

Crabs from Balicasag Island, Bohol, the Philippines: Dromiidae, Dynomenidae, Homolidae, Raninidae, Dorippidae, and Calappidae

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Abstract. Crabs of the families Dromiidae, Dynomenidae, Homolidae, Raninidae, Dorippidae, and Calappidae collected with tangle net at the depths off Balicasag Island, Bohol, the Philippines, are recorded with their photographs. Of 43 species recorded in this report, the following ten species of five families are new to the carcinological fauna of the Philippines: *Dromia dormia* (Linnaeus) and *Takedromia yoshidai* (Takeda & Kurata) (Dromiidae), *Acanthodromia margarita* (Alcock) (Dynomenidae), *Homola dickinsoni* Eldredge, *Homolomannia oculusa* Guinot & Richer de Forges, *Lamoha murotoensis* (Sakai), *Moloha majora* (Kubo), and *Yaldwynopsis spinimanus* (Griffin) (Homolidae), *Ranilia misakiensis* (Sakai) (Raninidae), and *Cycloes granulosa* de Haan (Calappidae). Taxonomic and biogeographical notes are briefly given to each species.

Key words: Crabs, taxonomy, carcinological fauna, Balicasag Island, Philippines.

Introduction

Under the research project of the National Science Museum, Tokyo, from 2002 to 2004 entitled “Natural History Researches of the Island Arcs in the West Pacific”, Galil and Takeda (2004) reported four new and two known species of the genus *Mursia* (Calappidae) from Balicasag Island, Bohol, the Philippines, and then, Komatsu *et al.* (2005) reported the crabs of the family Leucosiidae. The specimens dealt with by them and in this report were collected by local fishermen using tangle nets to collect shells at the depths of 80–150 m. The present records are based on all the specimens preserved in the National Science Museum, Tokyo (NSMT) and the National Museum of the Philippines (NMCR). Breadth of carapace is abbreviated as cb in the explanation of the figures.

List of the Species

DROMIIDAE

Genus *Cryptodromiopsis* Borradaile, 1903

Cryptodromiopsis unidentata (Rüppell, 1830)

(Fig. 1A–C)

This hairy species was figured finely and transferred correctly from *Dromidia* to *Cryptodromiopsis* by McLay (1993) with five definite and two dubious congeners. On denudation the dorsal surface of the carapace is smooth and shining, with a shallow bight behind the external orbital angle. This species is not uncommon in the whole Indo-West Pacific waters.

Record from the Philippines: McLay (1993).

Material examined: 5♂, 1 ovig. ♀, 6♀ (NSMT-Cr 16564), 1♂, 1♀ (NMCR 20001), II-2003.

Genus *Dromia* Weber, 1795

Dromia dormia (Linnaeus, 1763)

(Fig. 1D)

A female of enormous size with 138.2 mm in carapace width was collected by a fisherman with tangle net for shell at a depth of 120 m. This species is common in the whole Indo-West Pacific.

Material examined: 1 ♀ (NSMT-Cr 16565), 6–III–1999.

Genus *Lauridromia* McLay, 1993

Lauridromia intermedia (Laurie, 1906)

(Fig. 1F, G)

The genus *Lauridromia* was established to accommodate three species hitherto been referred to the genus *Dromia*, *D. intermedia* Laurie, 1906 (type species), *D. dehaani* Rathbun, 1923, and *D. indica* Gray, 1831. *Lauridromia intermedia* is generally close to *L. dehaani*, but the carapace is as wide as long, differing from the much wider carapace of *L. dehaani*. *Lauridromia intermedia* is known from the Indo-West Pacific, ranging from Japan to Queensland (Campbell, 1971) and further to the western Indian Ocean (Lewinsohn, 1984).

Record from the Philippines: McLay (1993).

Material examined: 1 ♂ (NSMT-Cr 16566), 1 ♂ (NSMT-Cr 16567), 1 ♀ (NMCR 20002), II–2003.

Genus *Stimdromia* McLay, 1993

Stimdromia angulata (Sakai, 1936)

(Fig. 2A, B)

This species is one of the four known species of *Stimdromia*. In general appearance this species is peculiar in having the chelipeds, ambulatory legs, and also even the abdomen, studded with nodular tubercles. *Stimdromia angulata* is known from Japan (Sakai, 1936, 1965a, 1976; Suzuki & Kurata, 1967; Takeda, 1977), and also from the Philippines (McLay, 1993).

Material examined: 4 ♂, 2 ovig. ♀, 1 ♀ (NSMT-Cr 16568), 1 ♂, 1 ♀ (NMCR 20003), II–2003.

Genus *Takedromia* McLay, 1993

Takedromia yoshidai (Takeda & Kurata, 1976)

(Fig. 2C)

The genus *Takedromia* was established by McLay (1993) on the four species, *Cryptodromia ornata* Rathbun, 1911 from the western Indian Ocean, *C. cristatipes* Sakai, 1969 (type species) from Japan, New Caledonia, the Loyalty Islands, and the Chesterfield Islands, *C. yoshidai* Takeda & Kurata from the Ogasawara Islands, and *Takedromia longispina* McLay, 1993 from New Caledonia and the Chesterfield Islands, with a key to these species. They are distinct from each other in the ornamentation of the carapace and the lateral margins of the carapace, differing from the species of *Epigodromia* McLay, to which the general appearance is close in having the carapace wider than long, with the well developed, sometimes lacinated lateral margins of the carapace. As mentioned rightly by Takeda and Kurata (1976), *Takedromia yoshidai* is close to *T. ornata* in its general appearance, but in *T. ornata* the lateral margins of the carapace are winged nearly in their whole length, each with three strong teeth in front of the cervical groove and three or four small teeth behind them. In the important contribution by McLay (1993), he presented two excellent photographs of *Epigodromia areolata* (Ihle, 1913), one (Fig. 19e) from New Caledonia and another (Fig. 19f) from the Chesterfiled Islands, but insofar as judging from the photographs, the latter should be identified with *T. yoshidai*, not with *E. areolata*; the large and wide carapace and the enormous chelipeds can not be attributed to the sexual dimorphism.

Material examined: 3 ♂ (NSMT-Cr 16569), 1 ♂ (NMCR 20004), II–2003.

