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Cover photo: *Tinospora cordifolia.* © Abhishek Verma & Swarupa Chowdhury.

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#7
21 May 2026

Documentation of ornamental fish species in fish markets of Kamrup, Assam

Ornamental fish are attractive, colourful species kept in aquariums or garden pools for enjoyment. Their appeal comes not only from bright colors but also from unique traits like body shape, feeding habits, and behavior. Freshwater ornamental fish make up about 80% of the trade, while brackish and marine species contribute around 20%. India offers 374 freshwater and about 700 marine ornamental fish species, contributing to the 1,539 species traded globally. Ornamental fish keeping is a popular hobby with aesthetic and financial value. Globally, there are about 600 species, with India home to over 100 native and many exotic varieties. The Western Ghats have 155 ornamental species (117 endemic), while northeastern India, especially Assam, hosts 250 species, with 187 found in the state (Mahapatra et al. 2004). Ornamental fishes-popularly known as aquarium fishes-occupy a unique niche. Beyond their visual appeal, they offer therapeutic benefits and serve as a source of livelihood and self-employment, particularly in rural and peri-urban areas (Kaushik et al. 2017).

India, with its vast network of freshwater ecosystems, favourable climate, and cost-effective labour, is uniquely positioned to contribute significantly to the global ornamental fish trade. The northeastern region of India, particularly Assam, along with states such as West Bengal, Kerala, and Tamil Nadu, is noted for its richness in native ornamental fish species. Approximately 85% of India's indigenous ornamental species are found in northeast India, many of which are in high demand in both domestic and international markets.

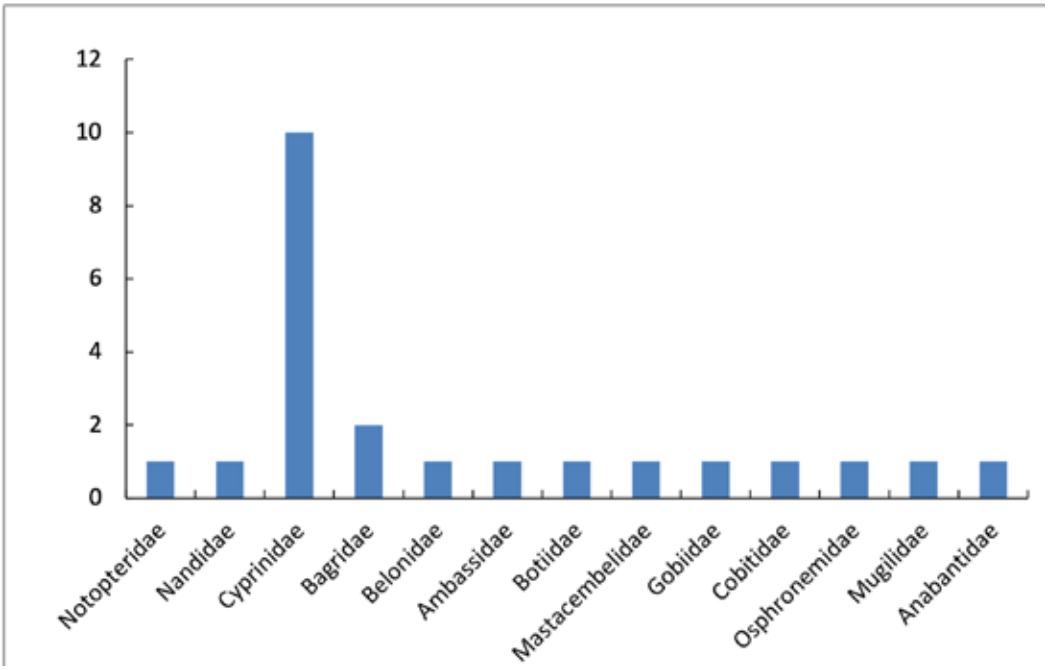
In Assam alone, around 150 species of ornamental fishes have been documented (Biswas & Baruah 2000). Rahman et al. (2014) documented 28 species from North Guwahati. These species are not only kept for ornamental purposes but are also used as food in certain communities, illustrating their dual socio-economic and cultural significance. Among Assam's districts, Kamrup Metropolitan stands out due to its rich aquatic ecosystems comprising rivers, beels (floodplain lakes), wetlands, and ponds. These diverse habitats provide ideal conditions for a wide array of ornamental fish species to thrive, making the district a significant area for both scientific study and aquaculture development. Despite this rich biodiversity and economic potential, the ornamental fish sector in Assam, particularly in Kamrup M, remains under documented. There is a pressing need for systematic studies to assess species diversity, usage patterns, and conservation challenges. Such efforts are essential not only for biodiversity preservation but also for fostering sustainable aquaculture practices that can contribute to local livelihoods and rural development. The fascination with ornamental fish is not a modern phenomenon.

The present study was carried out in four major fish markets in Kamrup (M) District: Uzan

List of ornamental fishes recorded with their order, family, scientific name, local name and IUCN Red List (2025) status.

Scientific name	Order	Family	UB	MB	PB	RB	IUCN Red List status	Local name
1. *Notopterus notopterus*	Osteoglossiformes	Notopteridae	+	+	+	+	LC	Kanduli
2. *Nandus nandus*	Perciformes	Nandidae	+	+	+	+	LC	Gedgedi
3. *Pethia ticto*	Cypriniformes	Cyprinidae	+	-	+	+	LC	Chakariputhi
4. *Tor putitora*	Cypriniformes	Cyprinidae	+	+	+	+	EN	Mahasheer
5. *Rasbora rasbora*	Cypriniformes	Cyprinidae	-	-	+	+	LC	Eleng
6. *Mystus tengara*	Siluriformes	Bagridae	+	+	+	-	LC	Tengera
7. *Xenentodon cancila*	Beloniformes	Belonidae	+	-	+	-	LC	Kokila
8. *Chanda nama*	Perciformes	Ambassidae	+	+	+	+	LC	Chanda
9. *Botia dario*	Cypriniformes	Botiidae	-	+	+	+	LC	Gethu
10. *Tor tor*	Cypriniformes	Cyprinidae	+	-	+	-	DD	Pithia
11. *Macrognathus aral*	Synbranchiformes	Mastacembelidae	+	+	+	+	LC	Tura
12. *Devario assamensis*	Cypriniformes	Cyprinidae	+	+	-	+	VU	Sal darikana
13. *Batasio batasio*	Siluriformes	Bagridae	+	+	+	+	LC	Batasia
14. *Glossogobius giuris*	Gobiiformes	Gobiidae	+	-	+	+	LC	Patimutura
15. *Puntius sophore*	Cypriniformes	Cyprinidae	+	+	+	+	LC	Puthi
16. *Lepidocephalichthys guntea*	Cypriniformes	Cobitidae	-	+	-	+	DD	Botia
17. *Trichogaster fasciata*	Anabantiformes	Osphronemidae	+	-	+	+	LC	Kholisa
18. *Amblypharyngodon mola*	Cypriniformes	Cyprinidae	+	+	+	+	LC	Mowa
19. *Oreichthys cosuatis*	Cypriniformes	Cyprinidae	+	-	+	-	LC	Puthi
20. *Cestraeus plicatilis*	Mugiliformes	Mugilidae	+	+	+	-	LC	Banak
21. *Anabas testudineus*	Anabantiformes	Anabantidae	+	+	-	-	LC	Kawoi
22. *Pethia conchonius*	Cypriniformes	Cyprinidae	+	+	+	+	LC	Puthi
23. *Puntius* sp.	Cypriniformes	Cyprinidae	+	+	+	-	LC	Puthi

UB—Uzan Bazar | MB—Maligaon Shuttle Gate Bazar | RB—Rest Camp Bazar | PB—Pandu Bazar | LC—Least Concern | VU—Vulnerable | DD—Data Deficient | +—Present | -—Absent.



Graphical representation of fish species in respective families.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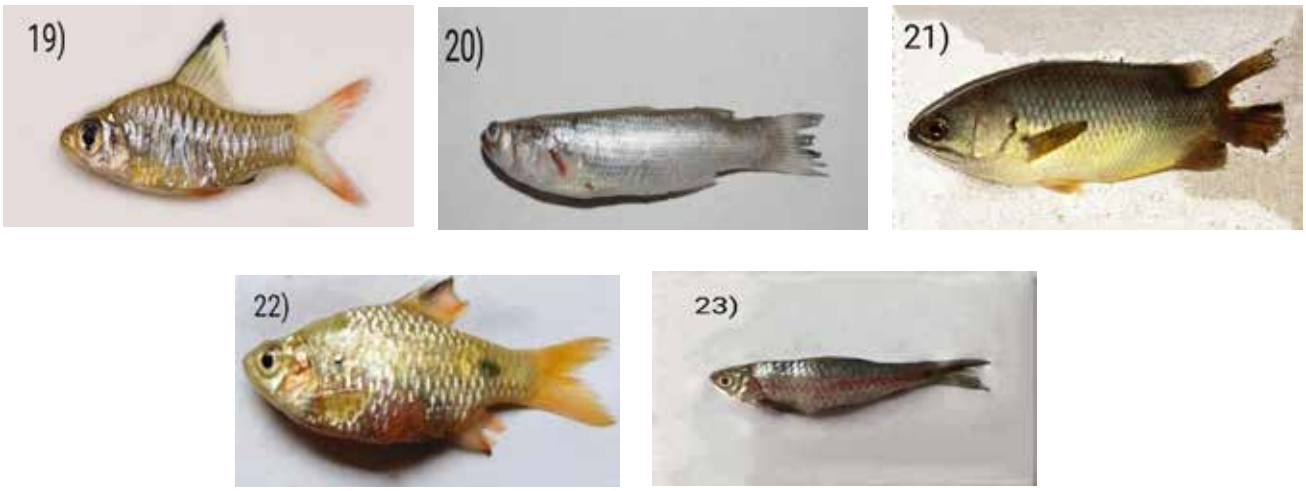

