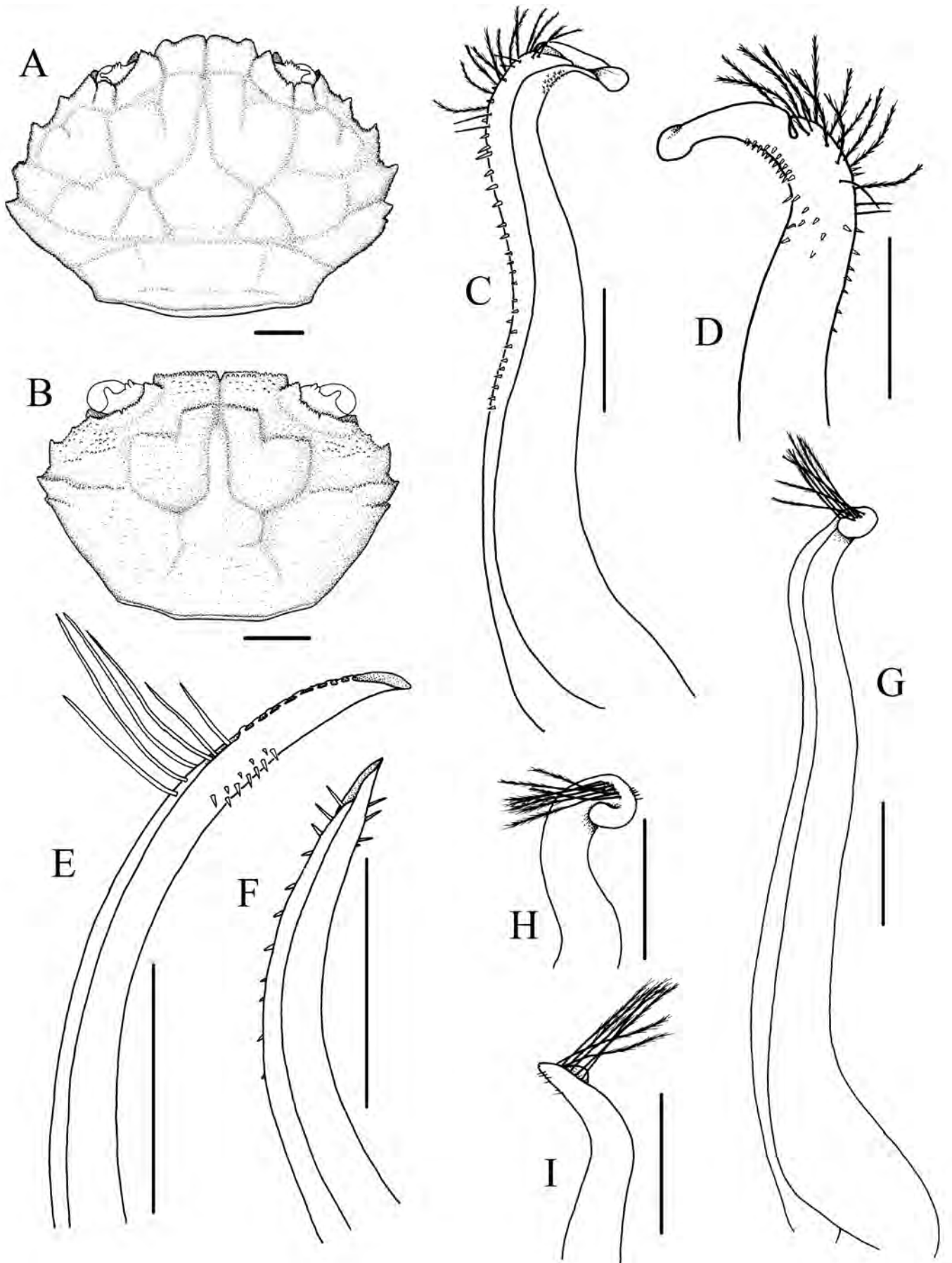


Fig. 6. Carapace, dorsal view (A, B). A, *Etisus frontalis* Dana, 1852, 1 ♀, 8.2 × 5.8 mm (ZRC), CK1-18; B, *Nanocassiope tridentata* Davie, 1995, 1 ovig. ♀, 5.2 × 3.5 mm (ZRC), CK2-12. Left G1 (C–I). C, D, *Cymo cerasma* Morgan, 1990: 1 ♂, 10.6 × 9.6 mm (ZRC), stn C11-D04; E, *Etisus demani* Odhner, 1925: 1 ♂, 28.5 × 18.9 (ZRC) stn C13-16; F, *Etisus odhneri* Takeda, 1971: 1 ♂, 12.5 × 8.8 mm (ZRC), stn CK2-03; G–I, *Liomera virgata* (Rathbun, 1906): 1 ♂, 14.6 × 8.2 mm (ZRC), stn C13-D02. Scale bars: A, B = 1.0 mm, C–I = 0.5 mm.