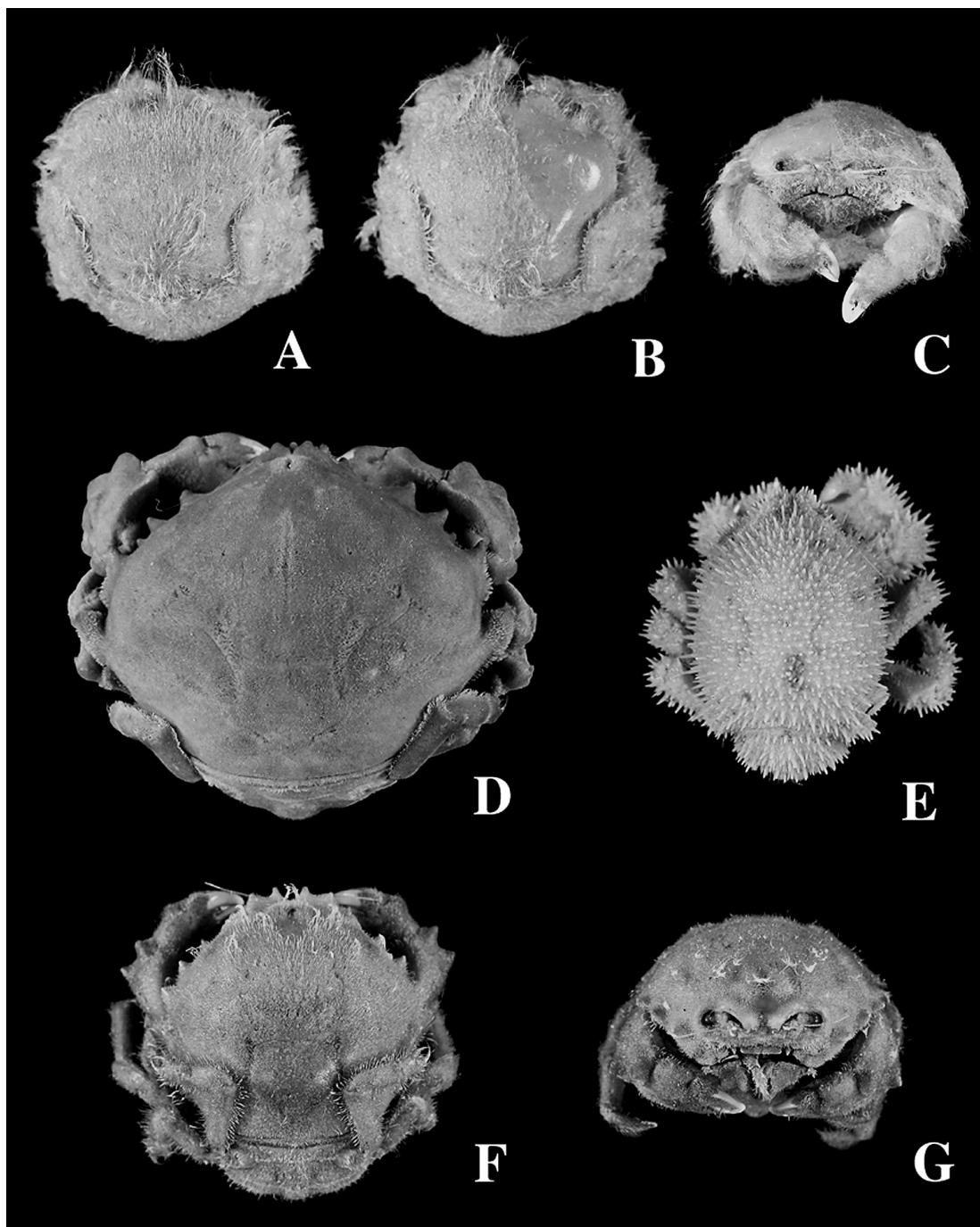


Fig. 1. A–C, *Cryptodromiopsis unidentata* (Rüppell), 2 ♀ (NSMT-Cr 16564), cb 17.0 mm (A) and 18.8 mm (B, C); D, *Dromia dormia* (Linnaeus), ♀ (NSMT-Cr 16565), cb 138.2 mm; E, *Acanthodromia margarita* (Alcock), ovig. ♀ (NSMT-Cr 15356), cb 15.7 mm; F, G, *Lauridromia intermedia* (Laurie), ♂ (NSMT-Cr 16567), cb 35.5 mm.

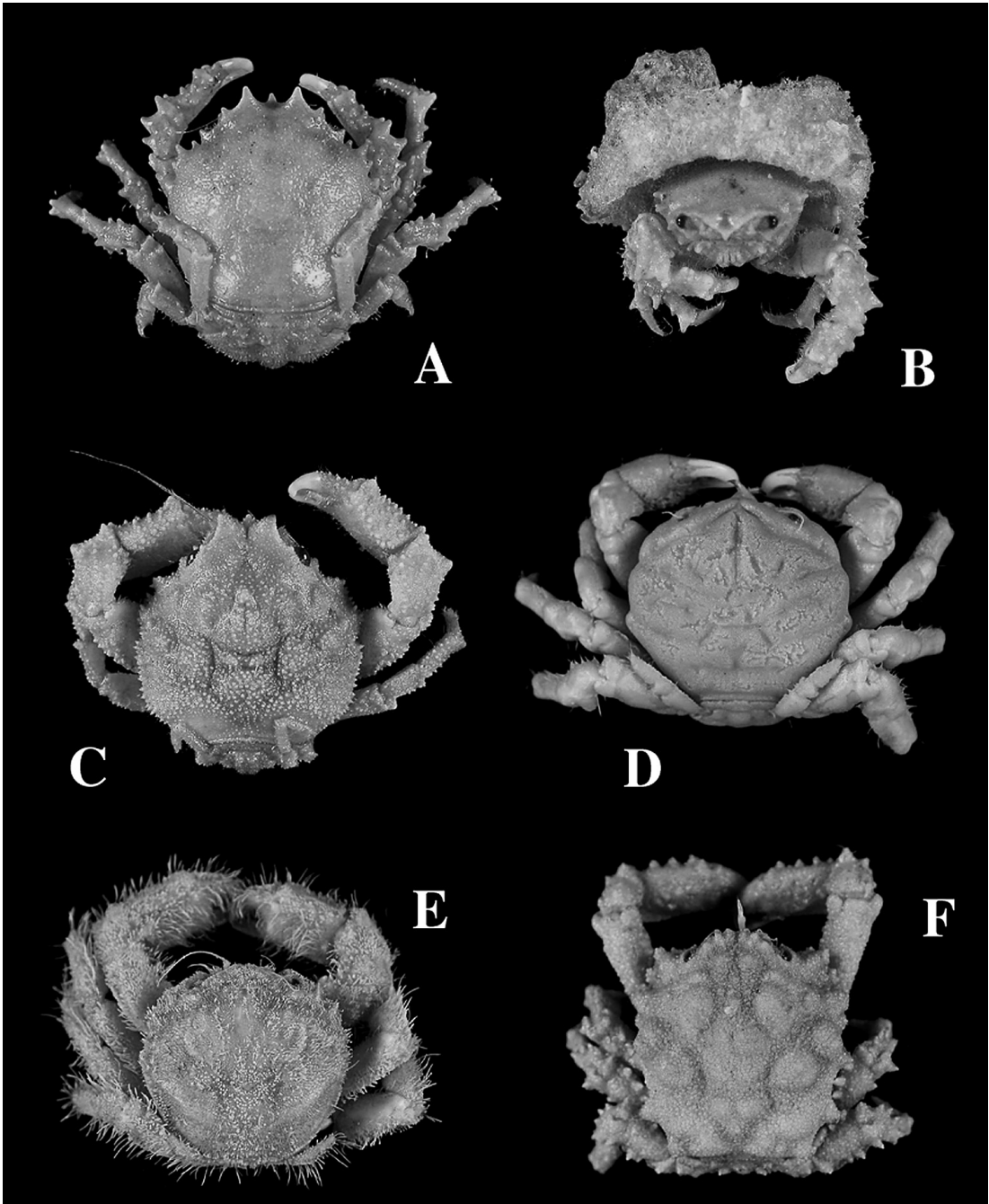


Fig. 2. A, B, *Stimdromia angulata* (Sakai), 2♂ (NSMT-Cr 16568), cb 10.1 mm (A) and 9.5 mm (B); C, *Takedromia yoshidai* (Takeda & Kurata), ♂ (NSMT-Cr 16569), cb 13.7 mm; D, *Metadynomene tanensis* (Yokoya), ovig. ♀ (NSMT-Cr 15358), cb 14.0 mm; E, *Dynamene pilumnoides* Alcock, ♀ (NSMT-Cr 15357), cb 19.7 mm; F, *Paradynomene quasimodo* McLay & Ng, ♂ (NSMT-Cr 15359), cb (without lateral tubercles) 17.8 mm.

DYNOMENIDAE

Genus *Acanthodromia* A. Milne Edwards, 1880

Acanthodromia margarita (Alcock, 1899)

(Fig. 1E)

This rare species has been recorded from the Andaman Sea (Alcock, 1899), Tosa Bay, south-western Japan (Sakai, 1965b, 1976a), and Wakayama, central Japan (Nagai, 1989). McLay (1999) elaborately described and figured the female specimen from Wakayama recorded by Nagai (1989). According to McLay (1999), this species and *A. erinacea* A. Milne Edwards, 1888, the type species, from the Caribbean Sea are extraordinarily similar to each other, with the only differences in the shape of the supraorbital spines and the presence of the pearl-like lobes on the fourth and fifth abdominal segments in the type species.

This species is new to the Philippines.

Material examined: 1♂, 1♀, 1 ovig.♀ (NSMT-Cr 15356), 1♀ (NMCR 20005), II–2003.

Genus *Dynomene* Desmarest, 1823

Dynomene pilumnoides Alcock, 1900

(Fig. 2E)

This species is not uncommon nearly in the whole Indo-West Pacific.

Records from the Philippines: Serène & Vadon (1981); McLay (1999).

Material examined: 2♀ (NSMT-Cr 15357), 1♀ (NSMT-Cr 15526), 1♀ (NMCR 20006), II–2003.

Genus *Metadynomene* McLay, 1999

Metadynomene tanensis (Yokoya, 1933)

(Fig. 2D)

This species is one of the three species referred to *Metadynomene* established by McLay (1999) who showed clearly their differences with detailed descriptions and figures. The type species, *M. devaneyi* (Takeda, 1979), is known from Hawaii and the Marquesas Islands, while

M. tanensis was recoded from Japan (Yokoya, 1933 as a species of the genus *Dynomene*; Sakai, 1976a and Nagai & Tsuchida, 1995 as *Dynomene praedator* A. Milne Edwards, 1888), from Taiwan (McLay *et al.*, 2001), and from Taiwan, Indonesia, Vanuatu, New Caledonia, and the Tuamotu Islands (McLay, 1999).

Record from the Philippines: McLay (1999).

Material examined: 1 ovig.♀ (NSMT-Cr 15358), II–2003.

Genus *Paradynomene* Sakai, 1963

Paradynomene quasimodo McLay & Ng, 2004

(Fig. 2F)

The specimen examined is one of the paratypes designated by McLay and Ng (2004) who revised *Paradynomene* and distinguished six species in the genus. All the species resemble generally to each other, with the differences in the granulation and tuberculation of the epigastric, mesogastric, metagastric, protogastric, urogastric, cardiac, intestinal, epibranchial, meso-branchial, and metabranchial regions.

This species is known from the Philippines, Indonesia and New Caledonia.

Record from the Philippines: McLay & Ng (2004). *Paradynomene tuberculata* Sakai, 1963, the type species of the genus, is also recorded from the Philippines by them.

Material examined: 1♂ (NSMT-Cr 15359, paratype), II–2003.

