

FAUNA OF INDIA CHECKLIST

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ARTHROPODA: CRUSTACEA: MALACOSTRACA: EUMALACOSTRACA: SYNCARIDA: BATHYNELLACEA

K. Valarmathi

FPS Building, Zoological Survey of India, Kolkata-16; valarkamacro@gmail.com; <https://orcid.org/0009-0004-6978-1252>

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zsifaunachecklists@gmail.com
and valarkamacro@gmail.com



ZOOLOGICAL SURVEY OF INDIA
Ministry of Environment, Forest & Climate Change

ARTHROPODA: CRUSTACEA: MALACOSTRACA: EUMALACOSTRACA: SYNCARIDA: BATHYNELLACEA

K. Valarmathi

valarkamacro@gmail.com

Bathynellacea is a minute (maximum size 3.4mm) worm like Crustaceans with short weak legs and without carapace. It is a small order of Eumalacostraca known to occur in the interstitial spaces of sandy shore sediments of lakes, sandy and gravelly banks of rivers, streams and phreatic systems like caves and borewells, and springs, but some species dwell in on soft bottoms at depths ranging from 0.2 m to 1440 m and few Australian species inhabits marine beach, having a water salinity of 27‰ and in oligohaline and polyhaline waters as well, there is an African species which could live in a hot spring, at temperatures ranging up to 55°C (Reddy et al, 2017). Studies on Indian Bathynellids were solely undertaken by Dr. R. Reddy and team especially in the Andhra Pradesh state of India.

Global diversity: Globally it has two families, 84 genera and around 150 species.

Diversity in India: In India, 31 species belonging to 7 genera and 2 families are recorded so far.

Diversity in States (Table)

| Sl.No. | State/Union Territory | No. Species | No. Endemic Species |
|--------|-----------------------|-------------|---------------------|
| 1 | Andhra Pradesh | 26 | 25 |
| 2 | Arunachal Pradesh | 0 | 0 |
| 3 | Assam | 0 | 0 |
| 4 | Bihar | 0 | 0 |
| 5 | Chhattisgarh | 1 | 1 |
| 6 | Gujarat | 0 | 0 |
| 7 | Goa | 0 | 0 |
| 8 | Haryana | 0 | 0 |
| 9 | Himachal Pradesh | 0 | 0 |
| 10 | Jharkhand | 0 | 0 |
| 11 | Karnataka | 0 | 0 |
| 12 | Kerala | 2 | 2 |
| 13 | Madhya Pradesh | 0 | 0 |
| 14 | Maharashtra | 0 | 0 |
| 15 | Manipur | 0 | 0 |
| 16 | Meghalaya | 2 | 1 |
| 17 | Mizoram | 0 | 0 |
| 18 | Nagaland | 0 | 0 |
| 19 | Odisha | 0 | 0 |
| 20 | Punjab | 0 | 0 |
| 21 | Rajasthan | 0 | 0 |

| Sl.No. | State/Union Territory | No. Species | No. Endemic Species |
|--------|---------------------------------|-------------|---------------------|
| 22 | Sikkim | 0 | 0 |
| 23 | Tamil Nadu | 0 | 0 |
| 24 | Telangana | 1 | 1 |
| 25 | Tripura | 0 | 0 |
| 26 | Uttar Pradesh | 0 | 0 |
| 27 | Uttarakhand | 0 | 0 |
| 28 | West Bengal | 0 | 0 |
| 29 | Andaman & Nicobar | 0 | 0 |
| 30 | Chandigarh | 0 | 0 |
| 31 | Dadra Nagar Haveli, Daman & Diu | 0 | 0 |
| 32 | Delhi | 0 | 0 |
| 33 | Jammu & Kashmir | 0 | 0 |
| 34 | Ladakh | 0 | 0 |
| 35 | Lakshadweep | 0 | 0 |
| 36 | Puducherry | 0 | 0 |
| | INDIA TOTAL | 31 | 31 |

Endemism: A total of 31 species are known from India and all of them are endemic to India and respective states. Maximum species were described from Andhra Pradesh which harbors more than 90% of the species *ie* 25 species of which 24 are endemic to the state.