1—*Notopterus notopterus* | 2—*Nandus nandus* | 3—*Pethia ticto* | 4—*Tor putitora* | 5—*Rasbora rasbora* | 6—*Mystus tengara* | 7—*Xenentodon cancila* | 8—*Chanda nama* | 9—*Botia dario* | 10—*Tor tor* | 11—*Macrognathus aral* | 12—*Devario assamensis* | 13—*Batasio batasio* | 14—*Glossogobius giuris* | 15—*Puntius sophore* | 16—*Lepidocephalichthys guntea* | 17—*Trichogaster fasciata* | 18—*Amblypharyngodon mola* | 19—*Oreichthys cosuatis* | 20—*Cestraeus plicatilis* | 21—*Anabas testudineus* | 22—*Pethia conchonius* | 23—*Puntius* sp. © Mallika Gogoi.

Bazar, Shuttle Gate (Maligaon), Rest Camp Bazar, and Pandu Bazar. These markets were selected based on fish diversity, availability of ornamental species, and their significance in local fish trade. Observations and data collection from these sites formed the basis of this study.

Surveys were conducted primarily in the morning, with additional data obtained from local aquariums. Identification was done using standard taxonomic keys (Talwar & Jhingran 1991; Vishwanath 2002). The current status of conservation for each species was verified using the IUCN Red List 2025. During the survey a total of 23 fish species were recorded from various fish markets in Kamrup (M) District during the survey. All the recorded fish species have both the food value as well as ornamental value. Based on the IUCN Red List, 19 species are classified as 'Least Concern' (LC), one is 'Vulnerable' (Vu), two 'Data Deficient' (DD) and one species is 'Endangered' (EN). This indicates a predominance of non-threatened species, with some requiring conservation attention. Specimens were photographed using a mobile camera on a plain white background for clarity.

This study documented 23 ornamental fish species which were taxonomically classified into 20 genera, 13 families, and six orders. The *Cyprinidae* family exhibited the highest species richness with 10 representatives, reflecting its dominant presence in the local ornamental fish fauna. Other families recorded were *Notopteridae, Nandidae, Bagridae, Belonidae, Ambassidae, Botiidae, Mastacembelidae, Gobiidae, Cobitidae, Osphronemidae, Anabantidae,* and *Mugilidae*, each contributing one or two species. This diversity underscores Kamrup (M)'s rich ichthyofaunal composition and its significance as a hotspot for ornamental fish diversity.

Field observations and interviews with local fishermen and market vendors revealed a declining trend in fish populations over recent

years. Several anthropogenic and environmental factors contribute to this decline, including overexploitation due to unregulated fishing, pollution from sewage and agricultural runoff, destruction and fragmentation of natural habitats, and climatic variations impacting water quality and availability. Such pressures have resulted in the degradation of aquatic ecosystems, thereby threatening the survival of both common and rare fish species in the district.

Among the species recorded, Golden Mahseer *(Tor putitora*), *Devario assamensis*, *Batasio batasio*, and Climbing Perch *(Anabas testudineus*) were identified as species of conservation concern due to their declining populations and ecological significance. The presence of these species highlights the urgent need for targeted conservation and management strategies to ensure their long-term survival.

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Occurrence of stem fasciation in *Tinospora cordifolia* from Maharashtra, India

***Tinospora cordifolia* plant showing stem fasciation symptom (left), healthy plant (right).**
© Abhishek Verma & Swarupa Chowdhury.

Tinospora cordifolia (Willd.) Hook.f. & Thomson, is an herbaceous vine belonging to family Menispermaceae and is commonly known as Giloy, Guduchi or Heartleaf Moonseed. It is an important medicinal plant having several therapeutic properties and is widely used in traditional ayurvedic medicine. A wide range of active compounds including alkaloids, glycosides, diterpenoid lactones, sesquiterpenoid, steroids, and phenolics have been extracted from different parts of *T. cordifolia* (Upadhyay et al. 2010). The plant is of great interest for researchers across the globe as it is used in the treatment of several ailments such as diabetes, jaundice, urinary diseases, inflammation, rheumatism, anemia, allergic, skin and several other conditions (Srivastava & Singh 2021).

Fasciation is a condition of abnormal growth in vascular plants and is widely known to occur across the plant kingdom, having been documented in over 107 families (Brannon 1914). The term originates from the Latin '*fascis*' which means a 'bundle'. It usually manifests as a change in the morphology of the

plant organs and typically involves flattening of the stem, broadening of the shoot apical meristem and changes in phyllotaxy (Iliev & Kitin 2010). Although modification of the main plant axis is often the most prominent feature of fasciation, the condition has been observed to affect all plant parts.

The occurrence of this phenomenon is a concern in agriculture and horticulture as it can reduce the value of traded plants (Porbeni & Fawole 2013; Wilson et al. 2001). The fasciated plant parts such as fruits, flowers or stems may become severely deformed rendering them unmarketable.

During a plant diversity survey conducted in May 2025, an interesting natural occurrence of stem fasciation symptom was observed in *T. cordifolia* growing in a garden near the campus of Fergusson College, Shivajinagar, Pune, Maharashtra, India.

The fasciated *T. cordifolia* plant exhibited distinct morphological differences compared to the normal plants. The stem had changed from its typical circular shape seen in the normal plants to a broad, flattened, ribbed, ribbon-like structure which was unlike any other plant of the same species. The phyllotaxy was also found to be different with multiple leaves arising at the same nodal region. The leaves were also reduced in size with shorter petioles and internodal length.

A review of the existing literature revealed that stem fasciation in *T. cordifolia* association with phytoplasma infection has previously been reported from Bhadra Wildlife Sanctuary in the neighboring state of Karnataka (Achar et al. 2015). To the best of our knowledge, this is the first record of stem fasciation in *T. cordifolia* from Maharashtra.

Further studies are required to ascertain the cause of fasciation in the present case as this phenomenon can be induced by several biotic and abiotic factors (Iliev & Kitin 2010). The fasciation could most likely have occurred owing to a phytoplasma infection. It could also possibly be attributed to infection of a bacterium such as *Rhodococcus fascians,* which is known to cause fasciation in a wide spectrum of plant species (Park et al. 2021).

Other possible causes include damage to the growing tip, random genetic mutation, hormonal disturbances in meristematic tissues, environmental factors such as temperature variation, nutrient deficiency or nematode infestation (Omar et al. 2014). The impact of fasciation on the pharmaceutically important metabolites of *Tinospora* also needs to be investigated.

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Aquaculture infrastructure as an emerging threat to waterbirds: observations from fish farms in Surat

Aquaculture has emerged as one of the fastest-growing sectors of global food production and plays a critical role in supporting food security and regional economies (FAO 2022). In India, coastal regions provide favorable environmental conditions for aquaculture, including suitable water resources, estuarine systems, and climatic conditions conducive to fish and shrimp farming. The city of Surat in Gujarat, located along the Arabian Sea coast and intersected by several rivers and estuarine ecosystems, has witnessed significant expansion of aquaculture activities over the past decades.

Aquaculture ponds and associated wetland habitats frequently attract a wide diversity of bird species, particularly waterbirds and piscivorous birds, due to the availability of food resources and suitable foraging habitats (Carss 1990; Little et al. 2016). These interactions between birds and aquaculture systems can be complex, encompassing both beneficial and adverse ecological relationships. Certain bird species contribute to ecosystem functioning by consuming insects, crustaceans, and other organisms that may otherwise affect aquaculture productivity. Additionally, birds can play roles in nutrient cycling within aquatic ecosystems through the redistribution of organic matter and nutrients.
However, aquaculture infrastructure may also create ecological conflicts. Predatory and piscivorous birds are often attracted to fishponds as feeding grounds, which can result in economic losses for aquaculture operators (Glahn & Stickley 1995). To mitigate predation, aquaculture facilities frequently deploy protective netting systems above ponds. While these nets can effectively reduce fish predation, they may also pose significant risks to birds through accidental entanglement and mortality.

Incidental capture or entanglement in fishing gear and netting structures has been recognized as a growing conservation concern for many bird species worldwide (Žydelis et al. 2009). In aquaculture landscapes, such interactions remain relatively under-documented in many parts of southern Asia, including India. Understanding the nature and extent of these interactions is essential for developing mitigation strategies that balance aquaculture productivity with biodiversity conservation.

This study documents incidental mortality of waterbirds associated with aquaculture netting systems in the Surat region of Gujarat. Observations recorded during wildlife surveys provide evidence of bird entanglement incidents and highlight the potential ecological implications for local avifaunal diversity.

