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First Record of the Brachyuran Crab, *Baruna trigranulum* Dai and Song, 1986 (Crustacea: Brachyura: Camptandriidae) from Sungai Brunei Estuary, Brunei Darussalam

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ABSTRACT

New record of species from an unexplored area extends its range of distribution and provides valuable information for the biodiversity conservation and management. Here we reported a brachyuran crab, *Baruna trigranulum*, for the first time from the Sungai Brunei Estuary, Brunei Darussalam (Northwest coast of Borneo). This small crab is found inhabiting in the crevices of mangrove roots, clumps of mussels, barnacles and rotting wood at the intertidal zone of Estuary. The species is widely distributed in the Indo-Pacific region particularly in Southeast Asian countries and Australia. Distribution of the species along the Estuary is also noted.

Key words: Brachyuran crab, *Baruna trigranulum*, Brunei, distribution

INTRODUCTION

The brachyuran crab fauna of Brunei comprise of 72 species, of which one species, *Leipocten sordidulum* (= *Baruna socialis* Stebbing, 1904) belongs to the family Camptandriidae (Choy, 1991). During the recent benthic faunal survey in the Sungai Brunei Estuary from June to July, 2012, the first author obtained several specimens of another camptandriid species viz., *Baruna trigranulum* (Crustacea: Brachyura: Camptandriidae) which was not reported earlier. As such, the present species *Baruna trigranulum* forms a new record from the Brunei River Estuary, Brunei Darussalam. Thus, this is the second species of this genus from Brunei. This note reports the first occurrence of *Baruna trigranulum* from Brunei Darussalam (Northwest coast of Borneo) and its distribution along the Brunei Estuary.

MATERIALS AND METHODS

The samples were collected from four sites along the salinity gradient of Sungai Brunei Estuary (Fig. 1) during low tide. All sites were located in the intertidal zone. Eighteen replicate samples were collected randomly from each site by scraping off cemented surfaces of jetty/rock with a strong Spatula from an area of 10×10 cm². Then, the samples were preserved in 70% alcohol for identification and future record. For identification, relevant literatures (Dai and Yang, 1991; Rahayu and Ng, 2003; Davie, 2013) and web portal WoRMS (<http://marinespecies.org>) were consulted. Camera Olympus (DP72) attached with the microscope (Olympus, U-TV 0.5 XC-3, Tokyo, Japan) was used to capture photographs. Density of the organism (number of individuals/100 cm²)

