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Crabs (Crustacea, Decapoda) from the Seas of East and Southeast Asia Collected by the RV *Hakuhō Maru* (KH-72-1 Cruise) 4. South China Sea

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Abstract The crabs collected by the RV *Hakuhō Maru* (KH-72-1 cruise) in the South China Sea are recorded as the fourth part following the previous three parts of the series (Sulu Sea and Sibutu Passage, Timor Sea, and Sahul Shelf). They are mostly shallow water inhabitants, representing 35 species of 31 genera in 13 families, with two new species of the family Epialtidae, *Naxioides elongatus* sp. nov. and *Samadinia hakuhoae* sp. nov. Taxonomic comments are given for each species. In this fourth and final part, biogeographic notes on all the species collected by RV *Hakuhō Maru* (KH-72-1 cruise) are briefly summarized, together with a list of the crabs collected by the RV *Hakuhō Maru* (KH-73-2 cruise) in the South China Sea.
Key words: Offshore crabs, Brachyura, new species, taxonomy, biogeography, West Pacific.

Introduction

This is the fourth part of the taxonomic studies on the crabs collected by the RV *Hakuhō Maru* (KH-72-1 cruise) in the seas of East and Southeast Asia. In the previous three parts (Takeda *et al.*, 2021, 2022a–b) published in the *Bulletin of the National Museum of Nature and Science*, *Tokyo*, 17 species in 14 genera and 9 families from the Sulu Sea and the Sibutu Passage in the Philippines, 16 species in 14 genera and 10 families from the Timor Sea, and 41 species in 28 genera and 10 families from the Sahul Shelf were recorded. In this fourth and final part of the series, 35 species in 31 genera and 13 families from the South China Sea are recorded. All the species collected by the RV *Hakuhō Maru* (KH-72-1 cruise) are tabulated, together with the species from the South China Sea collected by the RV *Hakuhō Maru* (KH-73-2 cruise).

Materials and Methods

Measurements and abbreviations used in the descriptions and notes follow Takeda *et al.*, 2021, 2022a, b). The specimens are deposited at the Tsukuba Research Departments, National Museum of Nature and Science, Tokyo (NSMT). Abbreviations used are CB and CL (carapace breadth and length, shown as CB × CL), PCL

Table 1. Stations in the South China Sea, from where the crabs were collected by the RV *Hakuhō Maru* (KH-72-1 cruise).

Sta. 38: 02°07.0′N, 104°53.0′E, 69 m; Smith-McIntyre Spring-loaded Bottom Sampler set in ORI Single-sampler Frame; 9 July, 1972
Sta. 42: 04°03.2′N, 106°09.3′E–04°03.2′N, 106°09.4′E, 85–88 m; 3 m beam trawl; 9 July, 1972
Sta. 45: 05°13.5′N, 107°00.8′E–05°13.7′N, 107°01.1′E, 60–60 m; 3 m beam trawl; 10 July, 1972
Sta. 48: 06°21.2′N, 108°18.3′E–06°20.9′N, 108°18.2′E, 93–93 m; 3 m beam trawl; 10 July, 1972
Sta. 50: 06°51.6′N, 108°47.2′E–06°51.6′N, 108°48.9′E, 132–137 m; 3 m beam trawl; 10–11 July, 1972
Sta. 52: 07°26.3′N, 109°14.9′E–07°30.2′N, 109°13.2′E, 265–286 m; 3 m beam trawl; 7 November, 1972;
Sta. 54: 07°50.0′N, 109°23.8′E–07°50.3′N, 109°25.1′E, 760–777 m; 3 m beam trawl; 10 June 1972

Table 2. List of the species (Crustacea: Decapoda: Brachyura) collected by the RV *Hakuhō Maru* (KH-72-1 cruise) from the South China Sea, with the station number and depth.

Section Podotremata Guinot, 1977
Family Dromiidae De Haan, 1833
Mclaydromia colini Guinot & Tavares, 2003 — Sta. 45 (60 m) (Fig. 1A)
Family Homolodromiidae Alcock, 1899
Homolodromia kai Guinot, 1993 — Sta. 54 (760–777 m)
Family Latreillidae Stimpson, 1858
Latreillia pennifera Alcock, 1900 — Sta. 48 (93 m)
Family Homolidae De Haan, 1839
Latreillopsis bispinosa Henderson, 1888 — Sta. 48 (93 m); Sta. 50 (132–137 m)
Family Raninidae De Haan, 1839
Cosmonotus grayii Adams, 1847 — Sta. 45 (60 m) (Fig. 2A–B)
Section Eubrachyura Saint Laurent, 1980
Family Calappidae Ortmann, 1893
Calappa philargius (Linnaeus, 1758) — Sta. 45 (60 m)
Mursia australiensis Campbell, 1971 — Sta. 52 (265–286 m) (Fig. 1B)
Family Leucosiidae Samouelle, 1819
Parilia pattersoni Ng, Devi & Kumar, 2018 — Sta. 42 (85–88 m) (Fig. 1E–F)
Family Inachidae MacLeay, 1838
Cyrtomaia suhmii Miers, 1886 — Sta. 54 (760–777 m)
Dorhynchus rostratus (Sakai, 1932) — Sta. 54 (760–777 m) (Fig. 3A)
Onchinopus angustifrons Takeda & Miyake, 1969 — Sta. 48 (93–93 m) (Fig. 3B)
Family Epialtidae MacLeay, 1838
Naxioides elongatus sp. nov. — Sta. 50 (132–137 m); Sta. 54 (760–777 m) (Figs. 4, 7D–G)
Oxypleurodon sphenocarcinoides (Rathbun, 1916) — Sta. 54 (760–777 m) (Fig. 3C–E)
Samadinia hakuhoae sp. nov. — Sta. 54 (760–777 m) (Figs. 5–7, 7D–G)
Family Portunidae Rafinesque, 1815
Charybdis (Archias) hongkongensis Shen, 1934 — Sta. 42 (85–88 m) (Fig. 8)
Charybdis (Archias) vadorum Alcock, 1899 — Sta. 50 (132–137 m) (Fig. 9C–D)
Incultus tuberculosus (A. Milne-Edwards, 1861) — Sta. 45 (60 m) (Fig. 11D)
Lissocarcinus arkati Kemp, 1923 — Sta. 45 (60 m) (Fig. 1D)
Lissocarcinus polybioides Adams & White, 1849 — Sta. 45 (60 m)
Lupocycloporus innominatus (Rthbun, 1909) — Sta. 45 (60 m) (Fig. 9A–B)
Lupocyclus philippinensis Semper, 1880 — Sta. 45 (60 m) (Fig. 11F)
Podophthalmus nacreus Alcock, 1899 — Sta. 45 (60 m) (Fig. 1C)
Thalamita sexlobata Miers, 1886 — Sta. 45 (60 m) (Fig. 9E–F)
Family Pilumnidae Samouelle, 1891
Actumnus forficigerus (Stimpson, 1858) — Sta. 45 (60 m) (Fig. 10C–D)
Actumnus squamosus (De Haan, 1835) — Sta. 45 (60 m) (Fig. 10E–F)
Bathypilumnus sinensis (Gordon, 1930) — Sta. 45 (60 m) (Fig. 11A–B)
Celatoplax truncatifrons Rathbun, 1914 — Sta. 42 (85–88 m) (Fig. 12)
Eumedonus niger H. Milne Edwards, 1834 — Sta. 50 (132–137 m) (Fig. 11C)
Gonatonotus pentagonus White, 1847 — Sta. 45 (60 m)
Pilumnus minutus (De Haan, 1835) — Sta. 45 (60 m) (Fig. 10A–B)
Serenolumnus kasijani (Serène, 1969) — Sta. 45 (60 m)
Xestopilumnus cultripollex Ng & Dai, 1997 — Sta. 42 (85–88 m) (Fig. 13)
Family Chasmocarcinidae Serène, 1964
Camatopsis leptomerus Ng & Castro, 2016 — St. 42 (85–88 m) (Fig. 14G–H)
Camatopsis rubida Alcock & Anderson, 1899 — Sta. 52 (265–286 m) (Fig. 14A–F)
Family Retroplumidae Gill, 1894
Retropluma denticulata Rathbun, 1932 — Sta. 42 (85–88 m) (Fig. 11E)

(carapace length excluding pseudorostral spines/teeth), P2–P5 (first to fourth ambulatory legs), and G1 and G2 (first and second male gonopods).

The cruise track of the RV *Hakuhō Maru* (KH-72-1 cruise) is shown in Takeda *et al.* (2021: fig. 1). The sampling stations in the South China Sea are shown in Table 1, and the species identified are listed in Table 2, with data of the stations and depth for each species.

This paper was completed by three Japanese and one Australian researchers under each specialty, with the same way recorded in the previous part (Takeda *et al.*, 2022b). The authors are equally responsible for this paper.

Taxonomic Accounts

Section Podotremata Guinot, 1977

Family Dromiidae De Haan, 1833

Genus ***Mclaydromia*** Guinot and Tavares, 2003

[Type species: *Mclaydromia colini* Guinot and Tavares, 2003]

Mclaydromia colini Guinot and Tavares, 2003

(Fig. 1A)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♀ (CB 13.1 × CL 15.0 mm including pseudorostral teeth), NSMT-Cr 30898.

Remarks. The female identified here as *Mclaydromia colini* agrees well with the smaller male from the Sahul Shelf recorded in the third part (Takeda *et al.*, 2022b: fig. 13C). The carapace, chelipeds, and ambulatory legs are wholly covered with short, thick, felt-like hairs, and the seemingly bidentate front with small median tooth and prominent pseudorostral tooth on each side. Denudation revealed the carapace anterolateral margin to be armed with two distinct teeth margined with irregular granules.

Distribution. Originally reported from New Caledonia at 14–62 m depth, and then from the Sahul Shelf, 49–52 m depth; now, from the South China Sea at 60 m depth.

Family Homolodromiidae Acock, 1899

Genus ***Homolodromia*** A. Milne-Edwards, 1880

[Type species: *Homolodromia paradoxa* A. Milne-Edwards, 1880]

Homolodromia kai Guinot, 1993

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 54, 1 ♂ (CB 10.7 × CL 13.9 mm including pseudorostral tooth), NSMT-Cr 30899.

Remarks. The present male from the station 54 (760–777 m depth) agrees well with the specimens from the Timor Sea (535–690 m depth) recorded in the second part of this study (Takeda *et al.*, 2022a: fig. 3B).

Distribution. Deep-sea inhabitants of the West and South Pacific (350–935 m): New Zealand, New Caledonia, Vanuatu, eastern Australia, and the South and East China Seas (Ahyong, 2008).

Family Latreillidae Stimpson, 1858

Genus ***Latreillia*** Roux, 1830

[Type species: *Latreillia elegans* Roux, 1830]

Latreillia pennifera Alcock, 1900

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 48, 4 ♂♂ (CB 5.5 × PCL 9.1 mm to 6.1 × 9.6 mm), 4 ovig. ♀♀ (6.7 × 11.0 mm to 7.6 × 11.8 mm), NSMT-Cr 30900.

Remarks. The genus *Latreillia* was extensively revised by Williams (1982) and divided into two genera, *Latreillia* s.s. with the P5 propodus fringed with feather-like setae, and a new genus, *Eplumura*, with the P5 propodus lacking the conspicuous fringe of setae.

The specimen identified as *L. pennifera* is without doubt referred to *Latreillia* which comprises *L. elegans* Roux, 1830 (= *L. manningi* Williams, 1982 as a synonym) from the Atlantic and Mediterranean Sea, *L. williamsi* Melo, 1990 from off Brazil, and three Indo-Pacific species, *L. valida* De Haan, 1839, *L. pennifera* Alcock, 1900 and *L. metanesa* Williams, 1982. These species were well figured by Williams (1982) and Castro *et al.* (2003) based on numerous specimens forming two groups, one with and the other without a

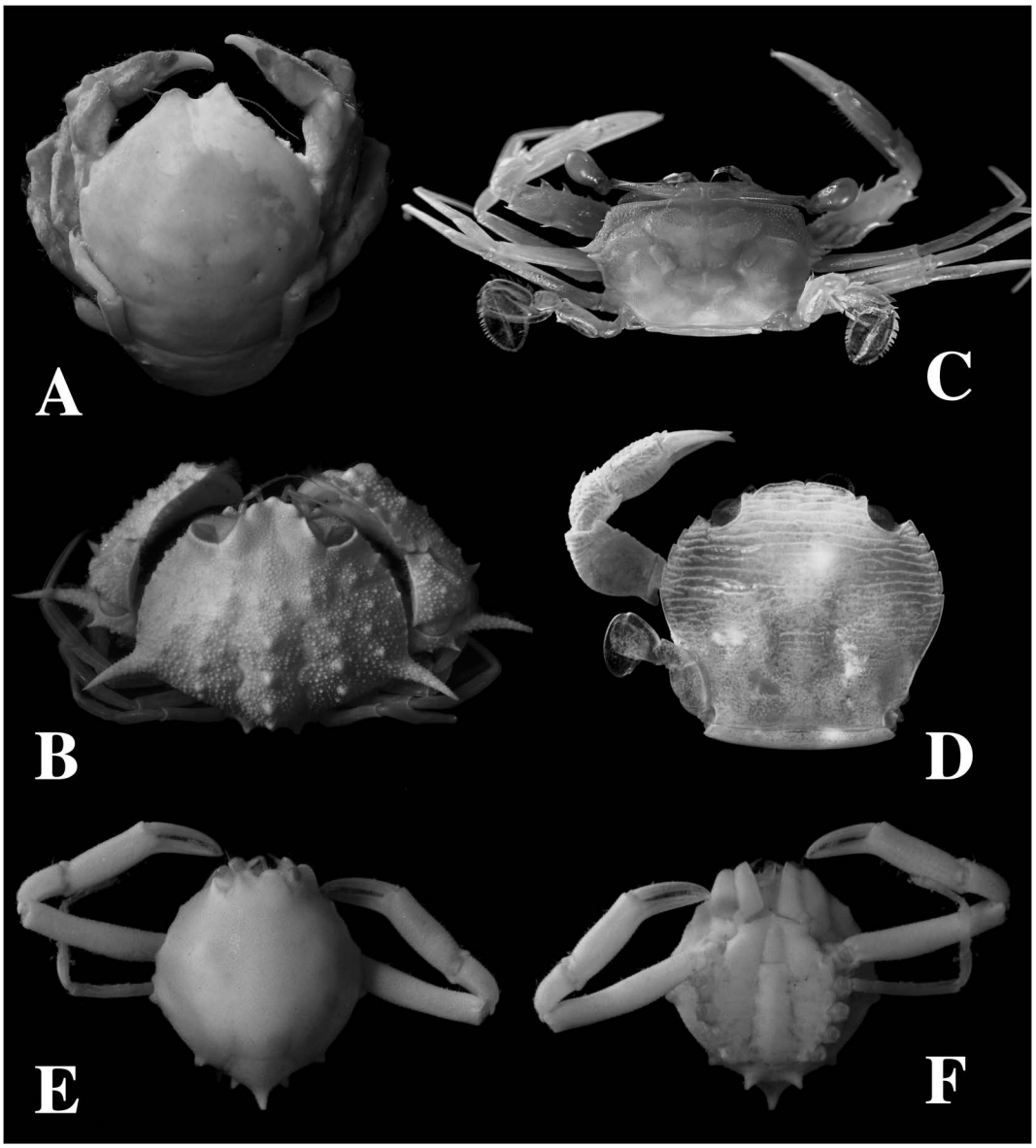

Fig. 1. A: *Mclaydromia colini* Guinot and Tavares, ♀ (NSMT-Cr 30898; CB 13.1 × CL 15.0 mm including pseudorostral teeth) from sta. 45. B: *Mursia australiensis* Campbell, juv. (NSMT-Cr 30905; CB 8.2 mm excluding lateral tubercles, CL 7.4 mm) from sta. 52. C: *Podophthalmus nacreus* Alcock, ♀ (NSMT-Cr 30925; CB 11.0 × CL 7.1 mm) from sta. 45. D: *Lissocarcinus arkati* Kemp, ♀ (NSMT-Cr 30921; CB 9.8 × CL 8.7 mm) from sta. 45. E–F: *Parilia pattersoni* Ng, Devi and Kumar, juv. (NSMT-Cr 30906; CB 5.6 × CL 6.6 mm including posterior median tubercle) from sta. 42.

dorsal spine on the neck. The present specimen shares the absence of the dorsal spine together with two Atlantic species and *L. pennifera* from the Indo-West Pacific. In the two Atlantic species, the dactylus of the last leg (P5) forms a subchela with subdistal spinules of the propodus. *Latreillia pennifera* is seemingly close to *L. valida*, but in addition to the distinctive differences mentioned above, the carapace is less stout, with the longer and slender neck, as figured by Alcock (1901: pl.

7 fig. 27) and Castro *et al.* (2003: fig. 10).

Distribution. Known localities are mostly in the Indian Ocean from the Gulf of Martaban and the Mergui Archipelago to South Africa, and otherwise recorded from the Kai Islands, Indonesia, and Mindanao, the Philippines. Its bathymetric range is 37–229 m.

Family Homolidae De Haan, 1839

Genus ***Latreillopsis*** Henderson, 1888

[Type species: *Latreillopsis bispinosa* Henderson, 1888]

Latreillopsis bispinosa Henderson, 1888

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 48, 1 ♂ (CB 5.3 mm excluding hepatic tubercles, PCL 6.2 mm), 1 ovig. ♀ (6.6 × 8.0 mm), NSMT-Cr 30901. — Sta. 50, 1 ovig. ♀ (13.4 × 15.5 mm), NSMT-Cr 30902.

Remarks. The genus *Latreillopsis* was extensively studied, with detailed notes, line drawings and photographs, by Guinot and Richer de Forges (1995), who recognized *L. bispinosa* Henderson, 1888 (and its new forma *L. bispinosa* f. *trispinosa*), *L. laciniata* Sakai, 1936, *L. gracilipes* Guinot and Richer de Forges, 1981, *L. tetraspinosa* Dai and Chen, 1980, and three new species, *L. daviei*, *L. antennata* and *L. cornuta*. Richer de Forges and Ng (2007) subsequently recorded *L. bispinosa* and *L. tetraspinosa*, with many specimens from the Philippines and described a new species, *L. marivenae* from the Philippines, Richer de Forges and Ng (2007) also recorded *L. gracilipes* from Vanuatu, and *L. tetraspinosa* from the Solomon Islands, and formally named *L. trispinosa*, a replacement name of the nomenclaturally incorrect *L. bispinosa* f. *trispinosa* Guinot and Richer de Forges, 1995. Castro and Naruse (2014) described *L. okala* from Hawaii.

The present ovigerous female studied here was confirmed as *L. bispinosa* following the key and many photographs and detailed drawings given by Guinot and Richer de Forges (1995), and the figures and photograph by Ahyong *et al.* (2009). The most distinctive features are the unarmed pseudorostral spines and the subhepatic protuberance armed with two long spines instead of four spines in the most closely related species, *L. tetraspinosa* Dai and Chen, 1980.

Distribution. Japan, Taiwan, South China Sea, and the Philippines, 20–350 m in depth. Chen and Xu (1991) recorded this species from the Nansha Islands in the South China Sea, at 185 m depth.