The observations were recorded in aquaculture farms located in and around Surat, Gujarat, India. The region lies along the Arabian Sea coast and includes an extensive network of

rivers, estuaries, wetlands, and aquaculture ponds that support both freshwater and brackish water aquaculture. These habitats provide suitable conditions for the cultivation of species such as shrimp, prawns, tilapia *Oreochromis* spp., and catfish *Clarias* spp. Due to the availability of aquatic habitats and abundant food resources, the aquaculture landscape also attracts numerous species of resident and migratory birds, including wading birds, waterfowl, and piscivorous birds.

Field observations were recorded during otter surveys conducted in aquaculture farms in collaboration with Nature Club Surat and the Wildlife Trust of India. The surveys were carried out during September 2020 to February 2021.

During these surveys, opportunistic observations were made regarding wildlife interactions with aquaculture infrastructure, particularly netting systems installed above fishponds. Instances of bird mortality or entanglement were documented through direct field observations. Species identification was conducted using standard field guides to Indian birds (Grimmett et al. 2011).

During the survey period, multiple incidents of bird mortality associated with aquaculture netting systems were recorded. Several bird carcasses were found entangled in protective nets installed above aquaculture ponds. We encountered deceased birds, including Common Snipe *Gallinago gallinago*, Indian Pond Heron *Ardeola grayii*, Little Egret *Egretta garzetta*, and Little Cormorant *Microcarbo niger* ensnared in the very nets employed within these aquaculture facilities. The entanglement of multiple bird species in these nets suggests that this issue extends beyond a single avian species.

It serves as evidence of a broader problem that affects a diverse range of bird populations. Such incidents can lead to population declines, potentially jeopardizing the overall biodiversity of the area.

A deceased Common Snipe ensnared in the net. © Hiren Patel.

A deceased Pond Heron hanging in the net.
© Hiren Patel.

A deceased Little Egret entangled in the net.
© Hiren Patel.

The nets installed above aquaculture ponds function as barriers intended to prevent birds from accessing fish stocks. However, birds attempting to land on the nets, fly across ponds, or forage near the water surface may become entangled in the mesh. In many cases, such entanglement results in fatal injuries or prolonged suffering leading to death.

Incidental mortality of birds in aquaculture netting systems may have several ecological consequences. Birds play important roles in regulating aquatic and terrestrial food webs, including controlling populations of insects, fish, and other aquatic organisms (Whelan et al. 2008). The loss of predatory or insectivorous birds can disrupt local ecological balances and potentially alter trophic dynamics.

Additionally, repeated mortality events may negatively affect local bird populations, particularly if vulnerable or migratory species are involved. Many wetland birds already face pressures from habitat loss, pollution, and climate change (Kirby et al. 2008). Mortality associated with aquaculture infrastructure may represent an additional anthropogenic threat in coastal ecosystems.

To address this issue and reduce harm to birds, aquaculture farm owners may implement various mitigation measures. These can include implementing net designs that reduce the risk of bird entanglement. Using larger mesh sizes or positioning nets below the water's surface are examples of such measures. Farms can use scare tactics, such as noise-makers, reflective materials, or the presence of guard dogs, to deter birds from approaching aquaculture

ponds or structures. Continuous monitoring of bird interactions with aquaculture farms can help farm managers make informed decisions and implement appropriate mitigation measures. Research into the behavior of local bird populations can also inform management strategies. Some regions may have regulations in place to address the interaction between birds and aquaculture farms. These regulations may specify certain practices or measures that farms must follow to minimize negative impacts on wildlife.

Deceased birds suspended in the nets of aquaculture farms. © Krunal Trivedi.

A deceased Pond Heron entangled in the net, suspended by its neck. © Hiren Patel.

Aquaculture is an important economic activity in coastal Gujarat; however, its infrastructure can unintentionally affect local wildlife. Observations from aquaculture farms in Surat highlight the occurrence of incidental mortality of waterbirds due to entanglement in protective netting systems. These incidents demonstrate the need for greater awareness and implementation of mitigation strategies that reduce wildlife mortality while maintaining aquaculture productivity.

Balancing aquaculture development with biodiversity conservation will require collaborative efforts among aquaculture operators, conservation organizations, and regulatory agencies. Further systematic studies are needed to quantify the scale of bird mortality and develop effective, wildlife-friendly aquaculture practices.

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Observation of a tailless Black Kite in sustained flight

The Black Kite *Milvus migrans* is one of the most common birds of prey and is usually found around human habitation (Mazumdar et al. 2018). It is a gregarious opportunistic forager feeding on a broad spectrum of food resources, particularly attracted to the food at urban trash and waste-disposal sites (Delibes 1975; Shiraishi et al. 1990; Blanco 1997; Mazumdar et al. 2018). The tail in raptors plays multiple aerodynamic roles, contributing to flight stability, regulating wing angle of attack and balancing wing-generated pitching moments, and generating additional lift during acceleration, turning, and slow flight to supplement that produced by the wings (Tucker 1992; Thomas 1997).

During a bird watching on 07 February 2026 at 0730 h at University of Mysore, Mysuru campus (12.3169°N, 76.6213°E) an adult Black Kite was photographed in sustained soaring flight exhibiting an apparently truncated tail, with complete absence of rectrices. The

A Black Kite lacking rectrices in flight over the University of Mysore campus, Mysuru. © H.R. Abhilash.

tailless Black Kite in our observation exhibited stable, controlled flight with symmetrical wing posture and normal maneuverability which was observed for a duration of 2–5 minutes.

However, we speculate that lack of tail observed in the Black Kite may impact its landing ability; as the bird approaches landing it commonly spreads its tail widely, slows its flight before entering the final landing phase (Thomas 1997). We found two previous records of tailless raptors, a Black Eagle *Ictinaetus malaiensis* (Lin et al. 2021) and a Red Kite *Milvus milvus* (Cholsey Wildlife 2023). This record highlights the ability of the Black Kite to maintain effective flight despite the absence of rectrices.

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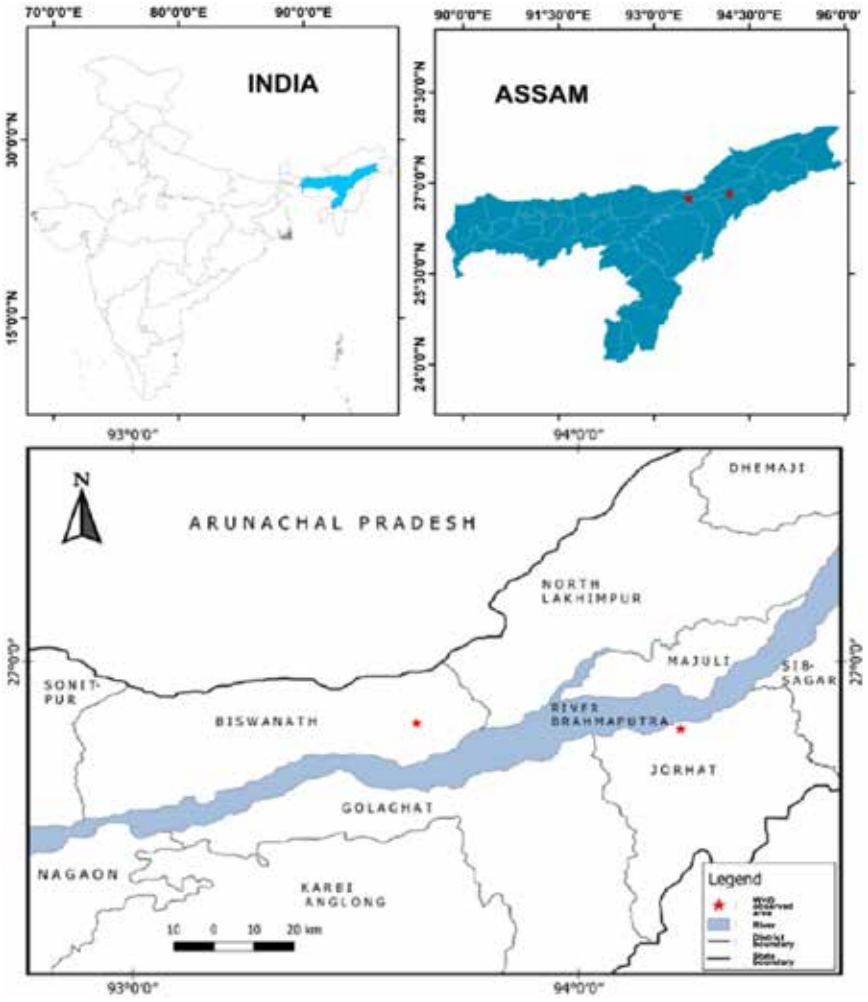
First record of a leucistic Lesser Whistling-Duck from Assam, Northeast India

The Lesser Whistling-Duck *Dendrocygna javanica* is a medium-sized Anatidae species widely distributed across the Indian subcontinent, typically inhabiting freshwater wetlands such as marshes, shallow ponds, and vegetated lakes (Grimmett et al. 2011). It is currently assessed as 'Least Concern' on the IUCN Red List (BirdLife International 2024).

The species' typical plumage includes a pale brown body, greyish-buff head and neck, darker brown crown and nape, chestnut-edged back feathers, warm chestnut underparts and upper tail coverts, and dark gray bill and legs (Ali & Ripley 1987; Grimmett et al. 2011).



