




First record of a potamid crab (Decapoda: Brachyura) from Odisha State, India

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ABSTRACT

Freshwater crabs of the family Potamidae Ortmann, 1896, have so far not been recorded in the state of Odisha in India. We report for the first time a potamid crab, *Acanthopotamon martensi* (Wood-Mason, 1875), from Odisha. With this record, in addition to the 'Ganges Delta and Plain' and the 'Lower and Middle Indus' freshwater ecoregions, *A. martensi* is now known to occur also in the 'Northern Deccan Plateau' ecoregion. The present record of *A. martensi* from Odisha represents the southernmost record of the family Potamidae in the Indian subcontinent. In fact, *A. martensi* is one of two potamid species that is known from south of the Ganges. Five species of freshwater crabs, including *A. martensi*, are now known from Odisha.

KEYWORDS

Acanthopotamon, freshwater crab, new record, Potamidae, Potaminae.

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Odisha is the largest state among the states of eastern India. The diversity of freshwater crabs in Odisha, however, is relatively lower (four species) compared to other eastern Indian states viz., Bihar (six species) and West Bengal (16 species) (Pati and Thackeray, 2018). The four species of freshwater crabs known from Odisha to date all belong to the family Gecarcinucidae Rathbun, 1904: *Barytelphusa cunicularis* (Westwood in Sykes, 1836) (see Chopra and Tiwari, 1947; Ramakrishna, 1951); *Oziotelphusa ganjamensis* Pati and Sharma, 2012 (see Pati and Sharma, 2012); *Sartoriana spinigera* (Wood-Mason, 1871) (see Henderson, 1893; Rathbun, 1905; Alcock, 1910); and *Spiralothelphusa hydrodroma* (Herbst,

1794) (see Chopra and Tiwari, 1947; Deb, 1998a). No species of the family Potamidae Ortmann, 1896, is so far known from Odisha. A potamid crab, *Acanthopotamon martensi* (Wood-Mason, 1875) of the subfamily Potaminae Ortmann, 1896, is reported herein for the first time from Odisha.

The material examined is deposited in the Zoological Survey of India, Western Regional Centre, Pune, India (ZSI-WRC), while the comparative material was from the Crustacea Section of the Zoological Survey of India, Kolkata, India (ZSIK). The specimens were identified using the key of Pati et al. (2019). The terminologies and measurement methods of the carapace are after Ng (1988). The following abbreviations are used: CW, width of carapace; CL, length of carapace; coll., collector; G1, male first gonopod; G2, male second gonopod.

SYSTEMATICS

Superfamily Potamoidea Ortmann, 1896

Family Potamidae Ortmann, 1896

Subfamily Potaminae Ortmann, 1896

Genus *Acanthopotamon* Kemp, 1918

Acanthopotamon martensi (Wood-Mason, 1875) (Fig. 1)

Paratelphusa martensi Wood-Mason, 1875: 230.

Paratelphusa martensi — Wood-Mason, 1876: 122 (list). — Henderson, 1893: 386.

Parathelphusa martensi — de Man, 1898: 438 (list).

Potamon (Parathelphusa) martensi — Rathbun, 1905: 258.

Potamon (Acanthotelphusa) martensi — Alcock, 1910: 68. — Ramakrishna, 1951: 92.

Potamon (Spinopotamon) martensi — Bott, 1966: 476.

Acanthopotamon martensi — Bott, 1970: 145. — Deb, 1998b: 382. — Yeo and Ng, 2007: 275 (list). — Ng

et al., 2008: 159 (list). — Rahman et al., 2008: 13. — Ng et al., 2011: 60 (list). — Neseemann et al., 2013: 218 (list). — Klaus et al., 2017: 567. — Pati and Thackeray, 2018: 9 (list). — Pati et al., 2019: 451 (list).

Material examined. 2 males (29.97 × 24.13 mm, 26.34 × 19.43 mm), 2 females (23.94 × 19.45 mm, 23.24 × 18.99 mm), ZSI-WRC C.1920, India, Odisha State, Jagatsinghpur District, Banikunda, 20.332 86.155, altitude 12 m, 23 July 2017, S.R. Mohanty coll.; 5 males (22.58 × 17.90 mm, 22.35 × 18.43 mm, 22.34 × 18.18 mm, 21.50 × 17.64 mm, 20.15 × 16.65 mm), ZSI-WRC C.1921, same data as preceding collection.