Family Raninidae De Haan, 1839

Genus ***Cosmonotus*** Adams, 1847

[Type species: *Cosmonotus grayii* Adams, 1847]

Cosmonotus grayii Adams, in Belcher, 1847

(Fig. 2A–B)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♀ (CB 5.1 × CL 6.1 mm), NSMT-Cr 30903.

Remarks. In describing the third species of the genus *Cosmonotus*, C. *mclaughlinae*, Tavares (2006) suggested that *C. grayii* recorded by Takeda and Miyake (1970) from Japanese waters may be referable to an unknown species different from both of *C. grayii* Adams, in Belcher, 1847, and *C. genkaiae* Takeda and Miyake, 1970. This suggestion stemmed mainly from the fact that the supraorbital border of *C. grayii* was illustrated as having only one notch by Takeda and Miyake (1970: fig. 1A) for a specimen from off the Tsushima Islands, north of Kyushu. During this study, we could not re-examine the specimen reported by Takeda and Miyake (1970) and Takeda (1973b), but examined several additional Japanese specimens as follows: — Shimoda, Sagami Bay (1 ♀, NSMT-Cr 7913); Suruga Bay (1 ♂, 1 ♂ infested by a *Sacculina*, NSMT-Cr 12054); Kushimoto, Kii Peninsula (2 ♂♂, 1 ♀, NSMT-Cr 6388); Tosa Bay (1 ♂, NSMT-Cr 12772); West of Goto Islands (1 ♂, NSMT-Cr 9789); Tsushima Islands (4 ♂♂, 1 ♀, NSMT-Cr 979, 980, 982, 983). All of them proved to be referable to *C. mclaughlinae*, agreeing well with the accounts by Tavares (2006) and the subsequent record by Seo *et al.* (2018); the main part of the carapace dorsal surface is smooth, but the

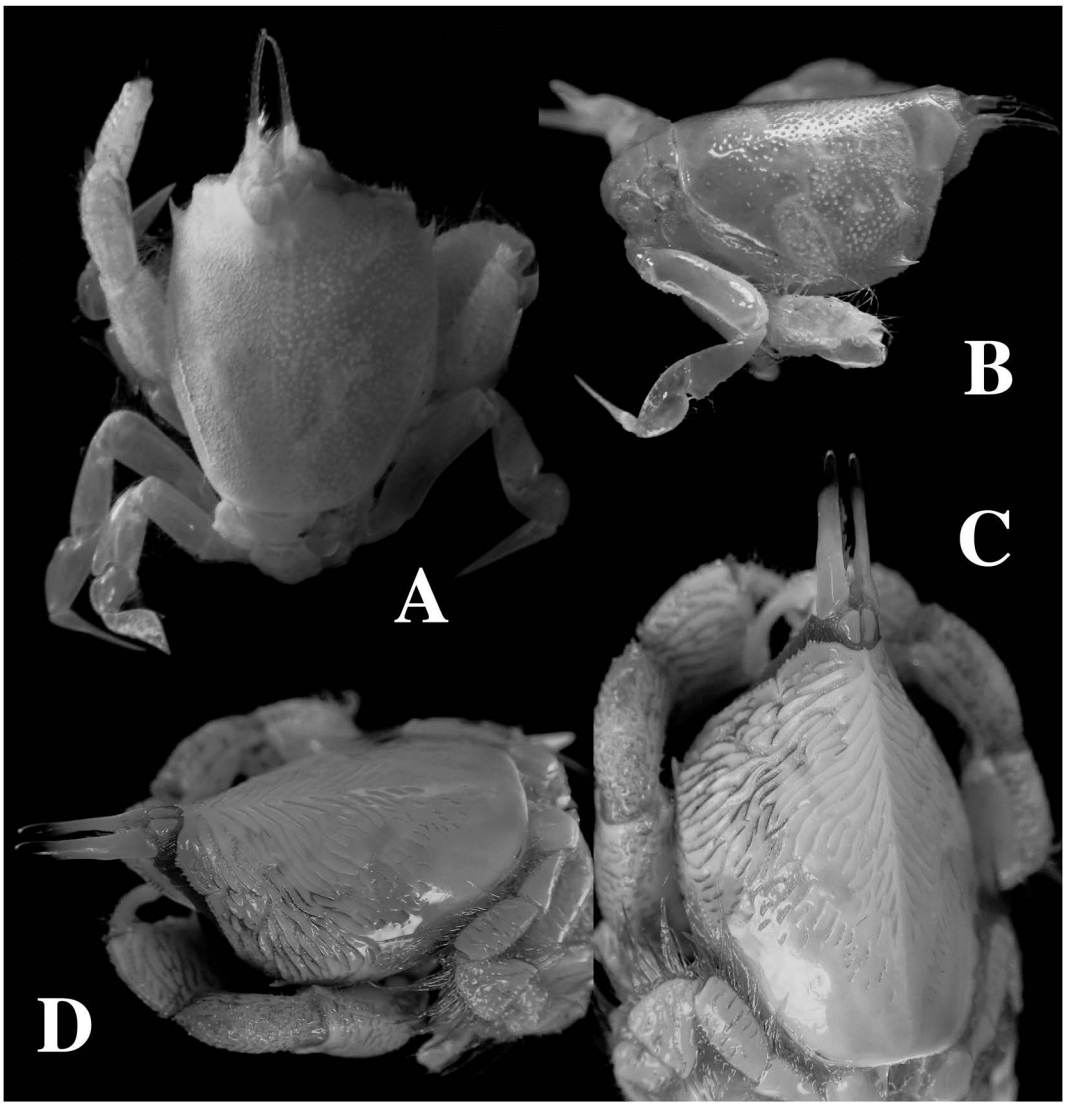

Fig. 2. A–B: *Cosmonotus grayii* White, ♀ (NSMT-Cr 30903; CB 5.1 × CL 6.1 mm) from sta. 45. C–D: *Cosmonotus genkaiae* Takeda and Miyake, ♂ (NSMT-Cr 13917; CB 14.2 × CL 19.4 mm) from the East China Sea, 182–167 m depth.

anterolateral portion is distinctly roughened with minute granules of irregular size, and the carapace midline is rather thickened and ridged for much of its length, somewhat like a "backbone."

Cosmonotus genkaiae is distinguished from two congeneric species by the characteristic dorsal sculpture of the carapace, and is currently known only from the male holotype from the Tsushima Islands and the paratype female from the East China Sea. Takeda and Miyake (1970) mentioned that one male specimen recorded by Yokoya (1933) as *C. grayii* is referable to *C. genkaiae.* The species was said to be in poor condition, but reliably identified based on the dorsal carapace sculpture. The locality is the S.S. Sôyô-Maru station 465 (north of the Goto Islands, west of Hirato, 106 m) is not far from the type locality of *C. genkaiae*, off the Tsushima Islands (114 m depth). Otherwise, Nagai (1991: pl. 1, fig. 4) recorded a female from off Shionomisaki, Kii

Peninsula, 150 m depth, as the second record of *C. genkaiae* since the original description. The photograph is not clear, but the diagnostic dorsal sculpture is distinguishable. During this study, we examined a male from the East China Sea, 182–167 m depth (NSMT-Cr 13917, Fig. 1C–D) preserved in the Tsukuba Research Departments, National Museum of Nature and Science, Tokyo. In this specimen, the carapace dorsal surface is much more strongly striated than in the holotype, with the longer and deeper striae closely set together, and the carapace dorsal midline is weakly ridged throughout the whole length; the frontal median sinus is provided with a small tubercle ventrally, as mentioned in the original description, and the supraorbital margin is interrupted only by one notch.

The present specimen from the South China Sea is identified as *C. grayii* owing to the carapace dorsal sculpture being wholly and uniformly covered with small pits, the absence of the distinct median ridge on the carapace dorsal surface, and the presence of two notches on the supraorbital border, without median tubercle at the bottom of the frontal median sinus. Chen and Xu (1991) recorded *C. grayii* from the South China Sea, 50–138 m in depth; their figures seem to agree with the figures given by Takeda and Miyake (1970, figs. 1A, 2G–I, 3C–D). Chen and Sun (2002) also recorded *C. grayii* from the East and South China Seas, without definite locality of the figured specimen in the East China Sea or South China Sea, but their figures (fig. 79) are reproduced from Chen and Xu (1991).

The authorship and publication year of the genus *Cosmonotus* and the species, *C. grayii*, were clarified by Clark and Presswell (2001). The description of *C. grayii* appeared in two papers of same title and content, "Short descriptions of new or little-known decapod Crustacea," published in "*Proceedings of the Zoological Society of London*, 15 (1847) and "*The Annals and Magazine of Natural History*, *including Zoology*, *Botany*, *and Geology*, ser. 2, vol. 2 (1848)," but their actual dates of publication were indicated by them as 29 March and October in 1848, respectively. According to Low *et al.* (2020), however, the brief explanations of the genus and species by Adams (1847) in *Narrative of the Voyage of H.M.S. Samarang* are available for the original definition and description of a new genus and a new species, *Cosmonotus grayii*.

Distribution. Takeda and Miyake (1970) provided the synonymy list of *C. grayii* known to date including the literature recording the specimens from Japanese waters (Yokoya, 1933; Sakai, 1937, 1965). The type locality is Borneo, with a wide geographical range in the Indo-West Pacific from the West Pacific to Western Australia and to the east coast of Africa and the Red Sea, with a bathymetric range of 30–212 m. There may be some misidentifications with *C. mclaughlinae* from the West Pacific, and therefore the specimens from Taiwan, the Philippines, and the South China Sea should be re-examined to determine whether both species are sympatric, parapatric or allopatric in their distributional patterns.

Section Eubrachyura De Saint Laurent, 1980

Family Calappidae De Haan, 1833

Genus ***Calappa*** Weber, 1795

[Type species: *Cancer granulatus* Linnaeus, 1758]

Calappa philargius (Linnaeus, 1758)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, left cheliped, NSMT-Cr 30904.

Remarks. Only the left cheliped remains in a vial, with a large rounded blotch each on the upper part of the palm outer surface and the basal part of the carpus outer surface. *Calappa philargius* is one of the more common representatives of the shallow-water species of *Calappa* in the Indo-West Pacific (Galil, 1997).

Distribution. West and South Pacific from Japan to Australia and New Caledonia, the Indian Ocean, and the Red Sea, 30–100 m depth.

Genus ***Mursia*** Desmarest, 1823
[Type species: *Mursia cristiata* H. Milne Edwards, 1837]

Mursia australiensis Campbell, 1971

(Fig. 1B)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 52, 1 juv. (CB 8.2 mm excluding lateral tubercles, CL 7.4 mm), NSMT-Cr 30905.

Remarks. The present juvenile specimen referred here to *Mursia australiensis* agrees well with the descriptions and photographs given by the original author (Campbell, 1971), Galil (1993), and Mendoza and Nugroho (2021). The carapace is narrow and convex in both directions; the anterolateral margin is only weakly convex, and the posterolateral margin is strongly convergent toward the lateral end of the carapace posterior margin. The carapace dorsal surface is densely covered with granules and sculptured with three longitudinal ridges at the median gastric, cardiac and intestinal regions and at each branchial region; three ridges are fringed each with a row of bosses; four bosses in a transverse row at the anterior part of the mesogastric and protogastric regions, four in a longitudinal row on the posterior part of the mesogastric, cardiac and intestinal regions, and three in an oblique row on the branchial region. The carapace posterior margin is narrow, and angulated at each lateral end, its median part being produced into an obtuse tubercle that is slightly smaller than the carapace lateral end. Each lateral tubercle of the carapace is sharp, one fourth as wide as the carapace, and weakly directed posterolaterally and obliquely upward. The tubercle at the distal end of the cheliped merus is also sharp, and as long as or slightly longer than the carapace lateral tubercle, with the basal half directed horizontally and distal half directed posterolaterally.

Mursia aspera Alcock, 1899, recorded by Miyake (1983) from Japan, was tentatavily considered by Galil (1993) to be *M. australiensis* based on its fresh coloration. However, the species of *Mursia* generally have a similar color in life, without specific value, and therefore it is presently difficult to determine the true identity of the Japanese specimen.

Distribution. Previously known from Australia (southern Queensland and New South Wales, 100–136 m), New Caledonia (150–320 m) and Indonesia (Sunda Strait and western Java, 234–281 m). Otherwise, questionably from Tosa Bay, the Pacific coast of Japan, 280 m (Miyake, 1983, as *M. aspera*).

Family Leucosiidae Samouelle, 1819
Genus ***Parilia*** Wood-Mason, 1891
[Type species: *Parilia alcocki* Wood-Mason, in Wood-Mason and Alcock, 1891]

Parilia pattersoni Ng, Devi and Kumar, 2018

(Fig. 1E–F)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 42, 1 juv. (CB 5.6 × CL 6.6 mm including posterior tubercle), NSMT-Cr 30906.

Remarks. The genus *Parilia* was extensively revised by Ng *et al.* (2018) who recognized four species: *P. alcocki* Wood-Mason, in Wood-Mason and Alcock, 1891, *P. major* Sakai, 1961, *P. ovata* Chen, 1984, and *P. pattersoni* Ng, Devi and Kumar, 2018.

The juvenile male examined is somewhat different from the full-grown specimens described by Ng *et al.* (2018) in having a narrower, longitudinally ovate carapace similar to *P. ovata*, but agrees with the photograph and comments on the young male recorded by Mendoza and Nugroho (2021). In *P. ovata*, the chelipeds and ambulatory legs are nearly smooth, and each carapace lateral margin is armed with only a small tubercle, while in the present species the chelipeds and ambulatory legs are thickly covered with minute granules and tubercles, and each carapace lateral margin is armed with three low, but distinct tubercles that are distinct in the juvenile specimen.

Distribution. Tamil Nadu, southeastern India (Ng *et al.*, 2018), and off Nias Island in eastern Sumatra (Doflein, 1904, as *P. alcocki*) and Pelabuhanratu Bay in southwestern Java, 183–255 m depth (Mendoza and Nugroho (2021). As

Ng *et al.* (2018) mentioned, the record of *P. major* from the Gulf of Manaar, southeast India, by Vidhya *et al.* (2017) may be referred to that of *P pattersoni*.

Family Inachidae MacLeay, 1838
Genus ***Cyrtomaia*** Miers, 1886
[Type species: *Cyrtomaia murrayi* Miers, 1886]
Cyrtomaia suhmii Miers, 1886

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 54, 5 ♂♂ (CB 19.7 × CL 19.9 mm to 28.7 × 30.3 mm), 6 ♀♀ (17.2 × 17.4 mm to 19.3 × 19.1 mm), NSMT-Cr 30907.

Remarks. *Cyrtomaia suhmi* is not uncommon in West Pacific waters, and in the present series of study, two specimens having a deformed carapace were already recorded from the depths of 610–690 m in the Timor Sea (Takeda *et al.* 2022a). Eleven specimens at hand have no distinct morphological abnormalities, and they are preserved with a number of detached ambulatory legs.

Distribution. Indo-West Pacific, from Japan to Australia and India through the Philippines and Indonesia, 488–1125 m depth.

Genus ***Dorhynchus*** Wyville Thomson, 1873
[Type species: *Dorhynchus thomsoni* Wyville Thomson, 1873]
Dorhynchus rostratus (Sakai, 1932)

(Fig. 3A)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 54, 1 ♀ (CB 6.6 × PCL 8.5 mm), NSMT-Cr 30908.

Remarks. A fully-grown female at hand generally agrees with the original description (Sakai 1932, as *Achaeopsis*), though the protogastric and epibranchial spines (Fig. 3A) are not prominent as in the figures represented by Sakai (1932, fig. 3; 1938, fig. 17) and also in the female from the Timor Sea (Takeda *et al.* 2022a, fig. 5C–D). The carapace tuberculation of the present specimen is more distinct than the Timor Sea specimen.

Distribution. This species was previously known from Japan, the Kai Islands, and the Timor Sea, 170–650 m in depth. This is a new record from the South China Sea. The present bathymetric record, 777 m in the South China Sea, is the deepest known for this species.

Genus ***Oncinopus*** De Haan, 1839
[Type species: *Inachus (Oncinopus) aranea* De Haan, 1839]
Oncinopus angustifrons Takeda and Miyake, 1969

(Fig. 3B)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 48, 1 ♂ (CB 3.4 × PCL 4.3 mm), 1 ♀ (4.5 × 6.0 mm), NSMT-Cr 30909.

Remarks. In the genus *Oncinopus*, this species is unique in having the combination of the short, triangular, anterolaterally directed rostral lobes separated by a V-shaped hiatus, the interorbital region concealing the basal part of the unretracted eyestalk, the male G1 being strongly widened subapically, and the female gonopore on a weak elevation and opening more posteriorly than medially. Both male and female specimens in the present collection fully agree with the description by Takeda and Miyake (1969a) and a recent diagnosis given by Davie (2011).

Distribution. Ogasawara Islands (Takeda and Miyake, 1969a; Takeda, 1973a; Takeda and Kurata, 1976), the East China Sea (Takeda and Miyake, 1969a), the Philippines and Indonesia (Griffin and Tranter, 1986), and Western Australia (Davie, 2011); 36–200 m depth.

Family Epialtidae MacLeay, 1838
Genus ***Naxioides*** A. Milne-Edwards, 1865
[Type species: *Naxioides hirta* A. Milne-Edwards, 1865]
Naxioides elongatus sp. nov.

