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On some crabs from the soft-bottom habitat of the Lesser Sunda Islands, Indonesia, with description of a new species of the genus *Macrophthalmus* (Crustacea, Decapoda, Brachyura)

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Abstract. Fifteen species belonging to the families Camptandriidae Stimpson, 1858, Macrophthalmidae Dana, 1851, and Varunidae H. Milne Edwards, 1853 are reported from the soft-bottom substrates of the Lesser Sunda Islands, Indonesia. *Paramoguai kavieng* Ahyong, 2014 (Camptandriidae) and *Metaplax tredecim* Tweedie, 1950 (Varunidae) are recorded for the first time from Indonesian waters. One new species of Macrophthalmidae, *Macropthalmus* (*Macrophthalmus*) *atambua*, is described and illustrated. The new species is characterised by a very broad carapace, with the surface densely tuberculate, and long, slender chelipeds with the cutting margin of the fingers armed with spines.

Key words. *Macrophthalmus*, *Metaplax*, *Paramoguai*, new species, new record, Indonesia

INTRODUCTION

The Lesser Sunda Islands are a chain of islands stretching from west to east of the southern part of the Indonesian Archipelago, with Bali, Lombok, Sumbawa, Sumba, Flores, and Timor as the main islands (Mohamedsaid, 2009). Positioned within the southern part of Wallacea (Reilly et al., 2021), this region is characterised by high levels of endemism (Struebig et al., 2022) and unique biodiversity (Yuni & Yuda, 2019). Despite numerous studies, biodiversity records for the Lesser Sunda Islands remain incomplete, particularly for coastal and soft-bottom habitats associated with mangroves, estuarine, and tidal mudflats.

Brachyuran crabs are among the few taxonomic groups in the Lesser Sunda Islands region that have received sustained scientific attention in recent years. In the previous decade, several new species have been reported from the Lesser Sunda Islands and nearby locations, illustrating the region's diverse fauna as well as present taxonomic knowledge gaps (Ng & Rahayu, 2014, 2020a, b, 2022, 2023; Rahayu & Ng, 2014; Rahayu & Nugroho, 2019). Nevertheless, soft- bottom environments have received limited scientific attention despite their foundational role in coastal biodiversity.

In the Lesser Sunda Islands, soft-bottom substrates are frequently, though not invariably, found near mangroves or in estuarine areas (Sukardjo, 2004). In the present paper, 15 species of crabs belonging to three families that inhabit the soft-bottom habitat of the Lesser Sunda Islands are reported. *Paramoguai kavieng* Ahyong, 2014 (Camptandriidae), and *Metaplax tredecim* Tweedie, 1950 (Varunidae), are reported for the first time in Indonesian waters. Other species are of the family Macrophthalmidae: *Chaenostoma crassimanus* Stimpson, 1858, *C. java* Naderloo, 2013, *C. orientale* Stimpson, 1858, M*acropthalmus* (*Macropthalmus*) *brevis* (Herbst, 1804), *M.* (*Macropthalmus*) *convexus* Stimpson, 1858, *M.* (*Macropthalmus*) *milloti* Crosnier, 1965*, M. (Macrophthalmus*) *parvimanus* Guérin-Méneville, 1834, *M.* (*Mareotis*) *crinitus* Rathbun, 1913, *M.* (*Mareotis*) *definitus* Adams & White, 1849, and of the family Camptandriidae: *Moguai aloutos* Tan & Ng, 1999, family Varunidae: *Metaplax elegans* De Man, 1888, and *Utica borneensis* De Man, 1895, are reported to have broader distributions in Indonesia. A new species, *Macropthalmus* (*Macrophthalmus*) *atambua*, is described from Atambua, Timor Island, East Nusa Tenggara.

MATERIAL AND METHODS

The crabs for this study were collected by hand from the sandy mud and muddy habitats of Lesser Sunda Islands from the years 2004 to 2025. The localities are Teluk (= Bay) Kodek, Teluk (= Bay) Kombal, Sira, Medana, Lembar, Sekotong, Pantai Seger, Kuta, Tanjung (= Cape) Aan, Ekas, Seruni Mumbul, and Ketapang Raya in Lombok Island (the specimens collected by D.L. Rahayu and D.A. Nugroho); Labuhan Burung in Sumbawa Island; Kupang and Atambua in Timor Island (Fig. 1). In these last two islands, the specimens were collected by S.A.P. Dwiono. The holotypes are deposited

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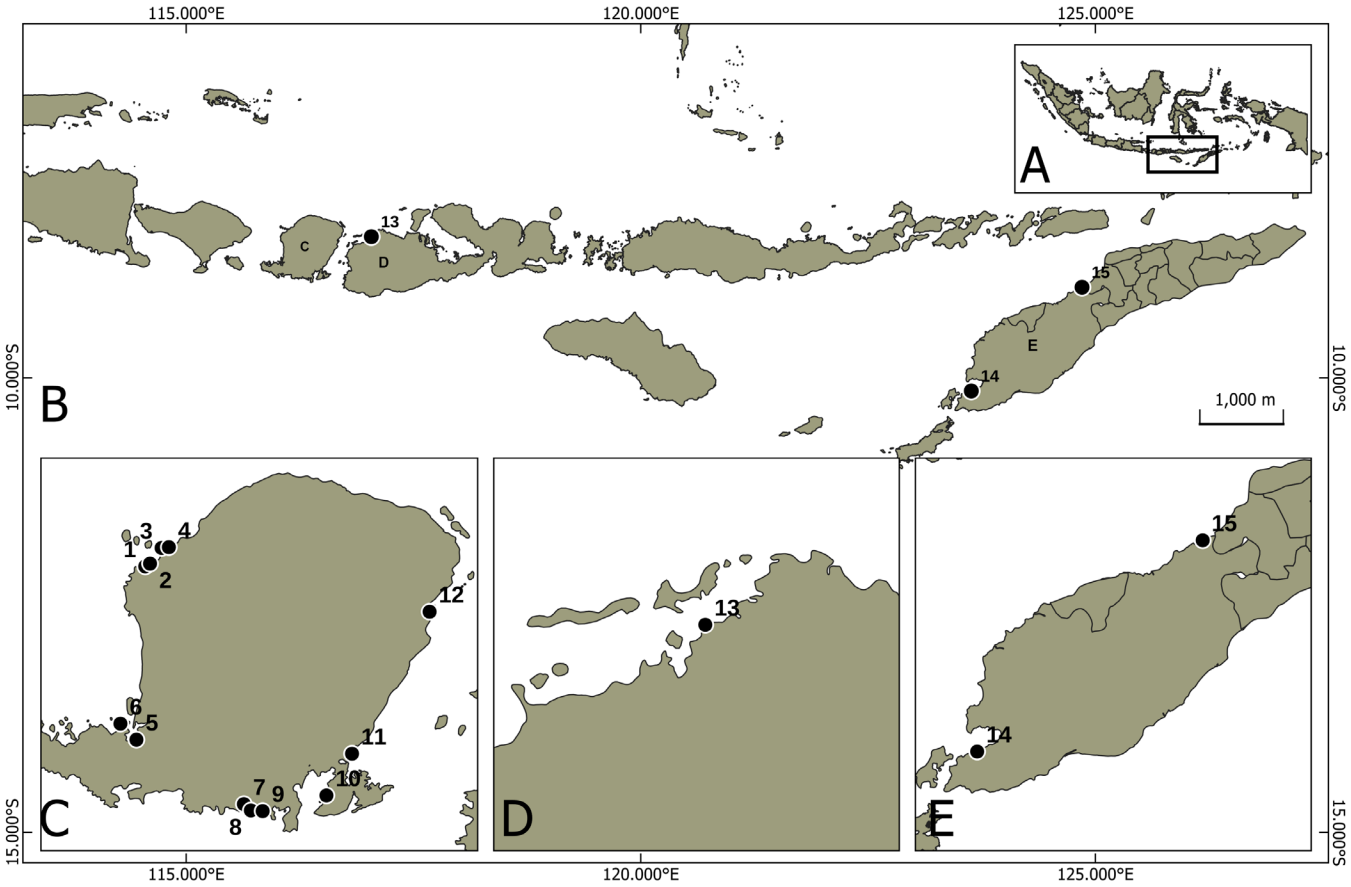

Fig. 1. Map of collection sites. A, Indonesian Archipelago, B, Lesser Sunda Islands, C, Lombok Island, D, Sumbawa Island, E, Timor Island. 1. Teluk Kodek, 2. Teluk Kombal, 3. Sira, 4. Medana, 5. Lembar, 6. Sekotong, 7. Pantai Seger, 8. Kuta, 9. Tanjung Aan, 10. Ekas, 11. Seruni Mumbul, 12. Ketapang Raya, 13. Labuhan Burung, 14. Kupang, 15. Atambua.

at the Museum Zoologi Bogor (MZB), National Research and Innovation Agency (BRIN), Cibinong, Indonesia. Other specimens examined are deposited at the Zoological Reference Collection of the Lee Kong Chian Natural History Museum (ZRC), National University of Singapore. The synonymies for the species are restricted to the original description, record(s) from Indonesia, illustrated work(s), and clarifications of systematic problems. Measurements (in mm) are of the carapace width (cw), measured at the widest point, followed by length (cl), for the biggest and smallest specimens. G1 = male first gonopod.

