



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India

# WII'S E-NEWSLETTER

WINTER 2023





# CONTENTS

|   |    |
|---|----|
| 1. Launch of the first Wildlife Journal of India  | 01 |
| 2. Towards Scientific, Ethical, Professional and Humane Management of Wild Animals  | 03 |
| 3. Navigating the Trans-Himalayas   | 05 |
| 4. Insights from the Marine Mammal Consortium of India  | 08 |
| 5. Feathered Guardians  | 11 |
| 6. Training Programme for Frontline Staff on Monitoring of Outstanding Universal Value of Natural World Heritage Sites Sundarbans National Park | 14 |
| 7. World Heritage Site Managers Meeting at Keoladeo NP World Heritage Site Managers Meeting Round 2   | 16 |
| 8. Geo-Heritage & Geoparks  | 18 |
| 9. Flamingos in “Kuda” of Kachchh Desert Wildlife Sanctuary, Kachchh, Gujarat   | 20 |
| 10. Global River Dolphin declaration  | 23 |
| 11. Wildlife Week Quiz at WII   | 25 |
| 12. Estimating Diversity  | 26 |
| 13. Capacity building workshop on “Minimizing The Impact Of Railways On Elephants   |    |

|  |    |
|--|----|
| And Other Wildlife” for the Officials of Indian railways at Wildlife Institute of India on 23 <sup>rd</sup> – 25 <sup>th</sup> November 2023   | 27 |
| 14. Capacity Building Workshop on “Mainstreaming management of the Elephant Reserves” for the Elephant Reserve Managers at Wildlife Institute of India on 28 <sup>th</sup> – 29 <sup>th</sup> November 2023.         | 28 |
| 15. WII starts enrollment for MSc Course in Freshwater Ecology and Conservation  | 29 |
| 16. Inception/Stakeholder consultation workshop on the “Framework for the Preparation of Elephant Conservation Plan (ECP) for the Elephant Reserves” at Wildlife Institute of India on 13 <sup>th</sup> October 2023 | 30 |
| 17. Learning from the Dead   | 31 |
| 18. Establishing meteorological station at Laldhang, Corbett   | 32 |
| 19. Sensitization Workshop on Urban Biodiversity and Ecosystem Services  | 33 |
| 20. 38 <sup>th</sup> Certificate Course in Wildlife Management for in-service Range Forest Officers/Deputy Range Officers or of equivalent ranks   | 34 |
| 21. GIS day, celebrations  | 35 |
| 22. Asian Rangers Forum Session, Guwahati, Assam   | 36 |
| 23. Capacity Building Programme on World Heritage Nomination of Bhaghat-Lametaghat for staff of MPTB, Forests and Tourist Guides   | 37 |
| 24. Triumph at the Wild  | 38 |
| 25. Second Orientation Program for New Recruits and Ganga Prahari under NMCG-WII “Jalaj: Connecting River and People to realize Arth Ganga” Project.   | 39 |
| 26. <b>Activities at SACON</b>   | 40 |



## Launch of the First Wildlife Journal of India

- Dr. Mewa Singh, Dr. Bilal Habib &  
Dr. Vishnupriya Kolipakam  
(bh@wii.gov.in)

Accepting  
articles from  
**15/01/24**

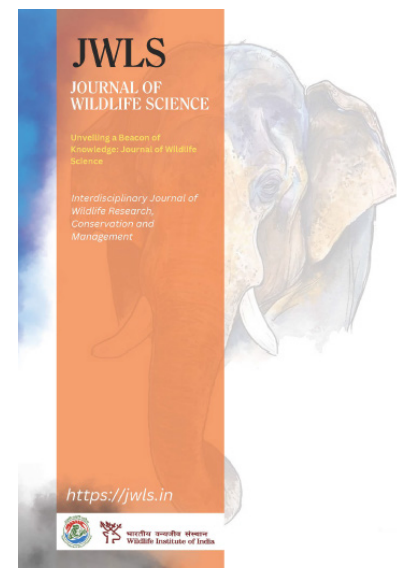
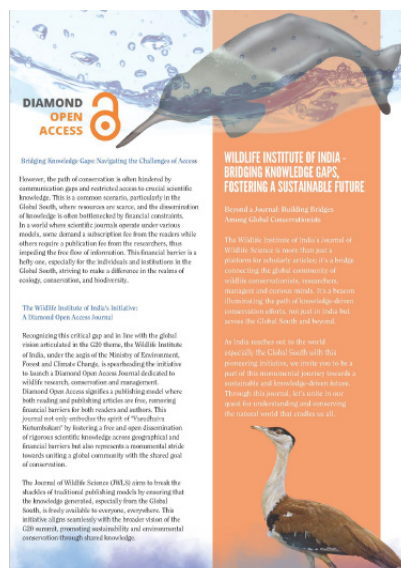
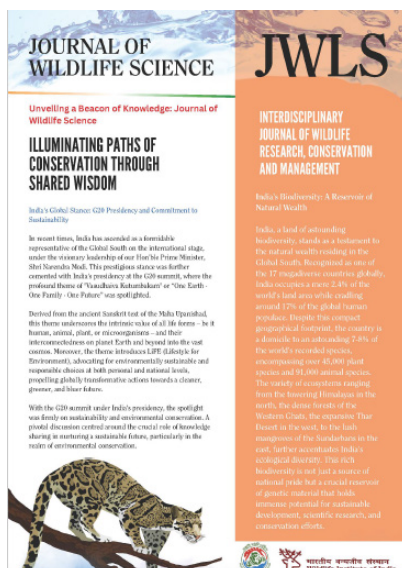
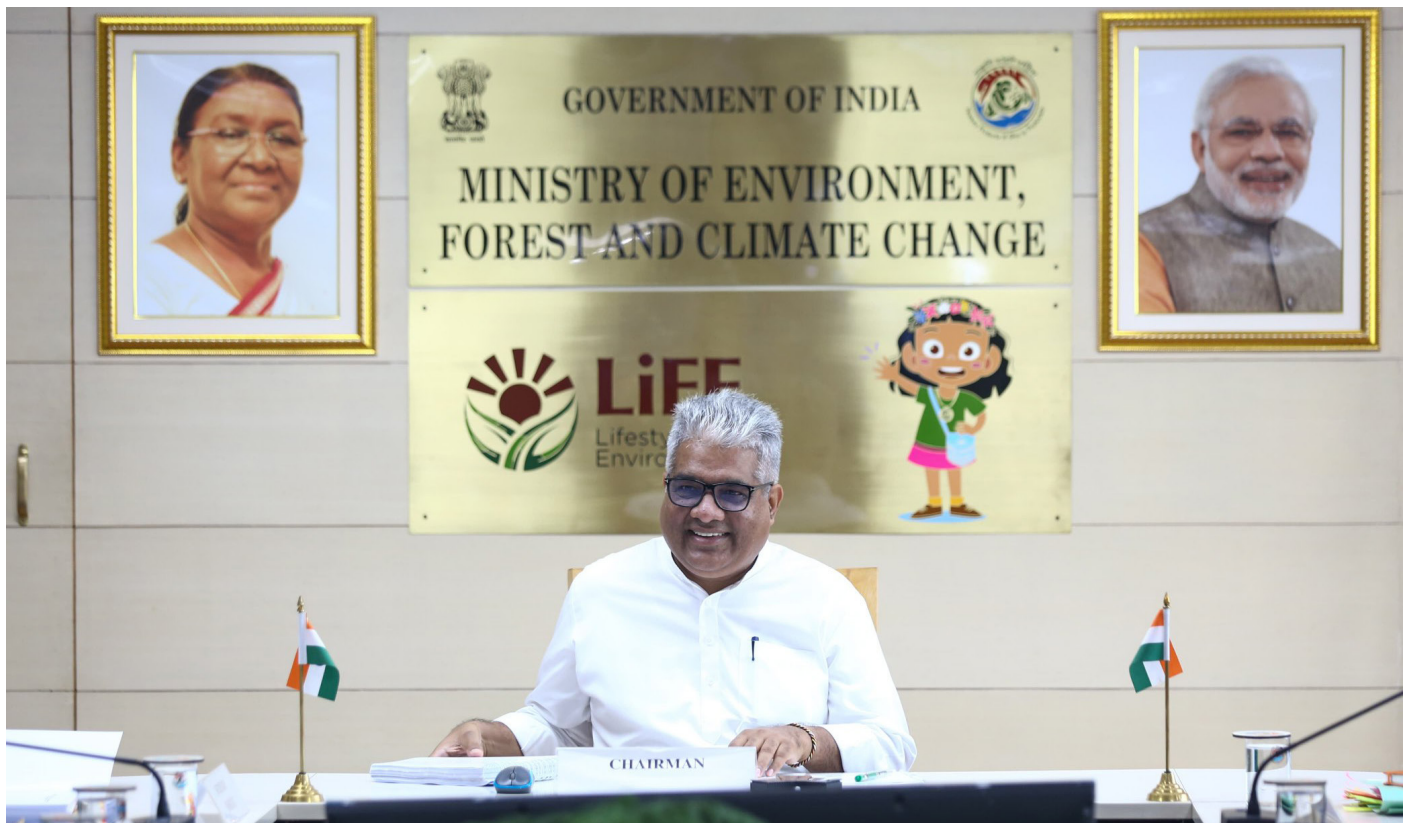


# JOURNAL OF WILDLIFE SCIENCE

<https://jwls.in/>

India's Beacon of Open  
Knowledge: Bridging Continents,  
Igniting Conservation Dialogues in  
the Global South







# Towards Scientific, Ethical, Professional and Humane Management of Wild Animals

- Dr. Parag Nigam  
(nigamp@wii.gov.in)







Veterinary professionals engaged in wildlife conservation have diverse roles and responsibilities. These may range from research, addressing veterinary needs, contributing to conservation initiatives like translocation and population management, and promoting ethical practices in the handling of wild animals. Thus there is a compelling need for a course that not only seeks to impart knowledge but cultivate a profound understanding of the delicate balance between the interventions carried out by veterinarians and the preservation of wildlife; with a deeper understanding of the intricacies of wild animal behavior and stress responses.

In line with this, a five day intensive course on wild animal restraint and immobilisation was conducted at the Sariska Tiger Reserve from November 16-20, 2023. The course was organised by Wildlife Institute of India, Dehradun in collaboration with Wildlife Pharmaceuticals, South Africa and Estonian University of Life Sciences, Estonia. Twenty-seven practicing veterinary professionals from thirteen states of India viz: Himachal Pradesh, Uttarakhand, Haryana, Rajasthan, Maharashtra, Madhya Pradesh, Chhattisgarh, Goa, Odhisha, Tamil Nadu, Karnataka, Sikkim and Andhra Pradesh, including six lady officers attended the course.

Eminent international and national faculty addressed the participants and delved into the intricacies of wild animal ecology and behaviour, ethical restraint and the art and the science of immobilization including various aspects of pharmacology, anaesthesia, physiology and immobilisation protocols. The course set the theoretical foundations and extended to the practical application of techniques that are essential for those who work at the intersection of wildlife conservation and human-animal coexistence.

This course was designed with more than just a series of lectures; it was an immersive experience. The hands-on exercises were designed to demonstrate the challenges faced in the field, providing a unique opportunity to apply theoretical knowledge to real-world scenarios. It included animal immobilisation, post-immobilisation monitoring, general field procedures and health assessment of a leopard (*Panthera pardus*) in captivity and Sambar (*Rusa unicolor*), Nilgai (*Boselaphus tragocamelus*), Spotted Deer (*Axis axis*) and Wild Pig (*Sus scrofa*) in free range scenario. This exercise introduced the participants to advances in applied pharmacology and sedation protocols, best practices for immobilisation and post immobilisation monitoring to avoid emergencies, equipment usage along with species-specific and ethical considerations in the field.

The course was aimed at being more than an academic endeavour, it was a transformative experience that shapes the way that veterinary professionals perceive and interact with the wild and further at imbibing a culture that would promote an understanding that our actions today contribute to a sustainable and harmonious coexistence. The ultimate goal was to fostering a community of professionals dedicated to the responsible handling and conservation of wild animals. The field course was coordinated by Dr Parag Nigam, Scientist G & Head, Dept. of Wildlife Health management.