(Figs. 4, 7A–C)

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Material examined. RV *Hakuhō Maru*

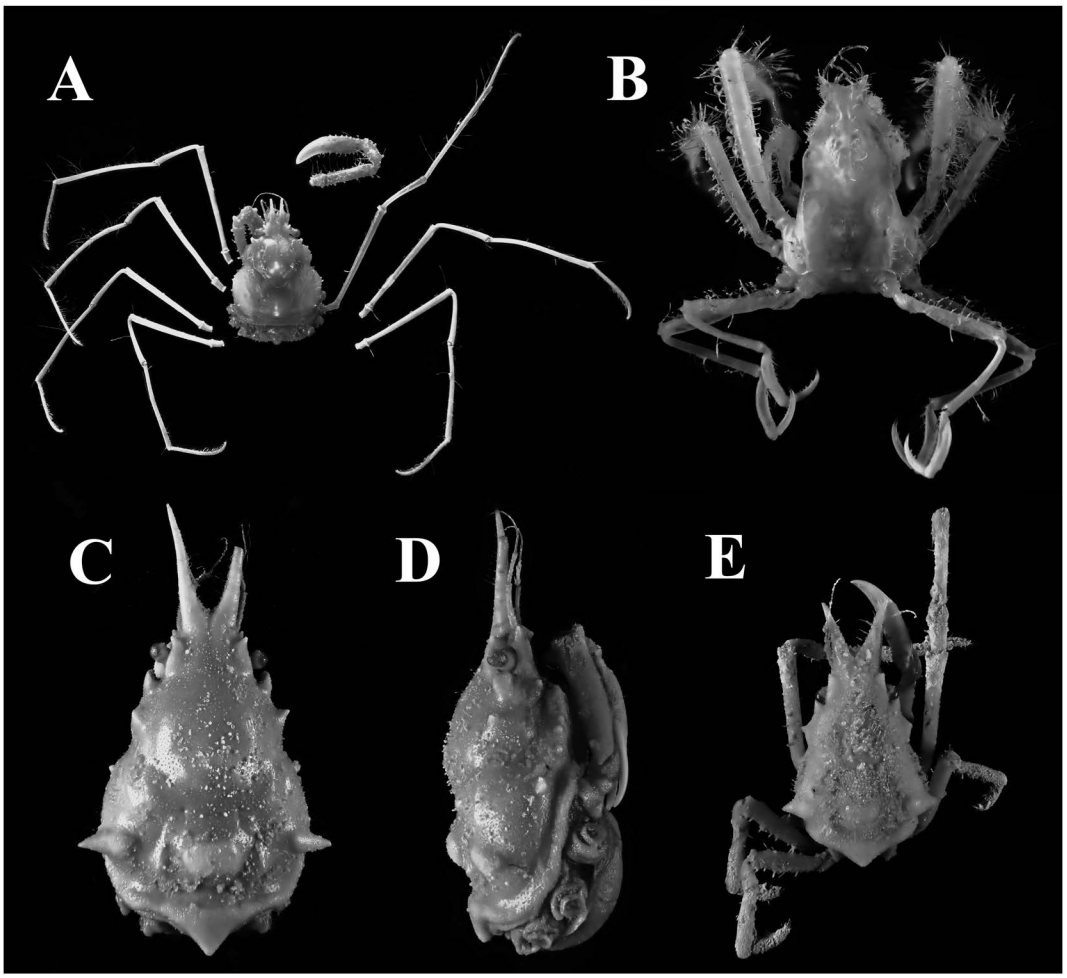

Fig. 3. A: *Dorhynchus rostratus* (Sakai), ♀ (NSMT-Cr 30908; CB 6.6 × PCL 8.5 mm) from sta. 54. B: *Oncinopus angustifrons* Takeda and Miyake, ♂ (NSMT-Cr 30909; CB 3.4 × PCL 4.3 mm) from sta. 48. C–E: *Oxypleurodon sphaenocarcinoides* (Rathbun), ovig. ♀ (NSMT-Cr 30913; CB 7.8 × PCL 12.7 mm) (C–D) from sta. 54; ♀ (NSMT-Cr 30914; 5.0 × 8.3 mm) (E) from sta. 54.

KH-72-1 cruise, sta. 50, ♂ (CB 8.8 mm excluding lateral spines, PCL 14.3 mm excluding intestinal spine), holotype, NSMT-Cr 30910; Sta. 54, 1 ♀ (CB 12.3 × PCL 16.9 mm excluding intestinal spine), non-type, NSMT-Cr 30911.

Description of holotype. Carapace (Fig. 4A, B) pyriform, surface thickly tomentose; gastric, cardiac, branchial, intestinal regions well-defined, moderately elevated. Gastric region low, with 4 long spines, 10 tubercles; anterior end with 2 acute tubercles just behind base of pseudorostrum; anterior slope medially with slender spine, low, minute spine on both sides; protogastric spines short, directed anterolaterally, followed by 2, longitudinally lined small tubercles; mesogastric spine largest (though broken), erected upright, with 2 transversely lined low acute tubercles. Cardiac region conical, dorsally elongated into long slender spine (though broken), divided on both lateral sides, each with large conical tubercle, lateral surface bearing slender spine. Branchial region not markedly inflated, longitudinally with 2 long, slender mesobranchial spines of similar size, small spine in front of anterior spine, anteromesially with large protuberance bearing small tubercles; lat-

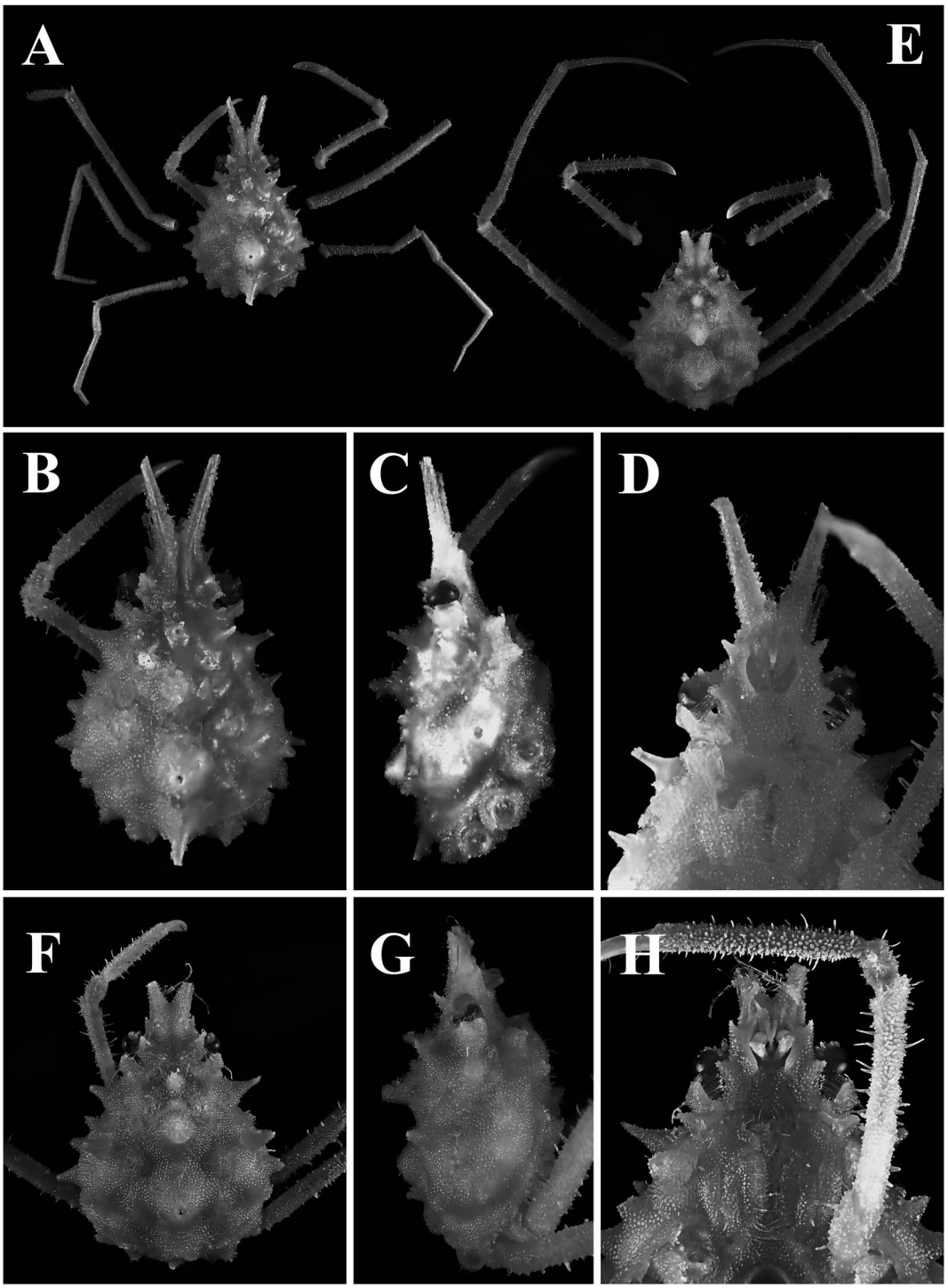

Fig. 4. A–D: *Naxioides elongatus* sp. nov., holotype, ♂ (NSMT-Cr 30910; CB 8.8 mm excluding branchial spines, PCL 14.3 mm) from sta. 50. Dorsal (A–B), lateral (C) and ventral (D) views. E–H: *Naxioides elongatus* sp. nov., non-type, ♀ (NSMT-Cr 30911; CB 12.3 × PCL 16.9 mm) from sta. 54. Dorsal (E–F), lateral (G) and ventral (H) views.

eral subsurface with 3 slender spines of similar size (though second one broken); metabranchial region with small medial spine just anterior to posterolateral carapace margin. Intestinal region elongated posteriorly into large, conical projection (though broken).

Pseudorostrum (Fig. 4A–D) distinctly divergent (ca. 30°), straight in lateral view (Fig. 4C). Pseudorostral spine slender, dorsal surface weakly ridged toward frontal region, bearing short, subdistal spine dorsomesially (distal part broken). Supraorbital eave (Fig. 4A–B) strongly expanded laterally; anterior angle produced into short, blunt preorbital spine erected uprightly; antorbital angle produced into minute conical tooth, directed laterally. Dorsal orbital hiatus rounded (Fig. 4B). Postocular cup faintly bilobed (Fig. 4C); upper postorbital margin broadly concave (in dorsal view), proximally with distinct rounded intercalated lobe; lateral wall consisting of 2 faint lobes, upper lobe with minute medial tubercle; lower postorbital margin sinuous; small but distinct tubercle right behind ventral orbital hiatus. Pterygostomian region moderately inflated, armed with large conical tubercle directed ventrally (Fig. 4D).

Basal antennal article (Fig. 4D) narrow, distolateral angle produced anterolaterally into acute tooth, visible in dorsal view; lateral margin generally straight; strong triangular tooth near midlength, directed laterally, as high as distolateral spine. Penultimate antennal articles slender.

Chelipeds slender, tomentose, sparsely covered with long stick-like setae; merus subcylindrical, distally with sharp dorsal spine; carpus globulous; palm slender, generally subcylindrical, slightly compressed distally; fingers almost half of palm in length, occlusal margins finely dentate, contiguous in distal half.

Ambulatory legs with cylindrical articles, surface tomentose, sparsely with long stick-like setae. Merus slender, subcylindrical, distally with sharp dorsal spine.

Thoracic sternites 1–3 unarmed, sternite 4 posteromesially with small spine medially on pleonal cavity, sternites 5–6 with large conical tubercle of similar size, sternite 7 with minute medial spine, sternite 8 unarmed.

Pleon with 6 free somites and telson, each with distinct medial tubercle, lateral part of somites 3–4 roundly elevated.

G1 (Fig. 7A–C) shaft stout basally, gently curved laterally, tip sharply pointed, aperture subterminal, without lobular projection.

Etymology. Named for the elongate carapace characteristic for this species.

Remarks. The present new species is close to *Naxioides sahulensis* from the Sahul Shelf in the previous paper of this series (Takeda *et al.*, 2022b). However, in the new species, five dorsal spines on the carapace midline are broader than those of *N. sahulensis*, in which they are immediately narrowed (Takeda *et al.*, 2022b, fig. 7D; otherwise, the hepatic region bears one minute tubercle and one slender lateral spine in the new species, rather than one small tubercle and two lateral spines in *N. sahulensis* (Takeda *et al.*, 2022b, fig. 7); the pterygostomian region is armed with a single large conical spine in the new species, but there are small additional spines on both sides in *N. sahulensis* (Takeda *et al.*, 2022b, fig. 7C); the preorbital spine is erect and almost upright in the new species, but only obliquely inclined in *N. sahulensis* (Takeda *et al.*, 2022b, fig. 7); the lateral spines on basal antennal article are more anteriorly directed (Takeda *et al.*, 2022b, fig. 7D) in *N. sahulensis* than in the new species.

Another close relative, *N. tenuirostris* (Haswell, 1880), shares the upright preorbital angle, but it is much shorter in *N. elongatus* sp. nov. The antorbital angle in *N. elongatus* bears a small conical tubercle directed laterally, rather than the more acuminated, posteriorly directed spine in *N. tenuirostris* as in Griffin (1966, fig. 5). The anterior margin of the lateral orbital wall is bilobed in the new species, but it is entire in *N. tenuirostris* as seen in Griffin (1966, fig. 8). The cheliped carpus is unarmed in the new species, whereas in *N. tenuirostris*, it bears two small spines (Griffin, 1966, fig. 5). In *N. tenuirostris*, the lateral margins of the male pleon are weakly

concave (Griffin, 1966, fig. 6), but not in the new species.

The male and female specimens of *Naxioides elongatus* sp. nov. agree in most respects, but the female has a proportionally slightly wider carapace (Fig. 4A, E), and the lateral margin of basal antennal article differs slightly from the holotype, with the anteriorly produced distolateral spine (versus anterolaterally) and the slightly anterolaterally directed subproximal marginal spines (versus laterally directed) (Fig. 4D, H). Unfortunately, the female is badly damaged, missing the P2 and P5 on both sides, left P4, and pleon, with the damaged and somewhat fragile pseudorostral horns, gastric, cardiac, intestinal, pterygostomian spines and thoracic sternites. Given the poor condition of the female, it is not treated as a paratype.

The carapace of the holotype (Fig. 4A–C) is somewhat more elongated than in males either of the two close northern Australian relatives, *N. tenuirostris* and *N. sahulensis* from the Torres Strait and the Sahul Shelf, respectively. The young male from the Ogasawara Islands identified as *Phalangipus hystrix* (Miers, 1886) by Komatsu (2011) and the record of *Naxioides taurus* (Pocock, 1890) from the Philippines, 120–124 m at depth, by Richer de Forger and Ng (2013) may be referable to the present new species.

Griffin and Tranter (1986) largely revised the genus *Chlorinoides* Haswell, 1880 (type species: *Chlorinoides tenuirostris* Haswell, 1880), and transferred most species of *Chlorinoides* known at that time to the new genus *Thacanophrys*. However, *Prismatopus* Ward, 1933, has a priority over *Thacanophrys* as a senior synonym (Ng *et al.*, 2001; Ng *et al.*, 2008). As regards the systematic position of *C. tenuirostris*, Griffin and Tranter (1986) mentioned that *C. tenuirostris* differs significantly from all the other species [of *Thacanophrys*] and in respect of the G1, the structure of the orbit and several other features, *C. tenuirostris* has a much closer relationship to the species of *Naxioides* than to the species previously grouped with it.

Naxioides elongatus sp. nov., *N. sahulensis* and *N. tenuirostris*, might be better assigned to the genus *Chlorinoides*, as distinct from *Naxioides* (type species: *Naxioides hirtus* A. Milne-Edwards, 1865). Otherwise, three known species, *N. teatui* Poupin, 1995, and *N. vaihatu* Poupin, 1995, may belong to the same group with *N. elongatus*, *N. tenuirostris* and *N. sahulensis.*

Distribution. The description of the new species is based on two specimens from the South China Sea; 132–137 and 760–777 m depth. This species probably occurs in the Philippines and off Chichi-jima Island, Ogasawara Islands.

Genus ***Oxypleurodon*** Miers, 1886

[Type species: *Oxypleurodon stimpsoni* Miers, 1886]

Oxypleurodon sphenocarcinoides

(Rathbun, 1916)

(Fig. 3C–E)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 54, 1 ♂ (CB 5.1 mm excluding lateral plates, PCL 8.8 mm), 1 ovig. ♀ (6.7 × 11.6 mm), NSMT-Cr 30912; 1 ovig. ♀ (7.8 × 12.7 mm), NSMT-Cr 30913; 1 ♀ (5.0 × 8.3 mm), NSMT-Cr 30914.

Remarks. The specimens (Fig. 3C–E) examined agree well with the original description (Rathbun, 1916), and the accounts (Griffin, 1976; Richer de Forges and Ng, 2009). *Oxypleurodon sphaenocarcinoides* was already recorded from the Sulu Sea by Takeda *et al.* (2021) at a depth of 285–306 m.

Distribution. The Philippines and the South China Sea; 93–306 m depth. The present record of *O. sphenocarcinoides* is the first for the South China Sea, and the bathymetric record of 760–777 m is the deepest for the species.

Genus ***Samadinia*** Ng and Richer de Forges, 2013
[Type species: *Samadinia longispina* Ng and Richer de Forges, 2013]

Samadinia hakuhoae sp. nov.

(Figs. 5–6, 7D–G)

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Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 54, ♂ (CB 10.7 mm excluding branchial spines, PCL 16.3 mm), holotype, NSMT-Cr 30915; 1 ♂ (8.8 × 13.6 mm), 1 ♀ (10.5 × 15.9 mm), paratypes, NSMT-Cr 30916; 1 ovig. ♀ (10.8 × 16.3 mm), paratype, NSMT-Cr 30951; 1 ♀ (8.3 × 13.0 mm), paratype, NSMT-Cr 30917; 1 ♀ (12.8 × 18.9 mm), paratype, NSMT-Cr 30918.

Description of holotype. Carapace (Fig. 5A) pyriform, entirely covered with tomentum (mostly abraded); surface smooth. Gastric region weakly elevated, medially with obtusely pointed conical mesogastric tubercle between low, rounded, protogastric protuberance on each side; cardiac region weakly elevated, with large conical tubercle. Branchial region with 3 distinct, short, conical tubercles, prebranchial region slightly elevated, with 2 tubercles obliquely (mesial one larger than lateral one), metabranchial tubercle shorter than cardiac tubercle; epibranchial spine long, 1.1 times as long as CB excluding spines, slender, directing laterally and obliquely upward (Fig. 5B–C). Intestinal region low, medially with short, dorsally directed spine on medially convex, posterior carapace margin. Pterygostomian region (Fig. 6D) not markedly inflated, with 4 low tubercles on gently ridged, pleural suture.

Pseudorostral spines (Fig. 5A, D) slender, 0.7 × PCL, widely separated from bases, weakly outcurved laterally. Supraorbital eave strong, anteriorly produced into subacute, dorsolaterally directed preorbital lobe, with smooth subsurface; postorbital lobe separated from eave by keyhole-shaped orbital hiatus; postorbital lobe smooth, compressed laterally (= postorbital plate), subcircular, forming plate-like lateral wall of incomplete orbit. Hepatic margin laterally with dorsally directed elongate lobe (= hepatic plate), incurved distally, lateral surface flattened, smooth, ovoid, with acuminate tip, separated from postorbital plate deep sulcus.

Basal antennal article (Fig. 6D) smooth, surface smooth, distolateral angle produced into short tooth, lateral margin entire, straight, proximally with small acute tubercle sealed by laterally produced, anterolateral angle of buccal cavity (Fig. 7D). Penultimate article slender, length two-thirds that of ultimate peduncular article. Flagellum not reaching tip of pseudorostral spines.

Cheliped (Figs. 5A–B, 6D) with few setae and sparse tomentum on lower margin of merus and inner margin of carpus; merus trigonal in cross-section, margins sharply carinate for entire length; dorsal carina irregularly dentate in proximal half, distally with strong, anteriorly directed tooth (Fig. 5A–B); ventromesial carina entire (Fig. 5A); ventrolateral carina tri-dentate (Fig. 5B). Carpus strongly crested on dorsal, mesial, lateral margins. Chela moderately compressed, tapering toward fingertips; palm sharply carinate on upper and lower margins; fingers almost as long as palm, slightly curved distally, occlusal margins weakly dentate, without any prominent tooth subproximally, with slight gap when closed.

Ambulatory legs (Fig. 5A) slender, tomentose. Merus cylindrical, almost one-third length of PCL in P5. Carpus simple. Propodus subcylindrical. Dactylus slender, faintly falcate, with 0, 4–5 denticles on flexor surface in P2, P3, respectively; weakly falcate, with 5 or 6 low, rounded tubercles on flexor surfaces in P4, 5, respectively.

Pleon (Fig. 6D) with six somites and triangular telson; pleomeres 3–5 medially ridged; pleomere 6 with large tubercles on both sides, short, medial tubercle anteriorly.

