

First record of *Metopograpsus cannicci* Innocenti, Schubart and Fratini, 2020 (Crustacea: Decapoda: Grapsidae) from India

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Abstract

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Metopograpsus cannicci Innocenti, Schubart and Fratini, 2020 is distributed in the Red Sea, Iran, along the East African coast, Seychelles, Madagascar, and Mauritius. The present paper reports this species for the first time from India indicating its eastward extension.

Key words: Brachyura, mangroves, new record, rocky shores, West coast of India

Introduction

The genus *Metopograpsus* H. Milne Edwards, 1835 comprises seven species: *M. messor* (Forskål, 1775); *M. thukuhar* (Owen, 1839); *M. oceanicus* (Hombron and Jacquinot, 1846 [in Hombron and Jacquinot, 1842–1854]); *M. latifrons* (White, 1847); *M. quadridentatus* Stimpson, 1858; *M. frontalis* Miers, 1880 and *M. cannicci* Innocenti, Schubart and Fratini, 2020. The taxonomy of *Metopograpsus* is difficult owing to the subtle differences in the morphological features between species (Fratini et al., 2018; Innocenti et al., 2020). Recently Innocenti et al. (2020) examined specimens identified as *M. thukuhar* and on the basis of their morphological and genetic investigations described a new species, *M. cannicci*, referring to it as a pseudocryptic taxon.

Fratini et al. (2018), through molecular phylogenetic investigation found that the hitherto widely distributed *M. thukuhar* comprised two species with different distributions. *M. thukuhar* is confined to Southeast Asia and Pacific islands, while populations from the East African coast, Red Sea and Seychelles were described as the distinct species, *M. cannicci* by Innocenti et al. (2020). In the present study, *M. cannicci* is reported for the first time from India.

Material and Methods

The specimens were collected by hand-picking from the mangrove region of Goa and Gujarat states of India (Fig. 1). The specimens were washed to remove debris and photographed. They were preserved in 90% ethanol and deposited in the Zoological Reference Collection (LFSC.ZRC), Department of Life Sciences, Hemchandracharya North Gujarat University, Patan, Gujarat, India. The size of the specimens was recorded using digital vernier callipers (INSIZE, Model no. 1108200).

Abbreviations

CW, carapace width; CL, carapace length; G1, male first gonopod; coll., collector. Morphological terminology used in this article follows Innocenti et al. (2020).

Results and Discussion

Taxonomy

Order Decapoda Latreille, 1802

Superfamily Grapsoidea MacLeay, 1838

Family Grapsidae MacLeay, 1838

Genus *Metopograpsus* H. Milne Edwards, 1853

Metopograpsus cannicci Innocenti, Schubart and Fratini, 2020 (Fig. 2)

Metopograpsus thukuhar – Crosnier, 1965: 25, Fig. 20–22, 27; Hartnoll, 1975: 317; Vannini and Valmori, 1981: 73, Fig. 8B, 9B; Naderloo, 2011: Figs. 4a–g, 5f, Figs. 5f.; Trivedi et al., 2018: 42 (in list).

Metopograpsus cannicci – Innocenti et al., 2020: 621, Figs. 1A, 2A, 3A, 4A, 5A, 6.

Material examined

7 males (CW: 13.74–25.35 mm, CL: 10.20–19.82 mm); 8 females (CW: 13.40–28.88 mm, CL: 10.00–23.14 mm) LFSC.ZRC- 36, mangroves, Chapora estuary (15°37'22.2"N, 73°44'52.3"E), Goa, India, 10 November 2016. 3 males (CW: 12.00–20.68 mm, CL: 9.30–16.20 mm); 4 females (CW: 12.40–17.49 mm, CL: 9.12–13.04 mm), LFSC.ZRC- 36, mangroves, Sal estuary (15°10'05.7"N, 73°56'46.9"E), Goa, India, 8 October 2016. 3 males (CW: 18.47–27.06 mm, CL: 14.76–22.07 mm); 3 females (CW: 19.68–27.72 mm, CL: 15.02–22.09 mm) LFSC.ZRC- 36, Rocky shore, Cakra beach

(15°27'03.9"N, 73°50'15.9"E), Goa, India, 12 February 2020. coll. M. Bhat. 9 males (CW: 10.15–29.51 mm, CL: 7.36–23.18 mm); 14 females (CW: 12.16–25.15 mm, CL: 8.37–18.24 mm) LFSC.ZRC- 36, Mohadi (23°19'56.1"N, 68°37'20.6"E), Gujarat, India, 22 May 2011. coll. J. Trivedi.