# **Navigating the Trans-Himalayas: A closer look at the red foxes of Spiti Valley**

- Priyanka Justa, Dr. Sanath Krishna Muliya, Dr. Salvador Lyngdoh  
(salvador@wii.gov.in)





©Priyanka Justa

Spiti Valley, nestled in the trans-Himalayan region of Himachal Pradesh, India, is a realm of pristine glaciers, towering mountains, and rugged terrains that stands as a testament to nature's raw beauty. This cold desert, with its dramatic barren landscapes and snow-clad peaks, harbours a remarkable diversity of wildlife perfectly adapted to its harsh, high-altitude environment. Here, amidst the dramatic barren terrains and snow-clad peaks, elusive creatures like the snow leopard, Tibetan wolf, and Himalayan ibex roam. Among its enchanting inhabitants, the red fox stands as an emblem of adaptability and mystery.

Red foxes, part of the Canidae family, share lineage with larger relatives like wolves and coyotes. Versatile and widespread, they inhabit diverse regions across the Northern Hemisphere, from the Arctic Circle to the Indian subcontinent. Recognized by their sleek snout and bushy tails, these foxes are the largest in their kin, typically weighing 6 to 10 kilograms.

Thriving in the harsh trans-Himalayan environment, red foxes showcase remarkable adaptations to thin air, extreme temperatures, and scarce food. Their thick fur, specialized paws, and cunning hunting techniques help them navigate the challenges of the high-altitude terrain. Their omnivorous diet includes fruits, berries, small herbivores, and scavenged carrion and garbage. Adaptability is their lifeline in this unforgiving landscape, allowing them to flourish where many would struggle.

The narrative of these foxes intertwines with the shifting dynamics of human presence in Spiti Valley. Amidst the relentless cold of winter and the brief two-month growing season of July and August, tourism industry sees a boom, human settlements expand, some evolving into thriving towns with burgeoning populations and a growing problem—garbage. Open-air garbage dumps attract free-ranging dogs, creating competition for resources with the foxes. Balancing

reliance on human subsidies and navigating challenges posed by increased human presence and stray dogs create a complex situation for the foxes.

Unravelling the mysteries surrounding these elusive creatures presents a formidable challenge due to their harsh, high-altitude terrain. In this context, GPS collaring emerges as a contemporary wonder in wildlife research, providing insights into critical aspects of the lives of these elusive creatures, including home range, movement patterns, dispersal tendencies, and denning habits—all contributing to a deeper understanding of their existence. Our quest to unravel the mysteries surrounding the lives of red foxes in the Spiti Valley led us to employ GPS telemetry technology. We decided to collar the foxes in Mane Village, a location where we had been studying carnivore interactions for the past two years. Importantly, Mane Village was a site where a Himalayan wolf had been collared in previous years, offering us a unique opportunity for comparative research.

Capturing the foxes was a crucial step in our study, and we sought the help of a veterinarian for this task. Padded leg-hold traps were strategically placed with cat food and tuna chunks as bait during the evening, taking advantage of the foxes' nocturnal behaviour and reducing the likelihood of interference by dogs. The traps were left undisturbed, inspected manually every hour to minimize interference. Once successfully captured, we estimated the foxes' weight for administering immobilization drugs. Using a catchpole, we safely injected the medication into their hindquarters, ensuring they reached a non-responsive state. In the high-altitude environment, vital signs were closely monitored, and intranasal oxygen was provided to counter lower oxygen levels.

With the assistance of our local team member, Yarfel ji, the veterinarian skillfully attached collars to the tranquilized foxes. Three animals were outfitted with collars, enabling precise tracking of their whereabouts. After



securely fitting the collars, we administered reversal agents, leading to a gradual reduction in ataxia and a smooth recovery process. As the foxes fully recovered, we checked the collars' functionality using the VHF beacon, closely monitoring the animals over two consecutive days with a VHF antenna. Satisfied with the collars' correct operation and consistent location updates, we concluded our work in the area and returned.

Our mission continues as we anticipate revealing insights into the lives of red foxes. By collaring more foxes and dogs in the area, we aim to map their movements, explore spatial interactions, and gain a deeper understanding of their daily routines and survival techniques. GPS signals guide us through their snowy trails, providing a unique window into their existence through radio-telemetry.

Our journey in Spiti goes beyond scientific exploration; it's a call to action. Understanding the lives of red foxes holds significant implications for conserving the region's biodiversity. Coexistence between humans and wildlife is crucial for the survival of these creatures. As we departed Spiti, we carried a deepened respect for the red fox and the untamed wilderness. Our journey exemplifies the power of technology and collaboration, showing that together, we can unveil the mysteries of the wild. The red foxes of Spiti, navigating the Himalayas, continue to roam freely, reminding us of the uncharted beauty within the heart of the Trans-Himalayas. As they move through their rugged domain, we remain steadfast in our commitment to preserving the harmony of this mesmerizing world, where the spirit of the wild endures.

### Acknowledgements:

We express our gratitude to the Department of Science and Technology, Government of India for funding this study. We acknowledge H.P. Forest Department for granting permission to conduct the fieldwork. Our heartfelt gratitude goes to the Spiti Wildlife Division and the people of Spiti for their invaluable support.



©Priyanka Justa



©Sanath Krishna



©Priyanka Justa



# Aligning Conservation Initiatives: Insights from the Marine Mammal Consortium of India

- Chinmaya Ghanekar & Dr. J.A.  
Johnson (jaj@wii.gov.in)



INE  
RTIUM  
ORKS

n b  
Be



# THE POD

NEWSLETTER OF THE MARINE MAMMAL CONSORTIUM OF INDIA



© Nature from Getty Images

India has a diverse range of marine mammals due to its extensive coastline and various aquatic ecosystems, including the Arabian Sea to the west and the Bay of Bengal to the east. Out of the 120 odd species of marine mammals found in the world, 30-35 cetaceans (whales, dolphins, and porpoises) and one sirenian, the dugong, are found in the waters of the Indian subcontinent. Marine mammals have a significant impact on the composition and functionality of marine biodiversity.

The Marine Mammal Consortium of India (MMCOI) is an informal body of managers, researchers, conservationists, and other practitioners that work on marine mammals and their habitats in India. This workshop included updates on marine mammal programmes and policies, as well as participation from government representatives, marine biologists, veterinarians, independent researchers, and other stakeholders. Collaboration is essential among marine mammal researchers, students, policymakers, and stakeholders in India for a complete and effective approach to marine mammal conservation. Researchers can perform more rigorous investigations, share data using standardised techniques, and contribute to a larger knowledge base by combining expertise and resources. Collaboration helps to develop conservation strategies that are in line with government

policy, guarantees effective resource allocation, and encourages interdisciplinary approaches to addressing the complex difficulties that marine mammals face. It also promotes education and public awareness, aids in the development of future conservation experts, and allows for adaptive methods to lessen the impact of climate change on marine ecosystems. Collaboration on a national and international scale strengthens the collective ability to address global conservation concerns and contributes to the long-term management of maritime habitats.

Participants from Wildlife Institute of India:

1. Dr. J.A. Johnson, Scientist-F
2. Chinmaya Ghanekar, Scientist-C
3. Sameeha Pathan, Project Fellow, CAMPA Dugong Recovery Program
4. Prachi Hatkar, Project Fellow, CAMPA Dugong Recovery Program
5. Sagar Rajpurkar, Project Fellow, CAMPA Dugong Recovery Program

Over the course of two days, the MMCOI workshop featured keynote speeches, institutional updates, researcher presentations, and interactive sessions. The keynote addresses were given by Dr. Mark Baumgartner\*, Senior Scientist, Woods Hole Oceanographic Institution, on "Overview of North Atlantic Right Whale Consortium," and Dr. Balakrishnan Nair, Scientist-G, Group Director



- INCOIS, on “Marine mammal conservation: role of ocean information and climate services.” Updates on representative marine projects of the individual institutes were given by the World-Wide Fund for Nature - India, Central Marine Fisheries Research Institute, ReefWatch Marine Conservation, Centre for Marine Living Resources & Ecology, Wildlife Trust of India, Terra Conscious, Wildlife Conservation Society - India, and Wildlife Institute of India. The Wildlife Institute of India’s marine mammal initiatives were represented by Dr. J.A. Johnson and Ms. Chinmaya Ghanekar. The presentation entailed details of the projects dealing with Dugong, Arabian Sea Humpback whale and Dolphins. Researchers from CAM-PA-Dugong project presented their respective components of research and outreach. Dr. Gianna Minton gave an overview of the Arabian Sea Whale Network, a network of partners devoted to the conservation of cetaceans, including humpback whales, in addition to national updates.

The interactive sessions encompassed comprehensive conversations about the future trajectory of the Marine Mammal Consortium, cooperative research, and outreach initiatives throughout India. The three main elements of the debate were titled “MMCOI Structure,” “MMCOI Activities,” and “Sustaining MMCOI.” After being split up into groups, all of the participants brainstormed ideas for the discussion portions. In the future, a comprehensive document will be developed to advance the operations of the MMCOI. The launch of MMCOI’s inaugural newsletter, “The Pod,” marked the end of the workshop. Updates on various marine animal research projects taking on in India are included in the newsletter. The Wildlife Institute of India’s work, which includes the declaration of the first dugong conservation reserve, dugong strandings in the Gulf of Kutch, stages of tape grass flowering, hotspots for marine mammal strandings, and a citizen science project that finds locally extinct dugongs, is covered in the newsletter.



Photoby WCSIndia



# Feathered Guardians: How Seabirds Boost Coral Reef Health

- Rohit R.S. Jha  
(rohitjha@wii.gov.in)



**Figure 1:** An example of a large seabird nesting congregation – Black-browed Albatross (*Thalassarche melanophris*) at Falkland Islands (Image credit: Press Association, under Creative Commons License)



Growing up in Mumbai, I have always been captivated by the vastness of oceanic habitats. Ferry rides from the city's Bhaucha Dhakka dock to Mandwa's scenic beaches (near Alibaug) off the Mumbai coast – a journey of around 10 nautical miles – were often accompanied by seabirds such as the Black-headed Gull (*Chroicocephalus ridibundus*) and Brown-headed Gull (*Chroicocephalus brunnicephalus*) (both belonging to the avian family Laridae) swooping for morsels – mostly unhealthy fried snacks' bits – thrown by well-meaning but uninformed tourists. As a budding biologist, I often wondered where these birds bred, their numbers swelling only during our winters. Nature documentaries on television frequently showed unbelievably large breeding congregations of various seabird species – including gannets, albatrosses, puffins, shearwaters, terns and gulls – cramped for space on small and (often) uninhabited Pacific/Atlantic oceanic islands or atoll habitats. I often wondered about their ecological linkages with the larger oceanic/coastal ecosystem.

This connection between seabirds and oceanic ecosystem rekindled my curiosity with an impressive study published this December in the prestigious journal 'Science Advances' by University of Lancaster's senior fellow Dr. Cassandra Benkwitt and team. The background and motivations of the research stem from the significant decline in coral reef ecosystems worldwide, which has been attributed to a range of factors, including climate change, overfishing, and pollution. One lesser-explored factor is the dwindling seabird populations, potentially impacting nutrient cycling and ecosystem functioning in coral reefs. Titled "Seabirds boost coral reef resilience" (Benkwitt *et al.*, 2023; [www.science.org/doi/full/10.1126/sciadv.adj0390](https://www.science.org/doi/full/10.1126/sciadv.adj0390)), this research aimed to answer two crucial questions:

1. Do seabirds influence coral growth and health?
2. Can they bolster reef resilience against environmental threats like extreme marine heatwaves?

The findings offer a fascinating insight into the relationship between corals and seabirds.



