

Magazine of Zoo Outreach Organisation
www.zoosprint.org

ZOO'S PRINT

Communicating science for conservation

ISSN 0971-6378 (Print); 0973-2543 (Online)
Vol. XL, No. 11, November 2025



ZOO'S PRINT

Communicating science for conservation

Vol. XL, No. 11, November 2025

ISSN 0971-6378 (Print); 0973-2543 (Online)

Contents

Zooreach activities

Classrooms for Coexistence (Dailylife Wildlife, Magic of the Ocean and Living with Elephants)

-- Payal Molur, Tandrali Baruah, P. Kritika, Priyanka Iyer, Marimuthu R, & Nethra Prem, Pp. 01–06.

Restoring Natural Ecologies 2025

-- Trisa Bhattacharjee & Sanjay Molur, Pp. 07–08.

Article

Assessment of discarded bycatch composition in artisanal fisheries from Palk Bay and Gulf of Mannar, India

-- S. Bhavanesh Kumar & H. Byju, Pp. 09–13.

Bird-o-soar

Transmission line pylons supporting Great Cormorant nesting in Tamil Nadu

-- S.J.D. Frank, Alex Jacob & G.V. Gopi, Pp. 14–15.

Strigiformes in Odisha's forest divisions

-- Swarup Fullonton, Rakesh K. Mohalik, Amit K. Bal, Sanmitra Roy & Anil Mohapatra, Pp. 16–22.

Bugs R All

Butterflies of Northeastern Police Academy, Umiam, Meghalaya

-- Anisha Gogoi, Abhishek Mishra, V. Mahesh & M. Jayashankar, Pp. 23–24.

Reptile Rap

Short-nosed Vine Snake preying on a Common Indian Skink in Similipal Tiger Reserve, Odisha.

-- Prakash Chand Gogineni, Sailaja Nandan Ray, Shashi Sourav Hansda & Swarup Fullonton, Pp. 25–26.

Rare sighting of Elongated Tortoise in Saranda Forest Division, Jharkhand

-- Shiladitya Acharjee & Aviroop Sinha, Pp. 27–28.



Classrooms for Coexistence

(Dailylife Wildlife, Magic of the Ocean and Living with Elephants)

A csr initiative by



Introduction

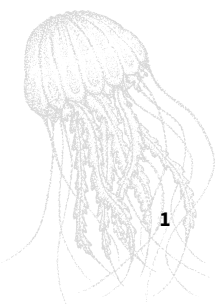
The Classrooms for Coexistence program grew from a simple question: how do we help children rebuild a relationship with nature they are slowly losing? From millipedes in your school grounds to monkeys near temples or on the roadside to elephants near your village or town, wildlife is all around. Yet fear, misinformation, and inherited myths create negative encounters. Wildlife is persecuted and children live in revulsion or fear.

Zoo Outreach Organisation, supported by Coromandel International Ltd., set out to change this using curiosity, stories, and hands-on discovery with the 'Classrooms for Coexistence' program. Through early, accurate, and engaging education, we know we can equip children to better understand, respect, and coexist with the wild world around them.

This is the story of our journey across Tamil Nadu from coastal towns to inland cities, misty slopes of Ooty, and the forest-fringe schools inside the Sathyamangalam Tiger Reserve.

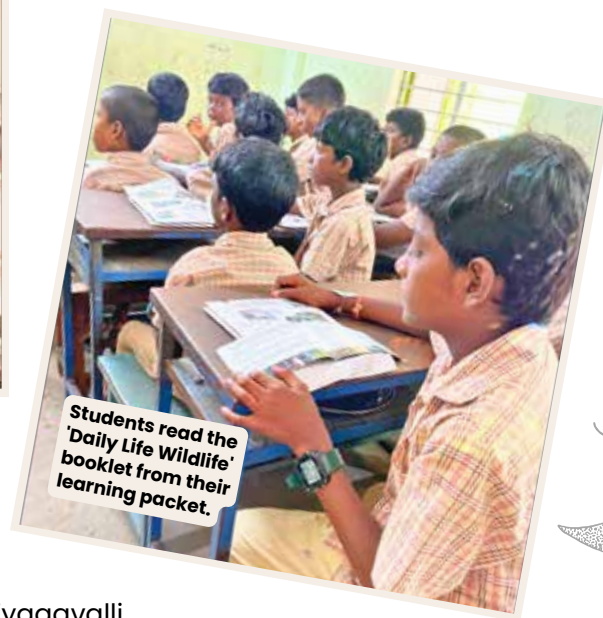


Students play Jenga game to learn about food chains and ecological balance.

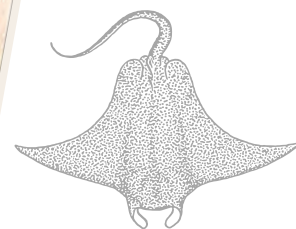




Students read the pledge with our mascot, Dr. Manta Ray.



Students read the 'Daily Life Wildlife' booklet from their learning packet.



The Cuddalore Schools

The journey to our first destination was to Cuddalore involving PUMS Thiyagavalli, GHS Periyakuppam and PUMS Mathoppu schools where 30, 111 and 55 students participated, respectively. The workshop began with an introduction and a brief about the program. Then Dr. Manta Ray on a flex, as the mascot of the IOcean Program, was unfurled.

Taking a pledge the students were initiated into looking at conservation of the ocean as important to them. An attitude survey known as KWL (Know, Want, Learn) was done where the students were given post it notes and asked to write what they know and what they want to know about daily life wildlife. This gave us a sneak peek into what the students understand about wildlife and what we could teach. Our team member R. Marimuthu explained to the students how wildlife is not necessarily found only in forests and it need not be big charismatic animals like tiger, elephant and gaurs, but could be found around our day to day life, animals such as millipedes, spiders, birds that are witnessed on a daily basis are also wildlife. This was followed by a session on ocean conservation where the Zooreach Team taught the students of the various aspects of ocean conservation, why it is needed and also questioned them as to what they think are the threats to the ocean. The answers were almost all correct which showed they are aware of the issues. However, one observation that fascinated the team was that none of them considered noise pollution as a threat.

This was followed by conducting different games with the students. A game that all the children found fun and challenging was that of the Dichotomous key. Nestled in our 'Magic of the Ocean' E-learning portal, the kids were in high competition to complete the activity correctly. The dichotomous key provided an opportunity for them to identify organisms (plants, animals, insects, fungi, etc.) by following a series of two-choice steps. It helps you identify an organism based on its characteristics and guides you through paired statements (like "has wings / has no wings").

Another game that the students played is the Jenga Game. The Jenga game represents the entire food chain of the ocean, and the blocks represent the species within it, and by removing one species. This activity was designed to help students understand the importance of balance in nature, and it is a collective duty of everyone to protect the ocean.

In addition to that, students were also thrilled about the bio-mapping activity where they were assigned 2 trees in their school and each group had to observe their respective tree and surrounding area for the daily life wildlife that they might find.

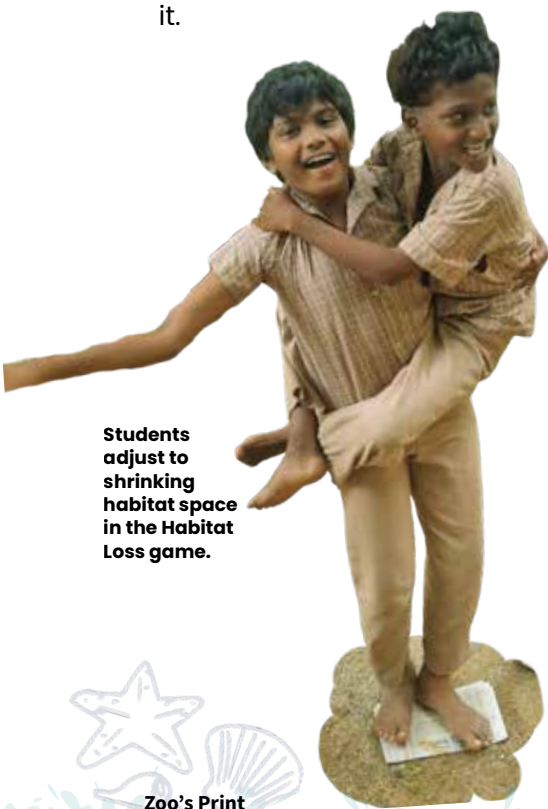
The students observed the beetles, the bugs and the other wildlife which they would not have considered earlier. Nature journaling became the star activity. Groups fanned out across the playground, crouching near unfamiliar plants and discussing leaf shapes, textures, and the mysterious insects tucked inside the grass. The outdoors became their classroom, and curiosity took over.

At the end, each school was given group homework, which will be looked at when the team revisits the schools next year. Some of the respective homeworks that were given to them were an article on the role of the ocean in their day-to-day life, a skit on different ocean-related topics, and nature journaling. And in the last school they were to come up with a skit or a drama using the pictonary game in which the teams guessed ocean related words while playing it.

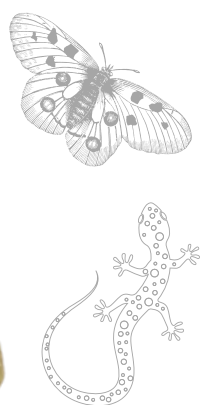
Ranipet Schools

The team’s visit to Ranipet was delayed only by a day due to rain, however the next morning, with the sun finally out, the team arrived at the school. The principal introduced Marimuthu, Tandrali and Koshik during the morning assembly, and they then held two lively sessions – one for classes 6 and 7 in the first half, and another for class 8 later. Through their presentation, they discussed the wildlife that students often encounter in their daily lives. Soon, the classroom turned into a cheerful chaos during the butterfly and insect stamp game as everyone tried to guess the animals from the clues. A total of 100 children participated in the program. It will be exciting to see what they present from their learning in the next session in January 2026.

