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Faunal biodiversity of native plant nurseries

Urban areas often host exotic and non-native plant species, whether introduced, managed or spontaneous (Zaninotto et al. 2023), many of which enter via the horticulture trade (Reichard & White 2001; Pyšek et al. 2011; La Sorte et al. 2014; van Kleunen et al. 2018) and may subsequently escape into natural areas within and around cities (Alston & Richardson 2006; Gaertner et al. 2017; Tartaglia et al. 2018; Jenerette et al. 2022). Non-native species remain the second most common driver of extinction across all taxa globally (Bellard et al. 2016). In contrast, native plants generally attract greater faunal abundance and richness than non-native plants, with many invertebrate and vertebrate taxa visiting only native species and showing stronger community-level attraction to native flora (Tartaglia & Aronson 2024).

Native plants also provide a myriad of services to biodiversity in urban environments (Tartaglia & Aronson 2024) such as providing food, cover, breeding sites, and other resources that benefit various fauna (Narango et al. 2017), while also contributing to local climate regulation (Espeland & Kettenring 2018), carbon sequestration (Gratani et al. 2016), and support food webs and soil health that enhance the ecological character of cities (Martinson 2020; Smallwood & Wood 2023). Other than being a source of native plants for various purposes, native plant nurseries can also act as small but ecologically valuable biodiversity patches, supporting higher faunal assemblage.

In this context, the Zoo Outreach Organisation maintains two native plant nurseries under the LivelyWaters! programme. One is primarily for terrestrial native plants and the other for aquatic and water-associated native plants in the plains of Coimbatore. In the terrestrial nursery, there are approximately 40 species and 2,500 individuals, whereas the aquatic nursery contains about eight species and 8,500 individuals of plants. The aquatic plant nursery was set up as part of the Nallusamy Wetland Restoration Project to supply both aquatic and terrestrial plants for the restoration of an urban wetland. Since the terrestrial nursery was already operational, the aquatic nursery had to be set up from scratch with native aquatic plants collected from in and around the Coimbatore region.

As there were some species that required minimal water to survive while others needed standing water continuously, pits were dug up, lined with tarpaulin, and filled with water to create temporary pools for plant maintenance. The native plant species of the aquatic nursery are: Giant Reed *Arundo donax*, Taro *Colocasia esculenta*, Jointed Flatsedge *Cyperus articulatus*, Tall Flatsedge *Cyperus exaltatus*, Marsh Barbel *Hygrophila auriculata*, Lemon Grass *Cymbopogon citratus*, Wild Sugarcane *Saccharum spontaneum*, and Vetiver *Chrysopogon zizanioides*.

Since its establishment, the aquatic nursery has progressively been colonized by wildlife using this space and the resources present



a



b



c



d

a—Spotted Joker *Byblia ilithyia*. © Koshik Rao. | b—Crimson Marsh Glider *Trithemis aurora*. © Koshik Rao. | c—Striped Lynx Spider *Oxyopes salticus*. © P. Kritika | d—Backswimmer Notonectidae sp. . © S. Sushanth.

Table 1. Species list of the fauna observed in the aquatic nursery from March to August 2026.

	Common name	Genus/Scientific name	Family
Invertebrates			
1	Orb weaver spider	<i>Araneus</i> sp.	Araneidae
2	Pygmy Dartlet	<i>Argiopecten pygmaea</i>	Coenagrionidae
3	Common Castor	<i>Ariadne merione</i>	Nymphalidae
4	Spotted Joker	<i>Byblia lithyia</i>	Nymphalidae
5	Coromandel Marsh Dart	<i>Ceragrion coromandelianum</i>	Coenagrionidae
6	Mayfly	<i>Cloeon</i> sp.	Baetidae
7	Common Tiger Butterfly	<i>Danaus genutia</i>	Nymphalidae
8	Hawk moth	<i>Daphnis</i> sp.	Sphingidae
9	Jumping spider	<i>Dendryphantus</i> sp.	Salticidae
10	Jumping spider	<i>Dexippus</i> sp.	Salticidae
11	Fishing spider	<i>Dolomedes</i> sp.	Dolomedidae
12	Common Geronula	<i>Geronula mundata</i>	Acrididae
13	House cricket	<i>Gryllobates</i> sp.	Gryllidae
14	Common Bluetail	<i>Ischnura senegalensis</i>	Coenagrionidae
15	Small Water Strider	<i>Microvelia</i> sp.	Veliidae
16	Flower bug	<i>Orius</i> sp.	Anthrenidae
17	Lynx Spider	<i>Oxyopes</i> sp.	Oxyopidae
18	Armyworm	<i>Spodoptera</i> sp.	Noctuidae
19	Paper wasp	<i>Polistes</i> sp.	Vespidae
20	Soldier fly	Stratiomyidae sp.	Stratiomyidae
21	Two-striped Jumping Spider	<i>Telamonia dimidiata</i>	Salticidae
22	Long-jawed orb weaver	<i>Tetragnatha</i> sp.	Tetragnathidae
23	Orb weaver	<i>Tetragnatha</i> sp.	Tetragnathidae
24	Flower crab spider	<i>Thomisus</i> sp.	Thomisidae
25	Crimson Marsh Glider	<i>Trithemis aurora</i>	Libellulidae
26	Parthenium Beetle	<i>Zygogramma bicolorata</i>	Chrysomelidae
27	Ladybird Beetle	<i>Cycloneda sanguinea</i>	Coccinellidae
28	Wolf spider	-	Lycosidae
29	Pond snail	-	Lymnaeidae
30	Backswimmer	-	Notonectidae
31	Beetle	-	Scirtidae
32	Marsh Beetles	-	Scirtidae
Vertebrates			
1	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	Rallidae
2	Indian Pond Heron	<i>Ardeola grayii</i>	Ardeidae
3	Garden Lizard	<i>Calotes versicolor</i>	Agamidae
4	Common Indian Toad	<i>Duttaphrynus melanostictus</i>	Bufonidae
5	Peninsular Toad	<i>Firouzophrynus peninsularis</i>	Bufonidae
6	Grey Francolin	<i>Ortygornis pondicerianus</i>	Phasianidae
7	Marbled Balloon Frog	<i>Uperodon systoma</i>	Microhylidae

A total of 39 species were recorded from March to August 2026 (each identified at least to family level), comprising 32 invertebrates. In these, spiders were among the most diverse groups recorded, including jumping spiders (*Telamonia dimidiata*), lynx spiders (*Oxyopes* sp.), wolf spiders (Lycosidae sp.), long-jawed orb weavers (*Tetragnatha* sp.), orb weavers (*Araneus* sp.), fishing spider (*Dolomedes* sp.), and flower crab spider (*Thomisus* sp.). All of these are assumed to be making use of the nursery plants and the water presence. A wider range of insects had also settled in, including the Common Geronula *Geronula mundata*, armyworms (*Spodoptera* sp.), the invasive Parthenium Beetle *Zygogramma bicolorata*, house crickets (*Gryllobates* sp.), paper wasps (*Polistes* sp.), flower bugs (*Orius* sp.), Spotless Lady Beetle *Cycloneda sanguinea*, soldier flies (Stratiomyidae sp.), and marsh beetles (Scirtidae sp.). The pools have also attracted aquatic and semi-aquatic taxa not otherwise observed in the terrestrial nursery, such as small water striders (*Microvelia* sp.), mayflies (*Cloeon* sp.), and pond snails (Lymnaeidae spp.). Overall, the nursery appears to function not only as a source of native plants for restoration, but also as a small habitat patch that supports a range of faunal taxa.

within the place. The presence of pond-like pits and dense aquatic plant growth appears to have created suitable microhabitat for a diverse assemblage of animal species. To date, nearly 40 species have been recorded from the nursery, either as residents or transient visitors. The majority of these are insects. The earliest records were the tadpoles of the Common Indian Toad *Duttaphrynus melanostictus* and Marbled Balloon Frog *Uperodon systoma*, along with the Crimson Marsh Glider Dragonfly *Trithemis aurora*, observed in the nursery, and presumably laying eggs in the pond-like habitats. Over time, mayflies, moths, and butterflies followed, along with increasingly frequent visits from birds.

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The International Symposium on Aquatic Flora: Culture, Innovation & Sustainability

The International Symposium on Aquatic Flora: Culture, Innovation & Sustainability was held on 2–4 October 2026 at the Malabar Botanical Garden and Institute for Plant Sciences, Kozhikode, Kerala. The symposium brought together researchers, conservationists, educators, and practitioners to share knowledge and experiences on aquatic flora, biodiversity, conservation, sustainable use, and innovative approaches to protecting freshwater ecosystems.

