

Article

## Recurrence of a marine brachyuran crab, *Parapanope euagora* (Crustacea: Decapoda: Brachyura: Galenidae) from East Coast of India

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### Abstract

Study on the occurrence and distribution of unusual crab species is a matter of fascination for carcinologists. The present study reports the recurrence of a marine brachyuran crab species *Parapanope euagora*, of the family Galenidae, after a long period along the East coast of India. During a routine survey, three female ovigerous specimens are caught from Parangipettai coastal waters, southeast coast of India. From the results, after more than ten decades, the species, *Parapanope euagora* has reappeared in Indian coast revealing its possible, continued existence in Indian waters.

**Keywords** recurrence; crab; Galenidae; Parangipettai; *Parapanope*; Decapoda.

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### 1 Introduction

Brachyuran crabs (Crustacea: Decapoda: Brachyura) are among the most species-rich animal groups which exhibit an outstanding diversity in the numbers of extant and extinct taxa (Ng et al., 2008; Cooper et al., 2012; Sakthivel and Fernando, 2012; Trivedi et al., 2012). In India, there are many brachyuran crab species caught accidentally in trawl nets and landed as bycatch (Pillai and Thirumilu, 2008). Even though, they are not important in commercial fishery but their ecological role is very important which includes it might be feed for other organisms in the food web and the faeces of the crabs contain carbon, nitrogen, phosphorus and some trace metals which form a rich food for other consumers (Ajmal Khan et al., 2005). Understanding the distribution of a species helps to know its population dispersal (Goes and Fernandes-Goes, 2007). The crab *Parapanope euagora* was a small Indo-Pacific species belonging to the family Galenidae and its original type locality was Java Sea and has a limited range of distribution in the Pacific and Indian Oceans. It was first reported by De Man (1895) for two females collected in the Java Sea. Systematic studies on the *Parapanope euagora* from Indian coast are poorly known till the present authors took up the study.

The present study reports the recurrence of a marine brachyuran crab species, namely, *Parapanope euagora* De Man, 1895, from the family Galenidae after ten decades collected from the east coast of India.

## 2 Materials and Methods

During a routine survey, three female (ovigerous) crabs were collected on March, 2011 from Parangipettai coastal waters, southeast coast of India ( $11^{\circ} 29'N$ ;  $79^{\circ} 46'E$ ) trawl net hauled from depth of 40 m to 60 m. The collected materials were identified, measured and preserved in 70 % formalin for long term storage. Based on the identification keys by Guinot (1985), the specimens were referred to *Parapanope euagora*, De Man, 1895, from the family Galenidae. The specimens were deposited in the Museum of Centre of Advanced Study in Marine Biology, Faculty of Marine Sciences, Annamalai University, Parangipettai, Tamilnadu, India (Catalogue No. PE686).

## 3 Results

### 3.1 Systematics

Phylum: Arthropoda

Sub Phylum: Crustacea

Class: Malacostraca

Order: Decapoda

Family: Galenidae

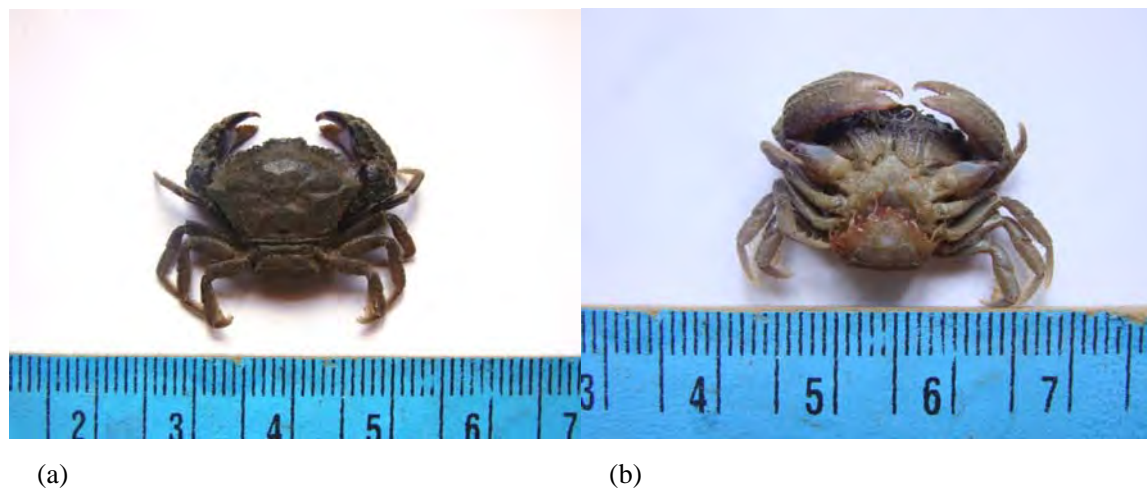
Genus: *Parapanope*, De Man, 1895

*Parapanope euagora* De Man, 1895

(Fig. 1a & b)

*Hoploxanthus hextii* Alcock, 1898

*Parapanope singaporensis* Guinot & Ng, 1987, Guinot, 1985



**Fig. 1** (a) Dorsal view of *Parapanope euagora*; (b) ventral view of *Parapanope euagora*.

### 3.2 Diagnosis

Carapace hexagonal, broader than long, regions well defined. Front projecting, cut into 2 lobes, each slightly concave, bearing narrow notch on anterior margin, separated from inner orbital angle by a notch. Dorsal margin of orbit with 2 fissures. Outer angle depressed, small. Antero-lateral margin sharp, armed with 4 triangular teeth: first small, second slightly larger, with an accessory denticle on posterior margin, the last