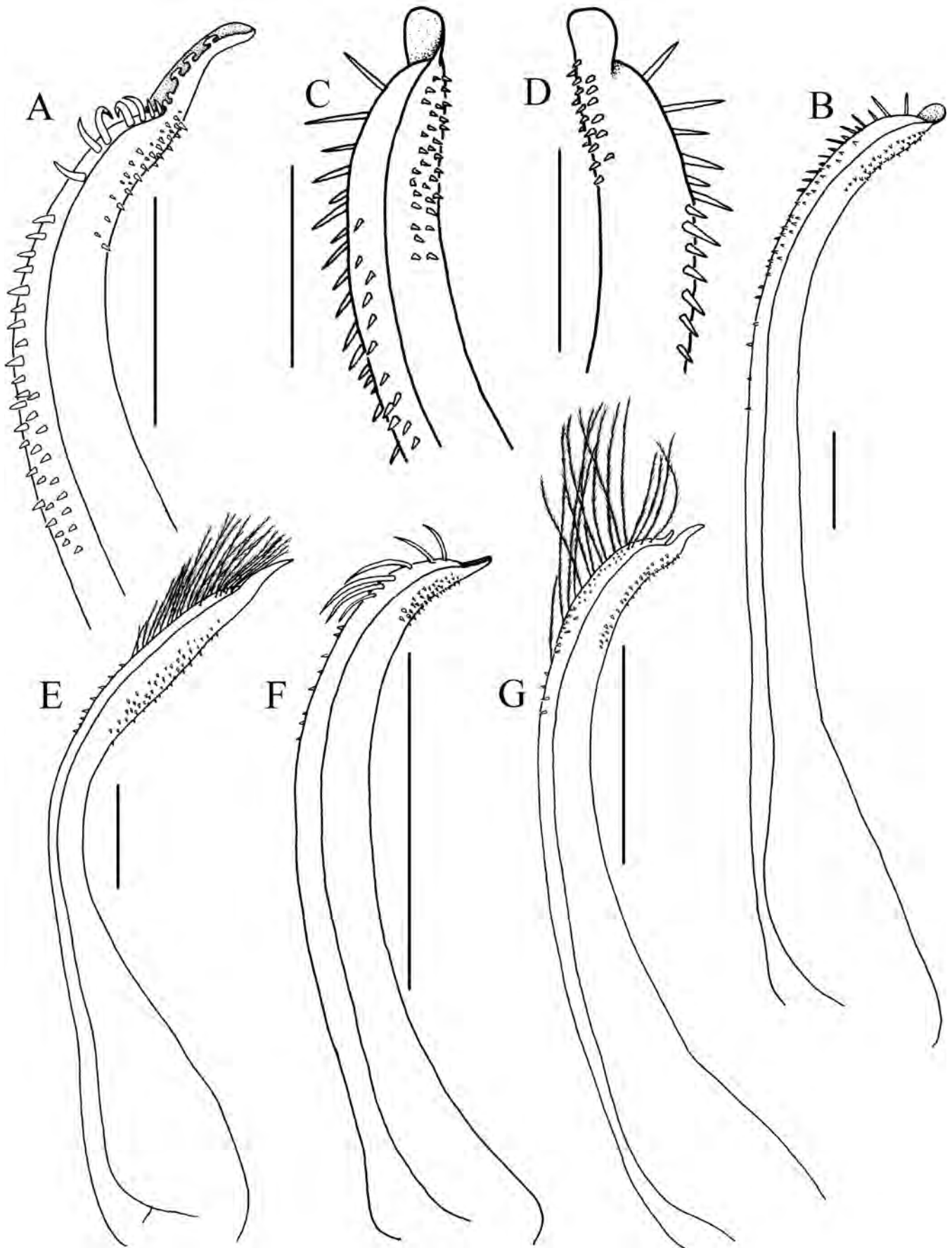


Fig. 7. Left G1. A, *Leptodius planus* Ward, 1934: 1 ♂, 17.5 × 11.1 mm (ZRC), stn CK1-08. B–D, *Lachnopus ponapensis* (Rathbun, 1907): 1 ♂, 18.6 × 13.0 mm (ZRC), stn CI3-23. E, *Medaeus elegans* A. Milne-Edwards, 1867: 1 ♂, 13.0 × 8.9 mm (ZRC), stn CK2-12. F, *Xanthias cherbonnieri* Guinot, 1964: 1 ♂, 4.5 × 3.0 mm (ZRC), stn CI2-D18. G, *Paraxanthias* aff. *elegans*: 1 ♂, 7.5 × 5.1 mm (ZRC), stn CI3-D02. Scale bars: A–G = 0.5 mm.