I represented Zoo Outreach Organisation (Zooreach), participated in the symposium, and presented a talk titled “Community-Based Monitoring and Conservation of the Malabar River-lily (*Crinum malabaricum* Lekhak & S.R. Yadav) in Seasonal Lateritic Streams of Kerala, India.” The presentation focused on this highly restricted endemic freshwater plant, recorded from only six locations in Kerala. It highlighted annual monitoring undertaken at its type locality, Periyar, since 2022 through a collaboration between the IUCN SSC Freshwater Plant Specialist Group, Zoo Outreach Organisation, and Government College Kasaragod. Monitoring data from Periyar, including records from 2017 and 2022–2025, indicated that the population remains fairly stable at this location, although it continues to face threats such as stream-bed clearing, pollution, flower collection for local festivals, and pesticide runoff. The presentation emphasized the need to extend monitoring to other sites where the population status remains unknown, noting that the population is suspected to be declining at two locations, and highlighting ongoing threats such as rubber plantations, laterite mining and construction. It also highlighted collaborations with local birding groups and colleges, which have generated interest and opportunities for greater community participation, awareness, and conservation of *Crinum malabaricum*.



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Community Outreach: challenges and interventions

The objective of the Himalayan Restoration Project is not just to plant trees, but to build a sense of stewardship and responsibility among locals and develop long-term partnerships in the landscape. However, working with communities comes with its own set of challenges, especially in a village setting where people sometimes have a mindset narrower than the nib of a pen. As Sally Walker used to say, 'Elitism', 'Envy', and 'Ego' are the three E's of extinction, but unfortunately these three E's are classical behaviours of all human beings. The real challenge begins when the conservationists have to deal with stakeholders bearing grudges to such an extent that they show a level of niche partitioning which could even put the Finches to shame.

A couple of months ago, our team faced such a problem in Randoh Village, where local labourers and the farm owners got into a dispute over their personal grudges. The situation had escalated to an extent that the farm owner had refused the entry of the HRP monitor on his farm and was

rethinking collaborating with HRP for plantation on his farm.

In order to understand the full picture, we organised a meeting in the village on 26 June 2026, where 25 people from the village attended. Our team communicated the objectives and long term plans of the Himalayan Restoration Project. We also introduced Mrs Seema, who has been appointed as an HRP monitor for that village and explained her job roles, responsibilities and importance to the partnering stakeholders.

Our outreach materials seemed to have an amazing impact on the audience, as we could explain everything very easily and got their attention. Gladly, the problem was resolved



Addressing the crowd. © Anuradha Jaryal.



Signing MoUs by stakeholders.
© Nethra Prem.



Outreach with WSHG participants. © Sachin Verma.

then and there, and not only did all of the stakeholders permit the HRP monitor to regularly visit their farms and check the status of the planted saplings, but they also showed interest in collaborating for the upcoming year's plantation by giving their non-arable farmlands.

Makeshift playground

One of our restoration sites this year is a Deodar *Cedrus deodara* dominated forest patch in Jhalein Village, where our team has planted saplings of 12 different species to promote a mixed-species forest in the future. A total of 105 saplings were planted in empty spaces between the already existing Deodar trees and were protected from grazing ruminants by the installation of plant protectors. This is one of the most picturesque restoration sites located at an elevation of 1,987 m along a forest trail lying equidistant from the adjoining village Nichli Meiyari.

Our team was completely shocked when we visited the site the following month, as we found out that most of the plant protectors had been displaced from the soil and were scattered around. HRP monitors Mrs Seema and Mrs Aasha reinstalled them back in place, but unfortunately this incident repeated the following month again.

Upon inquiring with the locals, we got to know that some children from the nearby village used to play cricket on the site, and the newly erected plant protectors were adding to the crowd. Displeased by their

presence, the children were displacing the plant protectors again and again from the saplings.

In order to solve this, our team conducted a meeting with the women self-help group (WSHG) of Nichli Meiyari on 5 October 2026, where 15 ladies participated. We discussed the problem in the meeting and requested the assistance of the participants to spread the word in the village to urge the children not to displace the plant protectors. We also built new communication channels in the village for future collaborations.

Our team also visited the local primary school and spoke to the students, where we tried to teach them the importance of the saplings at that site and the consequences of removing tree guards. This was by far the cutest outreach session HRP has ever done, as all of the participants were first and second graders and hardly above seven years of age.

It was chaotic in the beginning, but the kids were kind enough to accept their mistake, and a few of them promised to not do it again. However, a few of them had a different swag where they said that they did it because they didn't have any other place to play or simply



Tiny hands, big promises. © Amrin Ansari.

for the fun of it. That's where our monitors spoke to them in the local dialect and tried to convince them not to do so in the future. Just a single session of outreach is never enough to deal with conservation challenges, especially when we are trying to convince tiny human beings who are too young to understand the consequences of their actions. Our team is planning to follow up on the situation and evaluate the effectiveness of our outreach to plan an audience-specific approach to deal with the issue.



With the Panchayat team. © Vishal Ahuja.

Explaining restoration impacts through a poster. © Lakshya Rathore.

From Gram Sabha to Ground Action: Himalayan Restoration Project Working with Panchayats for Landscape Restoration

7 July: HRP's First Step Towards Collaboration under VB-G RAM G

Before joining the Himalayan Restoration Project (HRP), I had visited Himachal Pradesh, but I had never paid much attention to how people name their villages based on their location on the hillside. I learnt something new about this during my work in Chamba. Villages in the upper part are often called Uparli, those in the middle are called Manjli, and those in the lower part are called Nichli. Basodhan, for example, has Uparli Basodhan, Manjli Basodhan, and Nichli Basodhan.

The same pattern can be seen in other areas, including Bhoin. In a landscape where reaching one village from another can itself be a task, even the names tell a story about the mountains and the people who live there. On 7 July, we visited the Basodhan Panchayat

office to attend a Gram Sabha meeting. Around 150 people from nearly 30 villages, including Jot, Fatt, Bhoin, Tappar, Talai, and Basodhan, had gathered to discuss local issues. After waiting for almost an hour, we finally got our chance to speak. Standing in front of so many people was not easy, especially when everyone had come with their own concerns and important matters to discuss. But we had something important to share too.

We introduced the Himalayan Restoration Project and Zoo Outreach Organisation and explained why restoring the local landscape matters, not only for people but also for wildlife. Our aim was to help people understand how planting native species and protecting them could improve the local environment and, over time, help reduce negative encounters between people and wildlife. We distributed stickers featuring five local flora and fauna species and showed posters explaining how restoration could bring positive changes to the landscape.

We also shared our planting targets. This year, we aim to grow and plant more than 10,000 saplings, with a target of over 20,000 in the following year, including the replacement of saplings that did not survive previous planting efforts. But planting thousands of saplings in these hills is easier said than done. The terrain is difficult, and finding enough labour is a constant challenge. Sometimes, we have to bring workers from other villages to complete the work.

That is why we also spoke about getting support through MGNREGA, now known as VB-G RAM G. With support from the Panchayat and the scheme, we hope to involve local workers in restoration activities in their own villages. This would help us manage the work while also giving local people an opportunity to contribute directly to making their surroundings greener. We also hoped that stronger government and community involvement would encourage people to protect the saplings and tree guards, which are sometimes damaged, removed, or used for other purposes.

What made the meeting special was the response from the Panchayat representatives. The Pradhan and Up-Pradhan supported our efforts and assured us that they would help take the plantation work forward. The Up-Pradhan, in particular, gave us the

opportunity to speak first, even though many other matters were waiting to be discussed. We were grateful for that trust.

When we left the meeting, I realised that our outreach had reached much further than the 150 people sitting in front of us. Each person could share what they had learnt with their family, neighbours, and other villagers. One meeting could therefore start conversations across many more households.

For us, 7 July was an important step in our work with Basodhan Panchayat. Although we had already conducted outreach activities with other Panchayats, this was our first opportunity to present HRP's work to the Basodhan Gram Sabha. It was also our first pitch for support under VB-G RAM G. We hope this collaboration will help us overcome some of the



Addressing the crowd.
© Shreya Yadav.

challenges on the ground, involve local people in restoration, and bring lasting change to the hills of Chamba. After all, restoration is not just about putting saplings into the soil; it is about getting people involved, helping them care for what grows, and working together to give native forests a better chance to survive.

2 October: Taking Himalayan Restoration to New Communities: A New Beginning for HRP in Parotha

On 2 October, we attended a Gram Sabha meeting in Parotha, a village towards the northern side of Chamba. Unlike some of our existing project sites, Parotha is quite far from our other sites and field station. Reaching there regularly is not easy, and the steep slopes make plantation work even more challenging. Still, we knew that taking our restoration work to Parotha was important, especially because the area faces frequent landslides, both big and small.