**Figure 2:** Sooty Tern (*Onychoprion fuscatus*) breeding congregation on Ascension Island (British Overseas Territory) – notice bird droppings around the habitat, which ultimately flow to nearby coral reef ecosystems through rainfall; Sooty Tern is also the most common seabird on the Chagos Archipelago (Image credit: Drew Avery, under Creative Commons License)



**Figure 3:** An Acropora (staghorn) coral reef with Common Bluestripe snapper and Intermediate Cardinal fish (Image credit: Rickard Zerpe, under Creative Commons License).

## Unseen Benefactors: The Nutrient Pipeline

Imagine you have a beautiful garden with lots of different plants. To keep your garden healthy, you need to provide it with the right kind of food – like water and fertiliser. In the ocean, coral reefs are like underwater gardens and are one of the most important ecosystems on Earth. Like their Cnidarian cousins – sea anemones and jellyfish – their food consists of tiny drifting microscopic animals such as zooplankton, phytoplankton, bacterioplankton, small crustaceans, tiny fishes and even organic debris (or detritus) caught using stinging tentacles that surround their singular dual purpose body opening (both a mouth and anus). Symbiotic algae called zooxanthellae further aid in energy production through photosynthesis. Although living corals occupy a tiny fraction of the ocean (only about 0.1%), they harbour and/or support a quarter of all known marine life, rivalling terrestrial rainforests in this aspect. To stay healthy though, just like any other garden, coral reefs need the right kind of 'fertiliser' too. But where do they get their fertiliser supply from? Turns out that one important source comes from seabirds!

Seabirds, like gulls, terns, tropicbirds, boobies, frigatebirds etc., fly over the oceans and catch fish. After eating, they help coral reefs by leaving their droppings, which are full of nutrients (such as nitrogen, phosphorus etc. in their appropriate balance), on islands. Rain subsequently washes these nutrients into the ocean, nourishing nearby coral reefs. Limited evidence so far suggests that this makes the corals grow better and keeps the reef strong and healthy. Think of it as a sky-borne shower of nourishment! However, we have so far lacked experimental evidence on how seabirds influence coral nutrient signatures and their long-term impact following climate disturbances.

## Ratty Problems: Human-mediated Effects

But here's another problem: sometimes introduced mammalian predators such as rats, mice and cats sneak/escape onto islands where seabirds live. These predators like to



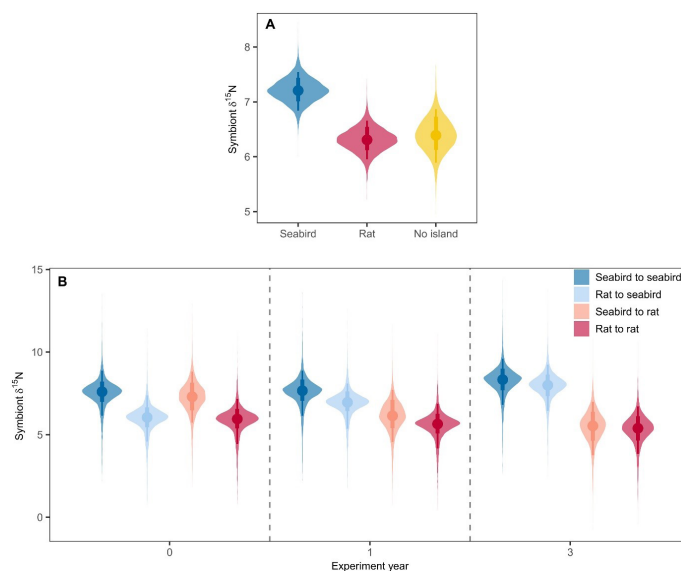
eat seabird eggs and chicks, hence if there are too many of these, there aren't enough seabirds. If there aren't enough seabirds, then there aren't enough nutrients for the coral reefs. Scientists have noticed that coral reefs near islands with lots of rats aren't as healthy. Additionally, in tropical regions, non-native coconut palms replacing native breeding habitats cause additional disruptions to seabird-provided nutrient flows. Other threats from overfishing and climate change-induced effects also disrupt food availability and results in declining seabird populations, translating to a further reduced nutrient flow to nearby coral reefs.

## Comprehensive Approach: Blend of Field Experiments and Observations

Benkwitt *et al.* (2023) employed a combination of field observations, reciprocal coral transplant experiments, nutrient sampling, and isotopic analysis in their study design. The study was conducted entirely within a large Marine Protected Area (MPA) in the Chagos Archipelago in the Indian Ocean. The research team looked at *Acropora* coral growth near islands with many seabirds and no rats ("seabird islands"), and near islands with many rats and few seabirds ("rat islands"). They also took small pieces of *Acropora* coral from one type of island and transplanted them to another to see how well they would grow.

## Nature's Resilience Boosters: Faster Growth, Stronger Recovery

It turns out that corals from islands with lots of seabirds (especially where they nested) grew really well – even twice as fast as usual! And after a particularly stressful ocean warming event (following the Indo-Pacific wide marine heatwaves in 2015-16) which induced coral bleaching – basically the loss of symbiotic algae that helps the reef support other oceanic life – these reefs displayed faster recovery, regaining their symbiotic algae and attracting more marine life. The researchers also found that corals near seabird islands had more 'fertiliser' from seabird droppings in them (through nutrient analysis), which made them healthier. They even assessed corals from rat islands that they moved to seabird islands and saw that these corals started to get healthier, too, because they quickly assimilated seabird-derived nutrients, fully acclimating to new nutrient conditions within 3 years. The study convincingly established a direct link from seabird presence to enhanced growth rates via the assimilation of seabird-derived nutrients, emphasising the potential of restoring seabird populations to bolster coral reef resilience.



**Figure 4:** Effect of seabird versus rat presence on seabird-derived nutrients in coral symbionts, reported as  $\delta^{15}N$ , which is basically the ratio of isotopic nitrogen  $^{15}N$  to  $^{14}N$  relative to the ratio in standard reference atmospheric nitrogen. Posterior predictive distributions for natural *Acropora* colonies from (A) seabird (rat-free) islands, rat-infested islands, and control reefs with no nearby islands and (B) for *Acropora* colonies reciprocally transplanted between pairs of seabird and rat islands (Image & figure description reproduced and adapted from Benkwitt *et al.*, 2023)

## Challenges and Solutions: Beyond Air-borne Nutrients

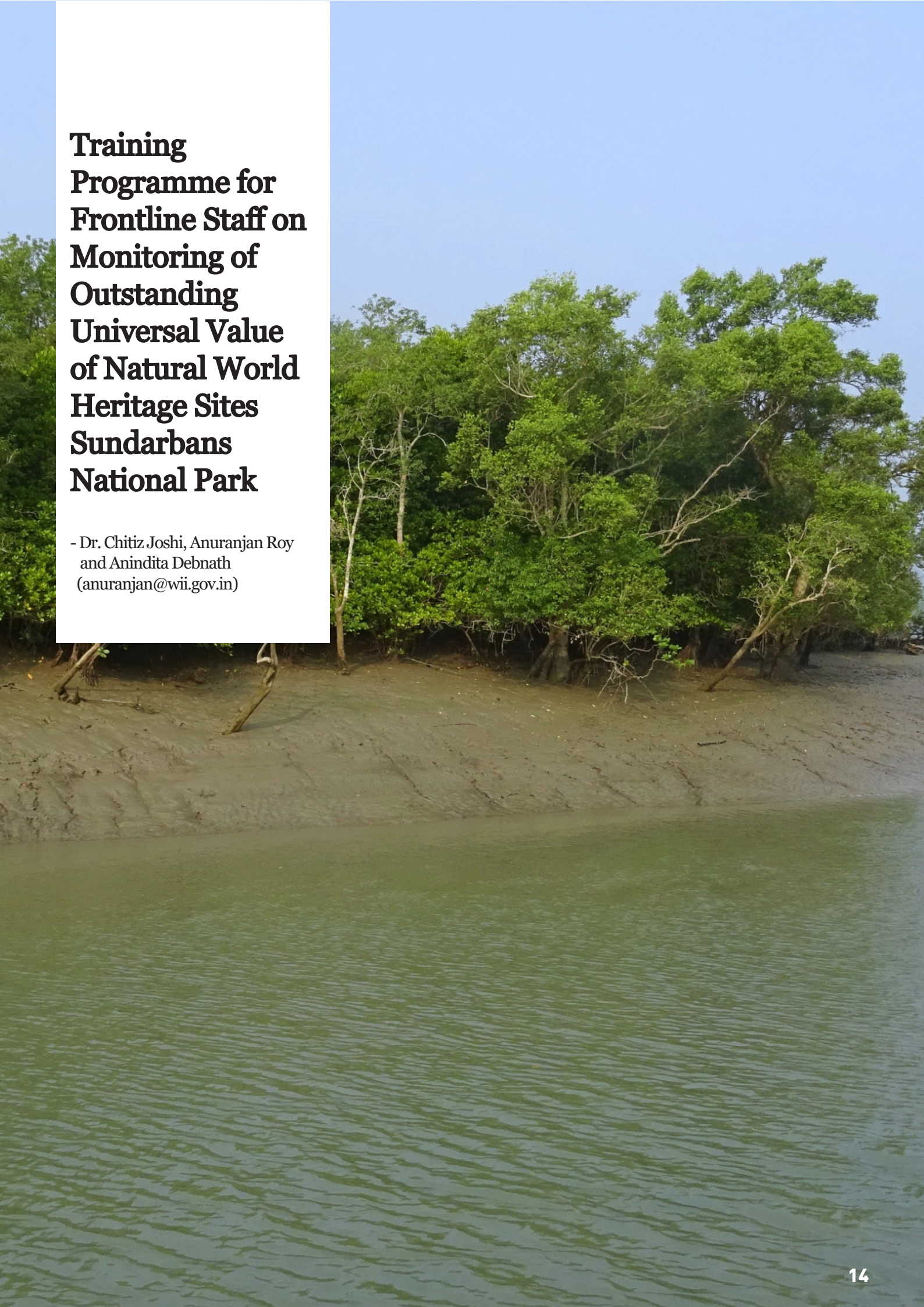
The study also highlights the need for further research to disentangle the influence of seabird-derived nutrients on multiple processes, such as coral recruitment, settlement habitat, and post-recruitment processes. Understanding the broader impact of seabird-derived nutrients on these processes is essential for comprehensive conservation and management strategies. In locations where conditions for seabird restoration are unfavourable, the study recommends additional management actions in conjunction with rat eradication. These include eradicating other predatory invasive mammals, removing abandoned coconut plantations, replanting preferred native vegetation, social attraction, or translocation of seabirds, and protecting seabirds from direct exploitation.

These findings hold immense significance for India's coral reef conservation efforts. As climate change intensifies and pressures on reefs mount, protecting and restoring seabird populations and their nesting habitats can be a potent nature-based solution to bolster coral reef resilience.



**Figure 5:** Nesting congregations of Sooty Tern and Brown Noddy (*Anous stolidus*) on an uninhabited coral islet in the Pakshi Pitti Bird Sanctuary (Lakshadweep Islands, India) – the seabirds here face threats from illegal egg collection, causing population declines and potentially disrupting nearby coral reef recovery (Image credit: Ravichandra Mondreti, through [www.thewire.in](http://www.thewire.in))





# **Training Programme for Frontline Staff on Monitoring of Outstanding Universal Value of Natural World Heritage Sites Sundarbans National Park**

- Dr. Chitiz Joshi, Anuranjan Roy  
and Anindita Debnath  
([anuranjan@wii.gov.in](mailto:anuranjan@wii.gov.in))



Through 11<sup>th</sup> – 12<sup>th</sup> December 2023, WII hosted a training programme for frontline staff of the natural World Heritage Site, Sundarbans National Park at Sajnekhali, West Bengal. The focus of the programme was to facilitate the staff in learning about why Sundarbans NP was nominated as a World Heritage Site and Outstanding Universal Value which form the basis for inscription. The purpose of the training included helping the staff monitor values and analyse current management challenges as experienced by them at the frontlines. 27 frontline staff from various beats and ranges of the site participated.

