

ON A NEW SPECIES OF CAVERNICOLOUS CRAB OF THE GENUS *SESARMOIDES*  
SERÈNE & SOH, 1970 (CRUSTACEA: DECAPODA: BRACHYURA: SESARMIDAE)  
FROM SULAWESI, INDONESIA

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**ABSTRACT.** – A new species of cavernicolous crab is described from Sulawesi. *Sesarmoides microphthalmus*, new species, can be easily distinguished from all known congeners by its relatively wider front and the less divergent lateral margins of the carapace. It is also only one of two species in the genus whose eyes are prominently reduced.

**KEY WORDS.** – *Sesarmoides microphthalmus*, new species, Sulawesi, Sesarmidae, taxonomy, cavernicole.

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INTRODUCTION

Ng (2002) recently revised the genus *Sesarmoides* Serène & Soh, 1970 (type species *Sesarma kraussii* De Man, 1887), recognising 14 species from across the Indo-West Pacific. He recognised two groups, one in which the species are generally smaller in adult size, with a shallow groove between the epigastric regions, possessing a longitudinal row of granules along the outer surface of the cheliped pollex and a relatively more slender male first gonopod and usually found in mangroves, estuaries and coastal caves [*S. longipes* (Krauss, 1843), *S. kraussi* (De Man, 1887), *S. borneensis* (Tweedie, 1950)]; and a second group of relatively larger species, with swollen epigastric regions separated by a deeper groove, often with a row of granules on the dorsal margin of the cheliped dactylus and the outer surface of the pollex is unarmed [*S. jacobsoni* (Ihle, 1912), *S. jacksoni* (Balss, 1934), *S. cerberus* (Holthuis, 1964), *S. novabritannia* Ng, 1988, *S. ultrapes* Ng, Guinot and Iliffe, 1994, *S. emdi* Ng and Whitten, 1995, *S. balicus* Ng, 2002, *S. boholano* Ng, 2002, *S. guamensis* Ng, 2002, *S. loyalty* Ng, 2002, *S. sulu* Ng, 2002].

In this paper, we describe an interesting new species, here named *Sesarmoides microphthalmus*, with reduced eyes from Sulawesi, Indonesia. Specimens examined are deposited in the Muzium Zoologicum Bogoriense (MZB), Indonesia; and the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, National University of Singapore. The abbreviations CL, CW, G1 and G2 are used for carapace length, carapace width, male first gonopod, and male second gonopod, respectively. The sizes of specimens are represented by CL and CW. All characters were measured

using a digital slide calliper (Mitsutoyo CD-20PM) to the nearest 0.1mm. The first to fourth ambulatory legs correspond to the second to fifth pereopods respectively. The terminology used here follows Ng (1988, 2002).

TAXONOMY

SESARMIDAE Dana, 1851

*Sesarmoides* Serène & Soh, 1970

*Sesarmoides microphthalmus*, new species

(Figs. 1, 2)

**Material examined.** – Holotype: male (CL 12.5 mm, CW 14.3 mm) (MZB 2002.17), Gua Marapetang, Kecamatan Barru, Kabupaten Barru, South Sulawesi, Indonesia, coll. C. Rahmadi, 15 Apr.2002.

Paratypes: 1 female (CL 10.5 mm, CW 12.4 mm) (MZB 2002.0008), 1 male (CL 9.1 mm, CW 10.2 mm), 1 female (CL 9.2 mm, CW 10.6 mm) (ZRC), same data as holotype.

Comparative material: *Sesarmoides jacobsoni* (Ihle, 1912): 2 males (CL 17.1 mm, CW 18.9 mm; CL 17.0 mm, CW 18.5 mm) (ZRC 1970.3.1.1), syntypes, Djumblang Cave, Bedojo District, Gunung Sewu, central Java, Indonesia.