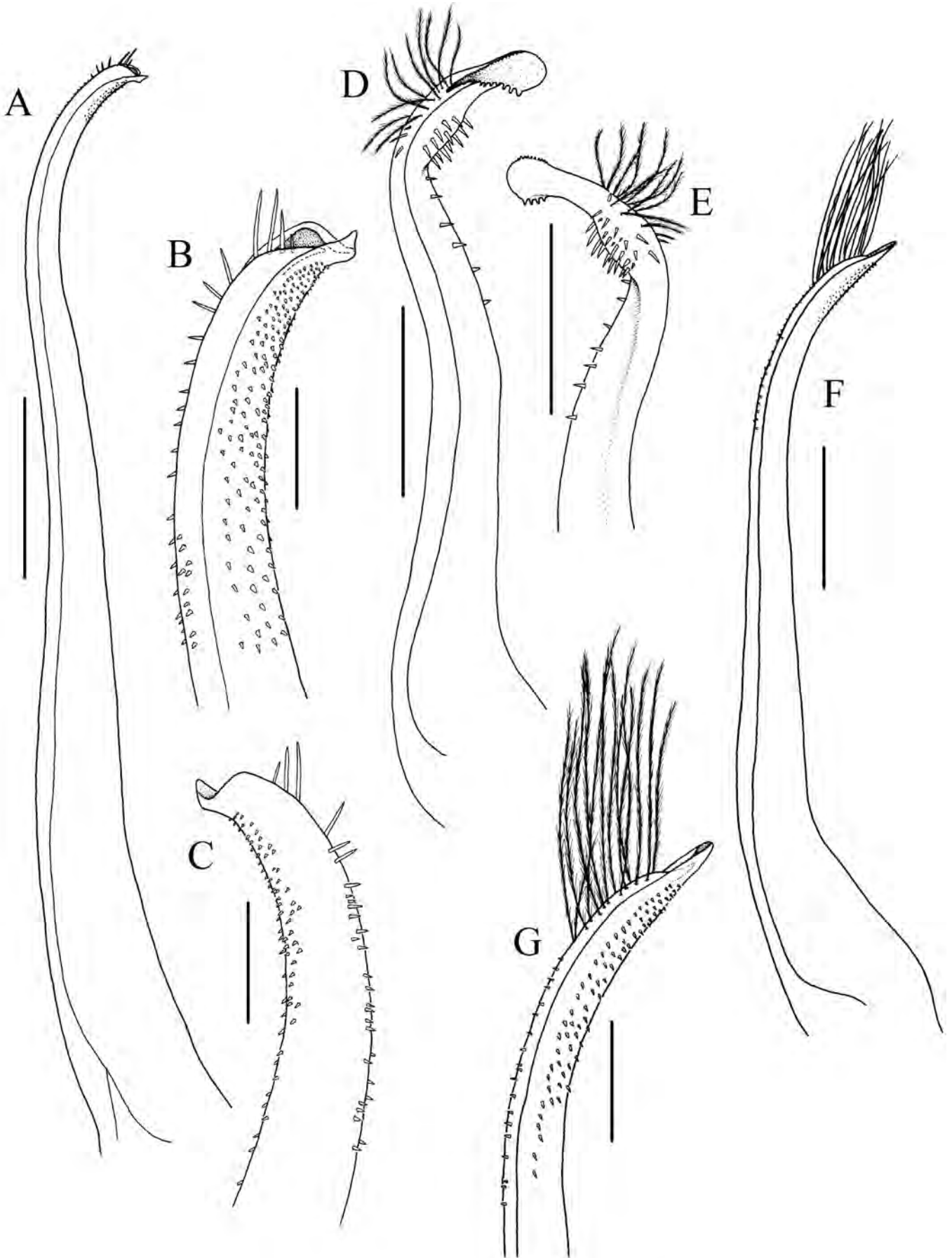


Fig. 8. Left G1. A–C, *Atergatis dilatatus* De Haan, 1835: 1 ♂, 137.0 × 81.7 mm (ZRC), stn CI3-D04. D, E, *Zozymodes xanthoides* (Krauss, 1843): 1 ♂, 7.1 × 4.6 mm (ZRC), stn CK2-09. F, G, *Zosimus actaeoides* (A. Milne-Edwards, 1867): 1 ♂, 19.7 × 13.4 mm (ZRC), stn CI2-D18. Scale bars: A= 5.0 mm; B, C, F = 1.0 mm; D, E, G = 0.5 mm.



reported from Japan, China, New Caledonia, Sri Lanka, the Andamans, and Kenya (Serène, 1984).

New CI record.

***Atergatis granulatus* De Man, 1889**

**Material examined. Christmas I:** 1 carapace, 54.6 × 34.1 mm (ZRC), stn CI2-D05; 1 broken carapace (not measured) (ZRC), stn CI3-D02(125).

**Remarks.** This species was originally described from Mauritius (De Man, 1889), and has also been reported from the Red Sea and Japan (Serène, 1984). The entirely granular carapace, with non-cristate anterolateral margins and no epibranchial teeth, is diagnostic for this species. Only two carapaces and no live specimens were collected, although the good condition of one of the carapaces suggests that there are probably live individuals occurring on Christmas Island. A similar situation was observed for *Neoliomera cerasinus* Ng, 2002 (type locality: Christmas Island), where congregates of numerous elements of its exoskeleton (e.g. carapaces, chelae, ambulatory legs) were found on the floor of certain areas within the underwater caves around Christmas Island (H.H. Tan, pers. comm.).

New CI record.

***Atergatis latissimus* (H. Milne-Edwards, 1834)**  
(Fig. 5B)

*Atergatis latissimus*, Tweedie, 1947: 30; Morgan, 2000: 121 (table); Davie, 2002: 562.

**Material examined. Christmas I:** 2 ♀, 28.6 × 18.2 mm, 50.8 × 31.6 mm (ZRC), stn CI1-31.

**Remarks.** This uncommon species was originally described from Australia (H. Milne-Edwards, 1834), and has been reported from Japan, the Marshall Islands, and Mauritius (cf. Serène, 1984). Tweedie (1947: 30) recorded a large male (CW = 122 mm) from Christmas Island, which, he remarked, agreed well with the illustration of *Atergatis latissimus frontalis* (De Haan, 1837) by T. Sakai (1939: pl. 88 fig. 1). He did not provide a figure, however. Morgan (2000) also listed this species in his report, presumably based on the record of Tweedie (1947). Following Tweedie (1947), *Atergatis frontalis* (De Haan, 1837), is considered a junior subjective synonym of *A. latissimus* (H. Milne-Edwards, 1834) (cf. Ng et al., 2008). The present specimens, both female, are much smaller than Tweedie's material. The smaller specimen still has the thin, whitish band on the anterolateral and frontal margins of the carapace typical of the juvenile form, figured here (Fig. 5B).

***Platypodia anaglypta* (Heller, 1861)**  
(Fig. 4F)

**Material examined. Christmas I:** 1 ♂, 13.6 × 9.0 mm (ZRC), stn CI3-15(050).

**Remarks.** This species is widespread in the Indo-West Pacific region (Serène, 1984).

New CI record.