Around 60–70 people attended the meeting. Since Parotha is home to people from different religious communities, it was important for us to communicate carefully and respectfully so that no community's sentiments were hurt. Thankfully, our local team members and stakeholders helped us understand the local situation and explain the Himalayan Restoration Project (HRP) in a way that people could relate to. Although we had not met most of the people or the Pradhan before, our local stakeholders helped introduce us to the Pradhan and Up-Pradhan and made it easier to start a conversation.

This year, we have seven local stakeholders supporting our work in Parotha. Their support made a real difference during the meeting. We explained HRP's work and the importance of restoring the local landscape, using the local language so that people could better understand our purpose. It was encouraging



With the Panchayat team. © Satish Thakur.

to see how people listened and began sharing their own thoughts about the environment and their village.

One thing that genuinely surprised me was how many people came forward and offered their land for restoration. I believe that living with the risk of landslides has helped people understand the importance of trees and vegetation in protecting the landscape. After the meeting, several people contacted us to discuss restoration on their land. So far, we have identified around one hectare of land in Parotha and nearby areas for this work.

During the discussion, some people suggested planting *Robinia pseudoacacia*, locally known as Rubina, because its leaves are used as fodder for cattle. Since the tree has been growing in the area for years, people are familiar with it and its uses. We explained that even though cattle eat its leaves and it is useful to local people, Rubina is not a native species. We also discussed the difference between native and non-native plants and why it is important to choose native species for ecological restoration. Our aim is not just to plant more trees, but to restore the landscape with species that naturally belong to the region.

The meeting gave us a good start, but the real work was still ahead. Parotha is far from our other sites, and travelling there frequently requires time and effort. The plantation sites are also on steep slopes, making the work physically demanding. However, we did not want these challenges to become a reason for leaving the area out of our restoration efforts. We pushed ourselves to reach Parotha because

the need for restoration was just as important there.

For me, 2 October was more than another Gram Sabha meeting. It was HRP's first outreach in Parotha and the beginning of new relationships with the local community. Seeing people voluntarily offer their land gave me hope that our work could grow beyond our existing sites. With the support of local stakeholders and the Panchayat, we hope to expand our network, restore more land with suitable native species, and bring HRP's work to more communities across Chamba.

Restoration in a place like Parotha will not be easy, but the willingness of local people to participate reminds us why the effort is worthwhile. A project may begin with a small team, but when the community becomes part of it, its reach and its chances of lasting success grow much stronger.

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Arpana Trust



Himalayan Bear Project

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Beyond Fear: Biru's Journey Towards Human-Bear Coexistence

The story of a Gaddi shepherd from Chamba, his struggle to survive a bear attack, and the challenges of living alongside wildlife in a changing landscape.

#HumanWildlifeCoexistence #CaseStudy
#HimalayanBlackBear #BearAttackSurvivor

Note: This anecdote and the accompanying photographs are shared with consent of the individual. The name 'Biru' is a pseudonym used to protect his identity.

An Evening That Changed Everything

In mid-November 2025, during the late evening, Biru, a member of the Gaddi community, went into the forest near Odda Village, under Odda Panchayat in Chamba District, Himachal Pradesh, to collect fuelwood to cook dinner. Like many Gaddi families, Biru depends on sheep, goats, and their products for his family's survival throughout the year. His livelihood is closely connected to the forests and mountain landscapes he has known for years.

That evening, he was accompanied by his Bhotiya dog and carried a 'darati' (sickle). While in the forest, he sat down and spoke to

someone on his mobile phone. After finishing the call, he stood up, put his phone into the upper pocket of his coat, and began walking.

Suddenly, a bear attacked him, biting his right shoulder first. According to Biru, two bears were present—one adult and one smaller bear. He suspected that the adult might have been the mother of the younger one. The attack was sudden, leaving him disoriented, unbalanced, and frightened. He was bleeding and struggling to understand what was happening. Despite his fear, he remembered the sickle he was carrying and fought back with it. He also signalled to his dog, whose actions, according to his account, helped him during the encounter.

Biru suffered several serious injuries. He received 21 stitches near his left eye and sustained bite injuries to his right hand and shoulder, an injury to his nose, and deep claw marks across his back. Somehow, he survived.

For Biru, survival was not just a matter of chance. He believes that Lord Shiva protected him that night. During the interview, he also spoke about a traditional belief concerning a boon granted by Lord Shiva to the Gaddi





Top: Biru showing stitches near his left eye. Bottom: Biru with his darati (sickle). © Lakshay Tyagi.

community. His faith became an important part of how he understood and remembered the incident.

The Cost of Surviving

Surviving the attack was only the beginning of Biru's struggle. His treatment and post-treatment care came with considerable expenses. With his family dependent on sheep, goats, and their products for its livelihood, these costs placed a heavy burden on the household.

To manage the expenses, Biru had to sell three of his sheep to a butcher. These were not simply

animals he could afford to lose; they were part of the livelihood on which his family depended

His difficulties did not end with the bear attack. Biru explained that every year, two or three of his sheep die after landslides or by falling from cliffs. For a family that relies on livestock throughout the year, such losses can have a direct impact on its income and ability to meet daily needs.

When asked whether he had received any financial assistance or compensation from the government or the local panchayat following the attack, Biru said he was still waiting. He felt that little was likely to come from the process. He recalled hearing about other people who had survived bear attacks and received only ₹5,000 in compensation, sometimes after completing extensive paperwork and waiting for around eight months. For someone facing immediate medical expenses and the loss of income, such a long wait can be extremely difficult. As Biru pointed out, treatment cannot wait for months. Bills have to be paid, food has to be arranged, and families must continue to survive.

He expressed frustration at the difference between assurances that the government cares for the Gaddi community and the difficulties shepherds face when they need help. In his experience, there was little immediate support, and the burden of managing the consequences fell on the affected person and their family.

His frustration was not directed at bears alone. It was also shaped by the financial pressure,



Biru, a Gaddi shepherd, sharing the realities of living alongside wildlife in the Himalaya.

uncertainty, and difficulties he faced while seeking assistance.

When Fear Turns into Anger

After such a painful experience, Biru's fear of bears was understandable. The attack had left him with serious injuries and a financial burden that threatened the livelihood of his family. He expressed a desire to kill bears, reflecting the anger and helplessness he felt after the encounter.

For someone whose daily life depends on taking livestock into mountain landscapes, the possibility of another encounter can be frightening. Understanding wildlife behaviour does not immediately remove that fear, especially when the consequences of an encounter can be so severe.

Biru's experience also highlighted an important reality: human–wildlife negative interaction is not only about an encounter between a person and an animal. It can affect a family's income, health, security, and sense of safety for months or even years afterwards.

A Conversation About a Changing Landscape

During our conversation, I spoke to Biru about the environmental changes taking place across the Chamba Valley and their possible connections with human–wildlife interactions. We

discussed habitat loss, forest fragmentation, urbanisation, tourism, and other ecological changes that may affect wildlife movement and behaviour.

As forests and natural habitats are altered, wildlife can face changes in the availability of food, shelter, and safe movement routes. Human activities can also bring people and wildlife into closer contact. Although these factors cannot establish the cause of Biru's particular encounter, they are important to consider when discussing human–bear conflict in the region.

We also discussed the need for coexistence: protecting wildlife while ensuring that people who share these landscapes can live and work safely. During the conversation, I noticed a shift in how Biru spoke about bears. He began to consider their situation alongside his own suffering. At one point, he said:

“Bhalu kithe jaan? Bande unhan da ghar-baar te khana-peena sab kujh ujaadi ditta, te bhugatna saanu painda ae.”

“Where will the bears go? Humans have destroyed their homes, food sources, and places to live, and we are the ones who have to suffer the consequences.”

He also reflected that if there were more forests, perhaps bears might not attack people in the same way.

His words did not erase the trauma he had experienced, nor did they mean that his fear had disappeared. But they showed that he was beginning to look at the situation from another perspective. He could recognise that bears, too, depend on a landscape that is changing under human influence.

Beyond Fear: Towards Coexistence

Biru's story is a reminder that conservation cannot be separated from the lives and livelihoods of local communities. For a Gaddi shepherd, livestock is not merely a source of income; it is the foundation of his family's survival. When a bear attack results in serious injuries and high medical expenses, the consequences extend far beyond the immediate encounter.

At the same time, bears are part of the mountain ecosystems they inhabit. Protecting them requires us to understand the pressures on their habitats and explore ways to reduce encounters between people and wildlife.

Awareness and conversations can help build understanding, but they are not enough on their own. Shepherds and other people living alongside wildlife also need practical support,

accessible and timely compensation, and effective measures to reduce the risks they face.

