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Aquatic Faunal Diversity w.s.r to Mollusca and Crustaceans (Prawn and Crab) of Ken River, District Panna and Chatarpur, Madhya Pradesh, India

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ABSTRACT: In this paper we are reporting the Malcofaunal and Decapoda diversity of Ken River, one of the major river of Bundelkhand regions of Central India. The study is part of the ZSI project "Faunal Diversity of Panna Biosphere Reserve". Field surveys were conducted in different localities of the study areas during November 2022 to October 2024, which were then identified using established taxonomic keys. Six species of crustaceans (2 species of Crabs and 4 species of Prawn) and 13 species of Freshwater molluscs (7 species of Gastropods and 6 species of Bivalve) were reported from the Study area. 2 new distributional records of Macrobrachium unikarnatakae Jalihal, Shenoy & Sankolli, 1988 and Macrobrachium sankoli Jalihal and Shenoy, 1988 are also reported from M.P. The study serves the preliminary assessment of aquatic fauna (Molluscs and Decapoda) diversity of Ken River and highlights the need of further dedicated survey to comprehensively study the diversity of Ken river ecosystem which will aid to understand their distribution and ecology in the region.

Keywords: Molluscs, Decapoda, Ken River, Aquatic Fauna Diversity, Central India, Panna Biosphere Reserve, Madhya Pradesh.

INTRODUCTION

Freshwater habitats in India support a significant proportion of the total diversity of organisms, representing most of the taxonomic groups. As much as about 9.7% of the total Indian fauna are associated with freshwater ecosystems of India. (Kailash *et al*., 2017) Freshwater Molluscs and Decapods are the integral part of aquatic ecosystem as they play an important role in the Food Chain, nutrient cycling, Water quality monitoring and small-scale fisheries. Order Decapoda belongs to subphylum Crustacea comes under the class Malacostraca is divided into two suborders namely Dendrobranchiata and Pleocyemata. The suborder dendrobranchiata comprises exclusively the prawns of the superfamilies Penaeoidea Rafinesque, 1815 and Sergestoidea Dana, 1852. Whereas the suborder Pleocyemata with its 11 infraorders comprises the remaining commercially important crustaceans like shrimps, mudshrimps, lobsters, crabs and cray fishes (Valarmathi, 2024). About 655 species of Caridean prawns and1476 species of brachyuran crabs are known in world which inhabits freshwater bodies. Among them, 118 species of prawns (Valarmathi *et al.*, 2017) and 149 species of freshwater crabs belonging to 42 genera and 2 families (Gecarcinucidae and Potamidae) (Pati, 2024) had been reported in India and only 3 species of freshwater Crab from Madhya Pradesh.

The Knowledge of Shrimp fauna of India is strengthened by various Indian Scientists. Suseelan (1996) reported 118 shrimp species from India which includes 66 Penaeoid, 5 Sergestoid and 47 Caridean Shrimps. Similarly Radhakrishnan *et al.* (2012) published an annonated checklist of the Penaeoid sergestoid stenopodid and caridean shrimps of India where he reported 437 species marine and 94 species of freshwater prawns from India. Chanda (2017) made a checklist of Penaeid prawns of Indian water and reported the occurrence of 78 species under 17 genera. Valarmathi (2019, 2020, 2024) provided checklists of mangrove inhabiting and freshwater (Shrimps, Prawns, Lobsters and Cray Fish) decapods respectively and reported the distribution of 553 species of non-crab decapods in various ecosystems like deep sea, freshwater, estuarine, marine and mangrove. Marcobrachium is widely distributed freshwater as well as estuarine genus of the prawn fauna. The Prawn diversity in Madhya Pradesh is very scarce with only 5 species from Madhya Pradesh (Jayachandran, 2010; Valarmathi, 2024).