Locations where the leucistic Lesser Whistling-Ducks were observed.

Leucistic Lesser Whistling-Duck observed among normally coloured individuals in the Chaiduar College (A) and Nimati Wetland (B), respectively. © A. Gitartha Borah B. Vishal Goswami.

On 12 November 2025, during a bird-watching programme at the Chaiduar College (Autonomus) campus, we observed an abnormally coloured duck in a wetland inside the campus (26.8788°N, 93.6047°E). The bird was seen among a large flock of approximately 238 Lesser Whistling-Ducks (LWD). We photographed the unusual individual and identified it as a LWD based on its medium size, overall shape, beak structure, flight behaviour, and characteristic call (Ali & Ripley 1987). Unlike the normal plumage of this species, the bird had a café au lait coloured crown rather than the typical dark brown, and its usual buff-grey head and neck were replaced by an off-white colouration. The mantle, wings, abdomen, and tail feathers were also pale whitish, with only a few patches showing the normal brown tones.

The eyes remained dark, consistent with typical individuals. Slightly light orange feathers were visible near the tail, and the lower mandible was distinctly calamine-pink instead of the usual blackish tone. These features clearly indicated partial leucism, a plumage condition occasionally reported in other bird species in India (Bera et al. 2021). Another leucistic LWD was recorded on 8 December 2024 at the Nimati Wetlands, Jorhat (26.8425°N, 94.2170°E), observed early in the morning within a mixed flock of LWDs and Fulvous Whistling-Ducks.

Colour aberrations in birds are deviations from normal plumage resulting from disruptions in pigment production or distribution, affecting eumelanin, pheomelanin, or both. Such aberrations are distinct from typical plumage and can be systematically classified (Cieslinska et al. 2025). Leucism and other colour aberrations have been reported in several Indian waterfowl species, including Red-crested Pochard *Netta rufina* (Mahajan 2016), Garganey *Anas querquedula* (Karuthedathu et al. 2014), Knob-billed Duck *Sarkidiornis melanotos* (Newnham & Aitken 1886), Ruddy Shelduck *Tadorna ferruginea* (Karuthedathu et al. 2014), and Gadwall *Anas strepera* (Harrison & Harrison 1972). In addition, aberrations such as colour dilution resulting from reduced melanin expression rather than complete pigment loss have also been documented in Anatidae (van Grouw 2006). These conditions may increase visibility to predators and influence mate selection. In India, albinism in the LWD has been reported (Gayen et al. 2021) and a leucistic Fulvous Whistling-Duck was recorded from Deepor Beel, Assam (Mahananda et al. 2024). However, there is no published record of colour dilution or leucism in the LWD from Assam.

This study documents the first confirmed case of leucism in the LWD from Assam and northeastern India. The identification is validated through clear photographic evidence and consistent diagnostic features. This record enhances current knowledge of plumage aberrations in regional waterfowl and highlights the importance of sustained field observation and reporting.

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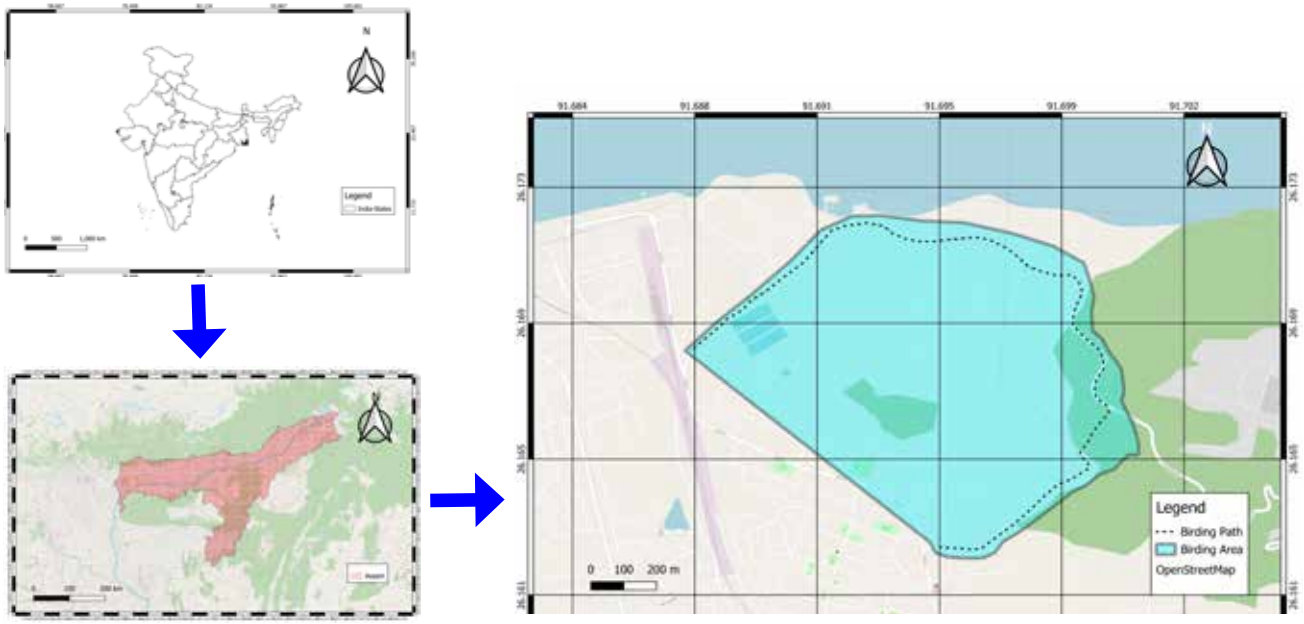
A walk through Nilachal Hills: avifauna observation

Birds are among the most widely distributed and diverse vertebrates on earth, with ~11,000 extant species (BirdLife International 2023).

The study of avifaunal diversity is an essential ecological tool that acts as an important indicator to evaluate different qualitative and quantitative habitats. The Nilachal Hills in the Guwahati area, renowned for their cultural significance and ecological richness, represent a unique gradient where human settlements blend with forested hill tracts. A bird survey was conducted in the Nilachal Hills, Guwahati (26.168°N, 91.687°E) from 0530 to 0700 h for four days (22–25 February 2026) using an opportunistic sampling method. Bird identification was done with the help of Merlin Bird ID app (version: 3.7.1) and the taxonomic key (Grimmett et al. 2011).

The study area was divided into three zones: (i) the urban zone, covering Temple Ghat Colony and Kamakhya Colony, characterised by dense settlements, roads, commercial establishments, and intense human activity where birds species diversity was low due to human disturbances; (ii) the forested zone, comprising the elevated Nilachal Hills, offering greener stretches and a relatively undisturbed natural setting; and (iii) the transition zone, located along the stairway to Kamakhya Colony, functioning as a buffer between the urban landscape and the forested habitat.

A total of 30 bird species belonging to 23 avian families were recorded. Among these, the order *Passeriformes* showed the highest occurrence, accounting 60% of the total observations.



Birding Area (Pandu, Assam) and Path (Using QGIS ver.3.44)

Avifauna observed in the study site.

	Common name	Scientific name	Family	Order	Feeding guild
1	Rock Pigeon (Feral)	*Columba livia domestica*	Columbidae	Columbiformes	Granivore
2	Spotted Dove	*Spilopelia chinensis*	Columbidae	Columbiformes	Granivore
3	Greater Coucal	*Centropus sinensis*	Cuculidae	Cuculiformes	Insectivore / Omnivore
4	Asian Koel	*Eudynamys scolopaceus*	Cuculidae	Cuculiformes	Frugivore / Insectivore
5	Black Kite	*Milvus migrans*	Accipitridae	Accipitriformes	Carnivore / Scavenger
6	White-throated Kingfisher	*Halcyon smyrnensis*	Alcedinidae	Coraciiformes	Carnivore (Insectivore)
7	Blue-throated Barbet	*Psilopogon asiaticus*	Megalaimidae	Piciformes	Frugivore / Insectivore
8	Rose-necked Parakeet	*Psittacula krameri*	Psittaculidae	Psittaciformes	Herbivore (Seeds/Fruits)
9	Black-hooded Oriole	*Oriolus xanthornus*	Oriolidae	Passeriformes	Frugivore / Insectivore
10	Ashy Woodswallow	*Artamus fuscus*	Artamidae	Passeriformes	Insectivore
11	Black Drongo	*Dicrurus macrocercus*	Dicruridae	Passeriformes	Insectivore
12	House Crow	*Corvus splendens*	Corvidae	Passeriformes	Omnivore
13	Cinereous Tit (Asian Tit)	*Parus cinereus*	Paridae	Passeriformes	Insectivore / Granivore
14	Common Tailorbird	*Orthotomus sutorius*	Cisticolidae	Passeriformes	Insectivore
15	Red-vented Bulbul	*Pycnonotus cafer*	Pycnonotidae	Passeriformes	Frugivore / Insectivore
16	Jungle Babbler	*Argya striata*	Leiothrichidae	Passeriformes	Insectivore / Omnivore
17	Common Myna	*Acridotheres tristis*	Sturnidae	Passeriformes	Omnivore
18	Purple Sunbird	*Cinnyris asiaticus*	Nectariniidae	Passeriformes	Nectarivore / Insectivore
19	House Sparrow	*Passer domesticus*	Passeridae	Passeriformes	Granivore / Insectivore
20	Citrine Wagtail	*Motacilla citreola*	Motacillidae	Passeriformes	Insectivore
21	Oriental Magpie-Robin	*Copsychus saularis*	Muscicapidae	Passeriformes	Insectivore
22	Indian Pied Starling	*Gracupica contra*	Sturnidae	Passeriformes	Omnivore
23	Barn Swallow	*Hirundo rustica*	Hirundinidae	Passeriformes	Insectivore
24	Grey-throated Martin	*Riparia chinensis*	Hirundinidae	Passeriformes	Insectivore
25	Grey-headed Canary-Flycatcher	*Culicicapa ceylonensis*	Stenostiridae	Passeriformes	Insectivore
26	Hair-crested Drongo	*Dicrurus hottentottus*	Dicruridae	Passeriformes	Insectivore
27	Western Cattle- Egret	*Ardea ibis*	Ardeidae	Pelecaniformes	Insectivore
28	Asian Palm Swift	*Cypsiurus balasiensis*	Apodidae	Apodiformes	Insectivore
29	Yellow-footed Green Pigeon	*Treron phoenicopterus*	Columbidae	Columbiformes	Frugivore
30	Large-billed Crow	*Corvus macrorhynchos*	Corvidae	Passeriformes	Omnivore