On the 24th of October, the sessions were conducted at the Government ADW Higher Secondary School in Karai, Ranipet. With the Diwali holidays around the corner, there were fewer students, but their enthusiasm made up for it. The teachers stayed throughout the session and actively listened in. The students desire to learn more about elephants was heartwarming. Using the education packets and information the team introduced the students to daily life wildlife like Geckos and frogs and gave them a special presentation on elephants, which they listened to with great interest. The program ended by playing the habitat loss game – a fun and engaging activity with newspapers through which the students not only enjoyed themselves but also learned something new about habitat loss and the solution by planting native plants. Around 45 students participated in the sessions and at the end of the session they promised to spread awareness amongst their family and friends.



Students adjust to shrinking habitat space in the Habitat Loss game.



Zooreach team presents 'Daily Life Wildlife' on animals in everyday surroundings.



Students explore their learning packets.



Students play a hands-on activity about India's coastline.



Priyanka explaining the role of geckos



Chennai Schools

The sessions were conducted at the Government HSS, Kathivakkam, Chennai, on 27th October. Despite the rain forcing the program indoors, the energy remained high. Around 115 students participated in the activities, and the room was filled with laughter and excitement. The Jenga game was an eye opener for them as they were divided into different threats like plastic pollution and so on. The jenga blocks represented the food web and an ecosystem. The children pulled out the blocks one by one and when the tower tumbled, they blamed each other and then realised that they all played a role in bringing down the jenga tower. The day ended with the children promising to be more observant of wildlife around them and to ensure that they make a change in their lives.

Eklavya Matriculation Residential School, Ooty

Amidst the misty blue hills of Ooty, the Classrooms for Coexistence program had its 7th workshop at Eklavya Matriculation Residential School in Ooty. The two-day workshop, conducted by Payal Molur, Priyanka Iyer and assisted by Nethra, brought together students from Grades 6 to 8 to explore the fascinating diversity of wildlife

around them and understand the importance of coexistence. The first day dawned cold and rainy, but the enthusiasm inside the classroom more than made up for the weather. Priyanka began the session with the Lion-tailed Macaque, the children immediately recognized it as the Singa Valu Kurangu – literally lion-tailed monkey – and animatedly described its thick, mane-like hair. Their local knowledge about the animals behaviour was good.

The session then went on with Payal and Priyanka assessing the knowledge and perception of the children towards different animals. During the smiley face attitude evaluation most children expressed fear or indifference toward insects and reptiles, when we showed frogs on the screen there was visible disgust and revulsion.

The children were then guided to answer the 'Ocean opinion map' questionnaire survey to assess their knowledge about the ocean. None of the kids had ever been to the sea and many found it difficult to even comprehend the questions. The team then had the kids up and on their feet with a tiger stretch and playing games to understand adaptation. The bat session proved to be a highlight. Most students had seen bats before but didn't know there are two different types of bats (fruit-eating and





insect-eating species). What echolocation is and how it is used to communicate or find prey was particularly fascinating. Every child wanted to be a blindfolded bat trying to catch mosquitoes! The fact that one tiny pipistrelle bat can eat 300 mosquitoes in one hour was greeted with wonder and awe. This brought up the discussion on the ecological roles of animals. The students confidently explained how butterflies help plants. The students were particularly intrigued by a fly that mimics a bee, a perfect example of nature's adaptations for survival. While some mistook it for a real bee, the conversation helped them understand the concept of mimicry.

When shown the dung beetle, the room filled with excitement and amusement—especially when they learned that the beetle's 'ball' was actually dung. The students quickly grasped its ecological importance in nutrient recycling. The jewel beetle too sparked interest, with one observant child noting that these beetles are usually seen in pairs. The day ended with playing the observation game and the pledge to protect animals and share their knowledge with others.

Day two welcomed clear skies and bright sunshine—perfect for the outdoor activities planned with thirty seven 8th graders. The students began by introducing themselves and eagerly asked Priyanka about her work with sharks—"How big are they?" being the most popular question.

The assessment activity had the children show their emotions towards a topic by 'throwing their arms' in the air for happy, 'sitting down' for sadness and boxing hands for anger. Interestingly the children of grade 8 had shown the same aversion to frogs and geckos as the younger grades. In fact, there were also a number of children who expressed anger if a frog or gecko jumped on them. The children expressed joy at seeing elephants or gaur and several had seen elephants in Mudhumalai. The day's activities encouraged students to express their emotional responses to animals through games and gestures. Elephants, gaurs, and leopards were met with admiration, while snakes and frogs provoked discomfort.

The discussion soon deepened into issues of habitat loss and Human wildlife negative interaction. One student shared that wild animals, which rarely entered their village before, now often attack their dogs—an observation that reflected a direct experience of ecological imbalance. This led to a conversation about the role of forests in maintaining balance and how conservation efforts can help both humans and wildlife coexist peacefully.

The session continued with a slide presentation and learning games introducing concepts such as amphibians, pollination, compound eyes, food chains, and echolocation. While some students found the reading portions of the educational packets challenging, they remained curious and engaged. As the session drew to a close, students participated in the newspaper game, a lively group activity that reinforced teamwork and quick thinking. Their



discussions reflected a growing understanding of conservation themes— replanting trees, protecting habitats, and reducing harm to wildlife.

Sathyamangalam Schools

The C4C awareness program then moved to the Government High School, Germalam, and Government Tribal Residential Higher Secondary School, Hasanur, located within the Sathyamangalam Tiger Reserve on the 5th and 6th of November. A total of 28 students from GHS Germalam and 58 students from GTRHSS Hasanur over two days each were introduced 'What is Wildlife?' and 'DailyLife Wildlife'.

The educational packet materials were received with much joy and exclamations of 'look at this animal' or 'I have seen this before!'. They then played the 'Who Am I?' cards. Within 30 minutes the knowledge base of the children with regards to some of the species was enhanced and their curiosity also piqued.

To further this an observation game was conducted to enhance students' ability to focus and pay attention to details in their surroundings. This was followed by the blindfold game to demonstrate how bats use echolocation. Every child wanted to be a bat especially after they learnt how cool the animals are. The only mammal to fly, how it regulates its system to handle being upside down and how there are two groups of bats - insect eating and fruit eating.

In the concluding session, using the elephant booklet and a PowerPoint presentation, students learned about elephant biology and behaviour, human–elephant conflict, mitigation strategies, and the do's and don'ts for people living in forest fringe areas This was a very important component of the

program as many of the children live in villages that have seen elephant and human negative interactions. The children and the teachers appreciated the workshop as it gave them practical tips on how to stay safe and why it is important to coexist with nature.

Coimbatore Schools

For Vidhya Vanam and Global Pathways Schools the team worked directly with the teachers to ensure maximum reach. Ocean and dailylife wildlife themed lesson plans were imparted for the teachers to take to their classrooms.

The whole team will be revisiting all the schools in January and February for a refresher and to have the students showcase what they have learnt or what they would like to highlight.

Zooreach team member plays the observation game with students."



Students spot changes in their peers to sharpen observation skills.



Students tie rakhis pledging to protect wildlife and spread conservation awareness.



By Payal Molur, Tandrili Baruah, P. Kritika, Priyanka Iyer, Marimuthu R, and Nethra Prem
Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India
zooreach@zooreach.org

Citation: Molur, P., T. Baruah, P. Kritika, P. Iyer, R. Marimuthu & P. Nethra (2025). Classrooms for Coexistence: (Dailylife Wildlife, Magic of the Ocean and Living with Elephants) In *Zoo's Print* 40(11): 01–06.

Restoring Natural Ecologies 2025

The Ecological Restoration Alliance India held the fourth version of Restoring Natural Ecologies in 2025 on October 27–29 at Cotton University, Guwahati, Assam. The theme of the conference focused on ecological restoration and rewilding, gathering researchers, practitioners, community, youth, movie makers, funders, policy makers, educators, and many other stakeholders in a single platform to exchange ideas, build collaborations, and ideate strategies.

Being organized at the heart of northeastern India, the program emphasized the problems and challenges in that part of the country quite extensively, bringing practitioners and communities from the northeastern regions and discussing solutions that integrate traditional and scientific knowledge. The conference held a combination of events like participant-led sessions, talking circles, movie screenings,



plenaries, network melas, and open circles which actively encouraged engagement of the attendees.

The sessions included restoration journeys & realities, opportunities, and challenges from practitioners like, Divya Mudappa, Rita Banerjee, T. Shankar Raman, Mitesh Damania, Dipal Damania, P. Shyamkumar, Tarsh Thekaekara, and many others from Nature Conservation Foundation, Daruka, Rainmatter Foundation, Nature Future, Green Hub, ATREE, UNDP, Royal Enfield, Aaranyak, and many more.



Dr Sanjay Molur from Zoo Outreach Organisation along with Himanshi Rawat, Green Hub Western Himalaya Fellow screened the movie 'Hope for Coexistence' documenting efforts of the Himalayan Restoration Project in restoring 800+ ha of degraded forest in Chamba, western Himalaya. During the session

Sanjay briefly spoke about the conservation efforts taken by his team to ecologically restore landscape, species, and livelihoods. Following his discussion Himanshi spoke about her reflections on the project and experiences while shooting the film.

Trisa Bhattacharjee also presented a talk on funding opportunities for youth in restoration space across Global South. The talk was majorly based on the different opportunities the Global Landscape Forum offers in the restoration space, and how to popularize those opportunities for youth in India.

The event was invaluable, bringing together multiple stakeholders in the conservation and restoration space strategizing practical restoration actions. The conference worked towards building India's restoration network, presenting successful case studies, and integrating communities in decision making.



Trisa Bhattacharjee¹ & Sanjay Molur²

^{1&2}Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India. Email: trisa@zooreach.org, sanjay@zooreach.org

Citation: Bhattacharjee, T & S. Molur (2025).

Restoring Natural Ecologies 2025. In *Zoo's Print* 40(11): 07–08.



Assessment of discarded bycatch composition in artisanal fisheries from Palk Bay and Gulf of Mannar, India

Bycatch, the incidental capture of non-target species during fishing, has long posed economic, ecological, and operational challenges for fishers. While selective methods like harpoons and handlines have historically minimized bycatch, unintended catches still occur, often with low survival rates upon release.

