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Journal of Threatened Taxa

10.11609/jott.2023.15.2.22559-22770
www.threatenedtaxa.org

26 February 2023 (Online & Print)
15(2): 22559-22770
ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)



Open Access

200





ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

Publisher
Wildlife Information Liaison Development Society
www.wild.zooreach.org

Host
Zoo Outreach Organization
www.zooreach.org

43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

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continued on the back inside cover

Cover: Pseudo-flying animals and wind-dependent seed & spore dispersers – made with digital painting in Krita. © Melito Prinson Pinto



Photographic record of the butterfly ray *Gymnura cf. poecilura* (Myliobatiformes: Gymnuridae) from the Bhagirathi-Hooghly River in West Bengal, eastern India

Priyankar Chakraborty 

Sundarban Tiger Widow Welfare Society (STWWS), Arampur, Gosaba, West Bengal 743370, India.
priyankar.jour@gmail.com

Most elasmobranchs are marine, but some (euryhaline) species occur regularly in estuaries and lower reaches of rivers, and some are obligate freshwater species (Lucifora et al. 2015). Stingrays (some species of Dasyatidae and most of Potamotrygonidae) have been recorded in freshwater habitats (Compagno & Roberts 1982; Weigmann 2016).

Butterfly rays, family Gymnuridae, comprise a single genus *Gymnura* van Hasselt, 1823 and are generally marine, although sometimes found in brackish water areas (McEachran & Carvalho 2002). It includes 12 valid species found in the Indo-Pacific and the Atlantic Oceans (Yokota et al. 2016). Globally, three *Gymnura* species are marginal, and one is brackish marginal (Martin 2005).

Records of elasmobranchs from the freshwater reaches of the Ganges go back centuries. Hamilton (1822) described rays (called “skates”) occurring far away from the tidal reaches of the river. At present, rays are a rare bycatch in parts of the freshwater reaches of the Ganges in West Bengal (author pers. obs. 14.vi.2012; 7.i.2018; 22.i.2022).

During a pilot survey of riverine elasmobranchs in West Bengal, eastern India, a fisher showed photographs of a “Shankar Maach” (local name for stingray) that he

had caught in a set net. He said he had caught the fish in April 2019 from the Bhagirathi-Hooghly River, a tributary of the Ganga (22.311°N, 88.094°E) near Barkolia village in Howrah district of West Bengal (Figure 1). He stated that the fish weighed about 8.5 kg and had a disc width of about 90 cm (Image 1). The fish was subsequently identified from the photographs as a gymnurid ray based on its unique body shape with a strongly depressed body and pectoral fins extending into a “lozenge-shaped” disc, and as *Gymnura cf. poecilura* (Shaw, 1804) based on its long tail with 13 black bands and lack of a dorsal fin (Yokota et al. 2016). The fisher stated that he and his family had eaten the fish. As the species was only recognised from photographs, the specific name is preceded by the qualifier ‘cf’.

The nearest marine environment from which gymnurids have been reported is over 100 km away in Digha (Yennawar et al. 2017), and they have also been listed in the mangrove-lined brackish waters of the Sundarbans in southeast West Bengal (Mishra et al. 2019), which is also a considerable distance from the capture site of this study. Therefore, this study reports the first occurrence of Gymnuridae, i.e. *Gymnura cf. poecilura*, from the Bhagirathi-Hooghly River in West

Editor: Simon Weigmann, Elasmobranch Research Laboratory, Hamburg, Germany.

Date of publication: 26 February 2023 (online & print)

Citation: Chakraborty, P. (2023). Photographic record of the butterfly ray *Gymnura cf. poecilura* (Myliobatiformes: Gymnuridae) from the Bhagirathi-Hooghly River in West Bengal, eastern India. *Journal of Threatened Taxa* 15(2): 22749–22751. <https://doi.org/10.11609/jott.7985.15.2.22749-22751>

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Funding: The author has received no financial support for the research, authorship, or publication of this article.

Competing interests: The author declares no competing interests.

Acknowledgements: I would like to thank the fisher who provided me with valuable information and gave me permission to use this information together with the photographs. I would also like to thank the reviewers and editors for their careful review of my manuscript and their insightful remarks and suggestions.