***Zosimus actaeoides* (A. Milne-Edwards, 1867)**  
(Figs. 5C, 8F, G)

*Zosimus actaeoides*, Morgan, 2000: 121 (table)

**Material examined. Christmas I:** 1 ♂, 19.7 × 13.4 mm (ZRC), stn CI2-D18.

**Cocos (Keeling) Is.:** 1 ♂, 17.8 × 12.2 mm (ZRC), stn CK2-18.

**Remarks.** This species was first described from New Caledonia (A. Milne-Edwards, 1867), and has also been reported from the Hawaiian Islands (Rathbun, 1906). It was also recorded by Morgan (2000) from Christmas Island. One specimen each was collected from Christmas and the Cocos (Keeling) islands, during the recent expeditions. The present specimens generally agree with the description and illustrations for *Z. actaeoides* (cf. A. Milne-Edwards, 1867: 273; 1873: pl. 7 fig. 7). The G1 is illustrated here for the first time (Fig. 8F, G).

New CK record.

***Zosimus aeneus* (Linnaeus, 1758)**  
(Fig. 5D, F)

*Zozymus aeneus*, Calman, 1909: 704; Tweedie, 1947: 27

*Zozymus aeneus*, Tweedie, 1950: 115, fig. 1c

*Zosimus aeneus*, Morgan, 2000: 121 (table); Davie, 2002: 567

**Material examined. Christmas I:** 1 ♂, 45.5 × 31.6 mm (ZRC), 1 ♂, 50.6 × 33.4 mm (ZRC), stn CI1-13.

**Cocos (Keeling) Is.:** 2 ♀, 70.1 × 45.5 mm, 82.0 × 53.8 mm (ZRC), stn CK1-02; 1 ♀, 82.5 × 56.1 mm (ZRC) stn CK1-08.

**Remarks.** This species is found throughout the Indo-West Pacific region, including the Christmas and Cocos (Keeling) islands. The variation in live colouration is noted here. Tweedie (1950: 115) noted the colour pattern of the specimens found in the Cocos (Keeling) Is. as being “white with the carapace and dorsal surface of the limbs marked with a complex pattern of dark umber or very dark sienna blotches; occasionally the white ground is suffused with pale purple.” The same pattern was observed in the present Cocos (Keeling) specimens, referred to in Table 1 as “bi-coloured” (Fig. 5D). This is quite distinct from the normal colouration of this species (as seen in the specimens from Christmas I.), which usually shows more brown and purple and less of the white background (Fig. 5F). Besides the differences in colouration, no other morphological differences can be discerned in the present specimens.

***Zozymodes xanthoides* (Krauss, 1843)**

(Figs. 5E, 8D, E)

**Material examined. Cocos (Keeling) Is.:** 1 ♀, 8.6 × 5.5 mm (ZRC), stn CK1-02; 1 ♂, 7.1 × 4.6 mm (ZRC), stn CK2-09.**Remarks.** This species was first described by Krauss (1843) from Natal, South Africa. It has also been reported from Madagascar, the Red Sea, the eastern coast of Africa from Somalia to South Africa, and French Polynesia (Serène, 1984; Galil & Vannini, 1990; Poupin, 2010). The present specimens agree well with the description and illustrations in Serène (1984). The fresh colouration of this species is recorded here for the first time (Fig. 4H).

New CK record.

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Table 1. Updated checklist of xanthid species found in Christmas and Cocos (Keeling) islands, with references and including station records for species collected by the recent expeditions (2010–2012). Newly recorded species are indicated in bold and with superscripts to indicate locality, e.g., Christmas I. new record = \*<sup>CI</sup>; Cocos (Keeling) Is. new record = \*<sup>CK</sup>.

Species Current Name (sensu Ng et al., 2008)	Christmas Island (CI) Record	Recent CI Stations (2010–2012)	Cocos (Keeling) Islands (CK) Record	Recent CK Stations (2010–2012)
ACTAEINAE				
<i>Actaeodes consobrinus</i> (A. Milne-Edwards, 1873)	Ward, 1934 (as <i>Actaea suffuscula</i> Rathbun); Tweedie, 1947; Morgan, 2000	CI3-17	Tweedie, 1950	
<i>Actaeodes</i> cf. <i>hirsutissimus</i> (Rüppell, 1830)	Morgan, 2000			
<b><i>Actaeodes tomentosus</i> (H. Milne-Edwards, 1834)*<sup>CK</sup></b>	Calman, 1909 (as <i>Actaea tomentosa</i> ); Ward, 1934 (as <i>Actaea tomentosa</i> ); Tweedie, 1947 (as <i>Actaea tomentosa</i> ); Morgan, 2000	CI1-03, CI1-13, CI1-31, CI2-09, CI2-17, CI2-22, CI3-07, CI3-15, CI3-16, CI3-17, CI3-23, CI3-25	This paper	CK1-02
<i>Epiactaea nodulosa</i> (White, 1848)	Morgan, 2000			
<b><i>Gaillardiellus rueppellii</i> (Krauss, 1843)*<sup>CK</sup></b>			This paper	CK2-09
<i>Gaillardiellus superciliaris</i> (Odhner, 1925)			Tweedie, 1950 (as <i>Actaea superciliaris</i> )	CK1-08
<b><i>Paractaea plumosa</i> Guinot, in Sakai, 1976)*<sup>CI</sup></b>	This paper	CI1-D02, CI2-D03, CI2-D15		
<i>Paractaea rufopunctata</i> (H. Milne-Edwards, 1834) sensu lato	Calman, 1909 (as <i>Actaea rufopunctata</i> ); Ward, 1934 (as <i>Actaea rufopunctata</i> ); Tweedie, 1947 (as <i>Actaea rufopunctata</i> ); Morgan, 2000		Tweedie, 1950 (as <i>Actaea rufopunctata</i> )	
<i>Paractaea rufopunctata rufopunctata</i> (H. Milne-Edwards, 1834)	Davie, 2002		Davie, 2002	
<i>Psaumis cavipes</i> (Dana, 1852)	Ward, 1934 (as <i>Actaea fossulata</i> Girard); Morgan, 2000	CI3-15, CI3-16, CI3-17, CI3-23	Wood Jones, 1909 (as <i>Actaea fossulata</i> ); Tweedie, 1950 (as <i>Actaea cavipes</i> )	CK2-21
<i>Pseudoliomera granosimana</i> (A. Milne-Edwards, 1865)	Ward, 1934 (as <i>Pseudoliomera natalensis</i> Ward); Tweedie, 1947; Morgan, 2000	CI2-17	Tweedie, 1950	
<i>Pseudoliomera lata</i> (Borradaile, 1902)	Balss, 1934 (as <i>Actaea lata</i> ); Morgan, 2000	CI3-17		
<i>Pseudoliomera speciosa</i> (Dana, 1852)	Calman, 1909 (as <i>Actaea speciosa</i> ); Balss, 1934 (as <i>Actaea speciosa</i> ); Tweedie, 1947 (as <i>Actaea speciosa</i> ); Morgan, 2000	CI2-D03	Tweedie, 1950 (as <i>Actaea speciosa</i> )	
<i>Pseudoliomera variolosa</i> (Borradaile, 1902)	Morgan, 2000			
<b><i>Pseudoliomera violacea</i> (A. Milne-Edwards, 1873)*<sup>CI</sup></b>	This paper	CI2-D17, CI3-D05		