The survey showed clear habitat-linked differences in bird diversity, where urban areas supported species closely associated with human presence, whereas the forested hills favoured birds dependent on natural vegetation. Such patterns emphasize that adaptable birds like crows, sparrows, and doves are more likely to persist in urban landscapes, whereas species with narrower requirements may decline. Thus, urbanization acts as an ecological filter that favours bold and resilient birds while excluding the more sensitive ones. Over time, this may lead to a distinct community of urban specialists.

An unusual finding was the prolonged breeding plumage in Cattle Egrets, possibly influenced by artificial lighting or warmer urban conditions, suggesting that human activity may already be altering avian life cycles. Similar to the present survey, species like Common Tailorbird, Jungle Babbler, Purple Sunbird, and House Sparrow have also been reported from Karnataka (Mahendra et al. 2025). The present survey witnessed only one raptor species, the Black Kite, in a mosaic habitat which was earlier reported from the northeastern region but more in open habitat than mosaic habitat (Mahananda et al. 2024). However, as the survey was conducted over a short duration and within a smaller area, more extensive and long-term avian studies across the region are essential for comprehensive species documentation and effective conservation planning.

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Urban record of the Rhesus Macaque in Mysuru, Karnataka

Rhesus Macaques *Macaca mulatta* and Bonnet Macaques *Macaca radiata* are among the most common macaque species in India (Fooden 1981, 2000).

Adult *Macaca mulatta* observed at the Railway Museum, Mysuru, Karnataka. © N. Suraj.

The Rhesus Macaque has a wide geographical range extending across Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, China, Burma, Laos, Thailand, and Vietnam (Fooden 2000). Within India, Rhesus Macaques occupy northern and central India, with notable absences in northern Kashmir, the western Himalaya, the Great Indian Desert, and parts of west-central India (Fooden 1989, 2000). In contrast, Bonnet Macaques are endemic to southern India (Fooden 1981).

The subspecies *M. radiata radiata* inhabits areas north of the Kambam valley in the southern Western Ghats, while *M. r. diluta* is restricted to regions south of the Kambam valley (Fooden 1981).

Observation On 16 October 2024 at 1355 h, the first author observed a single adult Rhesus Macaque perched approximately 15 m high in a Copperpod tree *Peltophorum pterocarpum* within Mysuru Railway Museum premises (12.3161°N, 76.6430°E), Mysuru City. He observed the individual for approximately five minutes from an estimated ground distance of 20–25 m without optical aids. Photographs were taken using a handheld digital camera, and GPS coordinates were recorded at the site. The macaque exhibited diagnostic features

consistent with Rhesus Macaque, including brownish-grey dorsal pelage with lighter ventrum, pink ischial callosities, a relatively short tail (visibly shorter than head-body length), and facial morphology lacked the pronounced crown hair whorl typical of bonnet macaque. Its body size and facial proportions were consistent with an adult individual. No other macaques were observed nearby.

The combination of short tail length, pelage characteristics, and facial morphology distinguishes the individual from the Bonnet Macaques and reduces the likelihood of misidentification. This observation confirms the presence of the species at this location in Mysuru and contributes to earlier isolated records from the region.

The individual appeared habituated to human presence despite ongoing museum activities. After approximately five minutes, it moved higher into the canopy and was subsequently lost from view.

The present observation adds to previously documented isolated sightings of Rhesus Macaque in Karnataka. Earlier reports include sightings from Kalaburagi District (formerly Gulbarga) (Belur & Gadadhar 2014) as well as newspaper reports from Nagarahole Tiger Reserve and Mysuru City (Star of Mysore 2022, 2024). Although a species geographical range is dynamic, this record from southern Karnataka, approximately 600 km away from the historically recognized boundary separating Rhesus and Bonnet Macaques (Koyama & Shekar 1981) warrants for proper documentation and further investigation.

We hypothesize two possible, non-exclusive mechanisms for these isolated sightings. First, these sightings could be a result of deliberate anthropogenic translocation, a practice documented in human-wildlife negative interaction scenarios (Singh & Rao 2004). Further systematic observations on the frequency, locations of such sightings and their distance from human-primate negative interaction locations to validate this mechanism. Rhesus Macaque is listed under Schedule II of the Wildlife (Protection) Act, 1972. Any deliberate translocation, release, or transport of the species without authorization constitutes a violation of wildlife protection law and warrants investigation by authorities.

Second, presence of species outside their geographical range could also be facilitated by accidental transport via rail or road network. Several previous observation sites in Karnataka (Belur & Gadadhar 2014; this observation) have been reported near major transport corridors. However, given the limited number of records, this may reflect observer bias toward accessible locations. Further observation is required to establish the evidence of transport-mediated dispersal.

Should repeated observations confirm population establishment, currently undemonstrated, competition with the endemic Bonnet Macaque could emerge as a conservation concern (Kumar et al. 2011). At present, this remains speculative. Systematic monitoring will be crucial to detect any evidence of population persistence and to guide management interventions, if needed.

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Recent records of the Dhole in India and emerging conservation challenges: evidence from the northern Western Ghats and central Indian landscapes

The Dhole *Cuon alpinus* Pallas, 1811 is a highly social, pack-living canid and social carnivore distributed across southern and southeastern Asia. India represents one of the most important global strongholds for the species, historically supporting extensive populations across diverse habitats ranging from dry deciduous forests to tropical rainforests and montane ecosystems (Johnsingh 1982; Durbin et al. 2004). Despite its ecological importance as a cooperative hunter capable of regulating ungulate populations, the Dhole has received disproportionately less conservation attention compared to sympatric large carnivores such as tigers and leopards (Kamler et al. 2015).

Currently, the Dhole is classified as 'Endangered' by the IUCN Red List under criteria C2a(i) (Kamler et al. 2015). The species has suffered a significant global range reduction, disappearing from approximately 82% of its historical distribution (Srivathsa et al. 2020).

Within India, while the country supports the largest remaining population, the species has experienced a drastic decline over the last century, losing approximately 60% of its original habitat (Modi et al. 2021; Ghaskadbi et al. 2022). This severe contraction is primarily attributed to habitat fragmentation, prey depletion, disease transmission from domestic

dogs, and historical persecution (Kamler et al. 2015; Woodroffe et al. 2012). Historically, Dholes were widely distributed across peninsular India, the Himalayan foothills, and the northeastern states (Pocock 1941).

Early naturalists described them as common throughout central and southern forests (Prater 1971). However, they were long considered "vermin" and were bounty-hunted to the verge of extinction before receiving legal protection in 1972 (Srivathsa et al. 2019, 2020). Large-scale deforestation during the colonial and post-independence periods, combined with targeted extermination campaigns, resulted in the isolation of remnant populations into three key landscapes: the Western Ghats, Central India, and the Northeast (Johnsingh 1982; Ghaskadbi et al. 2022; Srivathsa et al. 2019).

Today, these fragmented populations are increasingly structured as metapopulations, where local extinction within protected reserves is ideally offset by colonization from neighboring sites (Srivathsa et al. 2019). However, this stability is threatened by rapid economic growth and infrastructure development, which have severed landscape connectivity (Modi et al. 2021). Furthermore, since only about 5% of India's land area is formally protected, source populations remain vulnerable to the pressures of expanding human and livestock populations (Srivathsa et al. 2020).

In this context, recent years have witnessed a growing number of new and rediscovered locality records of Dholes across India, particularly from landscapes outside core protected areas. Such records are vital for reassessing current distribution dynamics and identifying previously overlooked corridors. This paper aims to (i) compile recent verified records of Dholes in India, with an emphasis on Maharashtra and western India, and (ii) examine emerging conservation challenges associated with these occurrences.

