Journal of Threatened Taxa | www.threatenedtaxa.org | 26 June 2013 | 5(10): 4517–4520

ISSN
Online 0974-7907
Print 0974-7893

OPEN ACCESS

First report of the Green Mantis Shrimp *Gonodactylellus viridis* (Serène, 1954) (Crustacea: Stomatopoda) from seagrass habitat of the South Andaman coast, India

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The Andaman and Nicobar archipelago is known to host a high diversity of marine flora and fauna. While the biodiversity of this region has been under exploration relatively few studies have focused on seagrass (Das 1996; Kannan et al. 1999; Thangaradjou et al. 2010). Seagrass bed structure is an important component of tropical and temperate marine ecosystems. They have a key ecological function in the intertidal region (Terrados & Duarte 2000), and are known to support a rich assemblage of associated fauna (Orth et al. 1984). Recently, Jayabarathi et al. (2012) documented the seagrass associated meiofauna from South Andaman. In addition, a contradicting hypothesis states that predation intensity is greater near seagrass beds, in which potential predators are more abundant (Virnsten et al. 1983; Summerson & Peterson 1984).

The present report deals with a stomatopod species *Gonodactylellus viridis* found on seagrass patches of *Thalassia hemprichii* during the study of seagrass habitats of South Andaman. Stomatopod crustaceans are benthic marine predators (Cheroske et al. 2009) and raptorial carnivores found in shallow tropical or subtropical marine environment. In recent decades this species has been reported from Vietnam, western Andaman Sea of Malaysia, Indonesia, New Caledonia, Japan, the Philippines and Australia (Ahyong 2001). The bibliographic sources emphasize that gonodactyloids appear to be quite abundant on coral reef habitats (Moosa & Erdmann 1994; Moosa 2000) and collected by plankton net (Ahyong 2001). The present finding is of a Green Mantis Shrimp from seagrass habitat.

Materials and Methods

Sampling on seagrass patches of *Thalassia hemprichii* in the intertidal region of Burmanallah ($11^0$33'N & $92^0$43'E), South Andaman (Image 1) during low tide on 14 November 2012 revealed the presence of one species of stomatopod crustacea. The specimen was collected using forceps and immediately transferred into a polythene bag and carried to a laboratory for identification. The species was distinctive for its striking green coloration (Image 2A) identified by studying the morphological characteristics and also compared with the previous reports of Erdmann & Manning (1998), Manning (1998), Ahyong (2001) and Ahyong & Moosa (2004). After confirmation, the reference specimen was deposited in the National Zoological Collections of the Zoological Survey of India (ZSI/ANRC 8134), Port Blair.

Abbreviations for morphological terminology used follows Manning (1998) and Ahyong (2001). It includes: Total length (TL) in millimeters (mm) measured along the midline from the tip of the rostrum to the apices of the submedian teeth, abdominal somite (AS), thoracic somite (TS), median (MD), submedian (SM), intermediate (IM), lateral (LT); and marginal (MG). The photographs

DOI: http://dx.doi.org/10.11609/JoTT.o3448.4517-20 | **ZooBank:** urn:lsid:zoobank.org:pub:0BB645A9-8034-459B-BB20-EF1A9E465370

Editor: C. Raghunathan, Zoological Survey of India, Andaman and Nicobar Islands. **Date of publication:** 26 June 2013 (online & print)

Manuscript details: Ms # o3448 | Received 20 December 2012 | Final received 02 April 2013 | Finally accepted 03 May 2013

Citation: Jayabarathi, R., I. Anandavelu & G. Padmavati (2013). First report of the Green Mantis Shrimp *Gonodactylellus viridis* (Serène, 1954) (Crustacea: Stomatopoda) from seagrass habitat of the South Andaman coast, India. *Journal of Threatened Taxa* 5(10): 4517–4520; doi:10.11609/JoTT.o3448.4517-20

Funding: Pondicherry University.

Competing Interest: None.

Acknowledgements: The authors are grateful to Dr. P.M. Mohan, Head of the Department of Ocean Studies and Marine Biology and authorities of Pondicherry University for the facility provided. We thank to Dr. C. Raghunathan, Scientist-in-Charge, ZSI, ANRC, Port Blair and Mr. C.R. Sreeraj, PhD Scholar, ZSI, ANRC, Port Blair for their suggestions, co-operation and help.

