भारतीय वन्यजीव संस्थान
Wildlife Institute of India

# WII e-NEWSLETTER

VOLUME 32 | ISSUE II

SUMMER 2025

# CONTENTS

**Photo credit:** Dr. G. S. Bhardwaj

**Photo credit:** W. Michael Isaac V Rayen

# The Tragedy of the Commons, and how to dodge it

-Shivam Shrotriya

We were returning from a line-transect, again without any animal sighting, through the mid-day heat of April 2010 in a wildlife sanctuary in Madhya Pradesh. We came across a woman who had cut an entire Tendu tree (*Diospyros melanoxylon*) and was dragging it. Puzzled, we inquired about it, and she replied, *"I'll collect leaves of the tree to sell for making Bidis*." And why did she cut the whole tree instead of just collecting leaves from the tree? "*It is too hot out here, so I'll take this tree under shade in front of my house*", she replied and walked off, leaving us in complete disbelief. A senior in the group muttered, "*This is the Tragedy of the Commons-live in action.*" Coming just out of university after my Master's, this was the first time I understood the concept in its actual meaning.

In 1968, Garrett Hardin introduced a profound concept in a beautifully composed essay titled 'The Tragedy of the Commons' published in Science. He argued that if a resource is commonly shared by everyone, a commons, giving equal accessibility to all without regulations, it becomes vulnerable to overuse. Each rational user acts in their self-interest and seeks to maximise personal gain by extracting the resource as much as possible. However, since the cost of depletion is shared among all users while the benefit is individual, no single user is incentivised to restrain consumption. Over time, this leads to overexploitation, resource degradation, and eventual collapse. Hardin summed it up grimly, "Freedom in a commons brings ruin to all." He worked out a couple of examples to illustrate the concept, which I've summarised below.

Imagine a pasture open to all, where each herder naturally wants to raise as many animals as possible. The pastureland remains sustainable until disease, poaching, and conflict keep the numbers of herders and their livestock below the carrying capacity of the land. But once society stabilises, any further increase in the number of animals would deplete the grazing resources. Now, each herder, rationally seeking maximum personal gain, can calculate that adding one more animal yields full profit from its sale. But the negative consequences of overgrazing are shared among all, costing them only a fraction of the overall cost. If everyone follows this logic, they will keep adding more animals, repeatedly making the same rational decision in a shared system with no checks. The system will eventually degrade the pasture to a state of collapse.

The problem of pollution is another example. In an unregulated world, individuals and industries can freely discharge their waste into the shared environment. Hardin argued that "the rational man finds that his share of the cost of the wastes he discharges into the commons is less than the cost of purifying his wastes before releasing them." Each polluter benefits individually from avoiding cleanup costs, while the negative impacts, such as polluted air or water, are distributed among everyone. Since the costs are shared but the benefits are private, there is little incentive to reduce pollution voluntarily, leading to continued degradation of the environment. Hardin also argued that the problem of pollution is also a problem of population. As the number of polluters rises, it breaks down nature's ability to repair itself. A river cannot clean itself under extreme discharge of wastewater. Unchecked growth of the human population is another tragedy of the commons. When individuals act in their own reproductive self-interest, increasing the individual benefits of having more children while sharing the societal costs, they collectively overburden shared resources like land, water, and food. Each additional person represents a small individual gain but contributes to a cumulative environmental strain that affects everyone.

Hardin's framework opened new ways of thinking about and explaining the management of the commons. In creative interpretations, it has

been used to explain how parasites behave in a host body. Trying to maximise individual gains, parasites end up killing the host, leading to the collapse of the very system they depend on (Dionisio & Gordo 2006). Schuster *et al*. (2017) experimented with a microbial system, where 'cooperative' microbes produced an enzyme to externally digest nutrients, which can be used by everyone. But when 'cheater' microbes, focused only on their own growth without adding the enzyme to the system, were also present at the beginning of the system, both the microbes eventually died out. The tragedy here unfolded due to the breakdown of cooperation. Similarly, Rankin & Kokko (2006) documented cases of extreme sexual conflict, where males competing for mating resources, i.e. females, ended up harming and even killing the females. In an effort to increase individual short-term mating success, the collective survival of the species is undermined, again mirroring the tragedy of the commons.

Beyond evolutionary biology, Hardin's essay has had an extraordinary influence across disciplines, including health care, ecology, conservation and environmental management, philosophy, ethics, sociology, population studies, economics, governance, and global policymaking. For example, it influenced debates on managing digital and information commons, such as Wikipedia, Open Science, and data-sharing networks. When only a few contribute, but many consume and possibly distort, the quality of shared knowledge degrades. Hardin's argument was also used by many governments in population control policies to justify state interventions to limit individual rights for collective benefit. Climate Change is also framed as a collective commons problem where each nation benefits from emitting greenhouse gases, while environmental costs (rising temperature and extreme weather) are shared by all. This framing has inspired international efforts like the Kyoto Protocol and the Paris Agreement, though enforcement and compliance remain difficult.

Hardin proposed that the solution to the problem of the commons was either governments stepping in to control free choices for the individual by bringing in more rules and regulations, or converting common resources into privately owned enterprises so that costs aren't shared.

It was Elinor Ostrom who challenged Hardin's concept by pointing out the limitations of the model and providing empirical examples that common resources could be successfully managed by cooperating groups (Frischmann *et al*. 2019; Ostrom *et al*., 1999). Investigating the allegory of pasture management, Sneath (1998) found that community-managed pastures in Mongolia were much less degraded than privately owned pastures in China and government-regulated pastures in Russia. Similarly, the farmer-managed local irrigation systems in Nepal outperformed government-owned systems, weighing in for a third solution against Hardin's options of external regulation (state control) and private management. Ostrom's work showed that although the tragedies of the commons are real, the collapse is not an inevitable end for community-managed systems as predicted by Hardin (1998). This work won Ostrom a Nobel Prize in economics in 2009.

Hardin's model relied on players making decisions in isolation, who all act selfishly, are norm-free, and maximisers of short-term benefits. This may apply to small organisms or systems lacking effective information flow, but it is overly simplistic for complex systems. Societies, where individuals can communicate, monitor each other's actions, sanction one another, and collectively modify the rules, can evolve self-sustaining systems to manage the commons. And humans have developed and run such group governance models for centuries (Ostrom *et al*. 1999). For commons management to work out, "individuals must overcome their tendency to evaluate their own benefits and costs more intensely than the total benefits and costs for a group." A key ingredient for the evolution of these systems is to have a substantial portion of reciprocal cooperators in the population, which is easier to have when everyone knows everyone. Ethnic and local communities could attain this on a small scale, and modern technology can support the same on a global scale, where every player's actions towards the shared resource can be monitored. For instance, carbon emissions by countries are now tracked globally, enabling international scrutiny.

Crucially, successful commons management requires communities to have autonomy to self-organise without external influence. Ostrom *et al.* (1999) emphasised that "national governments can help or hinder local self-organization." When the rules are imposed by outsiders without consulting local participants who depend

on the resource, it often leads to public disengagement and resistance, changing the cooperative system to a 'cops and robbers' game. Let's take conservation of habitat as an example. An area might be declared a National Park with the government taking full control, or designated a community reserve, where local communities self-manage the habitat and its resources. When there are perceived threats of excessive exploitation to habitat and species by locals, policymakers may lean towards government control to avoid the tragedy of the commons. But can the governments be trusted to always act in the interest of the commons like nature? Across the world, both left-wing and right-wing regimes have histories of undermining nature conservation. The original dogma of Marxism and communism (left-wing) advocates for the transformation, control and subjugation of nature (Jefanovas & Davidavičius 2025), while right-wing policies across the world push for economic development at all costs to nature (do I need to specify examples in the current political landscapes?). In some cases, authoritarian governments have turned out to be more disastrous to conservation than even private exploitation. This raises some uncomfortable questions- where does environment and biodiversity conservation fit in the economic-political narrative? Who carries the onus for conserving nature? Community ownership may offer a more context-specific and resilient alternative in changing political response to conservation.

What we need to realise is that the world we live in is not all black and white, all competitive or all cooperative, all regulated or all free. We live in a world with a mosaic of all things, and there is a place and requirement for all the approaches. The best conservation outcomes may lie in the situation-specific application of all three models of commons management- externally or state-regulated, privately owned and community-managed. Quoting from Ostrom et al. (1999), "institutional diversity may be as important as biological diversity for our long-term survival."

I picked this topic for the current edition of the newsletter to, first, introduce young readers to this 50-year-old idea/concept that is now considered a classic; second, to emphasise that science is inherently integrative and one must keep learning beyond own niche subject; and third, to highlight that there is always more to the well-established theories. It is impossible to cover all aspects of a theory that has shaped human thoughts over half a century in a short article; therefore, explore further on your own.

*And let this also be a reminder that science is not only about math formulas, graphs or complex analyses. At its core, science begins with sound logical models, at times described only using simple words.*

**Key references:**


- Hardin, G. (1968). The Tragedy of the Commons. Science 162(3859): 1243-1248
- Hardin, G. (1998). Extensions of "The Tragedy of the Commons". Science 280(5364): 682-683
- Frischmann, B. M. *et al*. (2019). Retrospectives: Tragedy of the commons after 50 years. Journal of Economic Perspectives 33(4): 211-228
- Ostrom, E. *et al*. (1999). Revisiting the commons: local lessons, global challenges. Science, 284(5412): 278-282
- Rankin, D. J. & Kokko, H. (2006). Sex, death and tragedy. Trends in Ecology & Evolution 21(5): 225—22



**Author:**
**Dr. Shivam Shrotriya** *is Assistant Managing Editor at the Journal of Wildlife Science and holds a PhD on the ecology of the Himalayan wolf. He is passionate about all thing's ecology. He reads for work and for fun. He sometimes teaches population ecology and analytical methods for different classes at the Wildlife Institute of India. In this column, he revisits classical papers and foundational theories in wildlife ecology and conservation science with fresh eyes -exploring how new insights, data, and perspectives have reshaped these concepts.*

**Bluesky:** @shivamshrotriya.bsky.social
**Insta:** @shivamshrotriya
**Twitter:** @shivam_wolf

**Photo credit:** Dr. G. S. Bhardwaj

# Wolves in Indian Mythology and Modern Conservation: A Call to Reclaim Balance

-Ajay Kumar

**Sanskrit term:** *Vrka* (वृक)—meaning wolf.

Wolves, one of nature's most misunderstood creatures, have long been cast as villains in ancient literature and mythology. These portrayals—whether in European tales, such as Little Red Riding Hood, or Indian scriptures and folklore—reflect a fear that has persisted for centuries. In *Rig Veda 1.105.8*, wolves are invoked as part of the wild landscape and are symbolically associated with robbers or enemies to be guarded against. In the *Mahabharata*, Bhima is famously called *Vrikodara*—the one with a wolf's belly—signifying immense appetite and destructive strength. In the *Hitopadesha*, wolves are cast as dishonest and predatory beings.

Even in Persian and Urdu traditions, widely read during medieval India, the "wolf in sheep's clothing" metaphor (inherited from Arabic literature) points to duplicity and danger. These enduring symbols, transcending cultures, have shaped our perception of wolves: not as social animals, but as threats.

But this fear blinds us to the truth—wolves, like humans, are deeply social, emotionally intelligent beings. In India, wolves have always held a dual place in our consciousness, straddling the line between danger and reverence. Yet today, as their habitats shrink and conflicts with humans rise, it is critical that we challenge the old narratives—not just for wolves, but for the survival of our shared environment.

## Wolves in Indian Culture: Myths of Fear and Reverence

As mentioned, Indian mythology is filled with dualistic portrayals of wolves. Scriptures like the *Rig Veda* popularly depict them as nocturnal predators, and in the *Mahabharata*, their imagery evokes chaos and violence, leading to fears of early agrarian societies, where wolves were seen as threats to livestock and prosperity.

On the other hand, tribes such as the Gond tribe of Central India speak of a mythical wolf who protected their ancestors during famine—a guardian, not a predator. In the oral traditions of forest-dwelling communities, wolves are often treated with cautious respect, seen as powerful spirits of the wild. Even in popular culture, wolves oscillate between awe and fear. *Game of Thrones* and *Twilight* gave wolves emotional depth and mystique—revealing their loyalty, intelligence, and emotional bonds with humans. But these representations are often lost in the Indian context, where folklore has passed down warning tales instead.

I still remember my grandmother saying, "*Beta, soja nahi to bhediya le jayega*". This phrase, echoing through generations, reveals how deeply fear of wolves is embedded in our cultural psyche. Though intended as a protective warning, it contributes to a one-dimensional view of wolves —as monsters lurking in the dark. As modernity expanded and ecological knowledge remained limited, wolves began to be treated merely as pests. The nuanced view of wolves as both wild and wise began to fade and over time India's relationship with wolves has tilted toward fear and vilification.

## Political Agendas vs Conservation: Wolves as Victims of Policy

The villainization of wolves extends far beyond stories—it shapes policy. In India's political landscape, where development often outweighs ecological considerations, wolves are frequently the victims of misplaced priorities. Political responses tend to favor immediate appeasement—exterminating perceived threats rather than addressing root causes. Infrastructure projects, roadways, and land conversion continue unabated, cutting through habitats essential for wolves and their prey. Conservation policies shaped by fear or populism, rather than ecological science, endanger not just wolves but entire ecosystems.

*The Bahraich* episode in Uttar Pradesh is one such example where wolves were responsible for several deaths, including those of children, leading to widespread panic and calls for eradication. Media sensationalism painted wolves as bloodthirsty killers, while the real causes—habitat loss, declining prey, and ecological imbalance—were overlooked. Experts like Dr. Bilal Habib, Scientist at the Wildlife Institute of India, then clarified the real issues, as the wolves are regularly forced into conflict due to shrinking forests and human encroachment.

## Wolves as Complex Beings: The Reality Beneath the Myths

Contrary to their portrayal in tales and media, wolves are profoundly social creatures. Like humans, they live in structured family units—packs led by a dominant pair. They raise young cooperatively, mourn lost members, and communicate using a rich language of howls, postures, and facial expressions. Wolves play a crucial ecological role, primarily predating on wild herbivores such as blackbuck and chital. By keeping these populations in check, they prevent overgrazing, which in turn supports grassland health and biodiversity. Without wolves, ecosystems collapse. Yet despite their importance, wolves face relentless threats—not just from humans, but from within their own genetic pool. India's wolf populations are increasingly fragmented. As they become isolated due to habitat destruction, inbreeding becomes a silent killer. Smaller gene pools lead to genetic defects, lower fertility, and higher infant mortality rates—eroding population viability over generations.

Another rising threat is genetic hybridization with domestic dogs. In shared landscapes, wolves and stray dogs often interact and interbreed. The resulting hybrids dilute the wolf's natural traits and can lead to behavioral shifts—making them more visible, less wary, and more prone to conflict with humans. This genetic erosion endangers the very identity of the Indian wolf.

## Indian Encounters: Positive and Negative Interactions

Across India, human-wolf encounters take many forms—some built on fear, others on coexistence. In the grasslands of Gujarat, the Maldhari community has developed methods to live alongside wolves. They use traditional practices to guard livestock, knowing that coexistence is cheaper and more sustainable than conflict. Their stories reflect a quiet, enduring respect for wolves as fellow creatures of the land. In contrast, in parts of Rajasthan and Uttar Pradesh, wolves are often poisoned or shot when they prey on livestock. These retaliatory killings stem not from malice, but from economic desperation. Sadly, the state's compensation mechanisms and conservation support often come too late, or not at all. Medieval Indian texts like the Baburnama and Ain-i-Akbari mention wolves in faunal surveys and royal hunting records, not as moral threats, but as part of the natural world.

## The Way Forward: Rewriting the Story

The wolf is not a villain. It is a symbol of survival, community, and ecological wisdom. To rewrite the story of wolves in India, we must reclaim their place in our cultural and ecological legacy. Policymakers must resist populist fears and instead embrace science-backed strategies. Rural communities must be supported in safeguarding both their livelihoods and the wilderness around them.

*Most importantly, we must remember that the stories we tell shape the futures we create. Wolves have long been cast in shadow, but perhaps it's time we told a different tale—one of respect, resilience, and reconciliation.*

The wolf's story is far from over. But whether it ends in extinction or coexistence depends on the choices we make today. Wolves, like humans, are just trying to survive in an increasingly difficult world. As conservationists, it's our responsibility to ensure that both can thrive.

**Author:**
**Ajay Kumar** *is a Forest Officer and has completed his Advanced Diploma in Wildlife Management in June 2025 from the Wildlife Institute of India*

PHOTOGRAPHIC STORIES

# पहाड़, तुम गलत नहीं

- शगुन ठाकुर

ये अनवरत दौड़ती गाड़ियाँ, ये चारों ओर बिखरी पन्नियाँ
सब अपने में समेटे जा रहे हो
फिर भी चुप हो, पहाड़ तुम गलत नहीं

ये गाड़ियों का शोर, बस लोग ही लोग चारों ओर
ये करोड़ो इंसानो का बोझ
फिर भी चुप हो, पहाड़ तुम गलत नहीं

ये धुआं जो तुम अपने में ही समाये जा रहे हो
ये कष्ट जो तुम नि:शब्द सहते जा रहे हो
अपने आंसू जो तुम पिए जा रहे हो
फिर भी चुप हो, पहाड़ तुम गलत नहीं

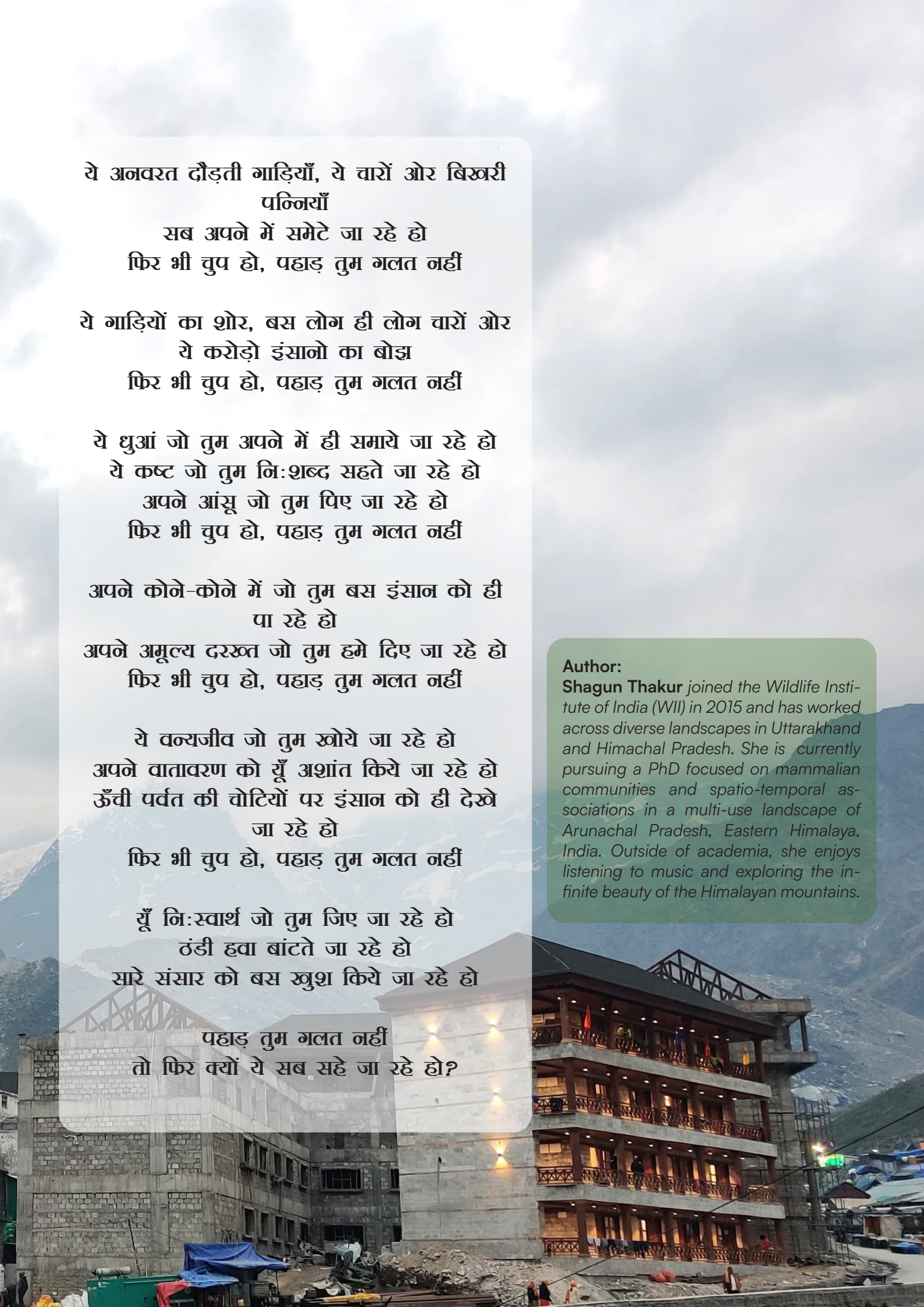
अपने कोने-कोने में जो तुम बस इंसान को ही पा रहे हो
अपने अमूल्य दरख्त जो तुम हमे दिए जा रहे हो
फिर भी चुप हो, पहाड़ तुम गलत नहीं

ये वन्यजीव जो तुम खोये जा रहे हो
अपने वातावरण को यूँ अशांत किये जा रहे हो
ऊँची पर्वत की चोटियों पर इंसान को ही देखे जा रहे हो
फिर भी चुप हो, पहाड़ तुम गलत नहीं

यूँ नि:स्वार्थ जो तुम जिए जा रहे हो
ठंडी हवा बांटते जा रहे हो
सारे संसार को बस खुश किये जा रहे हो

पहाड़ तुम गलत नहीं
तो फिर क्यों ये सब सहे जा रहे हो?

**Author:**
**Shagun Thakur** *joined the Wildlife Institute of India (WII) in 2015 and has worked across diverse landscapes in Uttarakhand and Himachal Pradesh. She is currently pursuing a PhD focused on mammalian communities and spatio-temporal associations in a multi-use landscape of Arunachal Pradesh, Eastern Himalaya, India. Outside of academia, she enjoys listening to music and exploring the infinite beauty of the Himalayan mountains.*



# THE GREAT INDIAN BUSTARD (GIB)

One of the world's most critically endangered bird species, faces a severe threat from power lines associated with renewable energy infrastructure in Rajasthan. As these large birds have poor frontal vision, they often fail to detect overhead transmission lines in time, leading to fatal collisions. The Thar Desert, a stronghold for the GIB, has seen rapid development of solar and wind energy projects, resulting in a dense network of power lines across its landscape. This expansion, while contributing to India's clean energy goals, has inadvertently turned the sky into a death trap for the GIB. Studies estimate that power line collisions are one of the leading causes of GIB mortality, pushing the species closer to extinction.

**Illustrator:**
**Sumedha** *is a student of XX MSc Wildlife Science batch at Wildlife Institute of India*

# WORLD TURTLE DAY

- Piyush Pandey and Kumari Babli

*"The fate of turtles is tied to the fate of the oceans. Protect one, and you protect the other." — Carl Safina*

The event of World Turtle Day was celebrated at Government Girls Inter College, Haripur, Kalsi, Dehradun, on May 25th, 2025. An awareness workshop was held, which was attended by 64 students and four teachers.

At the beginning of the session, we talked about the Ganga River and the diversity of turtles found there, including the Indian softshell turtle, Indian peacock softshell turtle, Narrow-headed softshell turtle, Northern River terrapin, Three-striped roofed turtle, and Red-crowned roofed turtle. Through interactions and easy explanations, the students understood their habitat and the threats posed by pollution, climate change and habitat loss.

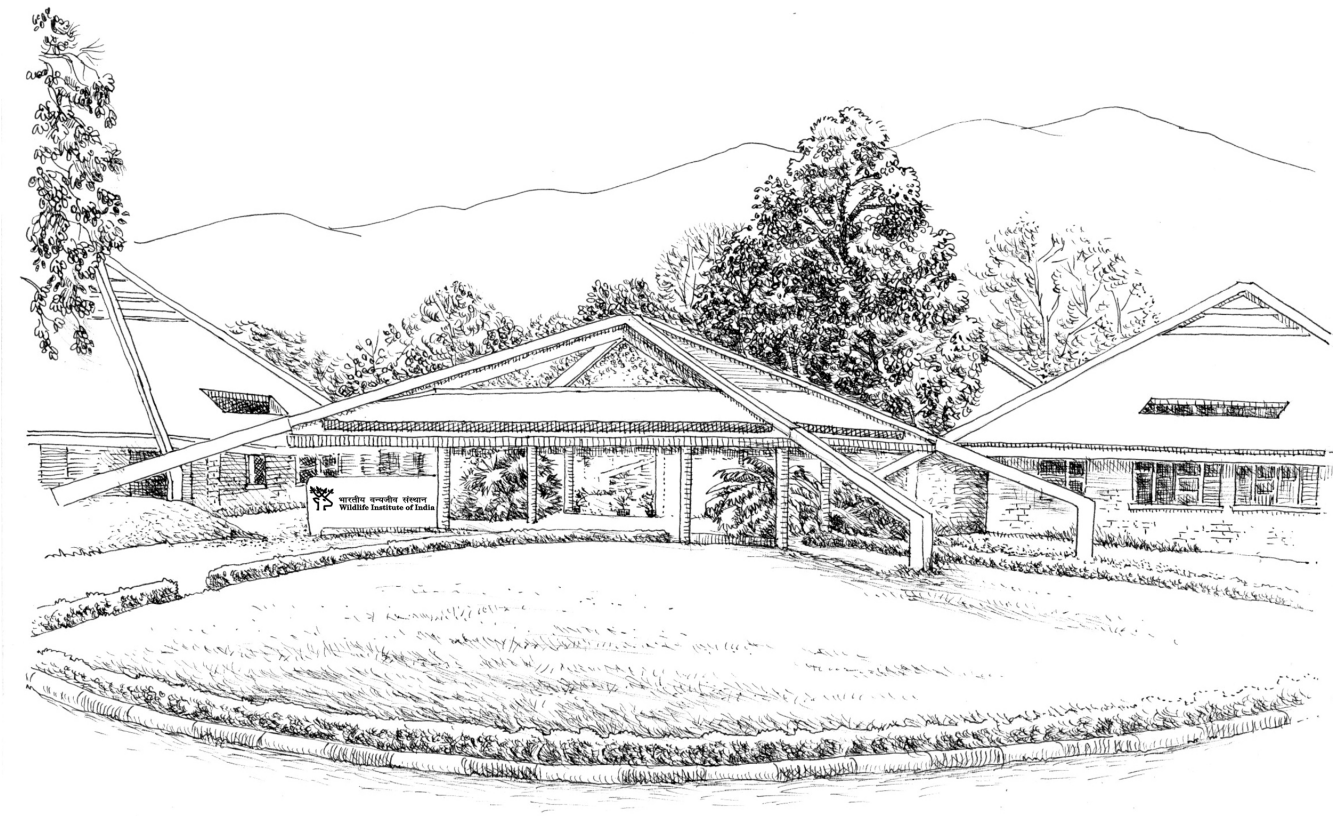
They were also shown a short film called "Neela Ki Kahani". The story follows Neela, a freshwater turtle, as she is taken from her refuge and put at risk by the illegal wildlife trade. The movie highlights how human greed and a lack of understanding have put several turtle species at risk of disappearing.