TAXONOMY

Family Camptandriidae Stimpson, 1858

Genus *Moguai* Tan & Ng, 1999

Moguai aloutos Tan & Ng, 1999
(Fig. 2A)

Moguai aloutos Tan & Ng, 1999: 203, figs. 3A, E, F, 4A–C, F (type locality: Pandan Forest, Singapore).

Material examined. 1 male (3.3 × 3.7 mm), 1 female (4.4 × 4.8 mm), 1 ovigerous female (5.6 × 6.0 mm) (ZRC 2026.0136), Lembar, 14 May 2014.

Remarks. The carapace of the specimens in this study is only slightly longer than broad, about 1.1 times as long as broad, and the tubercles on the carapace and on the third maxillipeds, sternites, and pleon are larger and denser than those examined by Tan & Ng (1999), and the telson is as long as the sixth pleon. This variation is possibly related to size, as the specimens in this study are smaller (cw. 3.3–5.6 mm; cl. 3.7–6.0 mm) than those of Tan & Ng (1999) (cw. 4.2–5.7 mm; cl. 4.6–6.5 mm). All other characters, such as the short ambulatory legs with produced distal margin of the merus, and the bifurcate G1, with one blade-like distal process, and another longer distal process with spines on the curved tip, place this species in *M. aloutos* without doubt. This species was found in the muddy substrate near the earth pond in the mangrove area.

Distribution. Singapore and Bintan Island in Indonesia (Tan & Ng, 1999), with distribution now extended southward to Lombok Island.

Genus *Paramoguai* Ahyong, 2014

Paramoguai kavieng Ahyong, 2014
(Fig. 2B)

Paramoguai kavieng Ahyong, 2014: 579, figs. 1–3 (type locality: Manne and Boudison Islands, Papua New Guinea)

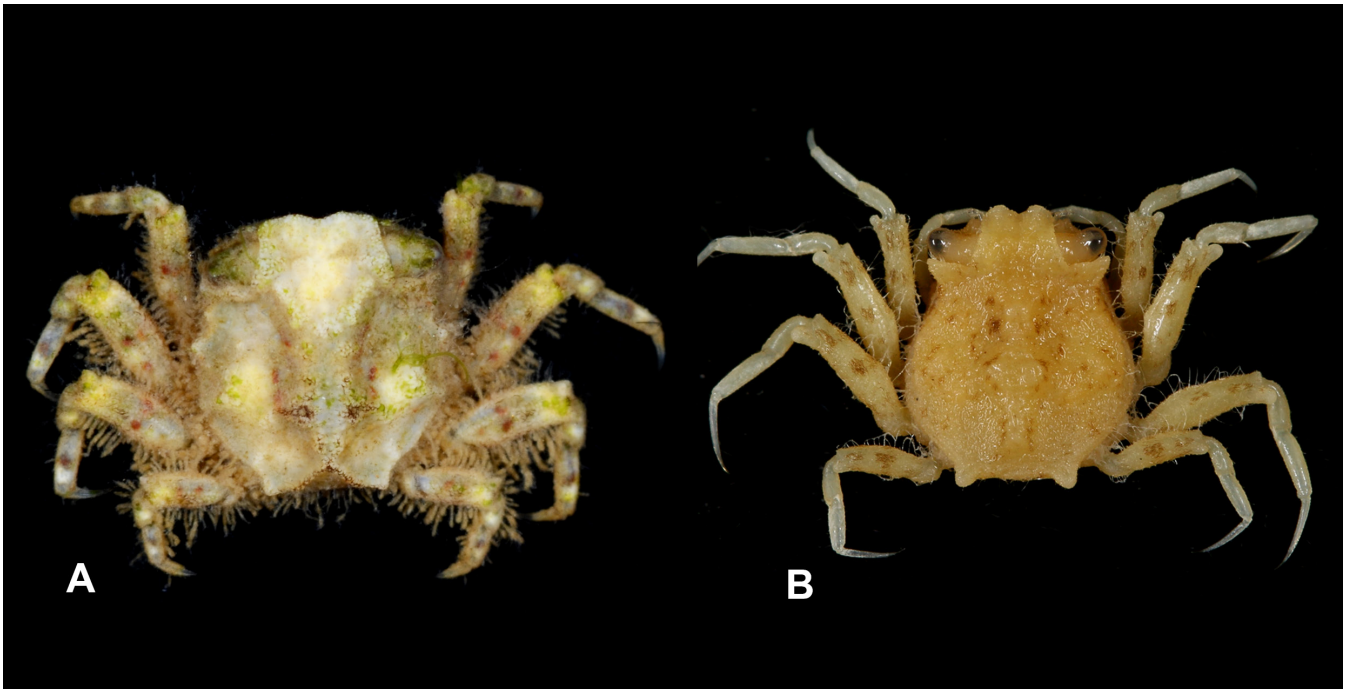

Fig. 2. Colour in life. A, *Moguai aloutos* Tan & Ng, 1999, male (3.3 × 3.7 mm) (ZRC 2026.0136); B, *Paramoguai kavieng* Ahyong, 2014, male (3.2 × 3.6 mm) (ZRC 2026.0137).

Material examined. 1 male (3.6 × 3.2 mm) (ZRC 2026.0137), Ekas, 22 July 2009

Remarks. The specimen in this study agrees well with the description of the species in the following characters: the carapace is pyriform, with rounded lateral margin and prominent blunt projection on each of the posterolateral angle, the ischium, and merus of the third maxilliped are fused with the suture only on the third lateral of the mesial face, the chelipeds are very slender, the ambulatory legs are short, and the G1 is strongly recurved with the distal portion deeply bifurcate.

The specimen from Lombok is the second record of this species after the description of the species in 2014. It was collected from muddy substrate near the mangrove area.

Distribution. Currently found only from New Britain and New Ireland, Papua New Guinea (Ahyong, 2014), and herein recorded from Lombok Island, Indonesia.

Family Macrophthalmidae Dana, 1851

Genus *Chaenostoma* Stimpson, 1858

***Chaenostoma crassimanus* Stimpson, 1858**
(Fig. 3A)

Chaenostoma crassimanus Stimpson, 1858: 97. – Shih et al., 2015: 78, figs. 66–69. – Teng et al., 2016: 19, fig. 1l–n (type locality: the Ryukyus, Japan)
Macrophthalmus lisae Poupin & Bouchard, 2010: 62, figs. 1a–c, 2a–o.
Chaenostoma lisae – Naderloo, 2013: 2842, figs. 3, 4.

Material examined. 1 male (4.4 × 3.5 mm) (MZB Cru 7374), Teluk Kombal, 15 April 2014; 2 males (4.7 × 3.6 mm, 5.8 × 4.4 mm), 1 female (6.0 × 5.1 mm) (ZRC 2026.0138), Tanjung Aan, 15 May 2014; 2 males (5.6 × 4.2 mm), 2 females (5.6 × 4.4 mm, 6.9 × 5.1 mm) (ZRC 2026.0139), Pantai Seger, 26 February 2016; 2 males (8,7 × 5.6 mm, 5.1 × 3.8 mm), 1 female (3.8 × 3.3 mm) (MZB Cru 7375), Atambua, 5 May 2024; 8 males (3.6 × 2.9 – 6.4 ×5.5 mm), 7 females (5.6 × 4.5 mm – 8.7 × 7.5 mm), 5 ovigerous females (7.5 × 6.4 – 9.3 × 7.6 mm) (ZRC 2026.0141), Kuta, 17 June 2023; 2 males (5.1 × 4.0 mm, 4.2 × 3.3 mm), 1 female (3.6 × 3.1 mm), 1 ovigerous female (6.2 × 5.3 mm) (MZB Cru 7376), Medana, 13 May 2025.