Presentations were made by WII-C2C staff (Dr. Chitiz Joshi, Mr. Anuranjan Roy and Ms. Anindita Debnath) to help the frontline staff understand the historical basis of the World Heritage Convention alongside criteria for inscription, monitoring and reporting mechanisms and interpretation strategies. Dr. Nehru Prabakaran (Associate Nodal Officer, WII-C2C) presented to the staff on the exceptional characteristics of the Sundarbans landscape in terms of flora, fauna and tidal cycles. Assistant Field Director, Mr. Soumen Mondal, Sundarbans TR graced the occasion as a Guest of Honour.

The afternoon session of Day 1 encouraged direct participation by the frontline staff as they were split into 4 teams to review the OUV statement for Sundarbans against current conditions. There was lively debate and discussion within teams to come to a conclusion about the trend directions followed by a representative from each team presenting their perspectives. This was followed by an intensive team-based Strength Weakness Opportunities Threats (SWOT) analysis of park management drawing on their experiences on the frontline. The challenges of patrolling such a tide-dependent landscape and the impact of an international border were among the qualities documented.

The next day involved a focused feedback session on their learnings from the exercises done by them and World Heritage management training needs felt by them. The participants acknowledged the impact of the knowledge that they now possessed and expressed a need to learn more about management strategies in relation to World Heritage Site status. This was followed by a valedictory function as the participants were recognized and appreciated for their enthusiastic involvement in the OUV training.

Thereafter, all participants went on a field visit to the Sudhanyakhali Camp to see the mangrove nursery and camp expansion works in progress and beyond. Discussions and thoughts shared during the field visit yielded further insights into the specific challenges of monitoring and protecting such a landscape. The prompt management actions taken in the National

Park were evident when a breach in the protective fence set to prevent tiger straying was noticed and mended on the spot.





# World Heritage Site Managers Meeting at Keoladeo NP 'World Heritage Site Managers Meeting Round 2: Roles, Responsibilities and Partnership' Keoladeo National Park.

- Dr. Bhumesh Singh Bhadouria, Dr. Chitiz Joshi, and Dr. Nehru Prabakaran (bhumesh@wii.gov.in)





On 27<sup>th</sup> – 28<sup>th</sup> October, 2023, WII-C2C organized “World Heritage Site Managers Meeting Round 2: Roles, Responsibilities and Partnership” at the natural World Heritage Site of Keoladeo National Park, Bharatpur where site managers of natural World Heritage Sites around India were trained on the process of inscription on the UNESCO World Heritage List and significance of being featured on it. The meeting also served as an important forum for the managers of these varied and truly special protected areas to discuss management, challenges, roles, responsibilities and partnerships.

The meeting began with Dr. Bhumesh Singh Bhadouria, Technical Officer, WII-C2C setting the context through a brief recap of the Round 1 meeting held in Rishikesh in July 2022 and purpose of the current meeting. Dr. Chitiz Joshi, Assistant Technical Officer, WII-C2C and Dr. Nehru Prabakaran, Associate Nodal Officer, WII-C2C presented an overview of the World Heritage Site system and of India’s role in it prompting queries from participants on Tentative Listing, Referral/Deferral, Delisting and Minor Boundary Modifications to better understand the full cycle of inscribing a World Heritage Site. Mr. Anuranjan Roy, World Heritage Assistant, WII-C2C then provided the meeting participants with an introduction to WII-C2C focusing on its mandates and capabilities. In the next session, site managers deliberated on management and challenges of their respective World Heritage Sites. Sh. Manas Singh, DCF (WL), Keoladeo NP, brought up the special challenges of water management at the Park and the replacement of the Bharatpur cycle rickshaws with e-rickshaws.

Smt. Meera Sharma, CCF & Director, GHNP, spoke about the extensive efforts of the Great Himalayan National Park to promote awareness and pride among local communities about the World Heritage tag alongside the need to address the impacts of lifestyle changes with increasing literacy and garbage management issues associated with increasing tourism.

Sh. Rajendra Jakhar, CCF & FD, Sundarbans TR explained its administrative structure while also highlighting the socio-economic impact of frequently occurring super-cyclones and the subsequent increase in dependence on forests along with the management challenges posed by salinity changes and climate impacts.

Sh. Pramod PP, CCF (WL) & FD, Periyar TR presented on its regional significance with the immense ecosystem services provided by the same to adjoining areas and how the local indigenous community’s participation led to sustainable incomes and reduced negative human-animal interactions.

Sh. Ganapathi K, DCF, Kudremukh NP highlighted

the site’s popularity and relative accessibility from Bangalore and the use of apps, often developed by volunteers, to book treks and limit visitor impact were also brought up. Relocation and land acquisition strategies for the National Park were also shared for discussion.

On the second day, site manager of the host Keoladeo National Park facilitated the field-trip session showing the participants the various sections of the park and the management strategies associated with them. Participants were made aware of the many tasks involved in the daily routine of managing this biodiversity rich refuge in a landscape where water shortage is a reality. Post the field trip, the managers actively engaged in a discussion, drawing together insights and learnings made from the presentations by their peers and the subsequent field visit.

Dr. R Suresh Kumar, Nodal Officer, WII-C2C urged the participants to bring in heritage perspectives into their park management strategies to leverage the visibility and prestige of the World Heritage Site status and stressed on the need to compile outputs from the discussion into actionable plans and activities. The participants had common agreement on developing content to promote the World Heritage status to visitors, forest departments, local communities, and all other relevant stakeholders. Mechanisms of effective co-operation and cross-learning between the World Heritage Sites were also discussed as the way ahead.







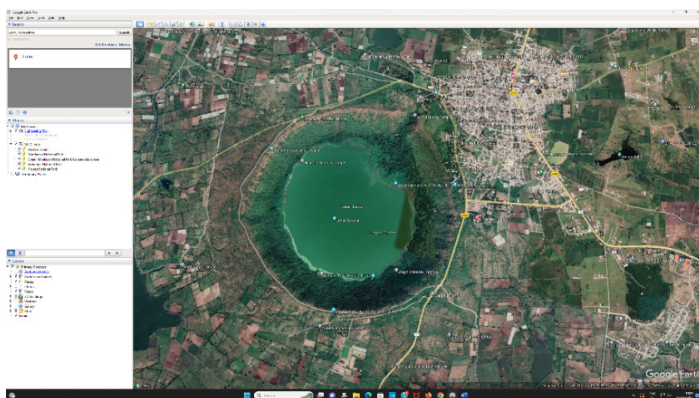
# **Geo-Heritage & Geoparks: Prospects for Conservation**

- Dr. Chitiz Joshi & Niraj Kakati  
(chitiz@wii.gov.in)



Geodiversity constitutes the natural diversity of planet Earth. It is the variety of nature elements, such as minerals, rocks, fossils, landforms and their landscapes, soils and active geological/geomorphological processes. The conservation of these geological heritage (Geo-heritage) is important because it is a non-renewable natural resource that is affected by human and natural factors. As such, 'Geoconservation' is considered as an emerging discipline within geosciences. Similarly, UNESCO Global Geoparks is a defined territory that not only has international significance from geological point of view but may also have ecological, archaeological, historical or cultural significance with respect to the global context. The concept of Geoparks first emerged in the mid-1990s and supported by UNESCO since 2004. Presently, there are 195 UNESCO Global Geoparks (as of 8th June 2023) in 48 countries all over the world; however, there is none from India yet. Even so, India is endowed with many exceptional geographical areas that have the potential to become Geo-heritage Site or Global Geopark.

In this regard, the WII-C2C under the auspices of UNESCO, in association with the Geological Survey of India (GSI), is exploring initiatives on conservation and inscription of Geo-heritage Sites in the UNESCO World Heritage List. In this context, GSI convened a knowledge-sharing session with WII-C2C on 18<sup>th</sup> October, 2023 via video conference. The discussions centred around the scope for collaboration between the agencies in the areas of World Heritage nomination dossier preparation with Geological values, documentation of biodiversity / natural heritage component of Global Geoparks, capacity building training and workshops, networking and outreach. A follow-up interactive session was also held on 14th December, 2023 at the GSI Central Headquarters, Kolkata regarding collaborative work on Geo-heritage Conservation and Management. Presently, there is scope for nomination of meteorite craters of India (Lonar crater in Maharashtra, Dhala crater in Madhya Pradesh and Ramgarh crater in Rajasthan) as a serial Natural World Heritage Site. A reconnaissance field visit was carried out for the same during October 2023 in Ramgarh Crater, Rajasthan, in collaboration with Rajasthan Forest Department. WII-C2C is also in the process of documentation of the nomination dossier of the site Bhedaghat-Lametaghat in Narmada Valley, Madhya Pradesh as a proposed World Heritage Site with natural geological and natural heritage values.





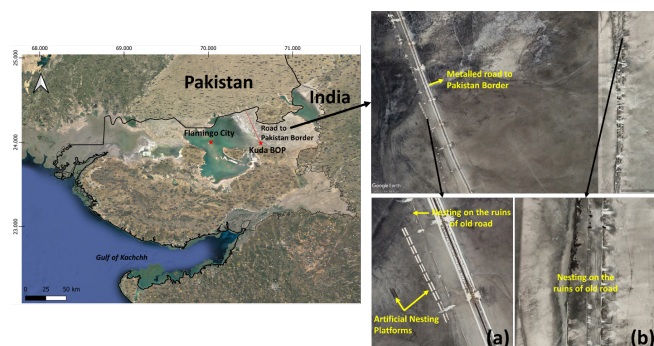
# **Flamingos in “Kuda” of Kachchh Desert Wildlife Sanctuary, Kachchh, Gujarat: nesting, challenges, and a way forward**

- Gaurav Sirola & Dr. R. Suresh  
Kumar (gaur108@wii.gov.in)





Flamingos are well-known waterbirds for their vibrant pink plumage and distinctive long legs. Six species of flamingos are recognized across the globe, while two are resident-breeding in India, namely Greater Flamingo (*Phoenicopterus roseus*) and Lesser Flamingo (*Phoeniconaias minor*). The 'Flamingo City' in the Greater Rann of Kachchh is the largest breeding site of flamingos in Asia. In recent years, several new nesting areas of flamingos have been observed across the Rann of Kachchh, including the Kuda nesting site, an important nesting location for the flamingos. The Kuda nesting site is located on either side of the newly built metallised border road, which starts at Kuda Border Outpost in the Greater Rann of Kachchh, Gujarat and goes straight up to the India-Pakistan border (Figure 1). Flamingo, in general, utilizes the slightly elevated surface for nesting. The abandoned old road, parallel to the new metallised road, serves as a perfect habitat for the flamingo to nest. The nesting on this old road was first observed by Dr B. M Parasharya and his team in 2010, wherein they estimated a total of 107768 nests in the area. Further, we visited the Kuda nesting site after a decade in December 2022 and January 2023, with the due permission of CCF Kachchh, to investigate the extent of nesting in the landscape. The authors were accompanied by Mr. Mayank Chaudhry, Forest Guard at Kuda beat, Rapar Range. This piece presents the few significant observations made during the visit.



**Figure 1:** Map showing the Kuda nesting site in the Greater Rann of Kachchh, (a) on the left side, flamingo nests on the nesting platform, mudflat and ruins of the old road, (b) on the right side, flamingo nests on the mudflats and the ruins of old border road

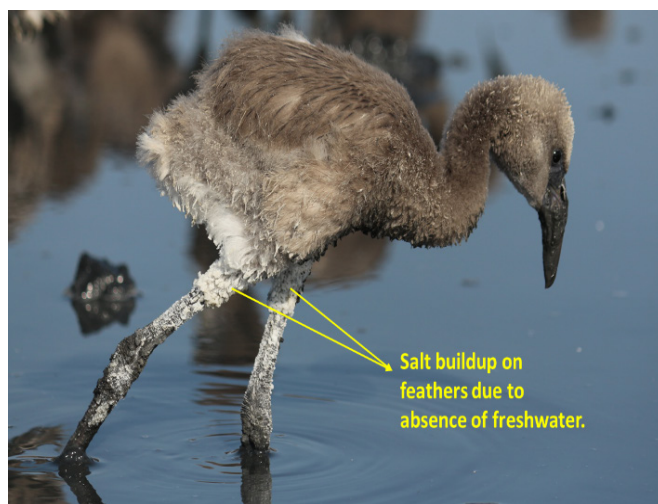


On arriving at the Kuda border outpost, we observed completely dried Rann with no signs of flamingos but a few raptors hovering over the mudflat covered by a layer of salt. While moving further into the Rann on the metallised border road, multiple small hyper-saline (250ppt - 350ppt) pools on both sides of the border road were observed. These pools appeared to have

formed by the rainwater filling into the ditches from where the soil was excavated to fill the embankments to elevate the border road.