Biru survived a frightening encounter, but he was left to bear much of its financial and emotional cost. His story shows why coexistence must involve both sides: protecting wildlife and recognising the hardships of the people who share its habitat.

Sometimes, a conversation cannot change someone's entire experience. But it can open a small window through which they begin to see things differently. In Biru's case, that window opened when he began to ask not only why bears attack people, but also where bears can go when their own homes are disappearing.

For human–wildlife coexistence to become a reality, neither people nor wildlife should have to bear the entire cost of sharing the same landscape.

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Arpana Trust



Himalayan Bear Project

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Artist at SCCS Bengaluru

The Student Conference on Conservation Science (SCCS) is held annually in Bengaluru, bringing together students, researchers, conservationists, organizations, and wildlife enthusiasts from across the country. This year, I had the opportunity to be one of six artists invited to display my work at the conference and use art as a way to communicate my love for wildlife and conservation.

For the exhibition, I chose two main themes: **mushrooms** and **grassland species**. Using air-dry clay, I created a series of handmade pins and magnets featuring different species and elements of the natural world.

A major focus of my stall was on grassland birds. I referred to information from the *State of India's Birds* report to understand the population trends and habitat concerns associated with different species. Four



birds became the stars of my stall: the **Indian Courser**, **Common Kestrel**, **Painted Sandgrouse**, and **Montagu's Harrier**. Through these artworks, I hoped to draw attention to grasslands as important natural ecosystems and to species that are often overlooked.

The mushroom-themed pins and magnets also became particularly popular among visitors. Alongside these, I displayed my **2027 Native Plant Calendar**, which features native plants from the open natural ecosystems and highlights the months in which their flowers bloom. Considerable research, time, and effort went into creating the calendar. Each month also carries a small personal memory or experience that I associate with the featured



plant, making it both a conservation resource and a record of my own journey of learning about plants. And then came everyone's favourite, the stickers! Most of them featured grassland species, with two special additions: a pair of Black Swans from Australia and a pair of Laysan Albatrosses from the Hawaiian Islands. These small artworks became an enjoyable way to introduce people to species.

While the artwork and products received a wonderful response, the most memorable part of SCCS was undoubtedly the people I met. The conference brought together so many individuals working in different areas of wildlife

research and conservation. There were NGOs, researchers, students, speakers sharing their knowledge, and presenters showcasing new discoveries and ongoing work through talks and posters. Every conversation opened the possibility of learning something new.

I also had the chance to meet many new people and reconnect with friends and colleagues, creating new connections and groups with whom I hope to continue learning and sharing ideas about wildlife and conservation. It was especially wonderful to meet fellow alumni from the **Ram Hattikudur Advanced Training in Conservation**, where we could catch up and learn about the different paths our work has taken since the training.

I am deeply grateful to Srinivasulu and Bhargavi for recognising and encouraging me to be a part of Zooreach and equally thankful to Sanjay, who has continuously encouraged me to keep creating, improving, and developing my skills.

Most importantly, I am grateful to the Zoo Outreach Organisation family for supporting me and giving me the space and confidence to pursue something I love.

For me, art is not just a creative pursuit. It is another way of **talking about wildlife, sharing knowledge, creating curiosity, and helping people connect with species and ecosystems**. SCCS gave me a wonderful opportunity to bring these two worlds, art and conservation, together.

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Citation: Poojitha, D. (2026). Artist at SCCS Bengaluru. *Zoo's Print* 41(10): 17–18.



Malayalam Science Conference 2026

The Malayalam Science Conference 2026 (മലയാള ശാസ്ത്ര സമ്മേളനം 2026) was held on 25–26 September 2026 at ICAR-CIFT, Kochi. It was Jointly organized by ICAR-CIFT, Swadeshi Science Movement-Keralam, and the Bharatiya Bhasha Samiti (Ministry of Education). The event focused on the theme “Gaveshana Arivukal Pothujanangalilekku”, where scientific research is simplified & conveyed in regional language (Malayalam, in this case) to common laymen.

As part of the 10CEAN Citizen Science Initiative by Zoo Outreach Organisation (ZOO), Rohith Rajesh, a student from St. Aloysius College, Mangalore who interned with the organization, presented his short research titled, “The Survey of Shark Species Landed, Consumption, Trends and Trade at Cochin Fisheries Harbor”. His presentation shared valuable insights into local shark diversity, fisheries landings, fishers thoughts on declining shark populations, consumption patterns, and trade dynamics.

This research forms part of the Zoo Outreach Organisation–St. Aloysius College collaboration initiated in 2025 to document shark and bycatch



Rohith Rajesh presenting at the Malayalam Science Conference 2026, ICAR-CIFT, Kochi.

trade at regional fishing harbors, contributing to a better understanding of shark & bycatch trade practices in Cochin, Madakkara, and Mangalore harbors in the western coast of India.

The presentation received the Best Paper Award recognizing his contribution to communicating important scientific findings that aids in shark conservation.

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Citation: Rajesh, R. (2026). Malayalam Science Conference 2026. *Zoo's Print* 41(10): 19.

Large-tailed Nightjar in Harike, Punjab

In the Indian Subcontinent, the Large-tailed Nightjar (LTN) *Caprimulgus macrurus* is distributed from foothills of Himalaya from northeastern Pakistan, east to Bhutan and northeastern India, south to eastern India and Bangladesh (Cleere & Kirwan 2020). It breeds mostly from base of hills to 900 m, wintering mostly in the plains (Rasmussen & Anderton 2012).

Here, we present a sighting of the LTN from Harike, Punjab, India. On the evening of 22 November 2025, at 1815 h the first author observed a nightjar along the path leading to the bird watching area at Harike (31.1302° N, 74.9662° E, 210 m). It was already getting dark, and the path was particularly shaded by dense adjoining vegetation.

Approximately 30 seconds after entering the path, the first author noticed



Large-tailed Nightjar at Harike. © Manish Ahuja.



The dust track on which the Large-tailed Nightjar was found. © Gurpartap Singh.

a shiny object on the track. Initially, he assumed it to be the eye shine of a mammal. As he approached closer, however, he realised that it was unlikely to be a mammal, as a mammal looking directly towards him would show two shining eyes in the darkness. On approaching

further, he identified the object as a nightjar. As he did not have his camera with him, he used his mobile phone to take a few photographs before the bird flew away.

The photographs were subsequently examined,

and the bird was identified as LTN, from the combination of wing coverts spotted buff, indistinct tawny/buff collar around hind neck, and broad white tips to two outermost tail feathers (Cleere 2010), even though the white throat patch was obscured due to insufficient light. The broad white tips to two outermost tail feathers indicated it to be a male.

This species is very rare in this area, though a few sightings have been reported from other parts of Punjab, mainly in the Shivalik foothills. The few published/documentated reports from the state are presented below.

Except the one sighting each from Ludhiana and Harike, all other sightings have been from the Shivalik foothills in Sahibzada Ajit Nagar, Rupnagar and Pathankot districts. Thus, the present sighting is significant as it is only the third one outside the Shivalik foothills. This individual must have come down to the plains for wintering, from the foothills in the north.

The location where the LTN was found is a dust track leading to the bird watching area at Harike Wildlife Sanctuary. On one side is the embankment with vegetation along the huge waterbody carrying water from the Sutlej River and on the other side is the forest between the sanctuary and the twin irrigation canals coming from the Harike Barrage.

The location is very secluded as the entry is restricted. This species, like its congeners, is crepuscular and nocturnal. True to its nature, the bird was observed when it was already getting darker in the evening. It habitually squats in the middle of paths and forest roads, flying up and sailing around every now and again to hawk over the adjacent clearings (Ali & Ripley 1983). In the present case also, the bird was found squatting on a path in wooded area. Interested researchers and birdwatchers can identify and locate similar habitats where this species may occur.

Previous reports of Large-tailed Nightjar from Punjab.

Location	Date and description	Reference
Unspecified, Rupnagar District	Unspecified	Anonymous 1987
Punjab Agricultural University, Ludhiana	Not mentioned; specimen collected, morphometric measurements taken	Saini & Saini 1995
Harike Wildlife Sanctuary	30 November 1996, one bird reported by Per Undeland	Robson 1997
Dhar, Pathankot District	Between 17 and 22 April 1997	Per Undeland, in litt., e-mail dated 13.xi.2025
Santokhgarh, Rupnagar District	Unspecified; indicated as resident/ partially migratory	Kumar et al. 2006
Bardar, Rupnagar District	Two birds seen in flight, call recorded	Chaudhary 2019
Anandpur Sahib, Rupnagar District	06 June 2020, five birds reported, photos clicked	Bamby 2020
Village Bani, Rupnagar District	07 June 2020, one bird photographed	Bhatti 2020
Paili Khurd, Rupnagar District	07 June 2020, four birds reported	Virk 2020
Siswan, Sahibzada Ajit Singh Nagar District	Unspecified; indicated as resident	WII 2020

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Vocal mimicry of the White-throated Kingfisher by the House Crow in an urban habitat in Pune, Maharashtra



A House Crow
Corvus splendens
in an urban habitat
at the Darda Girls'
Hostel area, Pune,
Maharashtra, India.
© Amit Sayyed.