Phylum Mollusca is the second largest phylum followed by Arthropods, with around 85,000 extant species (Tripathy *et al*., 2024). In India 214 species of freshwater molluscs (Gastropod and Bivalve). The Indian freshwater molluscs fauna represented by Class Gastropoda and class Bivalvia harbour a rich diversity in India, which comprising 214 species of freshwater molluscs (Gastropod and Bivalve) and 1138 species of Land Snails (Tripathy *et al.*, 2024). Based on the recent study and relevant publications of Molluscs Checklist

of India 2024, the freshwater diversity of Madhya Pradesh is estimated to be 25 species with 4 endemic species where Land molluscs diversity as 22 species with 9 endemic species (Tripathy *et al.,* 2024). The work on the Malcofaunal diversity of Central India was significantly contributed by Agarwal (1976, 1977); Ramakrishna *et al*. (2006). Patil & Talmale (2011) have reported 72 species belonging to 38 genera, under 24 families of freshwater and land mollusca from Madhya Pradesh including Chattisgarh.

The Panna landscape in north-central Madhya Pradesh is one of the historical landscapes, located on the Vindhyan Range within the Biogeographic Province 6A Deccan Peninsula - Central Highlands (Rodgers *et al.,* 2002). The Ken River is a major river in central India, flowing through the states of Madhya Pradesh and Uttar Pradesh. It is a right-bank tributary of the Yamuna River and extends for approximately 427 kilometers. Originating from the Kaimur Hills near Ahirgawan village in Katni district (Madhya Pradesh), the Ken traverses a rugged and ecologically rich region known as Bundelkhand region of Central India. Indian rivers boost a rich aquatic faunal diversity.

Study Area: For aquatic faunal study, 2 sites Ken river, Madla and ken River way to Kisangarh on streams/ rivers of the Ken River basin inside Panna Biosphere reserve were included . The sampling was undertaken during November 2022 to October 2024 in total 4 surveys in different season of the year.

MATERIALS AND METHOD

Molluscs were collected from the Ken River by hand picking method. Dead and dry shells were handpicked while live shells were collected using aquatic nets. Decapods were collected using different fine mesh strainer, sieve, tea strainer, and by hand picking. After collection, samples were segregated, counted and properly labelled. Live specimens were preserved in 75% alcohol and the dead dry specimens were preserved in dry condition only. The specimen brought to the Laboratory and was identified by using Rescholar microscope. Species identification and confirmation were carried out using available literature. Identification of Molluscs, Prawn and Crabs were done using the Taxonomic key based on Ramakrishna and Dey (2007), Subbao Rao (1989); Jalihal *et al*. (1988); Raghunathan and Valarmathi (2007); Pati and Sharma (2014) respectively. Identified species are sorted and stored in suitable containers, labelled and preserved in National Zoological Collection at Central Zone Regional Centre, Zoological Survey of India, Jabalpur. The present data is based on the Material examined in the study area.

RESULT AND DISCUSSION

The present study is the first comprehensive account on the Malcofauna and Decapoda diversity of Panna Biosphere Reserve which revealed the occurrence of 13 species of Freshwater mollusc belonging to 10 genera, 05 families, 05 orders and 2 classes. 2 species of Freshwater crabs belonging to Family Gecarcinucidae and 4 species of Freshwater Prawn belonging to family Palamonidae from which 2 prawn species *Macrobrachium unikarnatakae* Jalihal *et al.* (1988) and *Macrobrachium sankoli Jalihal and Shenoy, 1988 reported for the first time from the state.* The study contributed significantly to the knowledge of aquatic fauna (Decapoda and Molluscs) diversity of Ken River. In the present study the Molluscs diversity is dominated by Freshwater Gastropods and Bivalves with 13 species where Decapods were represented by only 6 species.

The results of this study are promising; it sheds light on the aquatic fauna diversity of Ken River ecosystem which delivered further distributional records of the species in the State of Madhya Pradesh.

The Complete list of the collected mollusc and Decapod species from Panna Biosphere Reserve along with its taxonomic details is depicted in Table 1.

Table 1: Aquatic fauna Diversity (Decapoda and Mollusca) of Ken River, Panna Biosphere Reserve (Based on the Material studied).