Various activities were conducted, such as solving riddles about the Ganga River's biodiversity and learning numerous details about turtles, followed by an interactive session where students could ask questions and exchange ideas about ways to help turtles and rivers. The students joined in happily and shared the knowledge they had. The workshop nicely combined learning, creativity, and compassion, helping students become more aware and excited to do something about the problems faced by the species and ecosystems around them.


**Authors:**
**Piyush Pandey** *is also a Project Assistant within the same project, where he plays a crucial role as the Database Manager. His responsibilities include managing and organizing the project's data, ensuring its accuracy and accessibility. His work is vital for the smooth functioning and informed decision-making within the conservation education initiative.*

**Kumari Babli** *is a Project Assistant in the Nature Interpretation and Education Component. Her work involves designing educational materials, conducting field visits, and video editing to enhance nature interpretation and awareness. Passionate about creative endeavours, she is dedicated to making conservation education engaging and impactful.*

# "LEGACY" – WII Foundation Day Event (22nd May, 2025)




Through multiple decades of pursuing its pioneering mandate of capacity building in wildlife research and management, WII's legacy of conservation deserves to be remembered in its own right. With that objective in mind, on the occasion of WII's 43rd Foundation Day, an evening programme "Legacy" was held at the WII Auditorium guided by Dr. J A Johnson, Registrar, WII and coordinated by Ms. Chinmaya Ghanekar, Scientist-C, and Ms. Amarjeet Kaur, Scientist-C. In inaugural addresses by Director and Dean WII, emphasis was put on maintaining the quality of work that the Institute has done over the years while looking towards the future. Then, the invited dignitaries felicitated former staff and faculty invited for the occasion Mr. A K Dubey, former Internal Audit officer, who spoke of his long association with the Institute. Felicitations were also made for Environmental Information Awareness Capacity Building and Livelihood Programme (EIACP) programmes and competitions with respect to the Global Backyard Bird Challenge 2025 and the International Day for Biological Diversity, which shares its date (22nd May) with WII's Foundation Day.

This was followed by a keynote speech by Dr. G S Rawat, former Director, WII, who recalled how the Institute was started at a time when wildlife science was still in its infancy as a discipline. He urged younger researchers to spend more time out in the field as naturalists to augment the many powerful technological tools available to them today. This was followed by a spirited panel discussion between senior WII functionaries — Dr. Ruchi Badola, Dean, WII; Dr. B C Choudhury, former Scientist, WII; Dr. Bitapi Sinha, former Scientist — G and Research Coordinator, WII and Dr. G S Rawat on the future directions of conservation and role of WII. It was a guided discussion regarding the changing paradigm of conservation, new challenges including evolving tools and techniques, importance of socio-ecological studies in conservation and gender roles of the researchers. This was followed by the release of posters and a stamp series for elephant reserves by EIACP.

Concluding the programme was a natural heritage quiz hosted by Mr. Anuranjan Roy, Lead — International Relations, WII-C2C and

supported by a volunteer team of four MSc Freshwater Ecology students - Cheri, Krishi, Priyanjali, and Prateeti. The quiz had six participating teams who took on the challenge of guessing answers to questions linking heritage and biodiversity from every geography. The interactive audience was also supplied with little parcels of nostalgia in the form of photographs from the early days of WII as shared by Dr. S Sathyakumar, former Registrar, WII.

Foundation Day offers us a chance, once every year, to appreciate the long journey of growth that WII has been on, bringing together past luminaries and future achievers in a celebration of a unique campus and institution that we all love. As WII moves to greater heights, it is always good to recall, in the company of the pathsetters who guided it onwards, where and how it all began.



Highlights of the WII Foundation Day celebration

# WORLD ENVIRONMENT DAY- From Celebration to Conservation

- Ashmika Aggarwal, Aarti Chauhan

On the occasion of World Environment Day, the Wildlife Institute of India (WII) and the National Mission for Clean Ganga (NMCG), organized the *Paryavaran Champions Awards*-2025 to acknowledge the commendable efforts of the institutions and individuals in environmental conservation. The guest of honour was Smt. Sudesha Devi, the last survivor of the Chipko Movement and the chief guest was Shri Anoop Nautiyal, a social activist and founder of Social Development for Communities (SDC). A total of 19 awardees from the Ganga River Basin, including four universities, four colleges, seven schools, three Ganga Praharis, and one civil society organization (NGO) were recognized under various categories such as *Wildlife Warriors, Champion Institution for Nature, River Guardians, Green Frontliners, and Eco Samaritan*. The awards represent the collective commitment of academic institutions, civil society, and individuals toward the shared goal of a cleaner and healthier Ganga River Basin.

The second half of the WII-NMCG's World Environment Day 2025 celebration opened with a fresh breath of creativity and youthful enthusiasm. The air was filled with excitement as the students picked up their pens and paintbrushes to share their views on the 2025 theme: 'Beat Plastic Pollution.' Every piece of art carried a message — a plea to reconsider and reduce our plastic consumption. There were images of oceans suffocating on plastic as well as visions of a cleaner future. The essays were equally powerful, compassionate, and filled with hope. In total, 77 young participants joined the event, each with their own perspective, creativity, and passion for the theme.

**Authors:**
**Ashmika Aggarwal** *currently working as a Project Associate-I under the National Mission for Clean Ganga (NMCG) project at the Wildlife Institute of India, focusing on capacity building and environmental awareness. She has completed her master's from the Forest Research Institute (FRI) and have a deep passion for painting and dancing. She blends her love for environmental awareness and creativity, using innovative methods to educate students about river conservation.*

**Aarti Chauhan**, *currently working as a Project Assistant under the National Mission for Clean Ganga (NMCG) at the Wildlife Institute of India.She truly enjoys interacting with people and believes that such connections play a vital role in spreading awareness and inspiring collective action for river and environmental conservation.*



# YOUTH FOR EARTH: Ganga Basin Schools and Local Communities Take Lead on World Environment Day 2025

– Simran Aggarwal, Aarti Chauhan

On World Environment Day 2025, under the Bal Ganga Prahari programme, the WII—NMCG facilitated various outreach activities under the theme '*Beat Plastic Pollution*' across the Ganga River Basin states. At Government Abhinav Inter College, Gangdharapur, Kannauj, Uttar Pradesh, a painting and slogan writing competition, a cleanliness drive, a nature walk, and plantation drives under the "*Ek Ped Maa Ke Naam 2.0*" campaign were organized with a total of 246 students and 15 teachers.

In West Bengal, Rangabelia High School (H.S.), Gosaba, South 24 Parganas, a quiz competition was organized for *Bal Ganga Praharis* on plastic pollution, with enthusiastic participation from over 100 students and teachers. Fulia Sikshaniketan School, Nadia, also conducted a plantation drive involving 20 students and two teachers, encouraging student involvement in environmental protection.

Alongside Ganga Prahari schools, local communities, youth, school students and teachers, and NCC cadets from 17 districts across five states (Uttarakhand, Himachal Pradesh, Uttar Pradesh, Bihar, and West Bengal) also actively participated in diverse programmes organised under the NMCG-WII initiative. A total of 1,420 participants engaged in various environment-centric activities such as plantation drives, cleanliness campaigns, awareness rallies, pledges, and the release of fish fingerlings and turtles. As part of the awareness efforts, participants were sensitized to the harmful impact of plastic pollution on environmental quality, river health, and aquatic life. Emphasis was placed on reducing plastic use and promoting responsible waste management to protect the Ganga ecosystem.

Plantation Drive at Fulia Shantiniketan, Nadia, West Bengal

Plantation Drive at the Government, Abhinav Inter College, Kannauj, Uttar Pradesh

A special event under the Namami Gange programme was held in Narora, Bulandshahr district (U.P.), presided over by Hon'ble Jal Shakti Minister Shri C. R. Patil. The event showcased India's commitment to river conservation through a Ganga ghat cleanliness drive, tree plantation under Ek Ped Maa Ke Naam 2.0 initiative, release of fingerlings and turtles, and the launch of drone and LiDAR surveys for monitoring drains. Other highlights included the inauguration of the Pustak Parikrama mobile library and a workshop on natural farming. Hon'ble Jal Shakti Minister Shri C. R. Patil also visited the Ganga Aqua Life Rescue and Rehabilitation Centre at NAPS and released aquatic fauna. He also interacted with over 250 Ganga Praharis, Bal Ganga Praharis, and M.Sc. students from the Freshwater Ecology and Conservation course.

Sensitization workshop at Sidhi Ghat in Barari village, Bhagalpur district, Bihar

Sensitization workshop at Sidhi Ghat in Barari village, Bhagalpur district, Bihar

Hon'ble Jal Shakti Minister Shri C.R. Patil interacted with the local communities

Sensitisation programme with Ganga Prahais at Haribandhanpur village, Ayodhya district, Uttar Pradesh

# Two-Day Training Workshop for NSS Volunteers on "Freshwater Biodiversity Conservation of Main Stem Ganga River and its Tributary Yamuna"

- M Danish Kaleem

A two-day training workshop for NSS Volunteers was organized at the Daulat Ram College, University of Delhi, on the 30th and 31st of May 2025. A total of 75 NSS Volunteers and four Programme Officers participated in the workshop. The workshop included presentations on the "Biodiversity Profile of the Ganga and Yamuna Rivers", the "Importance of Conservation Education in the Curriculum", and the "Problem of Ghost Gear in Ganga" with a case study on wildlife entanglement and plastic waste mitigation. The volunteers were also engaged in hands-on sessions, group exercises, and fun activities like wildlife games, followed by a quiz.

**Author:**
**M Danish Kaleem** *is working as a Project Associate-1 in WII-NMCG Project*

Presentation on Plastic Pollution

# JALAJ: Connecting River and People

- Nidhi Mishra, Saurav Gawan, Dr. Ruchi Badola

## PRARAMBHIK

A voyage of Livelihood mission comes to the notion of dedicating the wheel of time. Jalaj "Ajeevika "mission served not only the banks of Maa Ganga, but as of now it is stretching its flow to the other corners of the widespread basin area.

The journey began with the aim of creating livelihoods for many lives to thrive in the lap of the Holy River. Achieving and aligning the array of targets, we came through challenges and hardships along the way. River Conservation is a part of the Revolutionary steps taken into consideration within this mission's framework. A single Ant cannot remove a whole heavy obstruction from its way, but a bunch of ants can do so. Consequently, teamwork does it best. Jalaj stood in the same way we stood, side by side with an active army of enthusiasts who dedicated themselves to the Conservation of the Ganga River respectively. Jalaj dedicated itself to providing a livelihood to the battalion of our fearless 'Ganga Praharis'. Jalaj wholly became a helping hand for the population on the banks of the Ganga River, just like its flow, the mission also flourished through the ups and downs on the way to achieving its objectives.

In the meantime, Jalaj Upthrusts many other initiatives, making channels to its flow and spreading the word with the echo from the mountains to the flood plains.

## AWAHAN

One of the initiatives of Jalaj welcomes Ganga Praharis to come together and join hands for our 'Ghat par Haat' Program to uphold the strength and creativity of Women Artisans dwelling in the Ganga basin.

The other incentive to raise the call of our brave team of Praharis is the mission to procure an array of success stories, blowing a storm of awareness and change among individuals. This would not just limit the boundaries to one aspect but will include the 'Rescue and Rehabilitation of Aquatic Species' by preaching the chants of empowering and strengthening the creative ideologies of individual artisans linked with Jalaj and its initiatives. Reflecting the waves of community and Conservation altogether in the elegantly hand-embroidered thread work from the fertile plains of Maa Ganga to hand-weaved warm wears of hillocks, everything hailing from the river basin stretch is an astonishing 'Swaroop' of productivity and creativity.

Jalaj, in every step, is here to level up every product to its highest level of presentations and display by providing a platform for local communities to showcase its five-pillar sustainable model:

- Awareness Corner and sales point
- Livelihood Centre
- Dolphin Safari
- Homestays
- Health and Wellness Center

## PROTSAHAN

The necessity to provide a basic structure to showcase its objectives to encourage and aware individuals in marginalized areas seeking wisdom to come up and become a part as 'rahi' through this mission. The stretched arms of Jalaj through its flow will scale up its skills through training and sensitizing. More than 5000 people were trained and more than 15 lakh people were sensitized through Jalaj training and Awareness programs. The boundaries are still stretching and will turn the tide with the dedicated efforts of the whole Jalaj team. Under this initiative, we enable linkages with stakeholders from diverse groups and fields, including culture, arts, social groups, media personnel, science, and non-governmental organizations. This networking makes an umbrella of growth, encouragement, guidance, and support for the enthusiastic artisans/Ganga Praharis.


## ITYADI

JALAJ is accelerating on a mindful journey to establish heroes of community-based conservation and define an experience of observations and folklore of bravery, compassion, and heroic melodies. Here, mythology is connected with conservation through a deep-rooted connection through time. The native aquatic species are getting rehabilitated across the widespread basin area in 10 states and under 64 functional Jalaj centers, although the bank stretches.

**Authors:**
**Nidhi Mishra** *is an environmental enthusiast with a keen interest in Wetland Ecosystem and is presently engaged with the Wildlife Institute of India — NMCG Jalaj Project in the capacity of Project Associate-I. She holds a Master's degree in Environmental Science.*

**Saurav Gawan** *is a young Turtle Biologist who has contributed to the conservation of Freshwater species of the country, especially turtles, since 2013. He has worked with many international and national organizations to protect India's aquatic reptiles. He has surveyed more than 12 critical river ecosystems of India and is presently associated with the Wildlife Institute of India as a Project Scientist in the National Mission for Clean Ganga-WII Jalaj. Under this project, he is coordinating the conservation-based livelihood project activities in 11 states of the Ganga River Basin.*

**Dr. Ruchi Badola** *is the Dean of WII and the Principal Investigator of the NMCG-WII Jalaj Project. She has been conducting applied research on various aspects of wildlife management, such as eco-development planning, human-wildlife conflict mitigation, valuation of ecosystem services and livelihood development, covering almost all states in the country. She has developed Management Plans for seven wetlands of conservation importance in the states of Manipur, Bihar, Punjab, Uttar Pradesh and Uttarakhand. She is supervising this initiative under the Namami Gange flagship programme of the GoI.*

# HERITAGE – Bridging Many Divides

- Mr. Anuranjan Roy

Heritage, whether natural, cultural or intangible, has a unique ability to consolidate identities via shared centuries-old legacies and foster bonds of connection across geographies through the mutual appreciation of uniqueness. Throughout the world, objects and places of heritage importance offer solutions to common concerns and serve as ready case studies for best practices. In the quarter of April-June 2025, WII-C2C hosted and facilitated a number of initiatives which explored this extensive span of heritage and its many interpretations.


## 1. World Heritage Day Celebration (17 Apr, 2025)

Keeping up its practice of commemorating World Heritage Day (18th April), WII-C2C engaged at multiple levels through various media around the theme "Timeless Treasures — A Celebration of Natural Heritage". A series of innovatively designed social-media posts highlighting the important aspects of the World Heritage Convention were shared across WII-C2C handles. The World Heritage Convention, with 196 State Parties, is the international conservation convention with the most signatories. The Forest Departments at the seven Natural World Heritage Sites (WHS) and one Mixed World Heritage Site of India boosted this reach further by organizing on-site events to celebrate the occasion with their local stakeholders, with highlights shared on social media.

On the WII campus, the occasion saw the participation of frontline staff and local community representatives from the WHS Nanda Devi and Valley of Flowers National Parks in a 1-day workshop on 17th April 2025, where heritage eco-tourism and the conservation challenges faced at the site were discussed. In the evening programme organized at WII Auditorium, the audience was treated to a wonderful display of traditional music and dance by the visiting participants, layered with meaning and supporting explanations of how even the beats are a language of their own. Senior community leaders shared stories that transported the listeners to the beautiful landscapes that define the site. Chief Guest, the Chief Wildlife Warden (CWLW) of Uttarakhand, Mr. Ranjan Kumar Mishra, spoke on the importance of retaining India's culturally ingrained appreciation of nature and appreciating the eco-friendly consciousness bequeathed to us by our ancestors.

## 2. Introductory Lecture on Heritage for Haryana FD Trainees (23 Apr, 2025)

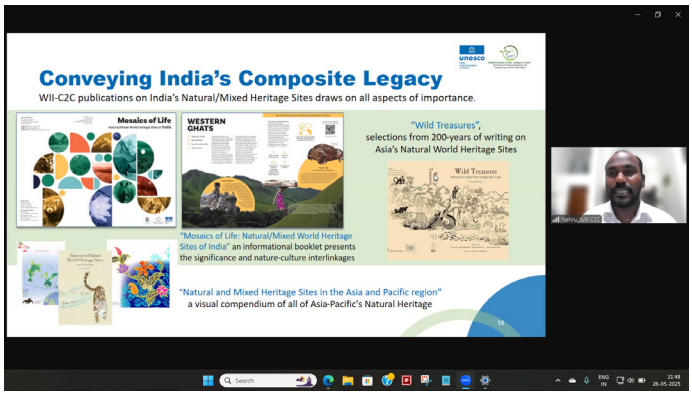
A visiting group of 36 trainees from the Haryana Forestry Training Institute, Sohna — Gurugram had the opportunity to learn of the fundamental concepts of heritage via an introductory lecture on the same. The trainees were made aware of the same through parallels drawn from popular culture for the sources of heritage and the need to manage different kinds of heritage simultaneously. The trainees left with an enhanced understanding of the levels of heritage — personal, local, national and global — and how each of those categorizations have their own set of values and importance.

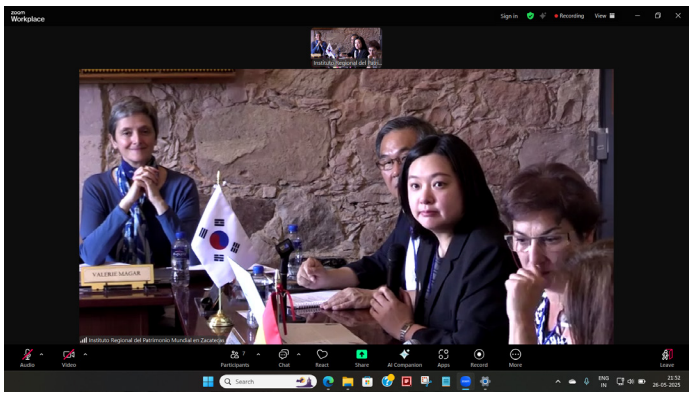

## 3. Nomination for the Melina Mercouri International Prize

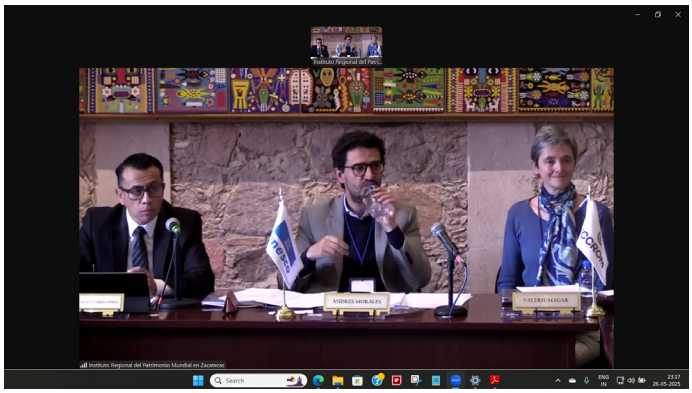
Recognizing the many ways different classifications of heritage are linked to each other, WII-C2C proposed the management of Jingkieng Jri / Lyu Chrai, popularly referred to as the Living Roots Bridges of Meghalaya, as a worthy candidate for the UNESCO-Greece Melina Mercouri International Prize for the Safeguarding and Management of Cultural Landscapes. Overseen by the Meghalaya Basin Management Agency with Syrwet U Barim Mariang *Jingkieng Jri* Cooperative Federation Ltd, the cultural landscape encompasses 74 villages in Khasi and Jaintia Hills of Meghalaya, India, that constitute a living heritage of inseparable culture-nature relationships. Jingkieng Jri, a living plant-based structural system cultivated by Khasi-Jaintia communities for over two millennia, is an evolving entity integral to the landscape. Rooted in the *Ficus elastica*, these structures - bridges, ladders, steps, and erosion-control systems- grow continuously, making their development process inseparable from their existence. The nomination by WII-C2C may serve as an essential step to providing this systemic cultural practice, steeped in natural know-how, the global appreciation that it deserves.

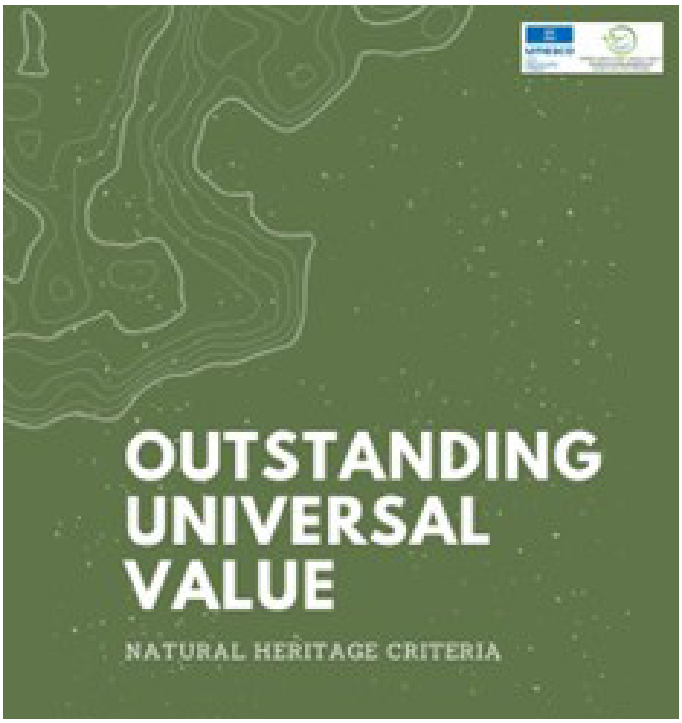
## 4. 9th Annual C2C Co-Ordination Meeting at Zacatecas, Mexico (26-28 May, 2025)

Tapping into the worldwide network of conservation practitioners that UNESCO offers, the 9th Annual C2C Co-Ordination Meeting for UNESCO World Heritage Category 2 Centres (C2Cs) at Zacatecas, Mexico, was an occasion where eight Category 2 Centres from across the globe gathered to discuss harnessing their respective expertise for capacity-building programmes. WII-C2C's active participation online despite the nearly 12-hour time difference was appreciated. As the only UNESCO C2C in the world with a unique mandate on natural heritage, WII-C2C made significant contributions to the meeting. Dr. Nehru Prabakaran, Associate Nodal Officer, made a presentation on WII-C2C's current activities and interventions, emphasizing the inclusion of the Kunming-Montreal Global Biodiversity Framework in a declaration issued by the meeting attendees on capacity-building strategy for the next 10 years.





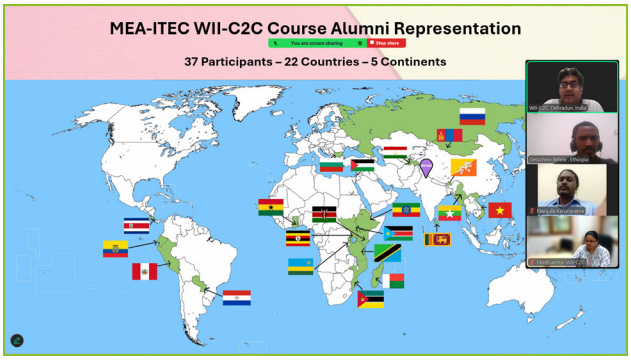


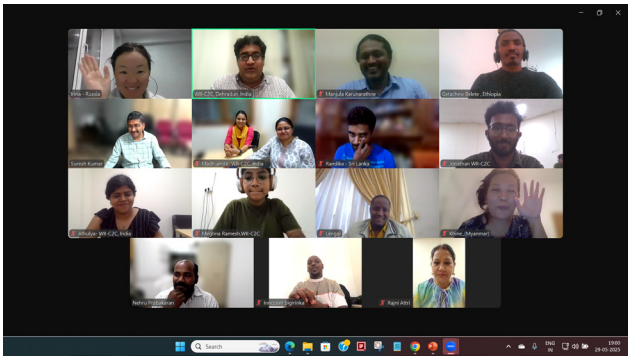

## 5. 47th WHC - Nomination Dossiers and State of Conservation Reports

In order to fulfil India's obligations as a member of the World Heritage Committee, WII-C2C with its expertise in natural heritage, reviewed 54 Natural/Mixed WHS from all parts of the world and proposed seven new Natural/Mixed WHS to be discussed in the upcoming 47th World Heritage Committee (WHC) in Paris. The review process offered WII-C2C an effective window into evaluating the management challenges and strategies of an extremely wide variety of environmental habitats while simultaneously learning how site-specific challenges are being addressed under different types of legal systems and governance. Sites reviewed include icons of the natural world such as the Great Barrier Reef, Okavango Delta, Pantanal Conservation Area, Historic Sanctuary of Machu Picchu, Lake Baikal and Ngorongoro Conservation Area, among others.

## 6. MEA-ITEC Reunion (29 April, 2025 and 05 June, 2025)

Finally, to build on a rapidly growing alumni network with representation across five continents, WII-C2C initiated a series of webinars to bring together the various batches of the Ministry of External Affairs' (MEA) ITEC programme. With 37 trainees from 22 countries, the lively webinars held on 29-Apr-2025 and 06-Jun-2025 were a conclave of international opinions on natural heritage training and their journeys post-training at WII-C2C. It was heartening to see the achievements of alumni and to see an increased engagement between natural and cultural heritage entities, as was encouraged during the course curriculum at WII-C2C. The attendees fondly recalled the foundational experiences they had in India and of its rich heritage, mentioning how they went back to their home countries with a deep understanding of the importance of heritage.



**Author:**
**Mr. Anuranjan Roy** *works towards the strengthened implementation of the World Heritage Convention through the use of communication techniques and outreach. Concepts of heritage and nature-culture linkages are of particular interest to him, for which he plays an active role in the Centre's capacity-building activities. He has co-edited "Wild Treasures", an anthology spanning 200 years of nature-writing about the Asia Pacific and had served as Assistant Course Director on the inaugural MSc in Heritage Conservation and Management batch of 2019-2021.*

# INVISIBLE GIANTS: India's Bees and Beetles - Photo exhibition

- Ritesh Kumar Gautam

The first photo exhibition titled "Invisible Giants: India's Bees and Beetles" at Wildlife Institute of India (WII), Dehradun was launched on the World Bee Day, 20th May 2025. The exhibition celebrates the overlooked ecological roles of bees and beetles, showcasing their beauty and conservation value through enlarged, high-resolution macro photographs. Bees pollinate 75% of crops, while beetles recycle waste into fertile soil—yet habitat loss and climate change threaten these vital insects, endangering food security and ecosystem stability. The gallery invites visitors, not just scientists, to marvel at these creatures, read their stories, and reflect on their importance. To capture the insects' intricate details, focus stacking and photo stitching techniques were used, blending thousands of images into ultra-detailed portraits. Each painstakingly crafted photograph reveals stunning textures, colors, and structures that are otherwise hidden from view, inspiring awe and appreciation for these silent allies of our environment.