HOMOLIDAE

Genus *Homola* Leach, 1815

Homola dickinsoni Eldredge, 1980

(Fig. 3D)

The specimens at hand are identified with *Homola dickinsoni* following Guinot and Richer de Forges (1995). In general appearance this species is very close to *H. ikedai* Sakai, 1983 from Japan and Polynesia (Tuamotu and Marquesas Islands), *H. eldredgei* Guinot & Richer de Forges, 1995 from the Seychelles, and *H. coriolisi* Guinot &

Richer de Forges, 1995 from New Caledonia and Loyalty Island. This species is, however, distinguished from them by a combination of some features, especially the quadrate carapace with straight branchial margins of both sides.

Material examined: 2♂, 2 ovig. ♀ (NSMT-Cr 16545), 1 ovig. ♀ (NSMT-Cr 16670), 1 ovig. ♀ (NMCR 20007), III–1999.

Homola orientalis Henderson, 1888

(Fig. 3B)

The type locality is off Cebu, the Philippines, and this species is very common not only in the Philippines and New Caledonia as noted by Guinot and Richer de Forges (1995) but also in Taiwan as mentioned by Tan, Huang and Ng (2000) and Japan.

This species is widely distributed in the Indo-West Pacific from Japan and Hawaii southward to New Zealand and Australia, and westward to the western Indian Ocean.

Records from the Philippines: Henderson (1888); Sèrene & Vadon (1981); Guinot & Richer de Forges (1995).

Material examined: 1♀ (NSMT-Cr 13018), IX-1998; 1 ovig. ♀ (NSMT-Cr 16573), 2♂, 1♀ (NSMT-Cr 16668), 1 ovig. ♀, 1♀ (NSMT-Cr 16574), 1 ovig. ♀, 1♀ (NSMT-Cr 16575), 1 ovig. ♀, 1♀ (NMCR 20008), 2♀ (NSMT-Cr 16576), 6–III–1999; 2♂, 1 ovig. ♀ (NSMT-Cr 16541), II–2003.

Genus ***Homolomannia*** Ihle, 1913

Homolomannia oculusa Guinot & Richer de Forges, 1981

(Fig. 9F)

This species, described on an ovigerous female and a juvenile female from Madagascar, was fully depicted on comparison with another representative of the genus, *H. sibogae* Ihle, 1918, by the original authors (1981, 1995). Then, Nagai (1994) recorded a male and a female from off the Kii Peninsula, central Japan, and recently a male was recorded from Taiwan by Tan, Huang and

Ng (2000).

This species is new to the Philippines.

Material examined: 1♂, 1 ovig. ♀, 2♀ (NSMT-Cr 15374), 1♂ (NMCR 20009), II–2003.

Homolomannia sibogae Ihle, 1913

(Fig. 9C)

This species is known from the western Pacific from Japan southwards to New Caledonia through Taiwan, the Philippines, and Indonesia. As noted by Guinot and Richer de Forges (1995) and also being known from the specimens examined in the collections of the National Science Museum, Tokyo, and the National Museum of the Philippines, this species is rather common in the Philippines at 180–200 m in depth.

Records from the Philippines: Serène & Vadon (1981); Guinot & Richer de Forges (1995).

Material examined: 1♂, 1 ovig. ♀, 1♀ (NSMT-Cr 16570), 6–III–1999; 10♂, 4 ovig. ♀, 1♀ (NSMT-Cr 15375), 1♀ (NSMT-Cr 16542), 1♂, 1 ovig. ♀ (NMCR 20010), II–2003.

Genus ***Lamoha*** Ng, 1998

Lamoha murotoensis (Sakai, 1979)

(Fig. 3C)

This species is distributed in the Indo-West Pacific from Japan to East Africa through Taiwan and Indonesia (Guinot & Richer de Forges, 1981, 1995; Tan, Huan & Ng, 2000), but new to the Philippines.

Material examined: 1♂ (NSMNT-Cr 16669), III–1999.

Genus ***Latreillopsis*** Henderson, 1888

Latreillopsis tetraspinosa Dai & Chen, 1980

(Fig. 4A)

This species was well figured by Dai and Chen (1980), Dai *et al.* (1986), Dai and Yang (1991), and Guinot and Richer de Forges (1995). Among the species having the unarmed pseudorostral

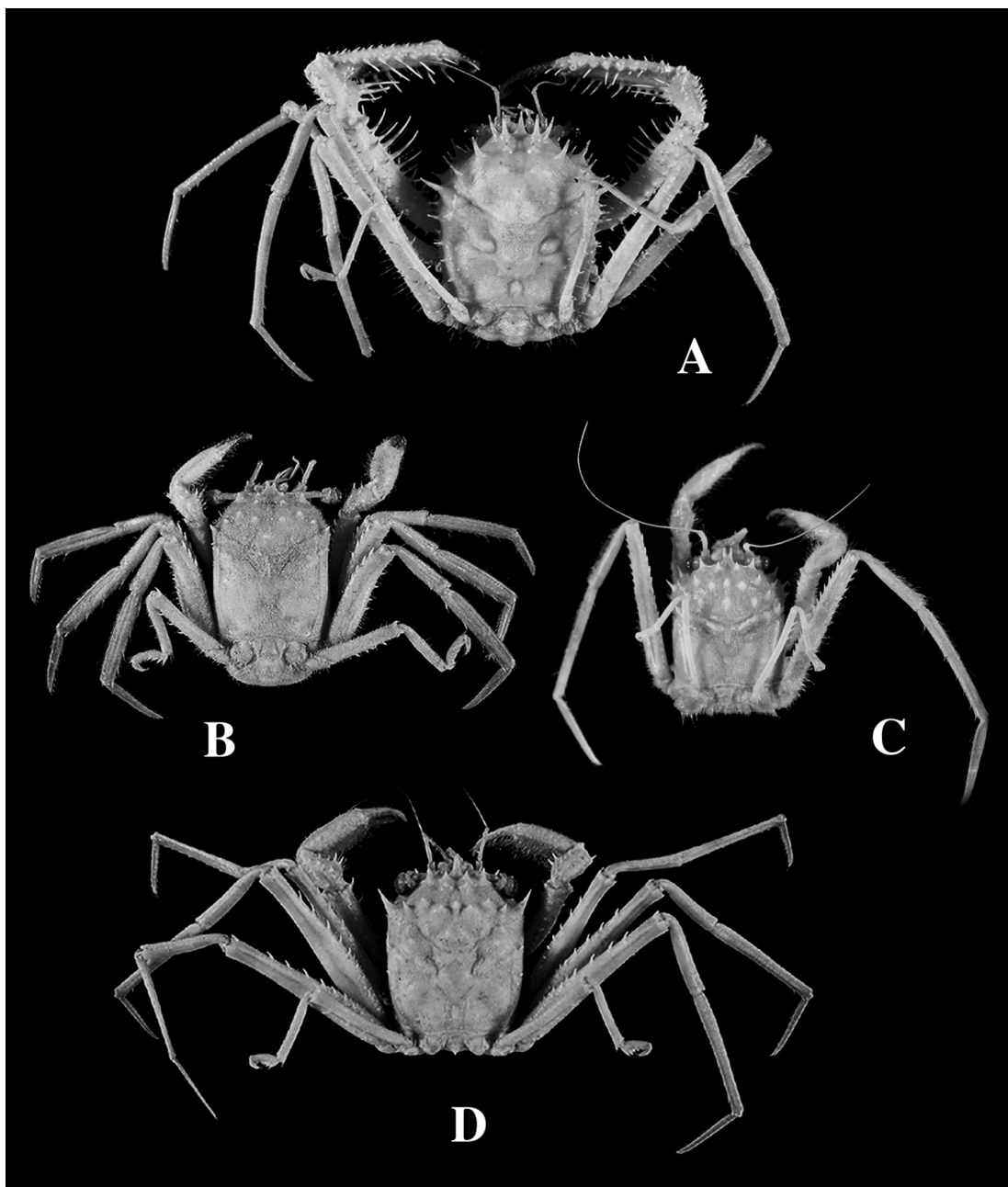


Fig. 3. A, *Yaldwynopsis spinimanus* (Griffin), ♀ infested by *Sacculina* sp. (NSMT-Cr 16544), cb (without lateral spines) 28.8 mm; B, *Homola orientalis* Henderson, ovig. ♀ (NSMT-Cr 16541), cb 23.0 mm; C, *Lamoha murotoensis* (Sakai), ♂ (NSMT-Cr 16669), cb 12.7 mm; D, *Homola dickinsoni* Eldredge, ♂ (NSMT-Cr 16545), cb 25.5 mm.

spines, this species is characterized by the sub-hepatic region armed with four spines and the third maxilliped merus with acute antero-external angle.

This species is known from Japan, the Philippines, the South China Sea, and Indonesia.

Record from the Philippines: Guinot & Richer de Forges (1995).

Material examined: 1 ♀ (NSMT-Cr 16571), 6–III–1999.

Genus *Moloha* Barnard, 1947

Moloha majora (Kubo, 1936)

(Fig. 9B)

This species was resurrected from a synonym of *M. alcocki* (Stebbing, 1920) by Guinot and Richer de Forges (1995).

This species is known from Japan, and also recorded from Taiwan by Tan, Huang and Ng (2000). The identity of the specimens from New Caledonia and French Polynesia reported by Guinot and Richer de Forges (1995) as *M. aff. majora* still remains uncertain.