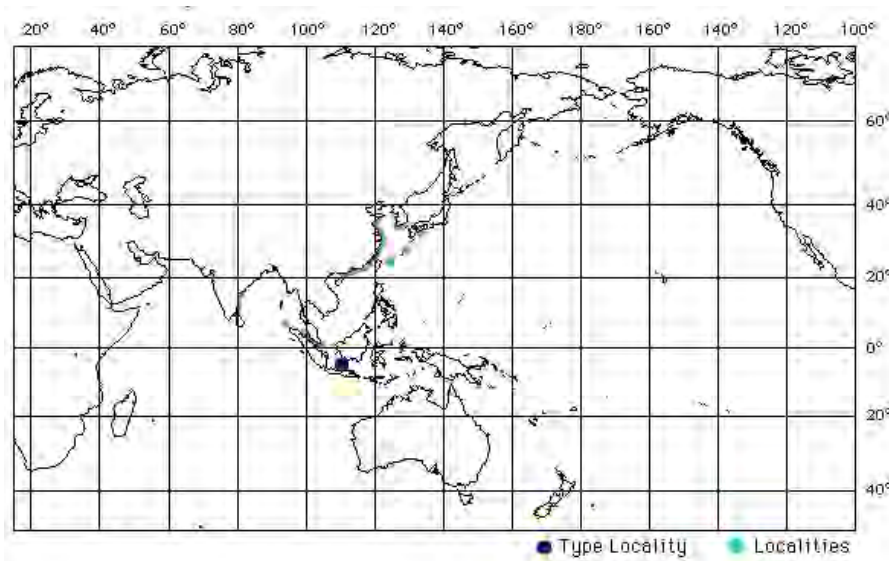
sharp and produced. Postero-lateral margin straight, converged backwards, granulated. Chelipeds asymmetrical. Merus short, with granules along dorsal margin. Carpus coarse on dorsal surface, with an obtuse tooth at inner-distal angle. Palm with 2-3 longitudinal granulated carinae on dorsal surface, granules on inner one larger, but dentiform in some specimens, outer surface smooth. Fingers armed with teeth along inner margins, incurved at tips. Ambulatory legs elongate, thin; propodus, dactylus with long setae along anterior, posterior margins; dactylus depressed, tipped with cuticular claw. The carapace and major cheliped measurements of crabs were given in Table 1.

**Table 1** Morphometric measurements of female *Parapanope euagora* (n=3♀).

<b>a. Carapace data</b>		Range (in mm)
i.	Carapace width	14-16
ii.	Carapace length	10-12
iii.	Frontal width	3.5-4
iv.	Posterior width of carapace	9-10
v.	Abdominal width	6-7
vi.	Abdominal length	10.8-11.2
vii.	Sternum width	10-10.2

<b>b. Cheliped data (major chelipeds of female)</b>		Range (in mm)
i.	Propodus length	8.4 -9
ii.	Propodus width	5.2-6
iii.	Dactyl length	4-4.1
iv.	Merus length	3-3.1
v.	No. of lateral spine	4 nos.



**Fig. 2** Distribution map for *Parapanope euagora* (Courtesy: Ocean Biogeographic Information System)

### 3.3 Distribution

The small indo-pacific species *Parapanope euagora* original type locality was Java Sea and has a limited range distribution in the Pacific and Indian Oceans. It has been recorded in Indonesia-Java Sea (de Man, 1895); East coast of India (Alcock, 1898); Nicobar Islands (Alcock, 1898); China- Santuao, Tsimei, Liuwutien, and Xiamen (Shen, 1940); Guangdong, Fujian, Zhejiang, and Gulf of Jiaozhou (Dai & Yang, 1991). Japan - Tosa Bay, Amami-shoto and Ishigaki-jima (Sakai, 1976); Malaysia-Pinang, Melaka and Johore Strait (Guinot and Ng, 1987). Distribution map for *Parapanope euagora* was given in Fig. 2.

### 4 Discussion

The present female specimens from India agree well with the previous descriptions and illustrations of *Parapanope euagora*. *Parapanope euagora* was first described by De Man (1895) with two females collected from the Java Sea. Later, in 1898, Alcock reported two new species from east coast of India and Nicobar Islands coastal waters namely, *Hoploxanthus hextii* and *Hoploxanthus cultripes*. As such there was some confusion over the name of the *Parapanope* and *Hoploxanthus* which one is correct. De Man guesses *Hoploxanthus hextii* Alcock, 1898 is same species as *P. euagora* having priority and put in synonymy with the *P. euagora*. This synonymy is adopted by all the authors who report *P. euagora* (Guinot, 1985).

In 1985, Guinot revised the genus with very rich illustrations suggested that *Hoploxanthus* Alcock, 1898, should be regarded as a junior synonym of *Parapanope*, and the species *Hoploxanthus hextii*, as a type species of *Hoploxanthus*. She also suggested that *Parapanope* was apparently more closely affiliated to the Pilumnidae. Neither Guinot (1985) who revised the genus, nor Guinot & Ng (1988), who made additional comments, selected a type species (*Hoploxanthus hextii*) for *Hoploxanthus* Alcock, 1898. Ng et al. (2008) also selected *Hoploxanthus hextii* Alcock, 1898, as the type species for *Hoploxanthus* in their checklist of brachyuran crabs of the world.

The present study reports that after more than ten decades, the species, *Parapanope euagora* has reappeared in Indian coast revealing its possible continued existence in Indian waters. The present data do not allow drawing further conclusions because of only three female (ovigerous) specimens and no male specimen. In near future if more specimen's available study will focus on biological aspect of study because there is no biological information available for this species. Alternatively, a larger population may go unrecognized if the crabs can avoid the common types of fishing gear.

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