Remarks. Teng et al. (2016) revised the *Chaenostoma bosci* complex of macrophthalmids based on morphological characters and molecular data, which resulted in the revival of *Chaenostoma crassimanus* and *C. orientale*. Differences between the species in the *C. bosci* complex, i.e., *C. bosci* (Audouin, 1826), *C. crassimanus*, *C. java*, *C. orientale*, and *C. sinuspersici* Naderloo & Türkay, 2011, were discussed at length by Shih et al. (2015) and Teng et al. (2016). In this study, some morphological variations in *C. crassimanus* are observed: in females and small male specimens (cw. less than 4 mm for male), the chelipeds are slender, the tooth on the cutting edge of the dactylus is very low, and the length ratio of ischium and merus of the third maxilliped is 1.4 (versus chelipeds globular, tooth on the cutting edge of the dactylus is low, wide, and the length ratio of the ischium and merus of the third maxilliped is 1.2–1.3 in larger specimens). The slenderness of the chelipeds and the length ratio of the ischium and merus resemble those of *C. orientale,* but other characters such as the absence of the stridulatory ridge on the inner face of the merus of the chelipeds, the covering of setae on the inner face of the palm of the cheliped that do

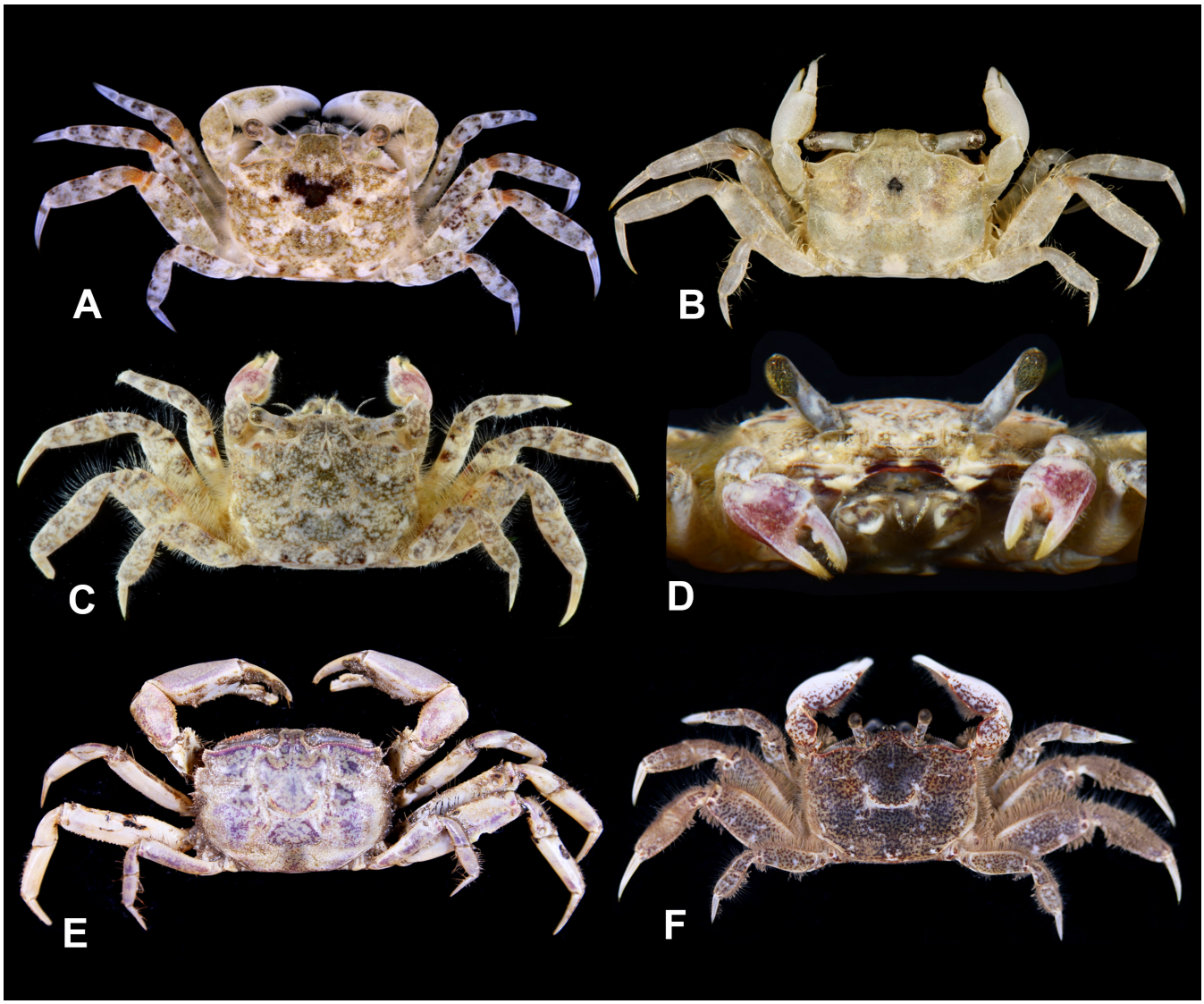

Fig. 3. Colour in life. A, *Chaenostoma crassimanus* Stimpson, 1858, male (5.8 × 4.4 mm) (ZRC 2026.0138); B, *Chaenostoma orientale* Stimpson, 1858, male (6.7 × 5.1 mm) (ZRC 2026.0147); C, D, *Chaenostoma java* Naderloo, 2014, male (10.1 × 8.7 mm) (ZRC 2026.0142); E, *Macrophthalmus* (*Mareotis*) *definitus* Adams & White, 1849, male, (18.9 × 14.2 mm) (ZRC 2026. 0140); F, *Macrophthalmus* (*Mareotis*) *crinitus* Rathbun, 1913, male (13.8 × 10.9 mm) (ZRC 2026.0149).

not include the fingers, the shallow incision between first and second anterolateral teeth, and the shape of the G1 which has a short truncate tip, agree well with the description of *C. crassimanus*.

This species was collected on a rocky shore with a sandy-mud microhabitat.

Distribution. Widely distributed in the Indo-West Pacific, from Eastern Africa across the Indian Ocean to Taiwan, the Ryukyus, the Philippines, and New Caledonia (Shih et al., 2015). In Indonesia, this species is recorded for certain from Lombok and Timor Islands (this study). The specimens of *Euplax boscii* by Tesch (1918) from the Talaut Islands, Donggala in Sulawesi, and Ambon and Kei in Maluku need to be examined to confirm the identity of this species.

Chaenostoma java Naderloo, 2013
(Fig. 3C, D)

Chaenostoma java Naderloo, 2013: 3, figs. 1A–F, 2A–D (type locality: Besoeki, Java, Indonesia)

Material examined. 1 male (10.1 × 8.7 mm) (ZRC 2026.0142), Tanjung Aan, 15 May 2014; 1 male (10.2 × 8.0 mm) (MZB Cru 7377), Atambua, 5 May, 2024; 1 female (10.7 × 8.5 mm) (ZRC 2026.0143), Teluk Kodek, 14 August 2015.

Remarks. Naderloo (2013) described this species based on the specimens from Java (Besoeki mistakenly written as Rosoeki). The species is easily recognised by the following characters: the maximum width of the carapace is on the posterolateral margin, first anterolateral tooth is broadly triangular directed upward, the second tooth is lower but longer, third tooth is small, indistinct, the ischium of the third maxilliped is long, about 1.8 times as long as the

merus, the palm of the chelipeds is relatively swollen with longitudinal granular ridge along the lower area, from the tip of the fixed finger to the articulation with the carpus, the inner face of the palm with dense setae that continues to the dactylus and fixed finger.

The specimens in this study vary in the shape of the chelipeds, which are slender, the setae on the inner face of the fingers do not cover the whole surface, instead forming a row of setae near the cutting margin, and the upper face of the fingers near the cutting margin with a row of long setae.

The specimens were collected on a rocky shore with muddy-sand substrate.

Distribution. Besoeki, East Java (Naderloo, 2013), with distribution now extended eastward to Lombok and the Timor Islands.

Chaenostoma orientale Stimpson, 1858
(Fig. 3B)

Chaenostoma orientale Stimpson, 1858: 97. – Shih et al., 2015: 84, figs. 70–73. – Teng et al., 2016: 19, fig. 1h–k (type locality: Ryukyus, Japan)

Macrophthalmus sinuspersici – Rahayu & Nugroho, 2012: 21, fig. 1A, b. (not *Macropthalmus sinuspersici* Naderloo & Türkay, 2011).

Material examined. 2 males (10.7 × 8.5 mm, 10.2 × 8.2 mm) (ZRC 2026.0144), Pantai Seger, 26 February 2016; 2 males (8.0 × 6.2 mm, 7.3 × 5.8 mm) (MZB Cru 7378), Kuta, 11 December 2004; 6 males (4.7 × 4.0 mm– 7.3 × 6.4 mm), 10 females (7.8 × 6.0 – 5.1 × 4.0 mm) (ZRC 2026.0146), Tanjung Aan, 15 May 2014; 1 male (6.0 × 4.5 mm), Sekotong, 14 May 2014; 1 male (6.7 × 5.6 mm, 7.2 × 6.0 mm) (MZB Cru 7379), Teluk Kombal, 15 April 2014; 2 males (9.3 ×7.6 mm – 9.8 ×7.8 mm), 2 females (11.0×8.9 mm, 11.8 ×9.8 mm), Teluk Kodek, 14 August 2015; 1 male (6.7 × 5.1 mm) (ZRC 2026.0147), Medana, 23 June 2025.

Remarks. The specimens in this study agree well with the description of *M. orientale* in the following characters: the carapace with sparse tubercles on the gastric and branchial regions, the slender chelipeds with strong tooth on the cutting edge of the dactylus, the inner face of the palm with dense tuft of setae continued to the fingers, the stridulatory apparatus on the inner face of the merus is present, and the G1 with short, broad, chitinous tip. In some specimens, the tooth on the cutting edge of the dactylus of the chelipeds is low and broad, resembling that of *C. crassimanus*, but the proximal position of the tooth and the presence of the stridulatory ridge on the inner face of the merus of the chelipeds confirm the identity of this species.