G1 (Fig. 7D–F) shaft straight, not markedly different from that of *S. kotakae* (Takeda, 2001). G2 (Fig. 7G) short, simple.

Notes on paratypes. Erect tubercles on carapace dorsal surface shorter, less distinct in

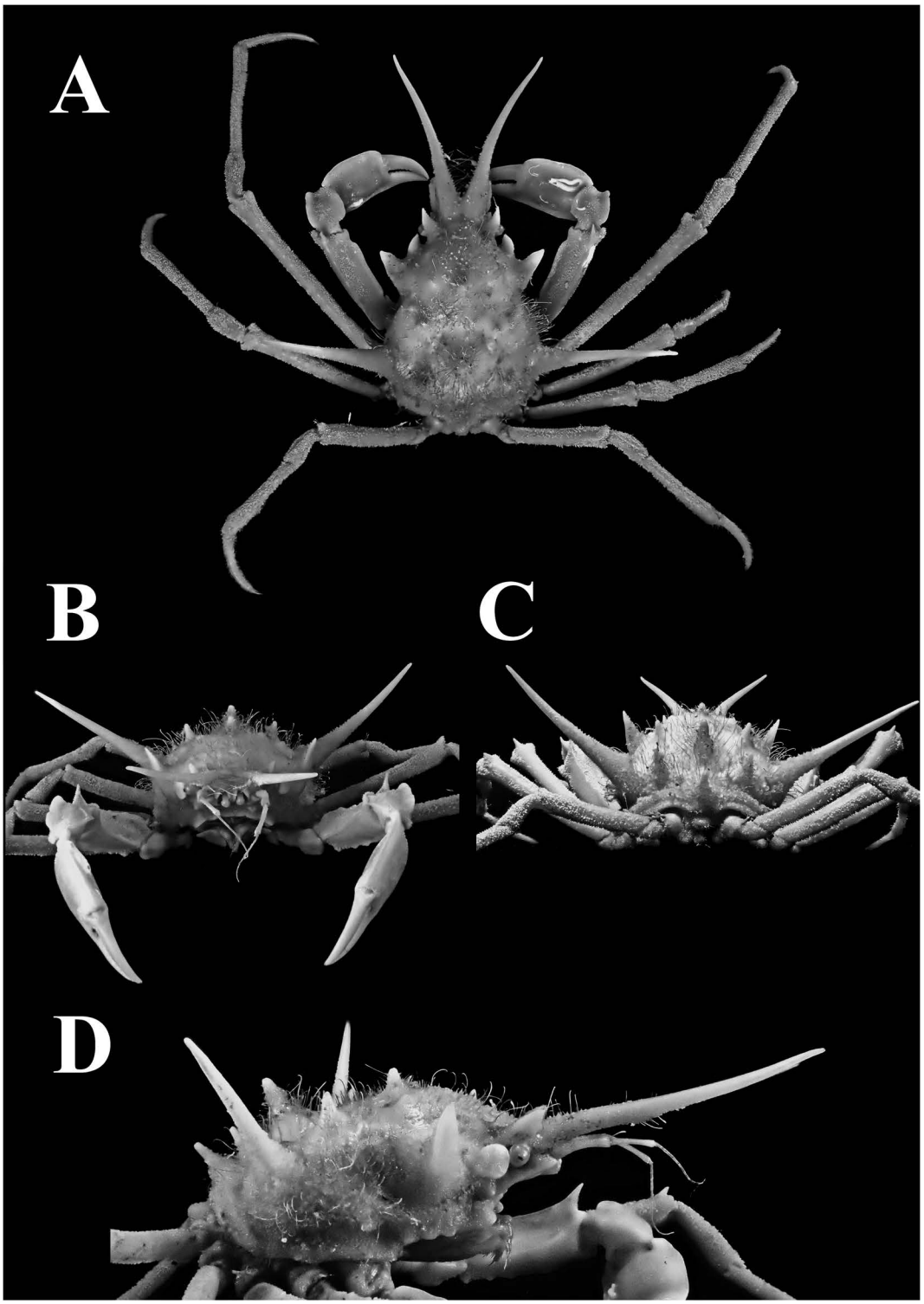

Fig. 5. *Samadinia hakuhoae* sp. nov., holotype, ♂ (NSMT-Cr 30915; CB 10.7 mm excluding branchial spines, PCL 16.3 mm) from sta. 54. Dorsal (A), anterior (B), posterior (C) and lateral (D) views.

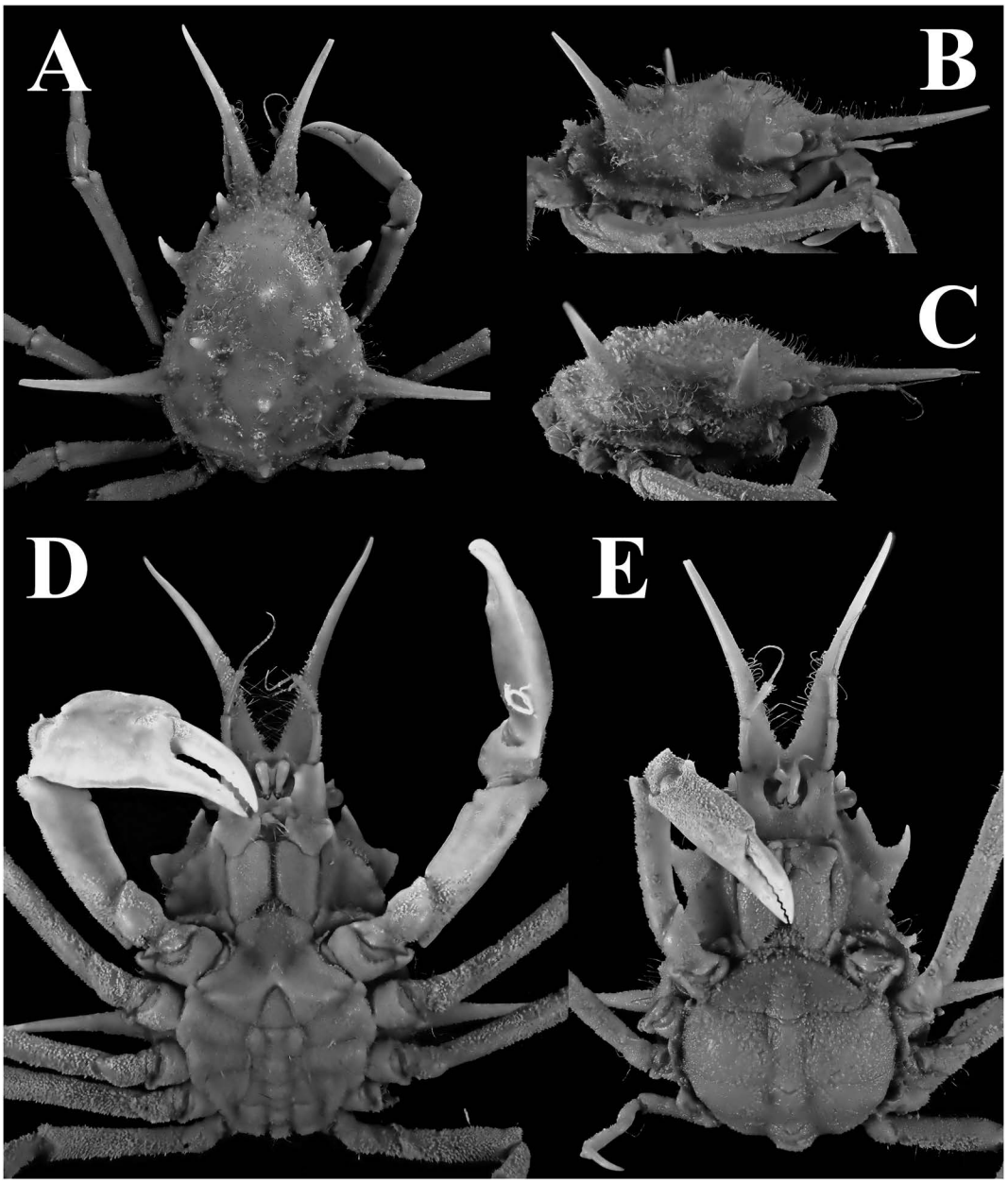

Fig. 6. *Samadinia hakuhoae* sp. nov. A–B, E, paratype, ♀ (NSMT-Cr 30951; CB 10.8 mm excluding branchial spines, PCL 16.3 mm) from sta. 54; C, paratype, ♀ (NSMT-Cr 30917; 8.3 × 13.0 mm) from sta. 54; D, holotype, ♂ (NSMT-Cr 30915; 10.7 × 16.3 mm) from sta. 54. Dorsal (A), lateral (B–C) and ventral (D–E) views.

females than in males (Fig. 6B), reduced in smaller specimens (Fig. 6C). Pseudorostrum not markedly shorter in females, but less divergent anteriorly when compared with males (Fig. 6A). Relative length of epibranchial spines against CW 0.7–0.9 (N = 4), smaller than in males (1.1, N = 2) (Fig. 6A). Postorbital, hepatic plates continuous, but the degree of fusion somewhat variable probably sexually and/or ontogenetically (Fig. 6B–C). Chela slender, palm not so sharply

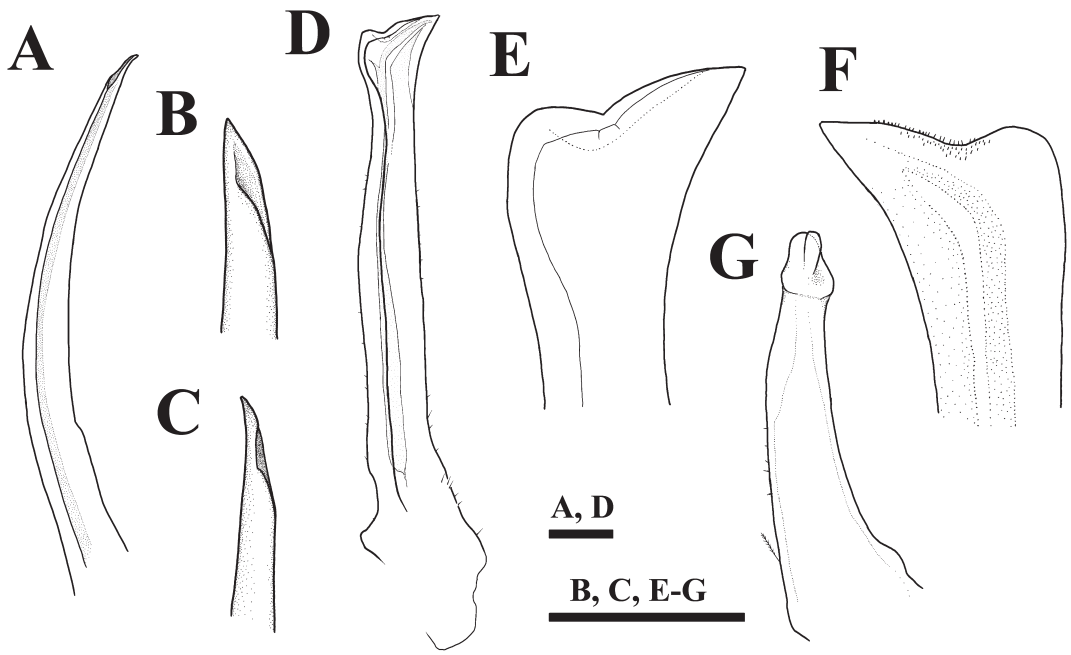

Fig. 7. A–C: *Naxioides elongatus* sp. nov., left G1 of holotype, ♂ (NSMT-Cr 30910; CB 8.8 mm excluding branchial spines, PCL 14.3 mm) from sta. 50. Ventral view (A), and distal part of sternal different views (B–C). D–G: *Samadinia hakuhoae* sp. nov., left G1 (D–F) and G2 (G) of holotype, ♂ (NSMT-Cr 30915; CB 10.7 mm excluding branchial spines, PCL 16.3 mm) from sta. 54. D, in ventral view; E–F, tip enlarged, in ventral and sternal views, respectively; G in sternal view.

carinate on both upper and lower margins, fingers simply dentate, not gaping when closed in females (Fig. 6E). Female pleon covered with a thick tomentum in both adolescent and fully grown specimens (Fig. 6E).

Etymology. Named after the RV *Hakuhō Maru*.

Remarks. The genus *Samadinia* was established by Ng and Richer de Forges (2013). Lee *et al.* (2021) transferred 26 species previously placed in *Rochinia* to *Samadinia*, and subsequently, Richer de Forges *et al.* (2021) recorded four additional species; *S. livermorii* (Wood-Mason, in Wood-Mason and Alcock, 1891) was transferred from *Scyramathia* A. Milne-Edwards, 1880, and three new species, *S. jefrii*, *S. taylorae*, and *S. yoyoae* were described from Indonesian waters. Prior to the present study, *Samadinia* included 30 species, all from Indo-Pacific waters.

Samadinia hakuhoae sp. nov. apparently belongs to the *riversandersoni* group suggested by Griffin and Tranter (1986: 365) and Ho *et al.* (2004), which also includes *S. kotakae* (Takeda, 2001), *S. riversandersoni* (Alcock, 1895), and *S. galatheae* (Griffin and Tranter, 1986) (Lee *et al.*, 2021). However, the combination of a distinct gap between the laterally flattened postorbital and hepatic lobes, weakly upturned hepatic plate, short but distinct seven dorsal spines (= erect tubercles in Ho *et al.*, 2004), and noticeably longer lateral spines differentiate *Samadinia hakuhoae* sp. nov. from the known congeners.

Samadinia hakuhoae sp. nov. is closest to *S. kotakae* known from Japan and the Philippines at depths of 685–1,060 m (Takeda, 2001; Ho *et al.*, 2004; Lee *et al.*, 2017). In addition to the aforementioned characters, however, the following characters differentiate the two species: 1) the hepatic plate is less upturned dorsally and acuminate at the tip (tapering toward a rounded apex in *S. kotakae*); 2) the pterygostomian region bears three large tubercles (smooth in *S. kotakae*); 3)

the dorsal spines on the branchial region are more prominent than in *S. kotakae*, in which they are replaced by acute tubercles; 4) in males, the epibranchial spines are longer than in *S. kotakae* (1.1 times CW in *S. hakuhoae* sp. nov. vs. 0.48 times in *S. kotakae*); 5) the intestinal spine is moderately long and directed somewhat dorsally in the new species, but it is very short and obscured by tomentum in *S. kotakae*; 6) in *S. hakuhoae* sp. nov., the P5 dactylus is 1/3 length PCL, but almost half PCL in *S. kotakae*; 7) the G1 of *S. hakuhoae* is not markedly different from that of *S. kotakae* in general outline, but the complex folds near the aperture are strongly curved at the distal part in contrast to the figure given by Richer de Forges and Ng (2013, fig. 81J).

The present new species shares the laterally directed hepatic plates with *Samadinia riversandersoni* widely distributed in the Indo-West Pacific including the South China Sea, 428–1362 m depth. However, the dorsal spines are seven and much shorter in *S. hakuhoae* sp. nov. contrary to 15 very long dorsal spines in *S. riversandersoni*. The postorbital plate is separated from the hepatic plate in the new species (Figs. 5D, 6B–C), but they are continuous in *S. riversandesoni*. Yaldwyn and Dawson (1976, figs. 6–8) showed the strong spination of the carapace in the specimens from New Zealand waters, 234–635 m in depth.

The following three species shares with *S. hakuhoae* sp. nov. the postorbital and strongly upturned hepatic plates that are distinctly separated by a distinct gap: *S. galatheae* (type locality: off Natal, 535–610 m), *S. sibogae* (Ceram Sea, 924 m), and *S. strangeri* (Serène and Lohavanijaya, 1973) (South China Sea, 479 m). However, *S. galatheae* has more rounded carapace with less divergent pseudorostral spines and its postorbital-hepatic plates are fused to one another (Griffin and Tranter, 1986, fig. 11). The posteriorly-produced intestinal spine is very long (see Richer de Forges and Poore, 2008, fig. 2C). In *S. strangeri*, the lateral branchial spines are short and similar to the other dorsal spines in length (Lee *et al.*, 2017, fig. 9). In these three species, the G1 form is also different from that of *S. hakuhoe* sp. nov. (Fig. 7A–C vs. Lee *et al.*, 2017, figs. 9, 11A–D).

Distribution. Known only from the type locality, South China Sea, 760–777 m depth.

Family Portunidae Rafinesque, 1815

Genus ***Charybdis*** De Haan, 1833

[Type species: *Cancer sexdentatus* Herbst, 1783]

Subgenus ***Archias*** Paulson, 1875

Charybdis (Archias) hongkongensis Shen, 1934

(Fig. 8)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 42, 1 ♂ (CB 36.7 × CL 25.7 mm), NSMT-Cr 30919.

Remarks. Takeda (2019) recorded one male and two females of this species as *Charybdis (Goniohellenus)*, with photographs, from off Hong Kong, and mentioned the differences from the closely related congeneric species, *C. (A.) truncata* (Fabricius, 1798), following Shen (1934) and Leene (1938). The shape of the six frontal lobes is somewhat variable and so more emphasised in the present male (Fig. 8A), as useful to discriminate *C. (A.) hongkongensis* from congeners.

Distribution. Taiwan; Hong Kong; coasts of China; Sunda Strait, Madura Strait, Banda Sea; Andaman Sea. Bathymetric range is 15–60 m as summarized by Takeda (2019), with an exceptional depth record of 397 m by Leene (1938) in the Banda Sea. Chen (1998a) recorded this species from the Nansha Islands at the depths of 74 and 102 m.

Charybdis (Archias) vadorum Alcock, 1899

(Fig. 9C–D)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 50, 1 ♂ (CB 10.7 × CL 7.6 mm), NSMT-Cr 30920.