Habitat: It inhabits interstitial spaces of sandy shore sediments of lakes, sandy and gravelly banks of rivers, streams and phreatic systems like caves and borewells, and springs, but some species dwell in on soft bottoms at depths ranging from 0.2 m to 1440 m and few Australian species inhabits marine beach, having a water salinity of 27‰ and in oligohaline and polyhaline waters as well, there is an African species which could live in a hot spring, at temperatures ranging up to 55°C (Reddy et al, 2017).

Ecological Significance: They are very sensitive to any kind of pollution which affects underground water so they can be used in the ecosystem monitoring.

Human Significance: They may be used in biomonitoring of ground water ecosystems.

Threatened species: They are not assessed for IUCN threat categories.

Protected Species as per WPA (2022): They are not listed under any schedules of Wildlife Protection Act (2022).

Species under CITES: They are not listed under any appendices of CITES.

Invasive alien species: No species are reported to be invasive in Indian waters.

Gap areas: This group was studied only by Dr. Ranga Reddy and team in Andhra Pradesh, researchers must concentrate on this group to know the actual diversity of this lesser known Crustacea in all over India. Except Andhra Pradesh none of the state is properly explored for this group.

Systematic list:

Subphylum Crustacea Brünnich, 1772

Class Malacostraca Latreille, 1802

Subclass Eumalacostraca Grobben, 1892

Superorder Syncarida Packard, 1885

Order Bathynellacea Chappuis, 1915

Family Bathynellidae Chappuis, 1915

Genus *Serbanibathynella* Ranga Reddy & Schminke, 2005

1. *S. primaindica* Ranga Reddy & Schminke, 2005
2. *S. secunda* Totakura & Ranga Reddy, 2014

Genus *Indobathynella* Ranga Reddy & Totakura, 2012

3. *I. prehensilis* Ranga Reddy & Totakura, 2012
4. *I. Socrates* Shaik, 2019

Genus *Camachobathynella* Ranga Reddy, Shaik & Totakura, 2015

5. *C. meghalayaensis* Ranga Reddy, Shaik & Totakura, 2015

Family Parabathynellidae Noodt, 1965**Genus *Chilibathynella* Noodt, 1964**

6. *C. kotumsarensis* Ranga Reddy, 2006

Genus *Atopobathynella* Schminke, 1973

7. *A. indica* Bandari, Shaik and Reddy, 2017
8. *A. inopinata* Bandari, Shaik and Reddy, 2017
9. *A. operculata* Ranga Reddy, Drewes & Schminke, 2008
10. *A. nelloreensis* Bandari, Shaik and Reddy, 2017
11. *A. paraoperculata* Ranga Reddy & Totakura, 2015