Comparative material. Syntype male (29.2 × 22.0 mm), ZSIK 4069/4, India, Bihar State, Purnia District, Purnia (= Purneah) [~ 25.780 87.470], altitude ~ 42 m, no date, museum collector.

Diagnosis. Carapace subhexagonal, relatively broad (CW/CL = 1.3–1.4); anterolateral margins each with 3 prominent epibranchial teeth; first epibranchial tooth distinctly broader than second- and third epibranchial teeth, directed anteriorly, basally broad, tip acute, separated from external orbital tooth by distinct cleft; second epibranchial tooth directed laterally, basally narrow, tip acute; third epibranchial tooth directed laterally, basally broad, tip acute; posterolateral margins almost straight, converging; postorbital cristae relatively long, extending beyond level of mid supraorbital margin; external orbital tooth broadly triangular (Fig. 1A). Major cheliped carpus with well-developed, acute inner distal tooth (Fig. 1A). G1 with flexible zone strongly reduced; terminal segment relatively stout, subcylindrical, relatively long, approximately 0.4 times length of subterminal segment; subterminal segment with inner (mesial) margin straight just below flexible zone, outer (lateral) margin sharply raised in proximal half to distinct shelf or hump (Fig. 1B–D). G2 longer than G1, approximately 1.1–1.2 times length of G1; distal segment relatively short, approximately 0.5 times length of basal segment (Fig. 1E).