Remarks. Chopra (1935) thoroughly explained the taxonomic status of *Charybdis*

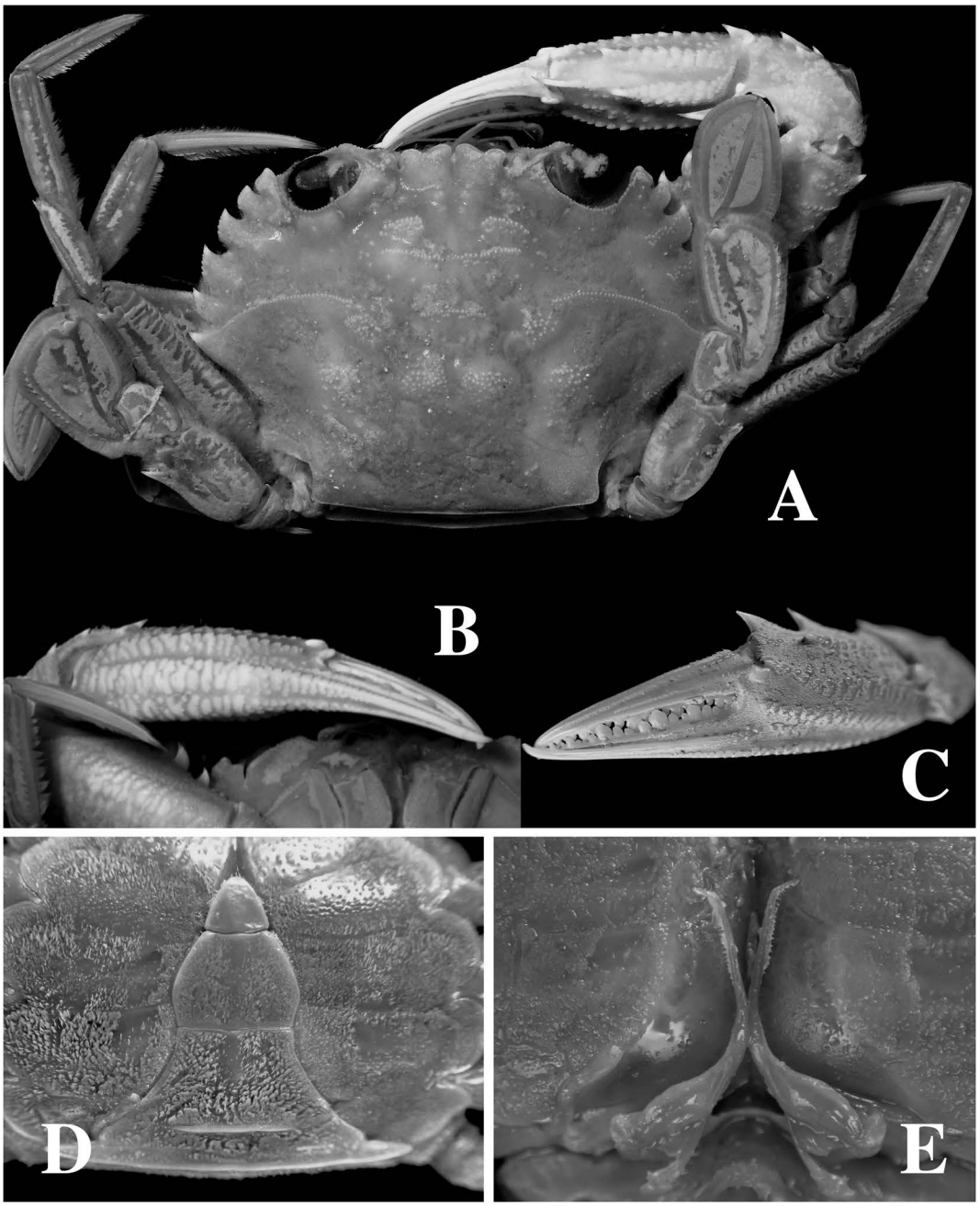

Fig. 8. *Charybdis (Archias) hongkongensis* Shen, ♂ (NSMT-Cr 30919; CB 36.7 × CL 25.7 mm) from sta. 42. Dorsal view (A), right chela in lower view (B), left chela in outer view (C), pleon (D), and G1s in situ (E).

(Goniohellenus) hoplites var. *vadorum* Alcock, 1899, and as a result, regarded it as a full species with *C. (G.) sinensis* Gordon, 1930 as its synonym.

Charybdis vadorum is a small species, reaching at most about 2.5 cm in the carapace breadth including epibranchial teeth. The carapace surface (Fig. 9C) is wholly pilose, with granular patches on the regions; most characteristic is the somewhat Y-shaped, thick cardiac region; other-

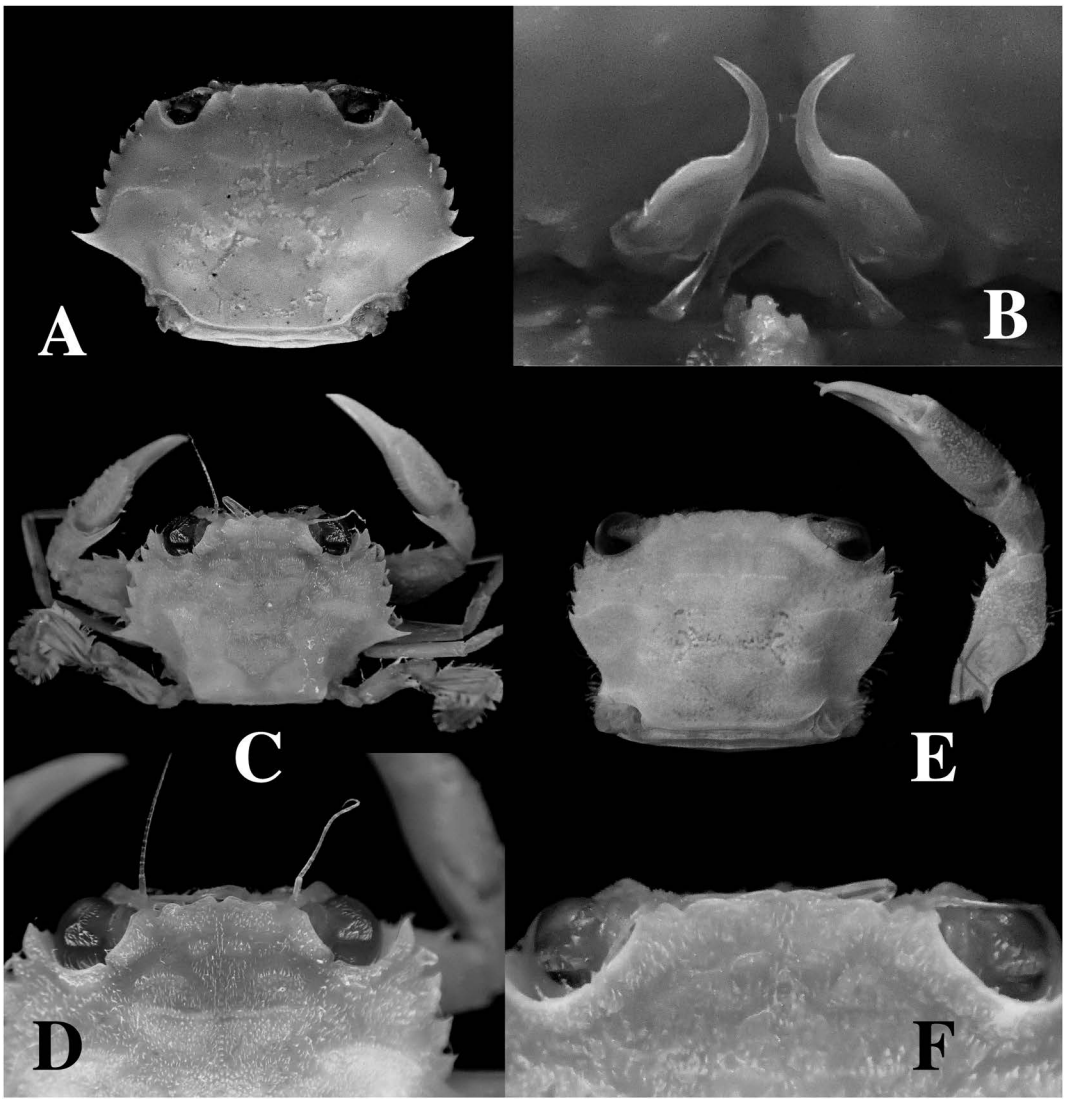

Fig. 9. A–B: *Lupocycloporus innominatus* (Rathbun), ♂ (NSMT-Cr 30923; CB 15.1 mm including lateral teeth, CL 10.5 mm) from sta. 45. C–D: *Charybdis (Archias) vadorum* Alcock, ♂ (NSMT-Cr 30920; CB 10.7 × CL 7.6 mm) from sta. 50. E–F: *Thalamita sexlobata* Miers, ovig. ♀ (NSMT-Cr 30926; CB 7.0 × CL 6.0 mm) from sta. 45.

wise, it is noted on close examination that the metagastric transverse ridge and metagastric region are connected by a median longitudinal line of granules. The front (Fig. 9C–D) is low and six-lobed; the median lobe is inclined laterally, the submedian lobe is subtruncated along the inner margin, with the lateral angle hardly attaining the level of the median lobe; the inner part of the submedian lobe slightly overlaps the median lobe; the lateral lobe is narrow and separated from the submedian lobe by a deep notch. The orbit is large, with the diameter wider than half the frontal length. As seen in Fig. 9C–D, of the six anterolateral teeth of the carapace, the first (the external orbital tooth) is directed forward and slightly larger than the second and fourth teeth, but slightly smaller than the third and fourth teeth; the last (the epibranchial tooth) is narrow, much longer than the precedings and sharply directed laterally.

This species was represented with excellent figures as *C. (G.) vadorum* by Chopra (1935), Leene (1938), and Wee and Ng (1995). Although Wee and Ng (1995) considered *C. philippinensis* Ward, 1941 as a doubtful synonym of this species, Padate *et al.* (2010) examined and redescribed the type specimen. *Charybdis philippinensis* is referable to the subgenus *Charybdis*, with the carapace surface naked and devoid of tomentum.

Distribution. According to Wee and Ng (1995), this species ranges from Taiwan to the Red Sea through the East and Southeast Asian Sea, India and the Persian Gulf, from depths of 10 to 80 m.

Genus ***Incultus*** Koch, Spiridonov and Ďuriš, 2022
[Type species: *Amphitrite vigilans* Dana, 1852]

Incultus tuberculosus (A. Milne-Edwards, 1861)

(Fig. 11D)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♀ (CB 25.3 mm with epibranchial tubercles, CL 14.5 mm), NSMT-Cr 30928.

Remarks. The specimen at hand was first referred to the genus *Xiphonectes* A. Milne-Edwards, 1873, based on the presence of an acute tubercle at the lateral end of the carapace posterior margin, and identified as *X. tuberculosus* (A. Milne-Edwards, 1861) owing to the characteristic carapace tuberculation. This species was, however, recently transferred to a new genus *Incultus* by Koch *et al.* (2022) as the type species of the genus, together with two congeners, *I. alcocki* (Nobili, 1905) and *I. brockii* (De Man, 1887).

In this specimen (Fig. 11D), the lateral tubercles of the carapace posterior margin are stout and directed obliquely outward. This species is characteristic in the carapace ornamentation and armature: the dorsal surface is flattened overall, areolated with a distinct gastric region, a strong ridge running from the epibranchial tubercle toward the gastric region, and several obtuse tubercles arranged symmetrically around the cardiac region. The carapace anterolateral margin is armed with nine teeth including the obtuse external orbital angle and the strong epibranchial tubercle as usual, but the first, second, third and fifth teeth are distinctly smaller than the fourth, sixth and seventh teeth.

This species was well characterized with the detailed descriptions and figures by the original author (A. Milne Edwards, 1861) and Crosnier (1962), Stephenson and Rees (1967), Dai and Yang (1991), Apel and Spiridonov (1998), and Koch *et al.* (2022).

Distribution. Sandwich Islands; South China Sea off Hong Kong, 111 m depth; the Philippines, 66–81 m depth; Palau Islands, 30 m depth; Indonesia; Sri Lanka, 50 m depth; Persian Gulf; Madagascar, 25–65 m depth. Recently, Ng *et al.* (2019) recorded this species from southwestern coast of India at the depth of 200 m.

Genus ***Lissocarcinus*** Adams and White, 1849
[Type species: *Lissocarcinus polybioides* Adams and White, 1849]

Lissocarcinus arkati Kemp, 1923

(Fig. 1D)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♀ (CB 9.8 × CL 8.7 mm), NSMT-Cr 30921.

Remarks. Lissocarcinus arkati is characterised by having many transverse striae on the carapace dorsal surface (Fig. 1D). The records of occurrence are few, but the characteristics are sufficiently illustrated by Kemp (1923), Chopra (1935), Sakai (1939), Crosnier (1962), Dai and Xu (1991), Dai and Yang (1991) and Ng *et al.* (2001).

Distribution. Indo-West Pacific, ranging from Japan to Madagascar, with several intervening localities; 4–65 m depth. Gordon (1931) recorded this species from Hong Kong.

Lissocarcinus polybioides
Adams and White, 1949

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♀ infested by a *Saccu-*

lina (CB 10.8 × CL 9.3 mm), NSMT-Cr 30922.

Remarks. Fine figures and photographs were provided by Sakai (1934, 1939, 1965, 1976), Stephenson and Campbell (1960), Crosnier (1962), and Apel and Spiridonov (1998). Recently, Takeda *et al.* (2019: pl. 16 fig. D) figured and listed many specimens from Okinawa-jima Island in the Ryukyu Islands. The carapace dorsal surface is flattened, smooth and glossy, with the protruding front notched medially. The carapace anterolateral margin is divided into five lobes separated each by a small incision.

Distribution. Indo-West Pacific, ranging from Japan southwards to New Caledonia and Australia, and westwards to Madagascar through the Arabian Gulf, 1–205 m depth.

Genus ***Lupocycloporus*** Alcock, 1899

[Type species: *Achelous whitei* A. Milne-Edwards, 1861]

Lupocycloporus innominatus (Rathbun, 1909)

(Fig. 9A–B)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♂ (CB 15.1 mm including lateral teeth, CL 10.5 mm including frontal teeth), NSMT-Cr 30923.

Remarks. All the chelipeds and ambulatory legs of the male are missing, but the specimen is identifiable as either *Lupocycloporus innominatus* (Rathbun, 1909) or *L. minutus* (Shen, 1937), which are often considered as synonymous with, or specifically distinct from, each other. Stephenson (1967) first made a detailed description of *Portunus minutus* based on a female from the Gulf of Thailand to compensate for the brief original description by Shen (1937), but did not make a comparison with *L. innominatus*. Recently, Spiridonov (1999) recorded two females from Ambon as *P. innominatus* and stressed that the determination of the taxonomic status of both species will be possible after re-examination and re-description of the type series. Takeda and Komatsu (2020) recorded a male and an ovigerous female from the Okinawa-jima Island, the Ryukyu Islands, as *P. (L.) innominatus*, and also three males, a female and an ovigerous female from Taiwan were recorded as *L. minutus* by Huang and Shih (2021) who mentioned the differences in the shallow front lobes of *L. minutus* and the G1 morphology. The shape of the front lobes seems to be similar in both species, and may be subject to individual variation; also, differences in the G1 are not clear. The distributions of both species are almost sympatric as noted by Takeda and Komatsu (2020). The present report follows them in considering both species to be synonymous.

The following account of the carapace is based on the present male examined (Fig. 9A). The carapace dorsal surface is wholly covered with a thick coat of short setae; each protogastric region is provided with two transverse rows of minute granules along the anterior and median parts, which are united at the lateral end; the protogastric regions of both sides are isolated by a longitudinal median row of minute granules that reaches to the mesogastric region; a patch of minute granules on each side of the metagastric region and the cardiac region is indicated by a pair of low, granulated mounds arranged side by side. The frontal margin is cut into four shallow lobes, the inner pair being about half as wide as the outer pair. The carapace anterolateral margin is gently curved, with nine serrated teeth that are subequal or becoming slightly larger posteriorly; the last (epibranchial tooth) is about two times longer than the eighth tooth, directed laterally and weakly curved anteriorly, with the sharp tip. The basal half of the G1 is stout, and distal half tapers and strongly curved outwards (Fig. 9B).

Distribution. *Lupocycloporus innominatus* ranges from east coast of India to Indonesia, New Caledonia and the Ryukyu Islands, and *L. minutus* is recorded from almost the same area as *L. innominatus*, at depths of 6–33 m. The present male was obtained at 60 m depth.

Genus ***Lupocyclus*** Adams and White, 1849
[Type species: *Lupocyclus rotundatus* Adams and White, 1849]

Lupocyclus philippinensis Semper, in Nauck, 1880

(Fig. 11F)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♂ infested by a *Sacculina* (CB 20.5 mm including lateral teeth, CL 17.0 mm including frontal teeth), NSMT-Cr 30924.

Remarks. The female at hand (Fig. 11F), infested by a *Sacculina* parasite, lacks all the chelipeds and ambulatory legs, but the carapace agrees well with the excellent figures of *Lupocyclus philippinensis* Semper, in Nauck, 1880, given by Leene (1940), Sakai (1939, 1976), Crosnier (1962), and Osmani *et al.* (2019). This species is rather well known (Ng *et al.*, 2008).

Distribution. Widely distributed in the Indo-West Pacific from Japan to the western Indian Ocean through the East and Southeast Asia, and Australia; 25–130 m depth.

Genus ***Podophthalmus*** Lamarck, 1801
[Type species: *Podophthalmus spinosus* Lamarck, 1801 = *P. vigil* (Fabricius, 1798)]

Podophthalmus nacreus Alcock, 1899

(Fig. 1C)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♀ (CB 11.0 × CL 7.1 mm), NSMT-Cr 30925.

Remarks. The female at hand (Fig. 1C) is not fully mature, but is clearly identifiable with *Podophthalmus nacreus*, with the hexagonal carapace armed with a strong epibranchial tooth and the long eyestalk having a large cornea.

Ng *et al.* (2017) transferred *P. nacreus* to the genus *Vojmirophthalmus* erected by Števčič (2011) to accommodate *P. minabensis* Sakai, 1961, but *P. nacreus* as well as *P. vigil* are generically distinct from *V. minabensis* by the unusually ornamented eyestalk of the latter species (Sakai (1961: pl. 4 fig. 1; 1976: fig. 207a, pl. 135 fig. 1) and Huang and Shih (2021: fig. 3E).

Distribution. Indo-West Pacific from Japan through Taiwan, the Philippines, and Indonesia to New Caledonia in the Pacific, and from Western Australia through the Andaman Sea and the Gulf of Martaban to Madagascar, 30–126 m depth (Alcock, 1899b; Leene, 1938, 1940; Sakai, 1939, 1965, 1976; Crosnier and Thomassin, 1974; Moosa, 1981; Hosie, 2012).

Genus ***Thalamita*** Latreille 1829
[Type species: *Cancer admete* Herbst, 1803]

Thalamita sexlobata Miers, 1886

(Fig. 9E–F)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ovig. ♀ (CB 7.0 × CL 6.0 mm), NSMT-Cr 30926; 1 ovig. ♀ (6.3 × 4.5 mm), NSMT-Cr30927.

Remarks. The specimens were identified as *Thalamita sexlobata* characterized by small body size, the pilose carapace surface, the large orbital fossae, and the presence of short transverse ridges and patch of granules behind the epibranchial ridge. The frontal margin is poorly developed, sinuous and seemingly four-lobed, with the outer lobe overlapping half of the inner lobe, as correctly figured by the original author (Miers, 1886, fig. 2a) and Crosnier (1962, fig. 196). In the present specimens (Fig. 9E–F), the anterior margin of the outer lobe is shallowly concave at the subterminal part and shallowly separated from the supraorbital angle. In this case, the frontal margin is indistinctly six-lobed rather than four-lobed, being somewhat different from the figures given by Crosnier (1962), Takeda (1989), and Wee and Ng (1995). This condition of the frontal lobes approaching to the six-lobed appearance was already mentioned by Stephenson and Hudson (1957). The carapace anterolateral margin is armed with five anteriorly-directed teeth including the external orbital tooth which is the largest of all; the second is slightly smaller than the first, but larger than the subequal third and fifth teeth; the fourth is apparently smaller

than the others, but distinct in the specimens examined (Fig. 9E).

Distribution. Widely distributed in the Indo-West Pacific from the Hawaiian Islands and the northern Ryukyu Islands southwards to Queensland, Australia, and westwards to Madagascar and the Red Sea through the Andaman Islands and the Persian Gulf, 15–80 m in depth (Takeda 1989; Apel and Spiridonov, 1998).

