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A new species of *Afropinnotheres* Manning, 1993 (Crustacea, Brachyura, Pinnotheridae) from southwestern India, the first record of the genus from the Indian Ocean, with a review of the Pinnotheridae of India and adjacent seas

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Abstract

A new species of pinnotherid crab of the genus *Afropinnotheres* Manning, 1993, is described from the brown mussel, *Perna perna* (Linnaeus, 1758), in southwestern India. This is the first record of the genus from the western Indian Ocean, the other four species been recorded from the eastern Atlantic. The new species can be distinguished from all congeners in possessing a more rounded male carapace, form of the chela, relatively longer ambulatory legs which have no natatory setae, presence of dense pubescence on the male ambulatory legs, and the shape of the male and female telsons. The Indian Pinnotheridae is also reviewed and the taxonomy of the species reappraised. The taxonomy of *Pinnaxodes* Heller, 1865, and *Holothuriphilus* Nauck, 1880, is also discussed, in the context of their similarity to *Afropinnotheres*.

Key words: Crustacea, Brachyura, taxonomy, Pinnotheridae, *Afropinnotheres*, new species, India

Introduction

Recently obtained specimens of a pea crab (Pinnotheridae) from Kovalam, southwestern India revealed that they belong to a new species best placed in *Afropinnotheres* Manning, 1993, a genus with four species previously known only from western Africa. The new species of *Afropinnotheres* represents the first record of the genus from the Indian Ocean.

Material and methods

Specimens examined are deposited in the Western Ghat Regional Centre, Zoological Survey of India (ZSI), Calicut, Kerala; Department of Aquatic Biology & Fisheries, University of Kerala (DABFUK), India; and the Zoological Reference Collection (ZRC) of the Lee Kong Chian Natural History Museum (formerly Raffles Museum of Biodiversity Research), National University of Singapore. The terminology used follows Manning (1993). The following abbreviations are used: MXP3 = third maxilliped; P2–P5 = pereopods 2–5 (first to fourth ambulatory legs), respectively; G1 = male first gonopod; G2 = male second gonopod. Measurements are of the carapace width and length, respectively in millimetres (mm).

Systematic account

Family Pinnotheridae De Haan, 1833

Review of Indian Pinnotheridae

Sixteen species of *Pinnotheres* Bosc, 1801, have been reported from India and adjacent areas (Maldives, Sri Lanka,

the propodus (Alcock & McArdle 1903: pl. 62 fig. 5b) (propodus short and conical with the dactylus extending beyond the tip of the dactylus in *A. ratnakara* n. sp., Figs. 2C, 3B).