Globally, marine fisheries bycatch was estimated at 28.7 million tons in 1994, with annual discards reaching 27.0 million tons of which shrimp trawling alone contributed 35% (Alverson et al. 1994) and 7.3 million tons later (Davies et al. 2009). This discarded fauna comprises diverse taxa, including mollusks, crustaceans, cnidarians, fish, and echinoderms many of which play vital roles in benthic and pelagic food webs.

Bottom trawling, a major contributor to unintentional mortality, is recognised as a significant threat to marine ecosystems due to its destructive impact on seabed structures, biodiversity, and sediment suspension, as well as habitat degradation (Belz et al. 2018). Bycatch threatens numerous species, including chondrichthyans (sharks, rays, and chimaeras), marine turtles, sea snakes, marine mammals, seabirds, and teleosts, many of which are categorised

as threatened or endangered (Pacoureau et al. 2021). Discards also disrupt food webs, redistribute biomass, and can cause localized hypoxia, altering benthic community composition and ecosystem functions (Gilman et al. 2012). India, one of the top global seafood exporters, reported 1.78 million metric tons of exports in 2023–24, generating ₹60,523.89 crore (equivalent to US\$7.38 billion) (PIB 2024). However, the rise in commercial fish production over the past five decades has been accompanied by increased bycatch landings and discards, exacerbating ecological pressures on marine ecosystems. Trawl nets, particularly demersal fisheries using otter and beam trawls, are amongst the most destructive fishing gear, severely impacting benthic invertebrate communities (Silveria et al. 2020).

The present study documents discarded bycatch by traditional fishers at landing sites along the ecologically significant coasts of Palk Bay and the Gulf of Mannar, highlighting the need for sustainable fishing practices to mitigate ecological and economic losses.



Methods

This study investigated discarded bycatch at two traditional fish landing sites: Munaikadu (9.170° N, 79.074° E), in Palk Bay and Vedalai Port (9.277° N, 79.109° E), in the Gulf of Mannar during September–October 2024. Direct observations and mobile camera recordings were conducted daily during peak landing hours to document discarded bycatch species. Identification was conducted using marine resources like online databases, reference materials from the marine museum, and expert consultations at the CMFRI, Mandapam Regional Centre. An open-type questionnaire survey with local fishers (n = 63) provided insights into bycatch composition and its implications for sustainable fisheries. Vernacular names of species were recorded through fisher interviews.

Results and Discussion

The study recorded 58 discarded bycatch species predominantly comprising benthic species critical to maintaining ecological balance. In Munaikadu, common observed species included *Squilla* spp., *Placuna placenta*, *Plotosus canius*, *Aurelia aurita*, and *Terapon puta* while less frequently observed species like *Sorsogona tuberculata*, *Echeneis naucrates* were also recorded. Molluscan species such as *Cerithidea singulata*, and *Cerithium ruppellii* were observed. Notably, *Squilla* spp., a burrow-dwelling mantis shrimp, were heavily impacted, posing a threat to their population if unsustainable practices persist. An approximately 1,000 individuals discarded in a single day's discard from 20–30 boats were recorded during the study. At Vedalai Port, small-scale fishers employ fish, shrimp, and crab nets. Among these, the crab



Squilla sp. (Mantis shrimp) commonly found bycatch at Munaikadu. © Bhavanesh.

mesh nets contribute the most of the bycatch due to their weighted design, which settles on the seafloor, unintentionally capturing various benthic organisms. Despite relatively low bycatch levels compared to bottom trawling, a noticeable increase in bycatch was observed when bottom trawlers operated nearby, disrupting seabed habitats and marine diversity.

This disturbance threatens species like the endangered Dugong *Dugong dugon*, which inhabits these coastal habitats (Anand et al. 2015). The area supports diverse species, including *Luidia hardwicki*, *Pentacaster* spp., *Protoreaster lincki*, *Goniodiscaster scaber*, *Carpilius maculatus*, *Malleus malleus*, *Pinctada fucata*, and *Pugilina cochlidium*. Seagrass discards were notably high, reflecting the impact on habitat stability. Bycatch species



Squillidae spp., accumulated in a small mound at the Munaikadu.
© Bhavanesh.

such as *Terapon puta* and *Squillidae* spp., though of low commercial value, are repurposed for poultry and aquaculture feed, while *Turbinella pyrum* is collected for decorative purposes. This unintended exploitation contributes to resource depletion and ecosystem destabilization. Traditional fishers reported a significant decline in fish stocks, with daily earnings dropping from Rs 1,500–2,000 to Rs 200–500 over the past decade, forcing

many to migrate for alternative livelihoods, eroding traditional fishing knowledge.

The findings emphasize the urgent need for sustainable fisheries management. The implementation of selective fishing gear and bycatch reduction technologies (BRT) can mitigate ecological impacts and support fish stock recovery. Community-based resource management and alternative livelihood opportunities are essential to enhance socio-economic resilience. Addressing these challenges requires collaborative efforts to balance ecological sustainability with the socio-economic needs of coastal communities.



Bycatch discarded on the shore of Vedalai landing site.
© Bhavanesh.

Discarded bycatch species at Munaikadu and Vedalai landing centers in Palk Bay and the Gulf of Mannar.

	Scientific name	Common name	Local name	IUCN Red List	Location	
1	<i>Sorsogona tuberculata</i>	Tuberculated Flathead	Nilanthatti	LC	MK	VP
2	<i>Echeneis naucrates</i>	Live Shark Sucker	Pilal Otti	LC	MK	-
3	<i>Plotosus canius</i>	Grey Eel Catfish	Aak Keluthi	LC	MK	-
4	<i>Caranx</i> sp.	Trevally	Parai	NE	MK	-
5	<i>Aurigeugula fasciata</i>	Stripped Pony fish	--	NE	MK	-
6	<i>Netuma thalassina</i>	Gaint Sea Catfish	Keluthi	LC	MK	-
7	<i>Terapon puta</i>	Small Scale Terapon	Kichan	LC	MK	VP
8	<i>Luidia hardwicki</i>	NA	Star	NE	-	VP
9	<i>Pentacaster</i> sp.	NA	Star	NE	-	VP
10	<i>Protoreaster lincki</i>	Red-knobbed Starfish	Star	NE	-	VP
11	<i>Goniodiscaster scaber</i>	Biscut Sea Star	star	NE	-	VP
12	<i>Pentacaster regulus</i>	NA	Star	NE	-	VP
13	<i>Temnopleurus toreumaticus</i>	NA	Morai	NE	-	VP
14	<i>Salmacis virgulata</i>	NA	Morai	NE	-	VP
15	<i>Echinodiscus auritus</i>	NA	NA	NE	-	VP
16	<i>Portunus pelagicus</i>	Blue Swimming crab	NA	NE	-	VP
17	<i>Alpheus</i> sp.	NA	Era	NE	MK	-
18	Squillidae spp.	Mantis Shrimp	Era puchii	NE	MK	-
19	<i>Philyra adamsii</i>	NA	NA	NE	MK	-
20	<i>Carpilius maculatus</i>	Seven-eleven Crab	NA	NE	-	VP
21	Decapoda spp.	Spider Crab	NA	NE	MK	-
22	<i>Neoliomera pubescens</i>	Strawberry Crab	NA	NE	-	VP
23	<i>Rhinolambrus</i> sp.	NA	NA	NE	-	VP
24	<i>Charybdis natator</i>	NA	Paru Nandu	NE	-	VP
25	Portunidae spp.	NA	NA	NE	-	VP
26	<i>Portunus</i> spp.	NA	NA	NE	-	VP
27	Decapoda spp.	NA	NA	NE	MK	VP
28	<i>Pitar erycina</i>	NA	NA	NE	-	VP
29	<i>Placuna placenta</i>	Windowpane Oyster	NA	NE	MK	-
30	<i>Malleus malleus</i>	Hammer Oyster	Kodari Chipi	NE	-	VP
31	<i>Mimachlamys sanguinea</i>	NA	Shiva vari chipi	NE	MK	VP
32	<i>Siliqua radiata</i>	NA	NA	NE	MK	-
33	<i>Anadara inaequalis</i>	NA	NA	NE	MK	-
34	<i>Laevicardium attenuatum</i>	NA	Manja Chipi	NE	-	VP
35	<i>Acrosterigma maculosum</i>	NA	NA	NE	-	VP
36	<i>Pinna muricata</i>	Thorny Fan Mussel	Aaku	NE	-	VP
37	<i>Pinctada fucata</i>	Indian Pearl Oyster	NA	NE	-	VP
38	<i>Paphia textile</i>	Textile Venus	NA	NE	MK	-
39	<i>Pteria chinensis</i>	NA	NA	NE	-	VP
40	<i>Pteria avicularia</i>	Swift Wing Oyster	NA	NE	-	VP
41	<i>Pugilina cochlidium</i>	Melon Conch	Pancimuli	NE	MK	VP
42	<i>Lambis lambis</i>	Spider Conch	NA	NE	MK	VP
43	<i>Cerithium</i> sp.	NA	NA	NE	MK	-
44	<i>Siliquaria</i> sp.	NA	Thundampar	NE	-	VP

	Scientific name	Common name	Local name	IUCN Red List	Location	
45	<i>Bufo nana</i>	Common Frog Shell	NA	NE	MK	-
46	<i>Chicoreus ramosus</i>	Branched Murex	Yanaimuli	NE	-	VP
47	<i>Notocochlis gualteriana</i>	Comma Necklace Shell	Amiyankaas	NE	-	VP
48	<i>Tonna dolium</i>	Spotted Tun	Sirataisangu	NE	MK	VP
49	<i>Turbinella pyrum</i>	Sacred Chank	Kulisangu	NE	-	VP
50	<i>Architectonica perspectiva</i>	Perspective sundial	NA	NE	MK	-
51	<i>Natica tigrina</i>	Tiger Moon Snail	NA	NE	MK	-
52	<i>Conus tessulatus</i>	Tessellate Cone	NA	NE	MK	-
53	<i>Rapana rapiformis</i>	Turnip Shell	NA	NE	-	VP
54	<i>Harpulina lapponica</i>	Brown-Lined Volute	NA	NE	-	VP
55	<i>Unedogemmula indica</i>	Indian Turrid	NA	NE	-	VP
56	<i>Turritella attenuata</i>	Screw Shell	Koburasangu	NE	-	VP
57	<i>Angaria plicata</i>	NA	NA	NE	MK	-
58	<i>Umbonium moniliferum</i>	NA	NA	NE	MK	-

NA—Not available | NE—Not Evaluated | LC—Least Concern | MK—Munaikadu | VP—Vedalai Port.