**Description of male holotype.** – Carapace (Figs. 1, 2a, b) trapezoidal, maximum width across base of second ambulatory legs, width 1.12–1.19 times length; dorsal surface uneven, minutely punctate, not setose, regions distinct; front relatively wide, 0.49–0.52 times fronto-orbital width, almost same width as posterior margin of carapace, distinctly deflexed, with wide and rounded median concave, frontal

Table 1. Difference between *Sesarmoides microphthalmus*, new species, and *S. jacobsoni* (Ihle, 1912)

	<i>S. microphthalmus</i>	<i>S. jacobsoni</i>
Supraorbital margin	L-shaped	U-shaped
Median notch of frontal margin	Rounded	Triangular
Lateral part of postfrontal margin	With 1 ridge	With 2 or 3 ridges
Notch between first and second anterolateral teeth	U-shaped	V-shaped
Lateral margin of carapace	Smoothly divergent, appears almost straight	Convex
Cheliped carpus	With reticulated pattern	Granulated; with rows of granules on inner surface
Ornamentation of ambulatory leg	With reticulated pattern	With many short rows of tiny granules
Mat of setae on inner margin of ambulatory propodi and dactyli	Absent	Present
Chitinous part of G1	Long, directed outwards at an angle of 45°	Relatively shorter, directed outwards at an angle of 30°

margin slightly bent anteriorly; postfrontal cristae composed of four protuberances, placed transversely between base of peduncle of eyes, median pair wider; mesogastric region divided by inverted Y-shaped groove, with a nodule behind lateral postfrontal crista. Supraorbital margin L-shaped in dorsal view, divided into two cristae near posterior margin of peduncle of eye, anterior crista contiguous with orbit, extending as far as second segment of antenna, forming inner orbital tooth at anterior end; infraorbital margin composed of two granulated ridges, with a line of setae between these ridges. Lateral margin of carapace gently diverging posteriorly, anterolateral margin with three teeth including external orbital angle, first tooth acute, weakly curved anteriorly; second tooth with blunt tip, more curved than first tooth, separated from former tooth by U-shaped cleft; third tooth smallest, separated by small notch, tip of second tooth placed closer to first tooth than third; epibranchial and mesobranchial regions separated by oblique striae, anterolateral region with a nodule near U-shaped notch present between first and second teeth, mesobranchial region sloping outwards, covered with oblique striae. Epistome with median triangular and lateral rounded lobes on posterior margin; branchiostegite covered with reticulate uniform network of short setae. Eyes distinctly reduced, not occupying whole orbit, distal end reaching to outer third of orbit, cornea reduced but pigmented, subdistal width of cornea about half width of base of peduncle in frontal view.

Cheliped (Fig. 2c) symmetrical in both sexes, male with more robust chela; merus with triangular cross-section, each margin granulated, inner surface with a longitudinal line of pubescence, inner and outer surfaces of merus and dorsal surface of carpus appears reticulated; manus weakly granulated on outer surface, dorsal surface without ridge; fingers of chela with sharp teeth in male, minute teeth in female, with slight gape when fingers closed; tip of fingers corneous, hoof-like, incurved, no line of granules on dorsal surface of movable finger or outer surface of pollex.

Ambulatory legs (Fig. 2d) long, third leg longest when stretched laterally, no prominent tufts of setae between

ambulatory coxae, merus to dactylus of third leg 2.5–2.7 times carapace length, meri to propodi with reticulated pattern on dorsal surface, with black fine spines, no mat of setae on inner margin of propodi and dactyli, length to width ratio of meri of second and third legs 2.8–3.3 and 3.0–3.7, respectively, length to width ratio of propodi of second and third legs 3.1–4.5 and 4.0–4.5, respectively.

Male abdomen (Fig. 2e) relatively wide, telson with rounded distal margin. G1 (Fig. 2f, g) relatively stout, distal part chitinous, directed outwards at an angle of about 45°, chitinous part with a small outer lamellar projection, with elongated opening on dorsal face. G2 (Fig. 2h) simple, subequal in length to chitinous part of G1.