To grace the event Dr. Dhananjai Mohan (Retired PCCF & HoFF Uttarakhand) was invited as the chief guest. He addressed the audience highlighting the need of carrying out scientific studies to document and describe the species and to study the insect decline. While congratulating the Director (WII) and team for organizing the event, Dr. Mohan appreciated the use of technology used in the photo exhibition gallery. Director WII, Sh. Virendra Tiwari, IFS remarked that this gallery is one of the WII's flagship biodiversity-education initiatives, and showcases WII's commitment—through funding, administrative backing, and faculty mentorship—to bridging research and public engagement.

Further, Dr. Ruchi Badola, Dean, Faculty of Wildlife Sciences, WII emphasized on the role of bees as a major pollinator of natural and agroecosystems and ensured more than 75% of agricultural food production.

Mining Bee (*Andrena induta*)

Inauguration of Photo exhibition of "Invisible Giants: India's Bees and Beetles" in the presence of Dr. Dhananjai Mohan (Retd. PCCF & HoFF Uttarakhand), Shri V.R. Tiwari (Director, WII) and Dr. Ruchi Badola (Dean, WII).

The gallery presents 20 striking photographs of bee and beetle specimens preserved at the WII Repository and the Natural History Museum, London.

This collaborative project is the result of the joint efforts of Mr. Ritesh Kumar Gautam, Scientist at WII, and Mr. Karmannye Om Chaudhary from Queen Mary University, London.

The gallery is still open for viewing at the WII Auditorium!

**Rainbow Stag Beetle (*Phalacrognathus muelleri*)**

# ICCON 2025: Advancing Conservation through Collaboration, Science, and Shared Vision

The Indian Conservation Conference (ICCON) 2025 was held from 24—27 June at the Wildlife Institute of India (WII), Dehradun, under the aegis of the Ministry of Environment, Forest and Climate Change (MoEF-CC), Government of India. Now in its second edition, ICCON has rapidly evolved into one of India's most important platforms for cross-sectoral collaboration, youth leadership, and conservation policy dialogue - particularly within the Global South.

Launched during the Golden Jubilee of Project Tiger in 2023, ICCON was envisioned as a national platform to bridge research, governance, and on-ground practice. It offers a vibrant space for scientists, forest officers, students, NGOs, startups, and international organisations to come together and co-develop solutions to India's most pressing biodiversity challenges.

This year, ICCON 2025 welcomed over **500 participants** from across India and abroad, featuring:

- **17 thematic tracks** spanning climate change, infrastructure, coexistence, species behaviour, policy, technology, and more
- **09 pre-conference workshops** across the WII campus
- **Hundreds of oral, speed, and poster presentations**
- An inaugural **TechBridge forum**, showcasing field-ready conservation technologies

To promote inclusivity and participation, **travel bursaries** worth **₹15,000** were awarded to select student participants from diverse regions and disciplines.

## Pre-Conference Workshops & Icebreaker

The ICCON experience began on 24 June with 09 pre-conference workshops, offering hands-on training in subjects such as wildlife rescue, tricho-taxonomy, species modelling, biodiversity policy, and conservation communication. Led by experts from GIZ, Wetlands International South Asia, WTI, WII and others, these sessions drew active participation from early-career researchers and field professionals.

A warm **icebreaker session** at the Food Arena followed - facilitating informal interactions, early networking, and a shared sense of purpose among attendees.

## Special Plenary by the Hon'ble Minister

On **25 June 2025, Shri Bhupender Yadav**, Hon'ble Minister for Environment, Forest and Climate Change, delivered a **special plenary session** on *"India's Leadership in Global Biodiversity: From Vision to Action."* In his address, he highlighted India's conservation leadership within the Global South, and called on young researchers to steer India's ecological future with **"science, technology, and empathy."**

During his visit, the Minister also:

- **Released the Management Effectiveness Evaluation (MEE) Report** covering **438 protected areas**
- Launched the newly redesigned WII website
- **Felicitated 8 young researchers** selected as **ICCON 2025 Equipment Grant awardees**, supported by **A&S Creations**


Inaugurated two new facilities at WII:

- **The Herbarium Gallery**, showcasing WII's floristic research and contributions to plant conservation
- **The Tusker — Fit for the Field**, a state-of-the-art gym facility for enhancing field readiness among researchers and students

## Thought-Provoking Plenaries: From Bees to Big Cats

ICCON 2025 featured an impressive array of **plenary and spotlight speakers**, including:

- **Dr. Hema Somanathan (IISER Trivandrum)** — on bee cognition and pollination ecology
- **Dr. B.C. Choudhury** — reflections on conservation in post-independence India
- **Dr. Ramana Athreya (IISER Pune)** — on community-led conservation in Arunachal Pradesh
- **Dr. Mahesh Sankaran (NCBS)** — on savanna ecosystems and climate change
- **Dr. Manoj Nair, IFS** — on landscape-scale planning for conservation

A key highlight was the plenary by **Shri Ramesh Kumar Pandey, Additional Director General of Forests (Wildlife), MoEFCC**, and UNEP Asia Environmental Enforcement Awardee. He underscored the need to:

- Integrate technology in wildlife enforcement
- Forge community partnerships
- Support frontline staff, and
- Institutionalise long-term science-policy frameworks for conservation

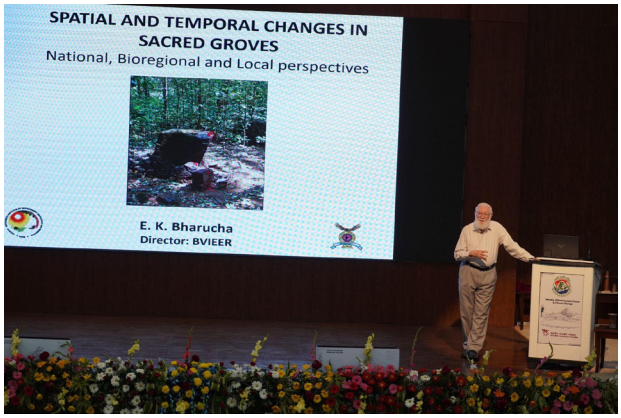
Additionally, **Spotlight Talks** by emerging scientists-
**Dr. Sudipta Tung**, **Dr. Jitesh Jhawar**, and **Dr. Akanksha Rathore** - provided fresh insights on **adaptation, AI, and animal behaviour**, embodying ICCON's commitment to uplifting young scientific voices.

## Special Sessions: Policy, Practice, and Partner Perspectives

ICCON 2025 featured several curated sessions by key institutions and thematic partners, deepening discussions at the science-policy-practice interface:

- **The Ecosystems and Biodiversity Chapter of India's upcoming National Adaptation Plan (NAP)** was spotlighted through a dedicated **stakeholder consultation session** led by WII and MoEFCC experts. The session brought together **sectoral specialists, researchers, and practitioners** to review and provide feedback on the draft chapter, which addresses the impacts of climate change on forests, grasslands, wetlands, deserts, coastal, marine, and agro-ecosystems. It emphasised the importance of grounding adaptation strategies in ecological realities and aligning them with India's climate risks and priorities.

- **The International Big Cat Alliance (IBCA)** hosted a special session titled *"Big Cat Conservation: Strategies, Challenges, Best Practices and Innovations"*. The session featured both national and international experts who shared perspectives on big cat conservation across continents. Speakers included representatives from **WWF Tanzania, WWF US, WWF UK, Snow Leopard Trust, and Go Insight (UK)**, alongside IBCA leadership. Discussions spanned the conservation of lions, pumas, jaguars, and snow leopards, with insights into innovation, data intelligence, and global cooperation. The session reinforced IBCA's vision of fostering international partnerships for the protection of the world's big cats.




Several knowledge partners also curated thematic sessions that enriched ICCON's agenda:

- **WWF India** hosted a session on **rethinking human-wildlife interfaces**, with presentations exploring conflict mitigation, corridors, and community engagement.
- **GIZ India** curated a session on **aquatic ecosystems and community resilience**, featuring student presentations on freshwater and marine conservation themes. The session was moderated by GIZ experts and highlighted field-based learnings from rivers to reefs.
- **WTI (Wildlife Trust of India)** led a discussion on the **challenges of wildlife rescue, rehabilitation, and post-release monitoring**, highlighting lessons from the field and innovations in animal welfare.

These sessions helped ground the broader themes of ICCON in on-ground realities and international frameworks, while fostering dialogue among implementers, policymakers, and researchers.

## Voices of the Future: Student Research & Innovation

From elephant corridors to marine UAVs, katydid acoustics to climate adaptation, ICCON 2025 amplified the work of **young researchers** from institutions including **IISERs, Ashoka University, NCBS, University of Delhi**, and WII. Presentations spanned oral, speed-talk, and poster formats—showcasing novel methods and field observations.

The new **TechBridge** forum offered live demos of cutting-edge tools by **IIT Roorkee, Pardus WildTech LLP, A&S Creations**, and others—ranging from **smart camera traps to AI-enabled monitoring platforms**.

## Networking, Showcases, and Celebration

An **exhibition space** featuring NGOs, academic institutions, and companies like Zeiss and HiTech offered a dynamic hub for conversations around **biodiversity finance, citizen science, species recovery, and conservation tech**.

The **Gala Dinner** on Day 2 provided a festive pause—complete with laughter, and connections that crossed geographies, disciplines, and career stages.

The final day culminated in:

- **Awards** for best oral, speed, and poster presentations
- A **symbolic vote** to decide the host location for **ICCON 2027**
- **Closing reflections** from Organising Secretary **Dr. Bilal Habib**, Dean **Dr. Ruchi Badola**, and Director **Shri Virendra Tiwari**

## Partners in Conservation

ICCON 2025 was made possible with the support of **NTCA, IBCA, RNKP Philanthropies, GIZ, A&S Creations, WTI, Wetlands International South Asia, SACON, NCBS, Zeiss India, Hi-Tech, Aaranyak, The Corbett Foundation**, and others. These partnerships underscore a shared commitment to **evidence-based, inclusive, and collaborative conservation—especially across the Global South.**

## Looking Ahead

As ICCON 2025 drew to a close, it left behind more than just presentations—it reignited momentum for **conservation grounded in collaboration, science, and empathy**. ICCON is not merely a conference; it is a **movement**—one that continues to grow as India shapes its ecological future through innovation, partnerships, and youth-driven leadership.


पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय

Azadi Ka Amrit Mahotsav

## भारतीय वन्यजीव संस्थान देहरादून , भारतीय संरक्षण सम्मेलन (आईसीसीओएन) 2025 की करेगा मेजबानी

### - भारतीय संरक्षण सम्मेलन (आईसीसीओएन 2025) में भारत और विश्व भर से 500 से अधिक प्रतिभागी शामिल होंगे, 25 से 27 जून तक चलेगा सम्मेलन

### - केंद्रीय पर्यावरण, वन एवं जलवायु परिवर्तन मंत्री श्री भूपेंद्र यादव करेंगे सम्मेलन का उद्घाटन

Posted On: 24 JUN 2025 6:29PM by PIB Dehradun

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय के तत्वावधान में भारतीय वन्यजीव संस्थान (डब्ल्यूआईआई), देहरादून में 25-27 जून 2025 तक भारतीय संरक्षण सम्मेलन (आईसीसीओएन 2025) का आयोजन कर रहा है। 24 जून 2025 को एक विशेष प्री-कॉन्फ्रेंस दिवस में शुरुआती करियर शोधकर्ताओं, क्षेत्र के चिकित्सकों और छात्रों के लिए डिज़ाइन की गई दस क्षमता-निर्माण कार्यशालाएँ आयोजित हुई। ये व्यावहारिक सत्र प्रजातियों की निगरानी, डेटा विश्लेषण, मानव-वन्यजीव संघर्ष प्रबंधन और वैज्ञानिक प्रकाशन जैसे विषयों पर आधारित थे।

चार दिवसीय इस कार्यक्रम में भारत और वैश्विक दक्षिण से 500 से अधिक प्रतिभागी शामिल होंगे - जिनमें वैज्ञानिक, शोधकर्ता, भारतीय वन सेवा अधिकारी, छात्र, गैर सरकारी संगठन और अंतर्राष्ट्रीय संगठन, नीति निर्माता शामिल होंगे - जो भारत की सबसे ज़रूरी जैव विविधता चुनौतियों पर चर्चा, विचार-विमर्श और समाधान को आकार देंगे। आईसीसीओएन को पहली बार 2023 में प्रोजेक्ट टाइगर के स्वर्ण जयंती समारोह के दौरान लॉन्च किया गया था, साथ ही इंटरनेशनल बिग कैट अलायंस (आईबीसीए) की ऐतिहासिक घोषणा भी की गई थी। तब से, यह क्रॉस-सेक्टरल संवाद, अत्याधुनिक संरक्षण विज्ञान और युवा जुड़ाव के लिए समर्पित एक विश्वसनीय और समावेशी मंच के रूप में विकसित हुआ है।

इस वर्ष के संस्करण में 17 विषयगत क्षेत्र, सैकड़ों मौखिक और त्वरित वार्ता, पोस्टर सत्र, स्पॉटलाइट व्याख्यान और 10 क्षमता निर्माण कार्यशालाएँ शामिल हैं। एक प्रमुख आकर्षण टेकब्रिज की शुरुआत है - एक ऐसा पहला वन्यजीव प्रौद्योगिकी मंच जिसे क्षेत्र अनुप्रयोग के लिए अभिनव उपकरण और समाधान दिखाने के लिए डिज़ाइन किया गया है।
सम्मेलन का उद्घाटन 25 जून 2025 को माननीय पर्यावरण, वन और जलवायु परिवर्तन मंत्री द्वारा मंत्रालय और संबद्ध एजेंसियों के वरिष्ठ अधिकारियों की उपस्थिति में किया जाएगा।

आईसीसीओएन 2025 छात्रों और शुरुआती करियर वाले शोधकर्ताओं के लिए सलाहकारों से जुड़ने, अपने काम का प्रदर्शन करने और अंतःविषय संवाद में शामिल होने का एक अनूठा अवसर भी है। इस वर्ष बड़ी संख्या में प्रतिनिधि, यात्रा अनुदान के माध्यम से भाग ले रहे हैं, जो आईसीसीओएन की न्यायसंगत भागीदारी के प्रति प्रतिबद्धता को पुष्ट करता है।

(Release ID: 2139301)
Read this release in: English


NEWS

# PROTECTED AREA CENTRIC WII HERBARIUM
## A National Repository - represents flora of a number of Protected Areas of India

- Ayan Kumar Naskar, Ompal Singh, Piyush Yadav, Nehru Prabakaran & Amit Kumar
Email: herbarium@wii.gov.in

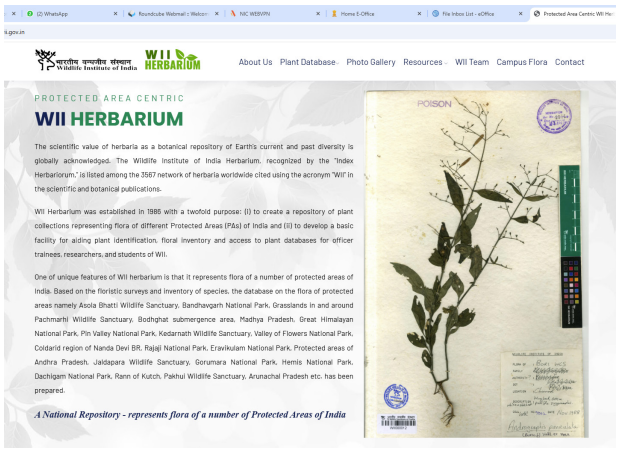
The Wildlife Institute of India Herbarium, recognized by the 'Index Herbariorum', is listed among the 3567 network of herbaria worldwide cited using the acronym 'WII" in the scientific and botanical publications. One of unique features of WII herbarium is that it represents flora of important Protected Areas (PAs) and other underexplored areas.

A significant advancement in this field occurred during the planning of the biogeography based Protected Area Network in India (1985—1988) under the leadership of Dr. W.A. Rodgers and Sh. H.S. Panwar. Initial collections from different biogeographic areas were made by Dr. Rodgers which was further enriched by the scientists, research scholars, and students of WII. It was established in 1986 with a twofold purpose: (i) to create a repository of plant collections representing flora of different PAs of India and (ii) to develop a basic facility for aiding plant identification, floral inventory and access to plant databases for officer trainees, researchers, and students of WII.

WII Herbarium houses over 20,000 specimens for ready reference, which represent more than 200 families of vascular plants including type specimens of angiosperms namely *Berberis rawatii*, *Bistorta tenuifolia var. gidarensis*, *Ceropegia kumaonensis*, *Meiogyne arunachalensis*, *Nervilia pangteyana*, *Oxygraphis kumaonensis*, *Peristylus sahanii*, *Rhododendron rawatii* and *Salacia megacarpa*. The WII Herbarium also houses a total of 181 lichen specimens, representing 17 families, 44 genera, and 81 species.

### Launch of Herbarium Website

On April 4, 2025, Sh Rajesh Gopal, Chairman, Training, Research, and Academic Council (TRAC) of the Institute, launched the protected area-centric virtual herbarium. Recognizing importance of this valuable resource by the Institute, the website was dedicated to Dr W.A. Rodgers, the founder, and Dr G.S. Rawat, a prominent contributor, for their considerable contributions in establishing it as a national repository. Major contributors of the herbarium include Sh. M.M. Babu, Sh. P.L. Saklani, Dr. P.V. Karunakaran, Dr. C.P. Kala, Dr. Sanjay Singh, Dr. Pankaj Kumar, Dr. J.S. Jalal, Dr. Umeshkumar L. Tiwari, Dr. Amit Kotia, Dr. Manoj Chandran, Dr. Gajendra Singh, Dr. G.S. Goraya, Dr. Ishwari D. Rai, Dr. Amit Kumar and Dr. Navendu Page.




भारतीय वन्यजीव संस्थान
Wildlife Institute of India
WII HERBARIUM
About Us
Plant Database
Photo Gallery
Resources
WII Team
Campus Flora
Contact
EXPLORE THE WILDLIFE INSTITUTE HERBARIUM


STATUS
Director
TRAC Chairman

## Inauguration of the Herbarium Gallery

On June 25, 2025, the Herbarium Gallery was inaugurated by the Hon'ble Minister, Shri Bhupender Yadav, Ministry of Environment, Forests, and Climate Change, Government of India, in the presence of Shri Sushil Kumar Awasthi, Director General of Forests & Special Secretary, MoEFCC, New Delhi and Shri Virender Tiwari, Director, Wildlife Institute of India. The gallery projects Institute's contribution on floristic studies in the country and sensitizes the visitors towards plant conservation. Further, the contribution of Dr. Janaki Ammal, a renowned botanist and plant cytologist who made significant contributions to genetics, evolution, phytogeography and ethnobotany, for which MoEFCC, New Delhi has instituted a prestigious fellowship for the taxonomic works in her honour, contribution of Carolus Linneaus (Father of modern taxonomy), J.D. Hooker (Author of monumental 07 volume Flora of British India) and 09 new taxa discovered by WII are projected.


# Activities performed by WII-EIACP Centre from April - June 2025

## Mission LiFE Events:

1. In alignment with the objectives of Mission LiFE (Lifestyle for Environment), which aims to mobilize individuals and communities towards adopting sustainable lifestyles and catalyzing a global movement focused on proactive, positive behavioural change for environmental conservation, the EIACP Centre at the Wildlife Institute of India organized an outreach session to sensitize school students of classes 9 to 12 from Arya Inter College, Subhash Nagar, Dehradun. During the session, Mr. Ayan Dutta, Information Officer at WII-EIACP, addressed the participants and provided a comprehensive overview of the seven thematic areas of Mission LiFE. He also explained the theme of International Day for Biological Diversity 2025, *"Harmony with Nature and Sustainable Development"*, which is closely aligned with the core principles of Mission LiFE. The session aimed to foster awareness and encourage students to adopt eco-conscious behaviours in their daily lives. To further support the awareness initiative, Mission LiFE posters and bookmarks were distributed among the students. These materials served as educational tools to reinforce the importance of sustainable living and environmental responsibility. A total of 30 participants, including students, teachers, and staff members, actively took part in the event, engaging in discussions and expressing their interest in contributing to environmental conservation efforts within their communities.


**2.** A Mission LiFE Pledge Ceremony was organized on 19th May 2025 at Arya Inter College, Subhash Nagar, Dehradun, and Galaxian International School, Dehradun. The pledge aimed to inspire students and educators to commit to sustainable living and adopt environmentally responsible habits in their daily lives. A total of 90 participants, including students, teachers, and staff members, actively took part in the ceremony.

Through this collective commitment, the event served to reinforce the importance of individual and community action in addressing environmental challenges and aligning with the broader objectives of Mission LiFE.

## Publications:

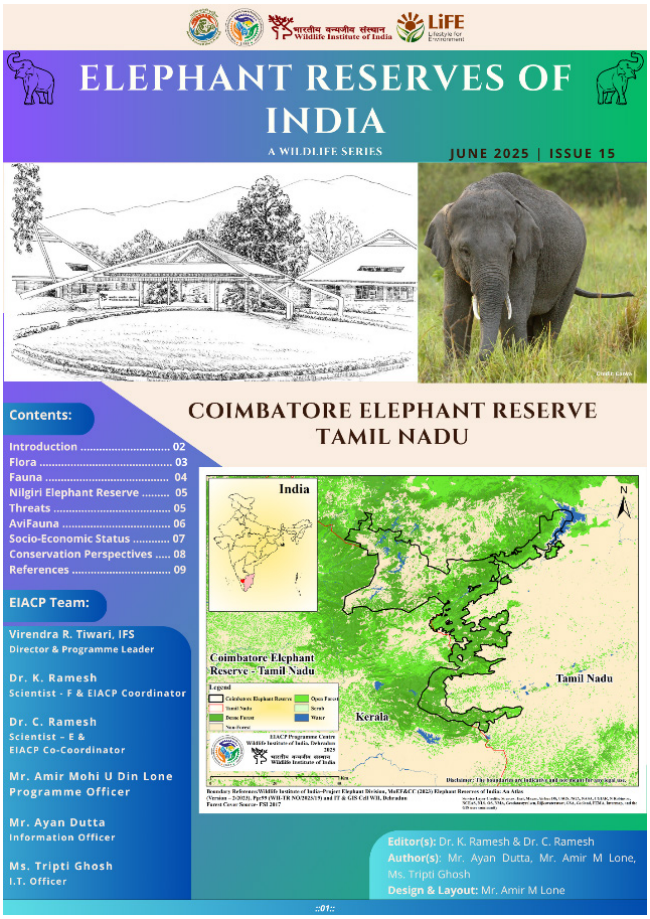
**1. Wildlife Series: Elephant Reserves of India - Nilgiri Elephant Reserve, Issue no. 14 April, 2025**

The Wildlife Series on Elephant Reserves of India, by the EIACP Centre at the Wildlife Institute of India, highlights the conservation of elephant habitats nationwide. It covers ecological significance, challenges, and strategies, offering insights into forest types, biodiversity, socio-economic conditions, and threats like habitat loss and encroachment.

The Nilgiri Elephant Reserve, notified on 19th September, 2003, spans 4,662.45 sq. km across Tamil Nadu, Kerala, and Karnataka. As part of the Nilgiri Biosphere Reserve, it hosts India's largest elephant population and represents a vital zone for conservation and research, balancing ecological needs with local livelihoods.

### 2. Wildlife Series: Elephant Reserves of India — Coimbatore Elephant Reserve, Issue No. 15, 22 May, 2025

Located in the Western Ghats of Tamil Nadu, the Coimbatore Elephant Reserve plays a vital role in conserving one of India's largest elephant habitats. Spanning 566 sq. km, with 482 sq. km designated as protected area, the reserve's varied landscapes and vegetation support rich biodiversity. It includes a major portion of the Annamalai Hills, part of the globally recognized Western Ghats biodiversity hotspot. The reserve is also home to tribal communities such as the Irula, Kurumba, and Malasar, who rely on non-timber forest products, small-scale farming, and plantation work for their livelihoods.




## Workshop:

### 1. One-day Module on *"Emerging Challenges in Wildlife-Human Conflict: The Coexistence Challenge in Farmland Habitats"* for IFS Officers at WII, 30 April, 2025

On April 30, 2025, the EIACP Centre, in collaboration with the Wildlife Institute of India, Dehradun, conducted a one-day forestry module under the Mid-Career Training (MCT) program for Indian Forest Service officers. The module, themed "Emerging Challenges in Wildlife-Human Conflict: The Coexistence Challenge in Farmland Habitats," addressed key issues such as tiger conservation in human-dominated areas, cropland-large herbivore conflicts, rising avian-human interactions, animal capture techniques, and a critical review of current conflict mitigation strategies.

**2. One-day Module on Advances in Human-Wildlife Conflict Management for IFS Officers at WII, 28 May 2025**

The EIACP Centre at the Wildlife Institute of India, in collaboration with the Wildlife Institute of India, organized a one-day module on "Advances in Human-Wildlife Conflict Management" for Indian Forest Service (IFS) Officers on 28th May, 2025, under the Forestry Module of the Mid-Career Training (MCT) Phase—III (15). The programme included sessions on the overview of institutional activities, drivers of human-wildlife conflict and available technological options, key issues and challenges in conflict management, demonstration of conservation tools and techniques, and animal capture methods as a tool for conflict mitigation. The course concluded with a panel discussion focusing on critical perspectives in modern human-wildlife conflict management. The module aimed to build the capacity of officers by enhancing their understanding of current approaches and practical interventions in the field of human-wildlife conflict.

## Green Calendar Activities:

**1. Celebration of World Heritage Day, 18 April, 2025**

To commemorate World Heritage Day 2025, observed annually on April 18, the EIACP Centre at the Wildlife Institute of India organized a week-long celebration from April 18 to 25, spotlighting India's Natural and Mixed UNESCO World Heritage Sites. This initiative aimed to raise awareness about the significance of preserving these ecological and cultural heritage sites. Poster Series: Seven informative posters were unveiled, each dedicated to a specific Natural or Mixed Heritage Site in India. These posters provided insights into the unique biodiversity, cultural significance, and conservation efforts associated with each site.

**Interactive Map:**
An interactive map was introduced, detailing the geographical locations of India's Natural and Mixed Heritage Sites. This map serves as an educational tool, helping users visualize the distribution of these sites across the country.