Sr. No.	Molluscs	Species
1	Gastropoda	*Filopaludina bengalensis* (Lamarck, 1822)
2		*Idiopoma dissimilis* (Müller, 1774)
3		*Melanoides tuberculata* (Mueller,1774)
4		*Mieniplotia scabra* (Müller, 1774)
5		*Tarebia granifera* (Lamarck, 1822)
6		*Tarebia lineate* (Gray, 1828)
7		*Radix refescens* (Gray,1828)
8	Bivalvia	*Lamellidens marginalis* Lamarck,1822)
9		*Lamellidens corrianus* (Lea,1834)
10		*Parreysia corrugate* (Müller, 1774)
11		*Indonaia caerulea* (Lea, 1834)
12		*Indonaia gratiosa* (Philippi, 1843)
13		*Corbicula striatella* (Deshayes,1834)
	Decapoda	
1	Freshwater Crab	*Barytelphusa cunicularis* (Westwood in Sykes, 1835)
2		*Barytelphusa guerini* (H. Milne Edwards, 1853)
3	Freshwater Prawn	*Macrobrachium lamarrei* (H.M. Edewards,1837)
4		*Macrobrachium dayanum* (Henderson, 1893)
5		*Macrobrachium unikarnatakae* Jalihal *et al.* (1988)
6		*Macrobrachium sankoli* Jalihal *et al.* (1988)

The knowledge on Freshwater diversity of any riverine ecosystem in Central India is very scarce; the present report is perhaps the first comprehensive account of the Decapoda and Freshwater Molluscs diversity of a major Riverine system of Central India. The freshwater Decapod diversity of Central India is limited and only a few species of these major groups are reported from this Biodiversity rich State.

Valarmathi (2024) reported only one species *Macrobrachium dayanum* (Henderson, 1893) from M.P, India. Jayachandran (2010) reported a total of 5 species from M.P where he mistakenly mentioned *Macrobrachium assamense peninsularae* (Tiwari, 1958) twice. Which all together reported total 5 species from M.P. *Hussain and Manohar, 2016 studied Reproductive aspects of freshwater prawn, Macrobrachium lamarrei lamarrei (H. M. Edwards, 1837) in Upper Lake at Bhopal in account to this current study reports a total of 8 species of freshwater Prawn from Madhya Pradesh.*

The present study highlighted the Fresh water Prawn diversity of Madhya Pradesh from the collection of Ken River, Panna with total 4 species *Macrobrachium dayanum* (Henderson, 1893), *Macrobrachium lamarrei lamarrei* (H. M. Edwards 1837) with 2 new distributional reported of *Macrobrachium unikarnatakae* Jalihal *et al*. (1988) and *Macrobrachium sankoli* Jalihal and Shenoy, 1988 report for the first time from the state, which were previously reported from state Karnataka and Tamilnadu. Similarly there are 26 Freshwater molluscs species (Tripathy *et al*., 2024; Pallabi *et al.*, 2024) and 3 Freshwater crab species (Pati, 2024) are reported from the State. This is the first comparative study of aquatic diversity of Ken river of Central India which disclosed a Total of 6 Decapoda and 13 Fresh Water Molluscs from the region. Further more extensive study will shed light on the complete diversity of this river in Central India.

CONCLUSIONS

The study of Malacofaunal and Decapoda diversity of the Ken River, Madhya Pradesh yields the total diversity of 13 freshwater Molluscs species comprising of both Class Gastropoda and Bivalvia. Similarly reports 6 species of Decapods (4 species of Prawn and 2 species of Crab) from the study area with 2 new distributional records of *Macrobrachium unikarnatakae* Jalihal *et al*. (1988) and *Macrobrachium sankoli* Jalihal and Shenoy, 1988 from the State Madhya Pradesh.

FUTURE SCOPE

The study serves the preliminary assessment of aquatic fauna (Molluscs and Decapoda) diversity of Ken River and highlights the need of further dedicated survey to comprehensively study the diversity of Ken river ecosystem which will aid to understand their distribution and ecology in the region.

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Conflict of Interest. None.

REFERENCES

Agarwal, H. P. (1976). New records of freshwater gastropods from Madhya Pradesh, India. *Newsl. Zool. Surv. India*, *2*(5), 191-192.

Agarwal, H. P. (1977). Fauna of Pench National Park, M.P. Mollusca. *Newsl. Zool. Surv. India*, *3*(1), 33-36.

Dana, J. D. (1852). Conspectus crustaceorum, &c. Conspectus of the Crustacea of the exploring expedition under Capt. C. Wilkes, U.S.N. *Macroura. Proceedings of the Academy of Natural Sciences of Philadelphia*, *6*, 10-28.

