

Building evidence for conservation globally

# Journal of Threatened Taxa

10.11609/jott.2023.15.8.23631-23826

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

26 August 2023 (Online & Print)

15(8): 23631-23826

ISSN 0974-7907 (Online)

ISSN 0974-7893 (Print)



Open Access





43/2 Varadarajulu Nagar, 5<sup>th</sup> 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](http://www.threatenedtaxa.org)  
Email: sanjay@threatenedtaxa.org

**EDITORS****Founder & Chief Editor****Dr. Sanjay Molur**Wildlife Information Liaison Development (WILD) Society & Zoo Outreach Organization (ZOO),  
43/2 Varadarajulu Nagar, 5<sup>th</sup> Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India**Deputy Chief Editor****Dr. Neelesh Dahanukar**

Noida, Uttar Pradesh, India

**Managing Editor****Mr. B. Ravichandran**, WILD/ZOO, Coimbatore, Tamil Nadu 641006, India**Associate Editors****Dr. Mandar Paingankar**, Government Science College Gadchiroli, Maharashtra 442605, India**Dr. Ulrike Streicher**, Wildlife Veterinarian, Eugene, Oregon, USA**Ms. Priyanka Iyer**, ZOO/WILD, Coimbatore, Tamil Nadu 641006, India**Dr. B.A. Daniel**, ZOO/WILD, Coimbatore, Tamil Nadu 641006, India**Editorial Board****Dr. Russel Mittermeier**

Executive Vice Chair, Conservation International, Arlington, Virginia 22202, USA

**Prof. Mewa Singh Ph.D., FASc, FNA, FNAsc, FNAPsy**

Ramanna Fellow and Life-Long Distinguished Professor, Biopsychology Laboratory, and Institute of Excellence, University of Mysore, Mysuru, Karnataka 570006, India; Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; and Adjunct Professor, National Institute of Advanced Studies, Bangalore

**Stephen D. Nash**

Scientific Illustrator, Conservation International, Dept. of Anatomical Sciences, Health Sciences Center, T-8, Room 045, Stony Brook University, Stony Brook, NY 11794-8081, USA

**Dr. Fred Pluthero**

Toronto, Canada

**Dr. Priya Davidar**

Sigur Nature Trust, Chadapatti, Mavinahalli PO, Nilgiris, Tamil Nadu 643223, India

**Dr. Martin Fisher**

Senior Associate Professor, Battcock Centre for Experimental Astrophysics, Cavendish Laboratory, JJ Thomson Avenue, Cambridge CB3 0HE, UK

**Dr. John Fellowes**

Honorary Assistant Professor, The Kadoorie Institute, 8/F, T.T. Tsui Building, The University of Hong Kong, Pokfulam Road, Hong Kong

**Prof. Dr. Mirco Solé**

Universidade Estadual de Santa Cruz, Departamento de Ciências Biológicas, Vice-coordenador do Programa de Pós-Graduação em Zoologia, Rodovia Ilhéus/Itabuna, Km 16 (45662-000) Salobrinho, Ilhéus - Bahia - Brasil

**Dr. Rajeev Raghavan**

Professor of Taxonomy, Kerala University of Fisheries &amp; Ocean Studies, Kochi, Kerala, India

**English Editors****Mrs. Mira Bhojwani**, Pune, India**Dr. Fred Pluthero**, Toronto, Canada**Mr. P. Ilangovan**, Chennai, India**Ms. Sindhura Stothra Bhashyam**, Hyderabad, India**Web Development****Mrs. Latha G. Ravikumar**, ZOO/WILD, Coimbatore, India**Typesetting****Mrs. Radhika**, ZOO, Coimbatore, India**Mrs. Geetha**, ZOO, Coimbatore India**Fundraising/Communications****Mrs. Payal B. Molur**, Coimbatore, India**Subject Editors 2020–2022****Fungi****Dr. B. Shivaraju**, Bengaluru, Karnataka, India**Dr. R.K. Verma**, Tropical Forest Research Institute, Jabalpur, India**Dr. Vatsavaya S. Raju**, Kakatiya University, Warangal, Andhra Pradesh, India**Dr. M. Krishnappa**, Jnana Sahyadri, Kuvenpu University, Shimoga, Karnataka, India**Dr. K.R. Sridhar**, Mangalore University, Mangalagangotri, Mangalore, Karnataka, India**Dr. Gunjan Biswas**, Vidyasagar University, Midnapore, West Bengal, India**Dr. Kiran Ramchandra Ranadive**, Annasaheb Magar Mahavidyalaya, Maharashtra, India**Plants****Dr. G.P. Sinha**, Botanical Survey of India, Allahabad, India**Dr. N.P. Balakrishnan**, Ret. Joint Director, BSI, Coimbatore, India**Dr. Shonil Bhagwat**, Open University and University of Oxford, UK**Prof. D.J. Bhat**, Retd. Professor, Goa University, Goa, India**Dr. Ferdinand Boero**, Università del Salento, Lecce, Italy**Dr. Dale R. Calder**, Royal Ontario Museum, Toronto, Ontario, Canada**Dr. Cleofas Cervancia**, Univ. of Philippines Los Baños College Laguna, Philippines**Dr. F.B. Vincent Florens**, University of Mauritius, Mauritius**Dr. Merlin Franco**, Curtin University, Malaysia**Dr. V. Irudayaraj**, St. Xavier's College, Palayamkottai, Tamil Nadu, India**Dr. B.S. Kholia**, Botanical Survey of India, Gangtok, Sikkim, India**Dr. Pankaj Kumar**, Department of Plant and Soil Science, Texas Tech University, Lubbock, Texas, USA**Dr. V. Sampath Kumar**, Botanical Survey of India, Howrah, West Bengal, India**Dr. A.J. Solomon Raju**, Andhra University, Visakhapatnam, India**Dr. Vijayasankar Raman**, University of Mississippi, USA**Dr. B. Ravi Prasad Rao**, Sri Krishnadevaraya University, Anantapur, India**Dr. K. Ravikumar**, FRLHT, Bengaluru, Karnataka, India**Dr. Aparna Watve**, Pune, Maharashtra, India**Dr. Qiang Liu**, Xishuangbanna Tropical Botanical Garden, Yunnan, China**Dr. Noor Azhar Mohamed Shazili**, Universiti Malaysia Terengganu, Kuala Terengganu, Malaysia**Dr. M.K. Vasudeva Rao**, Shiv Ranjan Housing Society, Pune, Maharashtra, India**Prof. A.J. Solomon Raju**, Andhra University, Visakhapatnam, India**Dr. Mander Datar**, Agharkar Research Institute, Pune, Maharashtra, India**Dr. M.K. Janarthanam**, Goa University, Goa, India**Dr. K. Karthigeyan**, Botanical Survey of India, India**Dr. Errol Vela**, University of Montpellier, Montpellier, France**Dr. P. Lakshminarasiham**, Botanical Survey of India, Howrah, India**Dr. Larry R. Noblick**, Montgomery Botanical Center, Miami, USA**Dr. K. Haridasan**, Pallavur, Palakkad District, Kerala, India**Dr. Analinda Manila-Fajard**, University of the Philippines Los Baños, Laguna, Philippines**Dr. P.A. Siru**, Central University of Kerala, Kasaragod, Kerala, India**Dr. Afroz Alam**, Banasthali Vidyapith (accredited A grade by NAAC), Rajasthan, India**Dr. K.P. Rajesh**, Zamorin's Guruvayurappan College, GA College PO, Kozhikode, Kerala, India**Dr. David E. Boufford**, Harvard University Herbaria, Cambridge, MA 02138-2020, USA**Dr. Ritesh Kumar Choudhary**, Agharkar Research Institute, Pune, Maharashtra, India**Dr. A.G. Pandurangan**, Thiruvananthapuram, Kerala, India**Dr. Navendu Page**, Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India**Dr. Kannan C.S. Warrier**, Institute of Forest Genetics and Tree Breeding, Tamil Nadu, India**Invertebrates****Dr. R.K. Avasthi**, Rohtak University, Haryana, India**Dr. D.B. Bastawade**, Maharashtra, India**Dr. Partha Pratim Bhattacharjee**, Tripura University, Suryamaninagar, India**Dr. Kailash Chandra**, Zoological Survey of India, Jabalpur, Madhya Pradesh, India**Dr. Ansie Dippenaar-Schoeman**, University of Pretoria, Queenswood, South Africa**Dr. Rory Dow**, National Museum of natural History Naturalis, The Netherlands**Dr. Brian Fisher**, California Academy of Sciences, USA**Dr. Richard Gallon**, Ilandudno, North Wales, LL30 1UP**Dr. Hemant V. Ghate**, Modern College, Pune, India**Dr. M. Monwar Hossain**, Jahangirnagar University, Dhaka, BangladeshFor Focus, Scope, Aims, and Policies, visit [https://threatenedtaxa.org/index.php/JoTT/aims\\_scope](https://threatenedtaxa.org/index.php/JoTT/aims_scope)For Article Submission Guidelines, visit <https://threatenedtaxa.org/index.php/JoTT/about/submissions>For Policies against Scientific Misconduct, visit [https://threatenedtaxa.org/index.php/JoTT/policies\\_various](https://threatenedtaxa.org/index.php/JoTT/policies_various)