Crows belonging to the genus *Corvus* are among the most widespread and behaviorally complex birds in the family Corvidae. Members of this family occur across diverse habitats, including forests, agricultural landscapes, urban environments, and coastal ecosystems, and are well known for advanced cognitive abilities, complex social structures, problem-solving skills, and flexible behavioural strategies (Emery & Clayton 2004; Marzluff & Angell 2005).

Vocal communication plays an important role in corvid social organization, with calls used in alarm signalling, territorial defence, mate communication, and group coordination.

Research on Jungle Crows has demonstrated individual recognition through vocal signatures and adjustment of calls according to social context (Kondo et al. 2010). In Jungle and Carrion Crows, differences in vocalizations have also been associated with vocal organ morphology and acoustic structure, indicating that both anatomical and behavioural factors influence sound production (Tsukahara et al. 2007).

Vocal learning and mimicry are among the notable features of corvid vocal behaviour. Vocal mimicry involves the production of sounds resembling those of other species or environmental sources. Although vocal

learning is particularly well documented in parrots and some songbirds (Bradbury & Balsby 2016), complex vocal production also requires precise motor control of the vocal apparatus (Goller & Cooper 2004). Vocal mimicry has now been documented in several members of the Corvidae. Wascher et al. (2025) found evidence of vocal mimicry in 39 of 128 corvid species (30%), involving calls of raptors, owls, gulls, songbirds, cuckoos, mammals, amphibians, insects, humans, and anthropogenic sounds.

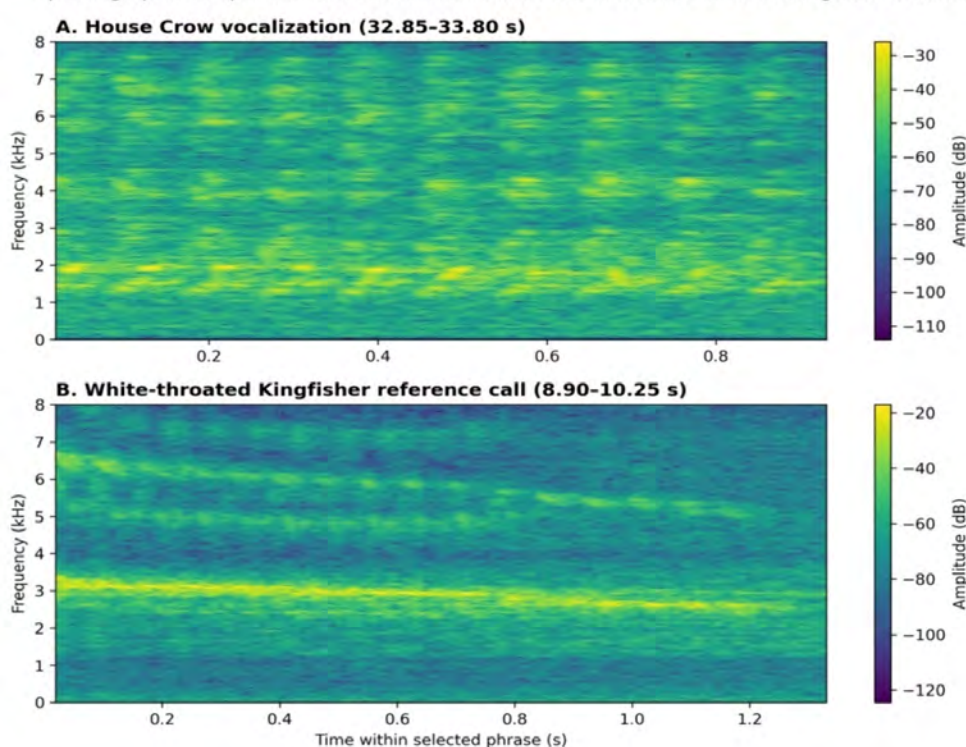
The ecological and behavioural significance of such mimicry remains uncertain and may involve interspecific communication, social interactions, deterrence, or vocal learning as a by-product of advanced vocal flexibility (Emery & Clayton 2004). Vocal production learning can also involve convergence toward or divergence from auditory models depending on social and environmental conditions (Vernes et al. 2021).

Despite increasing interest in corvid vocal behaviour, detailed field documentation of natural vocal mimicry remains limited. The present note documents a long-term, individual-specific vocal variant in a House Crow *Corvus splendens* that closely resembles the vocalization of the White-throated Kingfisher *Halcyon smyrnensis* in an urban locality of Pune, Maharashtra, India. The observation is supported by a complete field recording and spectrographic comparison with a White-throated Kingfisher reference recording.

Audio recording and acoustic analysis

The vocalization of the House Crow was recorded at an approximate distance of 7.6 m (25 ft) using a Samsung Galaxy On7 Prime smartphone in M4A/AAC format. At the time of recording, the crow was perched on an electric wire. For acoustic comparison, a reference recording of the White-throated Kingfisher was

Spectrographic comparison of the submitted House Crow and White-throated Kingfisher recordings



Spectrographic comparison of vocalizations: A—House Crow (*Corvus splendens*) vocalization from the submitted field recording | B—White-throated Kingfisher *Halcyon smyrnensis* reference vocalization.

obtained independently at the same locality on 17 August 2026 using the same equipment and saved in MPEG file format. Original audio files were retained for subsequent bioacoustic analysis. For additional comparison, an independently archived White-throated Kingfisher recording from India (Scharringa 2021) was also consulted. The recordings were examined using Python 3 with the SciPy, NumPy, and Matplotlib libraries. Spectrograms were generated using a Hann window with a 2048-point FFT and 1792 samples of overlap between successive windows. For visual comparison, the frequency range of the spectrograms was restricted to 0–8 kHz and spectral amplitude was displayed on a decibel scale.

For the preliminary acoustic comparison, representative vocal phrases were selected from both recordings. The selected House Crow phrase occurred at approximately 32.85–33.80 s, while the selected White-throated Kingfisher phrase occurred at approximately 8.90–10.25 s. Phrase duration was measured from the beginning to the end of each selected vocal phrase. Spectral measurements included the median spectral-peak frequency and median spectral centroid within the 1–8 kHz frequency range. The spectral peak represents the frequency with the highest spectral amplitude within the analyzed range and was not interpreted as the fundamental frequency.

The acoustic measurements were used for descriptive comparison only. As the recordings were obtained under different recording conditions, amplitude values were not treated

as calibrated sound pressure measurements. The same spectrogram settings and frequency scale were used for the two recordings to facilitate visual comparison of their temporal and spectral characteristics.

Observation

Field observations were conducted on 07 March 2026 at approximately 1000 h in the Darda Girls' Hostel area, Gultekdi Market Yard, Pune, Maharashtra, India (18°28'56.0"N, 73°52'03.2"E; ca. 608 m). The site is a densely populated urban locality containing trees, open spaces, buildings, electric wires, and human-associated food resources. During the observations, a House Crow was recorded producing a vocalization closely resembling that of the White-throated Kingfisher.

The individual had been known to the observer for a long time, and the vocalization described here had been repeatedly recognized as part of its normal vocal behaviour. The individual commonly attempted a typical House Crow vocalization but repeatedly returned to the same distinctive vocal form resembling the White-throated Kingfisher. The complete behavioural sequence, including these vocal attempts and repetitions, is retained in the submitted audio recording. Thus, the present record represents a persistent vocal characteristic of a known individual rather than an isolated unusual call.

Several House Crows were present and active in the locality, with multiple nesting sites occurring in nearby trees. However, during the observer's repeated encounters with the local crows, this

Descriptive acoustic measurements of representative vocal phrases.

Parameter	House Crow	White-throated Kingfisher
Recording origin	Field recording	Field recording
Selected phrase	32.85–33.80 s	8.90–10.25 s
Phrase duration	0.95 s	1.35 s
Median spectral-peak frequency	1.82 kHz	2.93 kHz
Median spectral centroid	3.44 kHz	3.21 kHz
Sampling rate	48 kHz	48 kHz

particular individual was consistently associated with the distinctive kingfisher-like vocalization. This observation describes an individual-specific vocal variant rather than a widespread behaviour among local House Crows.