Material examined: 1 ♂ (NSMT-Cr 16572), 2 ovig. ♀ (NSMT-Cr 16671), III–1999; 2 ♂ (NSMT-Cr 16543), 1 ovig. ♀ (NMCR 200011), II–2003.

Genus *Yaldwynopsis* Guinot & Richer de Forges, 1995

Yaldwynopsis spinimanus (Griffin, 1965)

(Fig. 3A)

This species is the monotypic representative of *Yaldwynopsis*, being characterized by the spiny carapace, chelipeds, and ambulatory legs. It is known from New Zealand and Japan, and probably from Australia and Hawaii.

Material examined: 2 ♂ (NSMT-Cr 16667), III–1999; 1 ♂, 1 ♀, 1 ovig. ♀ (NSMT-Cr 16544), II–2003.

RANINIDAE

Genus *Lyreidus* de Haan, 1841

Lyreidus stenops Wood-Mason, 1887

(Fig. 4C)

This species is unique among the species of the genus *Lyreidus* and some related genera in having unarmed lateral margin of the carapace. It is known only from the western Pacific (Japan, the Philippines, and the South China Sea) at 30–202 m in depth.

Records from the Philippines: Griffin (1970); Serène & Vadon (1981); and Goeke (1985).

Material examined: 2 ♂, 1 ♀ (NSMT-Cr 15421), 1 ♂ (NSMT-Cr 16546), 2 ♂ (NSMT-Cr 16547), II–2003.

Lyreidus tridentatus de Haan, 1841

(Fig. 4B)

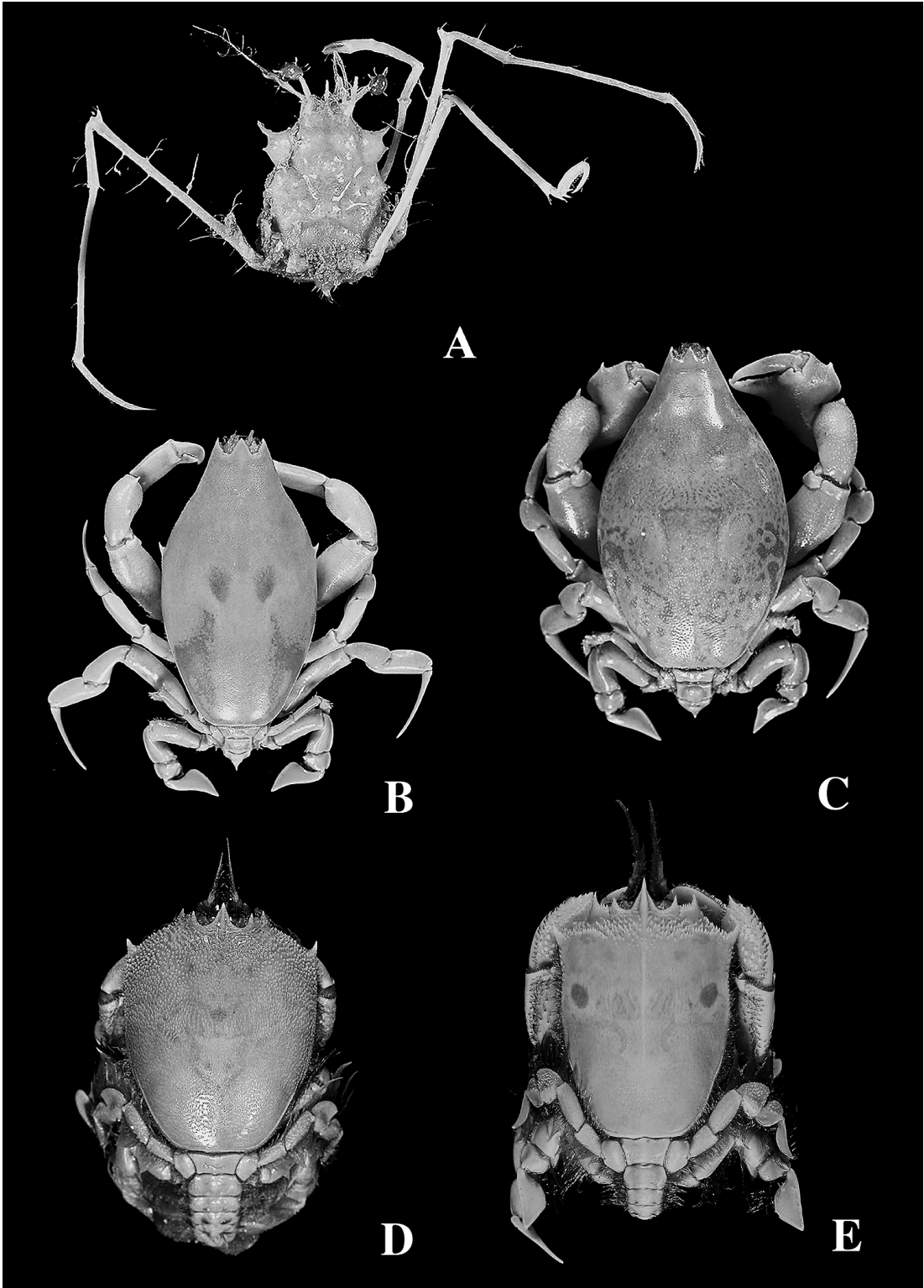
Griffin's extensive work (1970) revealed that *Lyreidus elongatus* Miers, 1884, *L. australiensis* Ward, 1942, and *L. fossor* Bennett 1964 are synonyms of *L. tridentatus*, and that a record from off Dar-es-Salaam (Doflein, 1904) was due to the misidentification of *L. brevifrons* Sakai, 1965.

This species is known from the Pacific from Japan and Hawaii southwards to New Zealand and Australia.

Records from the Philippines: Serène & Vadon (1981); Goeke (1985).

Material examined: 1 ♂, 1 ♂ with a rhizocephalid parasite of the genus *Sacculina* (NSMT-Cr 13205), IX–1998; 1 ♂, 1 ♀ (NSMT-Cr 15417), 3 ♂ (NSMT-Cr 16548), 1 ♂ (NMCR 20012), II–2003.

Fig. 4. A, *Latreillopsis tetraspinosa* Dai & Chen, ♀ (NSMT-Cr 16571), cb (with lateral tubercles) 8.7 mm; B, *Lyreidus tridentatus* de Haan, ♂ (NSMT-Cr 16548), cb 28.0 mm; C, *Lyreidus stenops* Wood-Mason, ♂ (NSMT-Cr 16547), cb 27.0 mm; D, *Ranilia misakiensis* (Sakai), ovig. ♀ (NSMT-Cr 16580), cb 24.0 mm; E, *Notopus dorsipes* (Fabricius), ♂ (NSMT-Cr 15428), cb 25.4 mm.



Genus *Lysirude* Goeke, 1985

Lysirude griffini Goeke, 1985

(Fig. 9A)

The genus *Lysirude* was established on the type species, *Raninoides nitidus* A. Milne Edwards, 1888 from the western Atlantic, and *Lyreidus channeri* Wood-Mason, 1894 from the Bay of Bengal and the South China Sea and a new species, *L. griffini* Goeke. This genus is really close to *Lyreidus*, but characterized most remarkably by having strongly lobate posterior margins of dactylus and propodus of the last leg. *Lysirude griffini* is distinguished readily from *L. channeri* which is armed with long anterolateral and external orbital spines, and from *L. nitidus* by different armature of the cheliped, ambulatory legs, and abdomen, and also different form of the apex of the first male pleopod, as indicated by the original author.

Record from the Philippines: Goeke (1985).

Material examined: 1 ♂ (NSMT-Cr 13026), IX–1998; 1 ♂ (NSMT-Cr 15420), II–2003, M. Takeda & H. Komatsu leg.

Genus *Notopus* de Haan, 1841

Notopus dorsipes (Fabricius, 1798)

(Fig. 4E)

This is the monotypic representative of *Notopus*, with wide distribution in the Indo-West Pacific from Japan to the western Indian Ocean and the Red Sea.

Record from the Philippines: Ihle (1918).

Material examined: 1 ♂ (NSMT-Cr 15428), II–2003.

Genus *Notosceles* Bourne, 1922

Notosceles barnardi (Sakai, 1974)

(Fig. 5A)

This species is known from Japan, the Philippines, and South Africa.

Record from the Philippines: Takeda & Manuel (2000) who transferred this species from

the genus *Raninoides* to *Notosceles*.

Material examined: 1 ♂ (NSMT-Cr 12991), 2–VIII–1999; 1 ♀ (NSMT-Cr 15429), II–2003.

Notosceles serratifrons (Henderson, 1888)

(Fig. 5C)

Takeda and Manuel (2000) mentioned the details of generic validity of *Notosceles* and *Raninoides*, and referred this species to *Notosceles* against Sakai (1976) following Serène and Umali (1972) and Goeke (1981, 1985). This species is characteristic in having the sharply pointed front-orbital teeth with serrated margins. This species is known from Japan, Western Australia, the Andaman Sea, India, and Sri Lanka, but new to the Philippines.