continued on the back inside cover

Cover: Coromandal Sacred Langur *Semnopithecus priam* - made with acrylic paint. © P. Kritika.



## Odonata diversity in the Egra and its adjoining blocks of Purba Medinipur District, West Bengal, India

Tarak Samanta<sup>1</sup> , Asim Giri<sup>2</sup> , Lina Chatterjee<sup>3</sup>  & Arjan Basu Roy<sup>4</sup> 

<sup>1,3,4</sup> Nature Mates-Nature Club, 6/7 Bijoygarh, Kolkata, West Bengal 700032, India.

<sup>2</sup> Padmaja Naidu Himalayan Zoological Park, Darjeeling, West Bengal 734101, India.

<sup>1</sup> taraksamanta995@gmail.com, <sup>2</sup> giri.asim2013@gmail.com, <sup>3</sup> lina.linachatterjee@gmail.com,

<sup>4</sup> pakhibitan2019@gmail.com (corresponding author)

**Abstract:** The research was carried out over a three-year period, spanning from March 2020 to March 2023, with the aim of examining the status and diversity of Odonata fauna across a range of natural and anthropogenic habitats situated in Egra, Purba Medinipur District, located in the state of West Bengal. In total, 42 odonata species from 31 genera and seven families were identified throughout the study period from the study region. There were 28 (67%) species in the suborder Anisoptera, belonging to four distinct families. On the other hand, 14 (33%) species in the Suborder Zygoptera, divided into three different families. The four families of suborder Anisoptera were Aeshnidae (10%), Gomphidae (2%), Libellulidae (53%), and Macromiidae (2%). In the suborder Zygoptera, three families were identified, namely Coenagrionidae (24%), Lestidae (2%), and Platycnemididae (7%). According to the relative estimate of abundance, 38% of the species were classified as not rare (NR), 31% very common (VC), 14% common (C), 14% rare (R), and 3% as very rare (R). In addition, the IUCN red data list indicates that 41 species have been classified as Least Concern (LC), while a solitary species has been categorised as Data Deficient (DD). The identification of Odonata is a critical factor in determining the ecological well-being of an ecosystem.

**Keywords:** Anisoptera, checklist, damselflies, dragonflies, habitat, taxonomy, Zygoptera.

**Editor:** Ashish D. Tiple, Dr. R.G. Bhoyar Arts, Commerce and Science College, Wardha, India.

**Date of publication:** 26 August 2023 (online & print)

**Citation:** Samanta, T., A. Giri, L. Chatterjee & A.B. Roy (2023). Odonata diversity in the Egra and its adjoining blocks of Purba Medinipur District, West Bengal, India. *Journal of Threatened Taxa* 15(8): 23778-23785. <https://doi.org/10.11609/jott.8540.15.8.23778-23785>

**Copyright:** © Samanta et al. 2023. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use, reproduction, and distribution of this article in any medium by providing adequate credit to the author(s) and the source of publication.

**Funding:** Nature Mates-Nature Club

**Competing interests:** The authors declare no competing interests.

**Author details:** TARAK SAMANTA has completed his postgraduate degree in Environmental Science from the University of Calcutta. Now he is a field biologist at the Nature Mates-Nature Club (NGO), Kolkata. His study is based on biodiversity monitoring and conservation, EIA & other biodiversity-related surveys, and research. ASIM GIRI has master's degree in zoology and currently is a field assistant at the Padmaja Naidu Himalayan Zoological Park, Darjeeling. His current research work is on augmentation and conservation of endangered Red Panda in Singalila NP, West Bengal. He also works with birds, butterflies, odonates. LINA CHATTERJEE is a research affiliate of Nature Mates-Nature Club, who skilfully represents scientific knowledge on wildlife and conservation through her literary works for over a decade in a comprehensible way. She has published numerous journals and books. She also uses art and creativity to spark students' interest in nature. ARJAN BASU ROY holds the position of secretary of Nature Mates-Nature Club in India. The primary area of his research centres around the preservation of wildlife in West Bengal, as well as on a nationwide scale throughout India. He is intrigued by inclusive development, habitat creation and restoration in urban areas, and bottom-up conservation strategies. He has authored numerous books and academic articles.

**Author contributions:** TS—data collection, research designing, data analysis and manuscript writing. AG—field work, data collection, photographic documentation & manuscript writing. LC—project planning, overall supervision. ABR—project planning, manuscript writing, interpretation & overall supervision.

**Acknowledgements:** We are extremely appreciative of the financial assistance from Nature Mates-Nature Club. We would like to extend our appreciation to Prasenjit Dawn, Swarochi Tathagath, Amila P Sumanapala, and Arajush Payra for their invaluable contributions in species identification. We express our gratitude to all the members of the Nature-Mates Nature Club for their consistent support and assistance. We also express our gratitude to the editor and to all of the reviewers for their valuable input