**Timeline Display:**
A chronological timeline showcased the history of India's Natural and Mixed Heritage Sites, highlighting key milestones such as their inscription dates and notable conservation achievements.


unesco
#1
Natural Heritage Sites of India
Kaziranga National Park
• Kaziranga, in Assam's Brahmaputra floodplain, spans 42,996 ha. Its ever-changing landscape,shaped by erosion and sedimentation, is a living example of riverine and ecological processes.
• Home to the world's largest one-horned rhino population, Kaziranga also shelters tigers, elephants, wild buffaloes, and the endangered Ganges River dolphin.
'Safeguarding heritage, empowering humanity'
EIACP Centre, Wildlife Institute of India, Dehradun


unesco
#2
Natural Heritage Sites of India
Manas Wildlife Sanctuary
• Manas Wildlife Sanctuary, nestled in Assam at the foothills of the Eastern Himalayas, spans 39,100 ha along the Manas River and shares its northern boundary with Bhutan.
• Known for its scenic beauty and ecological richness, Manas shelters rare and endangered species like tigers, one-horned rhinos, swamp deer, pygmy hogs, and the Bengal florican.
'Preserving the past, enriching the present'
EIACP Centre, Wildlife Institute of India, Dehradun

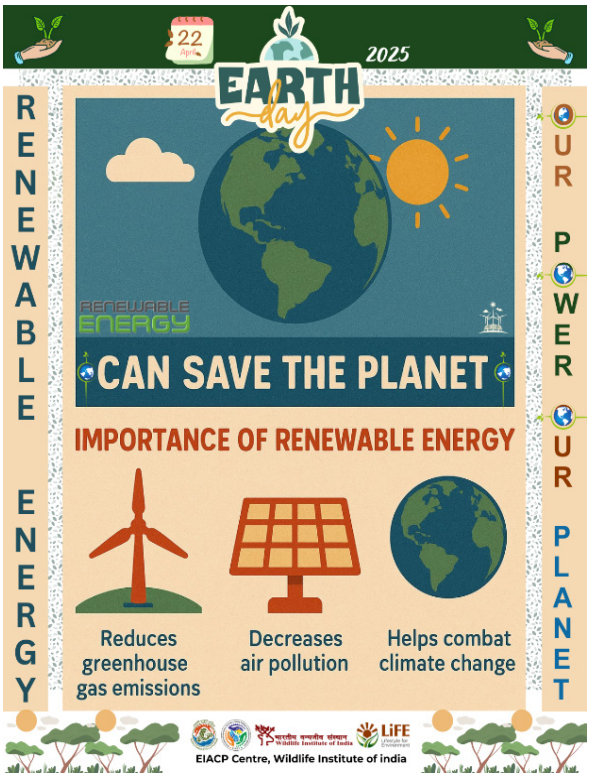

unesco
#3
Natural Heritage Sites of India
Keoladeo National Park
• The Park in Rajasthan covers 2,873 ha. and is famous for its numerous non-migratory resident breeding birds.
• The park is the sole wintering site for the critically endangered Siberian Crane and also hosts other threatened species like the Greater Spotted Eagle and Imperial Eagle.
'Protecting the irreplaceable, preserving the invaluable'
EIACP Centre, Wildlife Institute of India, Dehradun


unesco
#4
Natural Heritage Sites of India
Sundarbans National Park
• Located at the mouth of the Ganges and Brahmaputra Rivers between India and Bangladesh, covering 133,010 ha.
• The Sundarbans, known as the largest mangrove forest globally, serves as a remarkable habitat for the tiger, highlighting the uniqueness of its ecosystem.
'Conserve to Continue the Story'
EIACP Centre, Wildlife Institute of India, Dehradun


unesco
Natural and Mixed Heritage Sites in India
Great Himalayan National Park Conservation Area
Nanda Devi and Valley of Flowers National Park
Manas Wildlife Sanctuary
Keoladeo National Park
Khangchendzona National Park
Kaziranga National Park
Sundarbans National Park
Western Ghats
0
375
750
KM

## 2. Celebration of World Earth Day, 22 April, 2025

To mark Earth Day 2025 (April 22), themed *"Our Power, Our Planet"*, the EIACP Centre at the Wildlife Institute of India released an informative poster emphasizing the critical role of renewable energy in reducing emissions, cutting air pollution, and fighting climate change. The poster calls for collective, sustainable action to protect our only home—Earth.




### a. Speed talk on World Earth day, 22 April 2025

The EIACP Centre at the Wildlife Institute of India hosted B.Sc. students from Graphic Era University, Dehradun, for an interactive and inspiring session focused on environmental innovation. During the event, the students presented their internship projects through group presentations and speed talks, sharing creative ideas and research aligned with the Earth Day 2025 theme, "Our Power, Our Planet." The session highlighted their dedication to environmental sustainability and showcased their efforts to drive positive change through science, awareness, and action.

## 3. Celebration of International Day for Biological Diversity, 22 May, 2025

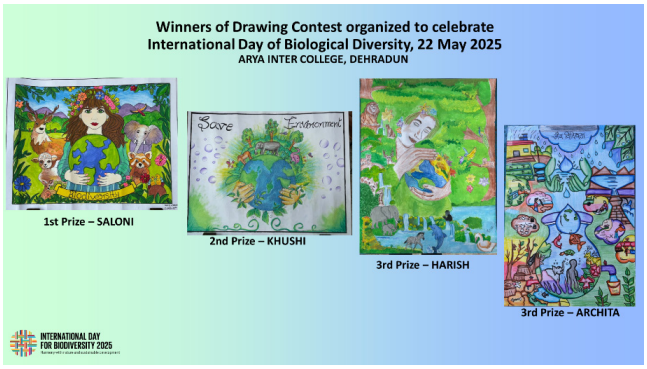
To commemorate the International Day for Biological Diversity 2025, the EIACP Centre at the Wildlife Institute of India released a special awareness poster in the presence of the Director, Dean, EIACP Co-Coordinator, and other dignitaries. The poster highlights this year's theme, ***"Harmony with Nature and Sustainable Development,"*** and emphasizes the synergy between the Kunming-Montreal Global Biodiversity Framework and the Sustainable Development Goals (SDGs), calling for urgent global action. It reinforces the message that nature is not separate from us — it is us. It encourages everyone to take action for nature by joining the global movement, supporting local conservation, protecting pollinators, educating others, and being part of the collective plan to safeguard our planet.

### a. Drawing Contest at Arya Inter College, Subhash Nagar, Dehradun on 19 May, 2025

As part of the celebrations for the International Day for Biological Diversity 2025, the EIACP Centre at the Wildlife Institute of India organized a drawing competition at Arya Inter College, Subhash Nagar, Dehradun, on 19th May, 2025. The contest was conducted under the overarching theme —
*"Harmony with Nature and Sustainable Development".*

The competition encouraged students to express their understanding and vision of biodiversity conservation and sustainable living through art. A total of **21 students** from classes 9 to 12 enthusiastically participated in the event, selecting one of the following sub-themes:

*My vision of a world living in harmony with nature, Biodiversity: The heartbeat of a sustainable future and Nature and development: Moving together, not apart.*




### b. Drawing Contest at Galaxian International School, Dehradun on 19th May, 2025

In observance of the International Day for Biological Diversity 2025, the EIACP Centre at the Wildlife Institute of India conducted a drawing competition at Galaxian International School, Dehradun, on 19th May, 2025. The event was organized under the central theme — "Harmony with Nature and Sustainable Development. The activity provided an opportunity for students to illustrate their thoughts and perspectives on biodiversity, environmental harmony, and sustainable growth through creative expression. A total of 58 students from grades 9 to 12 actively took part in the competition, choosing from the following sub-themes:

- ***Imagining a planet where nature and people coexist peacefully***
- ***Biodiversity: The lifeline of a resilient future***
- ***Nature and progress: Walking hand in hand***

## 4. Celebration of World Turtle Day, 23rd May, 2025

World Turtle Day, observed on 23rd May, 2025, aims to raise awareness about the conservation of turtles and tortoises and the urgent need to protect their natural habitats. To mark the occasion, the EIACP Centre at the Wildlife Institute of India, Dehradun, released an informative poster highlighting key actions the public can take to safeguard these ancient creatures. The poster urges people never to buy turtles or tortoises from pet shops, as it fuels illegal wildlife trade, and never to remove them from the wild unless they are sick or injured.


### a. Online Quiz on World Turtle Day, 23rd May, 2025

To commemorate the significance of World Turtle Day 2025, the EIACP Centre at the Wildlife Institute of India organized a nationwide online quiz competition, open to all. The initiative aimed to raise awareness about turtle conservation, highlight the threats faced by turtle populations, and encourage collective responsibility towards protecting these vital species and their habitats. The quiz received an enthusiastic response, with over 30,208 participants—including students, researchers, educators, professionals, and nature enthusiasts—from across the country.


## 5. Celebration of World Environment Day, 05th June, 2025

World Environment Day 2025 was observed on June 5 with the global theme *"Land Restoration, Desertification, and Drought Resilience,"* highlighting the urgent need to restore degraded land and build resilience against climate extremes. The day aimed to raise awareness and mobilize action for sustainable land management, combat desertification, and promote ecosystem restoration to ensure a healthier planet for future generations. To mark the importance of the day the EIACP Centre at Wildlife Institute of India organised various events in collaboration with the host institute and FRI EIACP Centre from 30 May to 07 June, 2025.

### a. Online Quiz from (30 May to 07 June, 2025)

The EIACP Centre at the Wildlife Institute of India organized an online quiz open to all, aligned with the themes Beat Plastic Pollution, Environment Conservation, and Mission LiFE. The initiative aimed to raise awareness and encourage sustainable lifestyle practices. The quiz witnessed enthusiastic participation from over 755 individuals, reflecting widespread public engagement with environmental issues.


### b. Plantation Drive, 04 June, 2025

A plantation drive was organized on 4th June, 2025 in collaboration with the EIACP Centre at Forest Research Institute, Dehradun, at Kirsali Gaon, near Sahastradhara in Sahaspur Block. More than 12 participants took part in this initiative.

### c. Plantation Drive and Cleanliness Drive at Wildlife Institute of India campus, 05th June, 2025

On 5th June 2025, the EIACP Centre at the Wildlife Institute of India celebrated #WorldEnvironmentDay and supported the #EkPedMaaKeNaam initiative by planting 23 saplings. The drive witnessed active participation from the Director, Registrar, faculty members, and staff, reinforcing the spirit of Mission LiFE through a cleanliness drive, in alignment with this year's theme. Over 70 participants enthusiastically took part in the initiative.


### d. E-Poster Release, 05th June, 2025

An awareness poster titled "Plastic is Not Just Trash — It's a Threat" and a series of posters on the theme "Beat Plastic Pollution" were released on social media platforms and the EIACP website. These visuals highlighted the global plastic crisis, its impact on health, and the urgent need for sustainable solutions.


## 6. Celebration of World Day To Combat Desertification and Drought, 17th June, 2025

### a. Release of E-Poster

To commemorate World Day to Combat Desertification and Drought, the EIACP Centre at the Wildlife Institute of India released an informative and visually engaging e-poster. The poster highlights the global theme, emphasizing the urgent need to restore degraded land, build resilience against climate change, and promote sustainable land use practices. Designed to raise awareness among the public, especially youth and stakeholders, the e-poster aligns with the goals of Mission LiFE (Lifestyle for Environment) by encouraging individual and collective action to combat land degradation and ensure a sustainable future.


### b. Online Quiz

As part of the observance of World Day to Combat Desertification and Drought, the EIACP Centre at the Wildlife Institute of India organized an online quiz to raise awareness about the pressing issues of land degradation, sustainable land use, and climate resilience.

Open to participants across the country, the quiz focused on key themes such as desertification, drought mitigation, and the role of individuals under Mission LiFE (Lifestyle for Environment). The initiative aimed to foster environmental consciousness and empower individuals to adopt sustainable practices.

The quiz saw active engagement from a wide audience, enhancing understanding and encouraging proactive environmental stewardship in line with global efforts to protect and restore our land.

# FROM WASTE TO WEALTH: Transforming Fisheries- Based Wastes into Livelihood Opportunities in India

- Dr. Suman Mallick, Ms. Diksha Semwal, Ms. Srushti Milind Meshram, Ms. Heena Nizam & Md. Fardeen

Fishing activities have tremendously increased over time to meet the nutritional needs of the human population. Increased fishing activity has subsequently contributed to the dispersal of waste, which mostly consists of discarded fishing gear (nylon nets, plastic buoys, and floaters). These wastes have proved to be detrimental to the aquatic ecosystems in the form of habitat degradation and to aquatic organisms through ghost fishing, entanglements, and microplastic accumulation. The aquatic ecosystem is enriched with biodiversity, and human dependency on it is converting this pristine ecosystem into a deathbed. Humans have harnessed resources from the aquatic ecosystem in every possible way, right from extracting sand from the riverbed to introducing invasives, and now the biggest challenge being faced is plastic pollution. Harnessing of fishery resources needs to be done in a sustainable manner, preventing overfishing, maintaining ban periods, and most importantly, not leaving behind footprints in the form of abandoned and discarded nets. The fisherman community needs help and awareness on how to sustain their livelihood in the face of this ecological crisis. The solution to this crucial yet demanding issue can be tackled by converting the waste of fisheries into wealth, whereby mitigating the issue of abandoned fishing gear will not only contribute to the conservation of aquatic ecosystems but also strengthen the livelihood of the fisherman folk.

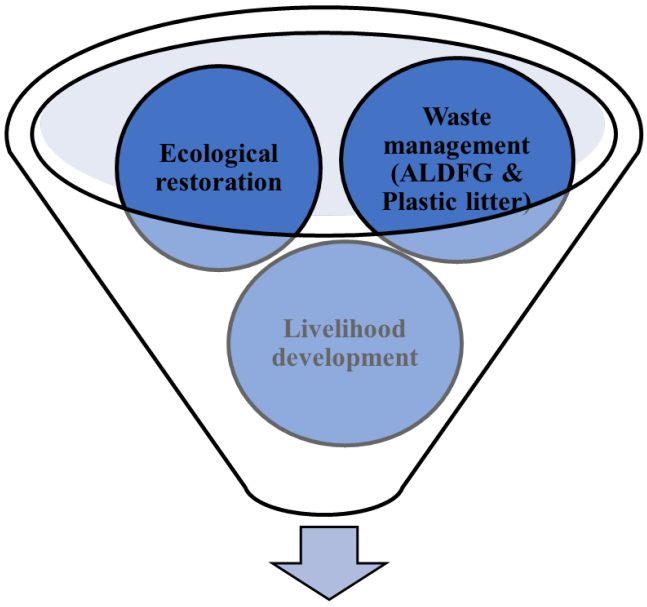
The abandoned fishing gear and plastic litter are a major source of fouling and clogging of the ecosystem services that help recycle the nutrients and keep the ecosystem healthy. The abandoned nylon nets are detrimental to aquatic animals as they are responsible for ghost fishing and entanglements, which in most cases result in the mortality of the entrapped animals. However, the most concerning matter is microplastics as it not only impacts animal health but also human health. The food and water that humans rely on are polluted by microplastics (less than 5 mm). Microplastics are also ingested by animals, resulting in developmental defects. Overall, there is an urgent need for the sustainable management of waste from fishery activities, which can benefit the ecosystem and keep it healthy.

Out of the ten rivers responsible for transporting over 90% of global plastic debris into the oceans, three flow through India — the Indus, Ganga, and Brahmaputra. The Indus ranks second globally in terms of the volume of mismanaged plastic waste it carries to the sea, while the Ganga and Brahmaputra combined rank sixth. This plastic pollution originates not only from urban centres but also from rural communities situated along these river systems. As per 2016 estimates by the Ministry of Environment, Forests (MoEF) and Climate Change (CC), India generates approximately 25,000 tonnes of plastic waste each day, of which only 9,000 tonnes are recycled, while the rest remains uncollected and goes unprocessed. Freshwater ecosystems are the most neglected in the context of waste management, especially the Ganges, where harvesting of fishing resources is at its peak, leaving behind a large chunk of abandoned fishing gear and plastic debris. Nearly 75% of the total fish production of India (162.48 lakh tonnes) is from the inland fisheries sector (121.21 lakh tonnes), of which around 28.76% is produced in the five states along the Ganga River as stated by Fisheries Division reports and yet it is the second most polluting ocean bound waterways according to *Lebreton et al.*, (2017). Municipal and industrial effluents, fisheries (abandoned, lost and discarded fishing gears) and solid waste dumping have been identified as the major sources of pollution in the Ganga River (*Nelms et al.*, 2021).

Ganga is estimated to transport about 0.10—0.17 million tons of plastic to the Bay of Bengal annually (*Lebreton et al., 2017*), but a large portion of this plastic waste, such as flexible packaging and fishing nets, is easily entangled and retained within the river to further degrade to form microplastics.

There are many success stories that have effortlessly contributed towards a cleaner earth by transforming waste into wealth such as transforming waste textile pieces of cloth from river beds into bricks for interior designing, to sugarcane bagasse, a byproduct of sugarcane juice, into eco-friendly plates and bowls. Incentive-based waste management has proved to be beneficial in managing waste. Few countries have transformed their waste into commercial products that contribute to strengthening the livelihood of the fisherman community as well as conserving the integrity of the environment. Few such models, like Net-Works in the Philippines, Tropical Tuna purse seine recycling model in Africa, Life cycle assessment model in Germany, have found efficient and eco-friendly ways of waste management in the context of plastic debris. From time immemorial, plastic waste was either dumped in landfills or incinerated, but with a tremendous increase in demand, these wastes and abandoned fishing gears were channelised to recycling or transforming them into secondary commercial products with the help of the circular economy, as shown through global recycling models. Circular economy or circular business models in managing such wastes from fishing activities focus on resourcing and reprocessing of wastes to maximise ecosystem functioning and human well-being. Such business models are inherently networked and rely on collaboration, communication and coordination across complex systems of independent yet interlinked stakeholders, including recyclers, fisherman folk and small and medium manufacturers. Addressing plastic litter and abandoned fishing gear in aquatic ecosystems, starting from source (rivers) to sink (oceans), requires a combination of policy measures, behavioural changes, infrastructure enhancements and most importantly, entrepreneurial initiatives and technological innovations.

The current project **'Addressing wildlife entanglement in discarded fishing nets through community-based approaches'** funded by Zoological society of London in collaboration with Wildlife Institute of India, Fisheries and Forest Department aims to combat and mitigate the plastic pollution in rivers through transforming, refabricating and repurposing the wastes in the form of abandoned fishing gears and associated plastic debris using circular economy so as to strengthen the livelihood of the fisherman community as well as to maintain harmony with the nature. Such an initiative will be taken up for the first time in India with an approach to connect all the stakeholders, recyclers, small and medium enterprises and the fisherman community under the same umbrella and to create an interactive value-based supply chain model to mitigate the waste from fisheries activity.




**Conservation and well being**

**Credits:**

**Fishing Net Team (WII-ZSL):**
**Dr. Suman Mallick** *(Project Associate-II*, suman@wii.gov.in ), **Ms. Diksha Semwal** (*Project Assistant*, dikshas@wii.gov.in), **Ms. Srushti Milind Meshram** (*Project Assistant*, srushti@wii.gov.in), **Ms. Heena Nizam** (*Project Assistant*, heena@wii.gov.in), **Md. Fardeen** *(Project Assistant- Administration & Management Unit*, fardeen@wii.gov.in )

# Wildlife Institute of India at the Forefront of Scientific Deliberations in the International Zoo and Wildlife Health Conference 2025

- Dr. Jain Karan Bharat

Jabalpur, April 26, 2025— The *International Zoo and Wildlife Health Conference 2025* was successfully held from April 24th to 26th in Jabalpur, Madhya Pradesh, bringing together leading voices in wildlife conservation, veterinary science, and ecological health from across India and abroad. The event was organized by the School of Wildlife Forensic and Health, Nanaji Deshmukh Veterinary Science University, in association with the Madhya Pradesh Forest Department, and the Wildlife Institute of India (WII) as a key technical partner.

The conference, themed *"Balancing Human Needs and Wildlife Conservation through Integrated Health Management,"* addressed urgent global issues such as emerging wildlife diseases, climate-induced stressors, conservation translocation, and the growing interface between human and wildlife health. This joint event also marked the *15th Annual Convention of the Association of Indian Zoo and Wildlife Veterinarians (AIZWV)*, reaffirming the pivotal role of veterinarians in wildlife health, species recovery, conservation translocations, and One Health initiatives that bridge the gap between animal, human, and ecosystem health.

The Wildlife Institute of India contributed to the conference through active participation and technical inputs in selected sessions. Faculty and researchers from WII presented collaborative research and posters, reflecting the Institute's ongoing engagement in wildlife health and conservation science. Research abstracts submitted from WII focused on critical topics such as Gaur supplementation in Bandhavgarh, evaluation of marking techniques, and the integration of genetic diversity in wildlife management, reflecting the institute's pioneering work at the interface of science and field conservation. In addition to the scientific leadership, WII was well-represented by its young researchers and students, who actively participated in oral and poster sessions. The engagement of students, fellows, and scientists from WII contributed significantly to the academic vibrancy and intellectual exchange throughout the conference.

With over 200 delegates, including veterinarians, forest officials, researchers, faculty members, and conservation practitioners, the conference emerged as a landmark event in India's wildlife health calendar. The presence of WII not only reinforced its role as a national leader in wildlife science and training but also highlighted the importance of integrating genetics, health surveillance, and conservation action in future biodiversity strategies.

The conference concluded with a collective call to strengthen scientific networks, enhance capacity building, and adopt interdisciplinary approaches for safeguarding India's wildlife amidst growing ecological and developmental challenges.

Dr. Sonika B. L., Junior Veterinary Consultant, WII's Great Indian Bustard Project, presented a paper on *"Ticks and Tick-Borne Pathogens in Two Populations of Managed Cervids in the Scottish Highlands: A Pilot Study"* under the One Health theme, which earned her the Best Oral Presentation Award. Her work explored the prevalence of zoonotic pathogens like *Babesia*, *Anaplasma*, and *Borrelia* in deer populations and their associated ticks, highlighting both animal and public health implications.



**Author:**
**Dr Jain Karan Bharat** *is a veterinary professional by training. He has recently been appointed as Scientist C in the Department of Wildlife Health Management, Wildlife Institute of India.*


# EFFORTS TO R
# THE LESSER FL

## 2017-18

Pan-India population survey estimated 800 birds across breeding range, highlighting a sharp population decline

## 2019

Tagging of 1st florican 'Sufi' marked the start of understanding this enigmatic bird

## 2020

Establishment conservation bree center at Bijaina

Artificial hatching wild collected eg

Van Mahotsav
Jaipur, 2025

**Project Great Indian**
Funded by National

RECOVER
LORICAN

of
eding
gar.

of **two**
ggs

## 2021-24

Captive stock of 12 birds
(6 male + 6 female)

Tagging of 12 wild birds
(9 male + 3 female)

## 2024

Centre & birds shifted to
permanent facility in Arwar

Semen collection &
cryopreservation started

**Bustard**
CAMPA

BUSTARD RECOVERY PROGRAM

Government of Rajasthan
FOREST DEPARTMENT

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Credits: Rajasthan Forest Department and WII - Bustard Recovery Program

# Demystifying the Enigma of Lesser Florican

-Mohib Uddin, Hemlata Joshi, & Sutirtha Dutta

Lesser Florican chicks are being reared at the conservation breeding facility at Ajmer, Rajasthan.

Lesser Florican (*Sypheotides indicus*), the smallest and most elusive among the four bustards found in India, is running out of time. The species is Critically Endangered (IUCN) with only ~800 individuals left in the wild, as estimated by the rangewide survey in 2017-18 (Dutta et al. 2018). It breeds in semi-arid regions of India that receive moderate rainfall (400-600 mm) and is a grassland specialist. Once distributed across the Indian Subcontinent, its breeding population is now restricted to two main strongholds: Velavadar in Gujarat and Ajmer in Rajasthan, with a few individuals scattered across other parts of its historical range in Madhya Pradesh, Maharashtra, Telangana and Andhra Pradesh. The bird breeds in the central and north-western part of the country during monsoon in June-July and migrates to non-breeding grounds spread over large areas of the Deccan Plateau (Maharashtra, Karnataka and Andhra Pradesh) during November-May. Due to the continuing loss of grasslands, these birds are now seen in farmlands near their historical breeding sites. Although the breeding behaviour of the species has been studied in the past, their non-breeding movements and general ecology remain largely unknown.

The Wildlife Institute of India, in close collaboration with the Rajasthan Forest Department and the Ministry of Environment, Forest and Climate Change, has been implementing a research and conservation program for the Lesser Florican since 2019 under the Bustard Recovery Project funded by the National CAMPA. The project follows a two-way approach: a) conservation breeding for insurance against extinction and releasing captive-bred individuals in the wild, and b) field ecological research with the help of telemetry to aid in habitat management through the State Forest Department and local communities. Regular monitoring of breeding and non-breeding populations under this Project has helped in improving our understanding of the species' demography, non-breeding areas, and current threats.

**Conservation breeding:**

The conservation breeding program for the Lesser Florican is in its initial phase. The husbandry approach is being fine-tuned by modifying the rearing approaches for Great Indian Bustard and Houbara Bustard, in technical collaboration with the International Fund for Houbara Conservation (IFHC). The program has achieved initial success by hatching all eggs collected from the wild, and currently houses 12 individuals. These captive-reared birds are yet to reach their sexual maturity, after which, attempts of breeding through both natural as well as artificial techniques will be initiated. Floricans gain their adult body weight within the first 2-3 months and then become territorial therefore, are housed in individual cages. These birds are shy, do not get habituated/accustomed to human presence easily, and are only comfortable with specific keepers (foster mothers). As the species is being reared and closely observed for the first time, attempts are underway to decode its behaviour and develop a husbandry approach in light of the biological nuances of this enigmatic bird.

Lesser Florican chicks are being reared at the conservation breeding facility at Ajmer, Rajasthan.

The Project has crossed a few critical milestones in this challenging endeavour, nonetheless. The first of them was to search nests of this rare bird in the vast agro-pastoral landscapes of Rajasthan - a task akin to searching for a needle in a haystack. Male floricans are not hard to find during the breeding season due to their unique courtship display, but females are extremely difficult to spot, especially when nesting inside thick ground vegetation. It was crucial to find nests to understand the species' reproductive biology and to commence conservation breeding. Initially, the field team gleaned through available literature to find observations on nesting behaviour and found that the majority of nests were reported far from male territories, except for a few observations. In the initial two years, the team intensively combed through all areas covering up to 20 km in a day, and still, could not find many nests. By 2022, after months of intensive nest search on field and tracking female movements, the team realized that it is the other way round - females nest within the lek, close to male territories!

**Telemetry: A useful tool for conservation**

Lesser floricans are known to migrate to southern India based on a few historical sightings. However, there was no evidence of their non-breeding movements and habitat use prior to this Project. Our team started tagging these birds in 2019 with the aim of understanding their migration, non-breeding habitat use, and threats. At the start, it was challenging to find a suitable transmitter which would weigh <2% of the bird's body mass, have a solar charging battery for longer life, and transmit accurate locations from remote areas using cellular networks. We opted for Milsar and Ornitela transmitters ~ 10-12 g in weight and were ideal for this 450-500 g bird. However, because of scant exposure to sunlight, the battery and lifespan of these transmitters do not extend beyond 12 months. Still, these transmitters have yielded information that changed our understanding of this species.

