

## First record of *Albunea symmysta* (Crustacea: Decapoda: Albuneidae) from Sumatra and Java, Indonesia

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**Abstract.** The sand crab of family Albuneidae is widely distributed along the Indonesian coast. The presence of the sand crab, *Albunea symmysta* (Crustacea: Decapoda: Albuneidae), is reported for the first time from Sumatra and Java, Indonesia. A total of 14 specimens were collected from March 2013 to December 2014 in the intertidal zone of the south-western coast of Sumatra and the southern coast of Java. The systematics, morphological characters, habitat and distribution of this species are presented.

**Key Words:** Anomura, *Albunea symmysta*, sand crab, Indonesia.

**Introduction.** The sand crab of family Albuneidae is one of common crab of seven species from super family Hippoidea in Indonesia (Wardiatno et al 2015a). These crabs live in intertidal (swash zone) to subtidal areas, in which they dig very quickly into the sand (Lastra et al 2002; Wardiatno et al 2014). The existence of sand crabs in Indonesia is well known, but studies of this family are few in number. There are many subfamilies of Albuneidae along the seashore of Indonesia (Boyko & Mclaughlin 2010), including Albuneinae (*Albunea*, *Paralbunea*, *Stemonopa*, *Squillalbunea* and *Zygopa*) and Lepidopinae (*Austrolepidopa*, *Lepidopa*, *Leucolepidopa* and *Paraleucolepidopa*).

The first record of one species of super family Hippoidea from Indonesia, i.e. *Hippa marmorata* is published by Wardiatno et al (2015b). The existence of *Albunea* was first revealed by Boyko & Harvey (1999) from the southern coast of Africa and the Indo-West Pacific. The sand crab *Albunea symmysta* was reported from the west coast of North Africa into the Red Sea and east to the Philippines and Japan (Boyko & Harvey 1999). The first discovery of this species was in Taiwan (Osawa et al 2010); however, many of these records are not *A. symmysta* and the true range of this species is not completely known (Boyko & Harvey 1999). The occurrence of sand crab from Sumatra or Java has not been reported. This report of *A. symmysta* is the first record from Sumatra and Java, Indonesia.

### Material and Method

**Material examined.** Sumatra, Bengkulu: 1 male, 1 ovigerous female (MZB Cru 4155), 3°47'S 102°14'E, coll. D. Purnama, 10 September 2014; Padang Pariaman: 1 female (MZB Cru 4154), 0°27'S 99°58'E, coll. P. U. Ardika, A. Farajallah, F. Akhsani, 27 September 2014. Central Java, Buluspesantren, Kebumen: 4 males, 7 females (MZB Cru 4113), 7°47'S 109°39'E, coll Y. Wardiatno, 11 March 2013.

**Sample collection.** Sample collection was conducted by digging in the sand by hand along the coastline of each study site. Figure 1 provides a map showing the locations where the specimens were collected. Images of collected specimens were taken using a Sigma DP3 Merrill camera (Tokyo, Japan). They were initially preserved in 70% alcohol, which was replaced by 96% alcohol in the laboratory. Then the specimens were drawn using a camera lucida. Examined specimens were deposited in the Museum Zoologicum Bogoriense, Research Institute for Biology, Indonesian Institute of Science (LIPI), Indonesia.