## INTRODUCTION

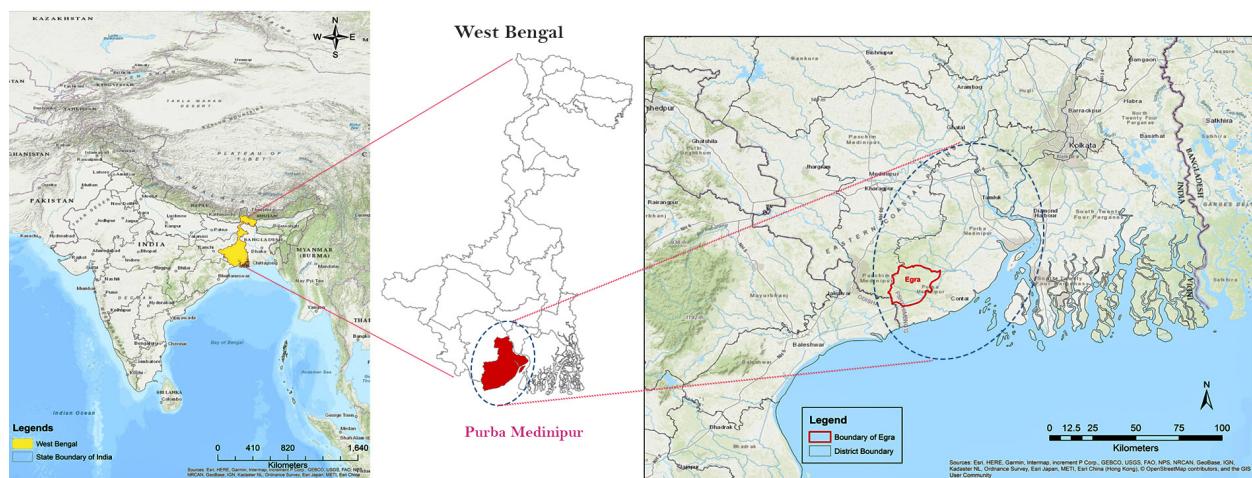
Odonates (dragonflies and damselflies) are frequently used as global indicators of wetland health (Chovanec & Waringer 2001). They first made their appearance during the Carboniferous era, about 250 million years ago (Nair 2011). Odonata, a common group of insects found in freshwater habitats, have a life cycle that includes an extended larval stage in aquatic environments followed by a comparatively brief adult stage on land (Tiple et al. 2012). According to Clausnitzer et al. (2009), the larvae exhibit sensitivity towards the quality of water and the morphology of aquatic habitats, including the structure of bottom substrate and aquatic vegetation. Odonata was found to be effective biological control agents for agricultural pests, blood-sucking flies, and vector-borne diseases such as mosquitoes. Furthermore, they are useful indicators of environmental changes and the overall health of ecosystems (Nair 2011; Tiple & Koparde 2015; Mangaon & Mohagan 2016). The worldwide population of odonates comprises 6,356 species across 693 genera. Throughout the Indian Subcontinent (Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka), a total of 588 species of odonates were recorded (Kalkman et al. 2020); similarly, 498 species consisting 154 genera and 18 families were recorded from India (Subramanian & Babu 2020). To date, Dawn (2021) has reported the existence of 239 species from 114 genera and 17 families in West Bengal. The current state of knowledge regarding the Odonata of southern West Bengal has been documented by various researchers, including Selys (1891), Fraser (1933, 1934, 1936), Ram et al. (1982), Srivastava & Das (1987), Prasad & Ghosh

(1988), Mitra (1983, 2002), Srivastava & Sinha (1993), Gupta et al. (1995), Ghosh (2022), and Samanta et al. (2022). Studies on the diversity of Odonata in Purba Medinipur district have been conducted by various researchers including Prasad & Ghosh (1988), Jana et al. (2014) and Pahari et al. (2019). The extant literature on the diversity of odonata in Purba Medinipur district is limited. Prasad & Ghosh (1988) conducted the initial study in the estuarine regions of East India, specifically in West Bengal and Orissa. The survey locations included Balisai, Contai, Digha, Fatehpur (Nandakumar), Junput, Mahishadal, Nimalakhya, Nandakumar, and New Digha within the district. The survey documented a total of 22 species of odonates, classified into 19 genera and six families. Later Jana et al. (2014), reported 13 species of odonates belonging 12 genera and three families from eight contrasting coastal areas of the district. The extent of research conducted on the diversity of Odonata in Egra, located in Purba Medinipur, is currently limited. The current study was carried out within this geographical region with the goal of cataloguing the variety and proportional prevalence of odonates. The resulting inventory will be used to educate local people about the ecological importance of these organisms in this area.

## MATERIALS AND METHODS

### Study Area

The Egra subdivision encompasses the Egra municipality and five community development blocks, namely Bhagawanpur I, Egra I, Egra II, Pataspur I, and



**Figure 1.** The map presented depicts the study area, with the yellow hue demarcating the boundary of West Bengal state, and the red hue indicating the boundary of Purba Medinipur District on the left. The eastern boundary of Egra within the district of Purba Medinipur is demarcated by a red border.

Pataspur II. But the focus was Egra municipality and Egra I and Egra II blocks. The aggregate land area of the three locations is 431.5 km<sup>2</sup>, as depicted in Figure 1. These locations are located in the southern and south-western regions of West Bengal's Purba Medinipur District. Egra is located at 21.9°N, 87.53°E. The study areas primarily consist of extensive agricultural fields with limited clusters of trees and shrubs, as well as a few small forested regions, private gardens, village woodlands, and bamboo thickets, in addition to roadsides, ponds, and water channels (Samanta et al. 2022). The summer season (March–June) in this area experiences a temperature range of 30°C–38°C, while the winter season (November–February) has a temperature range of 15°C–25°C. The average annual rainfall in this district is around 1,700 mm (Payra et al. 2017).

#### Data Collection

The investigation was conducted over a period spanning from March 2020 to March 2023. The study employed the direct search technique as well as opportunistic sighting methods to gather data on the diversity and abundance of Odonata, as outlined by Sutherland (1996). The study involved biweekly site visits to various habitats (including ponds, canals, agricultural fields, gardens, and shaded areas within forest patches) to observe odonates. The photographs were taken using Nikon Coolpix P600, Nikon Coolpix B700 (Resolution: 20MP, Zoom: 60x) and a smartphone camera. Here, we have followed the systematic arrangement of the odonates proposed by Kalkman et al. (2020). The species were identified with the help of few guide books (Andrew et al. 2008; Nair 2011; Dawn &

Roy 2016) and the unidentified species were identified with the help of expert guidance and the Citizen Science forum (iNaturalist, Odonata of India). Tiple et al. (2013) classified the odonates into five distinct groups based on their observed frequency in the area. These groups were denoted by the following abbreviations: VC—Very Common (> 100 sightings), C—Common (50–100 sightings), NR—Not Rare (15–50 sightings), R—Rare (2–15 sightings), VR—Very Rare (< 2 sightings).

#### RESULTS

The study area yielded a total of 42 species of Odonata, which were classified into 31 genera and seven families, as represented in Table 1. The data reveals that out of the total number of species observed, 67% (28 species) belonged to the sub-order Anisoptera, commonly known as dragonflies, while the remaining 33% (14 species) were classified under the sub-order Zygoptera, commonly known as damselflies (Figure 3). The sub-order Anisoptera encompassed four families, namely Aeshnidae (10%), Gomphidae (2%), Libellulidae (53%), and Macromiidae (2%). Meanwhile, the sub-order Zygoptera, encompassed three families, namely Coenagrionidae (24%), Lestidae (2%), and Platycnemididae (7%). The study area revealed that the Libellulidae family, which belongs to the sub-order Anisoptera, constituted the highest percentage (53%) of the species present. Following closely behind, the Coenagrionidae family of the sub-order Zygoptera accounted for 24% of the species present, as depicted in Figure 2.

According to our documentation (Figure 4, Image 1–42), among the 42 observed species, 38% were categorized under Not Rare (NR), 31% Very Common

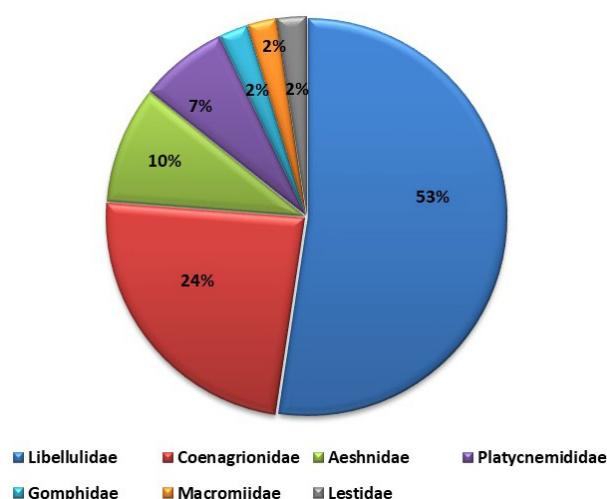


Figure 2. Abundance of different families

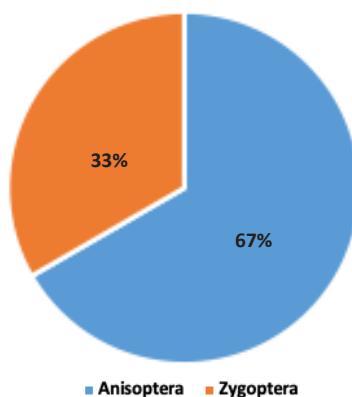


Figure 3. Relative abundance of Suborder Anisoptera and Zygoptera

Table 1. Checklist of Odonates recorded from the study area.

