

## Stomatopod Crustacea of the 2018 SJADES biodiversity cruise, southwestern Indonesia

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**Abstract.** The stomatopod Crustacea collected by the 2018 SJADES expedition to southwestern Indonesia are reported on the basis of four species in three families and four genera. *Eurysquilla foresti* Moosa, 1986 (Eurysquillidae), *Triasquilla profunda* Ahyong, 2013 (Squillidae), and *Heterosquilloides insignis* (Kemp, 1911) (Tetrasquillidae) represent the first records of their respective genera from Indonesia. Additionally, the present record of *E. foresti* is the first since its description from the Philippines, and the record of *H. insignis* is the deepest known for the species. *Squilloides leptosquilla* (Brooks, 1886) is reported for the first time from southwestern Indonesia; the only previous Indonesian record being from much further east on the eastern margin of the Banda Sea.

**Key words.** Stomatopoda, mantis shrimp, Indian Ocean, Indonesia

### INTRODUCTION

Mantis shrimps (Stomatopoda) are most common on shallow coral reefs, but many species also occur in deeper shelf waters, often as burrowing infauna. The joint Indonesian-Singaporean South Java Deep-Sea (SJADES) Biodiversity Expedition 2018 surveyed Indian Ocean waters of southwestern Indonesia resulting in a diverse collection of marine invertebrates and fishes. A small series of Stomatopoda was collected, representing four species, three families, and four genera. The small number of stomatopods collected was probably substantially affected by time of sampling given that SJADES trawl operations were conducted during daylight hours, whereas the stomatopods occurring in sampled habitats belong to families that are primarily deep-burrowing and nocturnal (Ahyong et al., 2017). Nevertheless, the four species collected and reported herein represent either new records for southwestern Indonesia or Indonesia as a whole.

### MATERIAL AND METHODS

Measurements and terminology follow Ahyong (2001, 2012). Total length (TL) is measured from the tip of the rostral plate to the apices of the submedian teeth of the telson. Specimens are deposited in the collections of the Lee Kong Chian Natural History Museum, National University of Singapore (ZRC) and the Bogor Zoological Museum, Pusat Penelitian Biologi, Cibinong, Java (MZB).

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### SYSTEMATICS

#### Superfamily Eurysquilloidea Manning, 1977

#### Family Eurysquillidae Manning, 1977

#### *Eurysquilla foresti* Moosa, 1986 (Fig. 1A)

*Eurysquilla foresti* Moosa, 1986: 374–376, fig. 2 [type locality: Philippines, 14°00.4'N, 120°17.6'E].

**Material examined.** ZRC, 1 male (TL 40 mm), south of Cilacap, Central Java, 8°07.462–07.864'S, 109°05.639–06.470'E, 163–166 m, 1303–1334h, “fine mud with pieces of small branches”, beam trawl, SJADES CP37, 30 March 2018.

**Remarks.** The present specimen of *Eurysquilla foresti* represents the first record of the species since it was described from the Philippines (Moosa, 1986), extending the known range to southern Indonesia. This also represents the first record of the genus *Eurysquilla* from Indonesia. The Indonesian specimen, a mature male, has well-developed penes and petasmata, and agrees well with the type material in the Muséum national d’Histoire naturelle, Paris and the Lembaga Oseanologi Nasional, Jakarta, Indonesia.

The usually loosely articulated, lightly armoured body somites and flattened habitus of eurysquilloids is convergent on that of lysiosquilloids, which are well adapted to burrow occupation as soft substrate infauna (Ahyong, 1997; Ahyong & Harling, 2000; Van Der Wal et al., 2017). Like lysiosquilloids, eurysquilloids probably also rarely leave their burrows, accounting for their rarity in trawl samples. Eurysquilloids generally occur in outer shelf waters and, like lysiosquilloids, are rarely collected by trawl. In addition to *E. foresti*, *Eurysquilla* in the Indo-West Pacific is otherwise