Materials and Methods

This study is based on a multi-source compilation of recent information on the occurrence of the Dhole in India. Peer-reviewed scientific literature published between 2019 and 2022 was reviewed to obtain background information on Dhole distribution, genetics, occupancy, and feeding ecology. Recent records (2023–2026) were compiled from verified photographic evidence, camera-trap records, and opportunistic field observations from western and central India. Media reports were included only when supported by photographic documentation and expert verification. Species identification was confirmed using key morphological characteristics such as pelage coloration, body proportions, and tail morphology, and, where available, corroborated using GPS metadata associated with photographic records. Opportunistic sightings and local ecological knowledge were clearly distinguished from systematic survey data and were used only to support inferences on historical presence and recent trends in Dhole occurrence.

Recent records of Dholes in India

In September 2025, a Dhole was photographed in the Panshet region of Pune District, Maharashtra, marking the first confirmed

photographic record of the species from this area (Mistry 2025; Shinde & Sonawane 2026).

The individual was observed in a fragmented forest landscape outside any major protected area. Experts confirmed the identification based on morphological features such as pelage coloration, body proportions, and tail morphology. This record is significant as it highlights the continued presence of Dholes in the northern Western Ghats and suggests the possible use of forest corridors connecting the Bhimashankar landscape with adjoining hill ranges.

In September 2024, a pack of approximately 10 Dholes were photographed near Dongroli village in Mangaon Taluka, Raigad district, Maharashtra (Mid-Day 2024; Reflections Live 2024). This record represents one of the few recent photographic documentations of Dholes from the coastal northern Western Ghats landscape of Maharashtra. Earlier, Pardeshi et al. (2020) reported the species from Phansad Wildlife Sanctuary, indicating its persistence in this region. Local residents reported occasional livestock depredation, particularly on goats, indicating potential negative interaction situations. The presence of a sizeable pack suggests either seasonal movement through adjoining forest patches or a previously undocumented resident population utilizing forest fragments and agro-forestry mosaics in the region.

Recent sightings from central Indian landscapes such as Bandhavgarh Tiger Reserve and Ratapani Wildlife Sanctuary indicate the continued persistence or recolonization of Dholes in these regions (Ground Report 2025; Free Press Journal 2026). These observations are consistent with earlier ecological studies suggesting that central India supports suitable prey densities and habitat structure for sustaining Dhole packs (Ghaskadbi et al. 2022). After being last reported in 2023, the presence of Dholes were officially reconfirmed in May 2025 during a Phase-IV tiger population assessment. The survey documented two separate Dhole packs comprising more than 20 individuals, with pups previously recorded from the Manpur forest range, indicating active breeding and pack stability within the landscape.

In January 2026, the Dhole was recorded for the first time in Ratapani Tiger Reserve through camera-trap documentation (Forest Department officials, pers. comm., 24 January 2026). This record represents the sixth rare carnivore species documented from the reserve in 2026, suggesting improving habitat quality and corridor connectivity between the Amarkantak and Betul landscapes.

Camera-trap and photographic records from Uttarakhand, Gujarat, and parts of the Eastern Ghats have further expanded the known contemporary range of Dholes, underscoring the species' ability to persist in marginal and fragmented habitats when minimal prey and connectivity are available (Jhala et al. 2019).

Additional record from Dongroli, Mangaon Taluk, Raigad District, Maharashtra

An additional opportunistic sighting of the Dhole was recorded from Dongroli Village, Mangaon Taluk, Raigad District, Maharashtra

(18.2020°N, 73.2238° E). This observation represents the second confirmed record of the species from this landscape. During the sighting, a pack consisting of five individuals was observed moving through a forest–agricultural mosaic, indicating active use of fragmented habitats outside formally protected areas.

Informal interactions and discussions with elderly residents from nearby villages revealed that Dholes were regularly observed in this region in the past. According to local ecological knowledge, sightings have become infrequent in recent years. The respondents attributed this apparent decline to increased human interference**,** commercial and infrastructural development, habitat modification, and escalating anthropogenic pressure in and around forest patches.

Although these accounts are anecdotal, when combined with direct field observations, they provide valuable supplementary evidence of the historical persistence and recent decline of Dhole presence in the coastal Western Ghats landscape of Raigad district. Such opportunistic records and local knowledge can play an important role in identifying previously overlooked habitats and movement corridors, especially for elusive and wide-ranging carnivores like the Dhole.

Discussion

Dholes are obligate carnivores that rely heavily on medium- to large-sized ungulates such as Chital *Axis axis*, Sambar *Rusa unicolor*, and Wild Pig *Sus scrofa*, making prey availability a fundamental determinant of their persistence within a landscape (Johnsingh 1983). Recent dietary studies employing scat analysis and molecular identification techniques in central India further confirm that an adequate prey base is the most critical ecological factor influencing Dhole survival, pack stability, and reproduction (Ghaskadbi et al. 2022).

Studies from southeastern Asia also demonstrate variation in diet and prey selection across evergreen and deciduous forests, indicating ecological flexibility in response to differing prey assemblages (Kamler et al. 2020). Consequently, landscapes experiencing prey depletion due to overgrazing, hunting, or habitat degradation are unlikely to support viable Dhole populations over the long term.

The occurrence of Dholes in human-dominated and fragmented landscapes, as documented in Maharashtra through recent and opportunistic sightings, indicates a certain degree of ecological flexibility and adaptability. However, such persistence is likely transient in the absence of functional habitat connectivity and sufficient prey availability. Fragmentation caused by linear infrastructure, mining, agricultural expansion, and urbanization has resulted in the isolation of forest patches, thereby restricting movement, dispersal, and genetic exchange among Dhole populations. This is particularly evident in western India, where the absence of legally protected corridors poses a significant long-term threat to population viability.

Human-wildlife negative interaction further compounds conservation challenges for Dholes. Livestock depredation incidents, such as those reported from the Raigad District, can foster

negative perceptions among local communities and may lead to retaliatory killings, especially in regions where compensation mechanisms are weak or absent. Such negative interactions are often exacerbated by prey scarcity and increasing overlap between wildlife habitats and human activities. In addition, interaction with domestic and feral dogs exposes Dholes to infectious diseases such as canine distemper and rabies, which have been identified as major causes of population decline in wild carnivores globally (Murray et al. 1999; Woodroffe et al. 2012).

Despite their ecological importance, Dholes remain comparatively under-represented in conservation research, policy frameworks, and funding priorities when compared to other large carnivores such as tigers and leopards.

The lack of systematic population monitoring limited long-term ecological studies, and insufficient integration of Dhole conservation into broader landscape management plans reflect a significant research and policy gap. This neglect is particularly concerning given the species' sensitivity to habitat fragmentation and prey depletion.

The findings of this study underscore the need for landscape-level conservation approaches that extend beyond protected areas. Expanded use of camera traps, genetic tools, and opportunistic records can improve detection and monitoring of Dhole populations in fragmented and human-modified landscapes. Identification and protection of ecological corridors, particularly in the Western Ghats and central Indian landscapes, are essential to facilitate movement and gene flow. Equally important is the implementation of community awareness programs and negative interaction mitigation strategies in newly documented areas to promote coexistence. Finally, the integration of Dhole-specific conservation action plans into state and national wildlife policies is crucial to ensure long-term persistence of this endangered canid in India.

Conclusion

Recent records from Maharashtra and other parts of India demonstrate that Dholes continue to persist in fragmented and human-dominated landscapes. However, such persistence should not be misinterpreted as recovery. Without targeted conservation actions addressing habitat connectivity, prey availability, and human wildlife negative interaction, these remnant populations remain highly vulnerable. Updated distribution records, such as those compiled in this study, provide a critical foundation for informed conservation planning and policy intervention.

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#271
21 May 2026

Report of a hypomelanistic Spectacled Cobra from Gujarat

The Indian Cobra *Naja naja* (Linnaeus, 1758), also known commonly as the Spectacled Cobra is a venomous snake in the family Elapidae (Whitaker & Captain 2004). The species is native to the Indian subcontinent and is a member of the big four species that are responsible for the most snake bite cases reported from India (Mukherjee 2012). The Indian Cobra is a moderately-sized, heavy-bodied species.

A hypomelanistic Spectacled Cobra Naja naja (Linnaeus, 1758) from Rajkot, Gujarat. © Aum Agravat.

Abnormal colouration in animals is considered a hypopigmentary congenital condition that may reflect low levels of genetic diversity (Bensch et al. 2000). Other chromatic aberrations, such as leucism, have also been reported in Indian snakes (Patel et al. 2022).

During a camera trapping survey at Rail Loco Colony, Rajkot (22.323°N, 70.785°E), on 20 October 2022, a Cobra was observed between the rocks. On closer observation, it was noted to show hypomelanistic trait. The individual was approximately 0.75 m (2.5 ft) long. When it raised its hood, a slight node on its skin was visible, indicating either a defensive posture or a minor injury. The snake was initially

discovered concealed between the rocks. Upon closer observation, it was seen exhibiting a defensive posture, raising its hood slightly. With careful handling, the cobra was moved out from its position, and detailed photographs were taken for documentation.

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Occurrence of endoparasites in Bonnet Macaque in Thrissur Zoo


Strongyle ova


Buxtonella

The study aimed to analyze and describe the endoparasite profile of the Bonnet Macaque *Macaca radiata* housed at Thrissur Zoo in order to develop effective management strategies against these parasites.

The Bonnet Macaque is a highly social primate, similar to other primate species. It is more prone to endoparasitic infections during the summer season. However, changes in diet can also facilitate the entry of parasites. As these macaques rely heavily on plant-based food, vegetation can act as a potential source of parasitic infection.