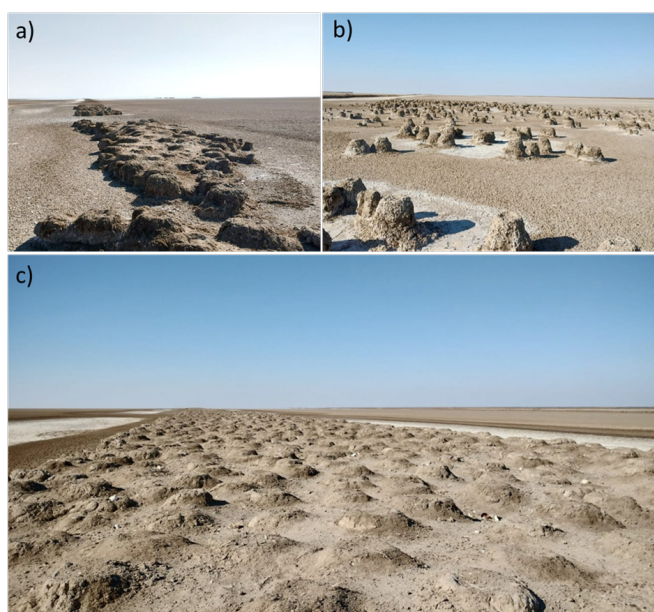
As we moved deeper into the Rann, we came across the creches (chicks flock) of both species of flamingos (Greater and Lesser) in the pool of hypersaline water along the road. The exposure to hypersaline water on the flamingos was eminent as the legs and feathers of the flamingo chicks were incrustated with a layer of salt. Also, flamingos are adapted to tolerate prolonged exposure to a hypersaline environment through salt glands that help excrete excess salt from the body. The salt excretion also results in deposition on the individual's feathers and other body parts, ultimately increasing the bird's weight and making it arduous to fly.

While heading on the border road, at around four kilometres, we observed a few nests (n=50) of flamingos beside the old road and a large cluster of nests on the mudflats (approx. 100,00 nests). However, the nests were empty, and we did not observe any flamingo or their chicks around the nest. Further, we moved ahead for another 10 km (reached the 14 km milestone). We encountered several flamingo nests on mudflats near the old road and on the nesting platforms (artificial nesting grounds built by the Forest Department). To closely inspect the nest, we left the vehicle and walked about 500 m on the mudflat to reach the nesting cluster. After circumnavigating the entire nesting area, we concluded that the nesting of flamingos could be broadly categorized into three types in the Kuda area: A) nest on the unattended old elevated road; B) nest on the flat mudflats along the old road, and C) nests on artificial platforms.



The nests on the abandoned old road were at a height of 45-50 cm from the mudflats and were also in clusters throughout the four to 17 km milestone border road. These nests on abandoned roads were also surrounded by the numerous nests on the mudflat as well. Mudflat flamingo's nests had an average height of 30 cm, 15-20 cm shorter than those on the abandoned old road. The nesting area on either side of the border road was





**Figure 2:** Various nesting grounds of Flamingos: A) on the old road ruins, B) on the mudflat, C) on a raised platform- an artificial nesting construction by the Forest Department of Gujarat.

mapped using Google Earth images, and the total nesting area was found to be 15 hectares, and the estimated number of nests was about ~165,000 (based on nest density in literature). As per forest department observation in the 2022 breeding season, flamingos were observed to use artificial nesting platforms. These nesting platforms are 100 m long, 10 m wide and at a height of one meter from the mudflat. There were 11 such platforms built by the department, but only five of them were used by flamingos to nest. Each platform had about 2,000 nests, totalling around 10,000 nests. Further, it was also observed that both Greater Flamingos and Lesser Flamingos have different preferences for nesting. Greater Flamingos were observed to nest on the raised surfaces predominately, i.e. abandoned old road and the nesting platform, while Lesser Flamingos mostly nested on the mudflat.

During our visits, we documented nine distinct crèches in the area, with crèche sizes ranging from as low as ten individuals to an astonishing 15,000 individuals, amounting to 22,425 young flamingos. The meteorological conditions in 2022 were marked by abundant rainfall, fostering extensive breeding among Greater and Lesser Flamingos in the region. Abundant rainfall in the region elevates the water level of Rann, which in turn makes the area available for nesting for a prolonged duration. Despite this favourable beginning, an unforeseen challenge emerged as the water levels in Rann receded more rapidly than expected due to prevailing wind conditions. This rapid drainage left many flamingo chicks abandoned by their adult counterparts, creating a poignant scene of survival and resilience. The water was retained in the ditches along the elevated border road, which attracted the crèche of flamingos, ultimately acting as a death trap. The flamingo chicks were frail and malnourished and frequently trapped in the mud, necessitating human assistance for their rescue. Hence, the Forest Depart-

ment constructed several artificial pools (freshwater) to provide water to the stranded chicks (Figure 3). Furthermore, in the future, the flamingo creches should be deterred from entering these ditches, which can be achieved by filling the trench and levelling the surrounding area. Further, drones can be used to drive the birds away from these roadside ditches so that flamingo chicks follow the receding water in the Rann.



**Figure 3:** Initiative by Forest Department A) freshwater artificial pools created near flamingo creche, B) rescue of flamingo chicks stranded in the mud.

Intensive monitoring of the site is further required to avoid the situation of flamingo chicks getting stranded along the border road. Further, given that artificial nesting platforms constructed in the area are definitely attracting flamingos to nest there, the selection of sites for such platforms requires further investigation. Following this, consider the construction of nest platforms elsewhere and dismantle the existing ones along the border road.



# Global River Dolphin declaration

- Dr. Vishnupriya Kolipakam  
(vishnupriya@wii.gov.in)





The Global River Dolphin Declaration meeting was held for all River Dolphin Range countries, from October 23rd, 2023 – October 24<sup>th</sup>, 2024 to address key conservation challenges of river dolphins and understanding the socioecological dynamics of South America and Asia. Representatives of 14 governments, including India, Bangladesh, Nepal, Pakistan, Myanmar, China, Cambodia, Indonesia, Peru, Bolivia, Colombia, Brazil, Venezuela and Ecuador participated in the meeting.

In this regard, Sh. Virendra R Tiwari, Director, Wildlife Institute of India, and Dr. Vishnupriya Kolipakam, Faculty, Wildlife Institute of India were nominated to represent the Indian delegation at the meeting.

A presentation was made on India's progress and achievement, including the effort undertaken by the government for the rangewide river survey, spanning over 9000 kms, and transboundary efforts of CMS concerted action. It was highly appreciated in the international community, regarding the nation leading the way forward by including 11 ministries working together as part of the Project Dolphin Steering committee, in order to secure the aquatic habitats of the country.

The meeting ended with the Official reading and signing of the Global Declaration for River Dolphins. It was signed by all river dolphin range government representatives.



©Ganesh Chowdhary





# Wildlife Week Quiz at WII

- Chinmaya Ghanekar & Prashant Mahajan  
(prashant20@wii.gov.in)



In commemoration of the ongoing Wildlife Week observed nationwide from the 2nd to the 8<sup>th</sup> of October, the Wildlife Institute of India conducted a quiz on the 7<sup>th</sup> of October 2023 at the WII auditorium. A total of 12 teams, each comprising three members enrolled for the event. The teams came up with some interesting names such as Neofelis, Dis-Koala-fied, Hakuna batata, to name a few.

The event commenced with a brief introduction provided by Ms. Chinmaya, faculty, WII. The event was graciously attended by Shri V.R. Tiwari, Director, WII, Dr S. Sathyakumar, Registrar, WII, and other faculty colleagues.

After the written prelims round, 8 teams made it to the finals. Through the rounds that followed, quiz-master Mr. Anuranjan Roy, World Heritage Assistant, WII-C2C tested the teams on their ability to draw insights from a variety of topics spanning Hollywood blockbusters, Mongol emperors, legendary conservationists, mythological origins, ecological

consequences, and disturbing hunting records for wildlife-oriented answers. The audience also actively participated in the specific audience rounds that were crafted in between the main rounds. In the final Connect round both, the teams and the audience were required to put together subjects as varied as WII faculty Dr. Bivash Pandav, Netaji's Indian National Army, and Pablo Escobar amongst others.

Team Sus(t)rofa emerged as the winner after the final round. Shri V.R. Tiwari, Director, WII awarded prizes to the winners, as well as the first (Wild Wonderers) and second runner-up (Neofelis) teams. The program concluded with the Registrar delivering encouraging remarks, urging both participants and audience members to actively participate in such quizzes as a means of expanding their knowledge beyond the realms of academia and research.





# Estimating Diversity: beyond the traditional diversity metrics

- Dr. Ashish Jha  
(ashishjha@wii.gov.in)

The comparative analysis of different sites is a mainstay in ecological research and hypothesis testing. Several influential ecological theories such as island biogeography and mid-domain effect rely on measuring biodiversity across space. The most preferred choice for diversity metric is total species counts, and sometimes species' abundances, both of which are used to derive alpha diversity. How do we deal with scenario where the biodiversity as estimated via traditional diversity metrics is similar across study sites? Do we conclude there is no difference across the study sites? In our recent publication, we set out to compare various diversity metrics across 300 protected and non-protected sites of Kerala, each site spanning 1 sq.km. We wanted to test how protection has shaped the local avifauna. We used the data from the Kerala Bird Atlas to derive species' diversity and abundance at each of the sites. We found no significant difference in terms of alpha

and beta diversity. Both, protected areas (PAs) and reserve-forests (RFs) of Kerala had similar number of species. This could be because these PAs and RFs are contiguous and are restricted to the rugged terrain of the Western Ghats. Also, deforestation has been very much contained in last two decades and the total forest cover in the state has remained stable at 27% since 2005. Similar terrain, environment and physical proximity could potentially enable similar avian community across PAs and RFs. However, this does not mean that protection has no effect. We estimated functional richness across PAs and RFs. In simplest terms, functional richness is the total diversity of species' traits – morphological, biochemical, physiological. We compiled avian traits related to morphology (beak length, wing length, body mass etc.), behavior (foraging height), and ecology (trophic niche, clutch size, longevity etc.) for 350 species. Functional richness was significantly higher in the PAs than RFs and PAs host higher number of functional groups i.e. species differing in their traits. We also found that while the total species count was similar across PAs and RFs, total count of threatened and conservation-priority species was higher in PAs than RFs. Another metric of diversity, which we did not use in our study is Phylogenetic diversity – how genetically linked or different are different species of an area. Hence, it is important to consider various different metrics of diversity (alpha, functional and phylogenetic), especially for seemingly similar habitats, for meaningful comparisons and various hypotheses testing.