Distribution. Widely distributed in the Indo-West Pacific (Shih et al., 2015). It was recorded in Indonesian waters as *M. sinuspersici* (Rahayu & Nugroho, 2012).

Genus *Macrophthalmus* Desmarest, 1823

Macrophthalmus (*Mareotis*) *definitus* Adams & White, 1849
(Fig. 3E)

Macrophthalmus definitus Adams & White, 1849: 51 (type locality: the Philippines)

Macrophthalmus (*Mareotis*) *definitus* – Barnes, 1967: 214, fig. 4, pl. 1d. – Komai et al., 1995: 125, fig. 10. – Shih et al., 2015: 118, figs. 96–99.

Material examined. 2 females (10.2 × 9.0 mm, 8.6 × 7.8 mm) (MZB Cru 7380), 2 males (7.0 × 6.2 mm, 8.4 × 7.6 mm), 9 females (6.0 × 5.3 mm – 10.7 × 8.0 mm), 1 ovigerous female (12.2 × 10.4 mm) (ZRC 2026.0148), Ekas, 24 October 2009; 1 ovigerous female, (21.5 × 15.4 mm), Labuhan Burung, 10 October 2018; 3 males (11.6 × 9.3 mm – 18.9 × 14.2 mm) (ZRC 2026. 0140), Seruni Mumbul, 1 November 2019; 1 female, (16.4 × 13.6 mm) (MZB Cru 7381), same locality, 25 February 2020;

Remarks. The colouration (Fig. 3E) is slightly different compared to the specimens from Taiwan (Shih et al., 2015: fig. 97), but the morphological characters such as basally broad first and second anterolateral teeth, with the second tooth being larger than the first, strong and stout male chelipeds, with smooth dorsal surface of the palm, the presence of strong transverse ridge on the third somite of pleon in males and females, and the elongated chitinous process of the tip of the G1 agree very well with the description of the species by Komai et al. (1995: fig. 10N–P), Barnes (1967: fig. 4), and Shih et al. (2015: fig. 98D, E).

The specimens inhabited muddy substrate near the mangrove area.

Distribution. Widely distributed in the West Pacific, from Thailand, the Philippines, Singapore, Malaysia, to South and East China, Taiwan, Japan, and south to the Solomon Islands (Shih et al., 2015). In Indonesia, it was recorded from Bima in Sumbawa, and Taliaboe and Soela in Maluku (Barnes, 1971). It is now recorded from Lombok Island.

Macrophthalmus (*Mareotis*) *crinitus* Rathbun, 1913
(Fig. 3F)

Macrophthalmus crinitus Rathbun, 1913: 619, pl. 75, fig. 3 (type locality: Ambon, Maluku, Indonesia).

Macrophthalmus (*Mareotis*) *crinitus* – Barnes, 1971: 22, fig. 5. – Rahayu & Nugroho, 2012: 27, fig. 1C, D.

Not *M. crinitus* Barnes, 1967 (= *M. darwinensis* Barnes, 1971)

Material examined. 1 male (13.8 × 10.9 mm) (ZRC 2026.0149), Sekotong, 22 October 2023.

Remarks. *Macrophthalmus crinitus* was described by Rathbun (1913) based on a specimen from Ambon, and Barnes (1971) redescribed this species based on the specimens from Ambon, the type locality. The specimen examined in this study is slightly smaller than the type (Rathbun, 1913:

15.3 × 11.2 mm) and Barnes's specimens (Barnes, 1971: cw. 9.0–20.5 mm, cl. 7.19–14.9 mm). However, the specific characters such as the presence of the three anterolateral teeth with the first tooth broad, subrectangular, directed forwards and outwards, the second tooth broader, directed forward, and the third tooth small, corresponds closely with the description of the type and the detailed species description provided by Barnes (1971). In Lombok, it was collected from a sandy mud substrate near a mangrove area.

Distribution. Western Indian Ocean in Burma and the Mergui Archipelago (Rathbun, 1913). In Indonesia, it was recorded from Ambon and Ternate in Maluku (Rathbun, 1913; Barnes, 1971), and Lombok (Rahayu & Nugroho, 2012; this study).

Macrophthalmus (*Macropthalmus*) *brevis* (Herbst, 1804)
(Fig. 4A)

Cancer brevis Herbst, 1804: 9, pl. 60, fig. 4 (type locality: East India).
Macrophthalmus brevis – Tesch, 1915: 169, pl. 4, fig. 5.
Macrophthalmus (*Macrophthalmus*) *brevis* – Barnes, 1971: 4, fig. 1; 2010: 40, fig. 2b. – Komai et al., 1995: 107, fig. 2. – Rahayu & Nugroho, 2012: 23, fig. 2C, D.

Material examined. 4 males (6.2 × 3.7 mm – 11.8 × 5.7 mm), 2 females, (8.5 × 4.5 mm, 12.6 × 5.7 mm) (ZRC 2026.0152), Ekas, 24 October 2009; 1 male (16.5 × 9 mm) (MZB Cru 7382), Kuta, 17 June 2023.

Remarks. The specimens examined agree with the diagnostic features of *M.* (*Macrophthalmus*) *brevis* described by Tesch (1915), Barnes (1971), and Komai et al. (1995). The specimens exhibit the main diagnostic traits of *M.* (*Macrophthalmus*) *brevis*, characterised by a granular carapace, the elongated chelipeds bearing a ridge on the fixed finger, and a slender G1.

The species is rather common in muddy sandy substrate on Lombok Island.

Distribution. Widely distributed in the Indo-West Pacific from the Indian Ocean to Singapore, Malaysia, and Hainan Island (Komai et al., 1995). In Indonesia, it was recorded from Sulawesi, Halmahera, Papua, and Lombok (Tesch, 1915; Barnes, 1971; Rahayu & Nugroho, 2012).

Macrophthalmus (*Macrophthalmus*) *parvimanus* Guérin-Méneville, 1834
(Fig. 4B)

Macrophthalmus parvimanus Guérin-Méneville, 1834: 7, pl. 4, fig. 1 (type locality: île de France = Mauritius Island). – Poupin, 1997: 160, figs. 1A, B, 2, 3A, B, 4.
Macrophthalmus (*Macrophthalmus*) *parvimanus* – Barnes, 1970: 211, fig. 2. – Rahayu & Nugroho, 2012: 25, fig. 2G, H.

Material examined. 1 male (7.3 × 4.7 mm), 3 females (6.9 × 4.5 –10.4 ×6.4 mm) (ZRC 2026.0154), Ekas, 24 October 2009; 1 male (10.5 × 6.5 mm) (MZB Cru 7383), Sira, 13 May 2014.

Remarks. The specimens are consistent with the Indo-Malaysian variety, which is identified by a G1 with a pointed medial apical process and a carapace that is almost twice as wide as long (Komai et al., 1995; Poupin, 1997).

The specimens were collected from sandy mud substrates.

Distribution. Widely distributed in the Indo-West Pacific, from Kerala (India), Madagascar, Seychelles, to the Solomon Islands (Poupin, 1997). In Indonesia it was recorded from Banda and Lombok Islands (Poupin, 1997; Rahayu & Nugroho, 2012; this study).

Macrophthalmus (*Macrophthalmus*) *convexus* Stimpson, 1858
(Fig. 4C)

Macrophthalmus convexus Stimpson, 1858: 97 (type locality: Ryukyus, Japan).
Macrophthalmus (*Macrophthalmus*) *convexus* – Barnes, 1967: 211, fig. 3, pl. 1c. – Komai et al., 1995: 110, figs. 3–4. – Rahayu & Nugroho, 2012: 24, fig. 3A, B. – Davie, 2012: 156, figs. 3, 4.

Material examined. 2 ovigerous females (17.7 × 10.2 mm, 19.2 × 10.7 mm) (ZRC 2026.0150), Ekas, 24 October 2009; 2 males (25.1×13.0 mm, 21.0 ×11.3 mm), 1 female 21.7 ×11.5 mm (MZB Cru 7384), 5 males (18.8 × 10.3 mm – 29,7 ×15.5 mm), 4 females (13.8 × 6.5 – 28.6 ×15.3 mm), 1 ovigerous female (23.4 × 13.2 mm) (ZRC 2026.0151), Labuhan Burung, 10 October 2018; 1 male (22.0 ×11.6 mm), Kuta, 17 June 2023; 1 male (18.4 × 10 mm) (MZB Cru 7385), Sekotong, 22 October 2023.

Remarks. Typical characteristics of *M.* (*Macrophthalmus*) *convexus* were observed in the specimens. These include a smooth carapace with granular patches on the branchial regions, long ocular peduncles extending to the tip of external orbital angle, and an elongated cheliped palm (Davie, 2012; Rahayu & Nugroho, 2012).

The specimens were collected from sandy muddy substrate near mangrove areas.

Distribution. Widely distributed in the Indo-West Pacific from India, Thailand, the Philippines, Taiwan, Japan, and Hong Kong, southward to eastern Australia and the Solomon Islands (Davie, 2012). In Indonesia, it has been recorded from the Lesser Sunda Islands, Sulawesi, and Maluku (Barnes, 1971; Rahayu & Nugroho, 2012; this study).