Family Pilumnidae Samouelle, 1819

Genus ***Actumnus*** Dana, 1851

[Type species: *Actumnus tomentosus* Dana, 1851]

Actumnus forficigerus (Stimpson, 1858)

(Fig. 10C–D)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♂ (CB 10.0 × CL 7.0 mm), NSMT-Cr 30929; 1 ♂ (6.1 × 4.6 mm), 7 ovig. ♀♀ (6.1 × 4.2 mm to 8.6 × 6.4 mm), 2 ♀♀ (6.4 × 4.8 mm; 8.0 × 6.1 mm), NSMT-Cr 30930.

Remarks. Takeda and Komatsu (2017) figured the carapace and both chelae of *Actumnus forficigerus*, which have important features distinguishing this species from its congener. This species is close to *A. squamosus* (De Haan, 1835) in the general form of the carapace, as being densely covered with short velvety tomentum and sparsely with long silky setae, but differs in the carapace being wider and with the anterolateral margin armed with three stout distinct teeth behind the external orbital angle. *Actumnus forficigerus* differs remarkably from *A. squamosus* in having the usual tubercles on the outer surface of the cheliped palm instead of the thick pavement of the tubercles. In the smaller male and all of the females, both chelipeds are stout and covered with some rows of conical granules on the palm outer surfaces, with short and stout fingers, but in the larger male (Fig. 10C–D), both fingers are rather elongated and weakly curved downwards against the palm.

Distribution. Hitherto known only from Japanese waters, from Sagami Bay at the Pacific coast of central Honshu to Amami-Oshima Island in the northern Ryukyu Islands, 35–121 m depth (Sakai, 1939, 1965, 1976; Takeda and Miyake, 1969); now, from the southern South China Sea.

Actumnus squamosus (De Haan, 1835)

(Fig. 10E–F)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♂ (CB 5.1 × CL 4.6 mm), NSMT-Cr 30931; 1 ♀ (7.7 × 5.5 mm), NSMT-Cr 30932.

Remarks. The most remarkable feature of *Actumnus squamosus* is the pavement of tubercles covering the whole outer surface of the palm, as shown by A. Milne-Edwards (1865) and Sakai (1939). Takeda and Komatsu (2017) clearly figured this feature with a photograph of both chelae in comparing the new species, *A. tsurukaii*, with the related species. The present female (Fig. 10E–F) agrees with the ovigerous female from the Sahul Shelf in having the carapace covered with a thick felt of short setae and in not being strongly convex dorsally, and also in having the characteristic chelipeds reported by Takeda *et al.* (2022b). In the specimen examined, however, the tubercles covering the cheliped palm seem to be somewhat loosely spread all over the surface, showing the obtuse polygonal form of various sizes.

Distribution. Indo-West Pacific from Japan to India, 10–324 m depth.

Genus ***Bathypilumnus*** Ng and Tan, 1984

[Type species: *Pilumnus sinensis* Gordon, 1930]

Bathypilumnus sinensis (Gordon, 1930)

(Fig. 11A–B)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♀ (CB 8.7 × CL 7.0 mm), NSMT-Cr 30933.

Remarks. The female specimen examined agrees well with the descriptions and figures given by Gordon (1930, 1931, as *Pilumnus*), Ng and Tan (1984, as *Bathypilumnus*), Dai and Yang

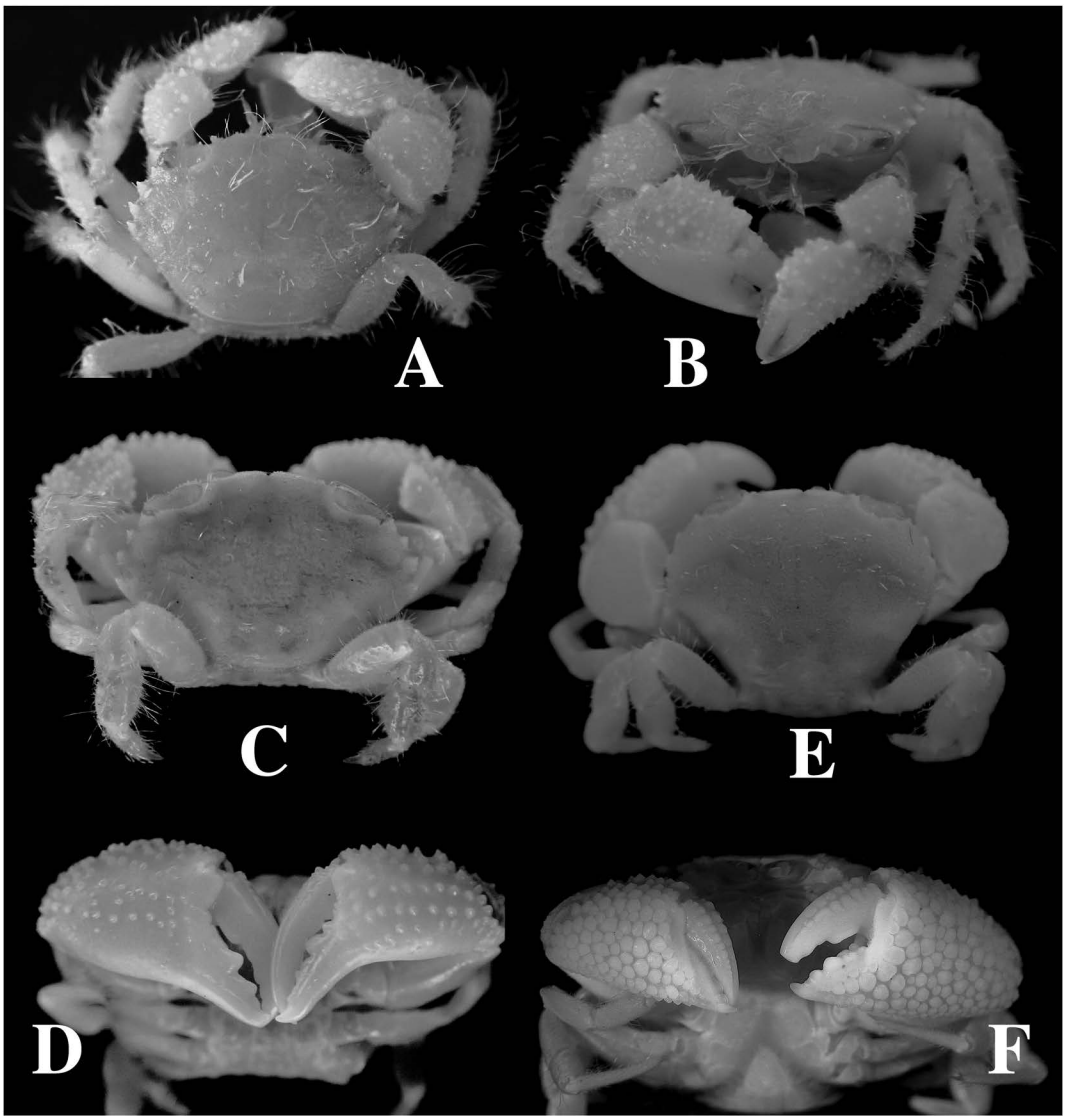

Fig. 10. A–B: *Pilumnus minutus* (De Haan), ♂ (NSMT-Cr 30937; CB 8.0 × CL 6.1 mm) from sta. 45. C–D: *Actumnus forficigerus* (Stimpson), ♂ (NSMT-Cr 30929; CB 10.0 mm × CL 7.0 mm) from sta. 45. E–F: *Actumnus squamosus* (De Haan), ♀ (NSMT-Cr 30932; CB 7.7 × CL 5.5 mm) from sta. 45.

(1991, as *Pilumnus*), and Yang and Dai (1994, as *Pilumnus*). The carapace is robust in appearance, vaulted in both directions, with the ill-defined surface covered with stiff longish setae, the chelipeds are stout, and different in size but similar in the armature, with some rows of equidistant long, curved spiniform tubercles on both carpi and palms (Fig. 11A–B).

In the third part of this study (Takeda *et al.*, 2022b), *Bathypilumnus pugilator* (A. Milne-Edwards, 1973) was recorded from the Sahul Shelf, which is one of three congeneric species. In *B. sinensis*, the cheliped armature is characteristic, somewhat in the form of mushroom-shaped tubercles, and in all the species, the male abdomen is narrow, with the long and straight G1 different from the so-called sigmoid *Pilumnus*-type.

Distribution. Ng and Tan (1984) mentioned

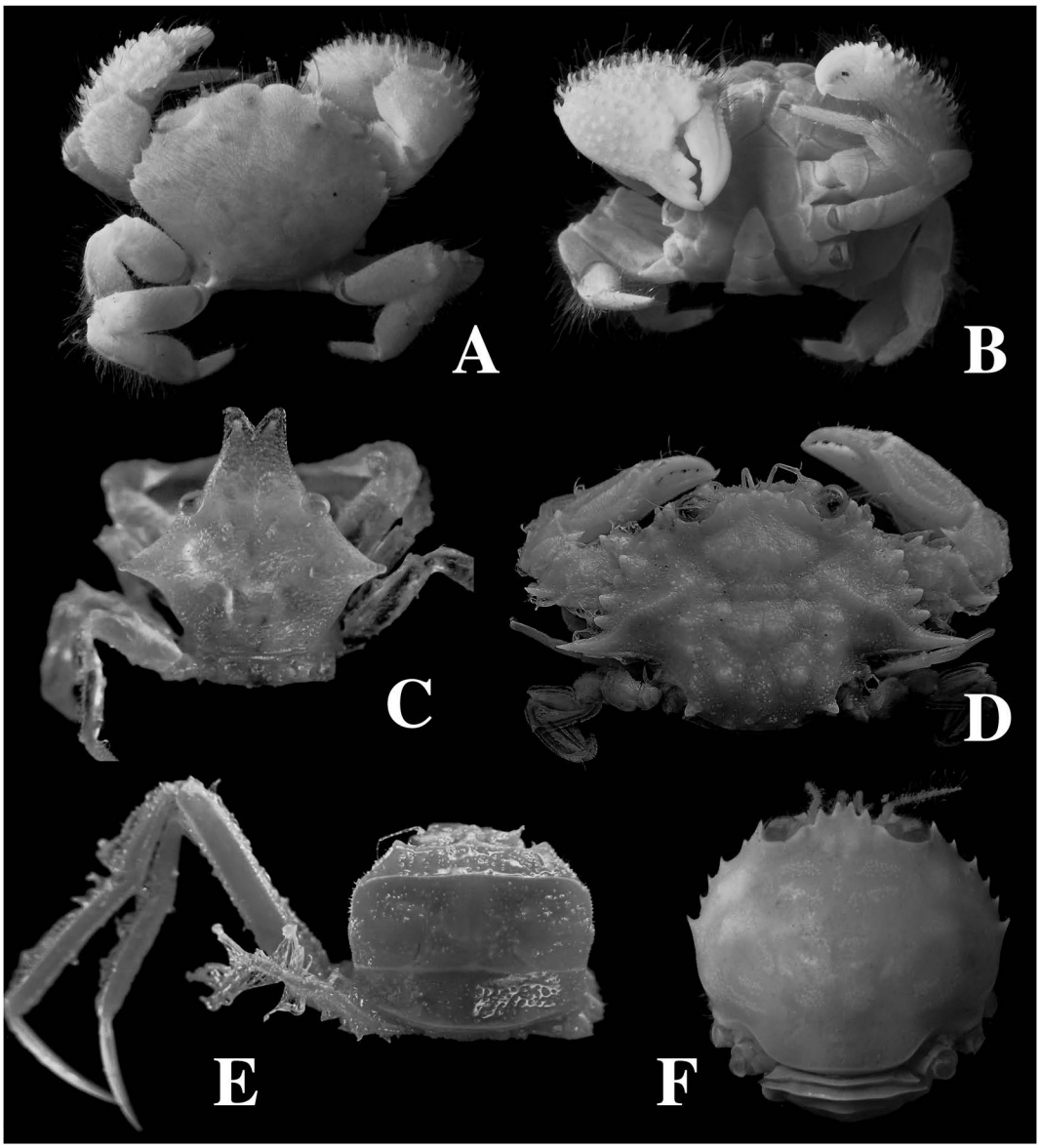

Fig. 11. A–B: *Bathypilumnus sinensis* (Gordon), ♀ (NSMT-Cr 30933; CB 8.7 × CL 7.0 mm) from sta. 45. C: *Eumedonus niger* H. Milne Edwards, ♂ (NSMT-Cr 30935; CB 7.5 × CL 7.7 mm) from sta. 50. D: *Incultus tuberculosus* (A. Milne-Edwards), ♀ (NSMT-Cr 30928; CB 25.3 mm with epibranchial tubercles, CL 14.5 mm) from sta. 45. E: *Retropluma denticulata* Rathbun, ♂ (NSMT-Cr 30943; CB 7.8 × CL 6.6 mm) from sta. 42. F: *Lupocyclus philippinensis* Semper, ♂ infested by a *Sacculina* (NSMT-Cr 30924; CB 20.5 mm including lateral teeth, CL 17.0 mm including frontal teeth) from sta. 45.

the distributional range from the Laccadive Archipelago to the Gulf of Thailand, Hong Kong, and the South China sea, bathymetrically from 21 to 115 m. Yang and Dai (1994) recorded a female from the Nansha Islands as *Pilumnus*.

Genus ***Ceratoplax*** Stimpson, 1858

[Type species: *Ceratoplax ciliatus* Stimpson, 1858]

Ceratoplax truncatifrons Rathbun, 1914

(Fig. 12)

Fig. 12. *Ceratoplax truncatifrons* Rathbun, ♀ (NSMT-Cr 30934; CB 5.3 × CL 3.3 mm) from sta. 42.

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 42, 1 ♀ (CB 5.3 × CL 3.3 mm), NSMT-Cr 30934.

Remarks. The genus *Ceratoplax* is comprised of nine species (Ng *et al.*, 2008; Ng and Clark, 2015), each of which is superficially similar with smooth and glabrous carapace surfaces. Ng and Clark (2015) finely depicted the specific characters among *C. truncatifrons* Rathbun, 1914, *C. fulgida* Rathbun, 1914, and a new species named *C. margarita*, with many photographs and illustrations including the type specimens of Rathbun's two species. According to Ng and Clark (2015), in *C. marginata*, the carapace posterolateral margin is more distinctly converging towards the carapace posterior margin, and the third maxilliped merus is auriculiform at its antero-external angle similar to that of *C. fulgida*, but different from the prominently elongated antero-external angle of the merus in *C. truncata*. It is impossible at present to apply the sex-associated characters with the female at hand, and the differences of the carapace shape may be subtle for the species identification as shown at the photographic angles (Fig. 12A–B). In the present female, however, the antero-external corner of the third maxilliped merus is sharply developed as in the figure given by Ng and Clark (2015, fig. 4C).

Distribution. Ng and Clark (2015) overlooked Takeda (1989) who recorded this species with fine drawings from the Oshima Passage in Amami-Oshima Island, the northern Ryukyu Islands, at the depth of 45 m. This species is otherwise recorded from the type locality (Badian Island, off western Samar, the Philippines, 58 m depth) by Rathbun (1914), the Sula Islands (east of Sulawesi, Indonesia, 22 m depth) by Tesch (1918), and the Nansha Islands (South China Sea, 97–206 m depth) by Chen (1998b). The specimens from Indonesia collected by the Siboga Expedition were re-examined and photographed by Ng and Clark (2015).

Genus ***Eumedonus*** H. Milne Edwards, 1834

[Type species: *Eumedonus niger* H Milne Edwards, 1834]

Eumedonus niger H. Milne Edwards, 1834

(Fig. 11C)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 50, 1 ♂ (CB 7.5 × CL 7.7 mm), NSMT-Cr 30935.

Remarks. The male examined after ecdysis is wholly semitransparent due to decalcification (Fig. 11C), agreeing well with the detailed

description, photographs and figures by Chia and Ng (2000) who examined the type specimens and synonymized *Gonatonotus crassimanus* Haswell, 1880 and *Eumedonus villosus* Rathbun, 1918 with this species. The front may be somewhat variable individually in the depth and width of the median incision, with V-shaped notch in this specimen just like the holotype represented by Chia and Ng (2000: fig. 1).

Distribution. Known from Japan, the East China Sea, the Philippines, and eastern and western Australia, 40–138 m depth.

Genus ***Gonatonotus*** White, 1847
[Type species: *Gonatonotus pentagonus* White, 1847]
Gonatonotus pentagonus White, 1847

Material examined. RV *Hakuhō Maru* KH-72-1 Cruise, sta. 45, 1 ♂ (CB 5.2 × CL 5.1 mm), 1 ♀ (6.0 × 5.7 mm), NSMT-Cr 30936.

Remarks. The present young specimens agree well with the specimens (3 ♂♂, 1 ♀) from the Sahul Shelf recorded in the third part of this study (Takeda *et al.*, 2002b).

Distribution. Chia and Ng (2000) recorded many specimens from Indonesia, Singapore, Thailand, and Australia, 9–54 m depth.

Genus ***Pilumnus*** Samouelle, 1819
[Type species: *Cancer hirtellus* Linnaeus, 1761]
Pilumnus minutus (De Haan, 1835)

(Fig. 10A–B)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 1 ♂ (CB 8.0 × CL 6.1 mm), NSMT-Cr 30937, 1 ♀ (7.5 × 5.1 mm) infested by a *Sacculina*, NSMT-Cr 30938.

Remarks. The male at hand (Fig. 10A–B) agrees well with the specimens from the Sahul Shelf recorded by Takeda *et al.* (2002b) in the setation of the carapace, chelipeds and ambulatory legs with stiff setae of various sizes and the spination of the carapace anterolateral margins and chelipeds.

Distribution. Widely distributed in the whole Indo-West Pacific at depths of 5 to 100 m.

Genus ***Serenolumnus*** Galil and Takeda, 1988
[Type species: *Glabropilumnus kasijani* Serène, 1969]
Serenolumnus kasijani (Serène, 1969)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 45, 2 ♂♂ (CB 5.3 × CL 4.0 mm; 6.7 × 4.8 mm with left gill chamber deformed by bopyrid parasite), 1 ♀ (5.5 × 4.1 mm), 2 juv., NSMT-Cr 30939.

Remarks. The present specimens agree well with those (2 ♂♂, 6 ovig. ♀♀) from the Sahul Shelf recorded in the third part of this study (Takeda *et al.*, 2022b).

Distribution. Known from the Philippines, South China Sea, Singapore, and Indonesia, 12–78 m in depth. Galil and Takeda (1988) recorded three females obtained from mangrove sponges in Singapore.

Genus ***Xestopilumnus*** Ng and Dai, 1997
[Type species: *Xestopilumnus cultripollex* Ng and Dai, 1997]
Xestopilumnus cultripollex Ng and Dai, 1997

(Fig. 13)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 42, 1 ♂ (CB 5.6 × CL 4.7 mm), NSMT-Cr 30940.