Deshayes, G. P. (1832-1834). Mollusques. In: Bélanger, C. (ed.) Voyage aux Indes-Orientales, par le nord de l'Europe, les provinces du Caucase, la Géorgie, l'Arménie et la Perse, suivi de détails topographiques, statistiques et autres sur le Pégou, les îles de Java, de Maurice et de Bourbon, sur le Cap-de-Bonne-Espérance et Sainte-Hélène, pendant les années 1825, 1826, 1827, 1828 et 1829. Volume 2, *Zoologie*: 403–416 [1832], 417–440 [1833], 3 pls [1833 or 1834]. Paris: Arthus Bertrand.

Gray (1828). Tarebia (Tarebia) lineata , Wood, Index Text. Supp. Helix, fig.68; Trosch. In *Wiegm. Arch. Nat*. 1837, p. 176.

Henderson, J. R. (1893). A contribution to Indian carcinology. Transactions of the Linnean Society of London (2) *Zoology*, *5*, 325-458, pls. 36-40.

Jalihal, D. R., Shakuntala, Shenoy and Sankolli, K. N. (1988). Freshwater prawns of the genus Macrobrachium Bate, 1868 (Crustacea, Decapoda, Palaemonidae) from Karnataka, India. *Rec. Zool. Survey. India, Miscellaneous puplication, Occational paper*, 11.

Jayachandran, K. V. (2010). Indian palaemonid decapod crustaceans: taxonomic status, research challenges and conservation needs. *Indian J. Anim. Sci*., *80*(4) (Suppl.), *13*, 46-52.

Kailash Chandra, Gopi, K. C., Rao, D. V., Valarmathi, K. and Alfred, J. R. B. (2017). Current Status of Freshwater Faunal Diversity in India, *Zool. Surv. India*, Kolkata 1-624.

Lamarck, [J.-B. M.] de. "1816" (1822). Histoire naturelle des animaux sans vertèbres. Tome sixième, 2me partie. Paris: published by the Author, 232 pp. http://biodiversitylibrary.org/page/13181853.

Lea, I. (1834). Observations on the naïades; and descriptions of new species of that, and other families. Transactions of the American Philosophical Society (NS)5:23–119,pls1-9.

Milne Edwards, H. (1834–1840). *Histoire Naturelle des Crustacés, Comprenant l´Anatomie, la Physiologie et la Classification de ces Animaux*, Vol I (1834): i–xxxv + 1–468, Vol. II (1837): 1–532, Vol. III (1840): 1–638; atlas: 1–32, pls. 1–42. Encyclopédique Roret, Paris.

Milne Edwards, H. (1853). *Mémoire sur la famille des ocypodiens. Annales des Sciences Naturelles*, 3rd series. 20: 163-228, pls. 6-11.

Müller, O. F. (1774). Vermium terrestrium et fluviatilium, seu animalium infusorium, Helminthicorum, et testaceorum, non marinorum, succincta historia. vol 2: I–XXXVI, 1–214, 10 unnumbered pages. https://www.biodiversitylibrary.org/page/12893715.

Pallabi, P., Kushwaha, S. and Nair, A. (2024) Preliminary report on the occurrence of molluscs in the selected rice field ecosystem in Jabalpur district with the report on the occurrence of exotic invasive snail Physella acuta (Draparnaud, 1805), *International Journal of Global Science Research*, *11*(2), 2381-2387.

Pati, S. K. and Sharma, R. M. (2014). Freshwater crabs (Crustacea:Decapoda:Brachyura Gecarcinucidae). In the collection of Western Regional Centre, Pune, *Occasional Paper*, *Zool. Surv. India*, Kolkata, *363*, 1-44 .

Pati (2024). Fauna of India Checklist: Arthropoda: Crustacea: Malacostraca: Decapoda: Brachyura (Freshwater Crabs). Version 1.0. *Zoological Survey Indi*a. DOI: https://doi.org/10.26515/ Fauna/1/2023/ Arthropoda: Crustacea: Malacostraca

Patil, S. G and Talmale, S. S. (2011). Land and Freshwater Mollusca in: Fauna of Madhya Pradesh (including Chhattisgarh), State Fauna Series, Zool. Surv. India, Kolkata 15(Part-3), 1-30.