Macrophthalmus (*Macrophthalmus*) *milloti* Crosnier, 1965
(Fig. 4D)

Macrophthalmus milloti Crosnier, 1965: 112, figs. 217–220, 222–223, 228, pl. 11, fig. 4 (type locality: north-west coast of Madagascar: Anorotsanga)
Macrophthalmus (*Macrophthalmus*) *milloti* – Serène, 1973: 112, pl. 4, figs. A–C. – Barnes, 1976: 135, fig. 3. – Komai et al., 1995: 116, fig. 6. – Rahayu & Nugroho, 2012: 24, figs. 3C, D. – Davie, 2012: 169, figs. 13–16. – Shih et al., 2015: 131, figs. 109–112.

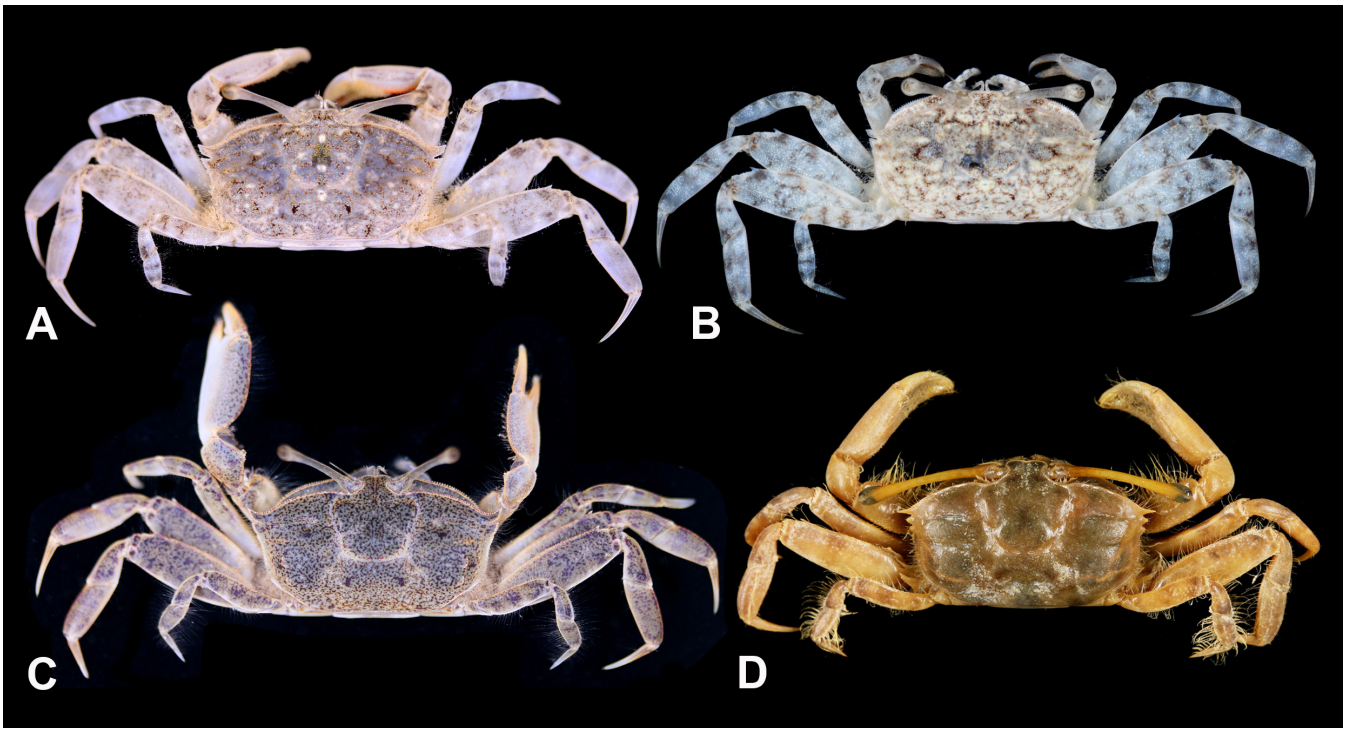

Fig. 4. Colour in life. A, *Macrophthalmus* (*Macrophthalmus*) *brevis* (Herbst, 1804), 1 male (16.5 × 9.0 mm) (MZB Cru 7382); B, *Macrophthalmus* (*Macrophthalmus*) *parvimanus* Guérin-Méneville, 1834, male (10.5 × 6.5 mm) (MZB Cru 7383); C, *Macrophthalmus* (*Macrophthalmus*) *convexus* Stimpson, 1858, male (18.4 × 10.0 mm) (Cru 26012); D, *Macrophthalmus* (*Macrophthalmus*) *milloti* Crosnier, 1965, male (18.4 × 10.4 mm) (MZB Cru 7386), colour in preservative.

Material examined. 8 males (5.1 × 3.1 – 24.9 × 15.3 mm), 2 females (5.8 ×3.8 mm, 6.7 × 4.7 mm), 2 ovigerous females (7.3 × 3.6 mm, 8.5 × 4.9 mm) (ZRC 2026.0153), Ekas, 22 July 2009; 4 males (10.5 × 6.4 – 18.4 × 10.4 mm) (MZB Cru 7386), Labuhan Burung, 10 October 2018.

Remarks. The specimens agree well with the description by Crosnier (1965). It is characterised by long ocular peduncles, overreaching first anterolateral tooth by one third of the peduncular length, the first anterolateral tooth exceeding the second tooth. The G1 terminates in a short apical process, distinguishing it from similar long-eyed species *M.* (*Macrophthalmus*) *telescopicus* (Owen, 1839) and *M.* (*Macrophthalmus*) *serenei* Takeda & Komai, 1991 (Barnes, 1976; Komai et al., 1995).

Distribution. Widely distributed in the Indo-West Pacific, from Madagascar to Thailand, Taiwan, Japan, and Australia (Shih et al., 2015). In Indonesia, it was recorded from Bali, Lombok, and Sumbawa Islands (Rahayu & Nugroho, 2012; Shih et al., 2015; this study).

Macropthalmus (*Macrophthalmus*) *atambua*, new species

(Figs. 5–7)

Material examined. Holotype, male (20.1 × 8.4 mm) (MZB Cru 7387), Atambua, 5 May 2024.

Description. Carapace wide (Fig. 5A), 2.4 times as wide as long, greatest width across first anterolateral teeth. Lateral margin of carapace slightly convergent posteriorly, granular, sparsely setose with 3 anterolateral teeth including external orbital tooth (Fig. 5B). First tooth long, acute, directed laterally, exceeding largely second tooth. Second anterolateral tooth wider than preceding tooth, sub triangular, directed anteriorly, tip overlapped by first tooth, forming narrow droplet-shaped gap. Third anterolateral tooth moderately large, separated from preceding tooth by narrow V-shaped incision. Carapace surface granular; less granules on frontal and epigastric regions; branchial region with transverse large granular ridge at level of third anterolateral tooth, followed posteriorly by three well developed clumps of granules, intestinal ridge present. Epistome posterior margin slightly produced, each one third lateral more advanced than median portion (Fig. 5C).

Front narrow (Fig. 5C), 0.13 times distance between external orbital tooth, slightly deflexed, constricted between bases of ocular peduncles, margin smooth, thinly rimmed, with deep median furrow. Upper orbital border oblique, with row of tubercles, larger and more spaced laterally; lower orbital border with row of small tubercles along whole length, interspersed with larger tubercles. Ocular peduncles relatively long with right cornea reaching tip of first anterolateral tooth, left cornea barely exceeding first anterolateral tooth (Fig. 5A–C).

Third maxillipeds (Fig. 5D) convex, covering buccal cavity when closed; median length of ischium about 1.5 times as long as merus; lateral margin of ischium concave with shallow proximal concavity; merus, ischium with short setae on inner margins.