References

- Alverson, D.L., M.H. Freeberg, J.G. Pope & S.A. Murawski (1994).** *A global assessment of fisheries bycatch and discards.* FAO Fisheries Technical Paper No.339. Food & Agriculture Organization, Rome, 233 pp.
- Anand, Y., K. Tatu & C.N. Pandey (2015).** Status of Dugong *Dugong dugon* in Gulf of Mannar and Palk Bay, Tamil Nadu, India. *Indian Journal of Geo-Marine Sciences* 44(9):1442–1448.
- Belz, C.E., R.A. Ziliotto, M.V. Gernet, C.J. Birckolz & F.J. Lagreze-Squella (2018).** Gastropoda and Bivalvia as bycatch of the Atlantic seabob, *Xiphopenaeus kroyeri*, trawl fisheries in Pontal do Paran, southern Brazil. *Strombus* 24(1–2): 5–12.
- Davies, R.W.D., S.J. Cripps, A. Nickson & G. Porter (2009).** Defining and estimating global marine fisheries bycatch. *Marine Policy* 33(4): 661–672.
- Gilman, E., K. Passfield & K. Nakamura (2012).** Performance assessment of bycatch and discards governance by regional fisheries management organizations. IUCN, Gland, Switzerland, 484 pp.
- Pacoureau, N., C.L. Rigby, P.M. Kyne, R.B. Sherley, H. Winker, J.K. Carlson, S.V. Fordham, R.Barreto, D.Fernando, M.P. Francis, R.W. Jabado, K.B. Herman, K.M. Liu, A.D. Marshall, R.A. Pollom, E.V. Romanov, C.A. Simpfendorfer, J.S. Yin, H.K. Kindsvater & N.K. Dulvy (2021).** Half a century of global decline in oceanic sharks and rays. *Nature* 589(7843): 567–571.
- Press Information Bureau (2024).** India’s seafood exports touch all-time high by volume in FY 2023–24. Ministry of Commerce & Industry, Government of India. <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2026456>. Accessed on 03.ix.2025.
- Silveria, S., I. Ortega & L.F.C. Dumont (2020).** Artisanal trawling impact over prey availability and diet of estuarine megabenthic organisms in southern Brazil. *Estuarine, Coastal and Shelf Science* 237: 106682.

Acknowledgements

We would like to express our sincere gratitude to Raveendran Natarajan of Irugakal Amrita Trust, Madurai, for his guidance and support throughout this study. Special thanks are due to Mr. Bakiyam, Murugasan, Navusundaram (marine veteran), Kumaresan (ecologist), and the head of CMFRI, Mandapam, for their valuable contributions and insights. We are also deeply appreciative of the assistance provided by the museum guide and Jerusha Ann Thomas, research scholar in the field.

S. Bhavanesh Kumar¹ & H. Byju²

¹Department of Wildlife Biology, Government Arts College, Udhamandalam, The Nilgiris, Tamil Nadu 643002, India

Email: . bhavaneshsingaravelu@gmail.com (corresponding author).

²Centre of Advanced Study in Marine Biology, Annamalai University, Parangipettai, Tamil Nadu 608502, India

Citation: Kumar, S.B. & H. Byju (2025).

Assessment of discarded bycatch composition in artisanal fisheries from Palk Bay and Gulf of Mannar, India. In *Zoo’s Print* 40(11): 09–13.

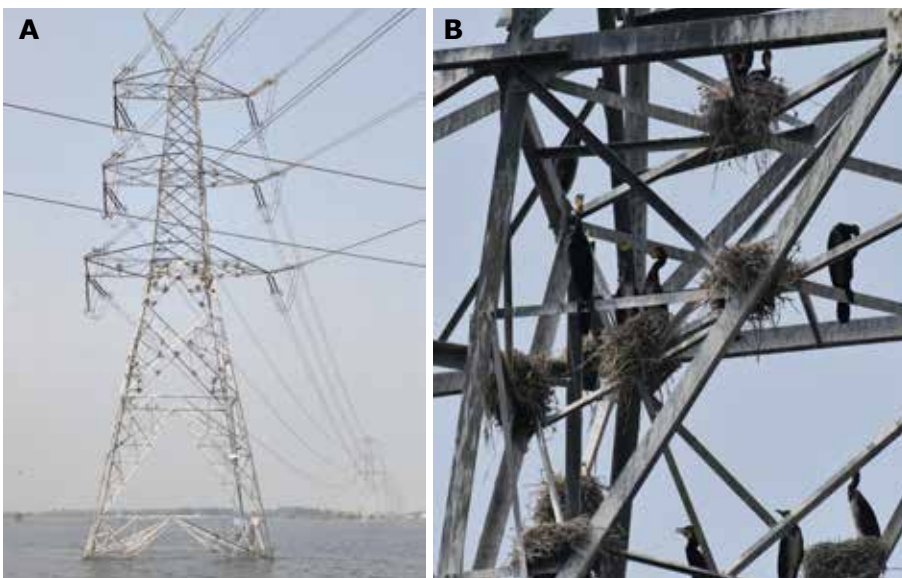
Transmission line pylons supporting Great Cormorant nesting in Tamil Nadu

Utilization of human-made structures by birds for nesting has increased in recent years, largely driven by the decline of natural nesting sites in favourable habitats (Mainwaring 2015). Birds now frequently nest on a variety of artificial structures, including houses, uninhabited buildings, metal pipes in fences, and transmission towers (Lesinski 2000; Soldatini et al. 2008; Janiszewski et al. 2015), none of which are intended to serve as nesting sites for these species. The availability of these artificial structures in regions with limited nesting opportunities can ultimately support species conservation (Mainwaring 2015).

The Great Cormorant *Phalacrocorax carbo* is a widely distributed species found across much of the world, comprising several subspecies. This broad distribution, along with the presence of different subspecies, leads to diverse nesting site selection behaviours. On 25 January

2023, while traveling from Kanchipuram to Arakkonam on State Highway 58, approximately 17 km from Arakkonam and 12 km from Kanchipuram (12.934° N, 79.677° E), a flock of Great Cormorant *Phalacrocorax carbo* nests was observed on a 400 kV transmission pylon about 100 m from the road, within a wetland. This wetland, located in Kanchipuram District is surrounded by paddy fields. Further investigation revealed additional nests on an adjacent pylon approximately 400 m from the first pylon.

On these two transmission pylons, a total of 59 Great Cormorant nests were observed. On the first pylon 24 nests were observed to be active, with juveniles and adults, while 22 nests were abandoned. The second pylon had 13 nests, with only three active. In total, 89 Great Cormorants, including both juveniles and adults, were counted in the wetland at that time.



A—Transmission pylons on the wetland, with nests of Great Cormorants *Phalacrocorax carbo* | B—Great Cormorant adults attending to chicks in nests on a transmission pylon. © Frank & Alex

According to local sources, Great Cormorants began nesting on the transmission pylons in 2021. Initially, they used only one tower farther from the bund, but from 2022, they started utilizing both the towers for nesting and roosting. Besides Great Cormorants, other heronry birds such as Spot-billed Pelican, Eastern Cattle-Egret, Indian Pond-Heron and Oriental Darter were observed foraging in the wetland.

Colonial nesting waterbirds (heronry birds) mostly breed in single or mixed species colonies across different habitats, predominantly in wetlands with vegetation. In India, colonial nesting waterbirds such as the Red-naped Ibis, have been reported nesting on transmission pylons in Gujarat and Rajasthan (Ali et al. 2013; Sangha 2013). Similar use of transmission lines for roosting by cormorants and pelicans has also been observed in Pallikaranai Marshes. In Tamil Nadu, while most colonial waterbirds breed in trees, some species like Spot-billed Pelican and Painted Stork have been observed using artificial structures, especially in well-managed wetlands (Frank & Gopi 2021).

A study conducted by Frank et al. (2021) on heronry birds nesting across Tamil Nadu reports the breeding of Great Cormorants in five heronries across five districts of the state, three of which are located in protected areas. In Tamil Nadu, Great Cormorants predominantly nest on tree species such as *Vachellia nilotica*, *Eucalyptus globulus*, and *Borassus flabellifer*. Breeding of heronry birds in Tamil Nadu mostly coincides with the onset of north-east Monsoon (October–December), and extends until April,

depending upon wetland inundation patterns and availability of food resources. Monitoring the breeding behaviour of Great Cormorants and other colonial nesting waterbirds is crucial for understanding the role of artificial structures in their nesting ecology. Such insights will be valuable in shaping future conservation and management strategies.