	Scientific name	Authority	Status	IUCN status
	<b>Order: Odonata</b>	Fabricius, 1793		
	<b>Suborder: Zygoptera</b>	(Selys, 1854)		
	<b>Superfamily: Lestoidea</b>	Calvert, 1901		
	<b>Family- Lestidae</b>	(Calvert, 1901)		
	<b>Lestes</b>	Leach, 1815		
1	<i>Lestes viridulus</i>	Rambur, 1842	VR	LC
	<b>Superfamily: Coenagrionidea</b>	Kirby, 1890		
	<b>Family- Platycnemididae</b>	(Yakobson & Bainchi, 1905)		
	<b>Pseudocopera</b>	Fraser, 1922		
2	<i>Pseudocopera ciliata</i>	(Selys, 1863)	C	LC
	<b>Copera</b>	Kirby, 1890		
3	<i>Copera marginipes</i>	(Rambur, 1842)	C	LC
	<b>Onychargia</b>	Selys, 1865		
4	<i>Onychargia atrocyana</i>	(Selys, 1865)	NR	LC
	<b>Family- Coenagrionidae</b>	(Kirby, 1890)		
	<b>Agriocnemis</b>	Selys, 1877		
5	<i>Agriocnemis kalinga</i>	(Nair & Subramanian 2014)	R	LC
6	<i>Agriocnemis lacteola</i>	Selys, 1877	NR	LC
7	<i>Agriocnemis pygmaea</i>	(Rambur, 1842)	VC	LC
	<b>Ceriagrion</b>	Selys, 1876		
8	<i>Ceriagrion cerinorubellum</i>	(Brauer, 1865)	VC	LC
9	<i>Ceriagrion coromandelianum</i>	(Fabricius, 1798)	VC	LC
	<b>Ischnura</b>	Charpentier, 1840		
10	<i>Ischnura rubilio</i>	(Selys, 1876)	NR	LC
11	<i>Ischnura senegalensis</i>	(Rambur, 1842)	NR	LC
	<b>Mortonagrion</b>	Fraser, 1920		
12	<i>Mortonagrion aborense</i>	(Laidlaw, 1914)	NR	LC
	<b>Pseudagrion</b>	Selys, 1876		
13	<i>Pseudagrion microcephalum</i>	(Rambur, 1842)	NR	LC
14	<i>Pseudagrion rubriceps</i>	(Selys, 1876)	NR	LC
	<b>Suborder: Anisoptera</b>	(Selys, 1854)		
	<b>Superfamily: Aeshnoidea</b>	Leach, 1815		
	<b>Family- Aeshnidae</b>	(Leach, 1815)		
	<b>Anaciaeschna</b>	Selys, 1878		
15	<i>Anaciaeschna jaspidea</i>	(Burmeister, 1839)	R	LC
	<b>Anax</b>	Leach, 1815		
16	<i>Anax guttatus</i>	(Burmeister, 1839)	NR	LC
17	<i>Anax indicus</i>	Lieftinck, 1942	R	LC
	<b>Gynacantha</b>	Rambur, 1842		
18	<i>Gynacantha dravida</i>	Lieftinck, 1960	NR	DD
	<b>Superfamily: Gomphoidea</b>	Rambur, 1842		
	<b>Family- Gomphidae</b>	(Rambur, 1842)		
	<b>Ictinogomphus</b>	Cowley, 1934		
19	<i>Ictinogomphus rapax</i>	(Rambur, 1842)	C	LC

	Scientific name	Authority	Status	IUCN status
	<b>Superfamily: Libelluloidea</b>	Leach, 1815		
	<b>Family-Macromiidae</b>	(Needham, 1903)		
	<b>Epophthalmia</b>	Burmeister, 1839		
20	<i>Epophthalmia vittata</i>	Burmeister, 1839	R	LC
	<b>Family- Libellulidae</b>	(Leach, 1815)		
	<b>Acisoma</b>	Rambur, 1842		
21	<i>Acisoma panorpoides</i>	(Rambur, 1842)	NR	LC
	<b>Aethriamanta</b>	Kirby, 1889		
22	<i>Aethriamanta brevipennis</i>	(Rambur, 1842)	NR	LC
	<b>Brachydiplax</b>	Brauer, 1868		
23	<i>Brachydiplax chalybea</i>	(Brauer, 1868)	NR	LC
24	<i>Brachydiplax farinosa</i>	(Krüger, 1902)	VC	LC
25	<i>Brachydiplax sobrina</i>	(Rambur, 1842)	VC	LC
	<b>Brachythemis</b>	Brauer, 1868		
26	<i>Brachythemis contaminata</i>	(Fabricius, 1793)	VC	LC
	<b>Crocothemis</b>	Brauer, 1868		
27	<i>Crocothemis servilia</i>	(Drury, 1770)	VC	LC
	<b>Diplacodes</b>	Kirby, 1889		
28	<i>Diplacodes trivialis</i>	(Rambur, 1842)	VC	LC
	<b>Neurothemis</b>	Brauer, 1867		
29	<i>Neurothemis fulvia</i>	(Drury, 1773)	NR	LC
30	<i>Neurothemis tullia</i>	(Drury, 1773)	C	LC
	<b>Orthetrum</b>	Newman, 1833		
31	<i>Orthetrum pruinosum</i>	(Burmeister, 1839)	R	LC
32	<i>Orthetrum sabina</i>	(Drury, 1773)		LC
	<b>Pantala</b>	Hagen, 1861	VC	
33	<i>Pantala flavescens</i>	(Fabricius, 1798)	VC	LC
	<b>Potamarcha</b>	Karsch, 1890		
34	<i>Potamarcha congener</i>	(Rambur, 1842)	VC	LC
	<b>Rhodothemis</b>	Ris, 1909		
35	<i>Rhodothemis rufa</i>	(Rambur, 1842)	VC	LC
	<b>Rhyothemis</b>	Hagen, 1867		
36	<i>Rhyothemis variegata</i>	(Linnaeus, 1763)	VC	LC
	<b>Tholymis</b>	Hagen, 1867		
37	<i>Tholymis tillarga</i>	(Fabricius, 1798)	C	LC
	<b>Tramea</b>	Hagen, 1861		
38	<i>Tramea basilaris</i>	(Palisot de Beauvois, 1805)	R	LC
39	<i>Tramea limbata</i>	(Desjardins, 1832)	NR	LC
	<b>Trithemis</b>	Brauer, 1868		
40	<i>Trithemis pallidinervis</i>	(Kirby, 1889)	NR	LC
	<b>Urothemis</b>	Brauer, 1868		
41	<i>Urothemis signata</i>	(Rambur, 1842)	C	LC
	<b>Zyxomma</b>	Rambur, 1842		
42	<i>Zyxomma petiolatum</i>	Rambur, 1842	NR	LC

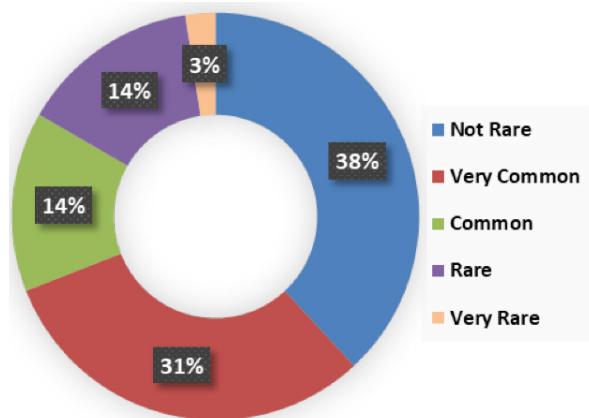


Figure 4. Local status of Odonata

(VC), 14% Common (C), 14% Rare (R), and 3% as Very Rare (R) (Tiple et al. 2013). As per the IUCN Red List, a total of 41 species have been classified as Least Concern (LC), while only a solitary species has been categorised as Data Deficient (DD).