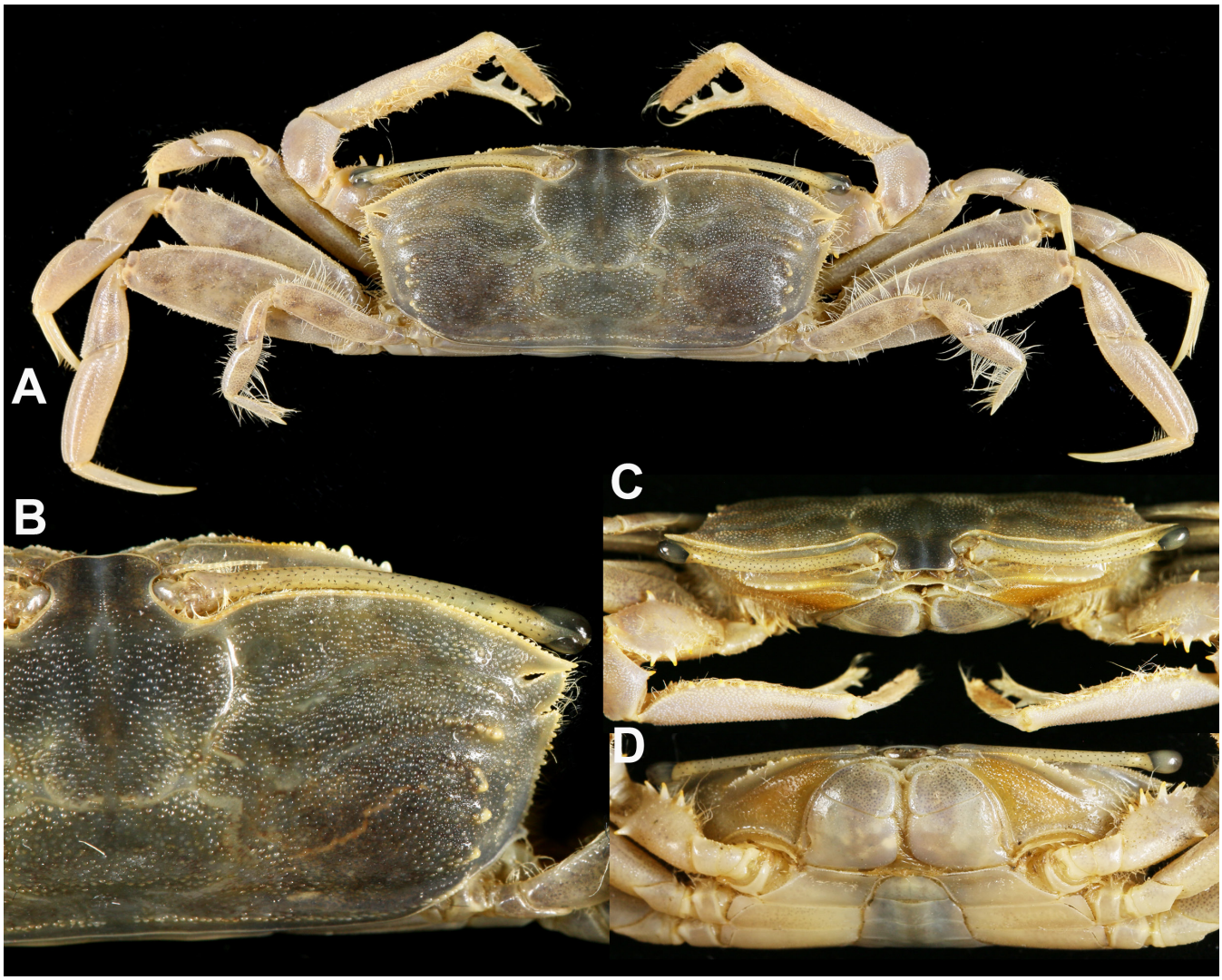

Fig. 5. *Macrophthalmus* (*Macrophthalmus*) *atambua,* new species, holotype, male (20.1 × 8.4 mm) (MZB Cru 7387). A. carapace, dorsal view; B, enlarge dorsal view of carapace, lateral margin; C, front; D, third maxillipeds. Colour in preservative.

Cheliped subequal, elongate (Fig. 6A–E). Palm elongate, outer surface of palm finely tuberculate, inner surface with sparse setae and 1 moderately large spine subproximally; upper margin with row of tubercles interspersed by large spine on proximal half (Fig. 6B, C), row of moderately large tubercles distally; lower margin finely tuberculate, longitudinal tubercles ridge along outer lower margin, starting on subproximal part of palm, coalescent with tubercles on lower margin of fixed finger then continued to tip of fixed finger. Base of fixed finger directed distoinferiorly and placed much proximal to that of dactylus, therefor fixed finger looks deflexed (Fig. 6A, D, E), outer surface of fixed finger smooth, inner surface with row of long setae near cutting margin; cutting margin with large, triangular crenulated tooth subproximally and small spine subdistally. Outer surface of dactylus covered with small tubercles, upper margin straight, with row of tubercles obscured by dense setae, setae continue to cover entire inner surface; cutting margin of right cheliped with two subproximal small spines and well separated two subdistal small spines (Fig. 6D); left cheliped with small bifid teeth subproximally and two well separated small spines subdistally (Fig. 6E). Carpus covered with low tubercles, strong spine on dorsomesial, inner surface with strong spine distally. Merus (Fig. 6B) upper margin with one large spine and row of granules and small spinules, lower margin with three large spines medially, row of tubercles distally and one small spine proximally.

Ambulatory legs (Fig. 6F–I) relatively long, with third legs longest, fourth legs shortest, long, sparse setae on dorsal and ventral margin, densest on fourth legs. Dorsal and ventral margins of propodus and carpus of second and third legs with row of small tubercles; on merus, double rows of tubercles and one subdistal strong spine on dorsal margin, ventral margin with row of spines, one strong spine subdistally. Lateral face of carpus of first, second, and third ambulatory legs with longitudinal ridges compose by minutes tubercles with small distal spine on first and third legs, strong distal spine on second leg. Dorsal and ventral margin of first and fourth legs relatively smooth.

Male pleon moderately broad (Fig. 6J). Third somite without transverse ridge, sixth somite expanded posterior to midlength, telson longer than sixth somite, distal margin rounded. G1 with terminal process short, truncate (Fig. 7A–D).

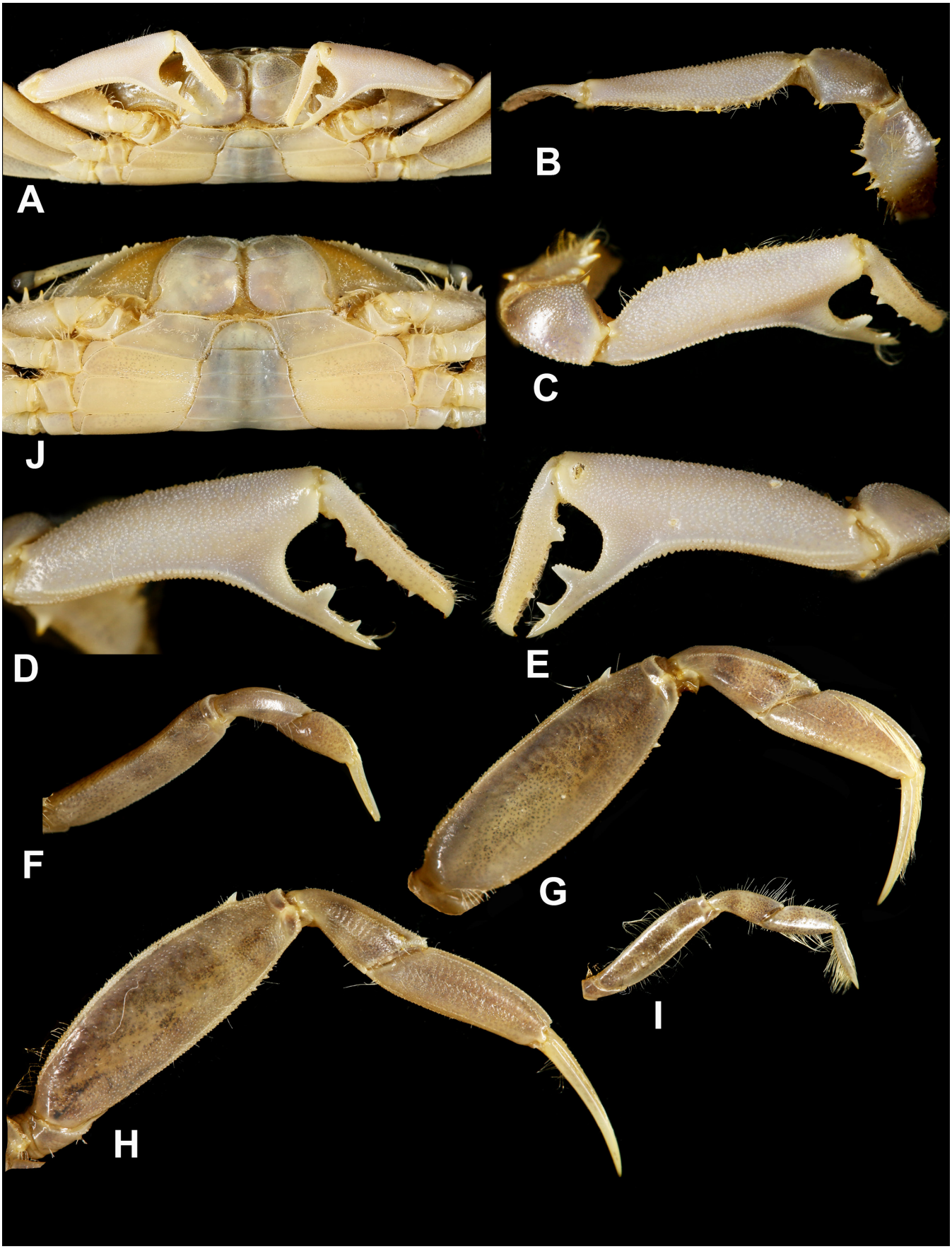

Fig. 6. *Macrophthalmus* (*Macrophthalmus*) *atambua,* new species, holotype, male (20.1 × 8.4 mm) (MZB Cru 7387). A, ventral face showing chelipeds; B, palm, carpus and merus of left cheliped, mesial view; C, palm and carpus of left cheliped, outer upper face, D, palm and dactylus of right cheliped, outer face; E, palm and dactylus of left cheliped, outer face; F–I, right ambulatory legs; F, first; G, second; H, third; I, fourth; J, male pleon. Colour in preservative.