Species Current Name (sensu Ng et al., 2008)	Christmas Island (CI) Record	Recent CI Stations (2010–2012)	Cocos (Keeling) Islands (CK) Record	Recent CK Stations (2010–2012)
CHLORODIELLINAE				
<i>Chlorodiella barbata</i> (Borradaile, 1900)			Tweedie, 1950; Davie, 2002	
<b><i>Chlorodiella cytherea</i> Dana, 1852</b> *CI, CK	This paper	CI1-03, CI1-31, CI2-09, CI2-17, CI2-22, CI3-13, CI3-14, CI3-15, CI3-16, CI3-17, CI3-23, CI3-25	This paper	CK1-08, CK2-21
<i>Chlorodiella laevis</i> (Dana, 1852)	Calman, 1909 (as <i>Chlorodius laevis</i> ); Tweedie, 1947; Morgan, 2000	CI2-22, CI3-15, CI3-17	Tweedie, 1950	CK2-07
<i>Chlorodiella nigra</i> (Forskål, 1775)	Calman, 1909 (as <i>Chlorodius niger</i> ); Tweedie, 1947; Morgan, 2000			
<b><i>Cyclodius drachi</i> (Guinot, 1964)</b> *CI	This paper	CI2-D03		
<i>Cyclodius nitidus</i> (Dana, 1852)	Calman, 1909 (as <i>Phymodius sculptus</i> A.M.E.); Ward, 1934 (as <i>Phymodius sculptus</i> A.M.E.); Tweedie, 1947 (as <i>Phymodius nitidus</i> ); Morgan, 2000; Davie, 2002	CI3-15, CI3-16, CI3-17		
<i>Cyclodius obscurus</i> (Hombron & Jacquinot, 1846)			Tweedie, 1950 (as <i>Phymodius monticulosus</i> Dana)	
<i>Cyclodius unguatus</i> (H. Milne-Edwards, 1834)	Calman, 1909 (as <i>Cyclodius gracilis</i> Dana); Tweedie, 1947 (as <i>Cyclodius gracilis</i> ); Morgan, 2000 (as <i>Phymodius unguatus</i> ); Davie, 2002	CI3-14, CI3-15, CI3-16, CI3-25	Tweedie, 1950 (as <i>Phymodius unguatus</i> )	CK1-08, CK1-18, CK1-22, CK2-19, CK2-21
<i>Liocarpilodes harmsi</i> (Balss, 1934)	Balss, 1934 (as <i>Pilodius harmsi</i> Balss); Ward, 1934 (as <i>Chlorodopsis natalensis</i> ); Tweedie, 1947 (as <i>Pilodius harmsi</i> ); Morgan, 2000; Davie, 2002	CI1-13, CI1-20, CI1-33, CI3-15, CI3-17, CI3-22, CI3-26, CI3-30		
<i>Liocarpilodes integerrimus</i> (Dana, 1852)	Morgan, 2000	CI3-17		
<i>Pilodius areolatus</i> (H. Milne- Edwards, 1834)	Calman, 1909 (as <i>Chlorodopsis areolata</i> ); Tweedie, 1947 (as <i>Chlorodopsis areolata</i> ); Morgan, 2000	CI1-D18/19, CI3- 13, CI3-14, CI3-16, CI3-23	Tweedie, 1950 (as <i>Chlorodopsis areolata</i> )	CK1-02, CK1-08, CK2-17, CK2-19, CK2-21
<b><i>Pilodius flavus</i> Rathbun, 1894</b> *CI	This paper	CI1-D17		
<i>Pilodius pubescens</i> Dana, 1852			Tweedie, 1950 (as <i>Chlorodopsis melanodactyla</i> A.M.E.); Davie, 2002	