## DISCUSSION

The present investigation documented a total of 42 species in the Egra region, including 28 species of dragonflies and 14 species of damselflies, encompassing the two contiguous blocks of Purba Medinipur District (Image 43–46). By simply comparing the species count of previously studied checklist data on odonates from the different parts of Purba Medinipur by Prasad & Ghosh (1988), Jana et al. (2014), and Pahari et al. (2019), Libellulidae and Coenagrionidae family diversity was found higher among other families from all the study areas of Purba Medinipur district till date, which also stated in previous studies. Our study also shows that Libellulidae family was dominant and encompasses 22 species, like *Brachythemis contaminata* Fabricius, 1793, *Crocothemis servilia* Drury, 1770, *Diplacodes trivialis* Rambur, 1842, *Orthetrum sabina* Drury, 1773, *Pantala flavescens* Fabricius, 1798, *Rhyothemis variegata* Linnaeus, 1763, and *Tholymis tillarga* Fabricius, 1798. These species are commonly found in various habitats. According to our data, certain species within the family were found to be scarce in the study area, including *Macromiavera* Brauer, 1867 and *Tramea basilaris* Palisot de Beauvois, 1805. *Gynacantha dravida* Lieftinck, 1960 and *Anaciaeschna jaspidea* Burmeister, 1839 belonging to the Aeshnidae family exhibit crepuscular behaviour and demonstrate active flight during the period of dusk. They tend to seek refuge in

areas with abundant vegetation during daylight hours. Few dragonflies, like *Anax guttatus* Burmeister, 1839, *Anaciaeschna jaspidea* Burmeister, 1839, *Gynacantha dravida* Lieftinck, 1960, and *Ictinogomphus rapax* Rambur, 1842 are relatively larger in size. They are commonly observed in flight above waterbodies or perched on branches in the vicinity of such water sources. The *Epophthalmia vittata* Burmeister, 1839, of the Macromiidae family was only seen twice flying fast over the pond throughout the study period although it is generally considered to be abundant and common. The Coenagrionidae family exhibited the highest recorded species count among the damselflies. The observed species were categorized here as either 'very common' 'not rare' or 'rare' were present in various waterbodies, agricultural fields, and grasslands within the designated study areas. *Lestes viridulus* Rambur, 1842, a member of the Lestidae family, was observed only once during the study and was categorized a very rare species within the family. The Platycnemididae family's species are predominantly observed in ponds with dense weed growth and surrounded by shaded vegetation and forests.

According to our research findings, the region has a thriving ecosystem characterised by a diverse range of Odonata species totalling 42 in number. However, excessive pesticide and herbicide use, the disappearance of small ponds and waterbodies, and the eradication of aquatic vegetation may have an impact on their population. Furthermore, people must recognize the importance of these aesthetically pleasing flying organisms in our ecological system.

## REFERENCES

Andrew, R., K.A. Subramanian & A.D. Tiple (2008). *Common odonates of Central India*. The 18<sup>th</sup> International Symposium of Odonatology. Hislop College, Nagpur, India, 65pp. <https://doi.org/10.13140/2.1.1110.1760>

Chovanec, A. & J. Waringer (2001). Ecological integrity of river flood plain systems—assessment by dragonfly surveys (Insecta: Odonata). *Regulated Rivers: Research & Management* 17(4–5): 493–507. <https://doi.org/10.1002/rrr.664>

Clausnitzer, V., V.J. Kalkman, M. Ram, B. Collen, J.E. Baillie, M. Bedjanč, W.R.T. Darwall, K.D.B. Dijkstra, R. Dow, J. Hawking, H. Karube, E. Malikova, D. Paulson, K. Schütte, F. Suhling, R.J. Villanueva, N.V. Ellenrieder & K. Wilson (2009). Odonata enter the biodiversity crisis debate: the first global assessment of an insect group. *Biological Conservation* 142(8): 1864–1869. <https://doi.org/10.1016/j.biocon.2009.03.028>

Dawn, P. & A.B. Roy (2016). *Sundarbaner Kichhu Parichito Foring*. Nature Mates-Nature Club, Kolkata, 56 pp.

Fraser, F.C. (1933). *Fauna of British India Odonata 1*. Taylor and Francis Ltd, London, 423 pp.

Fraser, F.C. (1934). *Fauna of British India Odonata 2*. Taylor and Francis Ltd. London, 398 pp.



**Image 1–28.** Anisopteran species of the study area: 1—*Anax guttatus* | 2—*Anax indicus* | 3—*Gynacantha dravida* | 4—*Anaciaeschna jaspidea* | 5—*Ictinogomphus rapax* | 6—*Acisoma panorpoides* | 7—*Aethriamanta brevipennis* | 8—*Brachydiplax chalybea* | 9—*Brachydiplax sobrina* | 10—*Brachydiplax farinosa* | 11—*Brachythemis contaminata* | 12—*Crocothemis servilia* | 13—*Diplacodes trivialis* | 14—*Neurothemis fulvia* | 15—*Neurothemis tullia* | 16—*Orthetrum pruinatum* | 17—*Orthetrum sabina* | 18—*Pantala flavescens* | 19—*Zyxomma petiolatum* | 20—*Potamarcha congener* | 21—*Rhyothemis variegata* | 22—*Rhodothemis rufa* | 23—*Tholymis tillarga* | 24—*Tramea basilaris* | 25—*Tramea limbata* | 26—*Trithemis pallidinervis* | 27—*Urothemis signata* | 28—*Epophthalmia vittata*. © Asim Giri & Tarak Samanta.



Image 29–42. Zygopteran species of the study area: 29—*Agriocnemis pygmaea* | 30—*Agriocnemis kalinga* | 31—*Agriocnemis lacteola* | 32—*Ceriagrion cerinorubellum* | 33—*Ceriagrion coromandelianum* | 34—*Ischnura rubilio* | 35—*Ischnura senegalensis* | 36—*Pseudagrionr ubriceps* | 37—*Pseudagrion microcephalum* | 38—*Mortonagrion aborense* | 39—*Lestes viridulus* | 40—*Pseudocopera ciliata* | 41—*Copera marginipes* | 42—*Onychargia atrocyana*. © Asim Giri & Tarak Samanta.

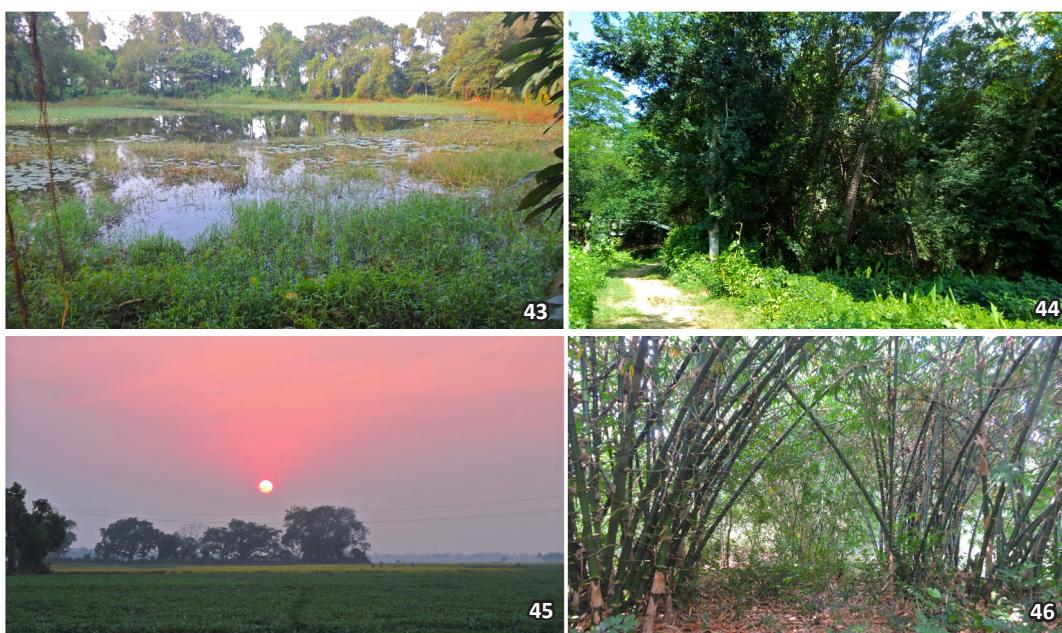


Image 43–46. Different habitats of the study area: 1—Stagnant waterbody | 2—Roadside vegetation | 3—Agricultural fields | 4—Forest patch. © Asim Giri & Tarak Samanta.