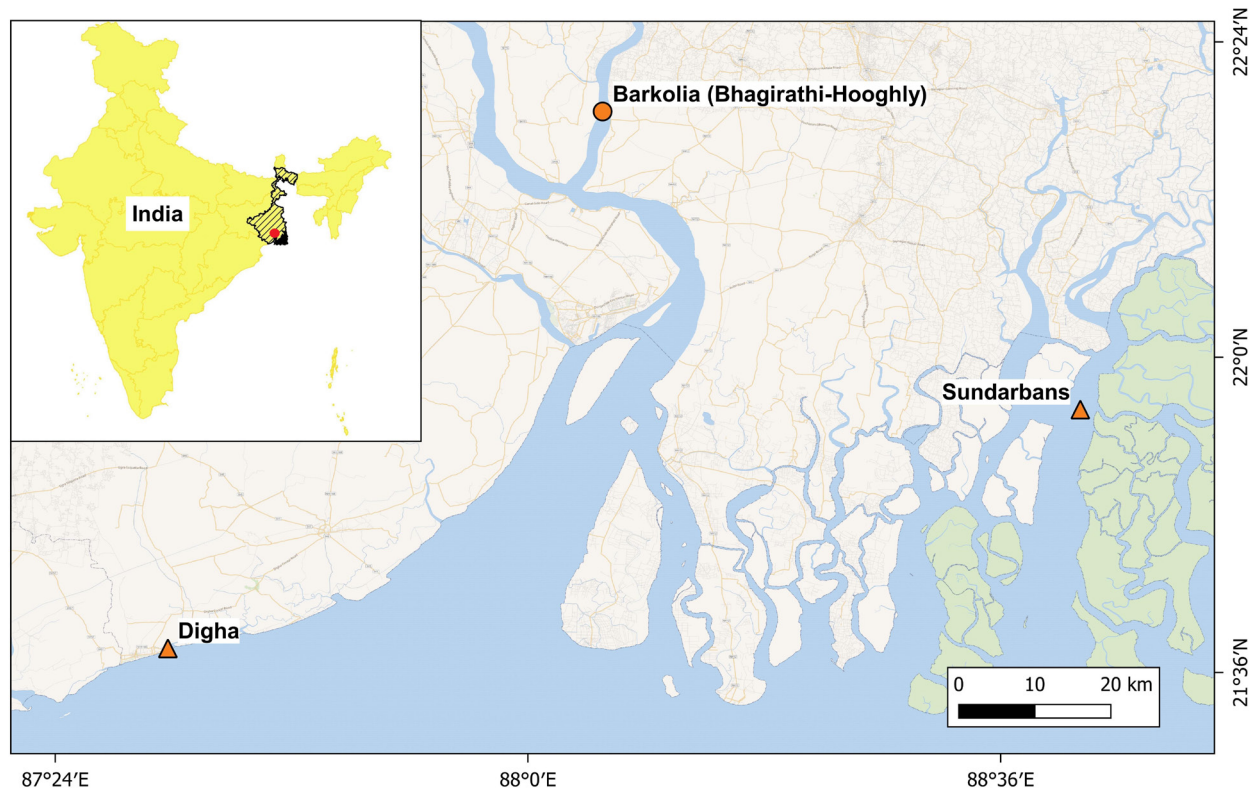


Figure 1. Locations in West Bengal where butterfly rays (*Gymnuridae*) have been observed. The circle represents the new record described in this study, and the triangles represent previous records. The inset map shows the location of West Bengal (hashed black) in India, and the red dot indicates the collection area of the specimen in this study.

Bengal and India's first *Gymnuridae* so far inland. A separate species of *Gymnura*, also referred to as *G. cf. poecilura*, occurs in the northern Arabian Sea (Muktha et al. 2016). However, it is unlikely that the specimen in this study is *G. cf. poecilura* (sensu Muktha et al. 2016), as it was captured from a tributary of the Ganga that flows into the western Bay of Bengal.

Although the identification of the species is based on only two photographs, this evidence is crucial as *G. poecilura* is listed as Vulnerable by the International Union for the Conservation of Nature (IUCN) Red List, and its current population trend is reported to be in decline (Sherman et al. 2021). This study shows how fishers' knowledge can help fill information gaps about rare riverine elasmobranchs.

