

First record of a Leucosid crab *Paranursia abbreviata* Bell, 1855 from Devi estuary, Odisha Coast, India

Biswaprajna Mohanty¹, Dipti Raut^{1*}, Malay Kanti Dev Roy², Akkur V. Raman³ Lipika Patnaik¹, Aswini Nayak¹, Bhagyashree Dash¹ & Sonali Sanghamitra Rout¹

¹Environmental Science Laboratory, Department of Zoology, Ravenshaw University, Cuttack-753003, Odisha, India

²Formerly in Crustacea Section, Zoological Survey of India, 27 Jawaharlal Nehru Road, Kolkata-700016, India.

³Marine Biology Laboratory, Andhra University, Visakhapatnam - 530003, AP, India

* [Email: raut.dipti2@gmail.com]

Received 04 July 2017; revised 21 August 2017

A leucosid crab *Paranursia abbreviata* Bell, 1855 is recorded for the first time from Odisha albeit from coastal waters of the Indian peninsula after half a century. Present study is an effort towards documentation of the species from Odisha, indicative of a range extension between the Coromandal coast and Gulf of Martaban, Myanmar.

[Key words: Brachyuran crabs, *Paranursia abbreviata*, biodiversity, range extension]

Introduction

Family Leucosiidae of infraorder Brachyura is diverse with 74 genera and 765 species world-wide¹. These brachyuran crabs, commonly documented as “Pebble Crabs” mimic small pebbles to conceal themselves in the sand and silty substrata. The members usually populate littoral and sub-littoral zones of the marine environment. Of particular interest is genus *Paranursia* characterized by a flat dorsal carapace, nonexistence of hepatic ridge with abdominal segments 3 to 6 fused in males. In males, Gonopod 1 is of consistent breadth, with lobes at distal end and few setae in the vicinity of the tip. *Paranursia abbreviata* earlier recognized as *Nursia abbreviata* is presently the only species in the genus *Paranursia*. It has been reported from the Indo-Pacific regions with observations of three juveniles from the Coromandal coast², rediscovered in Pakistan³, Persian Gulf⁴, Australia⁵, Hongkong and China^{6,7}, Thailand⁸, Malaysia⁹, Singapore¹⁰, Kovalam¹¹, off Bombay coast¹², Rameswaram, Silavaturai and Gulf of Martaban¹³. However, there is no record of the species from the coastal waters between Coromandal coast and Gulf of Martaban. The objective of this communication is to document the range extension of *Paranursia abbreviata* Bell, 1855 from the coastal waters of Odisha as information on the same is sparse.

Materials and Methods

A single male specimen was obtained from the dredge hauls (22.02.15), at Nuagarh fishing harbour, Devi estuary (19°58'45.16"N-86°20'32.54"E) the largest tributary of River Mahanadi on the east coast of India, Odisha (Figure 1).

In the laboratory, the specimen was carefully examined and identified using appropriate taxonomic literature^{2,11,12}, measured to the nearest 0.1 mm using Vernier callipers, preserved in 10% neutralized formaldehyde and deposited in the Environmental Science Laboratory museum, Department of Zoology,

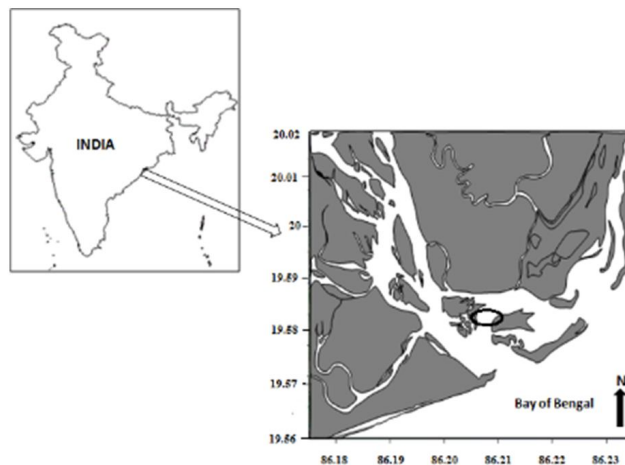


Fig. 1 — Location maps showing the Devi estuary and environs Astarang, east coast of India

Ravenshaw University, Cuttack, Odisha, India (Reg. No. Ravenshaw Zoology Environmental Crab Brachyura 4 abbreviated as RZEV CB- 4).