Material examined: 1 ♂ (NSMT-Cr 15418), 1 ♂ (NSMT-Cr 16549), II–2003.

Genus *Ranilia* H. Milne Edwards, 1837

Ranilia misakiensis (Sakai, 1937)

(Fig. 4D)

The specimens at hand agree well with the descriptions of Sakai (1937, 1965a, 1976) and Serène and Umali (1972) which were based on the specimens from Japan. Among two western Atlantic, one eastern Atlantic, two eastern Pacific, and four Indo-West Pacific congeners, the closest species is *R. horikoshii* Takeda, which is most characteristic in having the degenerated eye with small cornea. In *R. misakiensis* the eye and eyestalk are well developed and the ambulatory dactyli are differently shaped from *R. horikoshii* as mentioned by Takeda (1975). This species is previously known only from Japan and new to the Philippines.

Material examined: 1 ovig. ♀ (NSMT-Cr 16580), 6–III–1999; 1 ♀ (NSMT-Cr 15419), 1 ♂, 1 ♀ (NSMT-Cr 16550), 1 ♂ (NMCR 20013), II–2003.

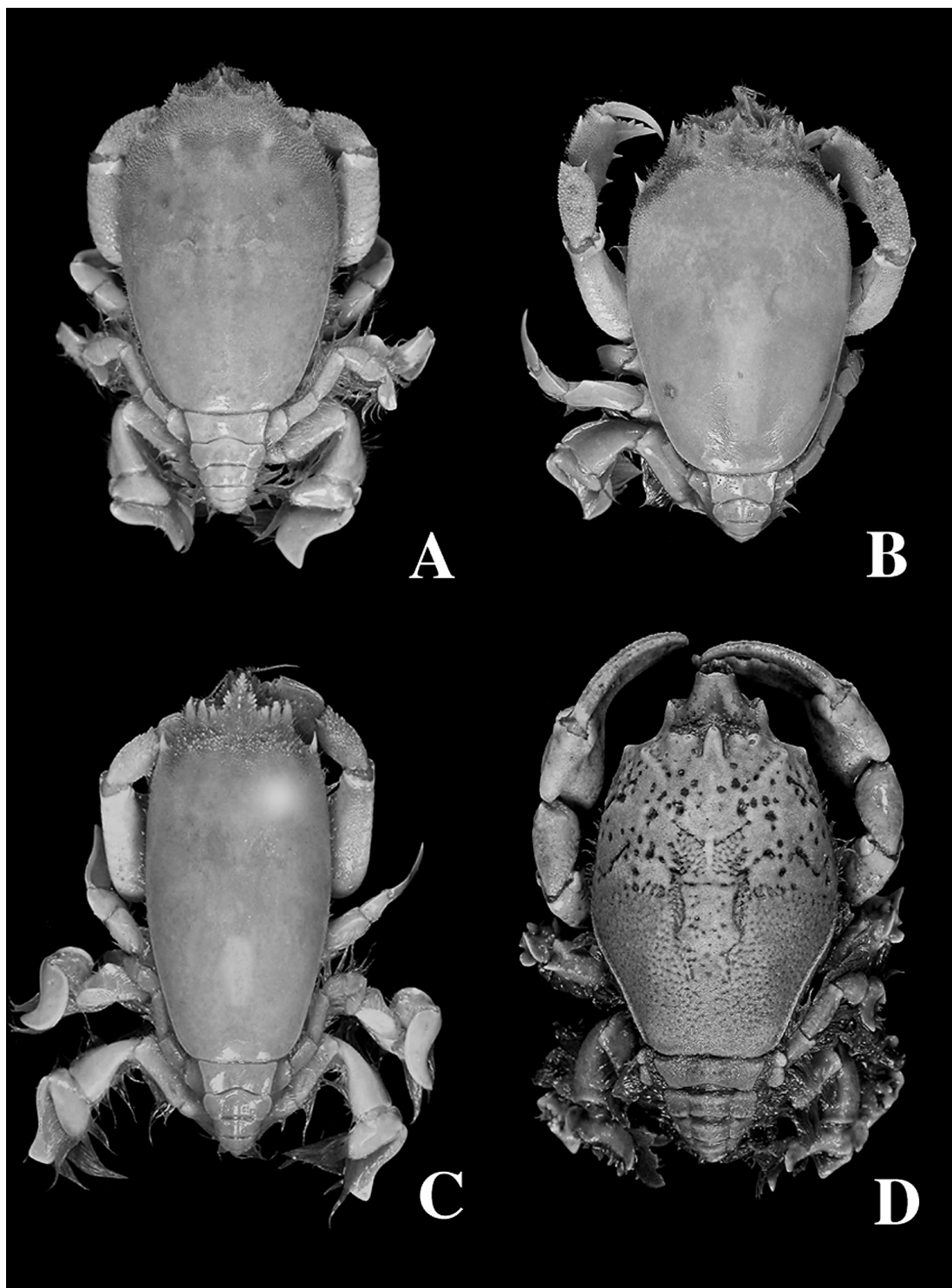


Fig. 5. A, *Notosceles barnardi* (Sakai), ♂ (NSMT-Cr 12991), cb 24.2 mm; B, *Raninoides hendersoni* Chopra, ♂ (NSMT-Cr 16551), cb 23.8 mm; C, *Notosceles serratifrons* (Henderson), ♂ (NSMT-Cr 15418), cb 12.7 mm; D, *Symethis corallica* Davie, ♂ (NSMT-Cr 15416), cb 20.2 mm.

Genus *Raninoides* H. Milne Edwards, 1837

Raninoides hendersoni Chopra, 1933

(Fig. 5B)

Records of occurrence of this species are few, but there is no doubt in its identification due to the diagrammatic, but pertinent figures given by Chopra (1933), Serène and Umali (1972), and Goeke (1983). This species is distinguished from *Raninoides personatus* Henderson, 1888, which is known also from the Philippines, by having the broader carapace, the deeper and narrower supra-orbital fissures with squarish median lobe, and the postfrontal region covered with acute granules. This species is known from the Andaman Sea (Chopra, 1933) and the Philippines (Serène & Umali, 1972; Goeke 1985).

Material examined: 1♂, 4♀ (NSMT-Cr 15430), 1♂ (NSMT-Cr 16551), 1♀ (NMCR 20014), II–2003.

Genus *Symethis* Webber, 1795

Symethis corallica Davie, 1989

(Fig. 5D)

This is the third species of the genus *Symethis*, and the first one from the Indo-West Pacific, as mentioned by Takeda and Manuel (2000). This species was originally reported from the Chesterfield Bank in the Coral Sea (Davie, 1989), and later from Balicasag I., the Philippines (Takeda & Manuel, 2000).

Material examined: 1♂ (NSMT-Cr 12992), 2–XII–1998; 1♂ (NSMT-Cr 15416), II–2003.

DORIPPIDAE

Genus *Dorippe* Weber, 1795

Dorippe tenuipes Chen, 1980

(Fig. 6B)

As noted by Holthuis and Manning (1990), all of the five species of the genus *Dorippe*, *D. frasco-*

cone (Herbst, 1798), *D. irrorata* Manning & Holthuis, 1880, *D. quadridens* (Fabricius, 1825), *D. sinica* Chen, 1980, and *D. tenuipes* are close to each other in general appearance of the carapace, chelipeds, and ambulatory legs. In *D. tenuipes* the most important distinguishing character mentioned by the original author, Y- or V-shaped cardiac-intestinal ridge, may be somewhat variable depending on the individuals or the developmental stages. In a female specimen at hand the basal longitudinal ridge is distinct, but furnished with some pearly granules. The ambulatory legs are, however, distinctly longer and slender than those of the two congeners. Chen (1985) recorded and figured an immature male from the Philippines. In the specimen the cardiac region is smooth, without sculpture, and the branchial margin is nearly unarmed, without granulated boss. According to Chen (1985), *D. miersi* Serène from Viet Nam is synonymous with this species, and the record of *D. frasco-* from the Philippines by Serène and Vadon (1981) is due to the misidentification with this species. Chen (1986) reproduced the original figures in the paper on the Chinese dorippid crabs. Holthuis and Manning (1990) recorded two males from the Philippines together with some material from Indonesia and Hong Kong.

Material examined: 1♀ (NSMT-Cr 16577), II–2003.