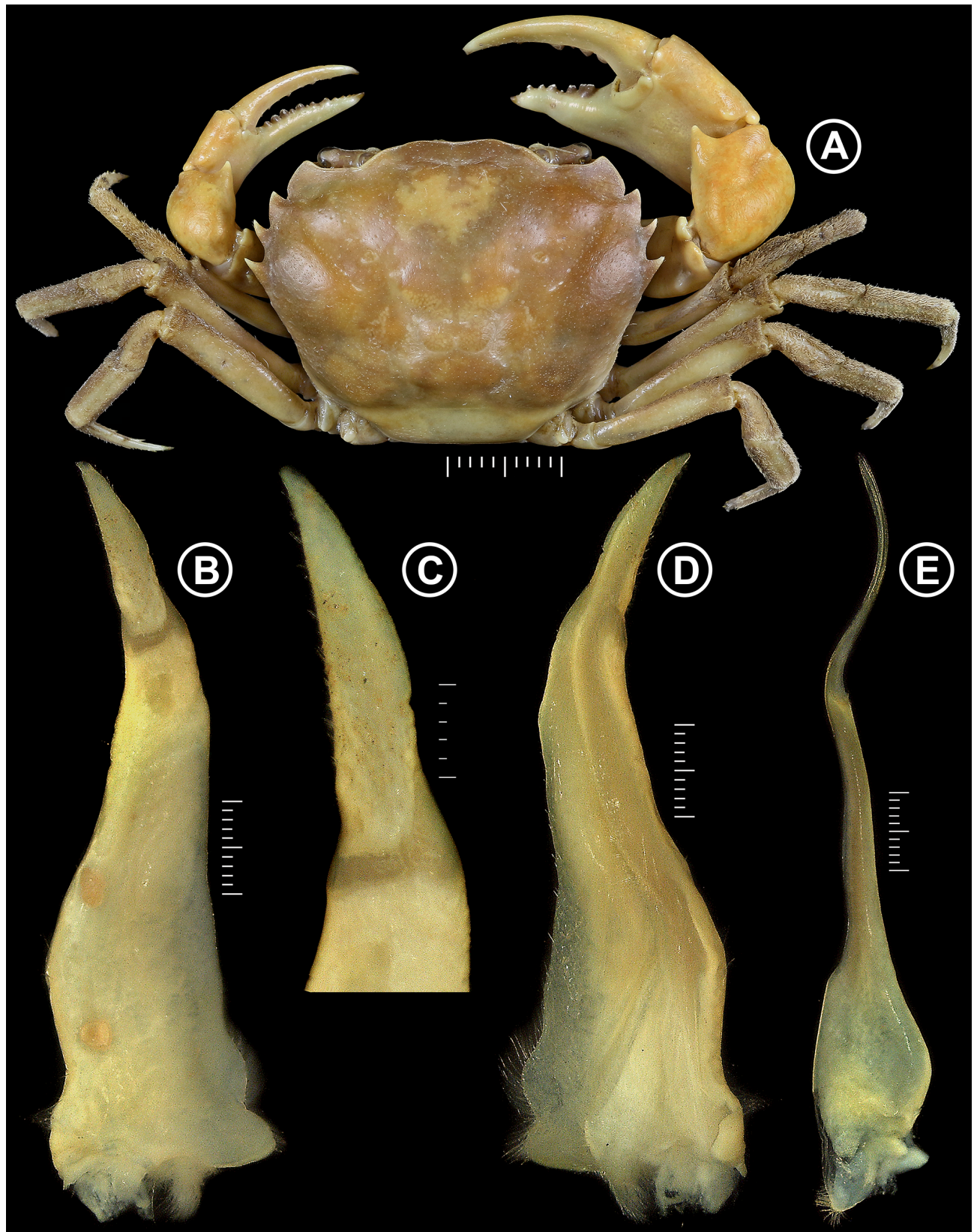


Figure 1. *Acanthopotamon martensi* (Wood-Mason, 1875), male (29.97 × 24.13 mm) (ZSI-WRC C.1920). A, Overall dorsal view; B, left G1 in dorsal view; C, left G1 terminal segment in dorsal view; D, left G1 in ventral view; E, left G2. Scale bars = A, 10 mm; B, D, E, 1 mm; C, 0.5 mm.

Ecological notes. Specimens of *A. martensi* were collected from shallow burrows (< 0.3 m deep) along the margins of a turbid water channel adjacent to rice and sugarcane fields (Fig. 2). The margins of the water channel have a profuse growth of Kans Grass (*Saccharum spontaneum* L. of the family Poaceae). At the collection site, these crabs are very common and active during the rainy season (July-September) only.

Geographical distribution. *Acanthopotamon martensi* has a wider distribution in the northern part of the Indian subcontinent, with confirmed records from Bangladesh, India (Bihar, Haryana, Punjab, Uttar Pradesh, Uttarakhand, and West Bengal States), Nepal, and Pakistan (see Pati et al., 2019) (Fig. 3). Until now, the distribution of *A. martensi* was limited to the 'Ganges Delta and Plain' and the 'Lower and Middle Indus' freshwater ecoregions (Fig. 3) (Abell et al., 2008; Pati et al., 2019). The present record of *A. martensi* from Odisha confirms its occurrence in the 'Northern Deccan Plateau' freshwater ecoregion (Fig. 3) (Abell et al., 2008).

Remarks. According to Shih et al. (2009), potamid crabs are not known from the main Indian subcontinent south of the Ganges River. They also

noted that strong competition from the dominating gecarcinucid crabs in the Indian Peninsula may have restricted the southward extension of potamids. The present record of *A. martensi* from Odisha, however, represents the southernmost record of the family Potamidae in the Indian subcontinent. In fact, *A. martensi* is one of two potamid species that is known from the south of the Ganges, the other species being *Acanthopotamon panningi* (Bott, 1966) (Fig. 3; see Bott, 1966; Pati et al., 2019: fig. 1).

Counting the present record of *A. martensi*, five species of freshwater crabs are now known from Odisha State. Odisha possesses four major physiographic regions: 1) Eastern Coastal Plains, mainly formed by the deltas of six major rivers; 2) Northern Plateau, an extension of Chota Nagpur Plateau; 3) the Central Tract, consisting of plateaus, hills, uplands and valleys; and 4) Eastern Ghats (Tikader and Chhotani, 1987). All these regions provide an array of habitats for freshwater crabs. Most of these regions, however, have been under-explored for freshwater crabs. The present new record of *A. martensi* and the description of a new species by Pati and Sharma (2012) indicate that there may be more freshwater crab taxa yet to be recognized from the state. More systematic surveys on freshwater crabs, therefore, need to be conducted in Odisha.



Figure 2. View of the collection site of *Acanthopotamon martensi* (Wood-Mason, 1875) in Odisha, India.