The vocalization consisted of repeated harsh notes delivered in short phrases. In the field, its overall vocal quality and temporal pattern were sufficiently similar to the characteristic loud vocalization of the White-throated Kingfisher to allow recognition by the observer. Rasmussen & Anderton (2012) provide the principal regional field reference for *H. smyrnensis*, and independent reference recordings were also consulted for acoustic comparison. This comparison is based on the overall temporal and spectral structure of the calls, without assuming the two vocalizations are acoustically identical.

Bioacoustic comparison

The submitted House Crow recording was examined spectrographically and compared with the recorded White-throated Kingfisher reference recording. Time is shown on the x-axis and frequency on the y-axis (0–8 kHz). The spectrograms are presented for visual comparison of temporal and spectral structure. Recording amplitudes are not directly comparable between the two recordings. A

representative House Crow phrase occurring at approximately 32.85–33.80 s and a clear White-throated Kingfisher phrase occurring at approximately 8.90–10.25 s was selected for the initial descriptive comparison.

The selected House Crow phrase was approximately 0.95 s in duration, whereas the selected White-throated Kingfisher phrase was approximately 1.35 s. Within the 1–8 kHz analysis band, the median spectral-peak frequency was approximately 1.82 kHz for the Crow phrase and 2.93 kHz for the Kingfisher phrase. Median spectral centroid values were approximately 3.44 kHz and 3.21 kHz, respectively.

These measurements are presented as descriptive acoustic parameters rather than evidence that the two calls are acoustically identical. Because the recordings were made under different recording conditions and with different source recordings, amplitude should not be interpreted as directly comparable sound-pressure level. Similarly, the spectral peak is not interpreted here as the fundamental frequency.

Discussion

The observation contributes to the growing body of knowledge on vocal flexibility in corvids

by documenting a persistent, individual-specific vocal variant in a free-ranging House Crow. Unlike an isolated opportunistic recording, the vocalization described here was familiar to the observer over an extended period and was repeatedly produced as part of its normal vocal behaviour. The individual's repeated return to this distinctive vocal form after attempting a typical House Crow call is consistent with a stable individual vocal variant that may have been learned or established during development. However, because the acquisition process was not experimentally observed or manipulated, the present observation cannot establish the precise mechanism by which the vocalization was acquired.

The spectrographic comparison demonstrates that the House Crow and White-throated Kingfisher vocalizations share a broadly overlapping frequency range, while also showing differences in phrase duration and spectral peak frequency. The two calls should therefore not be described as acoustically identical. Rather, the acoustic data support the field observation that the Crow produces a vocalization resembling the White-throated Kingfisher, with similarity evident in the general temporal and spectral characteristics. This interpretation is consistent with the broader evidence that vocal mimicry is widespread but variable among corvids; Wascher et al. (2025) documented mimicry in 39 of 128 corvid species and emphasized that many cases may remain undetected.

The White-throated Kingfisher is a conspicuous and vocal species that commonly uses exposed



A House Crow
(*Corvus splendens*)
© Amit Sayyed.

perches in open and human-modified habitats (Rasmussen & Anderton 2012). The broader locality where the Crow was observed is suitable for regular occurrence of the species.

However, unless the presence of a White-throated Kingfisher was directly documented immediately before or during the recorded sequence, the present observation does not show that the crow necessarily acquired the vocalization through recent exposure to a nearby individual. Instead, repeated exposure to the species' vocalizations in the broader locality may be considered a possible source of the auditory model.

The original observation that other House Crows in the locality did not show the same vocalization should also be interpreted cautiously. Because the observations were not conducted as a standardized quantitative survey of all local crows, absence of the same vocalization in other individuals cannot be used to demonstrate that mimicry is absent from the local population. Nevertheless, the repeated association of this vocalization with the same known individual supports the interpretation

that it represents an individual-level vocal characteristic.

The functional significance of the vocalization remains uncertain. It may reflect exploratory vocal learning, individual behavioural innovation, social signalling, or incorporation of a frequently heard heterospecific vocalization into the individual's repertoire. The present observations do not provide evidence that the Crow was attempting to communicate directly with White-throated Kingfishers, nor do they demonstrate an adaptive function for the mimicry. Continued monitoring of this individual, together with recordings of its normal House Crow calls and kingfisher-like vocalizations, may help determine whether the vocal variant persists with age, changes with social context, or occurs in other individuals.

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First documentation of a male Smew from Assam



Left: The male Smew during short flights within the wetland. © Chiranjib Bora. Right: The Smew seen associating with Eurasian Coots. © Neeraj Bora.

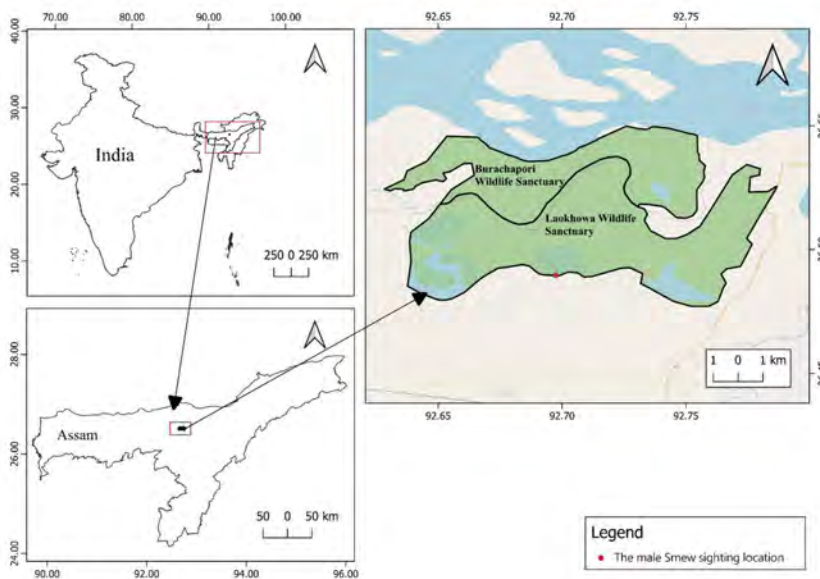
Assam is one of the most biologically diverse regions of southern Asia (Upadhyay & Upadhyay 2025). It is a part of the eastern Himalayan Biodiversity hotspot having a wide range of habitats such as floodplain wetlands, riverine grasslands, tropical forests, and large riparian systems (Chetry et al. 2024). Kaziranga National Park and Tiger Reserve (KNPTR) is an internationally significant conservation area. It sustains an extensive network of wetlands, which supports tens of thousands of migratory waterbirds every winter (Kumar & Alam 2023).

To monitor these avian visitors, KNPTR conducts the Kaziranga Waterbird Count yearly, which has become an important event for tracking population trends, species distribution, and habitat use of the migratory waterbirds throughout the Kaziranga landscape. Laokhowa is a critical buffer of the KNPTR. It is an integral part of the Kaziranga–Laokhowa–

Burhachapori riverine corridor, which facilitates wildlife movement and maintains ecological connectivity across the Brahmaputra floodplains (Yadava 2014).

On 11 January 2026, during the 7th Kaziranga waterbird count at KNPTR, a male Smew *Mergellus albellus* was recorded at the Donduwa Wetland (26.49022° N, 092.69096° E) of Laokhowa Wildlife Sanctuary (LWS). While we were enumerating the waterbirds as expert observers, we first noticed a white-coloured bird among a flock of Eurasian Coots *Fulica atra*. Upon close observation through binoculars, we confirmed it as a male Smew.

The Smew was observed associating with the group of Eurasian Coots. It was seen actively diving, swimming, and making short, low flights within the wetland indicating normal foraging behaviour.



Map showing location of the male Smew in Laokhowa Wildlife Sanctuary, Assam.

Smew is a small saw-billed duck of the family Anatidae. It breeds across the boreal and taiga regions of northern Eurasia and winters southwards across temperate Eurasia (Carboneras et al. 2025). It prefers to live in freshwater lakes, slow rivers, and open waterbodies with sufficient fish prey during the non-breeding season. Smeews are sexually dimorphic with adult males having a distinct white plumage with black face, with stripes on crest, breast and back, while the females and immatures have a dark grey body and rufous marked (Grimmett et al. 2014).

Although the Indian Subcontinent is outside its regular range, a few individuals occasionally winter in India. However, its occurrence in northeast India is exceptionally rare with only a few records from Assam (Abedin & Abedin 2021).

Notably, all previously documented individuals from Assam have been females. The present observation therefore represents the first

photographic documentation of a male Smew from Assam, adding an important new record to the region's avifauna. This also highlights the importance of systematic waterbird monitoring in KNPTR.

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Sighting of Green Imperial Pigeon in Bargur Hills, Tamil Nadu



Green Imperial Pigeon in Bargur Hills. © P. Ganapathi.