**Colouration.** – Live specimens are yellowish-cream overall.

**Habitat.** – All the specimens were collected from near the cave entrance but were not observed outside it proper. The mouth of the cave has green algae and small plants, indicating that some light can enter. The collector, however, commented that he did not see the species outside the cave. The cornea of the species, while reduced, is clearly not to the extent seen in completely blind species, and is probably able to move outside the cave if need be. However, the elongated legs and reduced pigmentation suggest it does this rarely, if at all. Its



Fig. 1 *Sesarmoides microphthalmus*, new species, holotype male, CL 12.5 mm, CW, 14.3 mm (MZB). Overall view

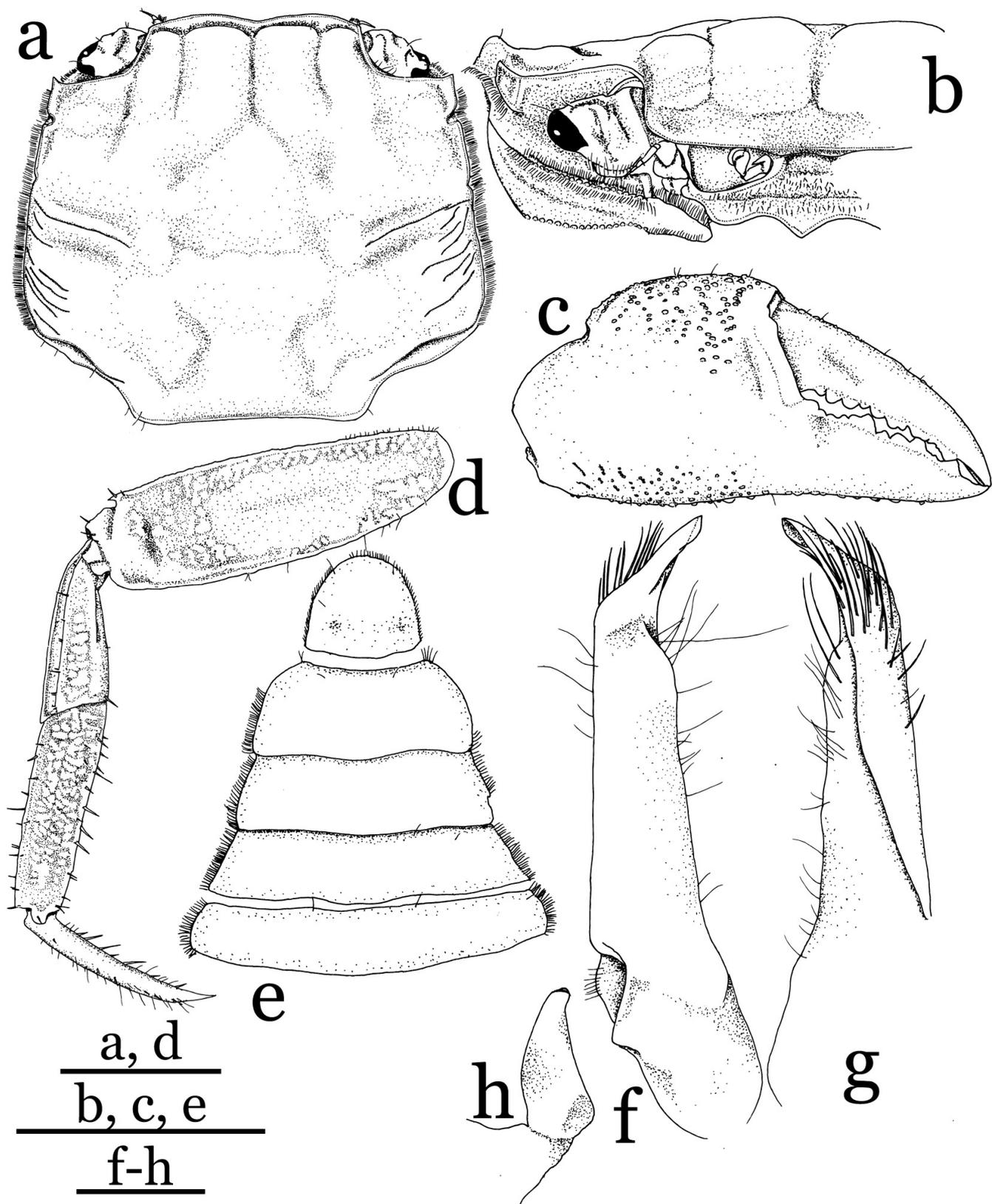


Fig. 2 *Sesarmoides microphthalmus*, new species, holotype male, CL 12.5 mm, CW, 14.3 mm (MZB): a, carapace, dorsal view; b, carapace, frontal view; c, chela, right; d, second ambulatory leg, left; e, abdominal segments and telson; f, G1, ventral view; g, G1, dorsal view; h, G2. Scale bars: a-e = 5.0 mm; f-h = 1.0 mm.

habits probably parallel another well known cave species from Borneo, *Stygothelphusa bidiensis* (Lanchester, 1900) (Gecarcinucidae) from Borneo (Ng, 1989; Ng & Yusoff, 1990)

**Distribution.** – Known only from the type locality thus far.

**Etymology.** – The name is derived from the Latin words for small eyes, alluding to the reduced cornea of the species.

**Remarks.** – Serène & Soh (1970) established *Sesarmoides* for species with a flattened carapace with strongly divergent lateral margins, a swollen and globular antennular segment, a nearly longitudinal antennal peduncle, an epistome with a strong transverse rim and a deep median notch, a narrow frontal margin which is clearly shorter than posterior margin of carapace, and elongated ambulatory