References

- Ali, A.M.S., S.R. Kumar & P.R. Arun (2013). Black Ibis *Pseudibis papillosa* nesting on power transmission line pylons, Gujarat, India. *BirdingASIA* 19: 104–106.
- Frank, S.J.D., G.V. Gopi & B. Pandav (2021). Heronry distribution and site preference dynamics of tree-nesting colonial waterbirds in Tamil Nadu. *PeerJ* 9: e12256.
- Frank, S.J.D & G.V. Gopi (2021). A case of successful initiative for heronry conservation in a privately managed wetland. *Indian BIRDS* 17(3): 96–96A.
- Janiszewski, T., P. Minias & Z. Wojciechowski (2015). Selective forces responsible for transition to nesting on electricity poles in the white stork *Ciconia ciconia*. *Ardea* 103(1): 39–50.
- Lesinski, G. (2000). Location of bird nests in vertical metal pipes in suburban built-up area of Warsaw. *Acta Ornithologica* 35(2): 211–214.
- Mainwaring, M.C. (2015). The use of man-made structures as nesting sites by birds: A review of the costs and benefits. *Journal for Nature Conservation* 25: 17–22.
- Sangha, H.S. (2013). Nesting of Indian Black Ibis *Pseudibis papillosa* on electricity pylons near Bikaner, Rajasthan. *Indian BIRDS* 8(1): 13–14.
- Soldatini, C., Y.V. Albores-Barajas, D. Mainardi & P. Monaghan (2008). Roof nesting by gulls for better or worse? *Italian Journal of Zoology* 75(3): 295–303.

S.J.D. Frank*, Alex Jacob & G.V. Gopi

*Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India
Email: frank.sadrack@gmail.com; alexjacob33@gmail.com; gopigv@wii.gov.in (corresponding author)

Citation: Frank, S.J.D., A. Jacob & G.V. Gopi (2025). Transmission line pylons supporting Great Cormorant nesting in Tamil Nadu. *Bird-o-soar* #278, In: *Zoo's Print* 40(11): 14–15.

Strigiformes in Odisha's forest divisions

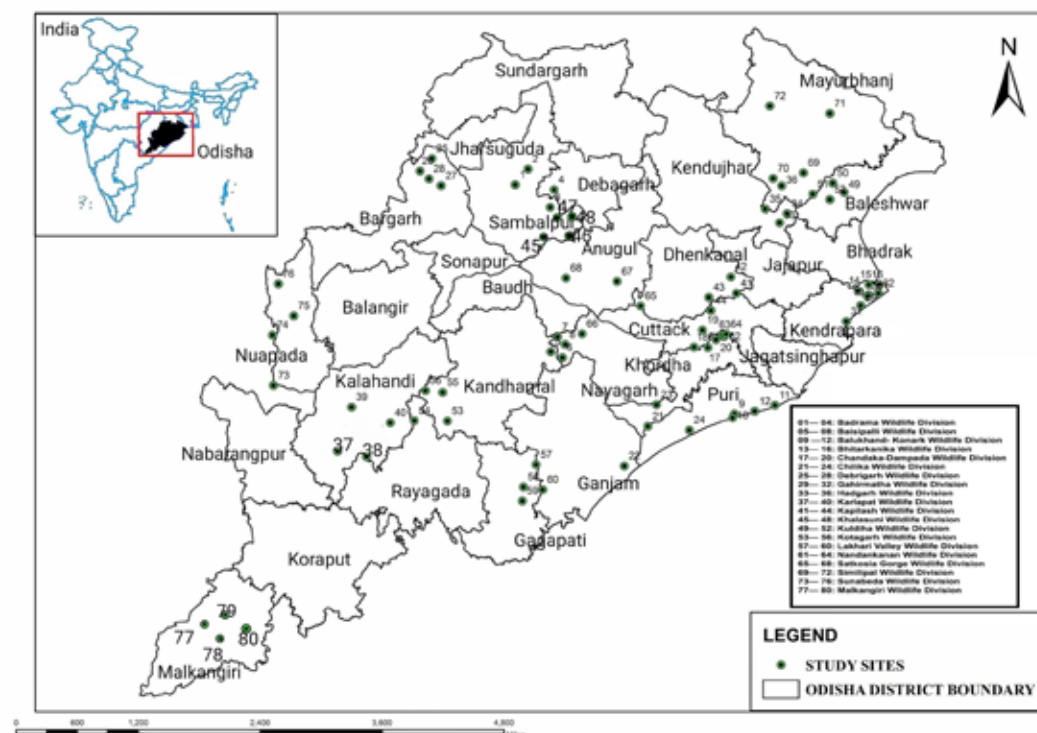
There are about 200 species of owls occurring globally and about 33 owl species are found in India. All the species of owls reported from India are protected under the Wildlife (Protection) Act, 1972 for their decrease in population due to deforestation and destruction of their natural habitats.

Odisha state has a total geographical area of 155,707 km², and a 52,472 km² of forest land which is about 33% of the total area. The study was conducted in 20 forest divisions in Odisha, including three prime biographic zones such as Deccan Peninsula, the Lower Gangetic Plain, and the East Coast. This area also contains four of the world's most valuable vegetation types, viz., semi-evergreen forests, tropical moist deciduous forests, tropical dry deciduous forests, and wetland forests (Champion & Seth 1968). The study begins right from the northern part

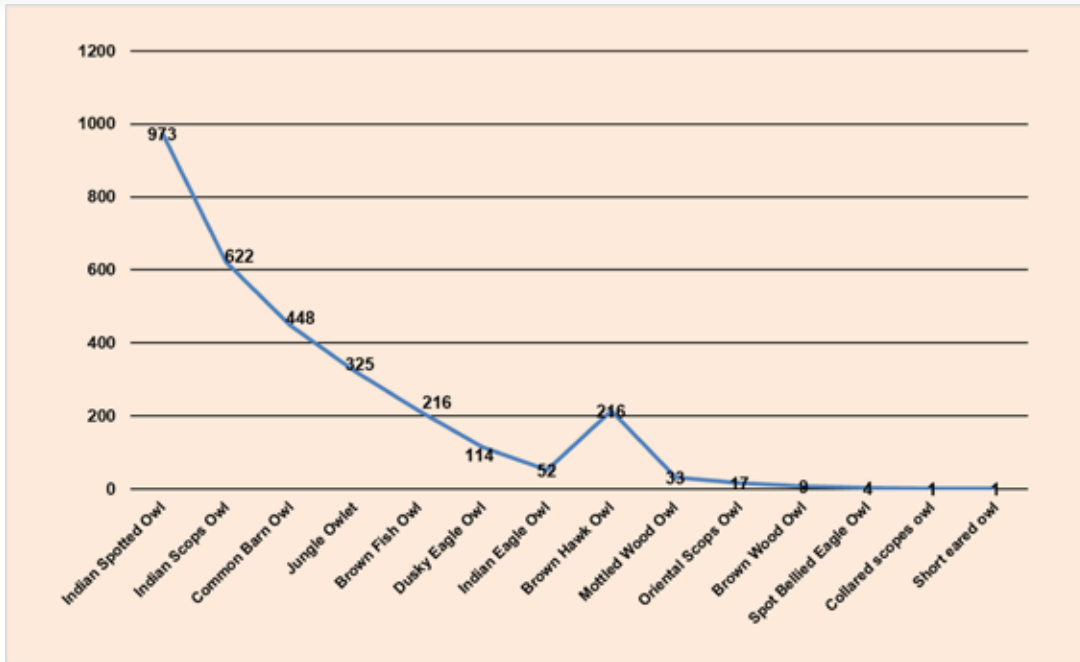
(Mayurbhanj District) to southern part (Malkangiri District) of Odisha State. This article reports on distribution of owl species along with its abundance in different wildlife divisions of Odisha, India.

Method and Study area

The present study was conducted at the peripheral regions of the 20 wildlife divisions of Odisha State — 1. Badrama Wildlife Division, Sambalpur (BAW); 2. Debrigarh Wildlife Division, Sambalpur (DEW); 3. Khalasuni Wildlife Division, Sambalpur (KHW); 4. Baisipalli Wildlife Division, Nayagarh (BIW); 5. Balukhand-Konark Wildlife Division, Puri (BKW); 6. Bhitarkanika Wildlife Division, Kendrapara (BTW); 7. Gahirmatha Wildlife Division, Kendrapara (GAW); 8. Chandaka-Dampada Wildlife Division, Khordha (CHW); 9. Nandankanan Wildlife Division, Khordha (NAW); 10. Chilika Wildlife Division,



Study area map of the distribution of different species of owls and owl species in different forest divisions of Odisha.



Graphical representation of species abundance of different species of owls and owlets in different forest divisions of Odisha.

Khordha-Puri-Ganjam (CKW); 11. Lakhari Valley Wildlife Division, Ganjam-Gajapati (LAW); 12. Hadgarh Wildlife Division, Keonjhar (HAW); 13. Kuldiha Wildlife Division, Balasore (KUW); 14. Similipal Wildlife Division, Mayurbhanj (SIW); 15. Kapilash Wildlife Division, Dhenkanal (KAW); 16. Satkosia Gorge Wildlife Division, Angul (SAW); 17. Karlapat Wildlife Division, Kalahandi (KLW); 18. Kotagarh Wildlife Division, Phulbani (KOW); 19. Sunabeda Wildlife Division, Nuapada (SUW); and 20. Malkangiri Wildlife Division, Malkangiri (MAW).

The study area map is given. The peripheral region of each forest area was divided into 1,000 x 1,000 m grids as the base of the study area. Randomly, three points were selected in each grid area, mostly near corners and the centre part. Each grid was surveyed for 60 minutes and in each survey station the owl calls were broadcast twice for a duration of 3–5 minutes and a response time of 5 minutes and +ve or –ve response were observed following

Celis-Murillo et al. (2012). Direct sightings were also recorded by the aid of binoculars and digital camera. Information about the presence of each owl species was also gathered from local forest staffs and villagers. Surveys were undertaken from January 2020 to December 2023, from 0500–1000 h and then late evening from 1800 h to midnight. Owl habitats were surveyed throughout the peripheral regions of individual forests. For better survey parameters such as owl species seen or heard, GPS coordinates along with habitat description were recorded or observed. Multiple times the grids and routes were surveyed for proper analysis. Nikon D5300 digital camera with DX NIKKOR 70–300 mm f/4.5-6.3G ED VR tele-zoom lens was used to capture the images during the survey. Fenix LR40R torch lights and Nikon ACULON A211 binocular were used to observe the individual owl species. Portable sound speaker of boAt (Stone 1000) was used to broadcast the owl calls. Garmin eTrex 22x, handheld GPS navigator was used to record the

geocoordinates. Identification of the owl species was done using standard literature of Grimmett et al. (2016) and Grewal et al. (2016). Online information was obtained from Xeno Canto Website (www.xeno-canto.org) and Deane (2020).

