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Cover photo: *Sapling of Punica granatum.* © Shreya Yadav.

The Animal Collection of People's Park Zoo, Madras, From 1876 to 1890

First established by Edward Balfour (1813–1889) in 1855 as an extension of the Government Museum, the Zoological Gardens of Madras were relocated in 1863 to the large People's Park in the center of Chennai, Tamil Nadu. Looking for information about the rhinoceros which lived here since 1870, I happened to come across details about this zoo in the formal annual *Administration Reports of the Madras Municipality,* of which a large series from 1876 onwards were recently digitized by the Roja Muthiah Research Library (RMRL) in Chennai (https://rmrl.in/en/dl/official-publications/colonial-records). The reporting year generally was from 1 April to 31 March.

These reports from 1876 to 1890 contain varying sets of details of accounts and events in the short section on People's Park. In only two early examples, 1877 and 1878, the text is signed by the superintendent Charles James Hay-Ellis (1842–1926). In Appendices to the reports of 1878, 1879, 1881 and 1886, there are comprehensive lists of the animals present in the collection.

Despite archaic English and scientific names, I have combined these lists, with some adjustments to the sequence (Table 1). These show the presence of 46 species of mammals, 39 species of birds, and four species of reptiles. So far, photographs of the enclosures in People's Park have remained elusive. The Madras Zoo, renamed Arignar Anna Zoological Park (or Vandalur Zoo) was relocated to new premises in 1979.

People's Park had a large area for an urban zoo. It was more than just an animal collection. Bands played every Wednesday evening and Saturday. The annual Madras Fair commencing 30 December was first held in 1878, with fireworks on 1 January attended by over 20,000 people on the first occasion.

Besides the lists of animals, the reports provide some interesting details of new animals and births:

Report for 1877–78: Additions include one Sambar exchanged for two Spotted Deer from Zemindar of Malpaukam; one Orang-outang exchanged for a lioness from Calcutta. Births include two Cheetah on 14 July 1877; one Black Panther on 2 December 1877. The death of a popular Orang-outang on 4 June 1877 resulted in reduced attendance (Madras Municipality 1878).

Report for three quarters of 1878: Purchase from Abraham of Bellary two tigresses, two Samburs, one wolf, one fox, one lemur, one entellus, four crocodiles, one ostrich. Gift from Municipality of Ballarat (Australia) two dingoes and two kangaroos. Gift from Rajah of Wallur one tiger. Births include one cheetah on 9 June 1878; two Spotted Deer on 21 May, 14 June 1878 (Madras Municipality 1879).

Table 1. Animals in the Zoo of People's Park, Madras, on 31 March 1878, 1 January 1879, 1 January 1881 and 31 March 1886. The list combines the four inventories found in the administration reports of the Madras Municipality (respectively 1878, 1879, 1881, 1886). The sequence of species has been slightly changed to keep related taxa together. The English and scientific names are those found in the reports. 1/0 = 1 male; 0/1 = 1 female

English name	Scientific name	1878	1879	1881	1886
	MAMMALIA				
Lions / Lioness	*Felis leo*	2 / 1	2 / 1	1 / 1 + cub	0 / 1
Tigers / Tigresses	*Felis tigris*	2	3 / 2	2 / 2	2 + 3 cubs
Leopard or Cheetah	*Felis leopardus / Felis pardus*	1/1	1/1 + cub	1 / 1	2 + cub
Black Panther	*Felis pardus (Niger)*	1	1	1	1
Spotted Panther	*Felis pardus / Leopardus varius*	2	1	1	1
Striped Hyaenas	*Hyaena vulgaris*	2	3	3	5
Bears (Juggler)	*Prochilus ursinus*	2	2	1	2
Malay Bear	*Prochilus malayanus*	1	1		
Jackals	*Canis aureus*	2	1	4	
Ratel	*Ratellus mellivorus*	1	1	3	1
Rhinoceros	*Rhinoceros unicornis / R. indicus*	1	1	1	1
Elephant (Asiatic)	*Elephas indicus*	1	1	1	1
Jungle Cats	*Felis catus ferus / Felis chaus*	2	2	1	1
Tiger Cat	*Dasyurus maculabes*				1
The Rusty Spotted Cat	*Felis rubiginosa*	1			
The Common Tree Cat	*Paradoxurus musanga*	3	6	3	3
Civet Cat	*Viverra civetta / Viverra malaccensis*	2	2	2	2
Fox	*Vulpes bengalensis*		1	1	
Wolf	*Canis lupus*		1	1	1 + 2 cubs
Wild dogs	*Canis dingo*		2	1	
Dogs	*Canis familiaris*				2
Otter	*Lutra vulgaris*				1
Opossum	*Didelphis*	1	1	1	
Common Porcupines	*Hystric cristata*	2	2	2	2
Rabbits	*Lepus cuniculus*	24	24	42	50
Common Cavy or Guinea Pigs	*Cavia cobaya*	21	34	24	20
Squirrel	*Sciurus vulgaris*				2
White Rats	*Mus decumanus*	22	13	20	
Axis or Spotted Deer	*Axis maculatus*	1	14	24	33
Rangoon Deer	*Burman cervus / Rucervus duvaucelii*	1	1	1	1
Sambur	*Cervus aristotelis*	1	3	5	3
Indian Antelope	*Antilope bezoartica*	1	1	1	
Wild Boar	*Sus scrofa*	1	1	1	
Antelope	*Antilope cervicapra*	1	1	1	1
Elk	*Cervus alces*	1			
Hill Goats	*Capta hircas*			2	2
Sacred Abyssinian Baboon	*Cynocephalus hamadryas*	1	1	1	1
Lion-like Monkeys or Wanderoo	*Macacus leoninus / Inuus silenus*	3	3	1	1
Pig-tailed Monkeys	*Macacus nemestrinus*	2	3	1	1
Ceylon Bonnet Monkey	*Macacus pileatus / Macacus radiatus*	1	1		1 died