Philippi, R. A. (1842-1850). Abbildungen und Beschreibungen neuer oder wenig gekannter Conchylien unter Mithülfe mehrerer deutscher Conchyliologen. Cassel, T. Fischer. Vol. 1: 1-20 [1842], 21-76 [1843], 77-186 [1844], 187-204 [1845]; Vol. 2: 1-64 [1845], 65-152 [1846], 153-232 [1847] ; Vol. 3: 1-50 [1847], 51-82 [1848], 1-88 [1849], 89-138 [1850].,

Rafinesque, C. S. (1815). Analyse de la nature ou Tableau de l'univers et des corps organisés. Published by the author, *Palermo*. 224 pp.

Ramakrishna, Chandra, K., Nema, O. K., Ahirwar, S. C. and Alfred, J. R. B. (2006). Faunal Resources 0f National Parks of Madhya Pradesh and Chhattisgarh. *Conservation Area Series*, *Zool. Surv. India*, Kolkata, *30*, 1-123.

Ramakrishna and Dey, A. (2007) Handbook on Indian Freshwater Molluscs: *Zoological Survey of India*, Kolkata: 399pp.

Radhakrishnan, E. V., Deshmukh, V. D., Maheswarudu, G., Josileen, J., Dineshbabu, A. P., Philipose, K. K. and Raju, B. (2012). Prawn fauna (Crustacea: Decapoda) of India-an annotated checklist of the Penaeoid, Sergestoid, Stenopodid and Caridean prawns. *Journal of the Marine Biological Association of India*, *54*(1), 50-72.

Raghunathan, M. B. and Valarmathi, K. (2007). Freshwater Prawn and Shrimp (Crustacea: Decapoda) Diversity in Singaperumalkoil Paddy Field Near Chennai. *Records of the Zoological Survey of India*, *107*(2), 93–101.

Rodgers, W. A., Panwar, H. S. and Mathur, V. B. (2002). Wildlife Protected Area Network in India: A Review. Wildlife Institute of India, Dehradun.

Subba Rao, N. V. (1989). Handbook Freshwater Molluscs of India: *Zoological Survey of India*, Calcutta*:* 289 pp.

Suseelan, C. (1996).Crustacean biodiversity, conservation and management. In: *Marine Biodiversity Conservation and Management.* (Eds. N.G.Menon & C.S.G.Pillai), CMFRI, Kochi, 41-64.

Tiwari, K. K. (1958). New species and subspecies of Indian freshwater prawns. *Records of the Indian Museum*. 53(1-2) [for 1955]: 297-300.

Tripathy, B., Tudu, P. C., Mukhopadhyay, A., Sajan, S. K., Sreeraj, C. R., Gurumayum, S. D., Ghosh, A., Sultana, R., Purushothaman, J. and Siddique, A. (2024). Checklist of Fauna of India: Mollusca. Version 1.0. *Zoological Survey India.*

Valarmathi, K. Kailash Chandra, Gopi, K. C., Rao, D. V., Valarmathi, K. and Alfred, J. R. B (2017). Crustacea : Decapoda (Shrimps and Crabs). In: Current Status of Freshwater Faunal Diversity in India. *Zoological Survey of India*, Kolkata, 313-331.

Valarmathi, K. (2019). Crustacea. In: Faunal Diversity of Mangrove Ecosystem in India, *Zool. Surv. India*, *Kolkata:* 197- 256.

Valarmathi, K. (2020). Arthropoda: Crustacea: Decapoda (Shrimps/Prawns, Mudshrimps and Crayfish). 383-400. Chandra,K., Raghunathan, C. and Mondal, T. 2020. Faunal Diversity of Biogeographic Zones: Coasts of India, *Zool. Surv. India*, *Kolkata*: 1-807.).

Valarmathi (2024). Fauna of India Checklist: Arthropoda: Crustacea: Malacostraca: Decapoda (Shrimps, Prawns, Lobsters and Cray Fish) Version 1.0. *Zoological Survey India.* DOI: https://doi.org/10.26515/Fauna/1/2023/ Arthropoda: Crustacea: Malacostraca:Decapoda.

Westwood, J. O. (1835). "Some account of the land-crabs of the Dukhun with a description of the species" *Transactions of the Royal Entomological Society of London, 1*(3), 181–184.

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