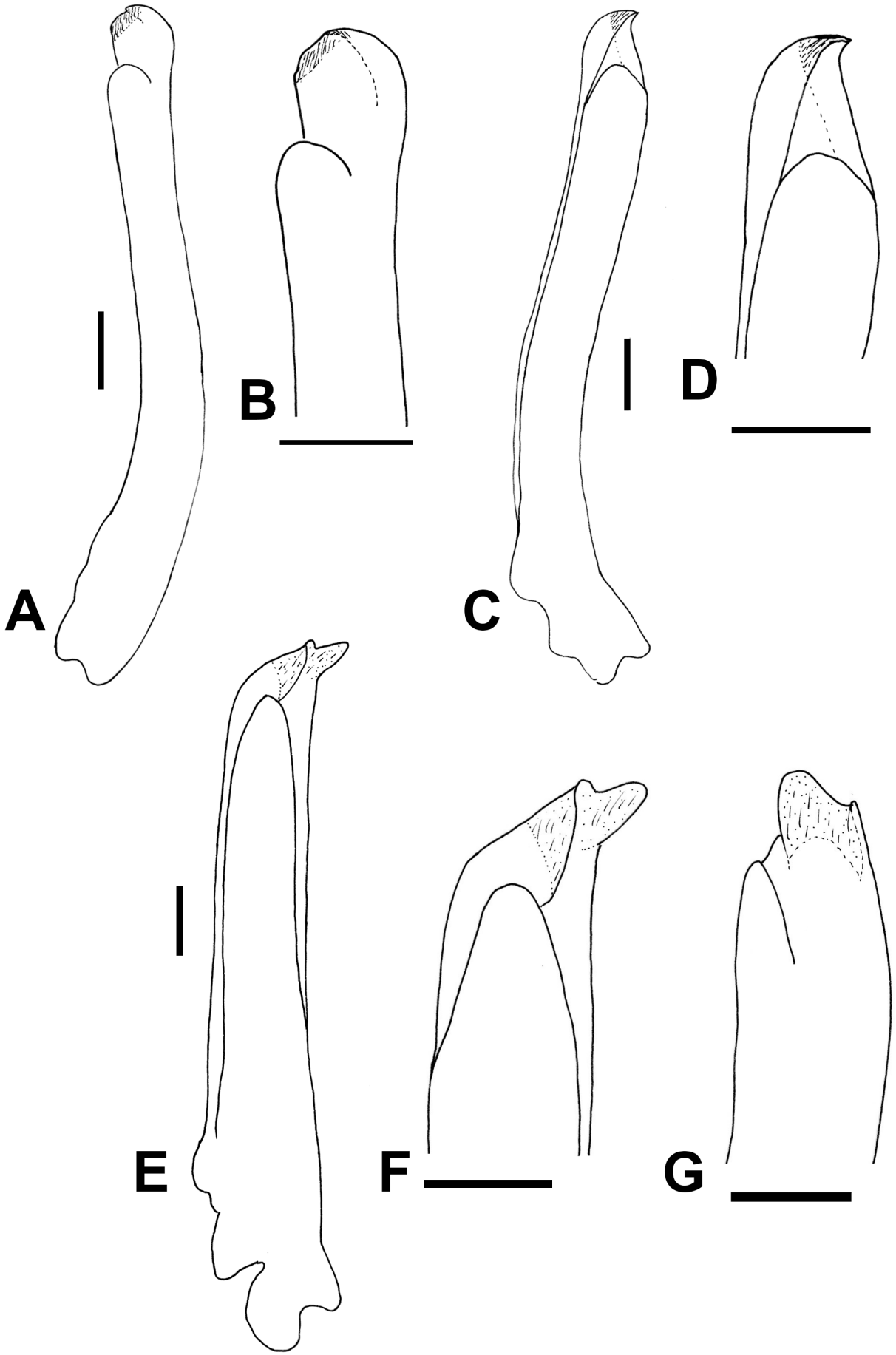

Fig. 7. A–D, *Macrophthalmus* (*Macrophthalmus*) *atambua,* new species, male (20.1 × 8.4 mm) (MZB Cru 7387). E–G, *Utica borneensis* De Man, 1895, male (15.3 × 13.2 mm) (MZB Cru 7391). A, C, E, male left G1; A, D, F, G, apical portion of G1. A, B, E, F, mesial view; C, D, G, ventral view. Scale = 0.5 mm.

Etymology. Named after the place where the species was collected, Atambua. The name is used as a noun in apposition.

Remarks. The broad carapace, the relative position of the tip of the eye being not exceeding the first anterolateral tooth, and the basally broad second anterolateral tooth, placed this species in the *Macrophthalmus brevis* group as defined by Barnes (2010). Among the species in this group, the new species has the widest carapace (2.4 times as wide as long versus mostly 2 times or less as wide as long in other species in the group). The most closely related species is *M*. (*Macrophthalmus*) *laevimanus* H. Milne Edwards, 1852. Comparison with the description of *M*. (*Macrophthalmus*) *laevimanus* given by Barnes (1970) and Komai et al., 1995), the two species share the following characters: 1) the carapace with a transverse granular ridge at the level of the third anterolateral tooth and clumps of granules on the branchial region; 2) the inner orbital border with a row of moderately large tubercles; 3) the carpus and merus of the chelipeds are armed with spines. Differences of the two species are as follows: the carapace is 2.4 times as wide as long, with the widest carapace across the first anterolateral tooth, the second anterolateral tooth wider than the first, sub triangular, directed anteriorly, with the tip overlapped by the first tooth, forming a narrow droplet-shaped gap in *M*. (*Macrophthalmus*) *atambua,* new species (Fig. 5A, B), versus carapace 1.8 times as wide as long with the widest carapace across the second anterolateral tooth, the second anterolateral tooth directed laterally, forming V-shaped incision with the first tooth (Barnes, 1970: fig. 5a; Komai et al., 1995: fig. 5N, O); the branchial region with three clumps of granules and the corneas reaching the tip or barely exceeding the first anterolateral tooth in *M*. (*Macrophthalmus*) *atambua,* new species (Fig. 5A–C), versus the branchial region having only two clumps of granules, and the corneas not reaching the tip of the first anterolateral tooth in *M*. (*Macrophthalmus*) *laevimanus*) (Barnes, 1970: fig. 5a; Komai et al., 1995: fig. 5A, J). Furthermore, the cutting margin of the fingers of the chelipeds is armed with several spines in *M.* (*Macrophthalmus*) *atambua*, new species (Fig. 6A–C, E), versus the cutting margin of the dactylus of the chelipeds having a small, quadrangular tooth proximally, the fixed finger with median crenulated tooth in *M*. (*Macrophthalmus*) *laevimanus* (Barnes, 1970: fig. 5b; Komai et al., 1995: fig. 5N, O).

The shape of the first and second anterolateral teeth and the spines on the fingers of the chelipeds resembles those of *M*. (*Macrophthalmus*) *transversus* (Latreille, 1817), but the two species are easily separated by the variable length of the ocular peduncles, which is always projecting beyond the first anterolateral tooth in *M*. (*Macrophthalmus*) *transversus* (Tesch, 1915: 158, fig. 1; Kemp, 1919: 386; Barnes, 1970: 209, fig. 1a, b), versus the ocular peduncle with corneas reaching only to the tip or barely exceeding the first anterolateral tooth in the new species (Fig. 5A–C). Furthermore, the dorsal margin of the merus of the first three pairs of the ambulatory legs is armed with one strong distal spine, followed by distinct tubercles; the ventral margin of the merus of the third legs with row of small spines in *M.* (*Macrophthalmus*) *transversus* (Tesch, 1915: 158, fig.1), versus only the second and third of the ambulatory legs armed with one strong subdistal spine followed by double rows of small tubercles; the ventral margin of the merus of the second and third legs with row of small spines, one strong spine subdistally in *M.* (*Macrophthalmus*) *atambua*, new species (Fig. 6G, H). Additionally, the lateral face of carpus of the first, second, and third ambulatory legs has longitudinal ridges of small tubercles with a moderately large distal spine on second leg, and a relatively small distal spine on the first and third legs in *M.* (*Macrophthalmus*) *atambua* (Fig. 6F–H). This ridge is not mentioned by Tesch (1915), Kemp (1919) or Barnes (1970) for *M*. (*Macrophthalmus*) *transversus.*

This species was collected in sandy muddy substrate around seagrass environments.

Distribution. At present only found in Atambua, Timor Island.