Genus *Ethusa* Roux, 1830

Ethusa izuensis Sakai, 1937

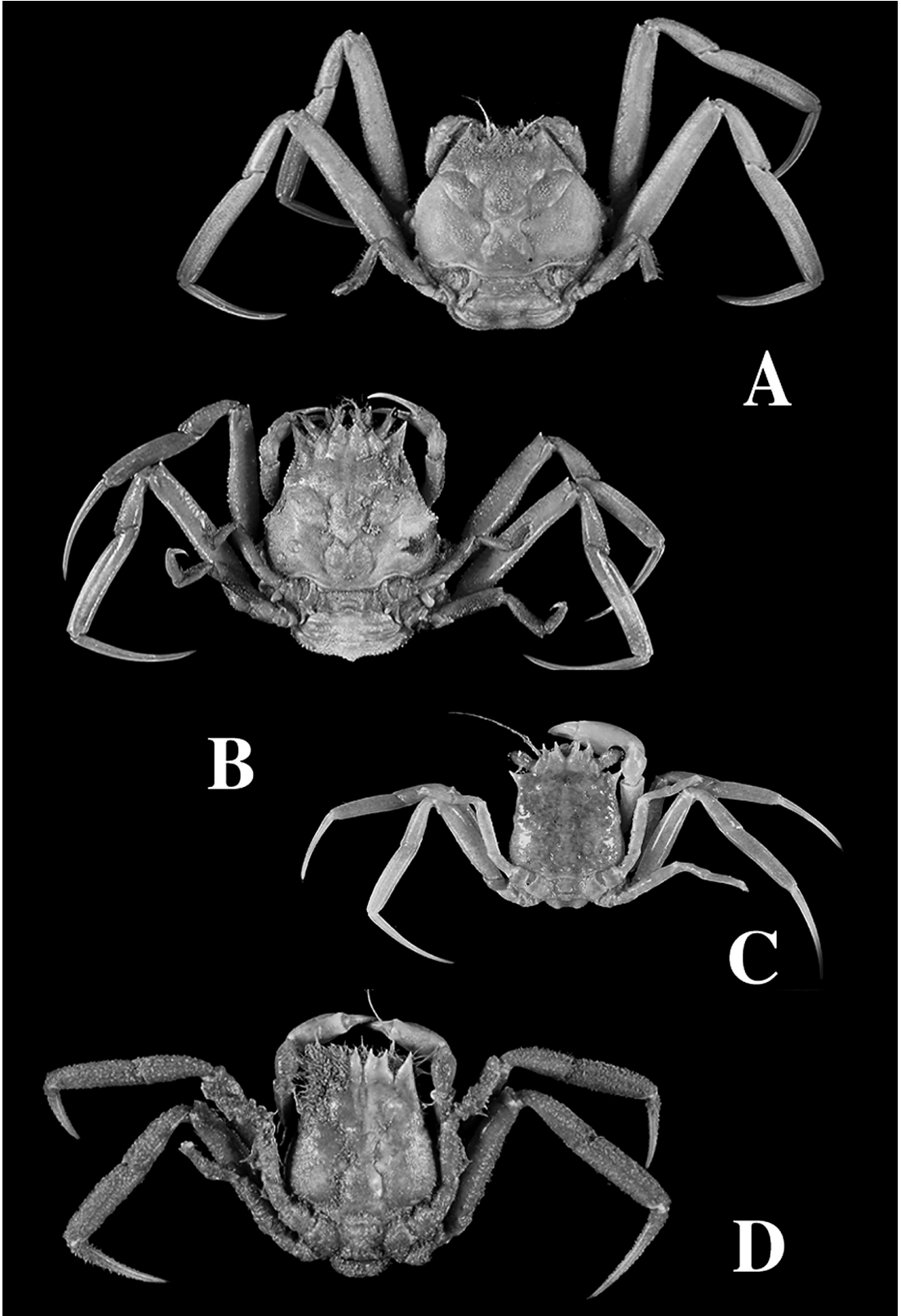
(Fig. 6D)

An excellent figure was given by Chen (1985).

This species is known from Sagami Bay (Sakai, 1937, 1965a, 1976), the East China Sea (Takeda & Miyake, 1970; Chen, 1986), and the Philippines (Serène & Vadon, 1981; Chen, 1985)

Material examined: 2♂ (NSMT-Cr 13006), IX–1998; 2♂, 1♂ infested by a *Sacculina*, 1♀

Fig. 6. A, *Philippidorippe philippinensis* Chen, ♀ (NSMT-Cr 16588), cb 30.6 mm; B, *Dorippe tenuipes* Chen, ♀ (NSMT-Cr 16577), cb 20.8 mm; C, *Ethusa quadrata* Sakai, ♂ (NSMT-Cr 16585), cb 6.7 mm; D, *Ethusa izuensis* Sakai, ♂ infested by *Sacculina* sp. (NSMT-Cr 16578), cb 14.8 mm.



(NSMT-Cr 16578), 2♂, 1♀ (NSMT-Cr 16584), 2♂ (NMCR 20015), 6–III–1999; 1♂, 1♂ infested by a *Sacculina*, 1♀ (NSMT-Cr 16579), II–2003.

Ethusa latidactyla (Parisi, 1914)

(Fig. 7A, B)

In this species the frontal inner tooth is so somewhat twisted outward that the antennular fossa under the tooth is opened laterally, and therefore the tooth is curved outward in dorsal view, with the convex inner margin. This species is known from Japan, the Philippines, the South China Sea, and Indonesia.

Record from the Philippines: Chen (1985).

Material examined: 1♂ (NSMT-Cr 16581), 2–XII–1998; 1♂ (NSMT-Cr 16582), 6–III–1999; 1♂ (NSMT-Cr 16583), II–2003.

Ethusa quadrata Sakai, 1937

(Fig. 6C)

This species is known from Japan (Sakai, 1937, 1965a, 1976), the East China Sea (Takeda & Miyake, 1972; Chen, 1986), and the Philippines (Serène & Vadon, 1981; Chen, 1985).

Material examined: 1♂ (NSMT-Cr 16585), 6–III–1999.

Ethusa sexdentata (Stimpson, 1858)

(Fig. 7C, D)

This species is known from Japan, the East and South China Seas, and the Andaman Sea (as *E. andamanica* Alcock, 1894). Chen (1985) recorded and figured this species from the Philippines, but its identification is somewhat questionable. In this species the external orbital tooth is not tuberculiform, but widened basally and pointed sharply at its tip.

Material examined: 1♂, 1♀ (NSMT-Cr 16586) 6–III–1999; 2♂, 1♀ (NSMT-Cr 16590), 1♂ (NMCR 20016), VIII–1999; 3♂ (NSMT-Cr 16587), II–2003.

Genus ***Philippidorippe*** Chen, 1985

Philippidorippe philippinensis Chen, 1985

(Fig. 6A)

This monotypic representative of *Philippidorippe* is generally close to *Paradorippe*, but the male first pleopods figured by Chen (1985) and incorporated in a key by Holthuis and Manning (1990) differ from each other. The basal lobe is present and the pleopod is regularly curved, with its apical part ending in two auricular lobes in *Philippidorippe*, while the basal lobe is absent and the pleopod is angularly bent in the middle, with its apical part having some irregular and one hook- or hammer-shaped processes in *Paradorippe*. This species is endemic to the sea around the Philippines (Chen, 1985; Holthuis & Manning, 1990).

Material examined: 1♀ (NSMT-Cr 16588), II–2003.

CALAPPIDAE

Genus ***Calappa*** Weber, 1775

Calappa bicornis Miers, 1884

(Fig. 8C)

In describing *Calappa ocularia*, Ng (2002) properly compared the new species with *C. bicornis* which is larger, with the narrower and more convex carapace. In *C. bicornis*, it is also noted that the first anterolateral tooth just behind the orbit is tuberculated and larger than the following teeth. This species is known from Japan, the Philippines, Macclesfield Bank, Indonesia, Reunion Island, and Madagascar.

Records from the Philippines: Serène & Vadon (1981); Galil (1997).

Material examined: 1♂ (NSMT-Cr 13033), IX–1998; 2♀ (NSMT-Cr 16552), II–1999; 2♂, 2♀ (NSMT-Cr 15345), 1♂, 1♀ (NSMT-Cr 16553), 1♂ (NMCR 20017), II–2003.

Calappa calappa (Linnaeus, 1758)

(Fig. 8A)