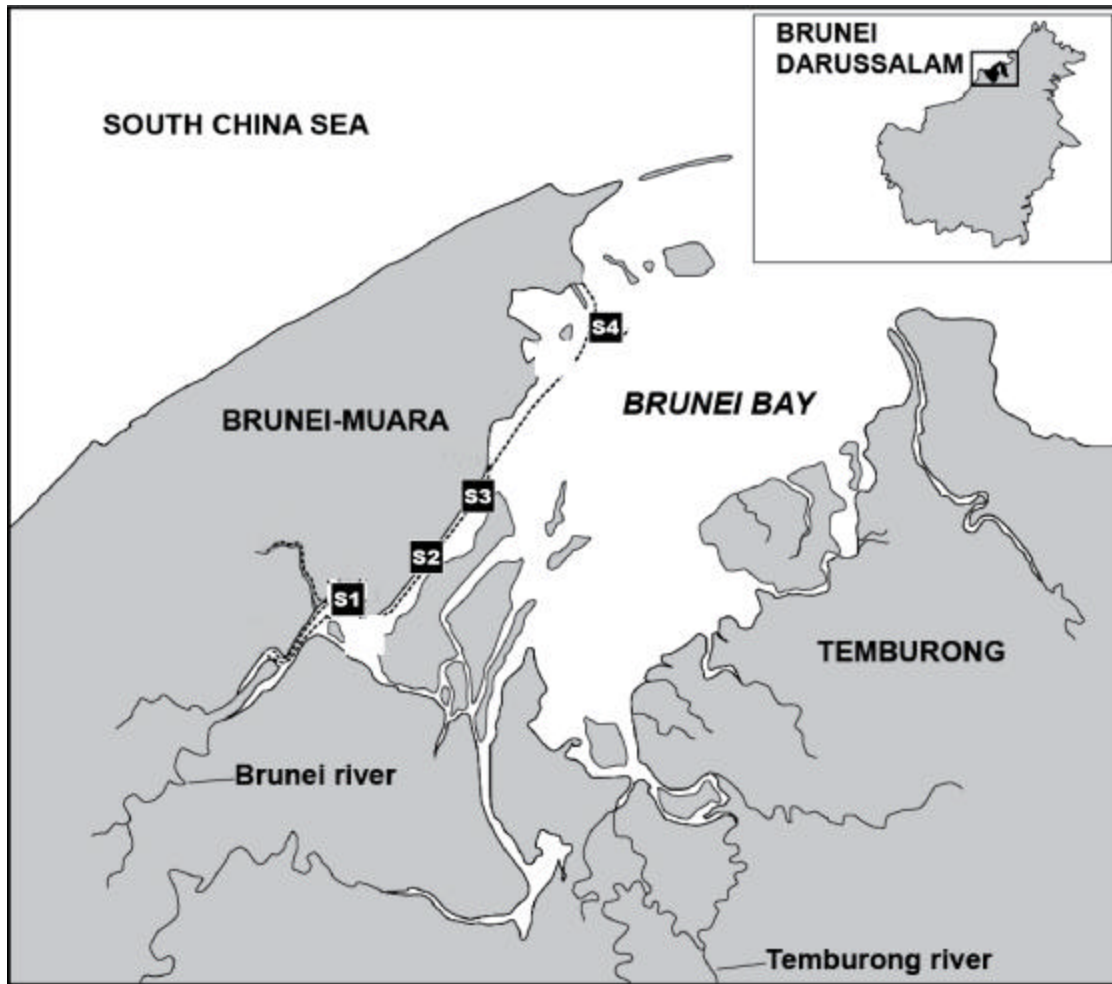


Fig. 1: Study area of Sungai Brunei Estuary showing the sampling sites (S1-S4). Salinity ranges among sampling stations: S1 (4-23%), S2 (10-27%), S3 (10-27%) and S4 (20-31%)

was determined by counting all individuals in samples. Density data were pooled to show the distribution of the species along the estuary. All collected specimens are deposited in the Wet Lab, Biology Department, University Brunei Darussalam.

RESULTS AND DISCUSSION

Taxonomy:

Order: Decapoda Latreille, 1803

Infraorder: Brachyura Linnaeus, 1758

Family: Camptandriidae Stimpson, 1858

Genus: *Baruna* Stebbing, 1904

Baruna trigranulum Dai and Song, 1986 (Fig. 2)

Synonyms: *Leipocten trigranulum* Dai and Song, 1986; *Baruna mangromurphia* Harminto and Ng, 1991

