

## DIVERSITY OF BRACHYURAN CRABS OF KAVARATTI ISLAND, LAKSHADWEEP, WITH NOTES ON TWO NEW REPORTS

Suvarna Devi, S\*, Biju Kumar, A. and Ravinesh, R.  
Department of Aquatic Biology and Fisheries, University of Kerala,  
Thiruvananthapuram, Kerala, India  
\*Email: suvarna@asianetindia.com



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### INTRODUCTION

The coastal and marine environs have some of the richest biodiversity areas. Kavaratti island of Lakshadweep, located 360 km off the coast of the state of Kerala at 10.57°N - 72.62°E and occupying an area of 4.22 sq. km. is an atoll. Despite its small size, it has unique biodiversity. They include extensive areas of complex and specialized habitats such as enclosed seas and tidalsystems, salt marshes, coral reefs, sea grass beds etc. Crabs exhibit different behavioural patterns for better survival while enjoying distribution in these diverse habitats. The Brachyura represent the highest development attained by articulated animals in the sea. Brachyuran crabs reach their greatest diversity in tropical and temperate regions of the world. Crabs are good source of food to marine life as well as to man a good protein source. They form food for many birds, snakes and predatory fishes and their larvae are also consumed by carnivores; thus crabs play a very significant role in the food chain.

Pioneer work on brachyuran crabs from Laccadives and Maldives was initiated by Alcock (1895, 1896, 1908, 1899, 1900) and reported 43 species of crabs of nine families. Later Borradaile (1903, 1906,) reported 191 species. The total record came upto 207 species. Other works include those of Pillai (1951) and Chapgar (1957). Later Sankarankutty (1961) added five more species which were new to this region. A total of 36 species of crabs have been reported by Sankarankutty (1961) from lakshadweep and later 77 species have been reported during the exploratory survey by Rao *et al.* (1989). Other works from Lakshadweep reporting crustacean fauna include that of Thomas (1970a, 1970b),

Meiyappan and Kathirvel (1978); Pillai *et al.* (1984) and Shanbogue (1986).

In the recent past there has not been notable progress in the studies on diversity of crabs of Lakshadweep islands. Meanwhile, the taxonomic statuses of several species have also been revised. Hence, time has come to update the current knowledge of the biodiversity studies of crabs of Lakshadweep islands. This paper records the diversity of brachyuran crabs of the coastal waters of Kavaratti island.

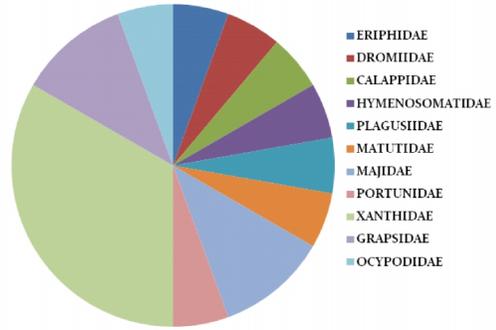
### MATERIALS AND METHODS

The study area was restricted to longitudes 10.57°N-72.62°E in Kavaratti island of Lakshadweep, located 360 km off the coast of the state of Kerala and occupying an area of 4.22 sq. km. which is an atoll. Samples were collected by hand picking and netting during scuba diving during two surveys conducted in 2013. Eighteen species were examined, which included males and females at all stages. The specimens were fixed in 96% ethanol and deposited in laboratory for further species identification ashore. The surface of carapace, appendages, setae, abdomen, mouth parts, antennae, antennules were observed by magnifying glass and also with the aid of dissecting microscope and identified with the help of relevant literature (Sakai, 1976; Sethuramalingam and Ajmal Khan, 1991).

### RESULTS

A total of 18 species represented under 16 genera and 11 families were collected during the biodiversity survey from the island (Table 1; Fig. 1).

Superclass: Crustacea Pennant, 1777  
 Class: Malacostraca Latreille, 1806  
 Subclass: Eumalacostraca Calman, 1904  
 Order: Decapoda Latreille, 1803  
 Suborder: Pleocyemata Burken Road, 1963  
 Infraorder: Brachyura Latreille, 1802



**Fig. 1.** Distribution of genera among different families of brachyurans contributing to the diversity

**Table 1.** List of species of Brachyurans from Kavaratti island of Lakshadweep

No	Family	Genus
1	Eriphidae	<i>Eriphia sebana</i> (Shaw and Nodder, 1803)
2	Dromiidae	<i>Lauridromia dehaani</i> (Rathbun, 1923)
3	Calappidae	<i>Calappa hepatica</i> (Linnaeus, 1758)
4	Hymenosomatidae	<i>Elamena gracilis</i> Borradaile, 1903
5	Plagusiidae	<i>Plagusias quamosa</i> Lamarck, 1818
6	Matutidae	<i>Ashtoretia unaris</i> (Forsk., 1775)
7	Majidae	<i>Menaethius monoceros</i> (Latreille, 1825) <i>Cyclaxsu borbicularis</i> (Stimpson, 1858)
8	Portunidae	<i>Thalamita picta</i> Stimpson, 1858
9	Xanthidae	<i>Etisus laevimanus</i> Randall, 1840 <i>Zosimus aeneus</i> (Linnaeus, 1758) <i>Etisus dentatus</i> (Herbst, 1785)* <i>Daira perlata</i> (Herbst, 1790) <i>Juxtaxanthias lividus</i> (Latreille, in Milbert, 1812)* <i>Pilodius aerolatus</i> (H. Milne Edwards, 1834)
10	Grapsidae	<i>Grapsus albolineatus</i> Lamarck, 1818 <i>Grapsus tenuicrustatus</i> (Herbst, 1783)
11	Ocypodidae	<i>Ocypode ceratophthalma</i> (Pallus, 1772)

\*New records from Lakshadweep waters, Kavaratti; The two new records include *Etisus dentatus* (Herbst, 1785) (Fig. 2) and *Juxtaxanthias lividus* (Latreille, in Milbert, 1812) (Fig. 3) of (Family Xanthidae).



**Fig. 2a.** *Etisus dentatus*



**Fig. 2b.** *Juxtaxanthias lividus*

## DISCUSSION

The Lakshadweep islands, the only coral reef island of India, is a treasure house of biodiversity. The extent of biodiversity is not fully explored and documented, particularly those of the uninhabited islands. The identification of the species was based on the morphological descriptions provided by Ng (1998).

The first study on the crab diversity of Kavaratti water including other Lakshadweep islands began by Alcock (1895). Later Rao *et al.* (1989) reported 77 species of crabs from Lakshadweep. Again NIO recorded the crab species found in the west coast of India during their Expedition Project.

*Juxtaxanthias lividus* from Kavaratti waters agree very well with the descriptions provided by Ng (1998). The new locality is the record for the genus in the Arabian sea. According to Rao *et al.* (1989) these islands do not possess any substantial resource of crustaceans which could be exploited in commercial scale.

Lakshadweep is one of the sensitive and fragile environments in India. Because of the increase in number of new reports from the island, a strong data base on the biodiversity of the crabs on the island is the need of the hour. Our main study site Kavaratti island which is an atoll, is a treasure house of biodiversity. Hence the diversity assessment of brachyuran crabs.

The present survey showed two new reports which demands further studies on brachyuran fauna from Kavaratti Island, Lakshadweep.

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