Over the last six years (2019-24), the team tagged 12 Lesser Floricans in the Shokaliya landscape of Ajmer - nine males and three females. Telemetry showed us that male floricans left their breeding territories - the agricultural fields of Ajmer - for wintering grounds around mid-October, which coincides with the harvesting of monsoon crops and the onset of winter season. While migrating, they flew only at night and the maximum displacement for a bird in 24 hours was up to 400 km! The return migration of the tagged male floricans began in May, reaching the breeding grounds in Rajasthan by June. On the other hand, females were tracked to be actively moving within their non-breeding range visiting various parts of south, central and northern India. We could conclude that the majority of the population spends their winter and summer in the southern part of the country, where their site selection depends on resource (insect) availability. The finer details of their

migration strategies are yet to be revealed as we try to tag more individuals and monitor them for longer periods.

**Agriculture: an alternate habitat or an ecological trap?**

Until recently, it was believed that whilst the Great Indian Bustard (Ardeotis nigriceps) has disappeared from many grasslands in the wake of intensive agriculture, the more adaptable Lesser Florican has adjusted to life in farmlands. However, our recent understanding of the species indicates otherwise. Our rangewide survey in 2017-18 estimated ~110 male territories in the Ajmer landscape, whereas the minimum count of male territories was 25 in 2022 and only 12 in 2024, indicating a sharp decline in the number of breeding birds. Monitoring of Lesser Florican nests over the last five breeding seasons (2020-24) showed that <25% of eggs survive in the wild, while the rest are lost to predation or trampling. Their survival and recruitment in farmlands are highly compromised at present, as agricultural machinery is trampling florican nests, chicks, and even breeding females. We have found six dead birds in the last few years that were run over by agricultural machinery as they lay camouflaged in ground vegetation around their nests. Young chicks fall victim to machinery within their first two months when they are unable to fly long distances. Matters are exacerbated as the crop harvesting season coincides with the end of the breeding season for this bird. Thus, while hunting was the major threat historically, it appears that widespread loss of their traditional habitat - grasslands - and their consequent life in farmlands has become an ecological trap for the species.

Can this conservation crisis be resolved in consonance with local livelihoods, or will the enigmatic Lesser Florican lose the race to the imperative of food production? A lot remains unknown, much like the species.

**Authors:**

**Mohib Uddin** *is an ecologist interested in conservation of the critically endangered Great Indian Bustard and Lesser Florican. He completed his post-graduate in wildlife sciences and has been associated with Wildlife Institute of India since 2016. He is currently a Principal Project Associate in the Project Great Indian Bustard. He is also a PhD scholar at AcSIR-WII, and is working on seasonal habitat use and migration of Lesser Florican for his thesis.*
**Email Id:** mohib@wii.gov.in

**Hemlata Joshi** *is a wildlife biologist interested in conservation science, captive breeding and community outreach. She is a Senior Project Associate in the Project Great Indian Bustard. She looks after bird management and husbandry activities in the Lesser Florican Conservation Breeding Center at Arwar.*
**Email Id:** hemlatajoshi2409@gmail.com

**Sutirtha Dutta** *is an applied ecologist, interested in population ecology, behavior and their conservation applications in multiple-use landscapes. For his PhD (Wildlife Sciences), he extensively studied bustards and associated fauna in Indian grasslands and deserts. He leads the Project Great Indian Bustard, a national initiative to recover India's Critically Endangered bustards through conservation breeding and science-based habitat management.*
**Email Id:** sutirtha@wii.gov.in

The nest search team combed agriculture fields in search of Lesser Florican nests

# BRIDGING THE GAP: Training Vets for Wildlife Emergencies Near Human Habitations

-Dr. Tapendra Saini

As human settlements and infrastructure continue to expand, the interface between humans and wildlife is increasing, leading to a rise in wildlife emergencies. Human - dominated landscapes present unique challenges for wildlife management, often resulting in conflicts between human interests and wildlife conservation. Effective management of wildlife emergencies in such areas requires a multi- faceted approach that balances human safety with wildlife welfare. To address this field-based need, sensitizing field veterinarians to various intervention possibilities for emergency management is essential. Recognizing this need, an orientation workshop on "Managing Wildlife Emergencies in Human-Dominated Landscapes" was organized in Pilibhit, Uttar Pradesh, for Veterinary Officers from Uttar Pradesh and Uttarakhand on 19th—20th May, 2025. The workshop was conducted by the Pilibhit Forest Division, Uttar Pradesh Forest Department, and WWF-India with the Wildlife Institute of India (WII) as technical partners.

The program was aimed at providing a comprehensive platform for stakeholders to address the pressing issue of human-wildlife conflict in such landscapes through veterinary interventions. A total of 29 field Veterinary Officers attended the workshop from the districts of Pilibhit, Lakhimpur, Balrampur, Prayagraj, Rampur, Bahraich, Maharajganj, Shahjahanpur, Bijnor, Chitrakoot, and Sitapur in Uttar Pradesh, and Haldwani and Nainital in Uttarakhand.

Participants were exposed to various aspects of wildlife emergency management, including response protocols, community engagement, and policy frameworks. The workshop featured best practices and case studies from different regions, offering valuable lessons for policymakers, wildlife managers, and conservationists working in human-dominated landscapes. Hands-on sessions were conducted on dart preparation and the operation of syringe projectors. An interactive session was also organized, where participants were presented with real field scenarios and asked to develop and present their intervention plans.

Inputs were provided by Dr. Parag Nigam, Scientist G & Head, Dept. of Wildlife Health Management, WII; Dr. A.B. Shrivastav, Former Director, CWFH; Dr. Tapendra Saini, Scientist C, Dept. of Wildlife Health Management, WII; Dr. Anil Kr. Singh, Team Leader, TAL, WWF; Dr. Mudit Gupta, Head, Eastern TAL; Mr. Ashish Bista, Coordinator Species; Mr. Dabeer Hasan, SPO;, Dr. Daksh Gangwar, Veterinary Officer, Pilibhit Tiger Reserve & Dr. Daya Shankar, Veterinary Officer, Dudhwa Tiger Reserve.

The Workshop brought together wildlife experts, veterinarians, and stakeholders to facilitate the exchange of experiences, insights, and best practices in addressing human-wildlife conflict scenarios. Through interactive sessions and case studies, participants actively examined a variety of effective management strategies, including community-based conservation efforts, wildlife-friendly land-use planning, and conflict mitigation mechanisms. The workshop played a crucial role in equipping veterinary officers with practical knowledge and collaborative approaches essential for managing wildlife emergencies. It also highlighted the importance of coordinated action among veterinary professionals, local communities, wildlife experts, and government agencies in developing and implementing sustainable management plans for coexistence.

**Author:**
**Dr. Tapendra Saini,** *Veterinarian by training recently joined as Scientist C in Department of Wildlife Health Management*

# Understanding Grasslands in Wetlands: A Case Study of Haiderpur Wetland

- Revan Yogesh Chaudhari

Short grassland patches in Haiderpur wetland.

At first glance, the idea of grasslands existing within wetlands might seem contradictory—after all, they are often considered as entirely distinct ecosystems. That's why the title might appear a bit confusing. However, I will do my best to demonstrate how these two habitats can and do coexist in a dynamic and interconnected way. Just a few months ago, I too was new to understand these complex relationships, which inspired me to explore and choose this topic. In India, grasslands have long been misunderstood and often labelled as 'wastelands' with low productivity—assumed to be degraded remnants of once-forested land. The arid and semi-arid grasslands of our country were previously classified as scrub forests in older literature, but now they are referred as the Indian savannas. Similarly, wetlands were traditionally viewed as mere waterlogged areas with little ecological or economic value.

There have been multiple attempts to define wetlands by individuals, groups of people, wetland societies, etc., considering variables like water availability, flow, depth, geographical location, salinity, vegetation, etc. Also, grasslands are broadly defined as lands dominated by gramineous flora. These grasslands, or graminoid-dominated landscapes, greatly vary in different landscapes. Although water is a limiting factor for most of the grasslands, here I will be talking about an exception. Indian grasslands are classified into 11 types, of which only two fall under the hygrophilous category, i.e., wet-alluvial grasslands of Gangetic plains and Phumdis of Manipur.

Haiderpur Wetland is a man-made wetland created accidentally during the construction of the Madhya Ganga Barrage in 1984. This waterlogged condition gradually began to support the regeneration of its original vegetation, i.e., typical tall wet grasslands like *Phragmites*, *Saccharum* and *Imperata*, along with other wetland vegetations. Situated at the transition of the Terai and upper Gangetic plains, we found glimpses of vegetation from both regions. This wetland is among the last patches of pure grasslands in the

entire Gangetic plains and one of the refuges for Barasingha, the swamp deer, in North India.

When I started my fieldwork here, I was initially mesmerised to see pure grass strands spreading across acres, with gregarious growth and uniform distribution. I observed this during a reconnaissance survey, which also raised multiple questions in my mind. While going through the available literature, I learnt that the low-lying areas of the wetland are referred to as 'Khadar' and the uplands as 'Kholas'. Khadar areas are the preferred habitat of tall wet grasslands due to the availability of water throughout the year, or at least most of the time.

After a few more visits and literature surveys, I became somewhat accustomed to such habitats. However, during each field visit, I noticed certain changes in the landscape due to changing seasons, fluctuating water levels, and different stages of plant growth. As a wetland, these grasses benefit from their seasonal growth becoming perennial, remaining visible year-round while adapting dynamically to their specific habitats. Let me explain this briefly. In Haiderpur, there are permanent grassland patches of *Phragmites*, *Saccharum-Vetiver-Phragmites*, and pure *Typha*, which grow along the periphery and within parts of the wetland, whereas short grasslands, mainly composed of *Eleocharis*, *Bolboschoenus*, *Cyperus*, *Carex, Cynodon* species, etc., emerge gradually as the water level recedes.

Based on my observations, areas dominated by short grasses in the wetland undergo early and frequent successional changes, primarily influenced by water availability. When the barrage gates are opened to release water, it results in shallow water levels across much of the wetland. These conditions favour the rapid regrowth of short grasses, which capitalize on the opportunity by using underground stem modifications such as rhizomes to quickly reclaim the landscape. This rapid regrowth benefits herbivores like the Barasingha, which depend on the availability of fresh forage.

Simultaneously, tall grass species such as *Phragmites karka* also thrive under these favourable hydrological conditions. This species exhibits two distinct growth forms depending on water availability. In wetter zones, it spreads aggressively through stolons, which can extend several meters—one stolon I recorded measured up to 16 feet, with over 26 nodes, though they can be way longer. This results in a gregarious and uniform tiller growth pattern. In contrast, when growing away from water, *Phragmites* tends to form discrete clumps as the stolons become well established—a growth habit not commonly observed with such dominance in other tall grass species of the area. Over time, this dense, gregarious growth overtakes the shorter grasses, leading to increased habitat stability. This cyclic process of grass succession continues year-round.

Tall grassland patches in Haiderpur wetland showing gregarious and uniform growth

While habitat changes caused by floods and sand deposition have little long-term impact on hygrophilous grasslands, temporal factors have a greater impact. Due to the river system's dynamic nature and significant changes in flow patterns, it will take a long time for these grasslands to completely recover.

In Haiderpur, the established grasslands face extensive overexploitation. Despite being a Ramsar site and part of a wildlife sanctuary, the anthropogenic pressure here is significantly higher compared to other protected areas. It is clear that a well-established dairy sector operates surrounding the wetland since I have seen herds of more than 200 buffaloes grazing on many occasions. These herds are dispersed over the region, effortlessly navigating through marshy conditions and sharing resources with Barasingha. Grass harvesting for various purposes is also intense. Disturbed patches take considerable time to regenerate, often resulting in the dominance of *Cynodon*, which forms dense, mat-like growth. In addition to the Poaceae family, the Cyperaceae and Typhaceae families are also prominent contributors to the vegetation.

Although much of India's grasslands (savannas) are considered to be of secondary origin, I believe certain pockets in the Gangetic plains still represent original hygrophilous grasslands, particularly in areas unaffected by exotic grasses such as *Panicum acuminatum*, *Urochloa mutica*, and *Pennisetum purpureum*. Haiderpur is one such example—a unique combination of hygrophilous and mesophilous grasses that needs urgent attention. Once gone, this last gem may be lost forever.

**Author:**
**Revan Yogesh Chaudhari**, *Project Associate I, NMCG-WII, works on the aquatic flora of the Ganga and its tributaries and is currently studying the last grassland remains of the Indo-Gangetic plains.*
**Email Id:** revanchaudhari2220@gmailcom, revan@wii.gov.in

**Photo credit:** Revan Chaudhari

Stolon formation in *Phragmites karka* during favorable conditions

Herd of buffaloes grazing on short grasses in Haiderpur wetland

The author Stolon of *Phragmites karka*, about 16 ft tall
**Photo credit:** Nishika Yadav, M.Sc. Freshwater Ecology and Conservation, WII

# An Overlooked Oak of Kumaon

- Shikhar Kaushik

The Indian Himalayan Region (IHR) is home to around 2,199 tree species, which occupy different habitats based on their ecological preferences. Some species like *Quercus glauca*, *Toona serrata*, *Taxus contorta* and *Pyrus pashia* tend to grow sporadically and/or as associates to another species. In contrast, species like *Quercus leucotrichophora*, *Quercus floribunda*, *Quercus semecarpifolia*, *Quercus baloot*, *Cedrus deodara*, *Pinus roxburghii* and many more form gregarious forest patches that span vast areas. These patterns of occurrence, whether sporadic or gregarious, define the vegetation or forest type and thus characterise habitats. Multiple factors can drive these patterns, like seed production, seed dispersion, seed predation, affinity to associates or co-occurring species, allelopathy, climate, microclimatic variations, species-specific habitat preferences and many more. In the mid-elevations of the Western Himalayas, forests are largely dominated by Upper Himalayan *P.roxburgii* or commonly known as Chir Pine, *Q.floribunda* or Moru Oak, *Q.leucotrichophora* or Banj Oak, and *C.deodara* (Moist Deodar). However, there is another oak species, though lesser known, that plays an important role in this landscape as a climax species. Occurring both sporadically and gregariously till its westernmost natural limit in the Kumaon Himalaya is the *Quercus lanata*, commonly known as the Woolly-leaved Oak.

Locally called **Rianj** or **Latwa Banj**, *Q.lanata* is an evergreen oak species native to the Himalayas. It is distributed from the Western Himalaya to the Indo-Burma region. While it forms pure gregarious patches in the Central Himalaya, its occurrence in Kumaon is scattered and localized, with only a few locations where it forms pure stands. It is typically found at an elevation of 1200 to 2400 m and prefers to occupy the sunny south-facing slopes of the Himalaya.

A defining characteristic of *Q.lanata* is its adaptation to xeric conditions. In the wild, the leaves of Rianj resemble those of Banj but are broader, dark green, and completely covered with woolly (hairy) outgrowths on the underside—hence, the species name *Lanata*. From a distance, these hairs reflect sunlight, giving the foliage a distinctive golden-yellow tint. Mature trees form clean boles with dense branching. The bark of the tree is pale grey to ashy brown and marked with many small lenticels. As the tree ages, its outer bark detaches in woody plates or scales. Rianj forms large individuals with a girth reaching up to 4.3 m in diameter (as measured in the field). The tree develops a massive root system, which ensures it is wind-firm, making it well suited to establish on steep slopes as well. Rianj, being a climax species, shows a gradient of co-occurrence ranging from high moisture slopes where it grows alongside *Q.floribunda* and *Q. leucotrichophora*, to drier slopes where it is found with *P.roxburghii* and *Lyonia ovalifolia*. While the pattern of occurrence from wetter to drier microhabitats suggests that this oak species has a broad niche to occupy, it does not create extensive forest patches like its sister species, Banj, Moru, and Kharsu Oak.

Acorns of Woolly-leaved Oak

Like other Oaks, Rianj produces young shoots in March to April and remains covered in a dense, hairy sheath. The tree flowers simultaneously as young shoots emerge, and pollination takes place during May. Flowers are wind-pollinated and young acorns start developing by September, and ripe by December-January. Fallen acorns are a food source for birds, bears, and other mammals. Acorns lie dormant on forest floors during summers and germinate in the monsoon. Rianj is also an important fodder and fuelwood species and is greatly preferred over Banj. According to local communities, cattle feeding on Rianj leaves produce thicker milk compared to those fed with Banj leaves. This perception promotes high lopping of the species which leaves canopy gaps and creates an imbalance by developing favourable conditions for invasive species to colonise the forest floor.

While the ecological and economic roles of Rianj in the Himalaya remain understudied, its distribution and phenological events have also not been documented precisely. Though the species is continuous throughout the Himalaya, its level of protection varies across geopolitical boundaries. Currently classified as "Least Concern" by the IUCN, all existing patches of Rianj are currently categorized under either Banj Oak forests or Moru Oak forests in India. This small caveat resonates with a larger problem—the identity of Q.lanata itself. A revision of existing forest classifications could be a logical approach, where a distinct Rianj Oak Forest ($12/C_{1g}$) may be proposed under the *Lower Western Himalayan Temperate* group for effective management and conservation of *Q.lanata* in the Kumaon Himalaya.

**Author:**
**Shikhar Kaushik** *is a 19th M.Sc. Wildlife Science student at WII. He is interested in Himalayan Forest ecology, phenology of trees and their distribution and plant-animal interactions.*

**Photo credits:** Shikhar Kaushik

The clean straight bole of Woolly-leaved Oak with scaly bark

A large individual of Woolly-leaved Oak/ Rianj (*Quercus lanata*)

# THE GREEN DIARY: A Field Chapter in Herbarium Research

-Sneha Kumari, Dr. Ayan Kumar Naskaar & Dr. Amit Kumar

## A Field Trip to Dhumakot

As a herbarium team, we conduct regular field trips to various protected areas across the country. Each journey brings new experiences, both joyful and challenging. Recently, we embarked on a memorable field tour to Diba Danda (29°46´52.04´´N, 79°05´17.53´´E), a beautiful landscape nestled in Pauri Garhwal, Uttarakhand, along with a dreamy stay at the Forest Rest House in Dhumakot, covering the Shivalik-Sal Forest to Sub-tropical Himalayan Pine forests and broad-leaved temperate Oak Forests. The objective of the field tour was to explore and collect plant specimens for the herbarium, but the experience turned out to be much more than just a scientific exploration.

On the early morning of 26th April, the herbarium team set out for Dhumakot (Pauri Garhwal) from Dehradun, via Haridwar, Najibabad, Kotdwar, and Dugadda. Along the way, our eyes remained constantly focused on the surrounding vegetation as we intended to collect numerous plant specimens. Whenever we came across something distinctive, rare, or in full bloom, we stopped our vehicle to gather samples and examine their floral qualities. Near Chidiyapur on the Haridwar-Najibabad Road, we were welcomed by a flowering shower of *Crateva adansonii* (with its bright yellow flowers before leafing) and *Alangium salviifolium*, in full bloom, bearing white fragrant flowers.

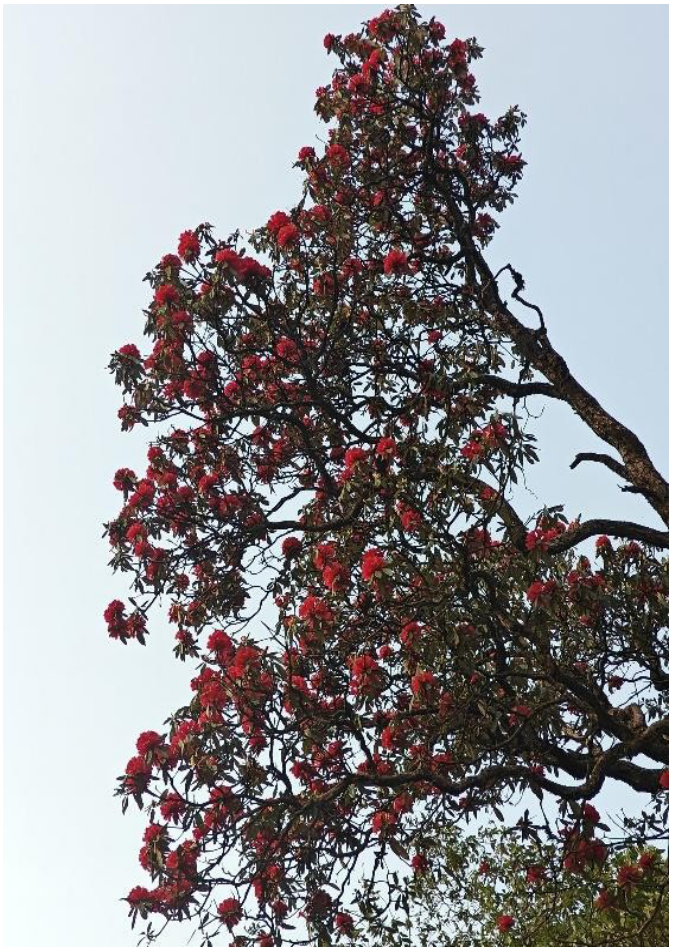
On the way to Kotdwar and Madanala, it was mesmerising to encounter two deciduous species, viz., *Capparis zeylanica* and *Falconeria insignis*, along with *Ailanthus excelsa*, a species used in traditional Rajasthani puppetry and matchstick production. Later, as we moved from Dugadda towards Kalagarh Tiger Reserve, the sighting of a rare palm, *Wallichia oblongifolia* (Syn. *Wallichia densiflora*), added excitement to our tour. Further along, as we gained elevation, crossing the lush green Sal Forests into the Pine zone nearing Dhumakot, *Engelhardia spicata*, *Berberis* spp., and *Grevillea robusta* stood out with their rich blooms.

Collecting *Crateva adansonii* en route to Kotdwar
**Photo credit:** Amit Kumar

The Dhumakot Forest Rest House was surrounded by *Pinus roxburghii*, *Quercus leucotrichophora*, and *Rhododendron arboreum* (flowers observed in a few individuals at the end of April). We also documented species such as *Ficus triloba* (Syn. *Ficus roxburghii*), *Juglans regia*, and *Rumex hastatus* (a sour-tasting herb with hastate leaves). The same evening, we headed towards the Dibadanda temple trek (elevation 2436 m), accompanied by a forest guard. Along the trail, we collected specimens of Oak and many other plant species. The Dibadanda temple trek was rich in diversity, with some notable species in

cluding *Quercus leucotrichophora*, *Salvia cana* (Syn. *Salvia lanata*), *Gerbera jamesonii*, *Cirsium wallichii*, and *Hypericum hookerianum* (Syn. *Hypericum oblongum*), identified by its bright yellow flowers and oblong leaves.

On 27th April 2025, we returned to Dehradun via Bharsar, Kirtinagar, and Devprayag. On the way to Pauri, we observed *Rosa moschata*, vibrant *Berberis lycium* laden with yellow flowers, and *Digitalis purpurea*, with both purple and white flowering individuals. As we attained height, we observed *Alnus nepalensis* and a rare low-elevation *Quercus semecarpifolia* standing tall (this keystone oak species dominates sub-alpine forests and fosters shade-loving flora). Further observations included *Quercus floribunda*, *Fernandoa adenophylla* (Syn. *Haplophragma adenophyllum*), *Cornus capitata* (locally called *Bhamora*, one of the favourite fruits of bears), *Erythrina abyssinica* (Syn. *Erythrina suberosa*) with red flowers, and *Ficus palmata* (Beru). The varied shades of *Abies pindrow*, having light green young needles against dark older ones, created a striking view. The two-day trip not only deepened our familiarity with Himalayan flora across elevation gradients but also strengthened our bond with the landscape. A memorable highlight was tasting native Himalayan fruits, namely *Myrica esculenta* (Kafal) and *Rubus ellipticus* (Hisalu), their tangy bursts of flavour adding joy to our trek. Unfortunately, a small spine pricked the index finger of the first author while picking Hisalu, a sharp reminder of the grit behind every collection.



*Rhododendron arboreum*
**Photo credit:** Amit Kumar

*Rubus ellipticus*
**Photo credit:** Amit Kumar

*Digitalis purpurea*
**Photo credit:** Shikhar Kaushik

### When Curiosity Meets Caution: A Chemical Burn Incident

On our return to headquarters on 29th April, we began our routine process of poisoning and pressing the collected plant specimens. This step, essential for preserving them from fungal or insect damage, involves treating the specimens with a solution of mercuric chloride and alcohol, a highly toxic and corrosive substance which is harmful to humans.

The task of poisoning and pressing the plant specimens was assigned to the first author. While carefully handling the *Berberis lycium* specimen (Image 6.), one of its pointy thorns pierced through the glove. At that very moment, the toxic chemical solution seeped into the glove and came into contact with her skin. At first, she felt itchiness in her right index finger, although she immediately rinsed her hand under tap water, which offered temporary relief, the pain intensified over the next few hours. Her finger went numb, the skin turned bluish, her right hand stiffened, and it began to swell noticeably. Concerned, she immediately consulted a dermatologist without delay, who diagnosed it as a chemical burn.

On 7th May, a minor operation was performed to remove the infected tissue. After a month of consistent care, the index finger had recovered. The blisters healed, the skin regenerated, and the sensation gradually returned. This incident, though painful, taught many valuable lessons about cautions from the field to laboratory safety measures. Most importantly, it served as a reminder for plant collectors in the field or in general that one should be cautious while handling specimens, must follow safety protocols during fieldwork as well as lab procedures and have prior knowledge of the chemicals which they are dealing with. Such experiences allow us to delve into the rich biodiversity of the Himalayan flora, and the chance to observe and identify native plant species in their natural habitat certainly enhances botanical knowledge and field research skills. What begins as an exciting journey of botanical exploration can, at times, turn into an unexpected medical emergency. This was truly a “Journey of Discovery to Recovery”, a chapter we will never forget in our careers as botanists. The mentorship we received not only enriched our understanding of Himalayan flora but also instilled in us a profound appreciation for the intricacies of field research.

Treating the plant specimen with solution of mercuric chloride and alcohol
**Photo credit:** Sneha Kumari

*Berberis lycium*, a member of the barberry family
**Photo credit:** Sneha Kumari

**Acknowledgements:** Sneha Kumari would like to express her sincere gratitude to Satyam, Shikhar and Piyush for helping care for her injury.