The Green Imperial Pigeon (GIP) *Ducula aenea* is a large, arboreal, frugivorous bird is resident in peninsular India. It is distributed mainly across the Western Ghats, parts of eastern and northeastern India. The distribution of this bird species may extend to some other countries having rich in biodiversity, such as Sri Lanka, Bangladesh, Myanmar, northern Thailand, Indo-Chinese region (Ali & Ripley 1987; Veena & Mehta 2012; Grimmett et al. 2013; BirdLife International 2024). It mainly prefers evergreen and moist deciduous forest (Ali & Ripley 1987).

On 26 November 2025, during our routine farm visit to Velampatti Village (11.884167° N, 77.482500° E) located in Bargur Hills, Anthiyur Taluk, Erode District, we observed a pair of GIP perched in an open forested area. The birds were photographed by using a Canon PowerShot SX50 HS 50x camera (65x optical zoom wide 4K, 21–1,365 mm) from an approximate distance of 25 m. The identification was confirmed using the field guide of Grimmett et al. (2013), based on the characteristic dark metallic bronze and green

upperparts, uniformly dark green tail, maroon undertail coverts, and grey breast and belly.

The present observation of the GIP adds to the existing records of the species from Erode District. Although the GIP has previously been recorded from the Sathyamangalam Tiger Reserve–Jeerakahalli area of Erode District (Muniraju 2023; Prasanna 2023), the present observation represents an additional record from the Bargur Hills. The previously reported localities are also close to the present observation site suggesting that the species may occur more widely across suitable forest habitats in the region.

The population of the GIP is considered to be declining, primarily due to large-scale deforestation (BirdLife International 2024). However, detailed studies on the species, particularly its population status, ecology, distribution, and occurrence in fragmented habitats in this region, remain limited. Further systematic surveys are therefore required to determine the species' distribution and population status and to establish whether such observations represent stable resident populations or occasional individuals occurring outside their established range.

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Sighting record of the Slaty-legged Crake from Purna Wildlife Sanctuary, Gujarat

The Slaty-legged Crake (SLC) *Rallina eurizonoides* is known to be a resident as well as local migrant, in well-wooded areas with waterbodies and affects a wide range of jungle habitat practically throughout India. It is widely distributed from the Himalaya (Darjeeling District) to Pakistan in the west. From eastern Assam (including Nepal) to the extreme south of the Peninsula, all the way to Kerala and Rameswaram Island (Ali & Ripley 2001). The SLC inhabits well-watered areas up to 1,600 m and dwells in dense scrub, forests along with well-wooded areas. This bird has a chestnut-coloured head and breast with black and white stripes on the belly. Its legs are dark lead-coloured, setting it apart from the Ruddy-breasted Crake *Zapornia fusca*. It mainly forages on shoots and seeds of marsh plants and also takes worms, molluscs, and insects (Taylor 2020).

On 4 July 2026, while birdwatching around the Mahal Eco-campsite (20.9075° N, 73.6483° E)



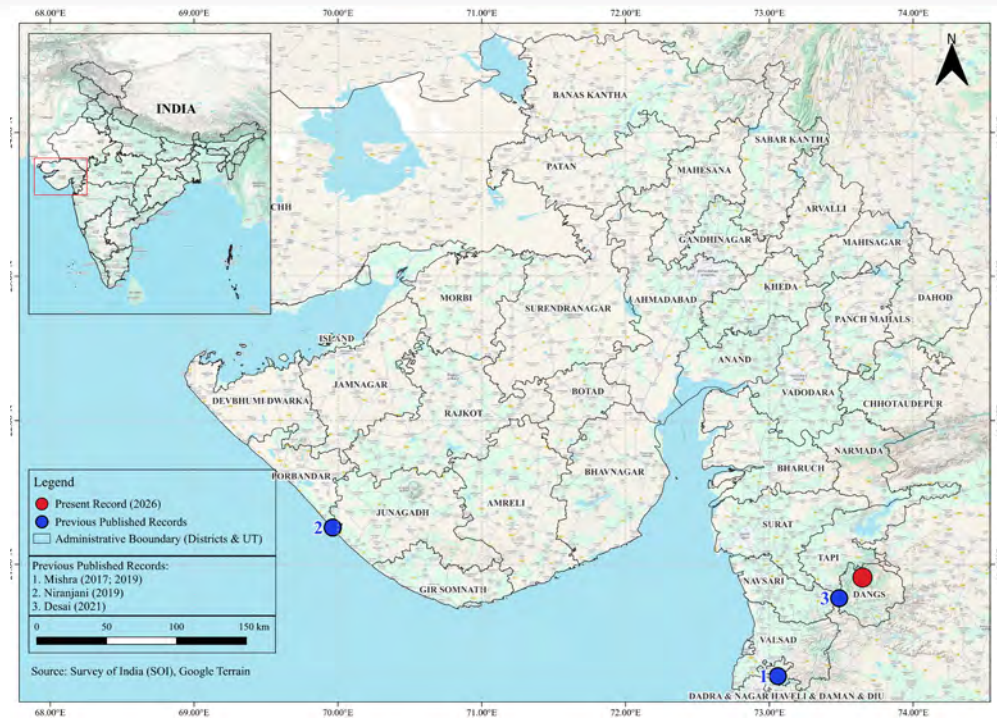
Slaty-legged Crake in the water puddle.



Pair of Slaty-legged Crake.

Slaty-legged Crake *Rallina eurizonoides* in Purna Wildlife Sanctuary, Gujarat, India. © Chhaditya Parikh.

in Purna Wildlife Sanctuary, Dang District, we observed a crake sp. crossing the approach road in the rain at approximately 1840 h. It first entered the adjacent bamboo cluster, but a few seconds later it returned on the road with another individual. We used a car's headlight and a torch to photograph the bird due to low light. After reviewing the photos, the bird was identified as a SLC. One bird stopped near a water puddle and began bathing for another 2–3 minutes; later both birds



Distribution of the published records (blue circles) and present record (red circle) of the Slaty-legged Crane *Rallina eurizonoides* in Gujarat, India.

went inside the forest. The forest of Purna Wildlife Sanctuary is classified as southern dry deciduous forests and moist deciduous forests with bamboo brakes of *Bambusa arundinacea* and *Dendrocalamus strictus* along with extensive teak *Tectona grandis* plantation (Maslehuddin et al. 2020).

In the context of the records from Gujarat, the first records of the species were from the Madhuban Dam forest area near Silvassa, Dadra and Nagar Haveli approximately 130 km away from Purna Wildlife Sanctuary, where one adult and one juvenile were photographed on 26 August 2017 (Mishra 2017). Due to its close proximity to the Gujarat State boundary this record was also considered as the first record for the Gujarat State (Ganpule 2022). The species was later re-sighted at the same site suggesting possible local breeding

(Mishra 2019). Niranjani (2020) rescued a juvenile individual from the village area of the Madhavpur–Ghed, near Porbandar in October 2020. Since this species is distributed mainly in the Himalaya and the Western Ghats of India such records of occurrence from the Saurashtra region are very interesting which might indicate the vagrant behaviour of the species. Further in June 2020 one individual of the SLC was seen in the Vansada National Park of Navsari by Desai (2021). According to Ganpule (2025) it is considered a vagrant as well as monsoon breeding migrant to the state of Gujarat.

This observation is the first record of SLC from Purna Wildlife Sanctuary further extending the occurrence of the species in the state and highlights the importance of the sanctuary's protected corridors for under-documented and resident bird populations (Jambu & Patel

2021). This current sighting along with the few previous records from Gujarat suggests the rarity of the species in the state and the possibility of it being missed or overlooked in suitable forested habitats of southern Gujarat due to the elusive or shy nature of the species.

This photographic record adds to evidence of range expansion among under-studied forest birds and contributes to provide better understanding of local species richness for guiding conservation and habitat management in the region. The present record is based on a single incidental observation, and nothing can be inferred about the species' residency or breeding status in the area.