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<i>Pilodius scabriculus</i> Dana, 1852	Calman, 1909 (as <i>Chlorodopsis venusta</i> Rathbun); Tweedie, 1947 (as <i>Chlorodiella venusta</i> ); Morgan, 2000; Davie, 2002	CI3-14, CI3-15, CI3-16, CI3-17, CI3-23		
<i>Pilodius</i> aff. <i>spinipes</i> Heller, 1861	Morgan, 2000			
<i>Sulcodius</i> cf. <i>deflexus</i> (Dana, 1852)	Morgan, 2000 (as <i>Etisus</i> cf. <i>deflexus</i> )			
<i>Tweediea odhneri</i> (Gordon, 1934)	Ward, 1934 (as <i>Tweediea</i> <i>noelensis</i> Ward); Tweedie, 1947 (as <i>Phymodius odhneri</i> ); Morgan, 2000	CII-D16, CI2-D15, CI2-D17, CI2-D18, CI3-17, CI3-D02		
CYMOINAE				
<i>Cymo andreossyi</i> (Audouin, 1826)* <sup>CI</sup>	This paper	CI3-16	Tweedie, 1950	
<i>Cymo cerasma</i> Morgan, 1990)* <sup>CI, CK</sup>	This paper	CII-D04	This paper	CK1-08
<i>Cymo melanodactylus</i> Dana, 1852	Calman, 1909; Tweedie, 1947; Morgan, 2000; Davie, 2002	CI3-16	Tweedie, 1950	CK2-21
<i>Cymo quadrilobatus</i> Miers, 1884)* <sup>CI</sup>	This paper	CII-D14(126), CII-D17, CII-D18/19, CI2-D14	Tweedie, 1950; Davie, 2002	CK2-12
ETISINAE				
<i>Etisus albus</i> (Ward, 1934)	Ward, 1934 (as <i>Etisodes albus</i> Ward); Morgan, 2000; Davie, 2002	CI2-22		
<i>Etisus anaglyptus</i> H. Milne- Edwards, 1834	Morgan, 2000			
<i>Etisus bifrontalis</i> (Edmondson, 1935)	Davie, 2002			
<i>Etisus demani</i> Odhner, 1925)* <sup>CK</sup>	Tweedie, 1947; Morgan, 2000; Davie, 2002	CI2-22, CI3-16	This paper	CK1-18
<i>Etisus dentatus</i> (Herbst, 1785)* <sup>CI</sup>	This paper	CI3-14, CI3-16	Tweedie, 1950; Davie, 2002	CK2-21
<i>Etisus frontalis</i> Dana, 1852)* <sup>CK</sup>			This paper	CK1-18
<i>Etisus laevimanus</i> Randall, 1840			Tweedie, 1950; Davie, 2002	
<i>Etisus odhneri</i> Takeda, 1971)* <sup>CI, CK</sup>	This paper	CII-D17, CI2-D12	This paper	CK2-03
<i>Etisus splendidus</i> Rathbun, 1906)* <sup>CI</sup>	This paper	CII-D17		

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<b>EUXANTHINAE</b>				
<i>Danielea noelensis</i> (Ward, 1934)	Ward, 1934 (as <i>Medaeus noelensis</i> Ward); Tweedie, 1947 (as <i>Medaeus granulosus</i> Haswell); Morgan, 2000; Davie, 2002 (as <i>Paramedaeus noelensis</i> )			
<i>Euxanthus</i> aff. <i>exsculptus</i>			Tweedie, 1950 (as <i>Euxanthus exsculptus</i> Herbst); Davie, 2002 (as <i>Euxanthus exsculptus</i> Herbst)	
<b><i>Medaeus elegans</i> A. Milne-Edwards, 1867<sup>*CI, CK</sup></b>	This paper	CI3-D01	This paper	CK2-12, CK2-13
<i>Miersiella haswelli</i> (Miers, 1886)	Davie, 1997, 2002			
<i>Paramedaeus octogesimus</i> Ng & Clark, 2002			Ng & Clark, 2002	CK1-18
<b><i>Paramedaeus</i> sp.<sup>*CI</sup></b>	This paper	CI3-D08		
<b>KRAUSSIINAE</b>				
<i>Kraussia rugulosa</i> (Krauss, 1843)	Ward, 1934 (as <i>Kraussia proporcullana</i> Ward); Tweedie, 1947; Morgan, 2000; Davie, 2002	CI1-31(184), CI3-23	Tweedie, 1950	CK2-05, CK2-17
<i>Palapedia integra</i> (De Haan, 1835)			Davie, 2002	
<i>Palapedia rastripes</i> (Müller, 1887)			Tweedie, 1950 (as <i>Palapedia ?integra</i> (De Haan, 1835)); Serène, 1972; Davie, 2002	
<b>LIOMERINAE</b>				
<i>Bruciana</i> cf. <i>pediger</i>	Morgan, 2000 (as <i>Liomera</i> cf. <i>pediger</i> )			
<i>Liomera bella</i> (Dana, 1852)	Calman, 1909 (as <i>Carpilodes vaillantianus</i> A.M.E.); Balss, 1934 (as <i>Carpilodes bella</i> ); Ward, 1934 (as <i>Carpilodes bellus</i> ); Tweedie, 1947 (as <i>Carpilodes bellus</i> ); Morgan, 2000	CI1-13, CI1-31, CI1-D18/19, CI2-09, CI2-17, CI2-22, CI3-14, CI3-15, CI3-16, CI3-23, CI3-25	Tweedie, 1950 (as <i>Carpilodes bellus</i> )	CK1-02, CK2-21
<i>Liomera caelata</i> (Odhner, 1925)			Tweedie, 1950 (as <i>Carpilodes caelatus</i> ); Davie, 2002	
<i>Liomera cinctimana</i> (White, 1847)	Balss, 1934; Morgan, 2000	CI2-D17		
<i>Liomera laevis</i> (A. Milne-Edwards, 1873)			Tweedie, 1950 (as <i>Carpilodes laevis</i> ); Davie, 2002	CK1-02, CK1-18, CK1-19, CK2-05, CK2-21