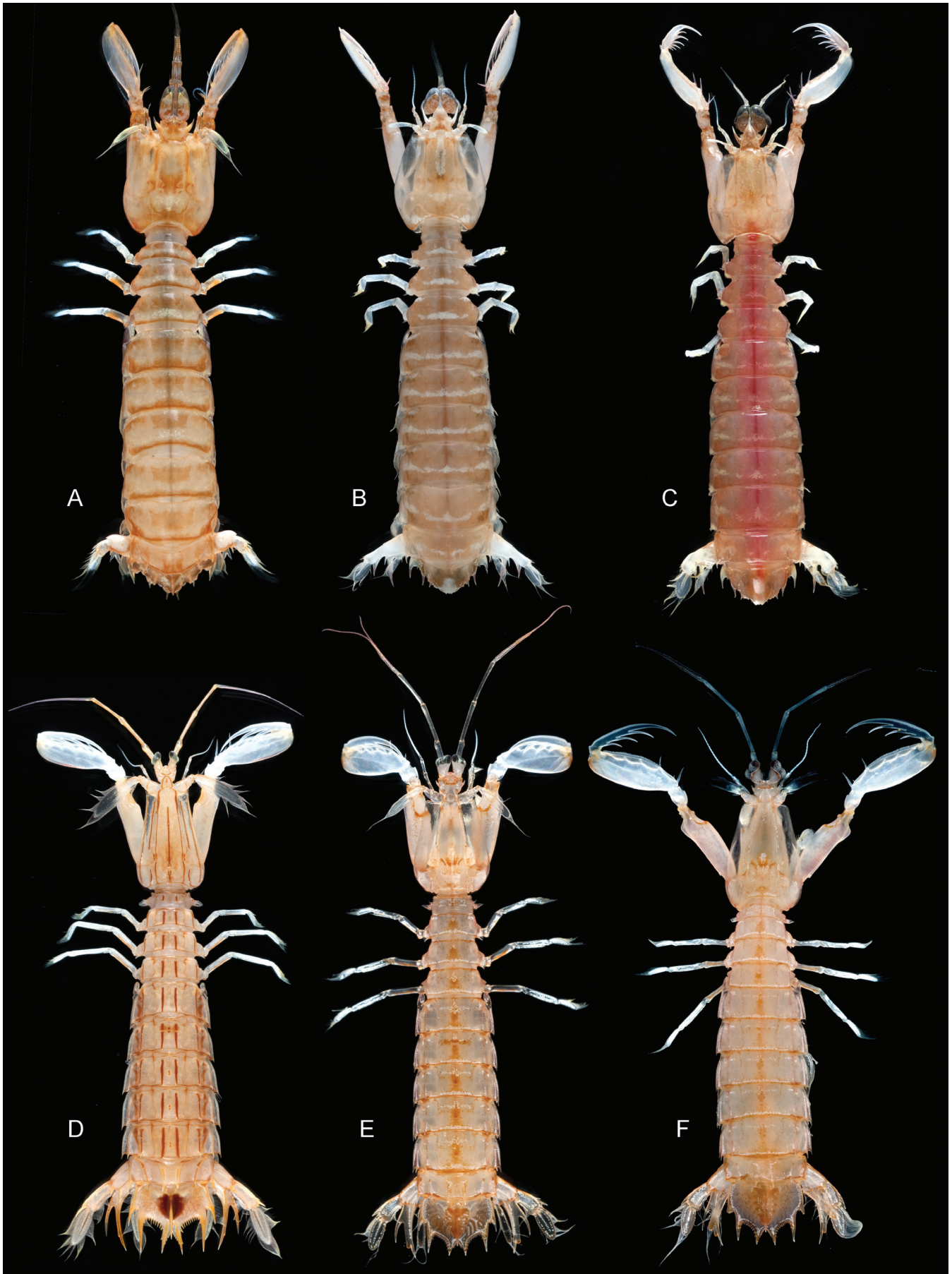


Fig. 1. A, *Eurysquilla foresti* Moosa, 1991, male, TL 40 mm, CP20, ZRC; B, *Heterosquilloides insignis* (Kemp, 1911), female, TL 57 mm, CP39, ZRC; C, *Heterosquilloides insignis* (Kemp, 1911), female, TL 59 mm, CP39, ZRC; D, *Squilloides leptosquilla* (Brooks, 1886), female, CP20, ZRC; E, *Triasquilla profunda* Ahyong, 2013, 1 male, TL 39 mm, CP38, ZRC; F, *Triasquilla profunda* Ahyong, 2013, 1 female, TL 41 mm, CP39, ZRC. Photos: T.-Y. Chan.