**Authors:**
**Ms. Sneha Kumari** *has worked as a Research Intern at the WII Herbarium. She has done a postgraduate in Botany with a keen interest in plant taxonomy, ecology, and conservation. She actively participates in field expeditions, specimen collection, and Himalayan flora documentation.*
**Email:** snehakashyap328@gmail.com

**Dr. Ayan Kumar Naskar** *is a botanist with a keen interest in understanding the taxonomy of angiosperms, especially Apocynaceae and orchids. He is currently working as a botanist cum database manager at the Wildlife Institute of India Herbarium.*
**Email:** ayankumar@wii.gov.in

**Dr. Amit Kumar**, *Scientist-D, is a faculty member at the Wildlife Institute of India, Dehradun. Plant ecology and field botany are the main focuses of his research. His current research includes understanding vegetation patterns, plant associations, floristic diversity assessment, ethnobotany, and the conservation of threatened medicinal plants in the Western Himalaya. He enjoys photographing plants, hiking, biking and playing table tennis.*
**Email:** amit@wii.gov.in

*Myrica esculenta*
**Photo credit:** Shikhar Kaushik

# GUARDIANS OF THE WILD: A Day with Elephants in Bhadra Tiger Reserve

- Monal Rajendra Jadhav

Rise and shine! My teammate's energetic wake-up call became our daily ritual during those unforgettable field days. No matter how exhausting the work was, battling rainy weather or dodging leeches, our spirits remained high. We were determined to make the most of our limited time in the Lakkavalli range of the Bhadra Tiger Reserve. Our mission was to place camera traps, but we also had our eyes set on exploring the Muthodi and Kemmangundi ranges. Every morning, we rose at 6 am, filled with anticipation for the new opportunities that awaited us in the forest. Each day felt like a fresh chance to learn, see, and experience the wild—all while facing the challenges that came with it. To reach the reserve's core forest, we would drive 5-7 km through the buffer and peripheral areas. As we entered, the lush greenery enveloped us, filling us with a sense of motivation to tackle the day's adventures. Delving deeper into the forest, the signs of the morning rain were evident in the fallen trees and vibrant foliage surrounding us. It wasn't long before we stumbled upon fresh dung, a clear indication of recent elephant activity. Intrigued, we decided to follow the trail. Along a footpath connecting a large lake to the safari trail, we caught sight of an elephant traversing through the trees and shrubs on the opposite side. We quickly settled into our jeep, hearts racing with excitement, as we watched this majestic creature making its way to the lake. In that moment, we barely breathed, clinging to our cameras, ready to capture the beauty unfolding before us. It was a breathtaking experience that reminded us of the wonders of the wilderness and the thrill of wildlife observation.

It was my first-ever direct sighting of this magnificent herbivore—in the wild, no less. Until that moment, my experiences with elephants had been limited to television and visits to the zoo. Witnessing such a colossal creature in its natural habitat was incredibly special, leaving me utterly mesmerized, as if the jungle itself were whispering secrets into my soul. But the surprises were just beginning.

Elephant peeping out from trees and shrubs

At first, we thought we were just watching a solitary elephant, but soon, two more emerged from the thicket, pausing to take notice of us. Time felt like it had stopped as we watched them, holding our breath. The elephants continued on their path to the lake, pausing for what felt like a long time as they took in their surroundings. Another adult elephant appeared, followed by two playful calves, and another adult bringing up the rear. It was a beautiful display of the herd dynamic, showcasing how elephants instinctively protect their young. As they gracefully made their way into the lake, the herd grew to a total of five. For the next fifteen delightful minutes, we watched as they bathed and frolicked, their joyful interactions a stunning reminder of the

intricate social bonds that exist in the wild. It was heartwarming to witness these magnificent creatures at play—splashing around, showering each other with their trunks, and simply enjoying a moment of peace. It felt truly magical and unforgettable to witness such natural harmony in the wild.

As I watched them bathe, I was reminded of the *Gajendra Moksha Stotram*, where an elephant, joyfully playing in the water, is suddenly attacked by a crocodile. In that moment of struggle, Lord Vishnu appears to rescue the elephant and grants salvation to both the elephant and the crocodile. Watching this scene unfold before my eyes made that ancient tale come alive, deepening the spiritual and emotional connection.

After bathing and enjoying themselves, the elephants decided to move towards the back of the dark forest area. They advanced swiftly, forming a protective line with the adult elephants surrounding the calves, demonstrating their remarkable care and love. The oldest female elephant played a crucial role in guiding and uniting the herd. This experience was truly unforgettable and left a lasting impact on us. We were amazed by the protective behaviour displayed, and the social structure within the herd was fascinating to witness. The experience left a lasting impression, energizing and making our last day in the range truly unforgettable. After this extraordinary encounter, we continued with our fieldwork, carrying the memory of the majestic creatures and their display of motherhood with us.

Female elephant protecting other members of the herd

**Author:**
**Monal Rajendra Jadhav** *is currently working as a Project Assistant in NMCG-WII. This article draws from his field experience during field work in Bhadra Tiger Reserve under Project Tiger, where he was involved in camera trapping and dung collection of Elephants for population estimation.*
**Email Id:** monaljadhav2017@gmail.com

Matriarch female guiding the herd from the back

# FLORA & FOOTSTEPS

- Satyam Kumari, Sneha Kumari

It was just past sunrise on the 17th of May 2025 when we set off from the WII campus, backpacks loaded with notebooks, a field diary, some blotting sheets, a herbarium press and more importantly, food to share. This wasn't our typical research expedition; it was a trek, a scientific exploration, a spontaneous adventure, and a picnic with a purpose. We were heading uphill from the historic Old Mussoorie Road to the ever-charming Mussoorie, passing through Bhandar Gaon, above Shikhar Fall, past Kipling Trail Cottage and Mossy Fall, a trail that promised both green wonders and aching calf muscles.

Our journey kicked off with a familiar face from the plant world—*Alstonia scholaris*, the Devil's Tree, standing tall and supporting numerous epiphytes. Its eerie name didn't deter our excitement; instead, it felt like a good sign, nature's way of greeting us. Just around the bend, we paused for a cup of steaming local tea, a trail tradition we'd been told not to miss. With the first sip, we were on our way under the guidance of Dr. Amit Kumar, Scientist at WII. On the way, we observed a few members of the Family Apocynaceae and Rubiaceae. A few steps ahead, we noted *Casearia graveolens*, a tree species of the family Salicaceae, the species name *graveolens* refers to the strong, offensive smell of its foliage. Another member of this genus *Casearia tomentosa* can be seen in the WII campus.

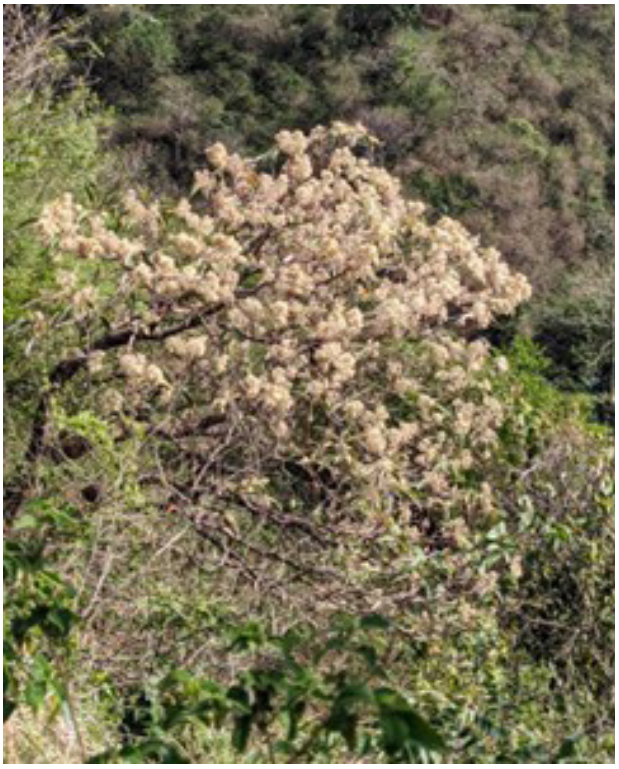
As we gained elevation, we took breaks every one to two kilometres, not out of exhaustion (well, maybe a little) but to admire and document the vibrant flora along the trail. Our field books started filling up with the names, sketches, and notes: from shrubs, climbers, to towering trees. Each stop brought something new: a whiff of a wild bloom and the shades of old *Cupressus*.

Over the next few hours, we encountered several notable plant species, including *Osyris lanceolata*, a hemi-parasitic shrub from the family Santalaceae with male and female plants growing separately. Commonly known as African sandalwood, its visible orange-coloured fruits are pecked eagerly by birds and it holds cultural value to locals, while the native one, *Santalum album*, also a hemi-parasitic species occurs in semi-arid and dry deciduous forests.

Fruiting branch of *Casearia graveolens*

*Osyris lanceolata* bearing a bright orange berry

Cluster of pale-yellow flowers of *Phanera vahlii*



*Leucomeris spectabilis* displaying dense clusters of inflorescences

Further along the trail, we came across *Falconeria insignis*, a monoecious tree and the sole species of its monotypic genus in the family Euphorbiaceae. Its bark exudes a white latex, which is traditionally used by local communities to poison fish. Just a few steps ahead, *Phanera vahlii* greeted us in full bloom. This vigorous evergreen climber, equipped with tendrils and robust, cable-like branches, is regarded as a formidable foe of trees due to its smothering growth habit.

What made this trek particularly special was the way we paired our homemade snacks with nature's offerings. We tasted tangy *Berberis* berries and *Rubus ellipticus* (wild raspberries), crunched on wild dates, and refreshed ourselves with crystal-clear water from a *Srodh*, a small water source in the mountains. These were the forest's humble gifts, simple and deeply satisfying.

Finally, we came across *Leucomeris spectabilis*, the one we were meant to bow to. As Amit Sir had said, if we spot *Leucomeris* on this trail, we could consider our trek a success. The tree species belongs to the family Asteraceae, where most members of this family are herbaceous and rarely shrubs, climbers or trees. It was our good fortune to find the tree blooming in the Himalayan landscape. It was such an exciting and funny moment when we all bowed our heads in front of that tree.

Somewhere along the middle stretch, from the top of the hill, a breathtaking vista unfolded of the Song River gently winding through the distant hills, sparkling under the sunlight. It felt as though the landscape itself was moving with us. Inspired by that, we collected a few healthy plant specimens for our herbarium work, carefully pressed and labelled preserving our memories of this tour in the form of herbarium sheets.

To our amazement, we encountered six distinct species of *Ficus*, all considered umbrella species due to their year-round fruiting and supporting a wide array of wildlife. It was truly remarkable to witness such diversity in one stretch. The species included *Ficus rumphii*, *F.semicordata*, *F.auriculata*, *F.infectoria*, *F.roxburghii* and *F.clavata*.

By the end of it, our notebooks were filled with more than 50 species, and our tired feet had logged nearly 20,000 steps each one echoing with stories, happiness, learning, and an ever-deepening bond with nature. This wasn't just a botanical trek; it was a living classroom, a shared table, and a memory in the making. Some of us returned with new plants in our notebooks, and all of us with a stronger love for the mountains and their green secrets and the next trekking destination somewhere in mind.

**Authors:**
**Satyam Kumari** *is a Project Assistant in NMCG- Biodiversity Conservation and Ganga Rejuvenation Project with a background in botany and environmental studies. Her interests lie in plant taxonomy, wetland ecology, aquatic species, and community-based conservation.*
**Email:** satyam@wii.gov.in

**Sneha Kumari** *is a Research Intern at Herbarium WII, postgraduate in Botany with a keen interest in plant taxonomy, ecology, and conservation. She actively participates in field expeditions, specimen collection, and Himalayan flora documentation.*
**Email:** snehakashyap328@gmail.com

**Photo credits:** Satyam Kumari and Sneha Kumari

*Ficus roxburghii* with dense cauliflorous syconia on trunk and main branches

Scenic view of the Song River coursing through lush green foothills

# KAKLABARI: A Home Away from Home for the Bengal Florican

- Saurav Das, Aadya Thammaiah, Richard Sangma

Manas in Assam is unique in many ways; to begin with, it is a National Park, Tiger Reserve, Elephant Reserve, Biosphere Reserve, as well as a UNESCO World Heritage Site. The prestige in the titles can naturally raise the expectations one has before visiting, but Manas does not disappoint even in the slightest. With its stunning terrain at the foothills of the Himalayas, surrounded by the majestic Bhutanese mountains in the north, it harbours a variety of endangered wildlife that brought us many memorable experiences, sure to stick with us for a lifetime. From being able to observe nature's gentle giants, the Asian elephants, feeling like a tiny bird amidst swards of tall and sharp terai grasses, to the thrill of getting chased by the guardians of the grassland, the Greater One-Horned rhinoceros, Manas made us never want to leave.

It was the three of us out there in the field—Aadya, Richard, and I. Aadya, an M.Sc. Wildlife Science student from the XIX batch at the Wildlife Institute of India, was conducting her dissertation on the roles of fire and cattle grazing on vegetation, invasive species, and their implications on the Bengal Florican breeding habitat use; I was assisting her in the field. Richard, on the other hand, was studying elephant herd dynamics. This field visit was a great opportunity for me to explore the Bengal Florican habitat and get to know the species more closely in the wild. We started our fieldwork inside the park at the beginning of January, when the average grass height was approximately 1.5-3 m. We spent our first week studying the different vegetation types and habitats of Manas. At this stage, we were still learning grassland vegetation identification, but the thought of being able to spot the Bengal Florican kept us simultaneously distracted and vigilant.

The Bengal Florican (*Houbaropsis bengalensis*) is a solitary, territorial, small goose-sized Bustard species. It is found in India, Nepal and Cambodia, with the current population in the Indian subcontinent being less than 400 and highly fragmented and declining. This is most likely due to the loss of the species' grassland habitats to agriculture & woodlands (Jha *et al.*, 2018; Collar et al 2017. A lack of species-specific conservation management might also be a factor that contributes to the species being listed as **Critically Endangered** by the IUCN (BirdLife International 2022) and included in **Schedule I** of the Indian Wildlife Protection Act, 1972


A

An interesting natural history fact about the Bengal Florican is that it is supposed to be a "grassland-obligate" species that inhabits the alluvial grasslands in the Himalayan foothills, particularly in India and Nepal. However, in Southeast Asia, especially in Cambodia, it occurs in seasonally flooded grasslands, interspersed with low-intensity rice fields and dry season agriculture. The latter is an interesting occurrence, as a similar pattern is observed even in India, where some populations exist beyond protected areas, such as in places like Nizamghat, Amarpur, Sadiya and nearby river islands, and the Kaklabari Agriculture Farm (KAF) (Gray *et al.*, 2009, Jha *et al* .,2018).

The display is performed only in short vegetation patches, with the mosaics within these areas characterized by '**naras**' (the dry tufts remaining after the paddy has been harvested) and tall shrubs growing on '**bunds**' (ridges that separate different sections of the field). Displays are mainly observed between November and December. As February approaches, the main vegetation is slowly replaced by swampy patches of short grasses like *Cynodon dactylon* and herbaceous swards of *Persicaria hydropiper*. These vegetations appeared to be a favourite of the Floricans for foraging, as well as for concealing themselves from potential threats.

Anecdotal studies as well as our personal field observations show that KAF supports approximately 20-25 Bengal floricans. During a survey in 1985, the Bengal Florican was not recorded in KAF; it is believed that the population was established around 2000-2001, that is, at the end of a 30-year lease period, when the farm became non-functional briefly. From 2003 to 2013, the Bengal florican population was closely monitored, and since then, the number of territories has remained stable, with only 7-8 territories recorded each year (Brahma 2013).

The habitat utilization and the multitude of threats faced by Bengal Floricans in KAF remain poorly studied. Apart from the baseline survey conducted by Brahma in 2009-2010, no systematic study has been undertaken on this critically endangered species in KAF. However, without conservation measures in Kaklabari, the protection of the Bengal florican cannot be ensured. With growing demands, agricultural practices have intensified, making the future of the Bengal florican uncertain unless the local community is actively engaged in conservation efforts. Intensified agriculture practices might affect their courtship rituals that include an elaborate male display. Another rising concern could also be the negative effects of agrochemical use in the fields that can change food availability and quality, which will ultimately affect eggshell quality. Feral dogs also pose a threat to them, especially during their breeding season. KAF being an unprotected area, Florican's ground nests are vulnerable, as the eggs are further threatened by collection and hunting and prone to nest trampling by cattle and grazers.

Although we spent a brief stint in Manas and Koklabari, the learnings were profound from day one. Spending time with the Bengal Floricans and understanding the complicated yet nuanced dynamics of not just the grasslands but also the surrounding agricultural fields gave us important insights into how even unprotected areas can hold a myriad of diverse organisms. We strongly believe that in a world that is changing rapidly with growing population pressures and widening socio-economic disparities, the way the natural world is shown and seen should also change. As nature adapts to the changes we impose on it, our conservation outlook must also shift in response. Understanding and exploring places like Kaklabari is a step in that direction; this does not mean that the importance of traditional conservation approaches has diminished but rather calls for a more inclusive and sensitive understanding of conservation that addresses the complexities and builds strategies that are resilient and sustainable in the long term.


Kaklabari—a perfect example of coexistence, in picture (A) A Lesser Adjutant forages in the field while a shepherd nearby searches for his cattle; (B) A majestic landscape with Bhutanese mountains in the background; (C) A male Bengal Florican forages in its territory, while a farmer is seen using the nearby area.

**Authors:**
**Saurav** *is a PhD scholar at the Wildlife Institute of India, enrolled through AcSIR, and a DBT-JRF fellow. He previously worked as a Project Associate I in the project IDWH-Caracal and All India Tiger Estimation. He is interested in a multidisciplinary research approach to understand the current conservation needs of threatened species. Apart from research, whenever his schedule permits, he enjoys travelling solo, hiking, and birding.*
**Email ID:** Sauravooodas@gmail.com

**Aadya** *is a student from the 19th MSc. Wildlife Sciences course, who did her dissertation on the roles that fire and cattle grazing play in shaping vegetation and invasive species, and their implications on the Bengal Florican habitat use in Manas National Park. She is passionate about interdisciplinary research and education and enjoys learning new things about the world around her.*
**Email ID:** aadya.thammaiah97@gmail.com

**Richard** *is currently working as a Project Associate-II on the Human-Elephant Conflict (HEC) project in the Ripu-Chirang Elephant Reserve since April 2024. He is a wildlife researcher with a keen interest in elephant ecology and human-wildlife interactions. Prior to this, he worked as a field biologist in the All India Tiger Estimation Project from February 2022 to March 2024. He has an interest in integrative approaches that link science, conservation, and community engagement, and he enjoys learning from the landscapes and communities he works with.*
**Email ID:** richardsangma36@gmail.com

# Wild Tales from Wild Tadoba -
## Experiences of MSc Wildlife Science (20th batch) during their Technqiues Tour at Tadoba-Andheri Tiger Reserve

Shreyas

Little did I know that butterflies would become the central theme of my time in the "Real Land of Tigers." I've always liked butterflies; they're conspicuous and everywhere, unlike India's more elusive charismatic megafauna. When we reached the campsite, I was surprised by the kaleidoscope of butterflies fluttering around. I regretted not bringing my sweep net.

On the second day's safari, I was eager to see a tiger. We saw crocodiles, gaur, chital, sambar, dhole, and a beautiful striped tiger butterfly. The actual tigress sighting, though, felt underwhelming. After the forest guard spotted her, a flurry of jeeps blocked the road. She crossed the path to a chorus of gasps and cameras, then walked down the road with six jeeps trailing behind. It felt wrong. Just then, a striped tiger butterfly flew past her. I don't know if she noticed it, or if I imagined it, but I like to believe she did.

That butterfly stuck with me. Later, I told the story to my batchmates, and we talked about how neither the tiger nor the butterfly knows they share a name, only their beauty and obliviousness. That inspired our group name: "Orange Duke." If butterflies can be blue admirals, why not give the tiger its own noble name?

Ecologically, this visit changed my perspective. On previous safaris, the forest seemed uniform. But walking transects revealed the landscape's true complexity. Each stretch of forest, especially in the Moharli buffer, had unique microhabitats, vegetation, and faunal assemblages. The diversity hidden in plain sight was eye-opening.

It was a tour filled with unexpected insights, both ecological and philosophical.

**Photo credit:** Rohan R, 20th MSc. Wildlife Science

## Ashwati

As I reflect on my techniques tour through Tadoba, I'm overwhelmed by the vibrant tapestry of experiences that unfolded. The forest felt alive, breathing, layered, and endlessly fascinating. Among its many wonders, the Sterculia urens, or "ghost trees," stood pale and striking against the dense greenery. Their haunting beauty inspired us to name our transect group "Team Sterculia."

Wildlife sightings were spectacular: tigers moving through the undergrowth, gaurs with quiet dignity, and creatures emerging as if conjured from the forest itself. But it was the Indian chameleon that truly captivated me, a marvel of evolution. Its independently moving eyes, clawed toes, and prehensile tail made it seem more like a sculpture than creature.

Butterfly diversity added colour to the experience, Wanderers, Sailers, and Baronets fluttering through the air, while stick insects played masters of disguise in the bamboo thickets. An encounter with a water beetle larva that painfully stung two classmates was a stark reminder of nature's unpredictability.

Botanical exploration became sensory immersion, from tasting Bauhinia malabarica leaves and Zizyphus fruits to recognising plants by touch. Meanwhile, the Vagobhas, local shrines marking sites of human-wildlife conflict, deepened our understanding of the relationship between people and wilderness.

Each moment in Tadoba was a revelation, a reminder of nature's complexity, beauty, and power. By journey's end, the reserve had become more than a place; it was a living, breathing presence that offered my first unforgettable encounters with tigers, chameleons, and the raw, unfiltered wonder of the wild.

Joshika

The Techniques Tour carried me into the Central Indian landscape—terra incognita for a girl who knew nothing but Karnataka's rocky outcrops. Our destination, Tadoba, lies in Maharashtra's Greater Vidarbha Landscape. Central India's jungles are often misunderstood. Yes, they are dry, but never barren. These undulating, unforgiving terrains teem with life, and for eleven days, life was all we saw.

On our first safari, an adult tigress greeted us—sleek, regal, and elusive among bamboo thickets. She emerged onto the metal road, indifferent to the convoy of cruisers trailing her every step. A step walked became a step stalked, and the scene turned into a cheap circus. Engines drowned the jungle's symphony. My first Tadoba lesson was not ecological, but ethical.

The gaur, Tadoba's only megaherbivore, I wondered if it played the role of ecosystem engineer in this elephant-less landscape. Its body, surprisingly laterally compressed, made sense during line transects—here, even the mighty gaur must swim through bamboo, like the tigress herself.

The flora told its own stories. Tadoba is a forest of black trees - *Terminalia elliptica* (Baheda) and *Diospyros melanoxylon* (Tendu) - like crocodiles in red earth. And the poisonous Cleistanthus collinus, or Garari, came with one unforgettable lesson from the forest guard: "Khayega toh marega."

Tadoba thrums with life—from collared "sambar" to Crimson Reds and Baronets in flight. Techniques were learned, statistics wrestled with, but my greatest joy was walking Kipling's jungles, where ticks, dust, and talabs became my companions.

Another sambar sighting on a dusk at Tadoba

*Diosypyros melanoxylon* bark
**Photo credit:** Ardra Raju, 20th MSc Wildlife Science

*Chloroxylon swietenia* bark
**Photo credit:** Ardra Raju, 20th MSc Wildlife Science

Waghobas connecting Culture and Wildlife
**Photo credit:** Ardra Raju, 20th MSc Wildlife Science

Ardra Raju

Exploring the tiger country of Tadoba was unforgettable—a landscape both awe-inspiring and unfamiliar. The dry deciduous forest felt like a living gallery: crocodile-barked Saaj (*Terminalia elliptica*) and ghostly white Kulu (*Sterculia urens*) trees. My first tiger sighting was thrilling, yet it was these remarkable trees that left an equal imprint on me.

The first safari brought a tigress, though the throng of tourist vehicles dulled the magic. Still, known as the *Jewel of Vidarbha*, Tadoba is rich in biodiversity from our sightings of sambar and gaur by the roadside, and mugger crocodiles basked in the waters. Even our night safaris offered their own spell: golden dry grass, black-barked silhouettes of ghost trees (Kulu), and the sudden crossing of sambar.

Line transects revealed the forest's subtler life—tracks, scat, and the unseen rhythms of its wildlife. Yet, on our way back from Vadholi, coal mines in Padmapur rose starkly against Tadoba's green expanse, a sharp reminder of the fragile coexistence here.

Stone deities scattered through the forest honoured those lost to tigers, reflecting deep local reverence for these predators. One of the thrilling moments for me was seeing the spotted deer—langur association in the wild which was once only a textbook concept.

Tadoba was more than a field site; it was a journey of discovery, reflection, and quiet wonder.

### Akshay

The technique tour to Tadoba-Andhari Tiger Reserve was a transformative journey that deepened my understanding of wildlife research and conservation. Immersed in the wilderness, we learnt key field techniques, such as distance sampling using point counts and transects, occupancy modelling to interpret species presence, and the use of camera traps to monitor elusive wildlife. Techniques like PIT tagging, pitfall trapping, and radio telemetry introduced us to methods for studying small fauna and tracking animal movements. GPS navigation and vegetation sampling enhanced our appreciation of ecological interconnections, while behaviour sampling taught us to observe animal activities with precision.

Beyond the technical skills, this tour offered unforgettable memories, walking through dense forests, discovering pugmarks and scat, and witnessing iconic species like tigers, sloth bears, and gaur in their natural habitat. Every safari was a vivid encounter with the wild, filled with birdcalls, alarm signals, and sights that brought the forest alive.

More than an academic experience, this tour was a journey of personal growth. It strengthened my passion for wildlife sciences and left me with lasting memories and skills that will guide my future in conservation. Tadoba-Andhari not only taught me techniques but also showed me the magic and complexity of the natural world.

### Mencho Sena

I have always been curious about various regions of the country, learn about different cultures, and connecting with new people. Moving along the tracks for the Techniques tour to The Central Indian Vidarbha Landscape, there was a gradual transition in terrain and vegetation.

Apart from the many animal sightings, the experience of walking the first transect in Dewada - every sound kept my senses on toes. Still the animal was camouflaged so beautifully that I could only see its back when it jumped to run away, reminding me no matter how quiet you think you are; the forest ears and eyes are still wide open to even a swift sound. As I walked transects in different beats, I could see the intricate design of the forest intricately placed within the system. Along with evening discussions, the beat guards and locals' understanding and explanation were an important tool that helped me understand and learn a lot of things.

This tour was an enlightening experience, equipping me with essential field research techniques but also teaching me valuable lessons about management, local narratives, culture and the significance of understanding the landscape from many different perspectives. The journey to Tadoba was truly an experience, filled with valuable lessons and unforgettable memories that I will cherish forever.

Spotted deer and North Plains Langur association
**Photo credit:** Ardra Raju, 20th MSc Wildlife Science

Himani Pawar

Every hoofbeat echoed in rhythm with the beat of our hearts as my team, Nightjar, stumbled upon a gaur and heard its alarm call. The entire encounter may not have lasted more than a few minutes, but it left us with a profound realisation of the fragility of our lives, carried in our palms alongside the GPS and rangefinder. The gaur, oblivious to our fear, bolted away with striking speed. Thankfully, our silent prayers were answered, leaving us frozen in shock.

After completing the required transect line, we hadn't walked more than a few steps before witnessing an incredible sight. At the point where our transect line intersected a gypsy trail, we watched, astonished, as one, two, three gaurs leapt across in a perfectly synchronised procession. We had no way of knowing where the jumps began or ended—it seemed as though the gaurs might have leapt across the entire expanse of TATR in a single bound. Their majesty took my breath away.

A similar blend of panic and exhilaration swept over me on another day when we heard a tiger call during the transect. On our way back, we were met with the most harrowing sound—a barking deer's alarm call. It felt as though the forest had transformed into a stage for the most tragic lament ever sung. As we continued down the trail, near the opening of another gypsy path, we encountered a sloth bear just 20 meters away. It was so absorbed in digging that it seemed entirely unaware of our vulnerable presence on foot or of the three gypsies parked nearby.