*Reference: Jha A, J Praveen, and Nameer P O. (2023) Is functional diversity of avian assemblages better suited than taxonomic diversity in capturing the effects of protection? Journal of Asian Ornithology 39:1–11.*

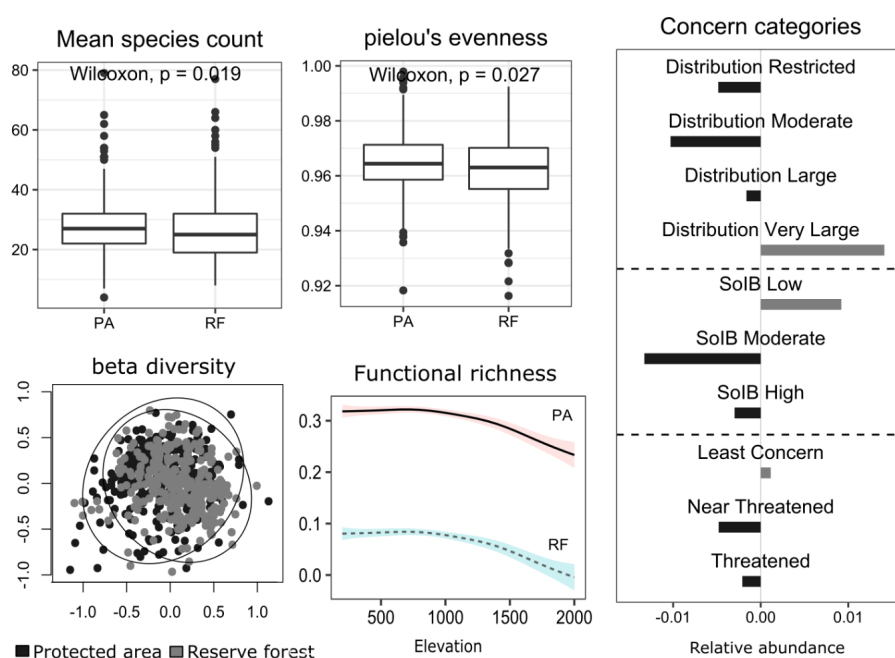


Figure shows the comparison of protected areas (PAs) and reserve forests (RFs) in terms of species count (alpha diversity), species evenness, beta diversity, functional richness and relative abundances of various conservation-concern species.



# Capacity building workshop on “Minimizing The Impact Of Railways On Elephants And Other Wildlife” for the Officials of Indian railways at Wildlife Institute of India on 23<sup>rd</sup> – 25<sup>th</sup> November 2023

- Elephant Cell (elephantcell@wii.gov.in)

Close to 200 elephant deaths were attributed to train collision from 2009-2020 across India. With an expansion and upgradation of Railway network in the country, the threat to elephants could increase if collaborative efforts are not taken. Recognizing the importance of collaborative multi prolonged efforts to minimized railway –related wildlife mortalities, the MoEF&CC in collaboration with the Ministry of Railways has conducted a start of workshop at Wildlife Institute of India on 01st – 03<sup>rd</sup> February 2023. The workshop turned out to be an important platform for sharing mutual concerns and chalkout joint steps. As a sequel, the PE division of MoEF&CC alongwith Elephant Cell at WII collaborated with MoR and conducted an inter-ministerial workshop from 23<sup>rd</sup> – 25<sup>th</sup> November 2023. The Ministry of Railways and Railway board extended all possible support by sending nominations from 9 zonal railways across the elephant range areas of the country. A total of 18 serving Railway officers participated in the workshop. The officers that participated in the workshop came from diverse group of departments within Railways representing the signal and telecommunication, permanent way, construction, traffic, training, rail safety and others. The participants opined that the workshop provided them an opportunity for them to enhance and diversify their skill in managing the rail–elephant conflict situation.



## Workshop on Minimizing the Impact of the Railways on Elephants and other Wildlife for the officials of the Indian Railways 23-25 November, 2023



**Sitting Row :-** Ms. Shubh Varshney, Dr. Vishnupriya Kolipakam, Dr. Salvador Lyngdoh, Dr. Parag Nigam, Dr. S. Sathyakumar, Sh. VirendraR. Tiwari (Director WII), Dr. Ruchi Badola, Dr. Dharmendra Gupta, Dr. Bilal Habib, Dr. Gopi GV., Dr. Sutirtha Dutta, Ms. Chinmaya Ghanekar

**Standing Row 1 :-** Sh. J. Sadharama DevRoyal, Sh. B. Charan Naik, Sh. Vikas M. Dashputra, Sh. P.K. Panigrahy, Sh. J.P. Mishra, Sh. P.K. Patel, Sh. Omkar Singh, Sh. Subodh Thapliyal, Sh. Harish Yusuf Zai, Sh. Manoj Pandey, Dr. Amit Kumar, Sh. Prashant Mahajan,

**Standing Row 2 :-** Ms. Aakriti Singh, Sh. Prasanna Katayyan, Sh. Sivaji Anguru, Sh. Anuj Kumar Chakma, Sh. M.K. Singh, Sh. Karan Singh, Ms. Akanksha Saxena, Sh. Indranil Mondal, Dr. Abhijit Das, Sh. Aditya Bisht, Sh. Kirti Bisht, Dr. Lakshminarayanan, N.,

**Standing Row 3 :-** Ms. Maitreyee Bhawe, Sh. Ritesh Kumar Gautam, Sh. Varun Keer, Sh. Ashish Jha, Sh. Akshay AS., Sh. Akash Aggarwal, Sh. Shivam Shrotriya, Sh. Devendra Silswal, Sh. Sudip Banerjee, Sh. Udhayaraj



# Capacity Building Workshop on “Mainstreaming management of the Elephant Reserves” for the Elephant Reserve Managers at Wildlife Institute of India on 28<sup>th</sup> – 29<sup>th</sup> November 2023.

- Elephant Cell  
(elephantcell@wii.gov.in)

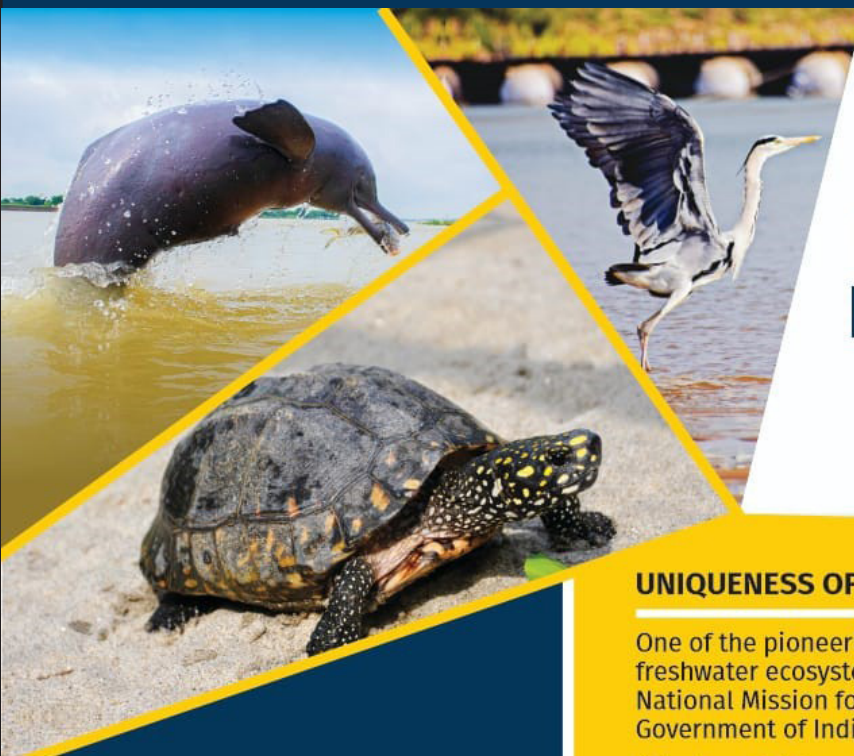
The workshop was organized by Wildlife Institute of India under the aegis of Project Elephant Division, MoEFCC at Dehradun. This workshop was aimed to mainstream Elephant Reserves with wildlife management and also standardizing elephant specific management requirements for the improvement of habitat and populations. It also aimed in bringing elephant reserve management across the country together to deliberate on range of topics relevant to elephant conservation and management including aspects of human elephant conflict.

The workshop was attended by 14 officers working with the state forest departments of states that included Andhra Pradesh, Assam, Jharkhand, Chhattisgarh, Tamilnadu, Uttar Pradesh and Uttarakhand. The participants opined that the workshop was effective in enhancing their understanding and provided an opportunity for them to diversify their skill and gain knowledge proficiency in management of the Elephant Reserves.





WII starts enrollment for MSc Course in Freshwater Ecology and Conservation:  
([ruchi@wii.gov.in](mailto:ruchi@wii.gov.in))



नमामि  
गंगे



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India

AcSIR

## MSc Course in Freshwater Ecology and Conservation 2024-26

### UNIQUENESS OF THE COURSE

One of the pioneering course in India to understand nuances of the freshwater ecosystems, and their conservation. The course is sponsored by National Mission for Clean Ganga (NMCG), Ministry of Jal Sakhti, Government of India under *Namami Gange* programme.

Gain knowledge on concepts, principles, approaches, field techniques and analytical skills in Freshwater Ecology.

Learn from the eminent scientists and field practitioners in the field of freshwater ecology.

Campus located at the Wildlife Institute of India, one of the premier national institute dedicated to Wildlife Conservation.

Degree offered through Academy of Scientific and Innovative Research (AcSIR) an 'Institution of National Importance' at Ghaziabad.

Full funding support offered by NMCG to all the selected candidates to cover the tuition fees, field expenses and living cost during the entire course duration.

### WHO CAN APPLY

Graduates with a degree in Life Science (Botany, Zoology, Wildlife Sciences, Forestry as one of the subject) or allied subjects such as Veterinary Science, Agriculture, Biodiversity and Conservation Science, Sustainable Development, Biotechnology and Environmental Science.

Minimum of 15 years of formal education (10+2+3). Those in final year of graduation can also apply.

Not more than 25 years of age with relaxation for OBC and SC/ST candidates as per the Government of India rules.

For the in-service candidates working in Forest, Wildlife, Water Resource Management, Centre and State Pollution Control Boards and allied Departments, the age limit is 40 years.

### SELECTION PROCESS

Total intake is 20 seats. The selection will be through National Eligibility Test (NET) and Personality & Aptitude Test (PAT).

For In-service candidates having work experience of minimum five years, selection will be only on the basis of Personality & Aptitude Test of the shortlisted candidates.

### How to Apply

Online registration and application will open soon

Please visit websites for latest updates :  
<https://wii.gov.in>  
<https://acsir.res.in/>



# Inception/Stakeholder consultation workshop on the “Framework for the Preparation of Elephant Conservation Plan (ECP) for the Elephant Reserves” at Wildlife Institute of India on 13<sup>th</sup> October 2023

- Elephant Cell (elephantcell@wii.gov.in)

The establishment of elephant reserves serves the purpose of fulfilling the aims and objectives of ‘Project Elephant’ and is regulated by the National Elephant Conservation Guidelines of 1999. The primary objective of Elephant reserve management is to safeguard the Asian elephant population, their habitat, and corridors, while also addressing the challenges posed by human-elephant conflict. The achievement of these objectives can be facilitated through the implementation of ecological protection and restoration measures for existing natural habitats and migratory routes, the formulation of scientific and strategic management programmes, the mitigation of human-elephant conflict, the promotion of research pertaining to management practices, and the active engagement of stakeholders in the pursuit of ecologically sustainable development. Thus, planning for ECP in the landscape would be a difficult exercise since it would incorporate not only ecological but also socioeconomic and cultural aspects pertinent to the region. The institutional and legislative framework at various hierarchical levels, as well as different policies and innovative planning tools, must be considered for developing strategies that are consistent with the other plans, in addition to employing various methods of landscape analysis and quality assessment to strengthen biodiversity conservation in the elephant reserve by improving ecosystem and management capacity, as well as contribute to environmental conservation and harmonization.



In light of this background, a core team was created, comprising a diverse group of individuals including scientists, wildlife managers, wildlife policy specialists, and capacity development experts and a consensus was reached regarding the overarching objectives, extent, approach, and technique. An inception/stakeholder consultation workshop on the “Framework for the Preparation of Elephant Conservation Plan (ECP) for the Elephant Reserves” was organized by Elephant Cell at the Wildlife Institute of India (WII) on 13th October to facilitate a comprehensive discussion and meticulous planning of the draft of the ECP framework.