Results

During the study period, 14 species of Owl and Owlet were observed. Location-wise occupancy of each species is provided in the Table. The feeding habitats, abundance and IUCN Red List status of each species were also recorded during the period of survey. Population diversity of owls and owlets were represented. Field photographs of each species observed during the study period are presented. The present study aimed to understand the distribution pattern of large and small owls in different habitats of Odisha and its forest parts.

Among the total species observed, Spotted Owlet had the maximum population (933) followed by other owl species. Collared Scops-Owl and Short-eared Owl show the minimum population with their occurrence from only three forest divisions, according to the survey. During the study period the Spotted Owlet, Indian Scops-Owl, and Common Barn Owl were observed in all forest divisions of Odisha but Brown Wood-Owl and Spot-bellied Eagle-Owl were very rare and restricted to some specific forest regions only. It was also observed that Dusky Eagle-Owl was the only species that use nesting materials for preparation of nest while rest of the species depend on tree hollows and rocky cliffs. The breeding season of owls basically starts from March to May in each year

when the birds establish their territories and most of them are monogamous. Through the present study it was found that the Indian Scops-Owl likes tree holes near the periphery of the woodland area adjacent to agricultural fields for nesting, while Spotted Owlet prefer tree holes near agricultural fields close to human habitation.

The Jungle Owlet favours tree hollows near forest areas away from human habitation, while the Common Barn-Owl likes tree holes at the outer limits of human habitation. The Dusky Eagle-Owl loves high trees like Eucalyptus and Casuarina forest regions near coastal regions for nesting, while Brown Fish-Owl prefers tree hollows adjacent to forest areas near water bodies. For nesting, Indian Eagle-Owls like rocky cliffs close to forested regions, while Brown Hawk-Owls choose tree hollows in forested locations far from human settlement. Mottled Wood-Owl prefers to nest in old tree hollows in thick woodland environments far from populated areas. In densely forested locations with minimal canopy, the Oriental Scops- Owl favours tree holes for nesting. For nesting, the Brown Wood-Owl favours deep, high-hill forest settings; Spot-bellied Eagle-Owls prefer large tree holes with a high canopy cover for breeding in dense forest environments. The Collared Scops-Owl and Short-eared Owl were observed to be winter visitors.

Discussion

Previously seven owl species, viz., Spotted Owlet, Indian Scops-Owl, Common Barn-Owl, Jungle Owlet, Brown Fish-Owl, Indian Eagle-

Owl, and Brown Hawk-Owl were reported from Odisha (Palei et al. 2011; Das et al. 2013). This research updates five more owl species to the checklist of Odisha avifauna as Dusky Eagle-Owl, Mottled Wood-Owl, Oriental Scops-Owl, Brown Wood-Owl and Spot-bellied Eagle-Owl and two winter migratory species as Collared Scops-Owl and Short-eared Owl.

The main factors for this outcome are the excellent availability of food (e.g., small mammals, birds, reptiles) and diversified terrains (e.g., forest cover, mountain, croplands) for the nesting and roosting purpose. But in the present scenario of poaching, electrification, deforestation etc. are the major issues for declining of owl population in Odisha. All owls are predators and depend on other animals for food, thus play an important role in the forest ecosystem. They perched at the top of food chain and often eat other predators, such as mongoose, shrews, bats and insect-eating birds.

They are natural predators of rodents, thus maintain balance in agricultural pests. Conservation of owls not only result in better rodent control but also prevent huge crop loss. Owls play a vital role for maintaining ecological diversity and they are very good bio-indicators of ecosystem health and biodiversity. High biodiversity level has been associated with owl's presence. Owls are much beneficial to farmers, and the importance of owls to agricultural communities has led the bird being incorporated as good friend of farmers. Like many other predators, owls feed on many sources of the food chain, so owls play an important role in removal of prey population

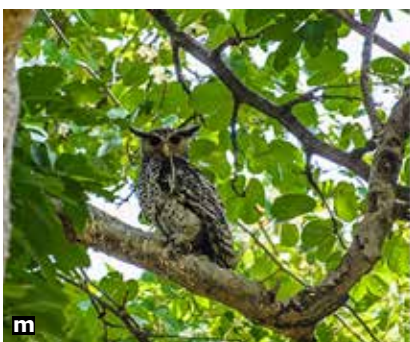
Table. Occupancy of owls and owlets species location wise. Present (+), Absent (-)

Species	BAW	DEW	KHW	BIW	BKW	BTW	GAW	CHW	NAW	CKW	LAW	HAW	KUW	SIW	KAW	SAW	KLW	KOW	SUW	MAW
1 Spotted Owlet	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
2 Indian Scops- Owl	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
3 Common Barn- Owl	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
4 Jungle Owlet	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+
5 Brown Fish-Owl	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+
6 Dusky Eagle-Owl	-	-	-	-	+	+	+	-	-	+	-	-	+	-	-	-	-	-	-	-
7 Indian Eagle- Owl	+	+	-	+	-	-	-	+	-	-	+	+	+	+	+	+	+	+	+	-
8 Brown Hawk- Owl	-	+	-	+	+	-	-	+	-	+	+	+	+	+	-	+	+	-	+	-
9 Mottled Wood- Owl	+	+	-	+	+	-	-	-	-	+	+	+	+	+	-	+	+	-	+	-
10 Oriental Scops- Owl	-	+	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-	-	-	-
11 Brown Wood-Owl	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+	-	-	-	-
12 Spot-bellied-Eagle Owl	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
13 Collared Scops- Owl	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14 Short-eared Owl	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-

List of owls and owlets of Odisha state studied during the survey period.

	Scientific name	Common name	Habitat	Feeding habit	Abundance	IUCN Red List status
1.	<i>Athene brama</i> (Temminck, 1821)	Spotted Owlet	Agricultural fields close to human habitation	Insects, rodents, small birds	C	LC
2.	<i>Otus bakkamoena</i> (Pennant, 1769)	Indian Scops-Owl	Peripheral region of the forest area close to agricultural fields	Insects, rodents, lizards, small birds	C	LC
3	<i>Tyto alba</i> (Scopoli, 1769)	Common Barn Owl	Outskirts of human habitation & close to agricultural fields	Rodents, small birds, small mammals	C	LC
4.	<i>Glaucidium radiatum</i> (Tickell, 1833)	Jungle Owlet	Close forest area away from human habitation	Insects, rodents, small birds	C	LC
5.	<i>Ketupa zeylonensis</i> (Gmelin, 1788)	Brown Fish-Owl	Close forest areas near water bodies	Fishes, frogs, birds, small mammals	UC	LC
6.	<i>Bubo coromandus</i> (Latham, 1790)	Dusky Eagle-Owl	Close forest areas near coastal regions	Small mammals, birds, fishes, frogs	UC	LC
7.	<i>Bubo bengalensis</i> (Franklin, 1831)	Indian Eagle-Owl	Rocky cliffs near water bodies	Small mammals, birds, fishes	UC	LC
8.	<i>Ninox scutulata</i> (Raffles, 1822)	Brown Hawk-Owl	Dense forest areas away from human settlement	Insects, small mammals, frogs, lizards	UC	LC
9.	<i>Strix ocellata</i> (Lesson, 1839)	Mottled Wood-Owl	Dense forest areas away from human settlement	Small mammals, birds, frogs, lizards	UC	LC
10.	<i>Otus sunia</i> (Hodgson, 1836)	Oriental Scops-Owl	Dense forest areas away from human settlement	Insects, small birds, frogs, lizards	UC	LC
11.	<i>Strix leptogrammica</i> Temminck, 1831	Brown Wood-Owl	Dense forest areas away from human settlement	Small mammals, birds, reptiles	UC	LC
12.	<i>Bubo nipalensis</i> Hodgson, 1836	Spot-bellied Eagle-Owl	Dense forest areas away from human settlement	Small mammals, birds, reptile	UC	LC
13.	<i>Otus lettia</i> Hodgson, 1836	Collared Scops-Owl	Dense forest and mangrove areas away from human settlement	Small mammals, rodents, birds, reptiles	UC	LC
14.	<i>Asio flammeus</i> (Pontoppidan, 1763)	Short-eared Owl	Grassland areas away from human settlement	Small mammals, birds, reptile	UC	LC

C—Common | UC—Uncommon | LC—Least Concern.



a—Spotted Owlet | b—Indian Scops-Owl | c—Common Barn Owl | d—Jungle Owlet | e—Brown Fish-Owl | f—Dusky Eagle-Owl | g—Collared Scops-Owl | h—Indian Eagle-Owl | i—Brown Hawk-Owl | j—Mottled Wood-Owl | k—Oriental Scops-Owl | l—Brown Wood-Owl | m—Spot-bellied Eagle-Owl | n—Short-eared Owl.

individuals that can be considered surplus. They catch weaker members of a population that are easiest to catch and least able to cope with the surrounding environment. In doing so, they help maintain the health and viability of prey populations. Owls have many direct and indirect utilitarian values (e.g., ecosystem services and benefits); recreational and aesthetic values (natural beauty, parks and natural reserves); intrinsic, spiritual, and ethical values. A strong step for the better conservation of these beautiful birds of prey is the need of the hour.