Thus, this study helps direct future research to document the diversity of elasmobranchs in Indian rivers and to understand how they use their non-marine habitats. It is also important to study the impact of fishing on elasmobranch populations in rivers. This will help to detect any population declines.

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Image 1. *Gymnura cf. poecilura* from the Bhagirathi-Hooghly River in West Bengal, eastern India. a—Anterodorsal view; b—Posterodorsal view. The latter shows the tail with 13 black bands.

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The Managing Editor, JoTT,
c/o Wildlife Information Liaison Development Society,
43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore,
Tamil Nadu 641006, India
ravi@threatenedtaxa.org

Journal of Threatened Taxa is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64



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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

February 2023 | Vol. 15 | No. 2 | Pages: 22559–22770

Date of Publication: 26 February 2023 (Online & Print)

DOI: 10.11609/jott.2023.15.2.22559-22770

Communications

Sunda Clouded Leopard *Neofelis diardi* (Cuvier, 1823) (Mammalia: Carnivora: Felidae) occupancy in Borneo: results of a pilot vehicle spotlight transect survey
– Jephthe Sompud, Sze Lue Kee, Kurtis Jai-Chyi Pei, Paul Liao, Collin Goh & Anthony J. Giordano, Pp. 22559–22566

On the occurrence of Eurasian Otter *Lutra lutra* (Carnivora: Mustelidae) in Neeru stream of Chenab catchment, Jammu & Kashmir, India
– Dinesh Singh, Anil Thakar & Neeraj Sharma, Pp. 22567–22573

Distribution of avifauna on twenty-one islands of the Gulf of Mannar Biosphere Reserve, India
– H. Byju, N. Raveendran & S. Ravichandran, Pp. 22574–22585

Habitats of House Sparrow *Passer domesticus* (Linnaeus, 1758) in Rameswaram Island, Tamil Nadu, India
– M. Pandian, Pp. 22586–22596

Seasonal diversity and dietary guild structure of birds in two Vindhyan gorge forests of Rajasthan, India
– Ashvini Kumar Joshi, Pp. 22597–22605

Differential kleptoparasitic interactions of Himalayan Vulture *Gyps himalayensis* with conspecifics and heterospecifics during various stages of breeding
– Hameem Mushtaq Wani, Pp. 22606–22610

Range extension of *Isthmoheros tuyrensis*, a threatened species of fish (Cichlidae) in Panama: including new ecological and morphological data
– Arturo Dominici-Arosemena, Arturo Angulo, Haydee Osorio-Ugarte, Quiriatjaryn Ortega-Samaniego, Andrés Fraiz, Arminda Guerrel, Edgar Araúz, Jennyfer Montiel, Beatriz Medina, Yehudi Rodríguez-Arriatti, Yessenia González, Javier Pardo, Karly Urriola & Adrián Ramos-Merchante, Pp. 22611–22622

Tadpole morphology of Jerdon's Narrow-mouthed Frog *Uperodon montanus* (Jerdon, 1853) with a range and elevation extension report from Western Ghats, India
– Amit Hegde, Girish Kadadevaru & K.P. Dinesh, Pp. 22623–22631

An annotated checklist of the economically important family of moths (Lepidoptera: Heterocera: Noctuidae) of the northern Western Ghats, India, with notes on their type species, diversity, distribution, host plants, and an unusual new faunistic record
– Aparna Sureshchandra Kalawate, Prachee Surwade & S.N. Pawara, Pp. 22632–22653

Report of a tussock moth genus *Maeoproctis* (Lepidoptera: Erebiidae: Lymantriinae: Nygmiiini) from India
– Gagan Preet Kour Bali & Amritpal Singh Kaleka, Pp. 22654–22660

Butterflies of Silent Valley National Park and its environs, Western Ghats of Kerala, India
– Kalesh Sadasivan, P.C. Sujitha, Toms Augustine, Edayillam Kunhikrishnan, Vinayan P. Nair, M. Divin Murukesh & Baiju Kochunarayanan, Pp. 22661–22676