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References

- Alcock, A. (1900) Materials for a Carcinological Fauna of India. No. 6. The Brachyura Catometopa or Grapsoidea. *Journal of the Asiatic Society of Bengal*, 69, 279–456.
- Alcock, A. & McArdle, A.F. (1903) *Illustrations of the Zoology of the Royal Indian Marine Survey Ship Investigator, under the command of Commander T.H. Heming, R.N. Crustacea*. Part X. Published under the Authority of Captain W. S. Goodridge, R.N., C.I.E., Director of the Royal Indian Marine. Office of the Superintendent of Government Printing, Calcutta, plates LVI–LXVII. [India]
- Ahyong, S.T. & Ng, P.K.L. (2007) The pinnotherid type material of Semper (1880), Nauck (1880) and Bürger (1895) (Crustacea: Decapoda: Brachyura). *Raffles Bulletin of Zoology*, 16 (Supplement), 191–226.
- Antony, A. & Kuttyamma, V.J. (1971) A new species of the pea-crab *Pinnotheres* Latreille (Crustacea: Brachyura: Pinnotheridae) from the clam *Meretrix casta* (Chemnitz). *Bulletin of the Department of Marine Biology and Oceanography, University of Cochin*, 5, 59–68.
- Campos, E., Daz V. & Gamboa-Contreras, J.A. (1998) Notes on distribution and taxonomy of five poorly known species of pinnotherid crabs from the eastern Pacific (Crustacea: Brachyura: Pinnotheridae). *Proceedings of the Biological Society of Washington*, 111 (2), 372–381.
- Campos, E. & Manning, R.B. (2001) Authorship and diagnosis of the genus *Arcotheres* Manning, 1993 (Crustacea: Brachyura: Pinnotheridae). *Raffles Bulletin of Zoology*, 49, 167–170.
- Campos, E., Peláez-Zárate, V.A. & Solís-Marín, F.A. (2012) Rediscovery, hosts and systematics of *Holothuriophilus trapeziformis* Nauck, 1880 (Crustacea, Brachyura, Pinnotheridae). *Zootaxa*, 3528, 57–62.
- Chhappargar, B.F. (1957) On the marine crabs (Decapoda, Brachyura) of Bombay State. Part I. *Journal of the Bombay Natural History Society*, 54 (3), 503–549, fig. 3, pls. B + 12–16, tables I, II.
- Chopra, B. (1931) Further Notes on Crustacea Decapoda in the Indian Museum. II. On some Decapod Crustacea found in the cloaca of holothurians. *Records of the Indian Museum*, 33 (3), 303–324, figs. 1–12, pl. 8.
- Devi, K.N. & Shyamasundari, K. (1989) A new species of *Pinnotheres* Latreille (Decapoda: Brachyura) from Visakhapatnam coast of Bay of Bengal, Andhra Pradesh. *Journal of the Bombay Natural History Society*, 86 (2), 217–221, figs. 1–3, table 1.
- Doflein, F. (1904) Brachyura. In: *Wissenschaftliche Ergebnisse der Deutschen Tiefsee-Expedition auf dem Dampfer "Valdivia" 1898–1899*, 6, pp. 1–6 + i–xiv + 1–314 pp., figs. 1–58, Atlas (pls. 1–58). [Verlag von Gustav Fischer, Jena]
- Garth, J.S. (1958) The Crustacea Decapoda of Chile. Reports of the Lund University Chile Expedition 1948–49. 29. *Lunds Universitets Arsskrift, new series, Series 2*, 53 (7), 1–130.
- George, M.J. & Noble, A. (1970) Occurrence of pea crabs *Pinnotheres gracilis* Burger and *Pinnotheres modiolicolus* Burger in the Indian coast. *Journal of the Marine Biological Association of India*, 1968, 10 (2), 392–394.
- Gravely, F.H. (1927) Decapoda and Stomatopoda. In: *The littoral fauna of Krusadai Island in the Gulf of Manaar*. *Bulletin of the Madras Government Museum, New Series (Natural History)*, 1, 141–155, figs. 1, 2, pls. 20–26.
- Heller, C. (1865) *Die Crustaceen. Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857–1859 unter den Befehlen des Commodore B. von Willertort-Urbair*. *Zoologischer Theil 2 (part 3)*. Kaiserlich Königlich Hof- und Staatsdruckerei, Wien, 280 pp., 25 pls.
- Hornell, J. & Southwell, T. (1909) Description of a new species of *Pinnotheres* from *Placuna placenta*, with a note on the genus. In: Hornell, J. (Ed.), *Report to the Government of Baroda on the Marine Zoology of Okhamandal in Kattiawar*. Part 1. Richard Clay & Sons Ltd., Bungay, Suffolk, pp. 99–103, pl. 1.
- Jose, B. & Deepthi, T.R. (2005) Green mussel *Perna viridis*, a new host for the pea crab *Pinnotheres placunae* along the Malabar coast, Kerala. *Current Science*, 89 (7), 1090–1091.
- Kannappan, T., Shanmugavelu, M., Sudhamathi, C., Elumalai, V. & Karthikeyan M.M. (2012) New record of pea crabs (*Pinnotheres sinensis* Shen, 1932) along the Manakudy Estuary, Southwest Coast of India. *European Journal of Biological Sciences*, 4 (2), 45–48.
- Laurie, R.D. (1906) Report on the Brachyura collected by Professor Herdman, at Ceylon, in 1902. In: Herdman, W.A., *Report*