Muraleedharan (2016) conducted a study on endoparasites of wildlife of Karnataka. Varadharajan et al. (2001,) and Varadharajan and Subramanian (2003) studied the influence of season on the prevalence of helminthic infections among wild mammals in the Thrissur Zoo.

A total of 15 samples were collected from selected captive Bonnet Macaques for the examination of endoparasites and they were screened using parasitological techniques sedimentation and floatation methods. Faecal droppings were collected in sterile plastic vials in the early morning from the Thrissur Zoo on intermittent days. The collected samples

were analysed in university veterinary hospital Kokkalai, Thrissur. The faecal samples were subjected to routine parasitological analysis for the presence of egg or oocyte by standard sedimentation and floatation techniques.

Out of 15 samples examined two samples (13.33%) were found positive for endoparasites – one with strongyle ova and the other with buxtonella.

The present investigation revealed that wild mammals in the zoo generally did not exhibit significant or specific clinical symptoms due to parasitic infections. This finding is in agreement with the observation of Muraleedharan (2016), who noted that although such infections may not produce immediate clinical signs, they can lead to long-term effects such as emaciation and weakness, thereby predisposing the animals to secondary infections by other pathogens.

Some researchers also studied the seasonal prevalence in wild animals and reported different findings than the study like Moudgil et al. (2020) who reported monsoon season prevalence of 37.73% and 53.12% in animals and birds of MC Zoological Park, Chhatbir, Punjab and in the animals and birds of Bir Moti Bagh Deer Park, Patiala, respectively. During the rainy season, there will be lush growth of grasses and other plants, and the climate is most suitable for the development and existence of infective stages of helminth parasites. So, the infection recurs repeatedly throughout the year. The study conducted by Lingayat et al. (2022) on the prevalence of gastrointestinal endoparasites in captive wild animals at Aurangabad Municipal Corporation Zoo, Maharashtra revealed an overall gastrointestinal endoparasite prevalence of 48.4% and statistically significant variation in the prevalence between different seasons.

Most of the parasitic infections recorded from carnivorous animals are of zoonotic importance and those handling them should be aware to follow all hygienic cares to prevent infection to them (Muraleedharan 2016). Based on information provided in the 2011–2012 Annual Report of Mysore Zoo, 1,032 faecal materials were examined and *Toxocara*, strongyle oocysts were detected in carnivores. During 2012–13, 1,109 samples were subjected for screening of which 208 (18.76%) were positive for various ova. In a study conducted on the influence of season on the prevalence of helminthic infections among wild mammals in the Thrissur Zoo infection was comparatively higher during both the rainy seasons viz the south-west monsoon and the north-east monsoon Varadharajan et al. (2001) and Varadharajan and Subramanian (2003).

The study on prevalence of GI parasites has been conducted in various zoos and national parks throughout the world by different researchers (Maske et al. 1990; Rahman et al. 2014; Thawait et al. 2014; Mir et al. 2016). The prevalence of GI endoparasites observed in our study was lower than the previous findings of researchers.

Similar findings were also observed by some researchers like Varadharajan et al. (2001) who reported higher prevalence of helminthic infection in herbivores (71.62%) than the

omnivores (65.9%). Usually, overcrowding in herd animals, competition for food and water results in stress and decreased immunity lead to more vulnerability to parasitic infections. Lower prevalence in carnivores in comparison to herbivores and omnivores could be contributed to their individual confinement and good management practices. Some researchers observed lower prevalence in carnivores than our study like Thawait et al. (2014).

Moudgil et al. (2020) studied the prevalence of GI parasitic infections in zoo-housed birds of various zoological/deer parks and an aviary of Punjab, India screening 1,273 samples from the birds of the MC Zoological Park, Bir Moti Bagh Deer Park, Patiala, Patiala Aviary, Bir Talab Deer Park, Bathinda and Tiger Safari, Ludhiana showing an overall GI parasitic burden of 37.52%, 25.54% 37.50%, 45.39 %, and 67.64%, respectively. The protozoan infection mainly involved coccidian infection of *Eimeria*.

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Caught red-pawed: field observation from Chamba


Observed interaction between the Siberian Weasel and the trap. © Amrin Ansari.

At the Himalayan Restoration Project native sapling nursery in Chamba, the field staff do a lot of different chores, from watering the saplings, deweeding, preparing soil beds, to sowing seeds. But our team was unaware of another worker who had recently started night shifts in the nursery. There is a small storage room in the nursery which is used to keep hardware, tools, pipes and leftover seeds. Last year, when we were sowing the seeds of *Grevia optiva* in the nursery, we observed that the seeds kept disappearing from the storeroom. Apparently, some rodents made their way into the storeroom and nibbled our precious seeds. Our nursery helper, Shanti, claimed to have sighted a very fat rat in the storage, which, according to her, mocked her every time the store was opened.

Frustrated from that, she got a local rat trap from her home and set it up in the nursery. A piece of chapati was used as bait to lure the rodents. She planned to catch the culprit and release it very far from the nursery so that the seeds would not be damaged. When we came to know about her idea, we were reluctant at first, but we were also eager to see the rodent. Every day, we used to be excited to visit the nursery in hopes of catching the culprit, but to our disappointment, we would always find the trap closed, with neither any animal nor bait. It became quite a mystery to us what could have been wrong. The missing bait confirmed an animal presence, while the empty trap indicated a successful escape. This same pattern kept happening for a week or so until one day, another creature was caught red pawed in action.

It was a monsoon morning in early July last year, heavy rain from the previous night had stopped, and the gloomy clouds had cleared. Sushanth, who was volunteering and helping us in the field from the Zooreach Coimbatore office, and I went to the nursery to check on the saplings just when we heard loud squeaks coming from under a bed of root trainers. In the grass was a small creature dragging and rolling the rat trap.

The squeaks were the cries of help from the poor little rat trapped inside the trap. Little did

the rat know it was about to become breakfast for the little weasel.

We documented the entire incident. The weasel became cautious of the clicking sounds of the camera, but it prioritised its breakfast over safety. The weasel continued to try to open the rat trap by rolling it multiple times until it reached the edge of a terrace. Unfortunately, we made the mistake of moving from our position to take better shots. The poor fellow got super scared to see us hovering over it with a camera, or maybe it might have got camera-conscious and therefore ran to hide in one of the crevices on the nursery terrace wall.

We discussed the incident with Dr Sanjay Molur, who identified it as a Siberian Weasel. It is a small mammal known to dwell in burrows along the rocky slopes in Khajjiar-Kalatop Wildlife Sanctuary. According to the IUCN Red List, the Siberian Weasel is categorised as 'Least Concern' due to its wide range of distribution across 10 Asian countries, including India, Bhutan, China, Korea, Mongolia, Myanmar, Nepal, Pakistan, Russia, and Taiwan (Abramov et al. 2024). It is distributed in montane ecosystems at elevations ranging up to 4,875 m along the Himalayan belt. There are 11 subspecies of Siberian Weasel, and the subspecies that occurs in Kashmir and the western Himalaya is *Mustela sibrica hodgsoni* (Gray 1843). Being carnivorous, they are reported to have a diet mostly of rodents, voles, pikas, amphibians, fish, and lizards; hence, they play an important role in the ecosystem.

After the weasel went away, we released the poor rat that was caught and just had its life spared. We waited for a few minutes, and surprisingly, the weasel came back to the place where it had last left the trap and started looking around. Disappointed to find no trace of the trap or the rat, it disappeared into the bushes.

We shared the incident with the nursery helpers, who immediately recognised the weasel or "Bhaknoli" as they call it in Chambiyali- the local dialect. Shanti also mentioned that she used to see weasels very often in her childhood, but rarely finds them now. They are shy animals and are difficult to spot, she added. The mystery of the vacant traps was finally solved as we realised that the weasel was the one getting free meals from the rat traps, and we decided not to put those traps back again because, unintentionally, we were messing up the ecosystem balance by making the weasel habituated to easy food.

Small mammals like the Siberian Weasel are very important for the ecosystem, as not only do they keep the rodent population in check, but they are also indicators of a healthy habitat. Based on this incident, we decided to feature the species in the wildlife stickers created for HRP outreach activities. Through this small effort, our team hopes to remind local communities that the smallest creatures matter equally to the landscape.

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Changing perspectives through outreach

Voices from Schools and Villages

Mystic Village Outreach

Hope for Restoration and Future Generations

The outreach at Pukhari village was conducted on 16 April with local people who run activities in the village, including ziplining, trampolines, and other tourism-related work. At first, we assumed that people there would only be money-oriented and might not show much interest in conservation or wildlife. However, that turned out to be our wrong judgment.