Remarks. The male at hand is safely identified as *Xestopilumnus cultripollex*, which is known only by the original description (Ng and Dai, 1997) based on five males and one subadult female from the vicinity of Hong Kong Island. All known specimens, including the present male, are small and not distinctive in the general appearance of the carapace, chelipeds and ambulatory legs, but the wholly smooth carapace, chelipeds and ambulatory legs is of distinct generic value in the genus *Glabropilumnus* Balss, 1933 and genera such as *Gorgonariana*, *Lentilumnus*, *Serenolumnus*, *Xlumnus* separated from *Glabropilumnus* by Galil and Takeda (1988).

The carapace dorsal surface (Fig. 13A–B) is smooth and glabrous without areolar indication,

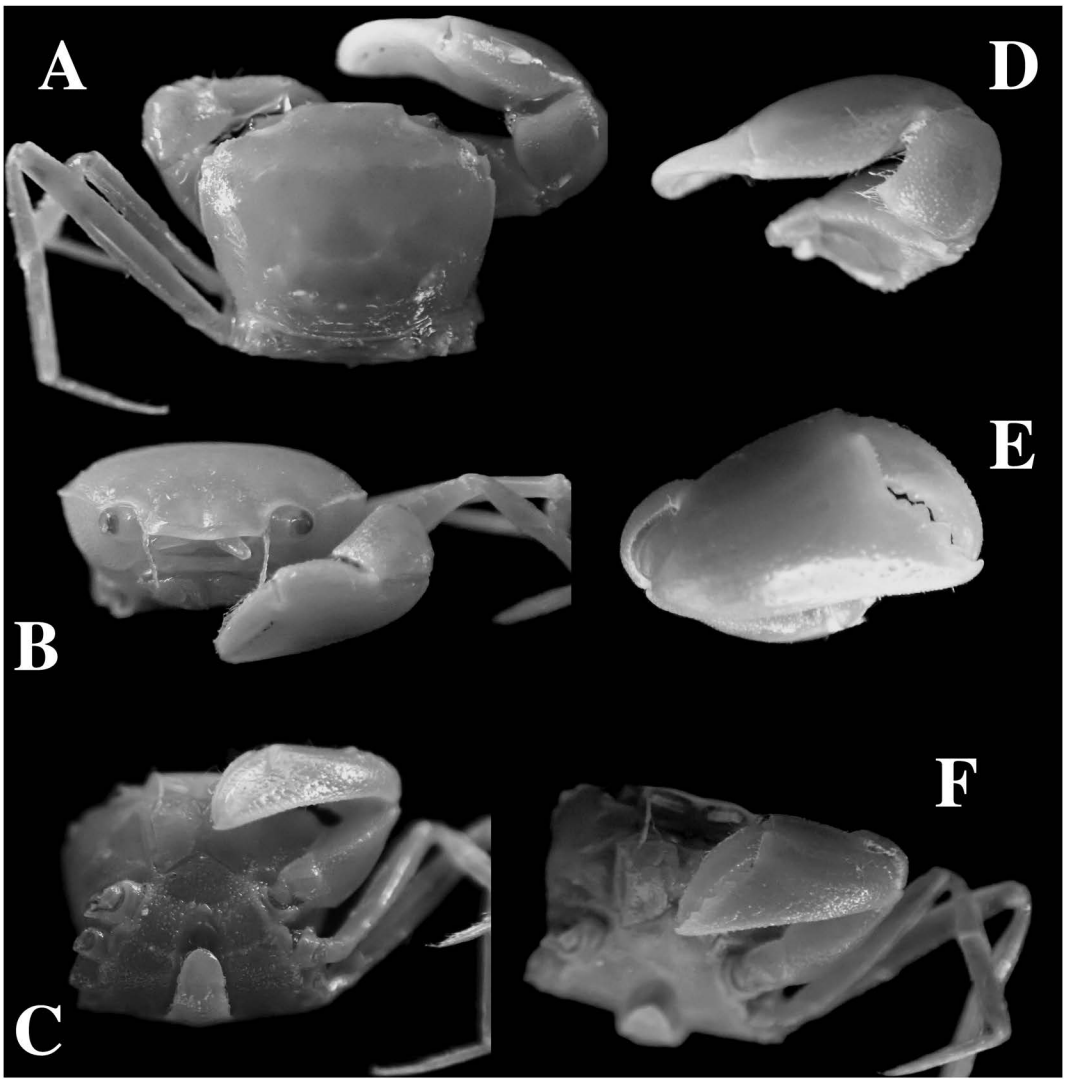

Fig. 13. *Xestopilumnus cultripollex* Ng and Dai, ♂ (NSMT-Cr 30940; CB 5.6 × CL 4.7 mm) from sta. 42. Dorsal (A), frontal (B) and ventral (C) views, right (larger) chela in dorsal (D) and outer (E) views, left (smaller) chela in outer view (F).

and evenly convex in both directions; the front prominently extends forward, with transverse margin and without median incision, slightly more than one-third as wide as carapace; the carapace anterolateral margin (Fig. 13A–B) is narrowly edged and cut into three lobes; first lobe is isolated from the less prominent external orbital angle with a short distance, and fringed with minute granules; the second lobe is small, but tooth-like and subacute at the tip, separated from the first lobe by a small but distinct notch; the third lobe obscurely isolated from the second lobe is obscurely convex and weakly convergent toward the carapace posterolateral corner. Both chelipeds (Fig. 13D–E) are different in size and shape; in the right, or larger cheliped in this male, the palm is stout, fairly bulged, but the left cheliped palm is compressed, with sharp lower margin. The ambulatory legs are all slender (Fig. 13A, F).

A small discrepancy is the absence of the fourth anterolateral lobe of the carapace, but the variation of the armature was shown with fine illustrations in the original description.

Distribution. Hitherto known from Hong Kong, and now from the southern South China Sea; subtidal to 36 m depth.

Family Chasmocarcinidae Serène, 1964

Genus ***Camatopsis*** Alcock and Anderson, 1899

[Type species: *Camatopsis rubida* Alcock and Anderson, 1899]

Camatopsis leptomerus Ng and Castro, 2016

(Fig. 14G–H)

Material examined. RV *Hakuhō Maru* KH-72-1 Cruise, sta. 42, 1 ♀ (CB 5.5 × CL 4.8 mm), NSMT-Cr 30941.

Remarks. The genus *Camatopsis* was revised by Ng and Castro (2016) who referred the forma A and B of the Siboga specimens defined by Tesch (1918) to one known species *C. rubida*, and three new species *C. minor*, *C. leptomerus* and *Microtopsis teschi*, and furthermore, amended the records of *C. rubida* from Japan and Taiwan (Yokoya, 1933; Sakai, 1939, 1965, 1976; Takeda, 1973b; Fang, 1991; Hsueh and Huang, 2002; Komai *et al.*, 2012) to those of a new species *C. thula*. *Camatopsis thula* is most characteristic in having the shortest and stoutest ambulatory meri among its congeners. The specimen at hand (Fig. 14G–H) is female, so that the Gl is not available for definite identification, but the ambulatory legs are slenderer than those of congeners, with the overall appearance agreeing well with the photographs of *C. leptomerus* given by Ng and Castro (2016) who examined numerous specimens from many localities.

Distribution. The type locality is the Bohol Sea in the Philippines, 627–645 m in depth, and the other localities recorded by Ng and Castro (2016) are in Taiwan (310–346 m), the Philippines (10–1,260 m), Malaysia, Indonesia (216 m), Papua New Guinea (80–447 m), Vanuatu (83–394 m), and New Caledonia (200–700 m).

Camatopsis rubida Alcock and Anderson, 1899

(Fig. 14A–F)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 52, 1 ♂ (CB 10.1 × CL 8.9 mm), NSMT-Cr 30942.

Remarks. The carapace (Fig. 14A–B) of the present specimen of *Camatopsis rubida* is subtrapezoidal and high, differing slightly in the proportional shape according to the photographing angles. The carapace dorsal surface, chelipeds and ambulatory legs are wholly covered with longish fine setae (Fig. 14A–F). In the male examined, the right cheliped (Fig. 14E) is larger, but slender, leaving a narrow gape between both fingers along their basal halves. In the small left cheliped (Fig. 14F), the palm and fingers are slenderer, being armed with small irregular teeth on both cutting edges and with a sharp spine at distal one third of immovable cutting edge. Both cheliped fingers are apparently different from the chelipeds of developing or mature males.

The known species of the genus *Camatopsis* are morphologically close to each other, with some degree of variation, and it is difficult to evaluate some records of *C. rubida*. According to Ng and Castro (2016) who illustrated the G1s of all the *Camatopsis* species, the records of *C. rubida* from the Gulf of Thailand by Rathbun (1910) and Indonesia by Serène (1964) still remain unclear, but the records of *C. rubida* from the South China Sea by Zarenkov (1972) and Chen (1998b) show clearly the correct identification, with the illustration of the G1. Recently, Mendoza *et al.* (2021) recorded *C. rubida* from Indonesian waters, with fine photographs.

Ng and Castro (2016) recorded numerous specimens from many localities, with the complete literature, many photographs and the detailed geographical information.

Distribution. The type locality is the Andaman Sea (349 m), and Ng and Castro (2016) recorded many specimens from the Andaman Sea coast of Thailand (36–53 m), Western Australia (101–407 m), Sumatra (179–660 m), Papua New Guinea (195–422 m), Queensland coast of Aus-

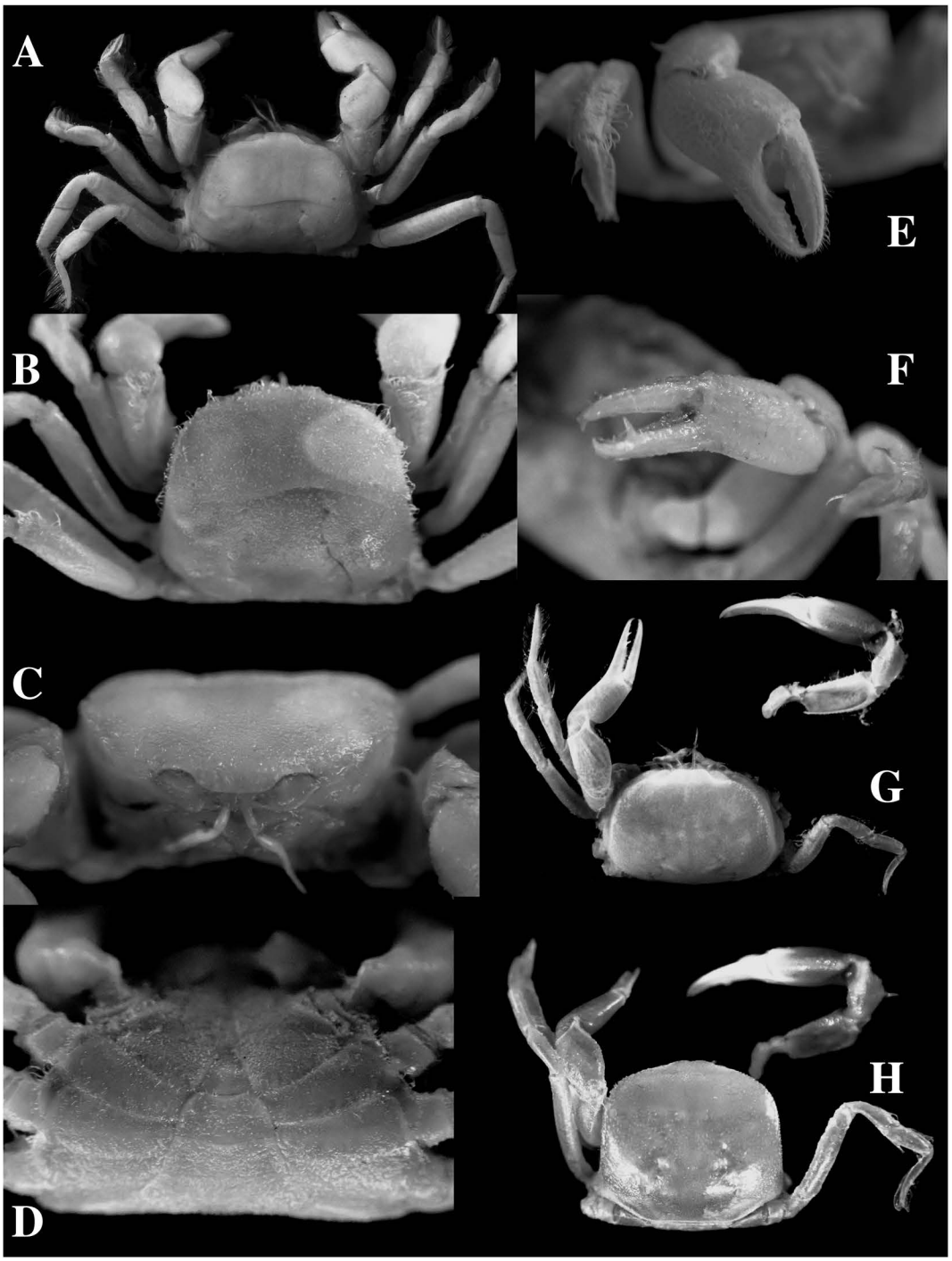

Fig. 14. A–F: *Camatopsis rubida* Alcock and Anderson, ♂ (NSMT-Cr 30942; CB 10.1 × CL 8.9 mm) from sta. 52. A–B: Dorsal views in different photographic angle (A–B), frontal view (C), pleon (B), right (E) and left (F) chelae. G–H: *Camatopsis leptomerus* Ng and Castro, ♀ (NSMT-Cr 30941; CB 5.5 × CL 4.8 mm) from sta. 42. Dorsal views in different photographic angle (G–H).

tralia (56–695 m), New Caledonia (170–460 m), and Fiji (234–361 m). Chen's record (1998b) from the Nansha Islands is based on specimens obtained from depths of 113 to 224 m.

Family Retroplumidae Gill, 1894
Genus ***Retropluma*** Gill, 1894
[Type species: *Archaeoplax notopus* Alcock and Anderson, 1894]
Retropluma denticulata Rathbun, 1932

(Fig. 11E)

Material examined. RV *Hakuhō Maru* KH-72-1 cruise, sta. 42, 1 ♂ (CB 7.8 × CL 6.6 mm), NSMT-Cr 30943.

Remarks. The genus *Retropluma* was extensively studied by De Saint Laurent (1989) on six species then known, and later a new species was added by McLay (2006a). The most remarkable characteristic common to seven known species is that the last pair of the thoracic legs is extremely reduced. Even if all of the species are rather rare, *R. denticulata* is well known by the records from the West Pacific by Yokoya (1933), Sakai (1934, 1939, 1976), Zarenkov (1968), De Saint Laurent (1989), Chen and Xu (1991), Dai and Yang (1991), and Takeda (2001).

In *R. denticulata* (Fig. 11E), the rostrum is triangular, with a wide basal part; both of two transverse carinae of the carapace dorsal surface are wholly distinct between the carapace lateral margins of both sides.

McLay (2006a) included the new species, *R. laurentae*, which was preoccupied by a fossil crab and renamed *R. solomonensis* by McLay (2006b), in the key to six species prepared by De Saint Laurent (1989).

Distribution. Japan, South China Sea, Philippines, and Solomon Islands; 70–286 m depth.

General Notes on the Crabs from the Seas of East and Southeast Asia Collected during the RV *Hakuhō Maru* KH-72-1 Cruise

The present part is the fourth of series of studies on the crabs collected during the RV *Hakuhō Maru* KH-72-1 cruise in the seas of East and Southeast Asia. The first part reported the specimens from the Sulu Sea and Sibutu Passage (Takeda *et al.*, 2021), the subsequent two parts treated materials from the Timor Sea and Sahul Shelf (Takeda *et al.*, 2022a–b), and the present study, focused on the stations from the South China Sea, is final in the series. All the specimens collected 50 years ago and kept in the National Museum of Nature and Science, Tokyo, were identified to the species and recorded in each part. The species are tabulated in this part for comparison (Table 3), together with the list of the species from the South China Sea collected by the RV *Hakuhō Maru* KH-73-2 cruise and recorded by Takeda (2019).

First, unfortunately, the specimens referable to the family Xanthidae were not kept in the collections of the National Museum of Nature and Science, Tokyo. The xanthid specimens might be picked up for ecological studies in the Ocean Research Institute (ORI, now, Atmosphere and Ocean Research Institute), The University of Tokyo, although all the biological researchers of the ORI joining the cruise were ecologists, and each researcher from the other universities and institutes made a specialty of the invertebrate group other than the crustaceans.

During the RV *Hakuhō Maru* KH-72-1 cruise, the sampling stations in the Sulu Sea and the Sibutu Passage, and also in the Timor Sea were set in the deep-sea slope depths (285–2,030 m in the Sulu Sea and the Sibutu Passage; 295–690 m in the Timor Sea), those in the Sahul Shelf were in the shallow shelf depths (49–115 m), and those in the South China Sea were in both shelf (60–137 m) and slope depths (265–777 m). The sampling stations during the RV *Hakuhō Maru* KH-73-2 cruise were also from shelf (55–150 m) and slope depths (265–437 m). The results of the identification are shown in Table 3, with number of the specimens and recorded depth.

At first glance, the species list in Table 3 shows that (1) there are no species common to all of the four areas covered by the present series of

Table 3. List of the species collected by RV *Hakuhō Maru* KH-72-1 cruise (Takeda *et al.*, 2021; Takeda *et al.*, 2022a–; Present paper), and KH-73-2 cruise (Takeda, 2019).

Species	Localities				
	1. Sulu Sea, Sibutu Passage KH-72-1	2. Timor Sea KH-72-1	3. Sahul Shelf KH-72-1	4. South China Sea	
				KH-72-1	KH-73-2
CYCLODORIPPIDAE Ormtann, 1892					
Krangalangia spinosa (Zarenkov, 1970)		1 ♂, 1 ♀ (535–547 m)			
CYMONOMIDAE Bouvier, 1897					
Cymonomus java Ahyong, Mitra & Ng, 2020		1 ♀ (610–690 m)			
Cymonomus suluensis Takeda, Ohtsuchi & Komarsu, 2021	1 ♀ (2,030 m)				
DROMIIDAE De Haan, 1833					
Cryptodromia amboinensis De Man, 1888			2 ♀ ♀ (49–52 m)		
Mclaydromia colini Guinot & Tavares, 2003			1 ♂ (49–52 m)	1 ♀ (60 m)	
HOMOLODROMIIDAE Alock, 1900					
Dicranodromia foersteri Guinot, 1993	1 ovig. ♀ (460–514 m)				
Dicranodromia karubar Guinot, 1993		1 ♀ (465–490 m)			
Homolodromia hakuhoae Takeda, Ohtsuchi & Komatsu, 2021	1 ovig. ♀ (2,030 m)				
Homolodromia kai Guinot, 1993		2 ♂ ♂, 2 ovig. ♀ ♀, 2 ♀ ♀ (535–690 m)		1 ♂ (760–777 m)	
HOMOLIDAE De Haan, 1839					
Homolochunia valdiviae Doflein, 1904		1 ♀ (465–490 m)			
Latreillopsis bispinosa Henderson, 1888				1 ♂, 2 ovig. ♀ ♀ (132–137 m)	
Paromolopsis boasi Wood-Mason, 1891	1 ♀ (460–514 m)				
LATREILLIDAE Stimpson, 1858					
Latreillia pennifera Alcock, 1900				4 ♂ ♂, 4 ovig. ♀ ♀ (93–137 m)	
Latreillia valida De Haan, 1839					3 ♀ ♀ (80–290 m)
LYREIDIDAE Guinot, 1993					
Lyreidus stenops Wood-Mason, 1887					2 ♂ ♂ (55 m)
Lysirude goekei Takeda, Ohtsuchi & Komatsu, 2021	1 ♂ (730–738 m)				
RANINIDAE De Haan, 1839					
Cosmonotus grayii Adams, 1848				1 ♀ (60 m)	
AETHRIDAE Dana, 1851					
Drachiella morum (Alcock, 1896)			1 ♀ (49–52 m)		
CALAPPIDAE De Haan, 1833					
Calappa philargius (Linnaeus, 1758)				Left cheliped (60 m)	
Cycloes granulosa De Haan, 1837					1 ♀ (80 m)
Mursia australiensis Campbell, 1971				1 juv. (265–286 m)	
MATUTIDAE De Haan, 1833					
Izanami crutispina (Sakai, 1961)					5 ♂ ♂, 10 ♀, 25 juv. (80–150 m)
ETHUSIDAE Guinot, 1977					
Ethusa hirsuta McArdle, 1900			1 ♂ (115 m)		
Ethusa sexdentata (Stimpson, 1858)	1 ♂ (495–500 m)				
Ethusina chenae Ng & Ho, 2003		1 ♀, 1 juv. (610–690 m)			

Table 3. Continued.