Family Varunidae H. Milne Edwards, 1853

Genus *Metaplax* H. Milne Edwards, 1852

Metaplax elegans De Man, 1888
(Fig. 8A)

Metaplax elegans De Man, 1888: 164, pl. 11 (4-6). – Shih et al., 2019: 5, figs. 2A–C, 3, 7A–D.

Material examined. 5 males (7.4 × 5.2 mm, 10.6 × 7.2 mm), 3 females (7.2 × 5.4 mm – 9.6 × 7.0 mm) (ZRC 2026.0155), Ekas, 24 October 2009; 1 male (14.9 × 10 mm) (ZRC 2026.0156), Tanjung Aan, 14 May 2014
Other material. 2 males (14.6 ×9.0 mm, 17.2 ×11.0 mm), 2 females (16.6 × 11.2 mm, 18.2 × 12.0 mm) (MZB Cru 7388), 2 males (15.7 × 10.5 mm, 15.8 × 10.5 mm), 2 females (14.2 × 8.4 mm, 17.8 × 11.6 mm) (ZRC 2026.0157), Teluk Pang Pang, Muncar, East Jawa, 21 August 2022.

Remarks. *Metaplax elegans* is easily separated from other members of the genus by the great number of tubercles on the infraorbital ridge and the presence of a row of small spines on the anterior margin of the merus of the ambulatory legs. Shih et al. (2019) reported that the tubercles on the infraorbital ridge ranged from 47 to 61. The specimens in this study possessed 57 to 64 tubercles on its infraorbital ridge, the anterior margin of the merus of the second to fourth ambulatory legs is serrated, interspersed with several larger spines instead of a row of small spines.

The specimens were collected in the muddy area around mangrove forest near river mouth.

Distribution. The Bay of Bengal, as well as being widely distributed in Southeast and East Asia (Shih et al., 2019); in Indonesia, it was reported from the coast of Aceh, Pontianak, Samarinda, Lombok, and Makasar (De Man, 1895; this study).

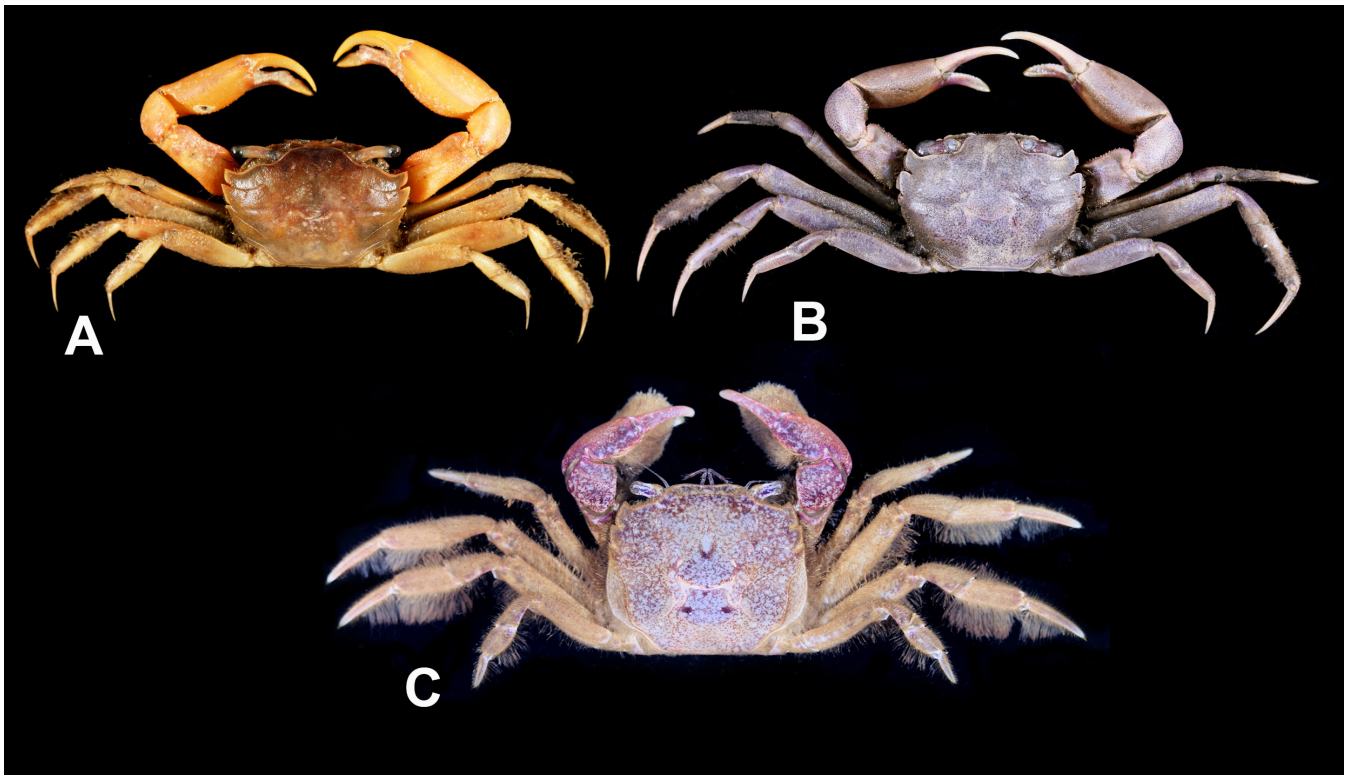

Fig. 8. A, *Metaplax elegans* De Man, 1888 (15.7 × 10.5 mm) (ZRC 2026.0157); B, *Metaplax tredecim* Tweedie, 1950, male (18.3 × 13.7 mm) (MZB Cru 7389); C, *Utica borneensis* De Man, 1895, male (15.5 × 14.3 mm) (ZRC 2026.0162). A, colour in preservative, B, C, colour in life.

Metaplax tredecim Tweedie, 1950
(Fig. 8B)

Metaplax tredecim Tweedie, 1950: 354, fig. 6. – Shih et al., 2019:16, figs. 2J–L, 6, 7M–P.

Material examined. 2 males (13.5 × 10.7 mm, 15.9 × 11.8 mm) (MZB Cru 7389), Seruni Mumbul, 1 November 2019; 2 males (12.0 × 9.4 mm, 18.3 × 13.7 mm), 1 ovigerous female (15.8 × 12.2 mm) (MZB Cru 7390), same locality, 25 February 2020; 12 males (8.8 × 6.0 – 21.2 × 15.8 mm), 6 females (10.6 × 8.6 – 15.8 × 11.8 mm), 6 ovigerous females (11.0 × 8.4 – 17.0 × 12.6 mm) (ZRC 2026.0159), Ekas, 22 July 2009; 5 males (6.8 × 5.6 – 11.8 × 8.8 mm) (ZRC 2026.0160), Lembar, 4 January 2018.

Other material. 2 males (15.2 × 11.4 mm, 18.0 ×13.6 mm) (ZRC 2026. 0161), Sungai Berambang, Brunei, coll. S Choy, 15 September 1990.

Remarks. *Metaplax tredecim* is most closely related to *M. longipes* Stimpson, 1858. In both species, the carapace is rectangular, the chelipeds are without molars on the cutting edge of the dactylus, and the ambulatory legs are long. As discussed by Shih et al. (2019), the number of infraorbital tubercles on males is crucial in identifying the species in the genus *Metaplax*. However, Shih et al. (2019) also stated that the number of the infraorbital tubercles of these two species overlaps. For *M. tredecim*, the infraorbital tubercles are 13–20 for males, and 20–27 for females, while for *M. longipes*, they are 7–13 for males, and 14–22 for females. In the specimens in this study, the infraorbital tubercles are 12 to 13 for males, 23 tubercles for females.

The specimens were collected from a mud flat.

Distribution. Southeast Asia, from northern Borneo to Vietnam and Hong Kong (Shih et al., 2019). This is the first time it has been recorded from Indonesian waters.

Utica borneensis De Man, 1895
(Figs. 7E–G, 8C)

Utica borneensis De Man, 1895: 118. 1898: pl 28, fig. 25. – Tweedie, 1940: 110, fig. 12. – Rahayu & Setyadi, 2009: 44, unnumbered fig.

Material examined. 1 male (15.3 × 13.2 mm) (MZB Cru 7391), 5 males (14.2 × 12.2 mm –17.0 × 15 mm) (ZRC 2026.0162), Ketapang Raya, 15 October 2022.

Remarks. The specimens in this study agree well with the description of the male specimen by De Man (1895) and Tweedie (1940). The carapace is squarish, the cheliped with a covering of dense setae on the inner surface of the palm and the proximal area of the chela, the male pleon is narrow with the long telson, all of which are characters of this species. The G1 (Fig. 7E–G) is straight with a broad, truncate, chitinous tip.

The specimens were collected in the muddy substrate of a sea cucumber pond.

Distribution. Widely distributed in the West Pacific from Japan, Taiwan, to Malaysia and Singapore (Tweedie, 1940). In Indonesian waters, it was reported from Pontianak in Kalimantan by De Man (1895), and from Timika, Papua by Rahayu & Setyadi (2009). Distribution is now extended southward to Lombok Island.

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