legs with the third leg more than twice carapace length. Our new species possesses the above diagnostic characters of the genus except for two features. The relative width of the front of *S. microphthalmus*, new species, is almost same width as the posterior margin of the carapace, and the lateral carapace margins are relatively less divergent, making the carapace distinctly more quadrate in appearance.

*Sesarmoides microphthalmus* is clearly closest to *S. jacobsoni* in its reduced eyes which occupy only a part of the orbit. However, *Sesarmoides microphthalmus* is easily distinguished from *S. jacobsoni* by several distinct characters of the carapace, legs and G1 (Table 1).

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## LITERATURE CITED

- Holthuis, L. B., 1964. *Sesarma* (*Sesarma*) *cerberus*, a new cavernicolous crab from Amboina. *Zoologische Mededelingen*, **40**(9): 65-72.
- Ihle, J. E. W., 1912. Ueber eine kleine Brachyuren-Sammlung aus unterirdischen Flüssen von Java. *Notes from the Leyden Museum*, **34**: 177-182, Pl. 9.
- Lanchester, W. F., 1900. On some malacostracous crustaceans from Malaysia in the collection of the Sarawak Museum. *Annals and Magazine of Natural History*, (7)**6**(33): 249-265.
- Ng, P. K. L., 1989. The identity of the cavernicolous freshwater crab *Potamon* (*Thelphusa*) *bidiense* Lanchester, 1900 (Crustacea: Decapoda: Brachyura: Gecarcinucidae) from Sarawak, Borneo, with description of a new genus. *Raffles Bulletin of Zoology*, **37**(1 & 2): 63-72.
- Ng, P. K. L., 2002. New species of cavernicolous crabs of the genus *Sesarmoides* from the Western Pacific, with a key to the genus (Crustacea: Decapoda: Brachyura: Sesarmidae). *Raffles Bulletin of Zoology*, **50**(2): 419-435.
- Ng, P. K. L. & S. Yusoff, 1990. The Cave Crab of Bidi, Sarawak. *Nature Malaysiana*, **15**(3): 76-79.