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Documenting the occurrence of the Indian Black Turtle in northern Chhattisgarh: evidence from the Hasdeo River landscape

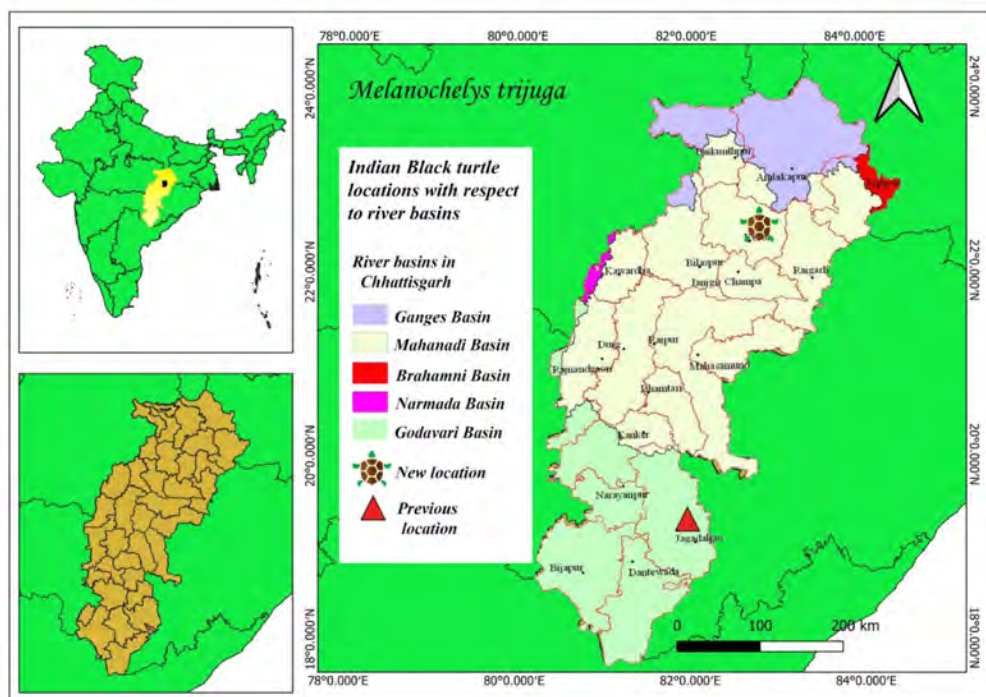


Indian Black Turtle *Melanochelys trijuga*, documented for the first time within the Hasdeo River landscape, of the Mahanadi River basin. © Vikas Banarjee.



The Geoemydidae family includes the Indian Black Turtle, also known as the Indian Pond Terrapin *Melanochelys trijuga* (Schweigger, 1812), which inhabits freshwater environments throughout southern Asia. This medium-sized turtle is primarily found in still water regions of northern India, northeastern India, and the peninsular region. Its yellow plastron distinguishes it from other semi-aquatic pond turtles (Suraj et al. 2021).

These turtles have been recorded in the foothills of the Himalayan range, often residing in riparian vegetation and grasslands along the Ganga and Brahmaputra rivers (Basumatary & Sharma 2013). *M. trijuga* is particularly notable for its distinctive head pattern, featuring a broad black diamond-shaped marking on the crown, bright yellow or white temporal regions, and olivaceous other head regions, with the shell being uniformly black (Smith



Distribution map showing the previous occurrence of the Indian Black Turtle *Melanochelys trijuga* (Schweigger, 1812), in the Godavari Basin and the newly documented record from the Hasdeo River landscape of northern Chhattisgarh (Mahanadi Basin).

1931; Das 1995). The carapace is elongated, more elevated in adults, and more depressed in juveniles, with a tricarinate structure and feebly serrated posterior marginals. The nuchal scute is small and distinctly triangular. A unique feature of the carapace is the octagonal second neural, commonly seen in turtles with megacephaly (Pritchard 1988; Das & Bhupathy 2009).

This turtle commonly inhabits rocky riverine habitats, where it utilizes crevices for refuge and displays streamside basking behavior during January (Ahmed & Das 2010). It exhibits an omnivorous feeding strategy, consuming aquatic plants, vertebrates, and carrion, thereby functioning as both a predator and scavenger within freshwater ecosystems (Ahmed & Das 2010). This species is classified as Schedule I of the Wild Life (Protection) Act, 1972, listed as 'Least Concern' on the IUCN Red List, and included in Appendix II of CITES.

M. trijuga has been documented for the first time with photographic evidence from northern Chhattisgarh. This turtle was previously recorded from the Godavari River basin in Kanger Valley National Park of Chhattisgarh (Panikar et al. 2023). This turtle has been observed in the forested region adjacent to Bimalta Village, situated within the Lemru Range of the Korba Forest Division. This area is located near the boundary between Sarguja and Korba districts. The Lemru area is proximate to the Baro mountain range and is characterized by a rich botanical assemblage, including Sal *Shorea robusta*, Tendu *Diospyros melanoxylon*, Char *Buchanania lanzan*, Saja *Terminalia elliptica*, Jamun *Syzygium cumini*, Kurru *Diospyros exsculpta*, Karra *Cleistanthus collinus*, and Bija *Pterocarpus marsupium*.

The region comprises a heterogeneous matrix of moist peninsular sal forest (3C/C2e), moist mixed deciduous forest (3C/C3), and



dry peninsular sal forest (5B/C1) vegetation types (Champion & Seth 1968). These forest formations are known for their dense Sal-dominated stands, mixed deciduous patches, and associated understory vegetation, creating favorable conditions for a variety of faunal species. Additionally, the turtle was sighted near Chhinkona Village in the Pasarkhet Range of the Korba Forest Division, where moist peninsular Sal forests predominate. The area similarly exhibits high ecological diversity and supports a broad spectrum of wildlife. There are also several types of snakes, such as the King Cobra, Indian Spectacled Cobra, Common Krait, Banded Krait, Indian Rat Snake, and Indian Rock Python. Additionally, the Indian Flapshell Turtle is also found in this area (Ahmed et al. 2021).

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Sighting of a dead Indian Flapshell Turtle in Chennai beach, India



Indian Flapshell Turtle *Lissemys punctata* carcass sighted on beach in Chennai coast.
© M.K. Darshan & S.R. Ganesh.

The Indian Flapshell Turtle (IFT) *Lissemys punctata* (Bonnaterre, 1789) is a common freshwater turtle inhabiting most of India, found in the inland waterbodies. This small-sized species has an average carapace length of 250 mm, with larger individuals reaching up to 350 mm (Bhupathy 1989). While its presence is known from Chennai (Kalaivasan & Kanakasabai 1999), it has been recorded from freshwater bodies only. In this note, we report on a strange sighting of a carcass of this species

on the beach, off the sea coast of Chennai, Tamil Nadu, India. On 23 December 2024 while on a field visit to the Pattinapakkam beach (13.022211° N, 80.278661° E) at the southern end of the beach, just north of Adyar River, an IFT carcass was seen on the beach sand next to the manual boats plied by the fishing community.

The carcass measured 23 × 16 cm (l × b), was trampled and decomposed, missing three limbs;



head and tail partly damaged; plastron and carapace with scutes peeling off from shell. Seven callosities on plastron and five ventral scutes on carapace positively identified it as IFT (Das 1987). In the carcass, five ventral scutes did not extend along entire length of carapace midline (vs. ventral scutes running the entire length in Loggerhead Sea Turtle *Caretta caretta*, Green Sea Turtle *Chelonia mydas*), outer rim of marginal scale edges even and smooth-sided (vs. overlapping, serrated edges in Hawksbill Sea Turtle *Eretmochelys imbricata*), ovoid to oblong, fairly convex carapace (vs. a more domed, heart-shaped carapace in Olive Ridley Sea Turtle *Lepidochelys olivacea*, five distinct ridges along the length of the carapace in Leatherback Sea Turtle *Dermochelys coriacea*) (Das 1987).

The sighting of a IFT carcass here in Pattinapakkam beach throws open a few possible reasons. They are: (i) carcass drifted from the nearby Adyar River, a brackish water body, (ii) the turtle could have been caught in fishing nets in Adyar River and was noticed and discarded here on the beach, (iii) the turtle would have strayed into someone's house further inland and the self-indulgent householders caught it and released it in the beach water mistaking it to be a sea turtle, and (iv) a potential offender of illegal wildlife trade would have secretly dumped off the turtle here either alive or dead, fearing apprehension from authorities.

For the natural drifting of either a live or dead turtle to take place from the nearby Adyar River, swelling of the river water owing to floods must have happened. However, that was not the case during the days of our observation or in the preceding week. Likewise, it may not be a forcefully discarded smuggled turtle, as

the area where it was seen is a busy and well-frequented spot, where fish landing sites, markets, fishing hamlets and picnic spots are all situated next to one another, with human movement even at night. So, the one remaining option of self-indulgent people releasing stray freshwater turtle wrongly inside beach water appears as the most likely proposition.

We advocate the general public to contact the government-authorised help line numbers, led by the forest department and its ancillary forces to properly tackle such situations of wildlife straying into private compounds. Being a well-informed "first responders" is their primary function. In this case, several organisations dedicated to wildlife awareness and education are situated not far from the site of incident. It is hoped that people use such facilities to enlighten themselves of the dos and don'ts and act accordingly, in the interest of wildlife and environmental well-being.

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