Genus *Habrobathynella* Schminke, 1973

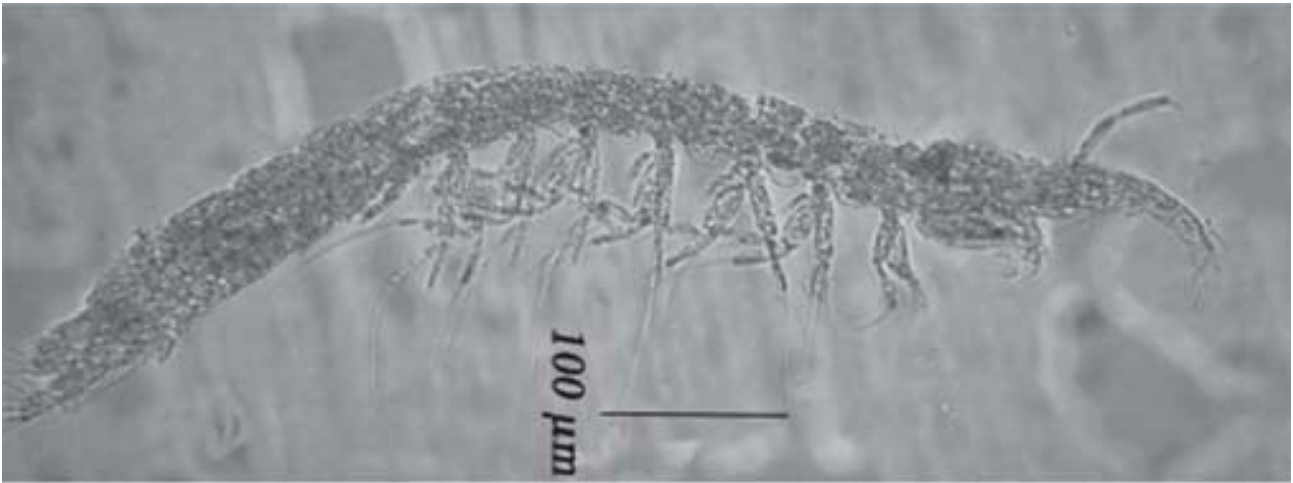
12. *H. nagarjunai* Ranga Reddy, 2002
13. *H. schminkei* Ranga Reddy, 2004
14. *H. indica* Ranga Reddy & Schminke, 2005
15. *H. plenituda* Ranga Reddy & Schminke, 2009
16. *H. krishna* Ranga Reddy & Totakura, 2010
17. *H. savitri* Ranga Reddy & Totakura, 2010
18. *H. vaitarini* Ranga Reddy & Totakura, 2010
19. *H. vidua* Ranga Reddy & Totakura, 2010
20. *H. ajraoi* Totakura & Ranga Reddy, 2014
21. *H. parakrishna* Totakura & Ranga Reddy, 2014
22. *H. pseudoindica* Totakura & Ranga Reddy, 2014
23. *H. bose* Shaik and Reddy, 2018

24. *H. ernstmayr* Shaik and Reddy, 2018
25. *H. raman* Shaik and Reddy, 2018-AP
26. *H. borraensis* Ranga Reddy, Shaik & Totakura, 2014
27. *H. adishankara* Elia, Shaik & Ranga Reddy, 2016
28. *H. mivattupuzha* Elia, Shaik & Ranga Reddy, 2016

Genus *Parvulobathynella* Schminke, 1973

29. *P. distincta* Ranga Reddy, Elia & Totakura, 2011
30. *P. projectura* Ranga Reddy, Elia & Totakura, 2011
31. *P. macrodentata* Ranga Reddy & Totakura, 2012

Images:



***Serbanibathynella secunda* Totakura and Renga Reddy, 2014**
(Source ZSI Animal Discoveries, 2014)



***Habrobathynella bose* Shaik and Reddy, 2018**
(Source ZSI Animal Discoveries, 2018)

References:

- Reddy, Y.R., Shaik, S and Totakura, V. R. 2017. Crustacea : Eumalacostraca : Bathynellacea. In: Kailash Chandra, Gopi, K.C., Rao, D.V., Valarmathi, K. and Alfred, J.R.B., 2017.
- Current Status of Freshwater Faunal Diversity in India: 1-624 (Published by the Director, *Zool. Surv. India*, Kolkata)
- Shaik S and Reddy Y.R. 2018. On the genus *Habrobathynella* Schminke, 1973 (Crustacea, Malacostraca, Bathynellacea), with description of three new species from India. *Zootaxa*. Oct 3;4492(1):1-72. doi: 10.11646/zootaxa.4492.1.1. PMID: 30313724.
- Shaik S., 2019. A New *Indobathynella* Species from an Indian Cave. The First Cavernicolous Bathynellidae (Syncarida: Bathynellacea) from South-eastern India. *Zootaxa*, DOI: <https://doi.org/10.11646/zootaxa.4565.3.2>