This species is characteristic in having the

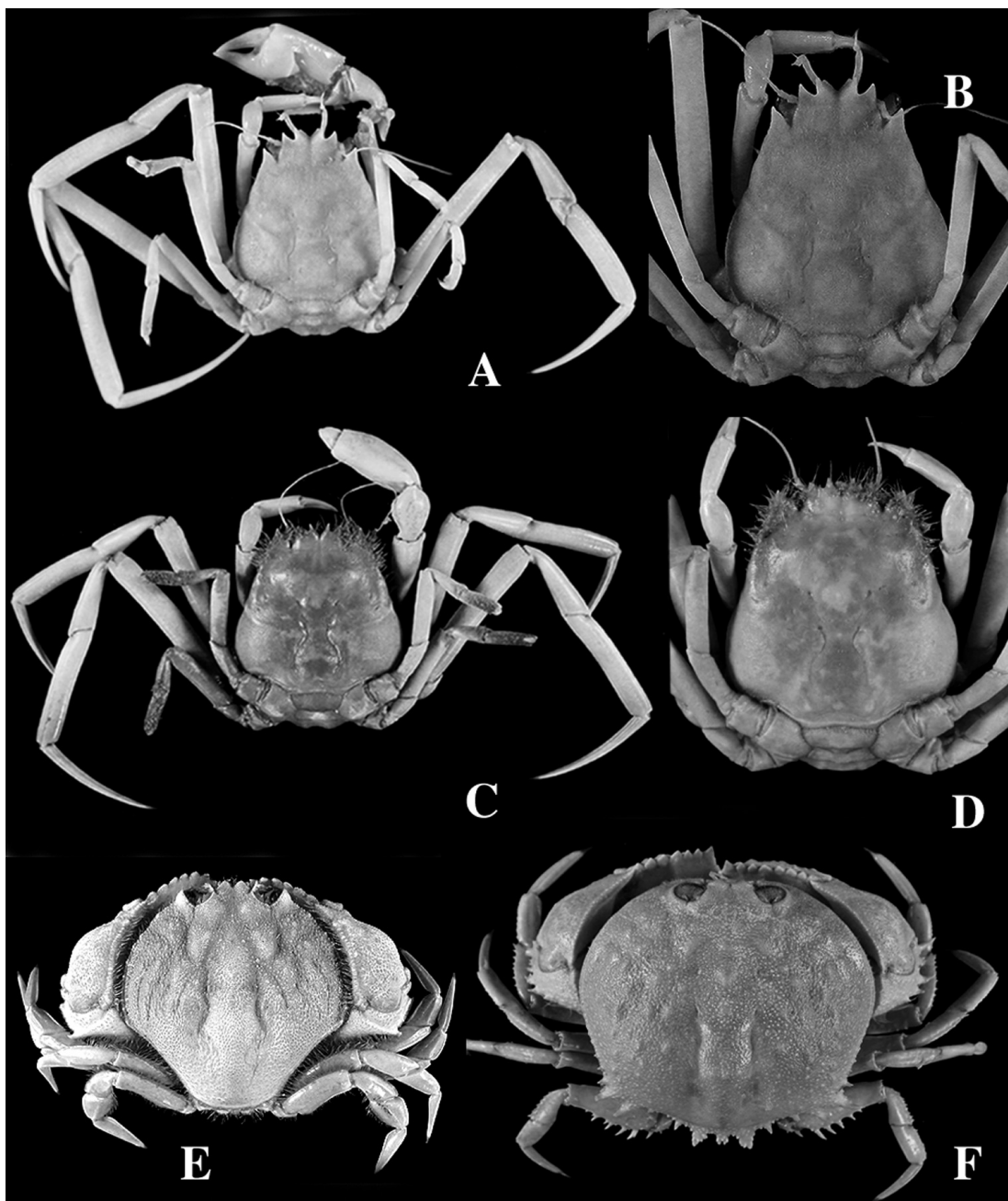


Fig. 7. A, B, *Ethusa latidactyla* (Parisi), ♂ (NSMT-Cr 16581), cb 11.2 mm; C, D, *Ethusa sexdentata* (Stimpson), ♂ (NSMT-Cr 16586), cb 28.6 mm (C), ♂ (NSMT-Cr 16590), cb 20.7 mm (D); E, *Cycloes granulosa* de Haan, ♂ (NSMT-Cr 15351), cb 38.5 mm; F, *Paracyclois milneedwardsi* Miers, ♂ (NSMT-Cr 15354), cb 57.3 mm.

carapace margin of clypeiform expansion at each side entire. Galil (1997) mentioned that the examination of both spotted and unspotted specimens revealed no morphological differences. This species is widely distributed in the Indo-West Pacific from Japan and Hawaii to Australia and East Africa.

Record from the Philippines: Galil (1997).

Material examined: 1 ♂ (NSMT-Cr 16554), II–1999.

***Calappa capellonis* Laurie, 1906**

(Fig. 8E)

This species is known from the Indo-West Pacific from Japan to New Caledonia and the western Indian Ocean.

Record from the Philippines: Ng (2002).

Material examined: 1 ♂ (NSMT-Cr 16589), 6–III–1999; 1 ♂, 1 ♀ (NSMT-Cr 16555), VIII–1999.

***Calappa gallus* (Herbst, 1803)**

(Fig. 8F)

This species is widely distributed in the whole Indo-West Pacific, inhabiting shallow waters down to 160 m depth.

Record from the Philippines: Estampador (1937, 1959).

Material examined: 1 ♂, 1 ♀ (NSMT-Cr 16556), 2–XII–1998; 1 ♀ (NSMT-Cr 15345), II–2003.

***Calappa japonica* Ortmann, 1892**

(Fig. 8G)

This species is known from the Indo-West Pacific from Japan to New Caledonia and East Africa.

Records from the Philippines: Serène & Vadon (1981); Ng (2002).

Material examined: 2 ♂, 2 ♀ (NSMT-Cr 15346), 2 ♀ (NSMT-Cr 16557), 1 ♀ (NMCR 20018), II–2003.

***Calappa liaoi* Ng, 2002**

(Fig. 8D)

Ng (2002) reported seven species of *Calappa* from the Philippines, viz. two species new to science and five species new to the Philippines. This species is one of them, belonging to the *C. gallus* group. As the original author mentioned correctly with direct comparison of the specimens of *C. gallus* from the same locality, Balicasag Island, *C. liaoi* is unquestionably close to *C. gallus*, but the carapace is narrower, with less expanded clypeiform process at each side, and covered with more rounded and larger granules. The holotype specimen was found among coral debris at shallow water less than 10 m, but as for the present specimen, unfortunately, there is no information about the depth.

Material examined: 1 ♀ (NSMT-Cr 15347), II–2003.

***Calappa lophos* (Herbst, 1782)**

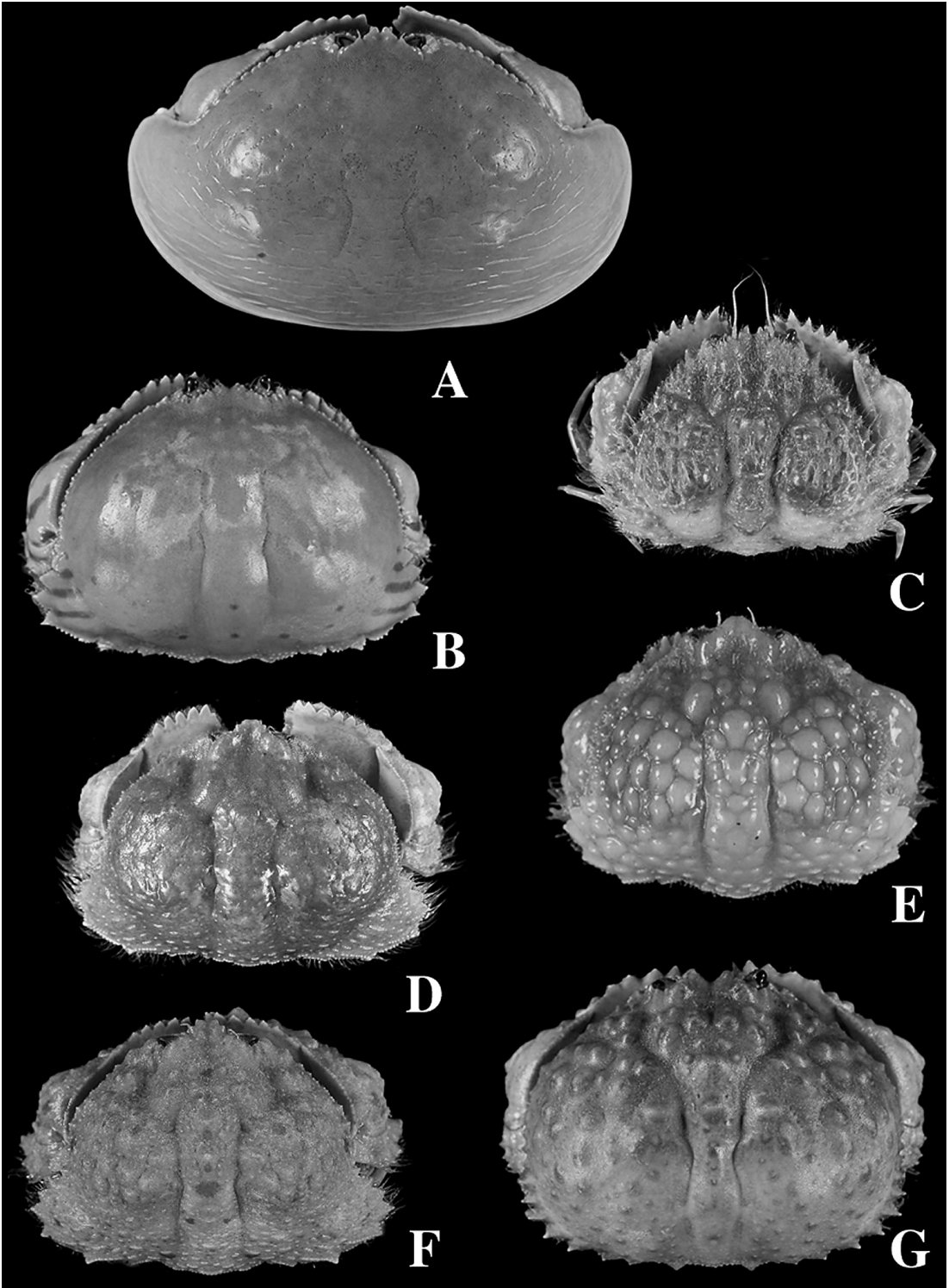
(Fig. 8B)

This species is widely distributed in the Indo-West Pacific waters, but there may be some cryptic species having somewhat different color patterns.