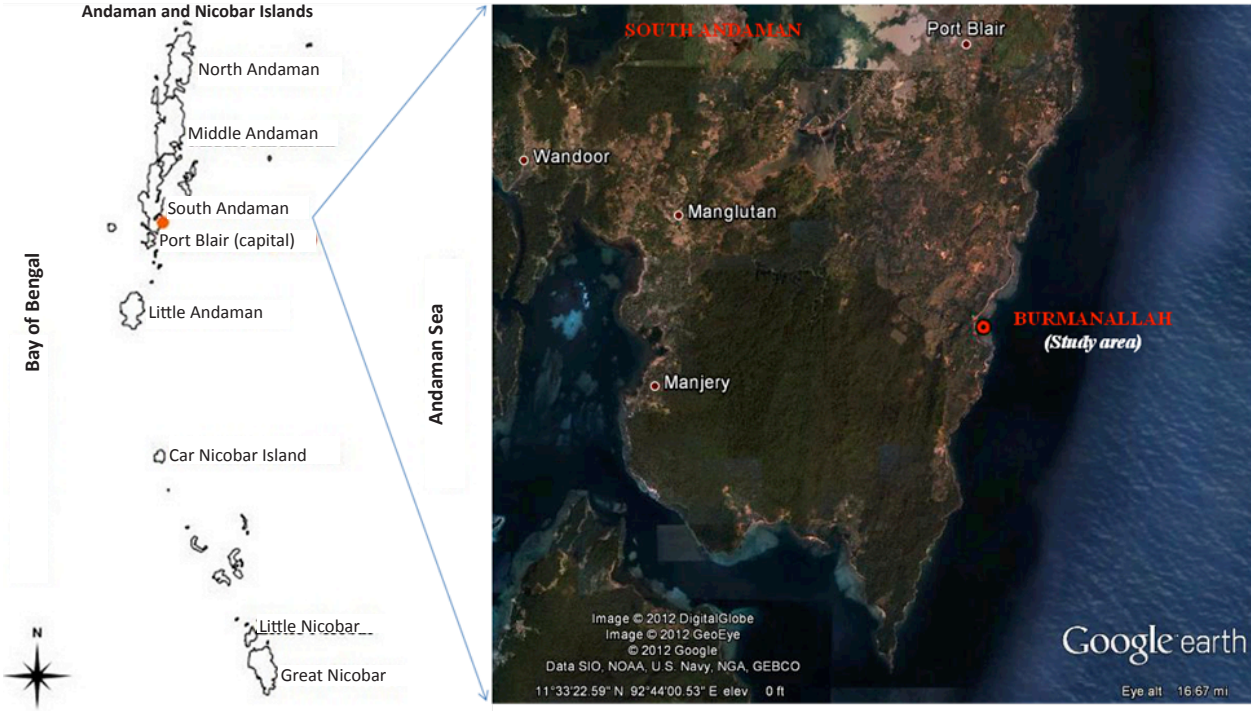

Image 1. Sampling station, Burmanallah, South Andaman.

of identifying characteristics were produced by focusing under stereo zoom microscope (SMZ 1500) with Nikon COOLPIX 8400.

Phylum Arthropoda
Class Crustacea
Order Stomatopoda Latreille, 1817
Super Family Gonodactyloidea Giesbrecht, 1910
Family Gonodactylidae Giesbrecht, 1910
Genus *Gonodactylellus* Manning, 1995
Species *viridis* (Serène, 1954)

Materials examined: ZSI/ANRC 8134, 14.xi.2012, female (TL 55mm) (Image 2B), Seagrass patch, Burmanallah (11^{0}33'N & 92^{0}43'E), South Andaman, India (Image 1), coll. R. Jayabarathi and I. Anandavelu.

Common name: Green Mantis Shrimp.

Family characteristics: Dactylus of raptorial claw inflated basally, strongly buttressed and unarmed on inner margin and telson with median crania.

Species description: Corneas are subcylindrical, ocular scales separate and rounded. Rostral plate with anterolateral angles rounded and anterior margins transverse (Image 3A). Dactylus of raptorial claw inflated basally, strongly buttressed and unarmed on inner margin (Image 3E). Lateral process of TS6 rounded, about as broad as that of TS7. AS 1-5 are without posterolateral spine. AS6 with normal complement of carinae, each armed with short spinule.

Telson broader than long, dorsal surface with distinct carinae without numerous spines or spinules, at most with mid-dorsal carinae armed posteriorly (Image 3B). Accessory median carinae short, not extending anteriorly beyond posterior third of median carina, unarmed posteriorly. Anterior submedian carina inflated but relatively straight, unarmed posteriorly. Telson SM teeth are more conspicuous than the IM teeth, with a rounded emargination between the teeth. SM teeth are with moveable apices and 14 SM denticles (Image 3D). SM carinae are distinct, unarmed. IM teeth are distinct; with apices extending posteriorly well beyond the intermediate denticles. Emargination between SM and IM teeth are acute. Lateral marginal teeth appressed to intermediate teeth. Proximal segment of uropod with fixed distal spine ventrally, inner margin of exopodasetose, outer margin with 11 movable spines. The entire margins of distal segment are setose, setae arranged in a single row (Image 3C).