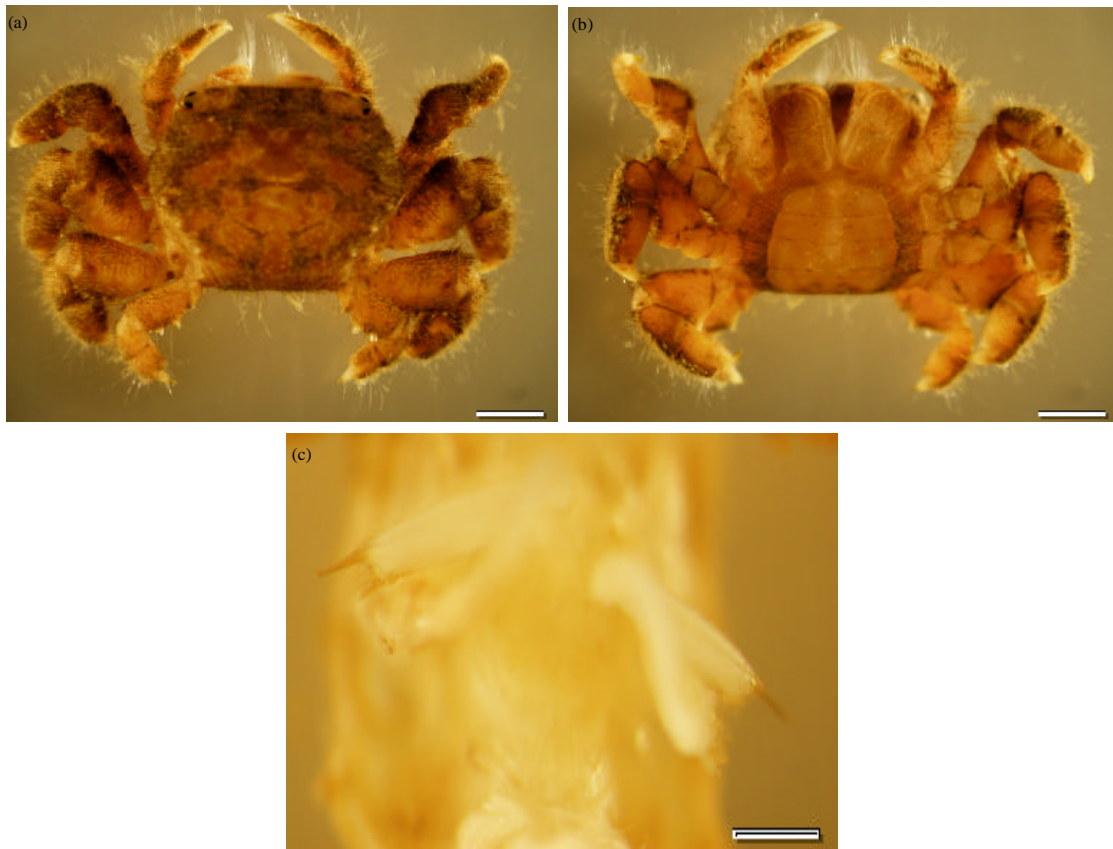


Fig. 2(a-c): View of *Baruna trigranulum* (a) Dorsal, (b) Ventral (Female) and (c) Bifid tip of male gonopod (G1). Scale bars: 2 mm

Materials examined: Three females and one male. Preserved in 70% alcohol, collected from Sungai Brunei Estuary (04°52, 05.6"-05°01, 01.1"N, 114°56, 53.2"-115°03, 57.8"E) Brunei, collected by M.B. Hossain, dated June/July(2012), depth <5 m, substrate: hard surfaces/rocky.

Diagnostic characters: The species is characterized by the presence of three large distinct granules in the postero-lateral margin of the female specimen, a shallow notch behind the orbital tooth and bifid tip of male gonopod (G1). The male has two large claws while females have a larger carapace but small claws. Rahayu and Ng (2003) observed such a notch in their Indonesian specimens. They also noted the bifid tip of distal process of the G1 and remarked that this character is very diagnostic and unique to the species (Fig. 2). According to Dai and Yang (1991), the granules of the postero-lateral margin of carapace of this species are diagnostic. The present study also corroborates this observation. The overall morphological characters of the species are mostly similar with those recorded from Singapore and Indonesia (Tan and Ng, 1999, 1994; Lim *et al.*, 2001; Rahayu and Ng, 2003).

The width and length of the specimens (female) measured 6.07 ± 0.32 and 7.58 ± 0.42 mm, respectively. The species were found living in the hard substrata (crevices of mangrove roots, clumps of mussels, barnacles) of the Estuary. Salinity, temperature and pH of the study area were recorded as 5-31‰, 28-35°C and 5.78-8.3, respectively.

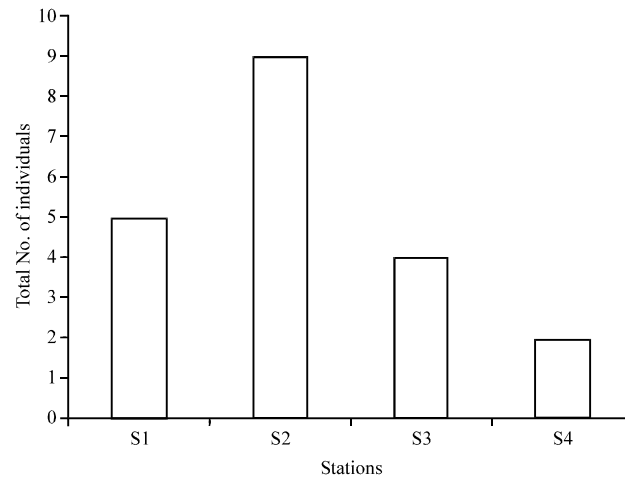


Fig. 3: Spatial distribution of *Baruna trigranulum* in the Sungai Brunei Estuary. Pooled data from 18 replicate samples (area 10×10 cm²) of each station were used for density

Distribution in the Brunei Estuary: The species was found at all stations (Fig. 3) along the salinity gradient (5- 31%) of Brunei Estuary reflecting its euryhaline nature. However, the highest density was observed in the middle of the Estuary (S2) where the salinity was in the mid range (10-18%). The underlying reason maybe the more stable range of salinity in the mid Estuary than upper reaches. The decreasing trend of density of the species towards lower Estuary indicates low tolerance to high salinity.

Global distribution: This species has a wide distribution in the Indo-Pacific, having been recorded from Malaysia, Singapore, Thailand, Indonesia and Australia. This current record extends the range to Brunei.

CONCLUSION

In this contribution we reported a brachyuran crab, *Baruna trigranulum*, from the Sungai Brunei Estuary, Brunei Darussalam which has not been previously described from this county. New record of species from a new location extend its range of distribution and provide valuable information for the biodiversity conservation and management. Recently taxonomic description has gained much importance with increased interest in biodiversity; because global biodiversity is being lost at an unprecedented rate as a result of climate change and human activities. We cannot conserve organisms without identifying them; as taxonomy and conservation go hand-in-hand (Samper, 2004). For effective decision-making about conservation and sustainable use, basic understanding about the components of biodiversity is necessary. Therefore, discovering a new species or recording a species from new location is fundamental to biodiversity conservation.

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