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<i>Liomera monticulosa</i> (A. Milne-Edwards, 1873)	Calman, 1909 (as <i>Carpilodes cariosus</i> Alcock); Tweedie, 1947 (as <i>Carpilodes monticulosus</i> ); Morgan, 2000	CI2-D03, CI2-D06, CI2-D10, CI3-D04		
<i>Liomera pallida</i> (Borradaile, 1900)	Morgan, 2000	CI2-17, CI3-13, CI3-25	Tweedie, 1950 (as <i>Carpilodes pallidus</i> ); Davie, 2002	
<i>Liomera rugata</i> (H. Milne-Edwards, 1834)	Calaman, 1909 (as <i>Carpilodes rugatus</i> ); Ward, 1934 (as <i>Carpilodes rugatus</i> ); Tweedie, 1947 (as <i>Carpilodes rugatus</i> ); Morgan, 2000; Davie, 2002	CI1-31, CI3-25		
<i>Liomera stimpsonii</i> (A. Milne-Edwards, 1865)* <sup>CI</sup>	This paper	CI2-D03, CI2-D15, CI2-D18, CI2-D18, CI3-D05	Tweedie, 1950 (as <i>Carpilodes stimpsoni</i> ); Davie, 2002	
<i>Liomera tristis</i> (Dana, 1852)			Tweedie, 1950 (as <i>Carpilodes tristis</i> ); Davie, 2002	
<i>Liomera virgata</i> (Rathbun, 1906)* <sup>CI</sup>	This paper	CI2-D17, CI3-D02		
<i>Liomera</i> sp.	Morgan, 2000			
<i>Neoliomera cerasinus</i> Ng, 2002	Ng, 2002	CI1-D06, CI1-D08, CI2-D10, CI3-D02, CI3-D04		
<i>Neoliomera pubescens</i> (H. Milne-Edwards, 1834)			Wood Jones, 1909 (as <i>Liomera pubescens</i> )	
<i>Neoliomera richteroides</i> Sakai, 1969	Morgan, 2000			
POLYDECTINAE				
<i>Lybia leptochelis</i> (Zehntner, 1894)* <sup>CI</sup>	This paper	CI2-D08		
<i>Lybia tessellata</i> (Latreille, in Milbert, 1812)	Calman, 1909 (as <i>Melia tessellata</i> ); Tweedie, 1947; Morgan, 2000; Davie, 2002	CI3-D01, CI3-D05	Wood Jones, 1909 (as <i>Melia tessellata</i> ); Tweedie, 1950; Davie, 2002	CK1-02
<i>Polydectus cupulifer</i> (Latreille, in Milbert, 1812)			Tweedie, 1950; Davie, 2002	
XANTHINAE				
<i>Lachnopus bidentatus</i> (A. Milne-Edwards, 1867)	Calman, 1909 (as <i>Xantho bidentatus</i> ); Ward, 1934 (as <i>Lioxantho laevidorsalis</i> Miers); Davie, 2002	CI2-17, CI3-14		
<i>Lachnopus gibsonhilli</i> (Tweedie, 1950)			Tweedie, 1950 (as <i>Paraxanthias gibsonhilli</i> Tweedie); Davie, 2002	