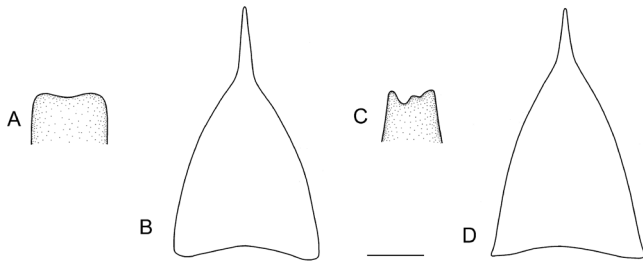


Fig. 2. *Heterosquilloides insignis* (Kemp, 1911), CP39, ZRC, ocular scales (A, C) and rostral plate (B, D). A, B, female, TL 57 mm; C, D, female, TL 59 mm. Scale: A, C = 0.5 mm; B, D = 1.0 mm.

currently known only from the two type specimens of *E. sewelli* Chopra, 1939, from the Gulf of Aden, and the respective holotypes of *E. pacifica* Manning, 1975 (New Britain) and *E. crosnieri* Moosa, 1991 (New Caledonia).

**Distribution.** The Philippines and now from southwestern Indonesia; 163–200 m (Moosa, 1986; present study).

#### Superfamily Lysiosquilloidea Giesbrecht, 1910

#### Family Tetrasquillidae Manning & Camp, 1993

#### *Heterosquilloides insignis* (Kemp, 1911)

(Figs. 1B, C, 2)

*Lysiosquilla insignis* Kemp, 1911: 94, 95. — Kemp, 1913: 4, 11, 111, 126–128, pl. 9 figs. 99–102 [type locality: off North Andaman Island, 14°27'N, 93°50'E, 235 fm].

*Heterosquilla* (*Heterosquilloides*) *insolita*. — Manning, 1969: 58 [Galápagos specimen only; not *H. insignis* (Kemp, 1911)].

*Heterosquilloides insignis*. — Moosa, 1986: 386, pl. 1c. — Manning, 1991: 6, fig. 5. — Ah Yong, 2001: 175, 176, fig. 87. — Ah Yong, 2002: 830–832, fig. 1.

**Material examined.** ZRC, 2 females (TL 57–59 mm), south of Cilacap, Central Java, 8°15.885–16.060'S, 109°10.163–10.944'E, 528–637 m, 1623–1654h, mud, beam trawl, SJADES CP39, 30 March 2018.

**Remarks.** *Heterosquilloides insignis* ranges widely in the Indo-West Pacific, from east Africa to Hawaii, including India, Australia, and the South China Sea, but the present records are the first for the genus and species from Indonesia and the deepest recorded for the species (previously 275–510 m; Ah Yong, 2001). The two specimens examined herein agree well in most respects with those reported from elsewhere, e.g., Kemp, 1911 (India); Moosa, 1986 (Philippines); Manning, 1991 (South Africa); Ah Yong, 2001 (Australia); and Ah Yong, 2002 (Hawaii). The raptorial claws are armed with 7 teeth; the ocular scales are fused in the smaller specimen, (Fig. 2A), but those of the larger specimen are atypical, being asymmetrically and irregularly emarginate (Fig. 2C), probably the result of past damage. The proximal pereopod article has a small acute triangular inner spine on pereopods 1–2, and a blunt angular projection of pereopod 3. Unlike the almost straight rostral plate margins of the Andaman Sea holotype (Kemp, 1913: pl. 9 fig. 99) and

Hawaiian specimens (Ah Yong, 2002: fig. 1A), the rostral margins of the present specimens are convex (Figs. 1B, C, 2B, D), albeit less so than in South African and Australian material (Manning, 1991: fig. 5a; Ah Yong, 2001: fig. 87A). The present specimens of *H. insignis* were taken together with *T. profunda*.