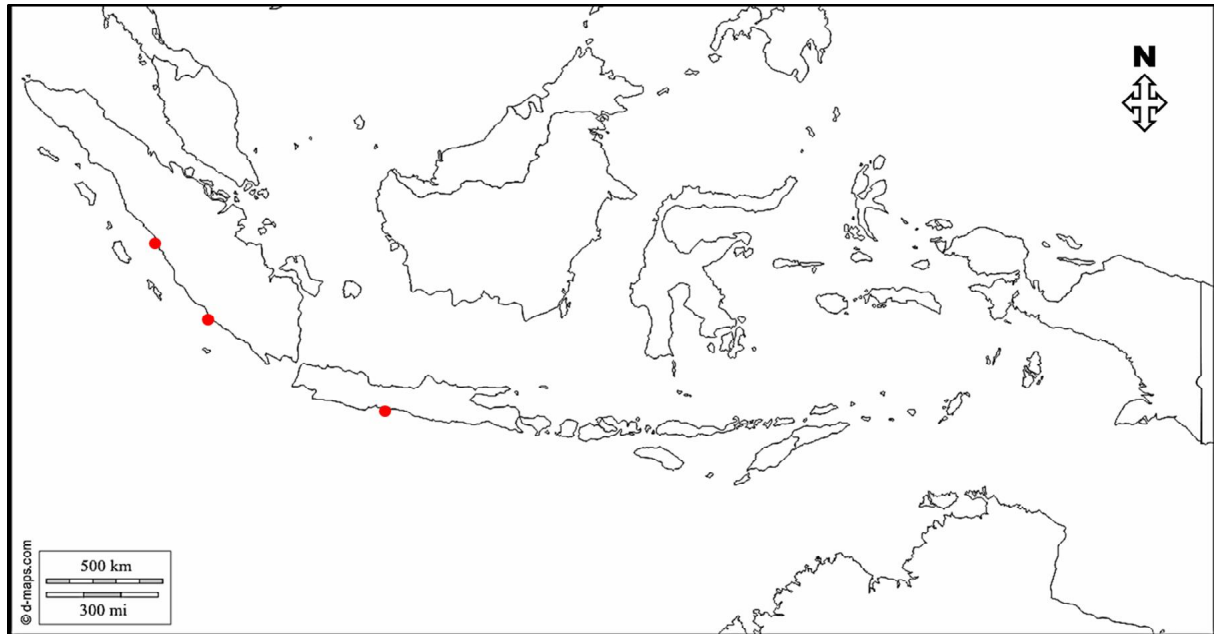


Figure 1. Map of Indonesia (source: [www.d-maps.com/asia/indonesia](http://www.d-maps.com/asia/indonesia)). Red circles indicate the locations where the specimens were collected.

**Results.** A total of 14 specimens were collected. Fresh specimens exhibit a greyish black and white pattern on the carapace (Figure 2) and a round to square shape. Specimens have a subrectangular carapace covering the pereopods. The carapace has a groove consisting of C1, C3, C4 and C6 to C10. The median element CG1 forms the posterior margin of the setal field and also the front. CG1 has lateral elements separated site. CG3 is short and broken. CG4 is missing at the middle. CG6 and CG7 are separate and present only as short lateral elements. CG8, CG9 and CG10 are present as short elements, while CG11 is absent.

The following measurements from the specimen as presented in Figure 2 were obtained: carapace length 15.5 mm, carapace width 16.7 mm, length of abdominal somites and telson 17.5 mm. Antennal flagellum composed of 5 articles, antenna penducle convex, stout, subtriangular, pereopod with one subchaeta, dactylus and propodus smooth, merus without a strong spine, tips of pereopods 2 and 3 are acute, telson ovate, spatulate and rounded on the distal margin.

**Type of material.** Sumatra, Bengkulu: 1 male, 1 ov. female (MZB Cru 4155), 3°47'S 102°14'E, coll. D. Purnama, 10 September 2014.

**Diagnosis.** Carapace wide, subrectangular and flat, anterior margin with about 12 teeth on either side of ocular sinus. Carapace grooves strongly setose (Figure 3A). Short antenna with 5 flagellae (Figure 3C). First pereopod subchaeta. Dactyli of pereopod II with heels smoothly rounded and pereopod III tip acute and slightly indented (Figure 3B and 3D). Telson ovate with medial setae (Figure 3E).

**Distribution.** Indonesia – western coast of Sumatra to southern Java; east coast of India to as far as southern Taiwan, Philippines, Queensland and Lord Howe Island, Australia (Osawa et al 2010).



Figure 2. Specimen of *Albunea symmysta* (Linnaeus 1758) (male) from Bengkulu beach, Sumatra, Indonesia. Bar scale: 1 cm.

SYSTEMATICS (Boyko & Harvey, 1999):  
Infraorder ANOMURA Macleay 1838  
Family ALBUNEIDAE Stimpson, 1858  
Genus *Albunea* Weber 1753  
*Albunea symmysta* (Linnaeus 1758)

**Discussion.** Based on morphology, *A. symmysta* is very similar to *A. groeningi* and *A. okinawaensis*, although they differ in carapace grooves and the posterior margin. The occurrence of *A. symmysta* in the waters of Indonesia, especially in Java and Sumatra (Figure 1), considerably increases the geographical distribution of this sand crab in the Indo-West Pacific, where to date only a few scattered records have been reported. Worldwide, this species is also found in Africa, Portugal, the Americas and Asia (Serene & Umali 1965).

Here we present a new record of *A. symmysta* from the Indo-West Pacific on the western coast of Sumatra and southern Java. We did not find this species in Sulawesi or in other main islands in Indonesia. The typical beach in Bengkulu - Sumatra, consists of fine black sand. This forms a suitable habitat for *A. symmysta* as reported by Jaramillo (1994) and the genus *Albunea* prefers habitats in sandy bottoms in the sublittoral zone at < 1 m depth. The colour of the carapace was influenced by the colour of the sand in this particular habitat (Wenner 1972). The differences in carapace colour are a distinctive

feature of this species. *A. symmysta* may have a cream coloured carapace, but this is rare.