Color and Habitat: Conspicuous green color when live. Color faded with traces of green marbling on the telson and uropods and with rows of small dark green spots on posterior margin of thoracic and abdominal

Image 2. *Gonodactylellus viridis*, ZSI/ANRC 8134, female (TL 55mm). A - Color in life, conspicuously green in color; B - Color in formalin, faded but with traces of green marbling on the telson and uropods and with row of small dark green spots on posterior margin of thoracic and abdominal somites. © R. Jayabarathi

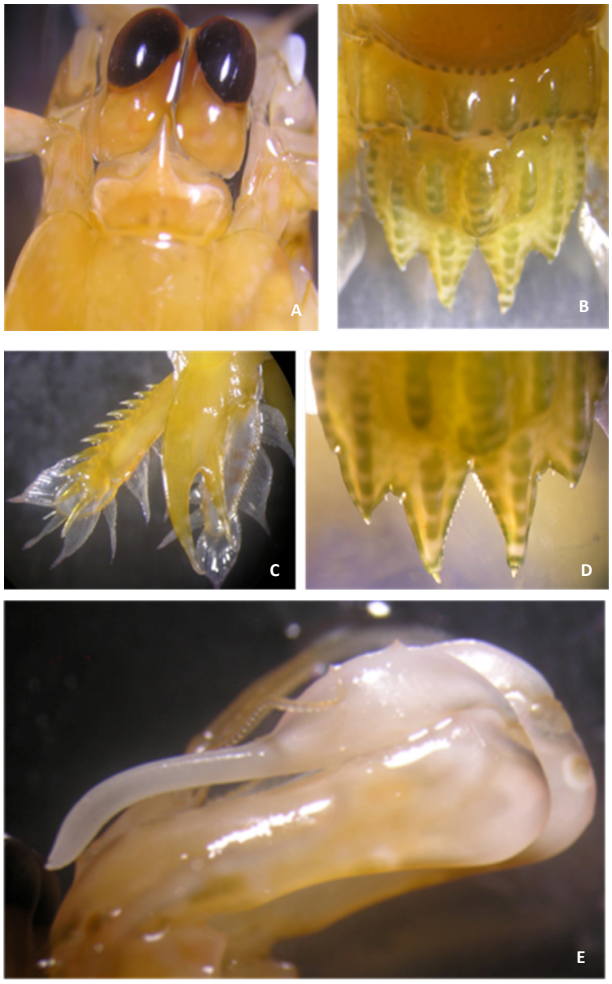

Image 3. Microscopic images of *Gonodactylellus viridis*. A - rostral plate and ocular scales; B - AS5-6, telson; C - right uropod, ventral view; D - telson, SM and IM teeth and denticles; E - right raptorial claw. © R. Jayabarathi

somites after preserving with 4% formaldehyde (Images 2A & B). Shallow water amongst seagrass patches of intertidal region.

Distribution: Malaysia, Indonesia, Vietnam, Japan, the Philippines, New Caledonia, Samoan, Australia (Ahyong 2001) and now from India (Andaman Islands).

Discussion

The Andaman and Nicobar Islands are located southeast of peninsular India. They consist of a sequence of about 572 islands, islets, and rocks extending along a north-south direction between 14^{0}N and 6.5^{0}N latitude in the southeastern part of the Bay of Bengal (Image 1). The archipelago has a total coastal line of about 1912km. (ANDFISH 2006). Because of the large extent of its coast with a wide variety of habitats, Andaman and Nicobar Islands have a diverse marine fauna. In the recent epoch numerous fresh reports were produced from this region (Sreeraj et al. 2012). *Gonodactylellus viridis* reported now is almost the first field observation from the seagrass habitat of Andaman Islands. The high diversity of associated fauna (Jayabarathi et al. 2012) makes the seagrass habitat of great interest for further ecological studies. However, knowledge of the stomatopod crustacea of this region has been largely unsatisfactory, therefore, revisions are important to determine the present day biodiversity of this archipelago. The present findings serve as a preliminary baseline thus important in enhancing this field for future studies. Current studies reveal that Andaman and Nicobar Islands manifest biodiversity of extraordinary range and thorough documentation of marine biodiversity is essential in understanding the significance of the island ecosystem.

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