**Distribution.** South Africa, the Andaman Sea, Australia, the Philippines, Hawai'i, the Galápagos Islands and now from Indonesia; 275–637 m (Ah Yong, 2001; present study).

#### Superfamily Squilloidea Latreille, 1802

#### Family Squillidae Latreille, 1802

#### *Squilloides leptosquilla* (Brooks, 1886)

(Fig. 1D)

*Squilla leptosquilla* Brooks, 1886: 30–34, pl. 1: figs. 1–2 [type locality: Celebes Sea, Philippines, 12°46'N, 122°10'E]. — Jurich, 1904: 370–372, pl. 25(I): fig. 1–1b. — Kemp, 1913: 46–48.

*Squilla leptosquilla* var *dentata* Jurich, 1904: 372, pl. 25(I): fig. 2 [type locality: off Grand Nicobar Island, Nicobar Islands, 296 m].

*Squilloides leptosquilla*. — Moosa, 1986: 410, 411, pl. 1 fig. D, E. — Ah Yong, 2001: 310–312, fig. 150; 2005, fig. 2B, H, app. 1. — Ah Yong et al., 2008: 177–178, figs. 141–143. — Ah Yong, 2013: 96, 97, fig. 2D. — Kang et al., 2016: 237–239, figs. 1B, 3. — Ah Yong & Kumar, 2018: 391, 392, fig. 3C.

**Material examined.** ZRC, 1 female (not measured), Sunda Strait, south of Panaitan Island, West Java, 6°42.320–42.879'S, 105°08.682–09.018'E, 325–362 m, 0847–0908h, mud, gravel, beam trawl, SJADES 2018 stn CP20, 27 March 2018.

**Remarks.** The present specimen was collected together with the paratype of *Nephropsis rahayu* Chang, Chan & Kumar, 2020, and represents the first record of *S. leptosquilla* from Indian Ocean waters of southwestern Indonesia. The nearest previous records of *S. leptosquilla* are from the Nicobar Islands to the northwest (~7°N, 93°E; Jurich, 1904) and the Australian North West Shelf (~18°S, 118°E) to the southeast (Ah Yong, 2001); the only previous Indonesian record is from considerably further east at the eastern edge of the Banda Sea (5°40'S, 132°26'E; Hansen, 1926).

**Distribution.** Arabian Sea to Australia, Indonesia, the South China Sea, Taiwan, Japan, and Korea; 170–754 m (Kang et al., 2016).

#### *Triasquilla profunda* Ah Yong, 2013

(Fig. 1E, F)

*Triasquilla profunda* Ah Yong, 2013: 98, 101–104, figs. 2E, F, 3–5 [type locality: Vanuatu, 16°53.62'S, 168°10.49'E, 486–494 m].

**Material examined.** ZRC, 1 male (TL 39 mm), south of Cilacap, Central Java, 8°13.038–13.150'S, 109°07.689–08.216'E, 290–295 m, 1450–1510h, “not much sediment”,

beam trawl, SJADES CP38, 30 March 2018; ZRC, 1 female (TL 41 mm), south of Cilacap, Central Java, 8°15.885–16.060'S, 109°10.163–10.944'E, 528–637 m, 1623–1654h, mud, beam trawl, SJADES CP39, 30 March 2018.

**Remarks.** The two specimens of *T. profunda* agree well with the type description, and as observed for the majority of reported specimens (Ahyong, 2013), the rostral plate is slightly longer than wide, the lateral process of thoracic somite 5 is acutely pointed and the postanal carina extends posteriorly to midway between the anus and the median cleft of the telson. Abdominal spination of the present specimens (submedian 6, intermediate 4–6, lateral 2–6, marginal 1–5) is within the reported range. *Triasquilla profunda* has been recorded from New Caledonia and the Solomon Islands, the Philippines, and northwestern Australia, so the discovery of the species in off central Java represents an incremental but noteworthy westward range extension and the first record of the genus from Indonesia.

**Distribution.** New Caledonia, Solomon Islands, the Philippines, northwestern Australia, and now from southwestern Indonesia; 290–1,250 m (Ahyong, 2013; present study).

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