Another unforgettable highlight was reviewing the camera trap images with my team. Together, we marvelled at a stunning image of a nilgai, a moment so surreal I never could have imagined how dreamy a simple camera trap photograph could be.

*Ptyas mucosa*
**Photo credit:** Kiruthika SM, 20th MSc Wildlife Science


Tiger pugmark spotted during the line transect survey
**Photo credit:** Ardra Raju,20th MSc Wildlife Science

**Photo credit: Sunny Nama, 20th MSc Wildlife Science**

Ashutosh

The main objective of the techniques tour was to acquaint ourselves with field techniques, equipment, and sampling methodologies, and to understand the science behind wildlife conservation. Our time in Tadoba allowed me to see the forest through multiple lenses: as a master's student observing wildlife, as forest officials working with the land and communities, and as ecologists addressing complex challenges.

One experience that stood out was the management of invasive plants in TATR. Apart from a few patches of *Hyptis suaveolens* in the buffer zone, the core revealed stunning tropical savannahs. Hearing forest staff speak of their efforts in Jamni and Navegaon to restore grasslands post-village relocation was inspiring. It showed that, with commitment, even stubborn species like *Lantana* can be managed.

Among the many unforgettable sights, the ghost tree (*Sterculia urens*) stood out, its pale trunk, red soil, and golden leaves scattered around, evoking the weeping trees of *Game of Thrones*.

Two *Sambar* sightings especially etched themselves into memory. On our first day, we watched a mother teaching her fawn how to respond to threats, thumping her feet and waiting for the fawn to mimic her, a quiet lesson in wild behaviour. On the final day, a male *Sambar* was feeding just two meters from our bus. What intrigued me was its choice of food, *Hyptis suaveolens*, the very invasive species we'd been discussing. It opened a new question in my mind about ungulate-plant interactions.

Every transect, every observation felt like a window into a world far richer and more complex than I had imagined. This journey not only taught me techniques but gave me stories, questions, and insights I'll carry into my future in wildlife science.

Bryan

The tour was every bit fun and exciting as it was educational, and the learnings in the field were the ones that stuck with me the most. Our days started with walking a line transect to estimate the densities of prey species in the Moharli buffer zone. One day, while walking our transect in Agarzari beat, our beat guard spotted a sloth bear ambling along beside our path, rummaging around termite mounds. And the moment the bear spotted us and even before we could all have a look, it fled into the bush immediately. As we waited on the spot for a few minutes to allow the bear to move away to a safe distance before proceeding, our mere presence flushed out a black-naped hare and 2 jungle fowls. In fact, the hare was flushed out from just 5 meters ahead of us, after we had stood at the same spot for 3 minutes already. The whole incident encouraged us that we had been sufficiently silent to come within close range of a sloth bear but also taught us that certain animals would only become visible with a certain level of disturbance, like the hare.

Other experiences that enriched our stay were the reptile encounters around the base camp. The stars of the show had to be the chameleons that were found on the fences of the property. These two individuals taught me a lot about the temperament and quirks of their species. Safely handling them was a bit of a challenge, given their short temper and defensive behaviour. Chameleons lack proper night vision and are much more subdued at night, due to which they were a lot easier to handle when releasing them back into a more suitable habitat than where they were initially found.

Gayathri

My experience at Tadoba-Andheri Tiger Reserve was truly memorable. One of the most thrilling moments happened during a line transect in Dewada. After three days of poor sightings, we were halfway through the transect when a loud, deep sneeze-like sound startled us. We then heard stomping, and there it was, a Gaur, just 30 meters away. It ran into the forest, and we stood frozen in awe. As we cautiously moved forward, another alarm call rang out, louder this time. Then, one by one, three massive Gaurs leapt across the transect in front of us, powerful yet graceful. The initial fear was quickly replaced by sheer amazement.

Another unforgettable experience was during a transect in Agarzari. We had been warned of recent tiger activity in the area. Walking silently with the forest guards, we found a sambhar antler propped against a stump, like a quiet reminder of the wild. A few minutes later, a piercing sound, between a scream and a wail, cut through the forest. It came again, chilling and unmistakable. When we asked the guards, they replied with one word: Wagh - tiger!

On our return, we were again startled by a screech. This time, the guards named the animal in Marathi, which we couldn't understand, guessing it to be a wild boar. Curious, I recorded the call and later Dr. Ankul and Krishnan identified it as a barking deer alarm, likely reacting to the same tiger we'd heard earlier.

These moments, full of tension, wonder, and mystery, capture the raw magic of Tadoba, where every sound carries a story of the wild.

FIELD STORIES

**Photo credit:** Rohan R, 20th MSc. Wildlife Science

Tanya

As someone who's never had much opportunity to go to Wildlife Sanctuaries or National Parks, almost every animal I saw over the course of the Techniques Tour was the first time I'd ever seen one. Every animal I saw seemed like a miracle, for how well they blended into their home and disappeared in plain sight, for how beautiful each movement they made was- every tilt of the head, every tense muscle before flight, every swift run as they fled our presence and disappeared into the undergrowth.

But by far my favourite was the gaur. I had never seen one. On the first day of safari, with the sun dying down in the last hour of our allotted time, we drew up short on one of the cement slabs over the streams made for the jeeps. And then someone gasped, and I looked up sharply and - What an animal! I couldn't reach for my phone, didn't need my binoculars- just sat frozen on my seat and looked at the enormous, muscled animal, the kind of bovine you imagine when you think of the ancient aurochs. Horns curved up long and sharp, one ear notched from some long-ago injury and scars up and down his flanks, coat shining, an absolute powerhouse of a bull out on his own, he stood ankle deep in the gently bubbling stream.

Barely three feet away, he stared at us for a while, ears flicking as the camera shutters flew incessantly, grass dripping as it hung from his mouth. His eyes were warm despite his sheer strength, calm even as he was clearly cautious. And finally, when our combined noise got too much for him, he steadily and unhurriedly turned to the edge of the stream and clambered up a hillock so steep it seemed almost impossible that he would stay upright; and yet did it so effortlessly, he seemed to be some sort of creature of myth in that moment, unendingly sure of himself and unreal in his beauty. He near-silently walked off into the tall grass and vanished like he'd never been there.

Some part of my soul will always live in that moment, I think.

Rohan

We began our journey to undertake a Techniques Tour at Tadoba-Andhari Tiger Reserve (TATR), Maharashtra from Dehradun on 28th November 2024.

Our first day, 30th November, was split into two sessions. In the forenoon, we learned to read topo maps, set up camera traps, and use field tools like laser rangefinders, compasses, clinometers, and PIT tags. The afternoon brought our first safari—a thrilling experience topped by a tigress sighting, the first for many of us. It was a moment of awe and inspiration that set the tone for the rest of the trip.

Over the next ten days, we practised field techniques including line transects, camera trap deployment, vegetation quantification, pellet sampling, pitfall traps, and occupancy surveys. Each activity was guided by experienced faculty who ensured hands-on learning and conceptual clarity.

Personally, my biggest takeaway was the field techniques themselves—tools and approaches, I know will serve me well in future research. The informal, interactive sessions with faculty added immense value. From Bilal Sir's field stories to Anukul Sir's jokes, Amit Sir's quick plant facts, and Vishnupriya Ma'am's thoughtful insights, every conversation was a bonus learning moment.

A highlight was observing the chital—langur interaction at Navegaon grassland, TATR's largest. Watching langurs drop half-eaten leaves for chital to feed on echoed a lesson from our "Corbett orientation tour", now brought to life. This tour not only deepened our technical skills but also nurtured our appreciation for ecological relationships-making it one of the most enriching parts of our academic journey.



**Photo credit:** Rohan R, 20th MSc. Wildlife Science

Srinjan Majumdar

Being a student of wildlife with a deep interest in fauna, the experience I craved most was observing large animals up close—on foot. Until this tour, I had never encountered a big beast on foot in the jungle. That hunger was finally satisfied through a series of unforgettable moments during our line transects from 1st to 8th December 2024.

Before our first transect at Vadholi (Moharli buffer), we nervously wondered what it would feel like to encounter a carnivore. Moments before we started, the forest guard said, “Yeh sabse sensitive zone hai baagh ke lie” (This is the most sensitive area for tigers). Stepping out of the jeep, we landed right on a massive tiger pug mark, nearly 12 cm wide. Though we didn’t see the tiger, walking a path it had recently walked was an adrenaline-filled thrill. And just as we were leaving, we spotted a leopard crossing the road, the same spot where we’d stood minutes earlier for our point count. All we could do was look at each other and share a silent laugh, for we were inside the jungle.

On our third transect in Agarzari, the first thing we observed was a large clump of what appeared to be berries, which turned out to be a sloth bear scat. At the 1.8 km mark, the forest guard saw a sloth bear. We couldn’t get a good look but saw grasses sway where a sloth bear was resting, likely with cubs. We abandoned the remaining 200 m for safety.

The fifth transect brought eerie silence before we spotted a large wild boar about 300m away in the bamboo thicket. As it ran, five more followed, six massive boars in total. Though “just pigs,” they were intimidating.

Even though we missed being up close to a Gaur or a tiger, these experiences, I feel, were exciting enough to train one to hold their nerves when they come across a threat while in the wilderness.

**Photo credit:** Rohan R, 20th MSc. Wildlife Science

Srajal

We had a delightful experience at Tadoba-Andheri Tiger Reserve (TATR), one of India's oldest national parks. Arriving on 29th November, we began our work the next day.

Our field preparation included insightful sessions led by experts like Dr. Vishnupriya Kolipakam, Dr. Anukul Nath, Dr. Abhijit Das, and Krishnan Sir. The cartography and map-reading workshop was especially engaging, though initially challenging. Learning to navigate with a compass and range finder proved eye-opening. We also practised camera trap deployment, understanding settings, placements, and retrieval methods.

The most thrilling moment came during our first safari, sighting a tiger for the first time, majestic, with amber and black stripes. It walked along the road before disappearing into the bamboo thickets. We also saw dhole, gaur, cheetal, and sambar; each sighting was captivating, especially as it was my first time seeing these animals in the wild.

On the second day, we conducted a survey at our research site. After returning, we enjoyed a botanical walk around the campsite, learning about local flora and their uses from our instructors. The day ended with a nocturnal herping session, where we tagged frogs and captured two checkered keelbacks, an exhilarating experience.

What fascinated me the most was the deep ecological knowledge of local communities. Observing bird behaviour near Tadoba Lake, cattle egrets on sambar, drongos aiding cheetal, and rufous treepies nicknamed the "dentists of tigers", showed how traditional insights align with ecological science. A striking moment was seeing a tiger resting by the lake while a crocodile swam nearby, two apex predators coexisting in one evolutionary frame.

These experiences made Tadoba not just a place of learning but a living classroom of wonder and connection.

Kiruthika S M

I had a diverse experience at Tadoba, but my favourite part was definitely the safaris. Whether it was our first safari or the later trips focused on behaviour sampling and vehicle transects, each moment was special. Though living in Sathyamangalam, I never had the chance to fully experience wildlife before, so this was my first wildlife safari. Seeing animals like tigers, mugger crocodiles, and grey mongooses in their natural habitat was unforgettable. One standout moment was watching Tigress T91 emerge from the bamboo thickets with grace, completely ignoring the eight gypsies full of people trying to catch a glimpse of her.

On the last day of our safari, I thought my excitement for spotting a tiger would have faded, but Choti Madhu proved me wrong by appearing just 10 meters away. I often wondered if these animals felt stressed by the tourists. That day, despite 20 gypsies surrounding her, she chose to stay at the forest's edge near the road, undisturbed by all the noise.

We also saw Leopards, Gaurs, and countless birds that were just as impressive as the tigers. Learning various techniques while walking through the jungle for transects and setting up cameras for data collection added to the excitement. I enjoyed the photoshoot sessions that happen whenever we get a snake or a frog, especially the Chameleon. Those ten days felt like a dream—a life which I wouldn't need a vacation from.

Prithham

The most important aspect of the Techniques Tour for me was being accompanied by members of the local communities during our visits to the forest - whether for sampling activities or on safari. I interacted with forest guards, forest department staff, and safari guides. During our early morning line transects, we were always accompanied by the forest guards. After finishing with our transects, we had the opportunity to speak with them about the forest and its natural history. They were very eager to show us the different vegetation in the forest, sharing their local names, uses and even cultural significance. We were even given medicinal plants to taste and small fruits to try. The knowledge they shared was unique and helped me better understand what to look for as signs of animals in the forest.

The forest guards also explained the nature of their work and their duties, giving me valuable insights into the realities of conservation and management in the field. I was also pleasantly surprised at how eager they were to speak to us about different things in the forest, despite the physically demanding challenges they face daily. One beat guard even took a moment during our safari stop to teach us about different grass species, management practices, and the challenges involved. Their thrilling stories of wildlife encounters were always a bonus during these rich and informative interactions.



**Photo credit:** Rohan R, 20th MSc. Wildlife Science

The unseen side of coal mine
**Photo credit:** Ardra Raju, 20th MSc Wildlife Science

Sumedha

Walking through the transect at Agarzeri 1 was an exhilarating experience for me. It was early morning, and the forest was waking up around us. The air was crisp, the sunlight filtered through the canopy, and everything felt alive. Before we set off, the forest guard had shared stories that planted a seed of unease in my mind.

“There are two female tigers roaming around this area,” he said, his tone clearly excited and full of warning. “They’re both strong and ambitious, and it seems like a territorial fight is brewing. This patch of forest is their battleground.”

The transect path was narrow, lined with dense foliage on either side. The usual sounds of the jungle felt magnified, and my senses were heightened. Every crunch of leaves beneath my feet or snap of a twig made my heart race. As we walked further, my imagination ran wild. The guard’s stories played on repeat in my head. I couldn’t help but picture them stalking through the shadows, their golden eyes watching us unseen. I couldn’t shake the feeling that we were being watched. At one point, the forest guard stopped abruptly and gestured for silence. He crouched, examining something on the ground. I leaned in to see what it was, a fresh paw print, large and unmistakable. My pulse quickened. He pointed to the jeep tracks. “The tourists followed the tiger around here. She must have passed through.”

The rest of the walk felt surreal. I was hyper-aware of every sound, every movement. My fear and fascination wrestled with each other, leaving me exhilarated yet on edge. By the time we made it back to camp, the sun was high, and the forest seemed less intimidating. But the experience stayed with me. It was a reminder of the raw, untamed power of nature and the delicate balance we walk as observers in the wild. Agarzeri 1 taught me respect, not just for the tigers but for the stories the forest holds.

Sunny Nama

Visiting Tadoba for the Techniques Tour into the heart of the Central Indian landscape was a transformative journey for me. Every moment offered discovery, hands-on learning, and deeper insight into wildlife and their habitats.

From day one, we immersed ourselves in practical fieldwork, learning map-reading techniques, using rangefinders, compasses, and setting up camera traps. The line transect surveys were the highlight of the tour. Over seven unique transects, we walked through varied forest habitats, spotting prey species and signs of apex predators like tigers and leopards. Each pugmark, pellet, or scat told a story, and the changing forest density kept every walk exciting. Back at camp, analysing these clues brought science to life.

Camera trapping was another unforgettable experience. Setting and reviewing traps felt like unearthing hidden treasures. Alongside majestic tigers and leopards, we captured rare sightings of honey badgers and rusty-spotted cats, an absolute thrill! Behavioural studies through scan and focal sampling added another dimension to our overall understanding. Observing spotted deer and other species in real time deepened our understanding of animal interactions and activity patterns.

This tour was far more than a field exercise; it was a meaningful adventure. It honed our technical skills while strengthening our emotional connection to wild spaces. The red soil, vibrant forests, and the lessons learned in Tadoba have left an indelible mark on me. It was a journey of exploration, learning, and inspiration, one that I’ll carry with me into every step of my wildlife career.

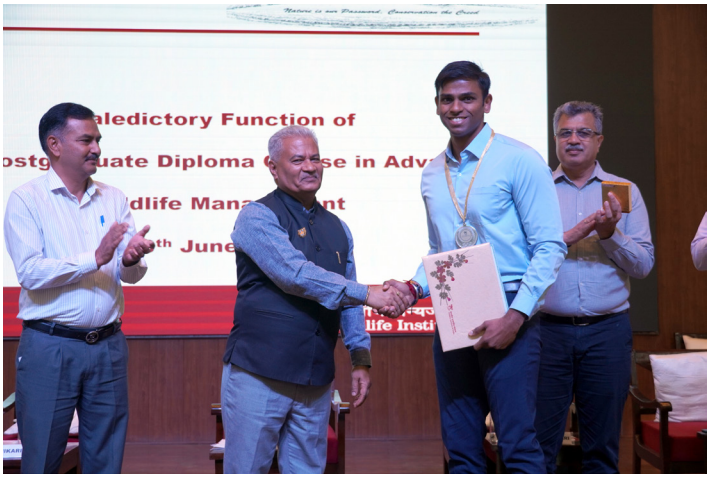
# Valedictory Function of the 45th Postgraduate Diploma Course in Advanced Wildlife Management- 30th June, 2025

The Wildlife Institute of India organized the Valedictory Function of the 45th Postgraduate Diploma Course in Advanced Wildlife Management today, marking the successful culmination of the 10-month intensive training programme for forest officers from across the country.

A total of 17 officer trainees (ACFs/ DCFs or equivalent) representing 12 Indian states were awarded the Honor's Diploma.a The batch comprised:

- 2 officers each from Odisha, Himachal Pradesh, Madhya Pradesh, and West Bengal
- 1 officer each from Uttar Pradesh, Bihar, Jharkhand, Rajasthan, Uttarakhand, Telangana, Andhra Pradesh, Maharashtra, and Goa

The course provided comprehensive training in wildlife research, management planning, field techniques, and community engagement, equipping the participants with advanced skills to address contemporary challenges in wildlife conservation and protected area management.



## Awards and Recognitions

During the ceremony, outstanding trainees were honoured with medals and prizes for their exceptional performance:

| Sl. No. | Name of Officer Trainee | Award/Medal |
|---|---|---|
| 1 | Varadaraj Gaonkar | **Institute's Gold Medal** for Top Trainee |
| 2 | Neethu George Thoppan | **Wildlife Preservation Society Silver Medal** for Second in Merit |
| 3 | Rajesh Mandavliya | Silver Medal for **Best All-Round Wildlifer** |
| 4 | Bankar Ajinkya Devidas | **N. R. Nair Memorial Silver Medal** for Best Management Plan |
| 5 | Varadaraj Gaonkar | **A. K. Chatterjee Silver Medal** for Best Management Term Paper |
| 6 | Varadaraj Gaonkar | **Book Prize** for Top Trainee in Wildlife Biology |

# LIGHT BITES

## Government Engagements and Project Reviews




On **April 16**, Hon'ble Minister Shri C. R. Patil, Minister of Jal Shakti, chaired a review meeting of the NMCG—WII Project, where he appreciated the efforts toward Ganga River conservation and biodiversity protection.

On **April 29**, Hon'ble Minister of Jal Shakti Shri C. R. Patil, along with Hon'ble Minister of State Shri Raj Bhushan Chaudhary, reviewed two key WII projects: "Jalaj: Connecting People with Rivers" (sponsored by NMCG) and "Assessment of the Ecological Status of Select Indian Rivers for Conservation Planning" (sponsored by NRCD). Both ministers expressed satisfaction and assured support for scaling these efforts to more rivers across India.

## Scientific Publications


A fascinating fungal discovery WII in collaboration with the University of Arkansas (USA) identified two new fungal species, *Xerocomus garhwalensis* and *Xerocomus rishikeshinus*, from the Banj oak forests of the Garhwal Himalaya., The research was published in the *Asian Journal of Mycology.*


On **April 18** Hon'ble Chairman Shri Bhupender Yadav chaired the 27th meeting of the NTCA, and released the first-ever report on the status of ungulates in India's tiger habitats — a milestone for understanding tiger prey dynamics and advancing wildlife monitoring.

.SEARCH ARTICLE OPEN ACCESS

**Understanding Multi-Scale and Multi-Species Habitat Selection by Mammals in the Eastern Himalayan Biodiversity Hotspot**

Arif Ahmad | Govindan Veeraswami Gopi

Wildlife Institute of India, Dehradun, India

**Correspondence:** Govindan Veeraswami Gopi (gopigv@wii.gov.in)

**Received:** 18 September 2024 | **Revised:** 9 March 2025 | **Accepted:** 26 March 2025

**Funding:** The authors received no specific funding for this work.

**Keywords:** Arunachal Pradesh | biodiversity hotspot | biomod2 | FRAGSTAT | habitat fragmentation | landscape | protected areas | species distribution modeling

**ABSTRACT**

Human-induced habitat loss and fragmentation threaten biodiversity in the Eastern Himalayas, a crucial part of the Indo-Myanmar biodiversity hotspot. This study examines the distribution of 10 mammal species in Arunachal Pradesh using a multi-scale ensemble modeling approach, integrating Generalized Linear Models (GLM), Generalized Additive Models (GAM), and MaxEnt to assess habitat suitability. By analyzing 57 environmental predictor variables across multiple spatial scales, we found that elevation is a key determinant for carnivores such as the dhole and the Asiatic golden cat, while herbivores like the northern red muntjac and the mainland serow prefer broadleaf forests. Species distributions showed distinct patterns, with most carnivores concentrated in the south, except for the widely distributed yellow-throated marten. Dhole and leopard cat preferred elevated broadleaf forests, while the Asiatic golden cat favored mixed forests. Herbivores like the northern red muntjac and mainland serow were found at higher elevations, whereas the Indian wild pig preferred grasslands and degraded habitats near human settlements. While protected areas (PAs) exhibited higher species richness, significant suitable habitats also exist outside PAs, underscoring the need for landscape-level conservation strategies. Precipitation seasonality and human population emerged as significant predictors, highlighting the influence of climatic and anthropogenic factors on habitat suitability. Our findings emphasize the necessity of conserving large, connected landscapes to mitigate human-induced pressures on these species. By combining spatial modeling with ecological insights, this study provides valuable conservation efforts. Future research should expand data collection across broader temporal and climate change projections to anticipate species distribution shifts. These findings underscore the importance of habitat management in this ecologically rich yet vulnerable region.

A new WII study was published in *Ecology and Evolution* on **April 25**, examining habitat selection by 10 mammal species — including dhole, leopard cat, Himalayan serow, and Asiatic golden cat — in Arunachal Pradesh. The research emphasized the need for landscape-level conservation, as many key habitats lie outside the protected area network.

**May 29, 2025**

New Milestone in Wildlife Capture, immobilization and Care!

A safe, standardized chemical immobilization protocol for the elusive Red Serow (Capricornis rubidus), a rare Himalayan goat-antelope has been developed by the team of WII. The first report for this species is published in the Journal of Wildlife Diseases along with vital steps for its veterinary care and conservation.


**June 9, 2025**

To deter spread of misinformation and proselytize scientific temper among the masses, Project Cheetah published a new perspective article in *Frontiers in Conservation Science* titled *"Beyond Rhetoric: Debunking Myths and Misinformation on India's Project Cheetah"* essentially countering myths with facts as transparency and evidence-based engagement.

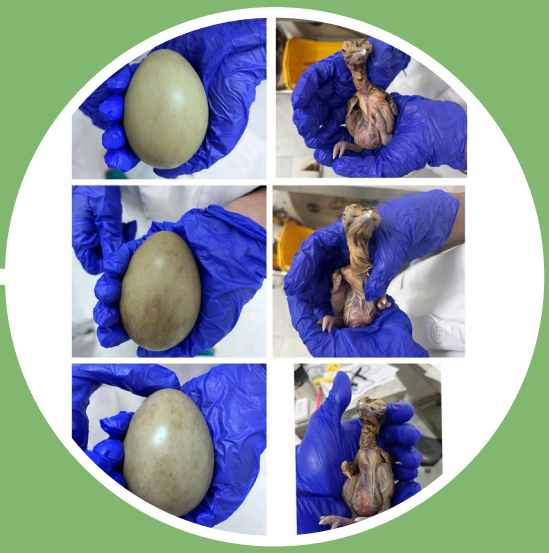

**May 30, 2025**

Coconut crab documentation, which was once thought to have been extirpated after the 2004 tsunami, was reported from an inland island cave at Car Nicobar Island. It is also the first since Hume's 1874 report highlighting the importance of surveying inland cave habitats.

**June 17th 2025**

A collaborative research, which was led by Dr. Meenakshi Poti, delves into the complex governance challenges of mangrove socio-ecological systems in the Andaman Islands. Drawing on insights from multiple stakeholders, the study reveals how lush mangrove forests, a layered settler history, centralized governance, multicultural communities and the far-reaching impacts of the 2004 earthquake and tsunami continue to shape coastal management in the region.

## Great Indian Bustard Conservation (GIB)- Updates



Project GIB saw remarkable progress with the hatching of multiple Great Indian Bustard chicks across its conservation breeding centers.18 new chicks were hatched in this quarter (April to June) and of these 12 were born out of Artificial insemination. The conservation breeding program now has 69 birds (including chicks) which are placed at two conservation breeding facilities in the district of Jaisalmer, Rajasthan.

## Workshops, Trainings & Public Engagement

**XX MSc Wildlife Sciences High Altitude Tour (May 12-23)**

The XX MSC high-altitude tour (12—13 May) provided students with hands-on exposure to Himalayan ecosystems, altitudinal vegetation shifts, and invasive species. Visits to the Jim Corbett Memorial Museum and Kedarnath Wildlife Sanctuary offered historical and practical insights, including tree aging techniques and field studies in sub-alpine and alpine habitats. Students observed vegetation transitions, wildlife such as Himalayan Tahr, musk deer, and mountain weasels, and critically assessed tourism impacts on fragile ecosystems. In the later stages, they explored warm temperate riverine forests and Trans-Himalayan landscapes in Nanda Devi Biosphere Reserve, studying snow leopard habitats, blue sheep, and Himalayan marmots.
Interaction with Niti Village communities deepened their understanding of local socio-cultural connections to conservation.

On **April 8**, the Wildlife Institute of India inaugurated a two-day workshop titled "A One Health Framework for Strengthening Veterinary Response to Cetacean Emergencies", organized under the Regional Coordinator Program NOHP-PCZ-WII and the aegis of NCDC-MoHFW. The event brought together experts from the International Whaling Commission with support from CAMPA-Dolphin and CAMPA-Dugong initiatives.

On **April 28**, WII participated in a workshop on "Simple and Practical Approaches to Digital Content Creation" at the India Habitat Centre, New Delhi. Organized by MoEFCC and Karmayogi Bharat, it brought together 43 participants from 23 institutes to explore accessible and engaging ways to craft educational digital content.

On **April 25**, WII and the National Institute of Plant Genome Research (NIPGR) jointly organized a workshop on AI-Assisted Literature Review, attended by around 80 participants. The sessions covered Google Colab, Transformers, NLP, and CNN applications in research, through lectures, demonstrations, and hands-on activities.

WII and EcoSanskriti participated in the global City Nature Challenge on **April 28**, teaming up with cities worldwide to document biodiversity in urban areas through citizen science, celebrating the wild side of everyday spaces from parks to pavements.