Results

Identification

Systematic accounts

Family LEUCOSIIDAE Samouelle, 1819

Paranursia Serène & Soh, 1976

Paranursia abbreviata (Bell, 1855)

Synonym

Nursia abbreviata Bell, 1855

(Figures 2A–F; Table 1)

Diagnosis

Carapace flattened, well calcified, undulating in depiction, separated into seven distinct convexities. Margin of carapace and chelipeds tuberculated. Three distinct ridges arise from centre of cardiac region—one runs longitudinally up to the frontal region while other two obliquely towards the epibranchial region. Front trilobed, with middle lobe exceeding the other two. Ambulatory legs slender with merus, carpus and propodus of uniform width; dactylus lean and sharp; leg joints bear fine granules on their surfaces (Fig.2C)

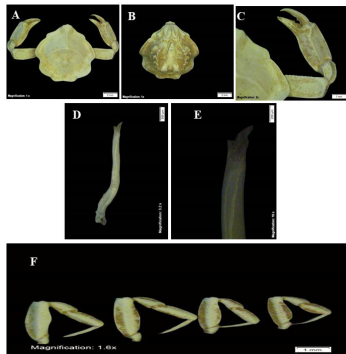


Fig. 2 — A-F. *Paranursia abbreviata* Bell, 1855 A: Dorsal view. B: Ventral view C: Right Cheliped of male specimen D: Pleopod 1 of male E: Tip of Pleopod F: Periopods 1-4 Scale Bars: 2A 2mm; 2B and 2C 1 mm; 2D 500µm; 2E 200 µm; 2F 1mm

Table 1 — Morphometric measurements

Carapace	Measurements (mm)
Width	9.3
Length	8.2
Frontal length	1.3
Cheliped	
Merus	4.8
Carpus	1.8
Propodus	5.2
Dactylus	2.7

visible with the naked eye. Arm triangular, fingers gather around tip. Abdomen in male consists of 3 segments. Gonopod 1 of male well calcified, tridentate and in agreement with the reported observations^{3, 10, 12}.

Ecology

The specimen was recorded from a depth of 10-13m with a salinity of 28.5 psu; sediment organic matter was 0.54% with loamy fine sand texture (84.83% sand, silt 15.12 % and clay 0.06%).

Conclusion

Paranursia abbreviata Bell, 1855 is reported for the first time indicative of a range extension of the species between Coromandal coast and Gulf of Martaban. Of significance is the rediscovery of the species after half a century from waters of the Indian peninsula, attributable probably to the concerted efforts in exploring the region under study. Further exploratory research for documentation of available species, understanding species rediscoveries and range extensions necessitates suitable work plans. Management of such pristine habitats through the formulation of appropriate biodiversity conservation policies is essential.

Acknowledgments

The authors gratefully acknowledge the financial support in the form of a project grant (260/OBB, dated 06th September, 2014) by Odisha Biodiversity Board, Bhubaneswar.

References

- Davie, P., Türkay, M. Leucosiidae Samouelle, 1819. Accessed through: World Register of Marine Species at <http://www.marinespecies.org/aphia.php?p=taxdetails&id=106758> on 2017-05-02. (2009).
- Alcock, A., The Brachyuran Oxystoma: Materials for a carcinological fauna of India. No.2, *J. of the Asiatic Soc. of Bengal*, 65 (11:2) (1896) 134-296, plates 6-8.
- Tirmizi, N. M., Ghani, N., Recovery of a Leucosid crab *Nursia abbreviata* Bell, 1855 from Arabian sea fish, *Pakistan J. of Mar. Sci.*, 3(1) (1994) 83-85.
- Stephensen K, *The Brachyura of the Iranian Gulf with an Appendix: The Male Pleopoda of the Brachyura*, (Danish Scientific Investigations in Iran) 4, 1945, pp. 57-237.
- Hale H M, *The crustaceans of South Australia. I*, (Govt Printer, Adelaide) 1927, pp. 1-201, figs.1-202.
- Dai AY & Siliang Y, *Crabs of the China Seas*. (English), (China Ocean Press, Beijing) 1991, pp.1-682, figures 368, plates 1-74.
- Chen H, & Sun H, *Arthropoda Crustacea. Brachyura. Marine primitive crabs. Fauna Sinica. Invertebrata*, 30, (Science Press, Beijing) 2002, colour pls. 1-4, pls. 1-16.
- Ng, P.K.L., Davie, P. J. F., *A checklist of the Brachyuran crabs of Phuket and Western Thailand*. (Phuket Marine

- Biological Center Special Publication) 23(2) (2002) 369–384.
- 9 Ow-Yang, C. K., *Studies on the Systematics and Distribution of Marine Brachyura in Malaya with special references to the families Portunidae and Majidae*. Unpublished M.Sc. Thesis. Dept. Zool., Univ. Singapore, 1963, 268 pp., pls. 40.
 - 10 Lee, B.Y., Ng, N. K., New record of *Paranursia abbreviata* (Crustacea: Decapoda: Brachyura: Leucosiidae) from Singapore, *Mar. Biodiversity Rec.*, (2014) 1-3.
 - 11 Pillai, N.K., Decapoda (*Brachyura*) from Travancore. *Bull. of the Central Res. Inst., University of Travancore, Trivandrum*, 2, series C (1) (1951) 1–46.
 - 12 Chhappgar, B.F., More additions to the crab fauna of Bombay state. *J. Bombay Natural History Soc.*, 65 (1969) 608-617.
 - 13 Henderson J R, *A contribution to Indian carcinology*, Transactions of the Zoological Society of London, 1893, ser. 2, 5: 325-458, pls. 36-40.