Species	Localities				
	1. Sulu Sea, Sibutu Passage KH-72-1	2. Timor Sea KH-72-1	3. Sahul Shelf KH-72-1	4. South China Sea	
				KH-72-1	KH-73-2
LEUCOSIIDAE Samouelle, 1819					
Coleusia magna (Tyndale-Biscoe & George, 1962)			1 carapace (49–52 m)		
Myra australis Haswell, 1880			1 ♀ (49–52 m)		
Parilia pattersoni Ng, Devi & Kumar, 2018				1 juv. (85–88 m)	
Tokoyo eburnea (Alcock, 1895)					1 ovig. ♀ (145–150 m)
Urashima pustuloides (Sakai, 1961)	1 ♂ (285–306 m)				
Urnalana haematosticta (White, 1847)					1 ♂ (85 m)
Urnalana whitei (Bell, 1855)			1 ♂ (49–52 m)		
INACHIDAE MacLeay, 1838					
Achaeus brevirostris (Haswell, 1879)			2 ♂♂ (49–52 m)		
Achaeus curvirostris (A. Milne-Edwards, 1873)					1 ♂ (145–150 m)
Achaeus lacertosus Stimpson, 1858			2 ovig. ♀♀ (49–52 m)		
Achaeus paradicei Griffin, 1970			3 ♂♂, 4 ovig. ♀♀, 2 ♀♀ (49–52 m)		
Cyrtomaia horrida Rathbun, 1916	2 ♂♂ (495–500 m)				
Cyrtomaia largoi Richer de Forges & Ng, 2007	1 ♂, 1 ♀ (460–514 m)				
Cyrtomaia suhmii Miers, 1886		2 ♂♂ (610–690 m)		5 ♂♂, 6 ♀♀ (760–777 m)	1 ovig. ♀ (415–437 m)
Dorhynchus rostratus (Sakai, 1932)		1 ♀ (610–690 m)		1 ♀ (760–777 m)	
Glypachaeus hyalinus (Alcock & Anderson, 1894)					1 ♂ (145–150 m)
Onchinopus angustifrons Takeda & Miyake, 1969				1 ♂ (93–93 m)	
Oncinopus kathae Davie, 2011			1 ovig. ♀ (49–52 m)		
Oncinopus postillonensis Griffin & Tranter, 1986			1 ovig, ♀ (49–52 m)		
Platymaia bartschi Rathbun, 1916	1 ♂ (460–514 m)				
Platymaia fimbriata Rathbun, 1916		2 ♂♂ (535–690 m)			
Platymaia remifera Rathbun, 1916	7 ♂♂, 1 ovig. ♀, 7 ♀♀ (285–500 m)				
Platymaia wyvillethomsoni Miers, 1886		1 ovig. ♀ (295–296 m)			
OREGONIIDAE Garth, 1958					
Pleistacantha griffini Ahyong & Lee, 2006		1 ♂ (295–296 m)			
Pleistacantha oryx Ortmann, 1893	1 ♂, 2 ♀♀ (285–514 m)				
Pleistacantha simplex (Rathbun, 1932)	1 ♂ (460–514 m)				
EPIALTIDAE MacLeay, 1838					
Austrolibinia geracilipes (Miers, 1879)			2 ♂♂, 3 ovig. ♀♀, 1 ♀, 1 juv. (49–115 m)		
Hyastenus campbeli Griffin & Tranter, 1986			1 ♂, 1 ovig. ♀ (49–115 m)		
Hyastenus kyushuensis (Yokoya, 1933)			2 ♂♂, 2 ♀♀ (49–52 m)		
Laubierinia carinata (Griffin & Tranter, 1986)		2 ♀♀ (295–296 m)			
Laubierinia nodosa (Rathbun, 1916)	1 ♂,1 ♀ (460–514 m)				
Naxioides elongatus sp. nov.				1 ♂ (132–137 m), 1 ♀ (760–777 m)	
Naxioides sahulensis Takeda, Ahyong, Ohtsuchi & Komatsu, 2022			1 ♀ (49–78 m)		
Oxypleurodon sphenocarcinoides (Rathbun, 1916)	1 ♂ (285–306 m)			1 ♂, 2 ovig. ♀♀	

Table 3. Continued.

Species	Localities				
	1. Sulu Sea, Sibutu Passage KH-72-1	2. Timor Sea KH-72-1	3. Sahul Shelf KH-72-1	4. South China Sea	
				KH-72-1	KH-73-2
Oxypleurodon wilsoni Richer de Forges & Poore, 2008	1 ♂, 1 ovig. ♀, 2 ♀ ♀ (460–514 m)				
Phalangipus australiensis Rathbun, 1918			3 ♂ ♂, 1 ovig. ♀, 1 ♀ (74–115 m)		
Samadinia boucheti (Ng & Richer de Forges, 2013)		1 ♀ (465–490 m)			
Samadinia hakuhoae sp. nov.				1 ♂. 1 ovig. ♀, 3 ♀ ♀ (760–777 m)	
Samadinia soela (Griffin & Tranter, 1986)		1 ♂, 2 ♀ ♀ (610–690 m)			
MAJIDAE Samouelle, 1819					
Prismatopus albanyensis Ward, 1933			2 ♂ ♂ (49–115 m)		
Prismatopus peterngi Takeda, Ahyong, Otsuchi & Komatsu, 2022			1 ♂ (49–52 m)		
PARTHENOPIDAE MacLeay, 1838					
Pseudolambrus bidentatus (Flipse, 1930)			1 ♂ (49–52 m)		
Rhinolambrus pelagicus (Rüppell, 1830)					
TRICHOPELTARIIDAE Tavares & Cleva, 2010					
Trichopelatarion alcocki Doflein, 1903		1 ♀ (535–547 m)			
POLYBIIDAE Ortmann, 1893					
Parathranites orientalis (Miers, 1886)					1 ♀ (282–290 m)
PORTUNIDAE Rafinesque, 1815					
Charybdis hongkongensis Shen, 1934				1 ♂ (85–88 m)	1 ♂, 2 ♀ ♀ (55 m)
Charybdis jaubertensis Rathbun, 1924			1 ♂ (49–52 m)		
Charybdis rosaea (Hombron & Jacquinot, 1846)			16 ♂ ♂, 10 ♀ ♀ (49–78 m)		
Charybdis vadorum Alcock, 1899				1 ♂ (132–137 m)	
Incultus tuberculosus (A. Milne-Edwards, 1861)				1 ♀ (60 m)	
Libystes edwardsi Alcock, 1899					1 ♂ (55 m)
Lissocarcinus arkati Kemp, 9123				1 ♀ (60 m)	
Lissocarcinus polybioides Adams & White, 1849				1 ♀ (60 m)	
Lupocycloporus gracilimanus (Stimpson, 1858)			3 ♂ ♂, 2 ovig. ♀ ♀, 1 ♀ (49–115 m)		
Lupocycloporus innominatus (Ratbun, 1909)				1 ♂ (60 m)	
Lupocyclus philippinensis Nauck, 1880				1 ♂ (60 m)	
Podophthalmus nacreus Alcock, 1899				1 ♀ (60 m)	
Portunus sanguinolentus (Herbst, 1783)			1 ♀ (115 m)		
Thalamita intermedia Miers, 1886			1 ♂, 1 ♀ (49–52 m)		
Thalamita sexlobata Miers, 1886				2 ovig. ♀ ♀ (60 m)	
Thalamita sima H. Milne Edwards, 1834			1 ♂ (115 m)		
XANTHIDAE MacLeay, 1838					
Nanocassiope granulipes (Sakai, 1939)					1 ovig. ♀ (282–290 m)
PILUMNIDAE Samouelle, 1819					
Actumnus forficigerus (Stimpson, 1858)				1 ♂, 7 ovig. ♀ ♀, 2 ♀ ♀ (60 m)	5 ♂ ♂, 2 ovig. ♀ ♀ (100 m)
Actumnus setifer (De Haan, 1835)			2 ♂ ♂ (49–78 m)		

Table 3. Continued.

Species	Localities				
	1. Sulu Sea, Sibutu Passage KH-72-1	2. Timor Sea KH-72-1	3. Sahul Shelf KH-72-1	4. South China Sea	
				KH-72-1	KH-73-2
Actumnus squamosus (De Haan, 1835)			1 ovig. ♀ (49–52 m)	1 ♂, 1 ♀ (60 m)	
Bathypilumnus pugilator (A. Milne-Edwards, 1873)			1 ♂, 1 ♀, 1 juv. (49–52 m)		
Bathypilumnus sinensis (Gordon, 1930)				1 ♀ (60 m)	
Camptoplax coppingeri Miers, 1884			1 ♂ (49–52 m)		
Celatoplax truncatifrons Rathbun, 1914				1 ♀ (85–88 m)	
Cryptolutea sagamiensis (Sakai, 1935)					1 ♀ (55 m)
Cryptocoeloma haswelli Rathbun, 1923			2 ♂ ♂ (49–52 m)		
Eumedonus niger H. Milne Edwards, 1834				1 ♂ (132–137 m)	
Glabropilumnus seminudus (Miers, 1884)			3 ♂ ♂, 1 ♀ (49–115 m)		
Gonatonotus pentagonus White, 1847			3 ♂ ♂, 1 ♀ (49–78 m)	1 ♂, 1 ♀ (60 m)	
Latopilumnus tuberculosus (Garth & Kim, 1984)			4 ♂ ♂, 3 ovig. ♀ ♀, 4 ♀ ♀ (49–52 m)		
Pilumnus longicornis Hilgendorf, 1878			1 ♂ (49–52 m)		
Pilumnus minutus (De Haan, 1835)			2 ♂ ♂, 6 ♀ ♀ (49–78 m)	1 ♂, 1 ♀ (60 m)	
Pilumnus rotundus Borradaile, 1902			1 ♀ (49–52 m)		
Pilumnus semilanatus Miers, 1884			1 ♀, 5 juv. (49–52 m)		
Serenepilumnus leopoldi (Gordon, 1934)					4 ♂ ♂, 1 ovig. ♀, 3 ♀ ♀ (80 m)
Serenolumnus kasijani (Serène, 1969)			2 ♂ ♂, 6 ovig. ♀ ♀ (49–78 m) 1 juv. (49–52 m)	2 ♂ ♂, 1 ♀, 2 juv.(60 m)	
Viaderiana typica Ward, 1942					
Xestopilumnus cultripollex Ng & Dai, 1997				1 ♂ (85–88 m)	
GONEPACIDAE MacLeay, 1838					
Carcinoplax purpurea Rathbun, 1914					1 ♂, 2 ♀ ♀ (55 m)
Pycnoplax surugensis (Rathbun, 1932)	1 ♀ (460–514 m)				
CHASMOCARCINIDAE Serène, 1964					
Camatopsis leptomerus Ng & Castro, 2016				1 ♀ (265–286 m)	
Camatopsis rubida Alcock & Anderson, 1899, *Tenagopelta potens* (Davie & Richer de Forges, 2013)		1 ♀ (610–690 m)		1 ♂ (85–88 m)	
RETROPLUMIDAE Gill, 1894					
Retropluma denticulata Rathbun, 1932				1 ♂ (85–88 m)	

studies, namely in the West Pacific, viz. the Sulu Sea and the Sibutu Passage, the Sahul Shelf, the Timor Sea, and the South China Sea. It is otherwise noted that (2) there are no deep-sea species common to the Sulu Sea and the Sibutu Passage (285–2,030 m) and the Timor Sea (295–690 m), and also it is remarkable that (3) the only deep-sea species common to the Sibutu Passage (285–2,030 m) and the South China Sea (265–777 m) is *Oxypleurodon sphaenocarcinoides* of the Epialtidae, and (4) the deep-sea species common to the Timor Sea and the South China Sea are only three species, *Homolodromia kai* of the Homolodromiidae, and *Cyrtomaia suhmii* and *Dorhynchus rostratus* of the Inachidae.

As regards the shallow-water species from the Sahul Shelf (40 spp.) and the South China Sea, (43 spp.), only five species, *Mclaydromia colini* (Dromiidae), and *Actumnus squamosus*, *Gonatonotus pentagonus*, *Pilumnus minutus* and *Serenolumnus kasijani* (Pilumnidae) were recorded from both of the areas. Although there is no record of the substratum of each station, it is generally considered that the species live in their favoured depths and substrata, showing the bathymetrical characteristic of the species rather than the biogeographical distribution. The results show that the offshore crabs have narrow ranges, with a rather high degree of apparent endemicity.

The RV *Hakuhō Maru* collections are apparently not thorough as regards the setting of stations and bathymetric range, the selection of gears type, and trawling frequency, and are thus not statistically comparable with the results of recent expeditions made in the seas off Taiwan, the Philippines, Indonesia, Papua New Guinea and New Caledonia. However, it is considered that the records of the crabs collected by RV *Hakuhō Maru* cruises are indicative of the geographical and bathymetric fauna in the different area in the West Pacific. This study is also worthy of note in increasing the taxonomic knowledge of rare crabs from the Western Pacific.

[CORRIGENDUM and ADDENDA]

Additional Records of, and Notes on the Crabs Collected during the RV *Hakuhō Maru* Cruise KH-73-2 in the South China Sea

The crabs from the northern South China Sea collected by the RV *Hakuhō Maru* during her KH-73-2 cruise in 1973 were recorded by Takeda (2019). Although not all specimens were deposited in the National Museum of Nature and Science, Tokyo, they were identified as 15 species of 9 families. The identification of one of species, *Serenepilumnus velasquezi* (Serène, 1971) should be corrected to *S. leopoldi* (Gordon, 1934), as indicated personally by Dr. P. K. L. Ng of the Lee Kong Chian Natural History Museum, National University of Singapore, and reported by Ng and Rahayu (2021).

Recently, several unrecorded specimens collected during the RV *Hakuhō Maru* KH-73-2 cruise were found in storage at the Tsukuba Research Departments, National Museum of Nature and Science, Tokyo. They are not uncommon species in the South China Sea, but recorded below for future references (cf. Table 3). The additional references are included in the references concerned to the KH-72-1 cruise.

Family Latreillidae Stimpson, 1858

Latreillia valida De Haan, 1839

Material examined. RV *Hakuhō Maru* KH-73-2 cruise, sta. 36 (Shelf off Swatow, 22°08.3′N, 117°44.6′E, 80 m depth), 3 m beam trawl, 10 March, 1973, 1 juv. ♀ (CB 3.4 × PCL 5.9 mm), NSMT-Cr 30944.

Family Lyreididae Guinot, 1993

Lyreidus stenops Wood-Mason, 1887

Material examined. RV *Hakuhō Maru* KH-73-2 cruise, sta. 41 (southeast of Hong Kong, 22°15.3′N, 115°28.2′E to 22°15.7′N, 115°28.9′E, 55 m depth), 3 m beam trawl, 18 March, 1973, 2 ♂♂ (CB 15.0 × CL 28.2 mm; 18.0 × 28.2 mm), NSMT-Cr 30945.

Family Leucosiidae Samouelle, 1819

Urnalana haematosticta (White, 1847)

Material examined. RV *Hakuhō Maru* KH-73-2 cruise, sta. 41 (southeast of Hong Kong, 22°15.3′N, 115°28.2′E to 22°15.7′N, 115°28.9′E, 55 m depth), 3 m beam trawl, 18 March, 1973, 1 ♂ (CB 10.5 × CL 11.0 mm), NSMT-Cr 30946.

Remarks. The male at hand has been preserved in 75% ethanol for almost 50 years, but brick red specks are clearly preserved on the carapace and chelipeds. The dispersed pattern of the specks of good and variable sizes agrees with the colored figure given by Adams and White (1849: pl. 12 fig. 2) and the line drawing by Ovaere (1987: fig. 1A), differing from the pattern of *U. parahaematosticta* Galil, 2005, in which the smaller spots are crowded at the carapace submedian, anterolateral and posterolateral parts, without larger spots on the chelipeds. The color pattern of this species was also cleary shown by Poore *et al.* (2008).

Low *et al.* (2020) noted that the original description of this species should be referred to Adams (1847) who wrote the brief notes on the coloration of *Leucosia haematosticta* prior to the publication of Adams and White (1849).

Family Inachidae MacLeay, 1838

Cyrtomaia suhmii Miers, 1886

Material examined. RV *Hakuhō Maru* KH-73-2 cruise, sta. 44 (southeast of Hong Kong, 21°41.2′N, 117°31.1′E to 22°42.7′N, 117°33.4′E, 415–437 m depth), 3 m beam trawl, 19 March, 1973, 1 ovig. ♀ (CB 39.0 excluding brachial tubercles × PCL 29.5 mm), NSMT-Cr 30947.

Family Portunidae Rafinesque, 1815

Monomia argentata (A. Milne-Edwards, 1861)

Material examined. RV *Hakuhō Maru* KH-73-2 cruise, sta. 41 (southeast off Hong Kong; 22°15.3′N, 115°28.2′E to 22°15.7′N, 115°28.9′E, 55 m depth), 3 m beam trawl, 18 March, 1973, 8 ♂♂ (CB 36.2 mm including epibranchial tubercles × 20.5 mm to 39.0 × 21.1 mm), 8 ♀♀ (34.2 × 18.5 mm to 41.0 × 23.1 mm), 5 ovig. ♀♀ (34.4 × 18.5 mm to 42.4 × 23.7 mm), NSMT-Cr 30948.

Family Pilumnidae Samouelle, 1819

Actumnus forficigerus (Stimpson, 1858)

Material examined. RV *Hakuhō Maru* KH-73-2 cruise, sta. 36 (Shelf off Swatow, 22°08.3′N, 117°44.6′E, 80 m depth), 3 m beam trawl, 10 March, 1973, 2 ♂♂ (CB 8.5 × CL 6.5 mm; 9.8 × 7.1 mm), 2 ovig. ♀♀ (6.9 × 5.6 mm; 10.3 × 7.6 mm), NSMT-Cr 30949.

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