References

- Celis-Murillo, A., J.L. Deppe & M.P. Ward (2012).** Effectiveness and utility of acoustic recordings for surveying tropical birds. *Journal of Field Ornithology* 83(2): 166–179.
- Champion, H.G. & S.K. Seth (1968).** *A revised survey of the forest types of India.* Government of India Press, 606 pp.
- Das, S.K., D.P. Sahoo, N. Dash & H.K. Sahu (2013).** Avifaunal diversity of Baisipalli Wildlife Sanctuary, Odisha, India. *Indian BIRDS* 8(4): 90–92.
- Deane, L. (2020).** The Owl Pages. <https://www.owlpages.com/owls/species.php?s=1260>. Accessed on 27.iv.2024.
- Grewal, B., S. Sen, S. Singh, N. Devasar & G. Bhatia (2016).** *A pictorial field guide to birds of India (1st ed.).* Om Books International, 792 pp.
- Grimmett, R., C. Inskipp & T. Inskipp (2016).** *Birds of the Indian Subcontinent.* Bloomsbury India, 448 pp.
- Palei, H.S., P.P. Mahapatra, S.K. Dutta, L.A.K. Singh, H.K. Sahu & S.D. Rout (2011).** Avifauna of Karlapat Wildlife Sanctuary, southern Odisha, India. *Indian Forester* 137(10): 1197–1203.

Acknowledgements

The authors are thankful to Dr. Dhriti Banerjee, director, Zoological Survey of India, Kolkata for providing working facilities. A special thanks goes to Mr. George Sangram, Mr. Sujit Chakrobarty, Mr. Bijay Kumar Das and Mr. Manoj Sahoo for giving their valuable photographs, without their help the paper could not reach its present form. We are thankful to the Odisha Forest Department staff for supervising, guiding and sharing their knowledge and time. Authors are very much thankful to the local people of the study areas for the help during field survey.

Swarup Fullonton¹, Rakesh K. Mohalik², Amit K. Bal³, Sanmitra Roy⁴ & Anil Mohapatra⁵

¹Kapilash Zoological Park, Kapilash, Dhenkanal, Odisha 759014, India

Email: fullontonswarup@gmail.com (Corresponding author)

²Keonjhar Wildlife Division, Anandapur, Keonjhar, Odisha 758001, India

³Department of Zoology, Mizoram University, Tanhril, Aizawl, Mizoram 796004, India

⁴Post Graduate Department of Zoology, Berhampur University, Berhampur, Odisha 760007, India

⁵Estuarine Biology Regional Centre, Zoological Survey of India, Ganjam, Odisha 761002, India

Citation: Fullonton, S., R.K. Mohalik, A.K. Bal, S. Roy & A. Mohapatra (2025). Strigiformes in Odisha's forest divisions. *Bird-o-soar* #279, In: *Zoo's Print* 40(11): 16–22.

Butterflies of Northeastern Police Academy, Umiam, Meghalaya

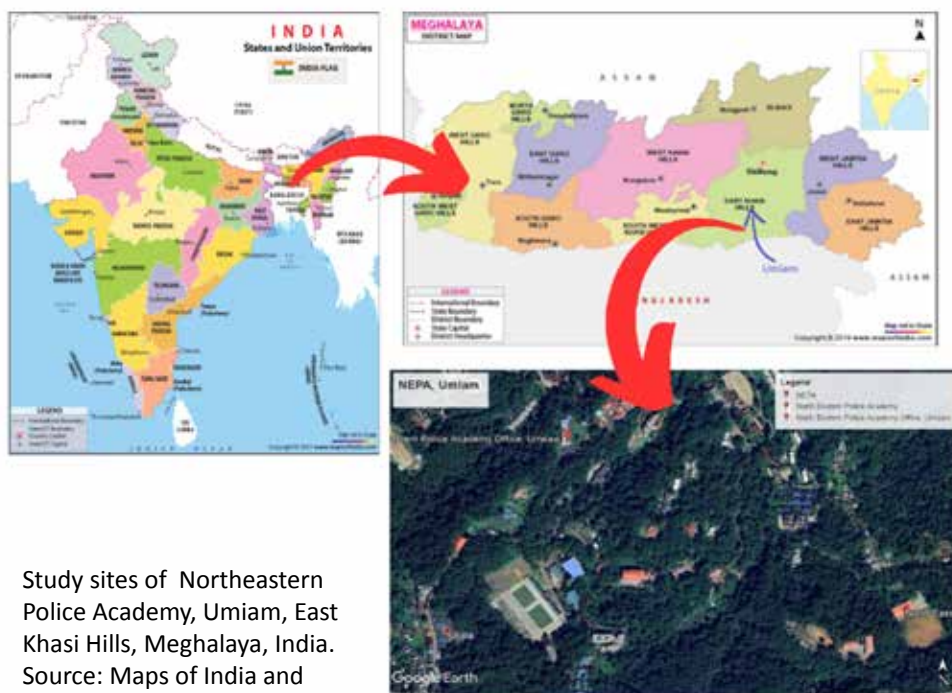
There are approximately 28,000 known butterfly species worldwide, belonging to various families, some of which are endemic or rare. Additionally, certain species exhibit migratory behaviour.

The study was conducted at the Northeastern Police Academy (25.679° N, 91.895° E) situated in the Ri-Bhoi District of Umiam, Meghalaya. The campus is located a few kilometres from Umiam Lake, an artificial reservoir whose waters are utilized for the generation and distribution of electricity. This region is characterized by a rich diversity of flora and fauna, with its lush green landscapes dominated by various tree species, particularly pine trees. The area is also interspersed with streams that provide habitats for an array of butterflies. These butterflies are not only key pollinators within the ecosystem but also serve as a vital food source for various organisms, including lizards, spiders, and birds.

The present study was conducted through systematic field surveys along trails

and roads within the campus and its vicinity. Observations focused on activity patterns, preferred habitats, and optimal periods for butterfly occurrence. Morphological features were carefully examined to aid identification. Species were identified using Kehimkar (2016).

A total of 25 butterfly species, categorized into two superfamilies and five families—Papilionidae, Pieridae, Lycaenidae, Riodinidae, and Nymphalidae—were observed during the study. Specifically, nine species from the family Nymphalidae were identified, comprising 36% of the total, while eight species from the family Lycaenidae accounted for 32%. Additionally, five species from the family Pieridae represented



Study sites of Northeastern Police Academy, Umiam, East Khasi Hills, Meghalaya, India. Source: Maps of India and Google Earth.

Butterfly species observed at Umiam, Meghalaya.

	Family	Scientific name	Common name	IUCN Red List status
1	Papilionidae	<i>Papilio chaon</i>	Yellow Helen	NE
2		<i>Pachliopta aristolochiae</i>	Common Rose	LC
3	Pieridae	<i>Pieris canidia</i>	Indian Cabbage White	NE
4		<i>Pieris brassicae</i>	Large cabbage White	LC
5		<i>Eurema brigitta</i>	Small Grass Yellow	LC
6		<i>Eurema hecabe</i>	Common Grass Yellow	LC
7		<i>Eurema andersoni</i>	One-spot Grass Yellow	LC
8		Lycaenidae	<i>Mahathala ameria</i>	Falcate Oakblue
9	<i>Niphanda asialis</i>		White-banded Pierrot	NE
10	<i>Catochrysops panormus</i>		Silver Forget-me-not	NE
11	<i>Everes lacturnus</i>		Orange-crowned Cupid	NE
12	<i>Nacaduba pavana</i>		Small Four- Lineblue	NE
13	<i>Pseudozizeeria maha</i>		Pale Grass Blue	NE
14	<i>Tirumala limniace</i>		Blue Tiger	NE
15	<i>Jamides elpis</i>		Glistening Cerulean	NE
16	Riodinidae	<i>Cethosia cyane</i>	Leopard Lacewing	NE
17	Nymphalidae	<i>Lethe verma</i>	Straight-banded Treebrown	NE
18		<i>Ypthima baldus</i>	Common Five- ring	NE
19		<i>Parantica aglea</i>	Glassy Tiger	NE
20		<i>Neptis Zaida manipurensis</i>	Manipur Pale Green Sailor	NE
21		<i>Junonia iphita</i>	Chocolate Pansy	NE
22		<i>Mycalesis mineus</i>	Dark-branded Bushbrown	NE
23		<i>Pantoporia bieti</i>	Tytler's Lascar	NE
24		<i>Parantica aglea</i>	Glassy Tiger	NE
25		<i>Pantoporia hordonia</i>	Common Lascar	NE

LC—Least Concern | NE—Not Evaluated.

20%, two species from the family Papilionidae made up 8%, and one species from the family Riodinidae contributed 4%. Collectively, these families accounted for 100% of the species observed.

Anisha Gogoi¹, Abhishek Mishra², V. Mahesh³ & M. Jayashankar⁴

^{1,2,4}Department of Zoology, St. Joseph's University, Bengaluru, Karnataka 560027, India

³Department of Zoology, Bangalore University, Bengaluru, Karnataka 560056, India. Email: jayashankar.m@sju.edu.in

Citation: Anisha, G., A. Mishra, V. Mahesh & M. Jayashankar (2025). Butterflies of Northeastern Police Academy, Umiam, Meghalaya. *Bugs R All* #296, In: *Zoo's Print* 40(11): 23–24.

Bugs R All is a newsletter of the Invertebrate Conservation and Information Network of South Asia (ICINSA)

References

IUCN (2025). The IUCN Red List of Threatened Species. Version 2025-1. Available at <https://www.iucnredlist.org>. Accessed on 07.x.2025.

Kehimkar, I. (2016). *Butterflies of India*. Bombay Natural History Society, Mumbai, 516pp





#267
21 November 2025

Short-nosed Vine Snake preying on a Common Indian Skink in Similipal Tiger Reserve, Odisha.

Similipal Tiger Reserve in Odisha, India, a UNESCO Biosphere Reserve covering 2,750 km², harbours remarkable herpetofauna diversity. Its snakes include the King Cobra *Ophiophagus hannah*, Indian Cobra *Naja naja*, Russell's Viper *Daboia russelii*, Kraits *Bungarus* spp., arboreal vine snakes *Ahaetulla* spp. (Dutta et al. 2009).