Species description (modified from Innocenti et al., 2020)

Carapace flat, quadrangular, broader than long, and smooth. Lateral margins entire. Regions weakly defined, urogastric region with groove distinct, branchial region having distinct oblique ridges, cardiac and intestinal regions smooth, with no ridge or tubercles (Fig. 2a). Front broad, deflexed with rugose surface and free margin crenulated, with some concavity, 4 depressed post-frontal lobes along the line of frontal deflexion. Suborbital tooth triangular, suborbital border denticulate (Fig 2d). The exposed surface of the base of the antenna densely pubescent.



Figure 1: Mangrove habitat inhabited by *Metopograpsus cannicci* Innocenti, Schubart and Fratini, 2020.

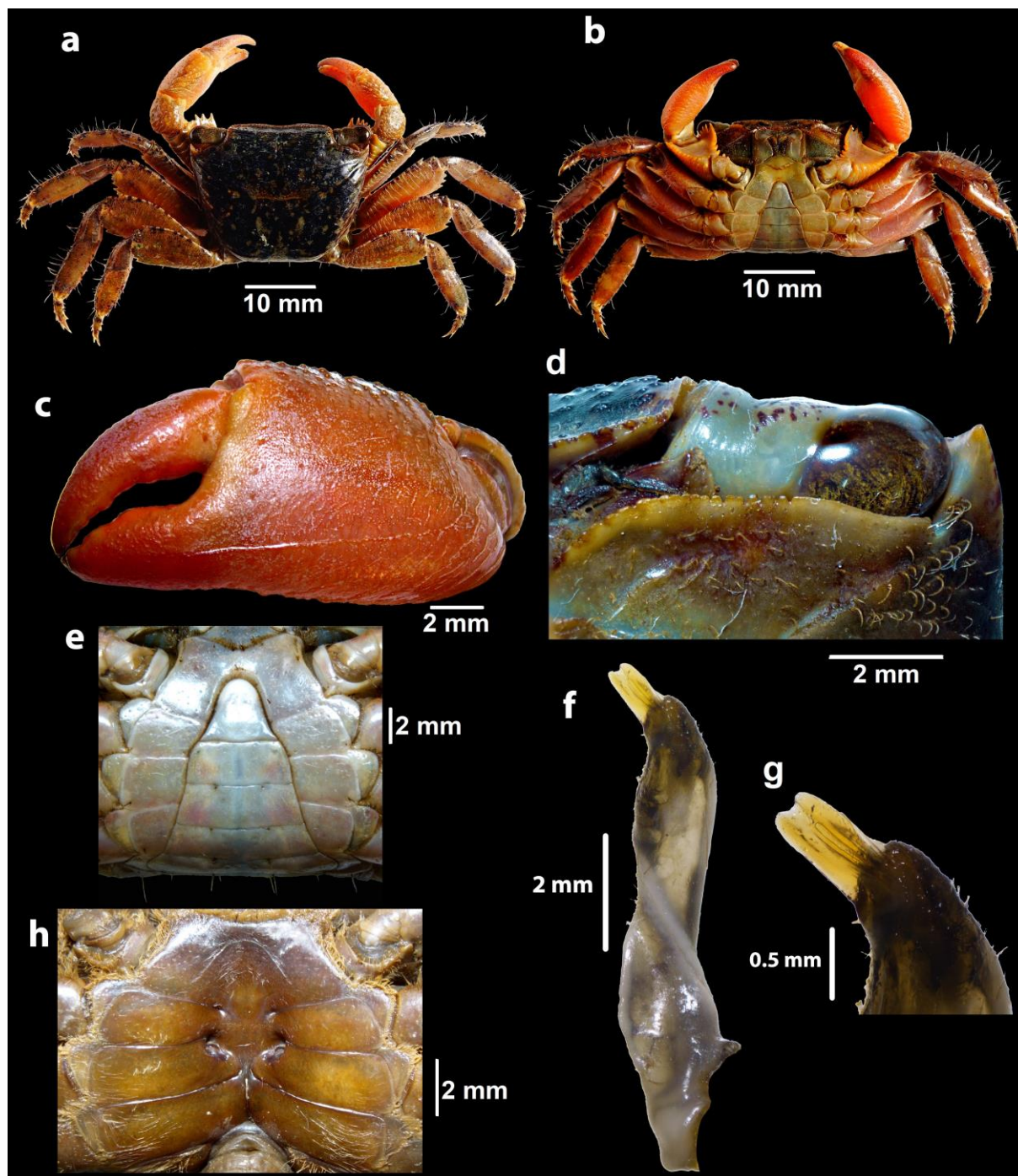


Figure 2: *Metopograpsus cannicci* Innocenti, Schubart, and Fratini 2020; male- CL 20.61 mm; CW: 25.35 mm; female- CL 19.29 mm; CW: 24.73 mm: a. dorsal habitus; b. ventral habitus; c. left chela, outer view; d. detail of suborbital region; e. male abdomen; f. first left pleopod (G1), dorsal view; g. G1 apical chitinous process; h. female gonopore.

Chelipeds subequal, with no certain handedness, fingers stout with spatulated tip, slight gape visible when closed. The cutting edge of both fingers with a series of inconspicuous teeth (Fig 2c). Ambulatory legs compressed, merus broad and longest, third and fourth pereiopod longest, first shortest.

Male abdomen with 6 distinct somites, first as broad as thoracic sternum, somite 6 almost rectangular, telson

triangular (Fig. 2b, e). Female pleon fringed with long setae, broad, evenly rounded, telson half-moon shaped.

G1 slender, with twisted shaft along the longitudinal axis, (Fig 2f) apical corneous process elongate, bearing long setae at the base (Fig, 2g). In female, vulva in depression at sternite 5/6 border, operculum on inner part with an evident trapezoidal sternal vulvar cover in adult females (Fig. 2h).

Coloration

Small crabs (< 23 mm CW) were observed mostly in different shades of mottled green with brown, black, and cream patterns on the carapace. Larger crabs (> 23 mm CW) exhibited a mostly dark brown carapace. Ventral surface white. Fingertips of chela were bright orange. Pereiopods almost matching the color of the carapace with a pattern.

Distribution

Metopograpsus cannicci has been previously recorded from Iran, Somalia, Kenya, Tanzania, Mozambique, Seychelles, Madagascar, Mauritius (Innocenti et al., 2020), and in Gujarat and Goa, India in the present study.