Record from the Philippines: Serène & Vadon (1981).

Material examined: 1 juv. (NSMT-Cr 16558), VIII–1999; 1 ♂, 1 ♀ (NSMT-Cr 15348), 1 ♂ 1 ♀ infested by a *Sacculina*, 1 juv. (NSMT-Cr 16559), II–2003.

Fig. 8. A, *Calappa calappa* (Linnaeus), ♂ (NSMT-Cr 16554), cb 124.8 mm; B, *Calappa lophos* (Herbst), ♂ (NSMT-Cr 16559), cb 51.8 mm; C, *Calappa bicornis* Miers, ♀ (NSMT-Cr 16553), cb 55.7 mm; D, *Calappa liaoi* Ng, ♀ (NSMT-Cr 15347), cb 72.5 mm; E, *Calappa capellonis* Laurie, ♀ (NSMT-Cr 16555), cb 43.5 mm; F, *Calappa gallus* (Herbst), ♀ (NSMT-Cr 16556), cb 39.8 mm; G, *Calappa japonica* Ortmann, ♂ (NSMT-Cr 16557), cb 48.2 mm.



Calappa ocularia Ng, 2002

(Fig. 9D)

This small species is characteristic in having the flattened and granulated carapace. The posterolateral clypeiform expansion of each side is strongly developed, with a prominent fringe of soft hairs along its anterior margin. The specific name is derived from the spot on the subhepatic region.

Record from the Philippines: Ng (2002) who described this species from Balicasag Island, Bohol, Philippines, on the specimens collected by local shell fishermen at 200–300 m in depth. The specimens in the present collections are from the same locality.

Material examined: 5♂, 2♀ (NSMT-Cr 15349), 1♂ (NSMT-Cr 16560), 1♂, 1♀ (NMCR 20019), II–2003.

Calappa undulata Dai & Yang, 1991

(Fig. 9E)

The validity and authorship of the scientific name of this species was discussed in detail and settled by Ng *et al.* (1999). Although, unfortunately, Dai and Yang (1991) described this species only in their key, the identification of this species is not difficult by the subsequent excellent descriptions by Chen (1993) and Galil (1997). This species was originally reported from the Nansha Islands in the South China Sea, and later the Andaman Sea (Ng *et al.*, 1999) and Balicasag Island in the Philippines (Ng, 2002).

Material examined: 2♀ (NSMT-Cr 16561), VIII–1999; 2♂, 2♀ (NSMT-Cr 15350), 1♂, 3♀ (NSMT-Cr 16562), 1♂, 1♀ (NMCR 20020), II–2003.

Genus ***Cycloes*** de Haan, 1837***Cycloes granulosa*** de Haan, 1837

(Fig. 7E)

This species is known from the Indo-West Pacific from Japan and Hawaii to the Laccadive Islands in the central Indian Ocean, but it is new to

the Philippines.

Material examined: 1♂, 1♀ (NSMT-Cr 15351), 1♀ (NSMT-Cr 16563), 1♂ (NMCR 20021), II–2003.

Genus ***Mursia*** Desmarest, 1823

The *Mursia* species from Balicasag Island were studied by Galil and Takeda (2004) who described four new species, *M. baconaua*, *M. buwaya*, *M. mameleu*, and *M. diwata*, in addition to two known species, *M. danigo* Galil, 1993 and *M. trispinosa* Parisi, 1914.

Genus ***Paracyclois*** Miers, 1886***Paracyclois milneedwardsi*** Miers, 1886

(Fig. 7F)

This deep-water species is characteristic in having no posterolateral clypeiform expansions. Some line drawings were prepared by the original author and Chen (1993), a color drawing by Sakai (1976), and a color photograph by Tan, Wu and Huang (2000).

This species is known from Japan, Taiwan, the South China Sea, the Philippines, and north of the Admiralty Islands.

Record from the Philippines: Serène & Vadon (1981).

Material examined: 2♂ (NSMT-Cr 15354), II–2003.

Acknowledgement

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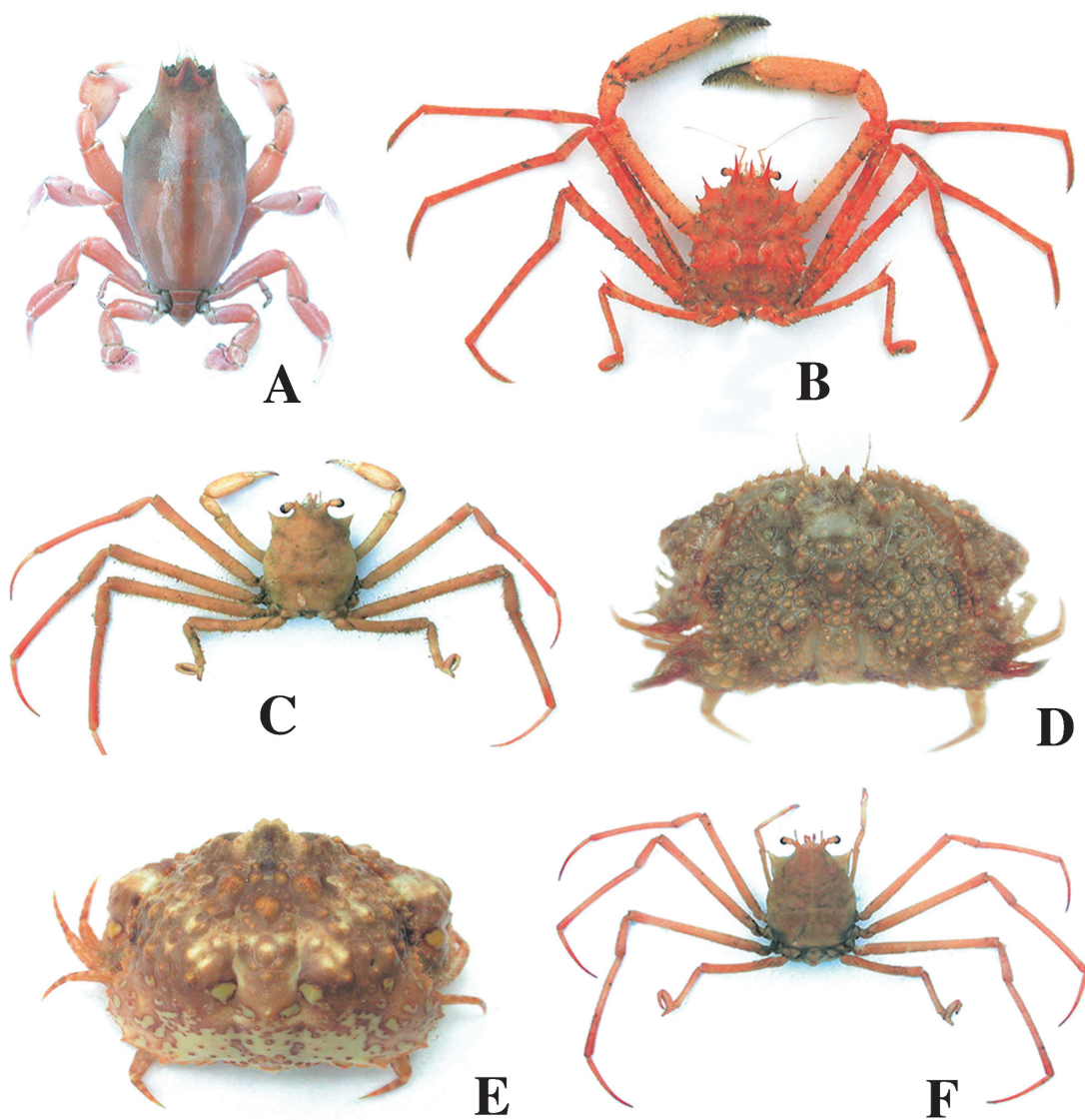


Fig. 9. A, *Lysirude griffini* Goeke, ♂ (NSMT-Cr 15420), cb 22.0 mm; B, *Moloha majora* (Kubo), ♂ (NSMT-Cr 16543), cb 35.0 mm; C, *Homolomannia sibogae* Ihle, ♂ (NSMT-Cr 15375), cb 30.2 mm; D, *Calappa oclularia* Ng, ♂ (NSMT-Cr 15349), cb 25.5 mm; E, *Calappa undulata* Dai & Yang, ♂ (NSMT-Cr 15350), cb 35.5 mm; F, *Homolomannia occulosa* Guinot & Richer de Forges, ♀ (NSMT-Cr 15374), cb 20.0 mm.

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フィリピン・バリガサ島産カニ類の分類学的研究

武田正倫・Marivene R. Manuel-Santos

フィリピン・バリガサ島沖合の水深150~200mの海底から得られたカニ類のうち、原始的なカニ類とされるカイカムリ科，トゲカイカムリ科，ホモラ科，アサヒガニ科，ヘイケガニ科，カラッパ科に属す種の同定を行った。全43種のうち10種はフィリピン海域から初めて記録された。その他に稀種および分類学的に問題のある種も含まれている。すべての種に写真を付し，また，分類学的な註および分布情報を記した。