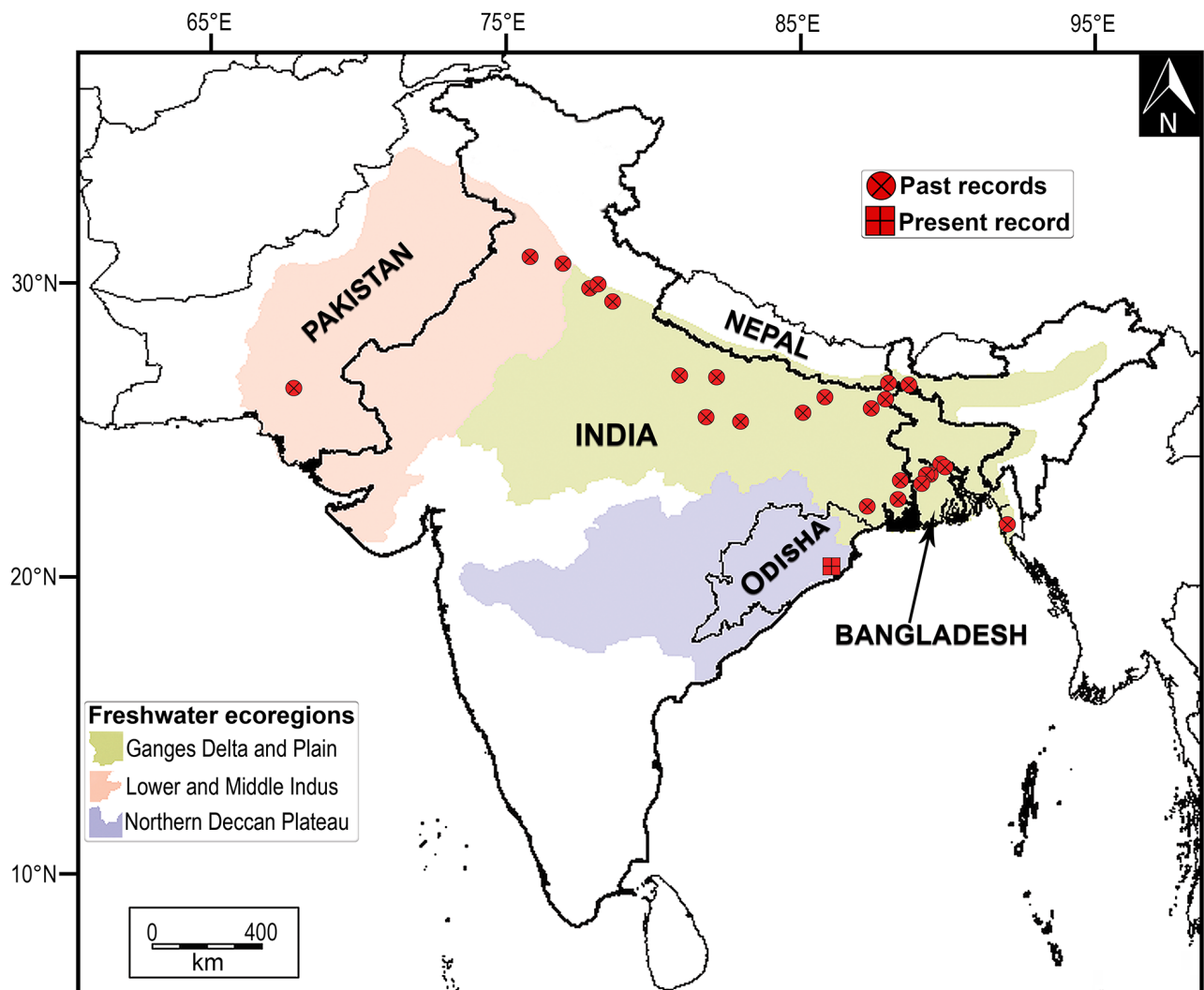


Figure 3. Map showing the distribution of *Acanthopotamon martensi* (Wood-Mason, 1875) on the Indian subcontinent.

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ADDITIONAL INFORMATION AND DECLARATIONS

Author Contributions

Conceptualization and design: SKP, AM. Performed research: SKP, SRM, AM. Acquisition of data: SKP, SRM. Analysis and interpretation of data: SKP, SRM, AM. Preparation of figures: SKP. Writing – original draft: SKP, SRM, AM. Writing – critical review and editing: SKP.

Consent for publication

All authors declare that they have reviewed the content of the manuscript and gave their consent to submit the manuscript.

Competing interests

The authors declare no competing interests.

Data availability

All study material and data are included in the article.

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Study permits

The collection of specimens was done as a regular survey programme by the Zoological Survey of India, and the specimens were deposited in a National Designated Repository.

Erratum

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