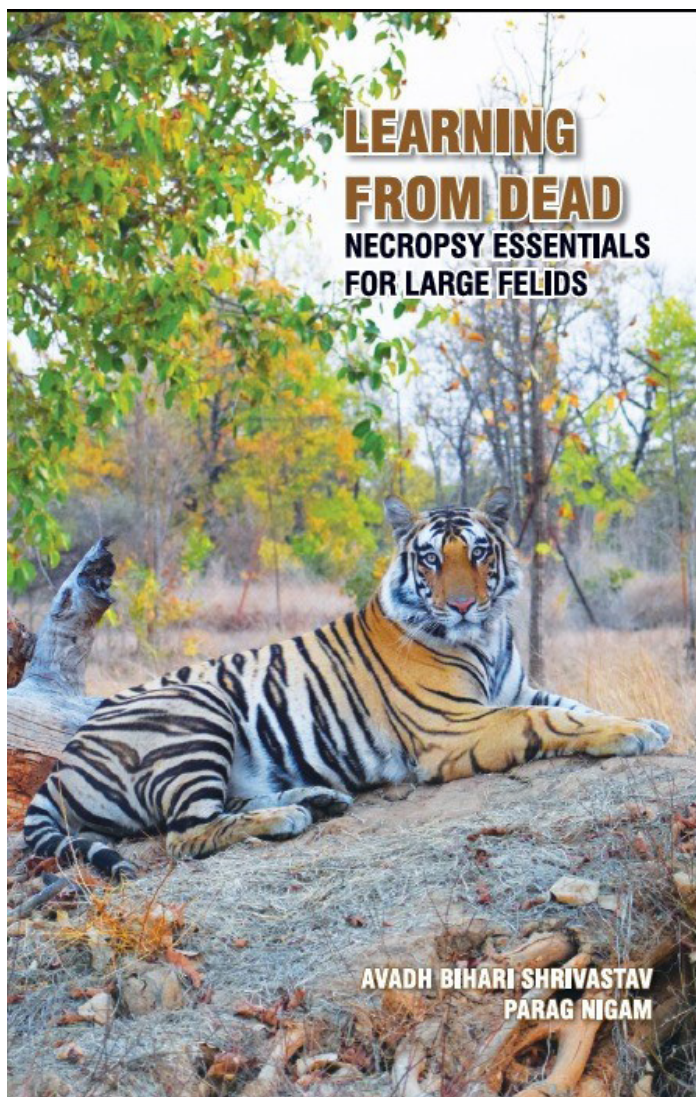




# Learning from the Dead: Necropsy Essentials for Large Felids – Book Release

- Dr. Parag Nigam  
(nigamp@wii.gov.in)

“Learning from the Dead: Necropsy Essentials for Large Felids” a comprehensive book on large cat post-mortem examination written by Dr Avadh Shrivastav, Former Director of School of Wildlife Forensics and Health and Dr Parag Nigam, Scientist G, Head Dept of Wildlife Health Management was unveiled on 21st December 2023 at WII at the hands of Sh. Virendra R Tiwari, Director WII, Dr Ruchi Badola, Dean WII and faculty. This book provides an in depth understanding of the gamut of wildlife pathology, unlocking vital insights into big cat health





# Establishing meteorological station at Laldhang, Corbett

- Dr. BS Adhikari  
(adhikariBS@wii.gov.in)

A meteorological station has been established in Laldhang, Corbett National Park (29°26'12" N latitude, and 78°57'17" E long at 369m asl, by WII Dehradun under the Long-Term Ecological Observation (LTEO) project. Meteorological stations play a critical role in the maintenance and sustainable growth of forest ecosystems by monitoring the surrounding environment through a variety of sensors, including temperature, humidity, precipitation, wind speed, wind direction, radiation, and atmospheric pressure, apart from averting and diminishing the likelihood of forest fires, these data can help researchers and forest managers comprehend the ecology of forests and revitalize their forest ecosystems. Precipitation sensors can help measure the amount of rainfall in forests, therefore saving water.

The data that radiation sensors capture can be used to measure characteristics such as surface albedo and solar radiation intensity, which is useful for studies on the energy balance of forests. Using atmospheric pressure sensors, forest weather models may be built to predict trends in atmospheric pressures and future climatic conditions. Regional cooperation can benefit foresters and researchers in the establishment and upkeep of weather stations as well as the preservation and long-term expansion of forest ecosystems.





# Sensitization Workshop on Urban Biodiversity and Ecosystem Services

- Dr. Gautam Talukdar  
(gautam@wii.gov.in)

The sensitization workshop on urban biodiversity and ecosystem services, held at the Wildlife Institute of India (WII) from 13<sup>th</sup> to 15<sup>th</sup> December 2023, unfolded a comprehensive program aimed at deepening participants' understanding of the intricate relationship between urban spaces and biodiversity. The inaugural day commenced with a warm welcome by Dr. Gautam Talukdar (Course Coordinator), followed by enlightening insights about WII from Dr. Ruchi Badola (Dean), and opening remarks from the Director, Shri Virendra Tiwari. The program gained momentum with an inaugural address by Shri. S.B. Limaye (Ex- PCCF (Wildlife) and CWLW of Maharashtra), setting the tone for the event. A captivating keynote address on "Biodiversity Conservation: Global Overview and Perspectives on Urban Biodiversity" by Dr. V.B. Mathur (Ex Director WII & Chairperson, National Biodiversity Authority), provided a global context to the discussions.

Throughout the first day, participants engaged in thought-provoking sessions, including an impactful discussion on the impacts of urban expansion on biodiversity and ecosystem services, led by experts such as Dr. V.B. Mathur, Sh. S.B. Limaye, Dr. Dhananjai Mohan (Chairman, Uttarakhand Biodiversity Board), Dr. Ruchi Badola, and Dr. Gautam Talukdar. The day concluded with a visit to WII's nature trail.

Day two unfolded with Dr. Johnson's presentation on the "Ecology of urban wetlands and monitoring framework" and Dr. Monalisa Sen's, (Programme Coordinator, ICLEI) insights into the City Biodiversity Index, People's Biodiversity Register, and Local Biodiversity Strategy and Action Plan. Sh. S.B. Limaye further elucidated on urban biodiversity and its economic services, paving the way for a panel discussion on the crucial roles of administration and local bodies in conservation efforts. The day concluded with feedback, participant observations, and a valedictory session.

The final day comprised a field visit to Rispana Valley led by Dr. Sargam Mehra from Been there, Doon that and Dr. Gautam Talukdar, providing a practical dimension to the workshop's theoretical discussions. Overall, the program not only disseminated valuable knowledge but also fostered a collaborative spirit among participants, reinforcing the importance of urban biodiversity conservation in sustainable development.

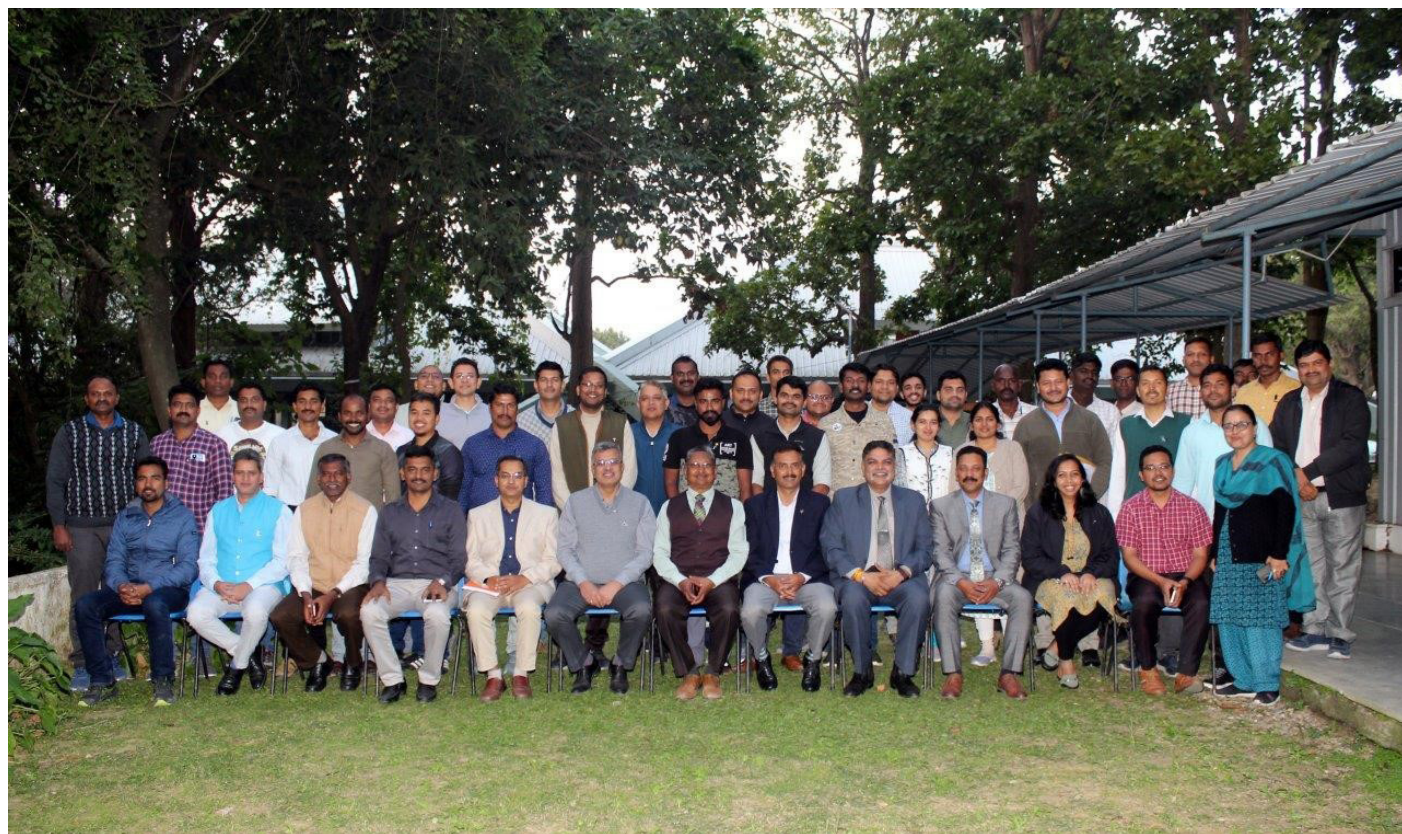




## **38<sup>th</sup> Certificate Course in Wildlife Management for in-service Range Forest Officers/ Deputy Range Officers or of equivalent ranks**

- Dr. SK Gupta & Dr. C. Ramesh  
(skg@wii.gov.in)

The Wildlife Institute of India (WII) is working in the field of wildlife conservation, education and research. The Institute runs a 03-month Certificate Course in Wildlife Management for in-service Range Forest Officers/Deputy Range Officers or of equivalent ranks and the same is being conducted from 01st November, 2023 to 31<sup>st</sup> January, 2024. Currently 28 officer trainees from different states of India and abroad are undergoing the course. The main objectives of the course are to: (a) provide understanding and knowledge on modern concepts in wildlife management; (b) provide an insight into relevant conservation policies and legislation and their enforcement mechanism at global and local level; (c) provide hands on experience and training in use of modern scientific methods, techniques and tools that are required for biodiversity assessment and monitoring of conservation goals; (d) develop understanding of landscape approach to conservation and skills for scientific wildlife management planning, and (e) develop scientific skills for resolving human wildlife conflict including capture, handling, care and management of wild animals.





# GIS day, celebrations

- Dr. Gautam Talukdar  
(gautam@wii.gov.in)

The Wildlife Institute of India (WII) organized a 2-day workshop during Geography Week/GIS Day on 21-22 November 2023, focusing on the role of Geographic Information Systems (GIS) in research, conservation, and solving real-world challenges.