Notes on morphology and bionomics of *Urolabida histrionica* (Westwood) (Heteroptera: Urostylididae) from Assam, India
– Sachin Ranade & Hemant V. Ghate, Pp. 22677–22685

Andromonoecy functional through heterostyly and large carpenter bees as principal pollinators in *Solanum carolinense* L. (Solanaceae)
– Suvarna Raju Palathoti & Aluri Jacob Solomon Raju, Pp. 22686–22694

An inventory of endemic and near endemic angiosperm flora of Biligiri Rangaswamy Temple Tiger Reserve, peninsular India
– J. Jayanthi, Pp. 22695–22717

Multidimensional time-lapse of a relict species *Canarium strictum* Roxb. from a sacred landscape in Pune District, India
– Mukul Mahabaleshwarkar, Nivedita Ghayal, Supriya Mahabaleshwarkar & Vinaya Ghate, Pp. 22718–22725

Rediscovery of *Sewardiella tuberifera* Kash., a long-lost monotypic endemic Indian liverwort
– Sapana Pant, S.D. Tewari, Prachi Joshi, Manisha Bhandari & Richa Arya, Pp. 22726–22730

***Physcomitrium euryostomum* Sendtn. (Funariaceae: Bryophyta) and *Splachnobryum obtusum* (Brid.) Müll. Hal. (Splachnobryaceae: Bryophyta), two rare moss species from the Western Ghats of Kerala**
– C. Nair Manju, P.M. Vineesha, B. Mufeed & K.P. Rajesh, Pp. 22731–22736

Short Communications

First record of the Great Seahorse *Hippocampus kelloggii* Jordan & Snyder, 1901 (Actinopterygii: Syngnathiformes: Syngnathidae) from the northwestern coast of Bay of Bengal
– Anil Kumar Behera, Biswajit Mahari & Amrit Kumar Mishra, Pp. 22737–22740

***Schoenoplectiella erecta* (Poir.) Lye ssp. *raynallii* (Schuyler) Beentje (Cyperaceae) – a new record to India from Ossudu Bird Sanctuary, Villupuram District, Tamil Nadu**
– Chandrasegrane Pradeep, Paneerselvam Umamaheswari, Natesan Balachandran & Raphael Mathevet, Pp. 22741–22745

Notes

Status of the Sumatran Striped Rabbit *Nesolagus netscheri* in Isau-Isau Wildlife Reserve, South Sumatra Province, Indonesia
– Arum Setiawan, Muhammad Iqbal, Octavia Susilowati, Doni Setiawan, Martialis Puspito Khristy Maharsi & Indra Yustian, Pp. 22746–22748

Photographic record of the butterfly ray *Gymnura cf. poecilura* (Myliobatiformes: Gymnuridae) from the Bhagirathi-Hooghly River in West Bengal, eastern India
– Priyanka Chakraborty, Pp. 22749–22751

First report of the fairyfly *Schizophragma mitai* Triapitsyn (Hymenoptera: Mymaridae) from India with notes on *S. indica* Rehmat & Anis
– Anandhan Rameshkumar, Nazarius Anand, Sayan Sardar & Sarfrazul Islam Kazmi, Pp. 22752–22756

Occurrence of *Ranunculus sceleratus* L. (Ranunculaceae) from the Nilgiri District, Tamil Nadu, India
– J. Shashikanth, S. Mugendhiran & Digvijay Verma, Pp. 22757–22760

First report of *Meliola panici* on *Ottocloa nodosa* (Kunth) Dandy (Poaceae)
– Gopinathan Nair Gokul & Jacob Thomas, Pp. 22761–22763

New record of an usneoid lichen *Usnea hirta* (L.) Weber ex F.H. Wigg. from India
– K.S. Vinayaka, Archana R. Mesta & N. Rajeshwari, Pp. 22764–22766

On the occurrence of two species of rare cyanobacterial genus *Petalonema* M.J. Berkeley ex Wolle, 1887 (Cyanophyceae: Nostocales: Scytonemataceae) from eastern Himalaya, India
– Jai Prakash Keshri, Narendra Nath Koley & Jay Mal, Pp. 22767–22770

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