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<i>Lachnopus ponapensis</i> (Rathbun, 1907)	Ward, 1934 (as <i>Paraxanthias haematostictus</i> Ward); Tweedie, 1947 (as <i>Paraxanthias ponapensis</i> ); Morgan, 2000; Davie, 2002	CI1-13(01), CI2-09, CI2-17, CI2-22, CI3-23		
<i>Lachnopus subacutus</i> (Stimpson, 1858)	Ward, 1934 (as <i>Lioxantho subacuta</i> ); Tweedie, 1947; Morgan, 2000; Davie, 2002	CI2-17, CI2-D02, CI3-D04	Tweedie, 1950	
<i>Lachnopus tahitensis</i> De Man, 1889			Tweedie, 1950; Davie, 2002	
<i>Leptodius nudipes</i> (Dana, 1852)	Ward, 1934; Morgan, 2000	CI1-09, CI1-13, CI2-22, CI3-13, CI3-14, CI3-16, CI3-23, CI3-25	Tweedie, 1950 (as <i>Xantho nudipes</i> )	
<i>Leptodius planus</i> Ward, 1934	Ward, 1934; Balss, 1938 (as <i>Xantho (Leptodius) gracilis</i> Dana); Tweedie, 1947 (as <i>Leptodius gracilis</i> Dana); Morgan, 2000 (as <i>Leptodius gracilis</i> Dana)	CI1-09, CI3-13	Tweedie, 1950 (as <i>Xantho gracilis</i> )	CK1-08, CK2-21
<i>Leptodius sanguineus</i> (H. Milne-Edwards, 1834)	Calman, 1909; Balss, 1934; Ward, 1934; Tweedie, 1947; Morgan, 2000	CI1-09, CI1-13, CI1-31, CI2-03(012), CI2-09(033), CI2-17, CI2-22, CI3-07, CI3-13, CI3-16, CI3-23, CI3-25	Wood Jones (1909); Tweedie, 1950 (as <i>Xantho sanguineus</i> )	CK1-08, CK1-16, CK2-08, CK2-09, CK2-19, CK2-21, Golf Course beach, Trannies beach
<i>Lioxanthodes alcocki</i> Calman, 1909	Calman, 1909; Tweedie, 1947 (as <i>Paraxanthias alcocki</i> ); Morgan, 2000; Davie, 2002	CI3-16, CI3-17		
<b><i>Macromedaeus crassimanus</i> (A. Milne-Edwards, 1867)*<sup>CI</sup></b>	This paper	CI3-15		
<i>Macromedaeus nudipes</i> (A. Milne-Edwards, 1867)	Balss, 1934 (as <i>Medaeus nudipes</i> ); Morgan, 2000; Davie, 2002	CI1-31(182), CI2-17, CI3-14, CI3-23, CI3-25	Tweedie, 1950 (as <i>Medaeus nudipes</i> ); Davie, 2002	CK1-02, CK2-17
<b><i>Macromedaeus quinquentatus</i> (Krauss, 1843)*<sup>CI</sup></b>	This paper	CI3-23		
<i>Nanocassiope alcocki</i> (Rathbun, 1902)	Morgan, 2000	CI3-D02, CI3-D08		
<b><i>Nanocassiope tridentata</i> Davie, 1995)*<sup>CK</sup></b>			This paper	CK2-12
<i>Neoxanthias impressus</i> (Latreille, in Milbert, 1812)			Tweedie, 1950	CK1-02
<b><i>Paraxanthias aff. elegans</i>*<sup>CI</sup></b>	This paper	CI3-D02		
<i>Paraxanthias notatus</i> (Dana, 1852)	Calman, 1909 (as <i>Xanthodes notatus</i> ); Tweedie, 1947; Morgan, 2000	CI1-31, CI2-17, CI3-23		
<b><i>Xanthias cherbonnieri</i> Guinot, 1964)*<sup>CI</sup></b>	This paper	CI2-D18		

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<i>Xanthias lamarckii</i> (H. Milne-Edwards, 1834)	Calman, 1909 (as <i>Xanthodes lamarckii</i> ); Ward, 1934; Tweedie, 1947; Morgan, 2000)	CI1-31, CI2-09, CI2-17, CI2-22, CI3-13, CI3-14, CI3-16, CI3-17, CI3-23, CI3-25		
<i>Xanthias</i> cf. <i>latifrons</i> (De Man, 1887)	Morgan, 2000			
<i>Xanthias punctatus</i> (H. Milne-Edwards, 1834)			Wood Jones, 1909 (as <i>Lioxantho punctatus</i> )	
ZOSIMINAE				
<i>Atergatis dilatatus</i> De Haan, 1835* <sup>CI</sup>	This paper	CI3-D04		
<i>Atergatis granulatus</i> De Man, 1889* <sup>CI</sup>	This paper	CI2-D05		
<i>Atergatis latissimus</i> (H. Milne-Edwards, 1834)	Tweedie, 1947; Morgan, 2000; Davie, 2002	CI1-31		
? <i>Atergatis tweediei</i> Ward, 1934	Ward, 1934; Tweedie, 1947; Morgan, 2000; Davie, 2002 (as <i>Atergatopsis tweediei</i> )			
<i>Atergatopsis signata</i> (Adams & White, 1849)	Morgan, 2000		Tweedie, 1950; Davie, 2002	
<i>Lophozozymus dodone</i> (Herbst, 1801)	Calman, 1909; Tweedie, 1947; Morgan, 2000; Davie, 2002		Tweedie, 1950	CK1-02
<i>Lophozozymus pulchellus</i> A. Milne-Edwards, 1867			Tweedie, 1950; Davie, 2002	
<i>Platypodia anaglypta</i> (Heller, 1861)* <sup>CI</sup>	This paper	CI3-15		
<i>Platypodia cristata</i> (A. Milne-Edwards, 1865)			Tweedie, 1950; Davie, 2002	
<i>Platypodia granulosa</i> (Rüppell, 1830)	Davie, 2002		Tweedie, 1950 (as <i>Platypodia keelingi</i> Tweedie); Davie, 2002	CK1-22
<i>Zosimus actaeoides</i> (A. Milne-Edwards, 1867)* <sup>CK</sup>	Morgan, 2000	CI2-D18	This paper	CK2-18
<i>Zosimus aeneus</i> (Linnaeus, 1758)	Calman, 1909 (as <i>Zozymus aeneus</i> ); Tweedie, 1947 (as <i>Zozymus aeneus</i> ); Morgan, 2000; Davie, 2002	CI1-13, CI3-25 (typical colouration)	Tweedie, 1950 (as <i>Zozymus aeneus</i> ); Davie, 2002	CK1-02, CK1-08, CK2-17 (bicoloured)
<i>Zozymodes cavipes</i> (Dana, 1852)	Calman, 1909 (as <i>Leptodius cavipes</i> ); Ward, 1934 (as <i>Leptodius cavipes</i> ); Tweedie, 1947 (as <i>Leptodius cavipes</i> ); Morgan, 2000; Davie, 2002; Lasley & Ng, 2013	CI1-31, CI2-09, CI2-17, CI2-22		
<i>Zozymodes pumilus</i> (Hombron & Jacquinot, 1846)			Tweedie, 1950 (as <i>Zozymodes pumilus</i> ); Lasley & Ng, 2013	
<i>Zozymodes xanthoides</i> (Krauss, 1843)* <sup>CK</sup>			This paper	CK1-02, CK2-09