**May 9-11,2025**

The Wildlife Institute of India, with **national and state partners, organized a 3-day National Workshop on Landscape Management Practices** at India Habitat Centre, New Delhi, focusing on the **Greater Panna Landscape**. Experts from government and conservation organizations shared insights on integrated landscape management, governance frameworks, adaptive conservation strategies, and community-led stewardship across diverse Indian ecosystems. The workshop emphasized the **Integrated Landscape Management Plan (ILMP)** as a model for biodiversity protection, environmental safeguards, and collaborative, replicable landscape management.

**May 19, 2025**

On May 19, 2025, the Wildlife Institute of India inaugurated the 29th IRS-WII Attachment Course, a two-week Special Course on Wildlife Protection, Law, and Forensic Science for Indian Revenue Service (Customs & Indirect Taxes) Officer Trainees, 76th Batch (May 19—30, 2025). The program, inaugurated by Sh. Virendra R. Tiwari (Director, WII), Ms. Aarti Saxena (ADG, NACIN), and Dr. Ruchi Badola (Dean, WII), aim to equip participants with legal and forensic skills to effectively combat wildlife crimes.


**May 20, 2025**

A Ganges River Dolphin and fisheries awareness workshop was conducted by the CAMPA_Dolphin and wildlife institute of India team at Khanakul 2 Block, Hooghly district, West Bengal. Fishers from the Rupnarayan, Mundeshwari, and Darakeshwar rivers participated in the session.


**May 22, 2025**

A total of 38 veterinarians were trained in wildlife rescue and conflict mitigation in Pilibhit, Uttar Pradesh, as part of ongoing efforts to strengthen human-wildlife coexistence. A collaboration between the Wildlife Institute of India and the World Wide Fund for Nature-India, the workshop titled **Managing Wildlife Emergencies in the Human-dominated Landscapes**, the training focused on equipping participants with essential skills to handle rescue operations, manage conflict situations, and contribute effectively to wildlife conservation in sensitive regions.


**May 26, 2025**

At Sahibganj, Jharkhand, DFO Sahibganj addressed the riverine fishers at the event as a part of the Ganges river dolphin and fisheries awareness workshop organised by CAMPA Dolphin WII team in collaboration with Jharkhand Forest Department.

A short talk on the Significance of Ganges river dolphin conservation was held on **May 27, 2025** in Jharkhand. The talk was delivered at the seminar titled Environment and the Rajmahal Hills, organised at Model College, Rajmahal, Jharkhand.

May 30, 2025

As part of the ongoing Fishing cat collaring efforts in Coringa WLS, over 60 forest officials-including ACF, section heads and forest guards of Andhra Pradesh Forest Department were trained in radio telemetry and animal tracking for strengthening conservation through capacity building by WII.

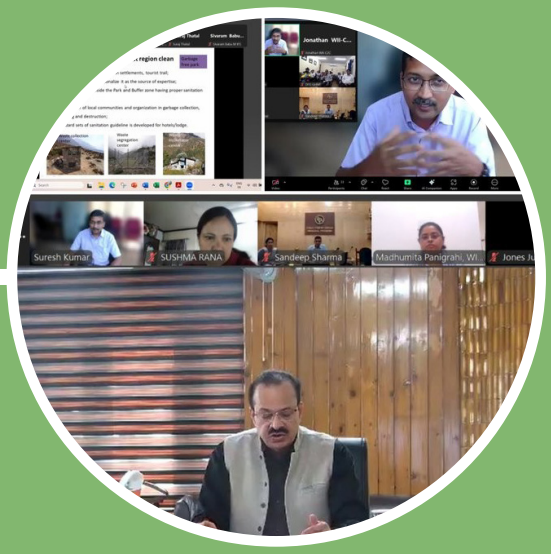
Again on **May 28, 2025**, at Rajmahal, Jharkhand, a Ganges river dolphin awareness workshop was organised by the CAMPA Dolphin WII team, where SDM Rajmahal, Executive Officer Nagar Panchayat, and Range Officer graced the event and interacted with the riverine fishers.


**May 30, 2025**

A capacity building program conducted for 38 officers & frontline staff from J&K Wildlife/Forest & Animal Husbandry Dept. on “Wildlife Health Monitoring & Disease Surveillance” Organized jointly by SKAUST-K, Dept. of Wildlife Protection, J&K & WII.


**June 11, 2025**
In Jharkhand, Team Campa Dolphin, in collaboration with the DFO Sahibganj, led a Rapid Biodiversity Assessment centered on the Ganges river dolphin. To enrich field readiness, a practical training session on research equipment was conducted for dolphin watchers and forest officials at the Dolphin Nature Interpretation Centre, Sahibganj.

**June 11—14, 2025**. The Wildlife Institute of India hosted an intensive 4-day elective module on *Managing Human—Wildlife Coexistence in Agricultural Landscapes* foregathering expert faculty and IFS probationers. The sessions featured insights on species-specific conflicts, legal frameworks, and community-driven solutions. Highlights included courtroom roleplay, thematic presentations, and discussions on managing conflicts involving wild pigs, bears, macaques, canids, reptiles, and birds.




**June 24th 2025**

The World Heritage Site Managers' Conclave which was organised online by the Wildlife Institute of India-Category 2 Centre (WIIC2C) and the Great Himalayan National Park (GHNP) that brought together site managers from GHNP, Nanda Devi, Khangchendzonga, Sagarmatha and Kinabalu that created a valuable platform for global collaboration for the exchange of best management practices and innovative conservation strategies strengthening the efforts to protect some of the world's most treasured natural heritage sites.


Throughout April- June 2025, the CAMPA-Dugong team, in collaboration with forest departments and local communities, organized a series of awareness programs to promote an understanding of dugongs and marine megafauna, emphasizing their role in sustaining seagrass ecosystems, the importance of reporting sightings, and the release of entangled species. Additionally, they showcased how technology and community efforts can support marine conservation.

On April 5, over 100 participants, including frontline forest staff, fishing communities, and students, attended a capacity-building event in Ramanathapuram Forest Division, Tamil Nadu.

This was followed by a fishermen sensitization program from April 6th to 12th in the South Andaman and the Great Nicobar Islands, and a drone survey on April 24 at the Dugong Conservation Reserve, Tamil Nadu.

7th and 8th May outreach activities were conducted across different hamlets in Great Nicobar and Little Nicobar Islands in local villages and primary school children.

On World Dugong Day, that is on May 28, 2025, dugong sensitisation programs, in the form of an interactive session, were conducted with school children from Rajiv Nagar, Chingen Village, and Afra Bay of the Great and Little Nicobar Islands. Children engaged in a colouring competition, followed by an innovative “Dugong and Seagrass” game, a customization of the classic Snakes and Ladders game.

On June 23rd 2025, the team conducted sessions on “Participatory Drone Survey Techniques for Dugong Conservation” and “Dugong Rescue Techniques” during a five-day workshop on Coastal Ecosystems, Sea Turtles, and Dugong Conservation Techniques, organized by the Pudukkottai Forest Division, TamilNadu.

## Representation


**May 27—31**. With participants from over 53 countries, the CITES Global Youth Summit in Singapore commenced with the theme of building a Global Youth Network of young minds committed to making wildlife trade legal, sustainable, and traceable. India was represented by diploma trainee officers Shivakumar Gangal, IFS, and Urvashi Jain, IFS, from the Wildlife Institute of India.


9—10 June. A team of 9 researchers from the Wildlife institute of India attended the Research AI Summit 2025: Bridging Innovation and AI organized by NIPGR Delhi securing 2nd position in the impromptu presentation round, presenting on the AI tools learned during the summit. Dr. Gautam Talukdar from the institute was also a panelist in Session 4 on Diverse Data Sets in India.


16th June, 2025

Free-ranging dogs are altering predator dynamics in the Trans-Himalaya

At ICCB 2025, Priyanka Justa, a researcher from WII, presented research from Trans Himalaya - Spiti Valley, which highlighted population surges and growing competition with native carnivores, which underscored the urgent need for management of wild spaces and bagged the 3rd prize for Best Speed Talk.

The study was part of a SERB-funded project - Niche Selection and Mesopredator release in High Altitude Ecosystems and led by Dr. Salvador Lyngdoh and the conference was supported by WII-Travel grants.

## Key Events

**May 2, 2025**

Sh. Rajesh Gopal, Chairman, TRAC of Wildlife Institute of India, launched the institute's protected area-centric virtual herbarium, dedicated to Dr. W.A. Rodgers and Dr. G.S. Rawat for their immense contributions in establishing the repository, housing over 20000 specimens(>200 families), including 10 type specimens and 181 specimens of lichen (81 species).

**May 29, 2025**

A historic day, where ancient mangroves meet modern science - a ballet of wildlife wisdom, capture artistry, and cutting-edge science as Team WII and NTCA India veterinary experts have successfully radio collared 2 elusive fishing cats in Andhra Pradesh's Coringa Wildlife Sanctuary.

**June 5, 2025**. The WII NMSHE team at Dirang, Arunachal Pradesh, celebrated Environment Day by taking part in the Himalayan Cleanup 2025. The event was organised for the third time in Sangti Valley by Northeast Waste Collective, revived this year with renewed energy and purpose. This hands-on exercise, central to the Himalayan Cleanup movement, equipped students to examine the waste they collected.


**June 5, 2025**. The CAMPA Dolphin teams from the Wildlife Institute of India marked World Environment Day with student participation in two regions: Paschim Medinipur, West Bengal, and Anondaram High School, Assam. Through interactive poster-making sessions and awareness activities, the events celebrated youth engagement in conserving riverine biodiversity.

**June 21st 2025**
On the occasion of International Day of Yoga 2025, "Harit Yoga" under the theme 'Yoga for one Nation, one Health' was organized by Wildlife Institute of India, Dehradun. As a part of the celebration, saplings of Putranjiva roxburghii were planted in the Old Hostel premises of WII and a cleanliness drive was also conducted in and around the office premises of WII

## Sighting and capture

On **April 2**, big news emerged from Buxa Tiger Reserve as the WII and Buxa TR team captured the first-ever photographic record of the elusive Spotted Linsang (Prionodon pardicolor) in the reserve. This secretive, tree-dwelling carnivore — the smallest viverrid in India — was previously known only from parts of Northeast India. Its confirmed presence in North Bengal marked a first.

**June 3, 2025**. In a phenomenal wildlife moment, researchers captured the first-ever photographic evidence of a clouded leopard preying on a Bengal slow loris in Dehing Patkai National Park, Assam, India. This singular documentation put forward a new perspective on the predatory behavior of this elusive big cat.

Photo credit: Dr. G. S. Bhardwaj

# IN CONVERSATION WITH – Mr. Virendra R. Tiwari, IFS

## Introduction

Mr. Virendra R. Tiwari, a senior officer of the Indian Forest Service and currently posted in Nagpur, recently completed a distinguished tenure as Director of the Wildlife Institute of India (WII), Dehradun. Over the course of his career, he has held several key positions across field operations and national policy, earning a reputation as a dedicated and forward-thinking administrator.

At WII, Mr. Tiwari led with vision and purpose, ushering in a period of growth and revitalization. His leadership saw the establishment of pioneering facilities such as the Pashmina Certification Centre, the Next Generation Sequencing Laboratory, the 'Amaltas' Researcher's Room, and the 'Sankalp' Conference Room. He also prioritized staff well-being with the creation of the 'Tusker Gym'. Under his guidance, WII's infrastructure and academic environment were both significantly enhanced.

Renowned for his accessible and inclusive leadership style, Mr. Tiwari was known to engage with researchers beyond the formal setting—whether playing cricket on the campus grounds or participating in cultural evenings, he valued building a strong community spirit.

Looking ahead, he envisions WII as a dynamic institution that not only advances rigorous conservation science but also remains attuned to the practical challenges of development. His legacy is one of balance—between science and society, tradition and innovation, leadership and camaraderie.

**1. From your perspective, how has the role of the Indian Forest Service (IFS) in wildlife conservation evolved over your time in service?**

When I joined the service, India had very few national parks and wildlife sanctuaries, and even fewer trained officers managing these areas. In fact, officers specially trained in wildlife management were almost non-existent. Over the past three decades, however, the role of the IFS in wildlife conservation has evolved considerably. In Maharashtra, some early efforts were made to train officers, which gradually led to the realization that wildlife divisions required personnel with specific expertise. The creation of Tiger Reserves further reinforced this shift. Over time, structured training programs—such as diploma and certificate courses in wildlife management—helped develop field-level competence. The government also began recognizing the importance of specialized knowledge, resulting in initiatives like the Hari Singh Fellowship to strengthen wildlife expertise among forest officers.

Wildlife conservation, once a marginal aspect of forest management, gained prominence with the enforcement of the Wildlife Protection Act. As challenges like human-wildlife conflict became more complex, the need for trained and dedicated wildlife officers became increasingly clear.

Madhya Pradesh led the way by institutionalizing the practice of posting trained officers to wildlife areas and Tiger Reserves. This allowed officers to build entire careers in wildlife management, progressing from Deputy Directors to Field Directors. It's a forward-thinking approach—one that several other states are now beginning to adopt.


**2. Are there any mentors or individuals who significantly influenced your professional journey?**

After completing my probation and a year as Assistant Conservator of Forests, I was posted to the Maharashtra Mantralaya (State Secretariat). My first senior time-scale posting was as Officer on Special Duty, where I had the privilege of working under Shri J.N. Saxena, a senior IFS officer whom I consider my mentor. That assignment was a formative experience—it taught me how government functions, how decisions are made, and how issues are presented in the Assembly. I quickly understood that in government, decisions are not the sole purview of individual departments—whether forest, finance, planning, or law—but represent the collective stance of the administration. That early exposure under Shri Saxena's leadership provided a strong foundation for understanding decision-making at the highest levels.

I am grateful to the many people from whom I've learned throughout my journey. I would like to acknowledge Dr. Suresh Gairola, a senior colleague whose guidance during my early years of service were truly invaluable. Shri Nitin Kakodkar, another senior colleague, has been a steady source of

support for me. My association with Shri Sanjeev Gaud during our time at the Mantralaya was especially enriching. He succeeded me as Officer on Special Duty, and I later succeeded him as CCF during my second tenure—an experience of invaluable discussions that helped me navigate several complex issues.

Looking back, I feel that my professional journey has been shaped by the collective wisdom of mentors, colleagues, and seniors—each contributing uniquely to my growth and perspective.

**3. During your service, and before being appointed as Director of WII, which of your postings were the most rewarding and fulfilling? Could you share any memorable incidents from that period?**

It's hard to single out just one, but a few postings stand out as particularly rewarding. My tenure as Deputy Conservator of Forests in Gondia from 2004 to 2006 was a formative experience. It was my first real exposure to hands-on forestry operations. Until then, activities like timber harvesting, thinning, coupe demarcation, and bamboo and tendu leaf management had only existed in textbooks. Gondia gave me the opportunity to implement these operations on the ground, including auctioning and disposal. It helped bridge the gap between theory and practice.

Another fulfilling assignment was my stint as Field Director at Tadoba. Although short, it was significant because it marked the implementation of Unified Control, where the buffer zone—previously under the territorial division—was brought under the wildlife wing. This administrative restructuring allowed for focused conservation action across both core and buffer areas. It also gave us the opportunity to present our work at the national level in NTCA meetings, where we gained valuable insights from peers and
experts.

My second posting at the Maharashtra Secretariat was also deeply satisfying. Over five and a half years, I handled a wide range of responsibilities—from IFS establishment matters to the Forest Conservation Act, land issues, the Private Forests (Acquisition) Act, and afforestation. One of our most notable achievements during this time was the legal notification of nearly two lakh hectares of forest land as reserved forest, providing long-overdue legal protection to these areas.

Just before joining WII, I also headed the Mangrove Cell for almost three years. This was a completely different terrain—both ecologically and administratively. It involved working on mangrove ecosystems, coastal biodiversity, aquaculture, and community-based livelihood initiatives. Despite the overlap with the COVID-19 pandemic, we were able to make meaningful progress. Each of these postings brought its own set of challenges, learnings, and satisfactions.

**4. As someone who has worked at both the field level and in policy roles, how do you think India can strengthen the interface between science and its implementation in conservation?**

Today, most policies are framed at higher levels with wider stakeholder consultation, which is a positive shift. However, science and administration operate at very different paces — science needs time and data to arrive at conclusions, whereas administration often demands immediate decisions and visible outcomes. Officers rarely have the luxury of pursuing research over multiple years, especially within limited tenures. That said, scientific recommendations should be tested practically on the ground and refined based on outcomes. Often, when a field manager proposes a solution, it isn't always accepted. But if the same idea comes from a reputed scientific body like the Wildlife Institute of India, it carries much more credibility and is rarely questioned.

Even when managers are confident about the right course of action, it is more likely to be accepted if backed by an external expert. This reflects a systemic tendency to place greater trust in outside expertise than in internal experience.

**5. When you took over as Director of the Wildlife Institute of India, what was your vision for the institute, and what were your top priorities?**

To be honest, when I first joined, I didn't know much about the internal functioning of WII. I was aware of its reputation as a premier institution and knew about its role in tiger population estimation, training field staff, and forensic sample analysis—but my understanding beyond that was limited.

So my first priority was to understand how the institute operated and where I could contribute meaningfully. I saw my role as Director primarily as one of facilitation: ensuring that project staff were hired on time, procurements were processed efficiently, and principal investigators had the administrative support needed to meet their project timelines. That's where I focused my efforts.

I didn't come in with a detailed vision or agenda. But once I became familiar with the system, we worked on streamlining administrative processes and resolving employee concerns wherever possible. My philosophy was simple: if people have the right facilities and support, they will deliver their best. That approach guided my work at WII.

**6. What do you consider your most significant contribution as Director of WII, and what do you feel remains a work in progress?**

I've always believed that an institute's appearance reflects its ethos. When people walk into a campus, the cleanliness and upkeep shape their first impression. So, one of my early efforts was to enhance the overall look and feel of WII—making sure it reflected the pride we all have in the institution.

I'm particularly proud of launching the *Journal of Wildlife Science*, an initiative my predecessor, Dr. S.P. Yadav, had flagged as important. Getting it started and running smoothly was a key milestone. We also revamped the WII newsletter, which I initially felt lacked impact; it has since improved substantially in both content and presentation.

Other meaningful developments included making the Pashmina Certification Centre operational and clearing the backlog of forensic analysis—bringing down reporting time to just 45—60 days. I was also able to facilitate the recruitment of around 40—50 positions through a fair, transparent process, free from external pressure or controversy, which I consider a quiet but important achievement.

Some areas remain a work in progress. Finalizing recruitment rules for non-scientific posts and completing the institute's boundary wall are ongoing efforts. On the bright side, the recruitment rules for scientific positions have been approved, and we completed the gym facility just before my departure. There's much potential ahead, and I hope these efforts will carry forward with the same momentum.

**7. What aspects of WII did you enjoy the most, apart from your regular responsibilities?**

One of the things I truly cherished at WII was playing cricket with the young researchers—it took me back to my own college days. Beyond work, I made it a point to ensure their genuine needs were taken care of. I also deeply enjoyed the cultural evenings we spent together; the farewell they organized for me was incredibly moving. Their warmth, creativity, and thoughtfulness left a lasting impression. It was a joy to be surrounded by such an energetic and passionate younger generation. Moments like these are what made my time at WII truly special—filled with warmth, connection, and a sense of shared purpose.

**8. How do you hope to see the institute evolve? What message would you like to share with the researchers and faculty at WII?**

WII has certainly evolved over the last four decades. The kind of work being done today is quite different from earlier years—especially with the increasing involvement in development-related projects. I don't think that, in the early 1990s or even before that, there were many assignments coming from agencies like the National Highways Authority or the Railways. But now, we are witnessing a growing number of such infrastructure-linked projects being routed through the institute.

At the same time, the number of national parks, wildlife sanctuaries, tiger reserves, and eco-sensitive zones in the country has also increased, reflecting a shift in the conservation landscape. With this, the nature of work at WII has also expanded and diversified.

Another change is generational. Many of the senior scientists who were part of the institute's early journey are retiring. Those who joined in the late 1990s and early 2000s are now stepping into leadership roles. And of course, there are many young scientists who have two to three decades of impactful work ahead of them.

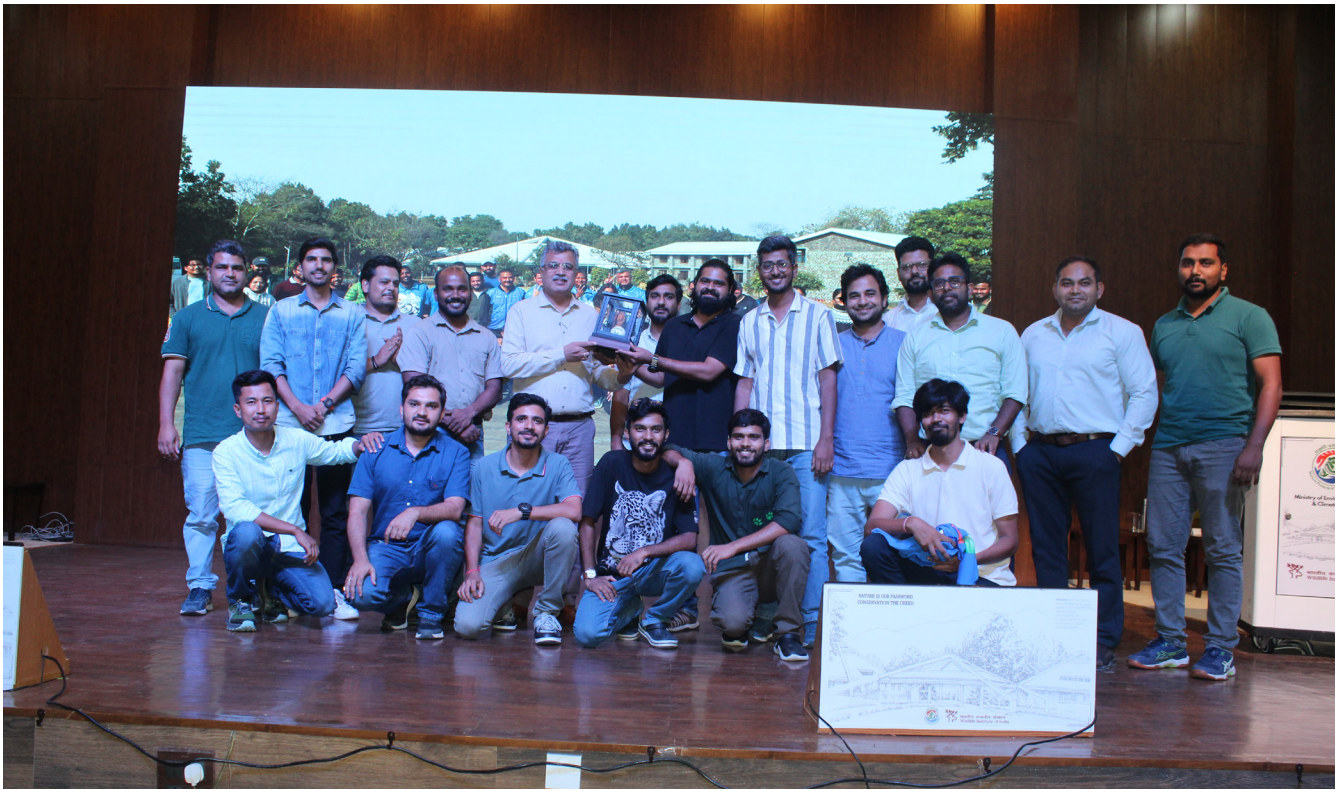
The institute has a bright future. I genuinely believe that WII is not just an organization—it is a brand. A brand built on scientific credibility, integrity, and national service. My message to the researchers and faculty is to protect and strengthen this legacy. Uphold the values of rigorous science, remain open to new ideas, and continue bridging the gap between knowledge and action for the country's ecological future.

**9. If you had to recommend one book, experience, or place that every wildlife enthusiast in India should explore, what would it be?**

That's a very difficult question to answer!

But if I had to pick one place from a management perspective, I'd say Kanha. For me, it's always been a role model. I've learned a great deal from how things are done there—systems, planning, on-ground execution—and I even tried to bring some of those learnings to Tadoba when I was posted there. The kind of proactive approach the Madhya Pradesh government has adopted in managing Kanha is something we can all learn from. In most other states, including Maharashtra, our approach tends to be more reactive or passive. Kanha shows us what's possible when you're ahead of the curve.

As for books, I'll admit I'm not an avid reader. Maybe now that I have more time, I'll finally pick up a few on wildlife. But I feel that I've had many meaningful experiences over the years—some of them small, but significant. Maybe one day I'll sit down and write about them... though I often wonder who would want to read it!




"You've led us like family,
and we'll always remember that."
dfather
NATURE IS OUR PASSWORD
CONSERVATION THE CREED

# Felicitation Program Honouring Shri Virendra R. Tiwari Organized by WII Pensioners' Welfare Association

- Dr V. P. Uniyal

The WII Pensioners' Welfare Association organized a heartfelt felicitation program on 13th June, 2025 to honour Shri Virendra R. Tiwari, Director, Wildlife Institute of India, for his extraordinary leadership and remarkable contributions to the welfare of the institute's pensioners and staff.

The event was marked by warmth, gratitude, and appreciation, with enthusiastic participation from retired and serving members of the WII community. Shri Tiwari was felicitated for his visionary initiatives, compassionate engagement with the retired fraternity, and commitment to strengthening institutional support mechanisms.

Under his leadership, WII has seen significant growth in academic excellence, transparency in governance, and international collaboration. He has played a pivotal role in enhancing research infrastructure, promoting interdisciplinary conservation science, and ensuring the inclusion of pensioners in the institutional fabric through supportive and inclusive policies.

**Author:**
**Dr. V.P. Uniyal**, *Ph D (Professor)*
*Department of Biosciences*
*Graphic Era (Deemed to be) University, Dehradun-*
*Former Scientist-G/ Senior Professor*
*Wildlife Institute of India*
*Dehradun, Uttarakhand-248002, India*

*Mobile : +91 9412992869; 8433410346*
**Email** : vpuniyal.bt@geu.ac.in,
uniyalvp@gmail.com

# Farewell ceremony


Sh. Virendra R. Tiwari,
**Former Director ,WII**

Date of joining: 19.01.2023

Date of farewell: 30.06.2025

Photo credit: Naitik Patel

**Patron:** Dr. Gobind Sagar Bhardwaj, IFS (Director), Sh. Virendra R. Tiwari (Former Director)

**Editors:** Dr. Vishnupriya Kolipakam, Mr. Ritesh Kumar Gautam (Lead) & Ms. Amarjeet Kaur (Lead)

**Lead Associate Editors (review, proofreading & copy-editing):** Ms. Shimontika Gupta, Ms. Sweta Bhattacharya & Ms. Priyanka Justa

**Associate Editors (proofreading & copy-editing support):** Ms. Ashwati Biju, Ms. Mencho Sena, Ms. Smriti Sharma, Ms. Esther L. Hmar

**Institutional information & updates compilation:** Ms. Alka Aggarwal (Sr. Technical Officer)

**Design & Layout:** Ms. Arushi Bhatt

**Cover Photo:** *Halictus (Seladonia)* sp., photo by Mr. Ritesh Kumar Gautam