**Fraser, F.C. (1936).** *Fauna of British India Odonata 3.* Taylor and Francis Ltd. London, 461 pp.

**Ghosh, K. (2022).** Odonata Diversity in The Gangetic Plain of West Bengal. *Indian Journal of Entomology* 1–5. <https://doi.org/10.55446/IJE.2022.172>

**Gupta, I.J., M.L. De & T.R. Mitra (1995).** Conspectus of Odonata fauna of Calcutta, India. *Records of Zoological Survey of India* 95 (1–2): 107–121.

**Jana, D., K.D. Tamli & S.K. Chakroborty (2014).** Diversity of dragonflies (Insecta: Odonata) in contrasting coastal environment of Midnapore (East), West Bengal, India. *Journal of Radix International Educational and Research Consortium* 3 (4): 1–11.

**Kalkman, V.J., R. Babu, M. Bedjanic, K. Conniff, T. Gyeltshen, M.K. Khan, K.A. Subramanian, A. Zia & A.G. Orr (2020).** Checklist of the dragonflies and damselflies (Insecta: Odonata) of Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka. *Zootaxa* 4849(1): 01–84. <https://doi.org/10.11646/zootaxa.4849.1.1>

**Mangaoang, C.C. & A.B. Mohagan (2016).** Odonata Diversity at University of Southern Mindanao, Kabacan, Cotabato. *Asian Journal of Biodiversity* 7(1): 112–123.

**Mitra, T.R. (1983).** A list of the Odonata of Calcutta. *Entomologist's Monthly Magazine* 119: 29–31.

**Mitra, T.R. (2002).** Geographical distribution of Odonata (Insecta) of Eastern India. *Memoirs of the Zoological Survey of India* 19(1): 1–208.

**Nair, M.V. (2011).** *Dragonflies & Damselflies of Orissa and Eastern India.* Wildlife Organisation, Forest & Environment Department, Government of Orissa, 254 pp.

**Pahari, P.R., S.S. Mandal, S. Maiti & T. Bhattacharya (2019).** Diversity and community structure of Odonata (Insecta) in two land use types in Purba Medinipur District, West Bengal, India. *Journal of Threatened Taxa* 11(6): 13748–13755. <https://doi.org/10.11609/jott.4139.11.6.13748-13755>

**Prasad, M. & S.K. Ghosh (1988).** A contribution on the Estuarine Odonata of East India. *Records of Zoological Survey of India* 85: 197–216.

**Ram, R., V.D. Srivastava & M. Prasad (1982).** Odonata (Insecta) Fauna of Calcutta and surroundings. *Records of Zoological Survey of India* 80: 169–196.

**Samanta, T., L. Chatterjee, A. B. Roy, S. Sinha & S. Besra (2022).** Importance of Ecopark, Kolkata in the context of sustainability, compare to Rajarhat grassland, as a habitat for Odonata (Dragonflies and Damselflies) diversity. *World News of Natural Sciences* 44: 165–175.

**Selys, L. (1891).** Odonates in 'Viaggio Di Leonardo Fea in Birmania e Regional Vicine. *Annali del Museocivico di storianaturale Giacomo Doria* 2(10): 433–518.

**Srivastava, V.K. & C. Sinha (1993).** Insecta: Odonata fauna of West Bengal, State Fauna Series. Zoological Survey of India, Kolkata, 4: 51–168.

**Srivastava, V.K. & S. Das (1987).** Insecta: Odonata, fauna of Orissa. State Fauna Series, Zoological Survey of India, Kolkata, 1: 135–159.

**Subramanian, K.A. & R. Babu (2020).** Dragonflies and Damselflies (Insecta: Odonata) of India, pp. 29–45. In: Ramani, S., P. Mohanraj & H.M. Yeshwanth (eds.). *Indian Insects: Diversity and Science.* CRC Press, Taylor & Francis Group, London, 450 pp.

**Sutherland, W.J. (1996).** *Ecological Census Techniques.* University Press, Cambridge, 200 pp.

**Tiple, A.D. & P. Koparde (2015).** Odonata of Maharashtra, India with notes on species distribution. *Journal of Insect Science* 15(1): 1–10. <https://doi.org/10.1093/jisesa/iev028>

**Tiple, A.D., S. Paunikar & S.S. Talmale (2012).** Dragonflies and Damselflies (Odonata: Insecta) of Tropical Forest Research Institute, Jabalpur, Madhya Pradesh, central India. *Journal of Threatened Taxa* 4(4): 2529–2533. <https://doi.org/10.11609/JOTT.02657.2529-33>

**Tiple, A.D., R.J. Andrew, K.A. Subramanian & S.S. Talmale (2013).** Odonata of Vidarbha region, Maharashtra state, central India. *Odonatologica* 42: 237–245.



Mr. Jatishwor Singh Irungbam, Biology Centre CAS, Branišovská, Czech Republic.

Dr. Ian J. Kitching, Natural History Museum, Cromwell Road, UK

Dr. George Mathew, Kerala Forest Research Institute, Peechi, India

Dr. John Noyes, Natural History Museum, London, UK

Dr. Albert G. Orr, Griffith University, Nathan, Australia

Dr. Sameer Padhye, Katholieke Universiteit Leuven, Belgium

Dr. Nancy van der Poorten, Toronto, Canada

Dr. Karen Schnabel, NIWA, Wellington, New Zealand

Dr. R.M. Sharma, (Retd.) Scientist, Zoological Survey of India, Pune, India

Dr. Manju Siliwal, WILD, Coimbatore, Tamil Nadu, India

Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India

Dr. K.A. Subramanian, Zoological Survey of India, New Alipore, Kolkata, India

Dr. P.M. Sureshan, Zoological Survey of India, Kozhikode, Kerala, India

Dr. R. Varatharajan, Manipur University, Imphal, Manipur, India

Dr. Eduard Vives, Museu de Ciències Naturals de Barcelona, Terrassa, Spain

Dr. James Young, Hong Kong Lepidopterists' Society, Hong Kong

Dr. R. Sundararaj, Institute of Wood Science & Technology, Bengaluru, India

Dr. M. Nithyanandan, Environmental Department, La Al Kuwait Real Estate. Co. K.S.C., Kuwait

Dr. Himender Bharti, Punjabi University, Punjab, India

Mr. Purnendu Roy, London, UK

Dr. Saito Motoki, The Butterfly Society of Japan, Tokyo, Japan

Dr. Sanjay Sondi, TITLI TRUST, Kalpavriksh, Dehradun, India

Dr. Nguyen Thi Phuong Lien, Vietnam Academy of Science and Technology, Hanoi, Vietnam

Dr. Nitin Kulkarni, Tropical Research Institute, Jabalpur, India

Dr. Robin Wen Jiang Ngiam, National Parks Board, Singapore

Dr. Lional Monod, Natural History Museum of Geneva, Genève, Switzerland.