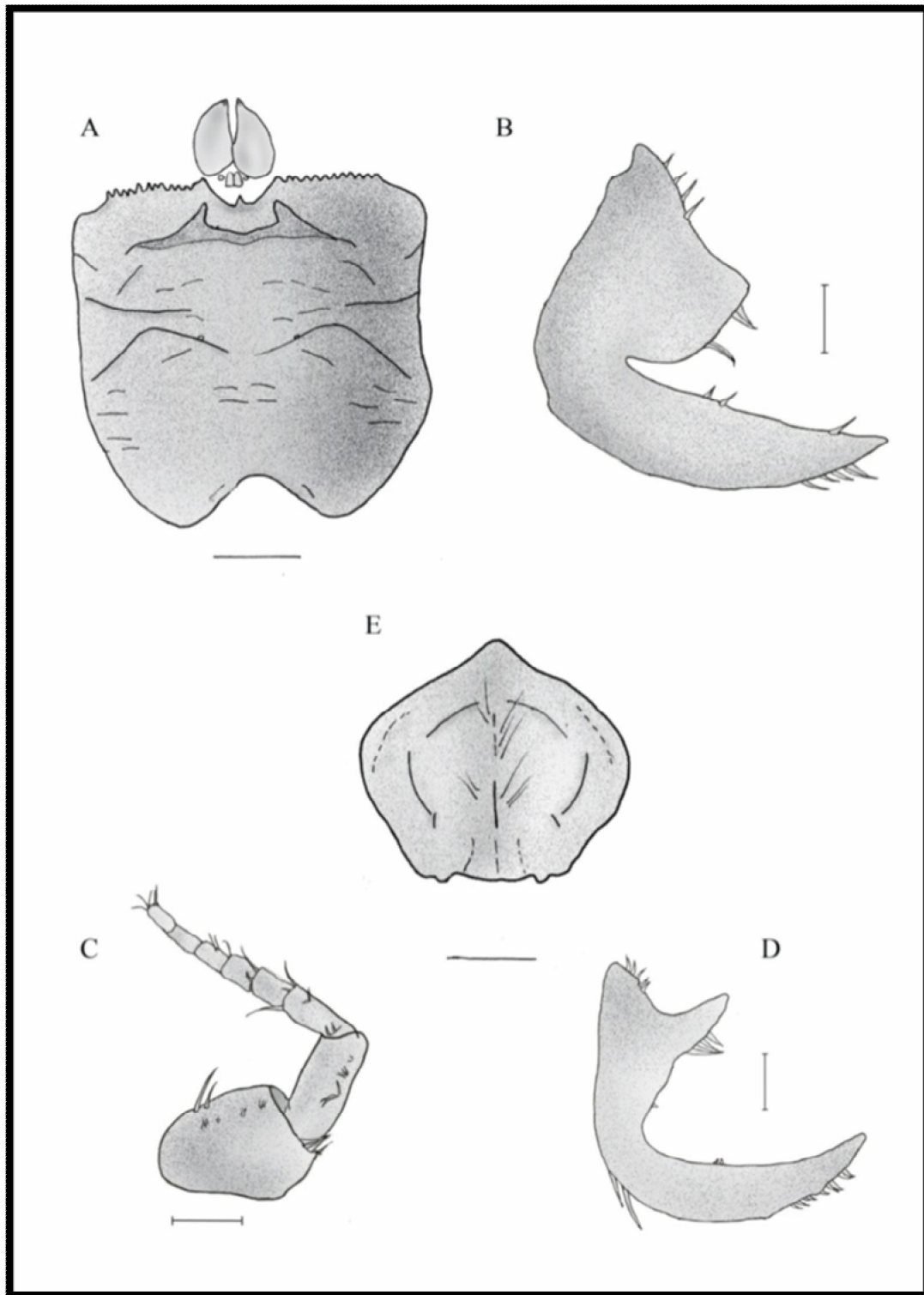


Figure 3. *A. symmysta* (Linnaeus 1758) (15.5 mm) A. Carapace anterior. B. Left pereopod II dactyl (lateral view). C. Antennules. D. Left pereopod III dactyl (lateral view). E. Male telson (dorsal view). Scale: (A = 3.0 mm), (B, C, D = 1.0 mm), (E = 2.0 mm)

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