Remarks

The Indian specimens generally agree with the description and figures of *M. cannicci* (Innocenti et al., 2020) but differ slightly in having the suborbital border smaller and with more closely spaced denticles than in the type specimens (Fig 2d).

Metopograpsus cannicci closely resembles *M. thukuhar* but can be differentiated from the latter species on the basis of the following characters: the G1 less swollen, a more acute hump at its distal end, and a longer corneous tip in *M. cannicci* (Fig. 2f) (versus G1 distally more swollen, with a rounded hump and a shorter corneous tip in *M. thukuhar*, Innocenti et al., 2020, Fig. 4B) and the adult females having a trapezoidal sternal vulvar cover in *M. cannicci* (Fig. 2h) (versus, adult females having a wider and higher cover in *M. thukuhar*, Innocenti et al., 2020, Fig. 5B).

Metopograpsus thukuhar has been recorded from different coastal states of India including Gujarat (Trivedi et al., 2018), Tamil Nadu (Silas and Sankarankutty, 1965; Thomas, 1969; Venkataraman et al., 2004; Dev Roy and Nandi, 2007), Odisha (Dev Roy and Rath, 2017) and Andaman and Nicobar Islands (Kumarlingam et al., 2017). We have re-examined the specimens collected and identified as *M. thukuhar* by Trivedi et al. (2018) from Gujarat and can confirm that these belong to *M. cannicci*. All other records of *M. thukuhar* from the East coast of India appear only in species checklists without mention of voucher specimens. We believe that all the records of *M. thukuhar* from India may belong to *M. cannicci*.

In the present study, *M. cannicci* was found in mangroves as well as on open rocky shore habitat. Smaller crabs were mostly found on the ground, whereas larger crabs were found mostly between crevices, holes in the tree trunks of mangroves and between rock/boulder crevices on the rocky shore. The mangrove environment was mostly made up of *Avicennia officinalis*, *Avicennia marina* and *Rhizophora mucronata*. In the present

study, *M. cannicci* was found in sympatry with *M. latifrons* (White, 1847), *Austruca annulipes* (H. Milne Edwards, 1837) and *Parasesarma bengalense* (Davie, 2003).

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Conflict of interest

All authors declare that there are no conflicting issues related to this research article.

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