Dr. Asheesh Shivam, Nehru Gram Bharti University, Allahabad, India

Dr. Rosana Moreira da Rocha, Universidade Federal do Paraná, Curitiba, Brasil

Dr. Kurt R. Arnold, North Dakota State University, Saxony, Germany

Dr. James M. Carpenter, American Museum of Natural History, New York, USA

Dr. David M. Claborn, Missouri State University, Springfield, USA

Dr. Karen Schnabel, Marine Biologist, Wellington, New Zealand

Dr. Amazonas Chagas Júnior, Universidade Federal de Mato Grosso, Cuiabá, Brasil

Mr. Monsoon Jyoti Gogoi, Assam University, Silchar, Assam, India

Dr. Heo Chong Chin, Universiti Teknologi MARA (UiTM), Selangor, Malaysia

Dr. R.J. Shiel, University of Adelaide, SA 5005, Australia

Dr. Siddharth Kulkarni, The George Washington University, Washington, USA

Dr. Priyadarshan Dharma Rajan, ATREE, Bengaluru, India

Dr. Phil Alderslade, CSIRO Marine And Atmospheric Research, Hobart, Australia

Dr. John E.N. Veron, Coral Reef Research, Townsville, Australia

Dr. Daniel Whitmore, State Museum of Natural History Stuttgart, Rosenstein, Germany.

Dr. Yu-Feng Hsu, National Taiwan Normal University, Taipei City, Taiwan

Dr. Keith V. Wolfe, Antioch, California, USA

Dr. Siddharth Kulkarni, The Hormiga Lab, The George Washington University, Washington, D.C., USA

Dr. Tomas Ditrich, Faculty of Education, University of South Bohemia in Ceske Budejovice, Czech Republic

Dr. Mihaly Foldvari, Natural History Museum, University of Oslo, Norway

Dr. V.P. Uniyal, Wildlife Institute of India, Dehradun, Uttarakhand 248001, India

Dr. John T.D. Caleb, Zoological Survey of India, Kolkata, West Bengal, India

Dr. Priyadarshan Dharma Rajan, Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Bangalore, Karnataka, India

## Fishes

Dr. Neelesh Dahanukar, IISER, Pune, Maharashtra, India

Dr. Topiltzin Contreras MacBeath, Universidad Autónoma del estado de Morelos, México

Dr. Heok Hee Ng, National University of Singapore, Science Drive, Singapore

Dr. Rajeev Raghavan, St. Albert's College, Kochi, Kerala, India

Dr. Robert D. Sluka, Chiltern Gateway Project, A Rocha UK, Southall, Middlesex, UK

Dr. E. Vivekanandan, Central Marine Fisheries Research Institute, Chennai, India

Dr. Davor Zanella, University of Zagreb, Zagreb, Croatia

Dr. A. Biju Kumar, University of Kerala, Thiruvananthapuram, Kerala, India

Dr. Akhilesh K.V., ICAR-Central Marine Fisheries Research Institute, Mumbai Research

Centre, Mumbai, Maharashtra, India

Dr. J.A. Johnson, Wildlife Institute of India, Dehradun, Uttarakhand, India

Dr. R. Ravinesh, Gujarat Institute of Desert Ecology, Gujarat, India

## Amphibians

Dr. Sushil K. Dutta, Indian Institute of Science, Bengaluru, Karnataka, India

Dr. Annemarie Ohler, Muséum national d'Histoire naturelle, Paris, France

## Reptiles

Dr. Gernot Vogel, Heidelberg, Germany

Dr. Raju Vyas, Vadodara, Gujarat, India

Dr. Pritpal S. Soorae, Environment Agency, Abu Dhabi, UAE.

Prof. Dr. Wayne J. Fuller, Near East University, Mersin, Turkey

Prof. Chandrashekher U. Rironker, Goa University, Taleigao Plateau, Goa, India

Dr. S.R. Ganesh, Chennai Snake Park, Chennai, Tamil Nadu, India

Dr. Himansu Sekhar Das, Terrestrial & Marine Biodiversity, Abu Dhabi, UAE

**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, Zootaxa, and Biological Records.

NAAS rating (India) 5.64

## Birds

Dr. Hem Sagar Baral, Charles Sturt University, NSW Australia

Mr. H. Byju, Coimbatore, Tamil Nadu, India

Dr. Chris Bowden, Royal Society for the Protection of Birds, Sandy, UK

Dr. Priya Davidar, Pondicherry University, Kalapet, Puducherry, India

Dr. J.W. Duckworth, IUCN SSC, Bath, UK

Dr. Rajah Jayapal, SACON, Coimbatore, Tamil Nadu, India

Dr. Rajiv S. Kalsi, M.L.N. College, Yamuna Nagar, Haryana, India

Dr. V. Santharam, Rishi Valley Education Centre, Chittoor Dt., Andhra Pradesh, India

Dr. S. Balachandran, Bombay Natural History Society, Mumbai, India

Mr. J. Praveen, Bengaluru, India

Dr. C. Srinivasulu, Osmania University, Hyderabad, India

Dr. K.S. Gopi Sundar, International Crane Foundation, Baraboo, USA

Dr. Gombobaatar Sundev, Professor of Ornithology, Ulaanbaatar, Mongolia

Prof. Reuven Yosef, International Birding & Research Centre, Eilat, Israel

Dr. Taej Munduk, Wetlands International, Wageningen, The Netherlands

Dr. Carol Inskip, Bishop Auckland Co., Durham, UK

Dr. Tim Inskip, Bishop Auckland Co., Durham, UK

Dr. V. Gokula, National College, Tiruchirappalli, Tamil Nadu, India

Dr. Arkady Lelej, Russian Academy of Sciences, Vladivostok, Russia

Dr. Simon Dowell, Science Director, Chester Zoo, UK

Dr. Mário Gabriel Santiago dos Santos, Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, Vila Real, Portugal

Dr. Grant Connette, Smithsonian Institution, Royal, VA, USA

Dr. P.A. Azeez, Coimbatore, Tamil Nadu, India

## Mammals

Dr. Giovanni Amori, CNR - Institute of Ecosystem Studies, Rome, Italy

Dr. Anwaruddin Chowdhury, Guwahati, India

Dr. David Mallon, Zoological Society of London, UK

Dr. Shomita Mukherjee, SACON, Coimbatore, Tamil Nadu, India

Dr. Angie Appel, Wild Cat Network, Germany

Dr. P.O. Nameer, Kerala Agricultural University, Thrissur, Kerala, India

Dr. Ian Redmond, UNEP Convention on Migratory Species, Lansdown, UK

Dr. Heidi S. Riddle, Riddle's Elephant and Wildlife Sanctuary, Arkansas, USA

Dr. Karin Schwartz, George Mason University, Fairfax, Virginia.

Dr. Lala A.K. Singh, Bhubaneswar, Orissa, India

Dr. Mewa Singh, Mysore University, Mysore, India

Dr. Paul Racey, University of Exeter, Devon, UK

Dr. Honnavalli N. Kumar, SACON, Anaikatty P.O., Coimbatore, Tamil Nadu, India

Dr. Nishith Dharaiya, HNG University, Patan, Gujarat, India

Dr. Spartaco Gippoliti, Socio Onorario Società Italiana per la Storia della Fauna "Giuseppe Altobello", Rome, Italy

Dr. Justus Joshua, Green Future Foundation, Tiruchirappalli, Tamil Nadu, India

Dr. H. Raghuram, The American College, Madurai, Tamil Nadu, India

Dr. Paul Bates, Harison Institute, Kent, UK

Dr. Jim Sanderson, Small Wild Cat Conservation Foundation, Hartford, USA

Dr. Dan Challender, University of Kent, Canterbury, UK

Dr. David Mallon, Manchester Metropolitan University, Derbyshire, UK

Dr. Brian L. Cypher, California State University-Stanislaus, Bakersfield, CA

Dr. S.S. Talmale, Zoological Survey of India, Pune, Maharashtra, India

Prof. Karan Bahadur Shah, Budhanilkantha Municipality, Kathmandu, Nepal

Dr. Susan Cheyne, Borneo Nature Foundation International, Palangkaraja, Indonesia