- to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Manaar with Supplementary Reports Upon the Marine Biology of Ceylon by Other Naturalists, V (Supplemental Reports No. XL), 349–432, figs. 1–12, pls. 1, 2.
- Lenz, H. & Strunck, C. (1914) *Brachyuren und Macruren mit Ausschluss der Sergestiden. Die Dekapoden der Deutschen Südpolar-Expedition 1901–1903, I. Deutsche Südpolar Expedition 1901–1903*, 15 (Zoology Part 7), 257–345, figs. 1–5, pls. 12–22.
- Manning, R.B. (1993) West African pinnotherid crabs subfamily Pinnotherinae (Crustacea, Decapoda, Brachyura). *Bulletin du Muséum national d'Histoire naturelle*, Paris, Series 4, 15A (1–4), 125–177.
- Manning, R.B. (1996) *Viridotheres marionae*, a new genus and species of pinnotherid crab from West Africa (Crustacea: Decapoda: Brachyura). *Zoologische Mededelingen*, 70, 271–273.
- Melo, G.A.S. De & Boehs, G. (2004) Rediscovery of *Holothuriophilus tomentosus* (Ortmann) comb. nov. (Crustacea, Brachyura, Pinnotheridae) in the Brazilian coast. *Revista Brasileira de Zoologia*, 21 (2), 229–232.
<http://dx.doi.org/10.1590/S0101-81752004000200010>
- Nobili, G. (1905) Décapodes nouveaux des côtes d'Arabie et du Golfe Persique (Diagnoses préliminaires). *Bulletin du Muséum d'histoire naturelle*, Series 1, 11 (3), 158–164. [Paris]
- Nobili, G. (1906) Faune carcinologique de la Mer Rouge. Décapodes et Stomatopodes. *Annales des Sciences Naturelles, Zoologie comprenant l'Anatomie, la Physiologie, la Classification, et l'histoire naturelle des Animaux*, Series 9, 4 (1–3), 1–347, figs. 1–12, pls. 1–11.
- Ng, P.K.L., Guinot, D. & Davie, P.J.F. (2008) Systema Brachyurorum: Part I. An annotated checklist of extant brachyuran crabs of the world. *Raffles Bulletin of Zoology*, 17 (Supplement), 1–286.
- Ng, P.K.L. & Manning, R.B. (2003) On two new genera of pea crabs parasitic in holothurians (Crustacea: Decapoda: Brachyura: Pinnotheridae) from the Indo-West Pacific, with notes on allied genera. *Proceedings of the Biological Society of Washington*, 116 (4), 901–919.
- Pillai, N.K. (1951) Decapoda (Brachyura) from Travancore. *Bulletin of the Central Research Institute, University of Travancore*, Trivandrum, Series C (Natural Science), 2 (1), 1–46, figs. 1–5.
- Silas, E.G. & Alagarswami, K. (1967) On an instance of parasitisation by the pea-crab (*Pinnotheres* sp.) on the backwater clam [*Meretrix casta* (Chemnitz)] from India, with a review of the work on systematics, ecology, biology and etiology of pea crabs of the genus *Pinnotheres*, Latreille, 1802. Proceedings of the Symposium on Crustacea held at Ernakulam, 1965, Symposium Series 2. *Marine Biological Association of India*, 3, 1161–1227.
- Southwell, T. (1911) Description of a new species of *Pinnoteres* [sic] and of female of *Pinnoteres* [sic] *margaritiferae*, Laurie. [Article 19]. *Reports from the Ceylon Marine Biological Laboratory*, 1 (5), 226–227, pl. 3.
- Takeda, M. & Masahito, Prince (2000) Systematic notes on the pinnotherid crabs of the genus *Pinnaxodes* (Crustacea: Decapoda: Brachyura). *Bulletin of the National Science Museum*, Series A (Zoology), 20, 99–112.
- Tirmizi, N.M. & Ghani, N. (1996) *Marine Fauna of Pakistan: 5, Crustacea: Brachyura, Brachyrhyncha, Part I (Xanthidae, Goneplacidae, Pinnotheridae, Ocypodidae, Grapsidae)*. Publication of the Centre of Excellence in Marine Biology, University of Karachi, 188 pp.
- Van Den Spiegel, D. & Jangoux, M. (1989) Sur la symbiose entre le pinnothéride *Pinnotheres villosissimus* (Crustacea, decapoda) et l'holothurie *Actinopyga mauritiana* (Echinodermata). *Vie Marine*, Marseille, 10, 205–213.
- Wells, H.W. & Wells, M.J. (1961) Observations on *Pinnaxodes floridensis*, a new species of pinnotherid crustacean commensal in holothurians. *Bulletin of Marine Science of the Gulf and Caribbean*, 11(2), 267–279, figs. 1–4.