On 12 August 2025, a Short-nosed Vine Snake *Ahaetulla prasina* was observed preying on an adult Common Indian Skink *Eutropis carinata*, at Baghanta area of Similipal Tiger Reserve, Mayurbhanj District, Odisha, (21.588° N, 86.413° E). The snake was spotted hanging from a thin branch of a shrub, about 1.5 m above the ground, using its prehensile body to anchor itself while extending its anterior body towards the prey. It had seized the skink by the head, employing precise jaw alignment to immobilize it, and was in the



Short-nosed Vine Snake preying on Common Indian Skink.
© Swarup Fullonton.

process of methodically subduing and swallowing the lizard head-first, an efficient strategy that minimizes resistance from the limbs and scales of the prey. The event was documented photographically, confirming identification of both predator and prey.



The Short-nosed Vine Snake is an arboreal, diurnal colubrid with a distribution spanning southeast Asia and northeastern India (Whitaker & Captain 2004; Das 2010). It is primarily a visually oriented predator, feeding largely on lizards, frogs, and occasionally small birds. This observation confirms that the species' diet primarily consists of lizards, with the Common Indian Skink being a significant prey species in the Similipal landscape.

Notably, *A. prasina* was only recently reported as a new state record and range extension from northeastern India to Odisha, based on photographic and morphological evidence from Similipal (Gogineni et al. 2024). That study marked the first confirmed occurrence of the species in Odisha, extending its known range considerably south-eastward from its previously established distribution in the north-east. This predation record thus not only adds to the

trophic ecology data of *A. prasina* in Similipal but also reinforces its successful establishment in this new range, highlighting its role in regulating semi-arboreal lizard populations in the reserve.

References

- Das, I. (2010).** *A Field Guide to the Reptiles of South-East Asia*. New Holland Publishers (UK) Ltd, London, 376 pp.
- Dutta, S.K., N.V. Nair, P.P. Mohapatra & A.K. Mahapatra (2009).** *Amphibian and Reptiles of Similipal Biosphere Reserve*. Regional Plant Resource Centre, Bhubaneswar, Odisha, 174 pp.
- Gogineni, P.C., S.N. Ray, S.S. Hansda & S. Fullonton (2024).** New record of the short-nosed vine snake *Ahaetulla prasina* from the Similipal Tiger Reserve, Odisha: A range extension from north eastern part of India to Similipal landscape. *International Journal of Fauna and Biological Studies* 11(4): 29–32.
- Whitaker, R. & A. Captain (2004).** *Snakes of India: The Field Guide*. Draco Books, Chennai, 495 pp.

Prakash Chand Gogineni¹, Sailaja Nandan Ray², Shashi Sourav Hansda³ & Swarup Fullonton⁴

^{1,3}Similipal Tiger Reserve, Baripada, Odisha, India

²Odisha Biodiversity Board, Bhubaneswar, Odisha, India.

⁴fullontonswarup@gmail.com (corresponding author)

Citation: Gogineni P.C., S.N. Ray, S.S. Hansda & S. Fullonton (2025). Short-nosed Vine Snake preying on a Common Indian Skink in Similipal Tiger Reserve, Odisha. *Reptile Rap* #267, In: *Zoo's Print* 40(11): 25–26.



are not frequent. Khan et al. (2020) predicted the potential distribution of *I. elongata* in the Indian subcontinent, and identified the Chota Nagpur Plateau as a suitable but inadequately protected site-clusters for its habitats.

In this context, I record one more sighting of *I. elongata* from Saranda Forest Division, West Singhbhum district of Jharkhand. This report demonstrates the continued existence of the species in the area and emphasises the ecological significance of Saranda within its disjunct range. This observation is important considering the persistent threat of mining and habitat degradation, as well as that most of the expected suitable range located is outside protected areas (Khan et al., 2020). This sighting highlights the pressing need for active surveillance, habitat protection and community based public awareness programs in Jharkhand to preserve populations of *I. elongata*. These local-scale data provide essential updates to broader distributional studies (Ihlow et al., 2016; Khan et al., 2020), and inform where conservation for this imperiled species should be prioritized.

References

- Annandale, N. (1913).** The tortoises of Chota Nagpur. *Records of the Indian Museum* 9: 63–78.
- Das, I. (1995).** *Turtles and Tortoises of India*. World Wide Fund for Nature - India. Oxford University Press, Bombay, India, xi + 179 pp.
- Das, I. (1998).** *Turtles and Tortoises of India*. Oxford University Press, Delhi, India, 176 pp.
- Ihlow, F., J.E. Dawson, T. Hartmann & S. Som (2016).** *Indotestudo elongata* (Blyth, 1854) – Elongated Tortoise, Yellow-headed Tortoise, Yellow Tortoise. In: Rhodin, A.G.J., P.C.H. Pritchard, P.P. van Dijk, R.A. Saumure, K.A. Buhlmann, J.B. Iverson & R.A. Mittermeier (eds.). *Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group*. Chelonian Research Monographs 5(9): 096.1–14. <https://doi.org/10.3854/crm.5.096.elongata.v1.2016>
- Rahman, S., K. Platt, I. Das, B.C. Choudhury, M.F. Ahmed, M. Cota, T. McCormack, R.J. Timmins & S. Singh (2019).** *Indotestudo elongata* (errata version published in 2019). The IUCN Red List of Threatened Species 2019: e.T10824A152051190. <https://doi.org/10.2305/IUCN.UK.2019-1.RLTS.T10824A152051190.en>
- Khan, S., A. Nath & A. Das (2020).** The Distribution of the elongated Tortoise (*Indotestudo elongata*) on The Indian subcontinent: implications for conservation and management. *Herpetological Conservation and Biology* 15(1): 212–227.
- Smith, M.A. (1931).** *The Fauna of British India, including Ceylon and Burma. Reptilia and Amphibia. Volume I. Loricata, Testudines*. Taylor and Francis, London, UK, 257 pp.

Acknowledgements

I would like to thank my Divisional Forest Officer Shri Abhiroop Sinha, Attached Forest Officer Shri Nitish Kumar for all support and guidance. Also thanks our Sub-beat Officer Shri Abhay Pratap Singh for the field work.

Shiladitya Acharjee¹ & Aviroop Sinha²

¹Alipurduar, Westbengal, 736122.

²Alipurduar, Westbengal, 736122

Email: shiladitya.sa@gmail.com (corresponding author)

Citation: Acharjee, S & A. Sinha (2025). Rare sighting of Elongated Tortoise in Saranda Forest Division, Jharkhand. *Reptile Rap* #268, In: *Zoo's Print* 40(11): 27–28.

ZOO'S PRINT

Communicating science for conservation

ZOO'S PRINT Publication Guidelines

We welcome articles from the conservation community of all SAARC countries, including Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka and other tropical countries if relevant to SAARC countries' problems and potential.

Type — Articles of semi-scientific or technical nature. News, notes, announcements of interest to conservation community and personal opinion pieces.

Feature articles — articles of a conjectural nature — opinions, theoretical, subjective.

Case reports: case studies or notes, short factual reports and descriptions.

News and announcements — short items of news or announcements of interest to zoo and wildlife community

Cartoons, puzzles, crossword and stories

Subject matter: Captive breeding, (wild) animal husbandry and management, wildlife management, field notes, conservation biology, population dynamics, population genetics, conservation education and interpretation, wild animal welfare, conservation of flora, natural history and history of zoos. Articles on rare breeds of domestic animals are also considered.

Source: Zoos, breeding facilities, holding facilities, rescue centres, research institutes, wildlife departments, wildlife protected areas, bioparks, conservation centres, botanic gardens, museums, universities, etc. Individuals interested in conservation with information and opinions to share can submit articles ZOOS' PRINT magazine.

Manuscript requirements

Articles should be typed into a Word document with no more than 800 words of text and 10 key References (Tables, Images with copyright information, and Videos are encouraged) and emailed to zp@zooreach.org. Include the names of one or two potential reviewers when submitting a publication.

Articles which should contain citations should follow this guideline: a bibliography organized alphabetically and containing all details referred in the following style: surname, initial(s), year, title of the article, name of journal, volume, number, pages.

Editorial details

Articles will be edited without consultation unless previously requested by the authors in writing. Authors should inform editors if the article has been published or submitted elsewhere for publication.

Publication Information

ZOO'S PRINT, ISSN 0973-2543

Published at: Coimbatore

Copyright: © Zoo Outreach Organisation

Owner: Zoo Outreach Organisation, 3A2 Varadharajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India.

Editor: Sanjay Molur

Associate Editor: R. Marimuthu

Managing Editors: Latha G. Ravikumar & B. Ravichandran

Editorial Assistant: S. Radhika

Copy Editor: Sapna Ramapriya

Zoo Outreach Organisation Trust Committee and Sr. Staff

Founder Trustee: Late Sally R. Walker

Executive Director Trustee: R.V. Sanjay Molur

Finance Director Trustee: Latha G. Ravikumar

Researcher: R. Marimuthu, Priyanka Iyer, Usha Ravindra, Trisa Bhattacharjee, Tandrali Baruah

Other staff: B. Ravichandran, K. Geetha, S. Radhika

ZOO'S PRINT magazine is informal and newsy as opposed to a scientific publication. ZOO'S PRINT magazine sometimes includes semi-scientific and technical articles which are reviewed only for factual errors, not peer-reviewed.

Address

Zoo Outreach Organisation

3A2 Varadharajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India

Phone: +91 9385339862 & 9385339863

E-mail: zooreach@zooreach.org

Website: www.zoosprint.org, www.zooreach.org

zooreach
Zoo Outreach Organisation



Call for donations

In the first phase of the fundraiser for the **Sally Walker Conservation Fund**, we target three objectives.

- (i) **The Sally Walker Lifetime Award for Conservation**
- (ii) **The Sally Walker Training Programme in Conservation Biology and Application**
- (iii) **Communicating Science for Conservation through innovative education programs**

We solicit your generous contributions to the above activities of your choice. Please log onto our website www.zooreach.org and click on the **SWCF** page for information on how to donate.

You can also click [here](#) to go directly to the donation page.

Donations by Indians

Donations by non Indians

In case you wish to know more about the **Sally Walker Conservation Fund**, please contact Dr. Sanjay Molur by email <sanjay@zooreach.org> or by phone +91 9677822997.