Dr. Hemanta Kafley, Wildlife Sciences, Tarleton State University, Texas, USA

## Other Disciplines

Dr. Aniruddha Belsare, Columbia MO 65203, USA (Veterinary)

Dr. Manda S. Paingankar, University of Pune, Pune, Maharashtra, India (Molecular)

Dr. Jack Tordoff, Critical Ecosystem Partnership Fund, Arlington, USA (Communities)

Dr. Ulrike Streicher, University of Oregon, Eugene, USA (Veterinary)

Dr. Hari Balasubramanian, EcoAdvisors, Nova Scotia, Canada (Communities)

Dr. Rayanna Hellenn Santos Bezerra, Universidade Federal de Sergipe, São Cristóvão, Brazil

Dr. Jamie R. Wood, Landcare Research, Canterbury, New Zealand

Dr. Wendy Collinson-Jonker, Endangered Wildlife Trust, Gauteng, South Africa

Dr. Rajeshkumar G. Jani, Anand Agricultural University, Anand, Gujarat, India

Dr. O.N. Tiwari, Senior Scientist, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India

Dr. L.D. Singla, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, India

Dr. Rupika S. Rajakaruna, University of Peradeniya, Peradeniya, Sri Lanka

Dr. Bahar Baviskar, Wild-CER, Nagpur, Maharashtra 440013, India

## Reviewers 2020–2022

Due to paucity of space, the list of reviewers for 2018–2020 is available online.

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.

Print copies of the Journal are available at cost. Write to:

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



OPEN ACCESS



The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at [www.threatenedtaxa.org](http://www.threatenedtaxa.org). All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](#) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

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

August 2023 | Vol. 15 | No. 8 | Pages: 23631–23826

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

DOI: 10.11609/jott.2023.15.8.23631-23836

## Articles

### Group densities of endangered small apes (Hylobatidae) in two adjacent forest reserves in Merapoh, Pahang, Malaysia

– Adilah Suhailin Kamaruzaman, Nurul Iza Adriana Mohd Rameli, Susan Lappan, Thad Quincy Bartlett, Nik Rosely Nik Fadzly, Mohd Sah Shahru Anuar & Nadine Ruppert, Pp. 23631–23640

### Population demography of the Blackbuck *Antilope cervicapra* (Cetartiodactyla: Bovidae) at Point Calimere Wildlife Sanctuary, India

– Subhasish Arandhara, Selvaraj Sathishkumar, Sourav Gupta & Nagarajan Baskaran, Pp. 23641–23652

## Communications

### Camera trap surveys reveal a wildlife haven: mammal communities in a tropical forest adjacent to a coal mining landscape in India

– Nimaan Charan Palei, Bhakta Padarbinda Rath, Himanshu Shekhar Palei & Arun Kumar Mishra, Pp. 23653–23661

### Observations of Gray Fox *Urocyon cinereoargenteus* (Schreber, 1775) (Mammalia: Carnivora: Canidae) denning behavior in New Hampshire, USA

– Maximilian L. Allen & Jacob P. Kritzer, Pp. 23662–23668

### Historical and contemporary perpetuation of assumed occurrence reports of two species of bats in Rajasthan, India

– Dharmendra Khandal, Ishan Dhar & Shyamkant S. Talmale, Pp. 23669–23674

### Preference of *Helopsaltes pleskei* (Taczanowski, 1890) (Aves: Passeriformes: Locustellidae) on uninhabited islets (Chengdo, Jikgudo, and Heukgeomdo) in South Korea as breeding sites

– Young-Hun Jeong, Sung-Hwan Choi, Seon-Mi Park, Jun-Won Lee & Hong-Shik Oh, Pp. 23675–23680

### Avifaunal diversity of Tsirang District with a new country record for Bhutan

– Gyeltshen, Sangay Chhophel, Karma Wangda, Kinley, Tshering Penjor & Karma Dorji, Pp. 23681–23695

### Importance of conserving a critical wintering ground for shorebirds in the Valinokkam Lagoon—a first study of the avifaunal distribution of the southeastern coast of India

– H. Byju, N. Raveendran, S. Ravichandran & R. Kishore, Pp. 23696–23709

### Diversity and conservation status of avifauna in the Surguja region, Chhattisgarh, India

– A.M.K. Bharos, Anurag Vishwakarma, Akhilesh Bharos & Ravi Naidu, Pp. 23710–23728

### Seasonal variation and habitat role in distribution and activity patterns of Red-wattled Lapwing *Vanellus indicus* (Boddaert, 1783) (Aves: Charadriiformes: Charadriidae) in Udaipur, Rajasthan, India

– Sahil Gupta & Kanan Saxena, Pp. 23729–23741

### Notes on nesting behavior of Yellow-footed Green Pigeon *Treron phoenicopterus* (Latham, 1790) in Aligarh Muslim University campus and its surroundings, Uttar Pradesh, India

– Ayesha Mohammad Maslehuddin & Satish Kumar, Pp. 23742–23749

Observations on cooperative fishing, use of bait for hunting, propensity for marigold flowers and sentient behaviour in Mugger Crocodiles *Crocodylus palustris* (Lesson, 1831) of river Savitri at Mahad, Maharashtra, India  
– Utkarsha M. Chavan & Manoj R. Borkar, Pp. 23750–23762

Communal egg-laying by the Frontier Bow-fingered Gecko *Altiphylax stoliczkai* (Steindachner, 1867) in Ladakh, India  
– Dimpi A. Patel, Chinnasamy Ramesh, Sunetro Ghosal & Pankaj Raina, Pp. 23763–23770

Description of a new species of the genus *Anthaxia* (Haplanthaxia Reitter, 1911) from India with molecular barcoding and phylogenetic analysis  
– S. Seena, P.P. Anand & Y. Shibu Vardhanan, Pp. 23771–23777

Odonata diversity in the Egra and its adjoining blocks of Purba Medinipur District, West Bengal, India  
– Tarak Samanta, Asim Giri, Lina Chatterjee & Arjan Basu Roy, Pp. 23778–23785

Morpho-anatomy and habitat characteristics of *Xanthostemon verdugonianus* Náves ex Fern.-Vill. (Myrtaceae), a threatened and endemic species in the Philippines  
– Jess H. Jumawan, Arlyn Jane M. Sinogbuhan, Angie A. Abucayon & Princess Ansie T. Taperla, Pp. 23786–23798

The epiphytic pteridophyte flora of Cooch Behar District of West Bengal, India, and its ethnomedicinal value  
– Aninda Mandal, Pp. 23799–23804

Seed germination and storage conditions of *Ilex embeloides* Hook.f. (Magnoliopsida: Aquifoliaceae), a threatened northeastern Indian species  
– Leoris Malngiang, Krishna Upadhyaya & Hiranjit Choudhury, Pp. 23805–23811

## Short Communications

*Mantispa indica* Westwood, 1852 (Neuroptera: Mantispidae), a rare species with some morphological notes from Assam, India  
– Kushal Choudhury, Pp. 23812–23816

## Notes

Auto-fellatio behaviour observed in the Indian Palm Squirrel *Funambulus palmarum* (Linnaeus, 1766)  
– Anbazhagan Abinesh, C.S. Vishnu & Chinnasamy Ramesh, Pp. 23817–23818

A novel anti-predatory mechanism in *Indrella ampulla* (Gastropoda: Ariophantidae)  
– Karunakar Majhi, Maitreya Sil & Aniruddha Datta-Roy, Pp. 23819–23821

*Hedychium coccineum* Buch.-Ham. ex Sm. (Zingiberaceae): an addition to the flora of Andhra Pradesh, India  
– P. Janaki Rao, J. Prakasa Rao & S.B. Padal, Pp. 23822–23826

## Publisher & Host