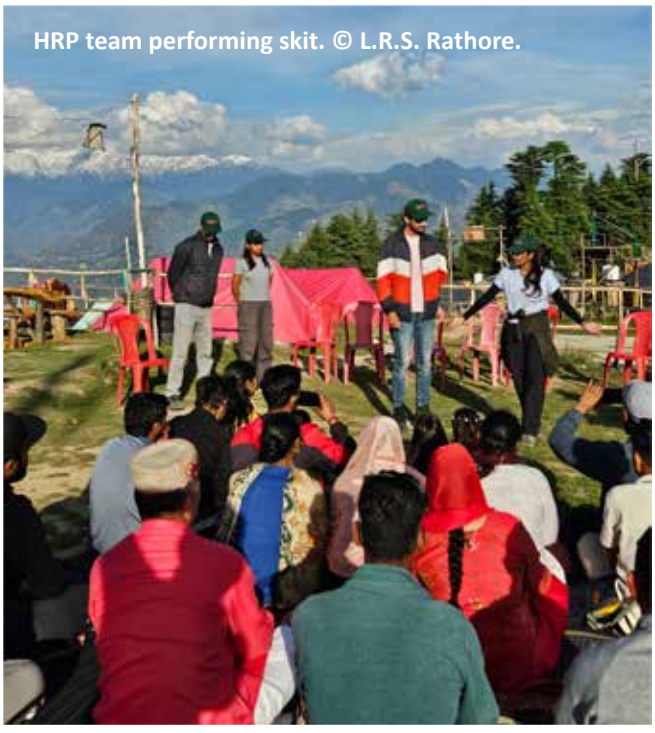
Around 15+ people attended the outreach, and we truly appreciated the way they listened carefully and observed our skit and posters with great interest. They were very optimistic about restoration and its future impacts. One person said, “We may not do this for ourselves, but we will do it for our future generations. We know restoration takes time”. Hearing this was very motivating for us. They even agreed to provide their land for restoration activities, which showed their trust and willingness to support conservation efforts.

Randoh School Outreach

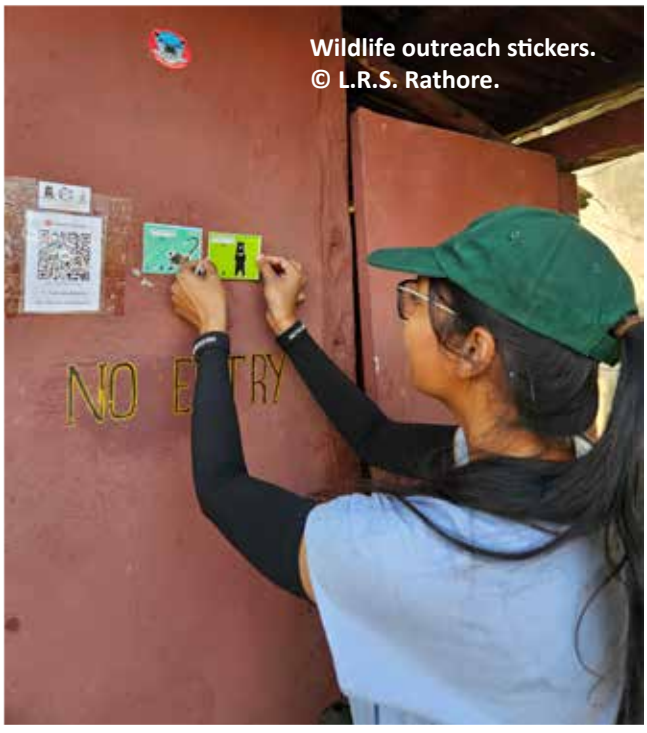
Teaching the Importance of Native Species

The outreach at Randoh School was conducted on 21 April. We visit this school every year, but this time we included a skit to demonstrate the impacts of deforestation and the importance of planting native species.

This year, the crowd was much larger, with more than 240 students and 15+ teachers present. Explaining the importance of native plantation to such a large audience was challenging, but the students listened very quietly and attentively. Since the classes were small and the number of students was high, we had to take four separate interaction sessions throughout the day. It was a hectic day, but we believe the students understood the project and the



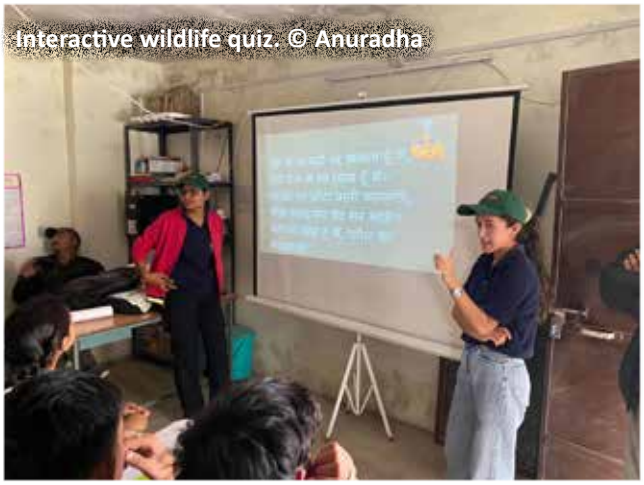
HRP team performing skit. © L.R.S. Rathore.



Wildlife outreach stickers. © L.R.S. Rathore.


HRP team addressing the students. © Payal Chaman.


Interaction with students. © Jayoti Bardhan.


Interactive wildlife quiz. © Anuradha


Poster explanation session. © Sherya Yadav.

importance of native species conservation. In the end, all the efforts felt valuable.

Khajjiar School Outreach

Understanding Perceptions Towards Wildlife

On 8 May, an outreach program was conducted at Khajjiar Senior Secondary School. This school was new to us, and due to accommodation, we were only able to take lectures for Classes 11 and 12, with around 50+ students attending. Whenever we ask students what black bears eat, the most common answer is always “corn,” just like we observed in Odda School and Randoh School. Even though this school was new to us, the response remained the same. During a quiz session, the students solved a wildlife riddle, and the answer was “porcupine”. When we asked if they had seen one, many students said yes, but some students sitting at the back added that its meat is very tasty. This response was quite shocking to me and made me realize that people’s perception and understanding of wildlife are still very limited in some areas.

The outreach went well, but it also gave us an important lesson, awareness and understanding towards wildlife conservation are still lacking. we hope the HRP team can gradually help change this perception, and that the project will continue to bring positive lessons, awareness, and long-term conservation results to the local communities.

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Citation: Rathore, L.R.S. (2026). Changing perspectives through outreach. *Zoo’s Print* 41(5): 38–39.

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

ZOO'S PRINT

Communicating science for conservation

ZOO'S PRINT Publication Guidelines

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

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

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

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

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

Cartoons, puzzles, crossword and stories

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

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

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

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

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

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

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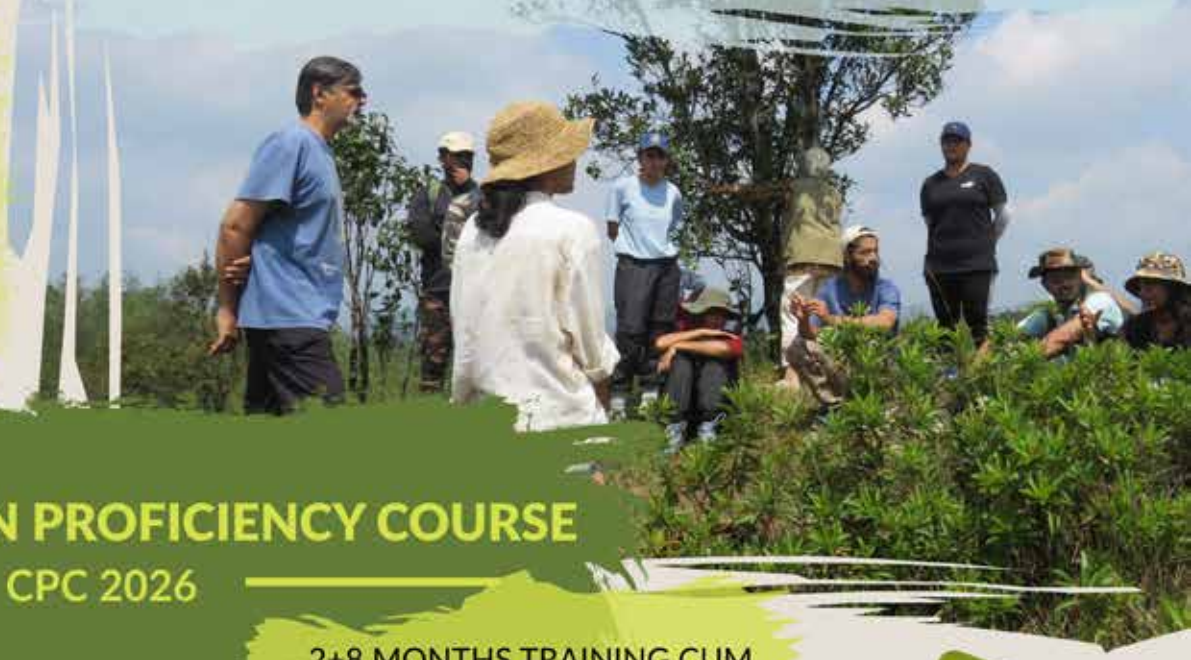

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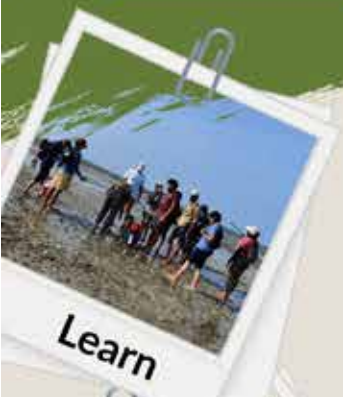

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