Themed “Unleashing the Power of GIS: Mapping Our World, Solving Real-World Challenges”, workshop drew the participation of 135 researchers highlighting the widespread interest in leveraging geospatial technologies for advancing scientific understanding and conservation efforts. The inaugural ceremony, graced by the Director, Dean, and Registrar of WII, set a dignified tone for the event. Dr. Gautam Talukdar and Prof Qamar Qureshi further enriched the inaugural session with their expertise, creating a warm and welcoming atmosphere.

Under the guidance of esteemed researchers, the workshop covered diverse topics, including data availability for RS GIS analysis, basics of cartography, and hands-on sessions on QGIS. Engaging activities, such as a Google Earth Exploration Quiz and a Geospatial Treasure Hunt, added an interactive and adventurous dimension to the learning experience, fostering a friendly and collaborative environment. The second day commenced with a visionary



session on AI's transformative potential in wildlife science, followed by Drone Technology demonstration. A hands-on session on Google Earth Engine provided practical exposure to leveraging geospatial data on a global scale.

Lively quizzes added a fun element to the proceedings, enriching participants' skill sets and fostering teamwork in the field. This comprehensive workshop not only provided participants with valuable insights but also served as a platform for knowledge exchange. This marks the fifth consecutive year of GIS Day Celebration and Workshop, a testament to the commitment of researchers leading the initiative. Sh. Virender Tiwari, Director WII, lauded the sustained efforts and innovation showcased during the event, emphasizing the importance of continued exploration in the realm of geospatial sciences.





# Asian Rangers Forum Session, Guwahati, Assam (5<sup>th</sup> – 8<sup>th</sup> Decem- ber, 2023)

- Niraj Kakati  
(Nirajkakati@wii.gov.in)

The First Asian Ranger's Forum was held on 5-8 December, 2023 in Guwahati, India. Hosted by regional and national ranger associations, conservation organizations, International Rangers Federation (IRF), Universal Ranger Support Alliance (URSA) and Assam Forest Department, the Forum brought together the Asian ranger community to discuss challenges, share experiences, and highlight contributions towards protecting biodiversity. As many as 146 participants, including 89 active Rangers and 35 women from 20 countries as well as representatives of local communities converged to participate in the global event. The Forum had major plenary sessions, multiple workshops, select training and various outreach activities across four major focus areas, namely inclusive workforce, conditions, conduct and capacity.

Mr. Niraj Kakati, Technical Officer, WII-C2C, presented a talk on 'Leveraging International Biodiversity Conventions for Strengthening Conservation', which underlined the relevance of global biodiversity treaties to the site-level protection of biodiversity in protected areas by Rangers. An overview was provided on six major International Biodiversity-related Conventions under the aegis of the United Nations, viz. Ramsar Convention on Conservation of Wetlands, Convention on Migratory Species, Convention on the International Trade in Endangered Species, World Heritage Convention, Convention on Biological Diversity and International Whaling Commission. Along with the basic principles of the Conventions, specific emphasis was placed on their regional initiatives with reference to Asia and their synergy through the Sustainable Development Goals. The objective was to highlight how the Rangers, as biodiversity guardians, could leverage the provisions of the international conventions to strengthen the conservation and protection status of the natural areas under their supervision. 40 participants, including Rangers and other professionals, representing Protected Areas from Malaysia, Thailand, Cambodia, Lao PDR, Philippines, Nepal and Bhutan attended the talk.





# Capacity Building Programme on World Heritage Nomination of Bhaghat-Lametaghat for staff of MPTB, Forests and Tourist Guides

- Dr. Bhumesh Singh Bhadouria and Dr. Chitiz Joshi (bhumesh@wii.gov.in)

The WII-Category 2 Centre has organized a two-day capacity-building program, held on November 6-7, 2023, aimed at enhancing the understanding and expertise of participants from the Madhya Pradesh Tourism Officials and tourist guides. The program focused on the World Heritage Nomination of the culturally and ecologically significant Bhedaghat-Lametaghat region. With the participation of about 17 tourism officials and guides from Bhedaghat-Lametaghat, the programme encompassed various sessions and practical engagements, outlined as follows.

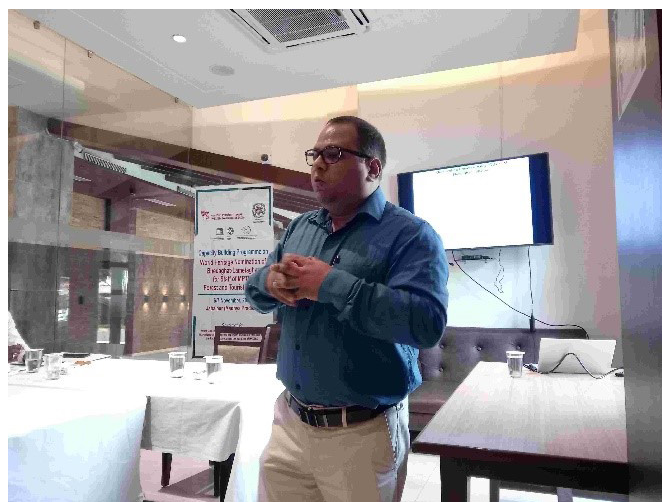
Dr. Nehru Prabakaran, Scientist-D, and Associate Nodal Officer at WII-C2C, delivered a keynote speech, highlighting the imperative nature of the capacity-building program in the context of conserving and nominating Bhedaghat-Lametaghat as a World Heritage Site. His presentation was focused on the foundational concepts of World Heritage Sites, providing examples from India and underlining the unique attributes of Bhedaghat-Lametaghat. The session aimed to foster a deep appreciation for the cultural and natural significance of World Heritage Sites.

Dr. Chitiz Joshi's session was a highlight, offering a detailed study of the Outstanding Universal Values (OUVs) of Bhedaghat-Lametaghat. Focusing on criteria (vii) and (viii), he illustrated how the site qualifies for World Heritage status through its geological and ecological significance.

Dr. Bhumesh Singh Bhadouria led an engaging session on understanding the intricate connections between tourism, forest, and wildlife. The discourse extended to sustainable tourism practices in India and the pivotal roles of tourism and forest staff in managing and preserving the Bhedaghat-Lametaghat site.

## Field Visit to Bhedaghat-Lametaghat:

November 7, 2023, programme participants, accompanied by the WII-C2C team, embark on a field visit to the nominated site in the picturesque Narmada Valley. Dr. Chitiz Joshi orchestrated a detailed field session, unravelling the nuances of both criteria for World Heritage status. This practical exposure provided participants with a firsthand experience of the site's unique geological formations and ecological richness.





# Triumph at the Wild

- Dr. Amit Kumar (amit@wii.gov.in)

In a series of sports events organised at the Wildlife Institute of India, a football tournament for the officers trainees of the ongoing diploma and certificate course on 8th November 2023.

Diploma trainees won the match by 3-1.





## Second Orientation Program for New Recruits and Ganga Prahari under NMCG-WII “Jalaj: Connecting River and People to realize Arth Ganga” Project.

- Dr. Ruchi Badola  
(ruchi@wii.gov.in)

Second orientation workshop under the National Mission for Clean Ganga-Wildlife Institute of India (NMCG-WII) “Jalaj: Connecting River and People to Realize Arth Ganga” Project for New Recruits and Ganga Prahari was organised from 27th - 29th December 2023, at the WII Auditorium. The workshop was inaugurated by the Dean WII Dr. Ruchi Badola and Scientist-G (rtd.) & Programme Manager NMCG-WII Project Dr. S.A. Hussain. A total of 80 participants, including 34 Females from 55 districts of 10 states in the Ganga River basin were trained during the three days capacity building workshop. The workshop comprised of four technical sessions including both classroom and field trip themed on linking community with conservation via. an economic bridge i.e. Arth Ganga. The sessions included theories on linking riverine communities to conservation, Jalaj project, importance of community mobilization, SHGs/ Society formation and freshwater conservation themed livelihood interventions in the Ganga River Basin. Participants were briefed on reporting of field activities, including socio-economic data collection, photographic and videographic record keeping. Apart from this detailed sessions on financial management of SHGs, Book keeping, Auditing, importance of Regular meetings, trainings, Laws governing business, accounting and taxation were conducted. Towards the end new recruits were explained on the Rules and regulations of Financial Management System at WII. On the last day the participants were taken on WII Nature Trail to familiarise them with the flora and fauna of the

WII Campus. The workshop ended with certificate distribution to participants in the valedictory session in the presence of Director of the Wildlife Institute of India- Shri Virender Tiwari, IFS, Dean WII - Dr. Ruchi Badola, and Scientist-G (rtd.) & Programme Manager NMCG-WII Project Dr. SA Hussain.





# Activities at SACON

- Dr. Aditi Mukherjee  
(aditi.sacon@wii.gov.in)





In the closing quarter of 2023, SACON (South India Centre of WII) showcased its unwavering commitment to environmental conservation and education through a myriad of impactful initiatives. In October, SACON actively participated in the Swachhata Hi Sewa – Special Campaign 3.0, clearing 402.50 kg of scrap materials and 101 kg of e-waste. This effort contributed significantly to waste reduction and generated Rs. 50,000, reinforcing the institution's dedication to sustainable practices. SACON also witnessed a special cleanliness drive, Shramdaan, where students, researchers, and faculty members joined forces to eliminate scraps and reclaim 20 sq. ft of space from scrap materials. Simultaneously, the Wildlife Week Celebrations, in collaboration with the SACON EIACP team, offered a unique platform for engagement featuring seven webinars.



EIACP Mission Life activities and Extension activities were also extended to more than 80 students from Annai Sathya Arasu Kuzhanthaigal Nala Kaapagam, Coimbatore, and the Forest Research Institute, Dehradun. These activities included awareness sessions, a nature trail, and facility visits, fostering a deeper understanding of wildlife and conservation practices among the participants. The reporting quarter also brought distinguished visitors to SACON, including the Commissioner of Police, Coimbatore City, and the District Collector of Coimbatore, on November 18 and December 25, 2023.



Their visits not only served as a testament to SACON's significant contributions but also provided valuable insights into ongoing projects. The officials had the opportunity to explore SACON laboratory facilities and partake in a nature trail around the campus, further enhancing their understanding of the institution's multifaceted endeavours. Throughout the quarter, SACON extended its outreach with one-day Nature Awareness and Extension Programs, engaging approximately 70 students from Isha Home School, Coimbatore, Rani Lakshmi Bai Central Agricultural University, Jhansi, and the College of Forestry, Dapoli, Maharashtra. Combining classroom sessions, scientist interactions, facility visits, and nature trails, these programs aimed to instil environmental consciousness and a sense of responsibility for conserving the natural world. Concurrently, two exposure visits were organised, welcoming around 90 Officer Trainees from CASFOS, Burnihat, and CASFOS, Coimbatore.



These programs covered diverse topics, including wetlands management and general insights into wildlife research and conservation, contributing to the professional development of the participants. The concerted efforts throughout the quarter underscore SACON's dedication to fostering environmental awareness, conservation practices, and collaborative learning.











## FAREWELL



October 2023 - Shri Narender  
kr Aggarwal - 22.10.2002 to  
31.10.2023



November, 2023 - Shri Shiv. Lal  
- 18.3.91 to 30.11.23



November, 2023 - Shri Manoj  
Aggarwal - 22.10.1990 to  
30.11.2023



December, 2023 - Shri Mohd.  
Yaseen - 13.8.91 to 31.12.23

Post Box # 18, Chandrabani, Dehra Dun 248 001  
(Uttarakhand).

Tel.: +91-135-2640141-115, 2646100

Fax: +91-135-2640117;

✉ [wii@wii.gov.in](mailto:wii@wii.gov.in) 🌐 [www.wii.gov.in](http://www.wii.gov.in) 🐦 @wiiofficial1

**Patron:** Virendra R. Tiwari, Director

**Editors:** Dr. Bitapi C. Sinha, Dr. Vishnupriya  
Kolipakam

**Design:** Swasti Joshi

**Photo Credits:** Vinod Verma, Chandan Jani & ENVIS  
Team, Dinesh Pundir

The views expressed in this e-newsletter are not necessarily those of the editors or of the Wildlife Institute of India