English name	Scientific name	1878	1879	1881	1886
Common Monkeys	*Madras cercopithecus / Macacus radiatus*	12	16	7	10
Black Monkey	*Macacus radiatus (Niger)*				1
Common Gibbons	*Hybolates lar*				1 died
Entellus or Madras Langur	*Presbytis priamus*		1	1	
Lemur	*Loris gracilis*		1	1	1
Kangaroos	*Macropus* sp.?		2	1	
	AVES				
Hawk	*Faconidae*	1			
Bald-headed Vulture	*Otogyps calvus*	1	1	1	
Vulture, Griffon	*Vulture falons*				1 died
Eagle	*Aquila*		2		1 died
Mottled Wood Owls	*Syrnium ocellatum*	2	2		
Owl	*Darnia nyotea*				1 died
Rice Bird	*Loxia oryzivora*				1
Greater Sulphur-crested Cockatoo	*Cacatua galerita*	3	2	1	
Cockatoos	*Phyotolophus*				1
Black Parrot	*Psittacius* sp.		1	1	
Rose-headed Parakeets	*Palaeornis rosa*	[empty]	2		
Rose-ringed Parakeets	*Palaeornis torquatus*	3			
Rose Hill Parakeets	*Platycercus eximius*	2	1		
Little Lorikeets	*Trichoglossus pusillus*	2	2		
Spotted Munia	*Munia undulata*	8			
Peacocks / Pea Hens	*Pavo cristatus*	3 / 7	3 / 6	4 / 5	2 / 3
Guinea Fowls	*Numida meleagris*	1	1	3	2
Jungle Fowls	*Gallas sonneratii / Megaposius tumulus*	5	4	3	4
Malta Pigeons	*Columba* sp.	6	12	22	
Lucknow Pigeons	*Columba*	17			
Pigeons	*Columba intermedia*	11	35	50	40
White-headed Pigeons	*Columba* sp.		8	4	
Doves	*Turtor* sp.	10	5	4	
Coucal	*Centropus rufipennis*	1	1	1	
Ostrich	*Struthio camelus*		1		
Emu	*Dromanis novae hollandiae*	2	2	1	
Sarus / Crane	*Grus gigantea*	1	1	1	1
Adjudant	*Leoptilos argala*	1	1		
Heron, Common	*Ardea cinerea*	1	1	1	
Vackas or Herons Night	*Nycticorax griseus*		7	8	2
Storks	*Mycteria australis*		2	2	
Stork	*Ciconia*				1
Pelicans	*Pelecanus onocrotalus*	2	2		1
Black Swans	*Cygnus atratus*	5	5	3	1
White-breasted Water Fowl	*Gallinula phoenicura*	1	1		
Pacific Gull	*Larus* sp.	1	1	1	

English name	Scientific name	1878	1879	1881	1886
Brown-headed Gulls	*Xema brunnicephala*	6	5	2	
Koels	*Eudynamys orientalis*	2	4	3	
Partridge	*Francolinus vulgaris / Ortygornis pontic-erianus*	3	3	1	
	REPTILIA				
Starred Tortoise	*Testudo elegans*	1		1	
Crocodiles	*Crocidilus palustris*			4	5
Monitor	*Varanus niloticus*				1
Rock Snake	*Python*			3	1
		1878	**1879**	**1881**	**1886**

Report for 1880: Additions include 1 Saras crane from Ahmed Moideen Khan, one Cheetah cub from S. Biligiri Aiyangar, three hill goats from T. Ottman and the Duke of Buckingham. Births include one lion on 5 July 1880, two tigers on 21 August 1880, one Sambur on 6 October 1880. Deaths include one Malay Bear, one Bear Juggler, one Hyaena, one Ostrich, two Tiger cubs and one Emu (Madras Municipality 1880).

Report for 1884–85: Additions include two Hyaena from P. Kotasami Tevan, one Armadillo from G.H. Smith, one Gibbon, one Spotted Cheetah by purchase. Births include one Sambur. Deaths include one Cheetah, one blind Sambur, one Armadillo and one deer. It was admitted that the Park "with its broken railings and its ruinous aviaries and bridges has the appearance of a property in charge of a Court's Receiver" due to lack of funding (Madras Municipality 1885).

Report for 1885–86: nil. List of animals at start and end of financial year (see Table 1) (Madras Municipality 1886).

Report for 1886–87: Additions include two kangaroos, two emus, two Black Swans, two Tasmanian Devils, one Tasmanian Wolf exchanged with the Zoo in Adelaide for two young tigers (Madras Municipality 1887). The shipment was received in December 1886 (Madras Municipality 1888).

Report for 1887–88: Animals sent to Adelaide in exchange: one Cheetah, one alligator, three kites, two owls, two crows, three tree cats, two squirrels, two jackals (Madras Municipality 1888).

Report 1896–97: Deaths include Orang-outangs on 1 April 1896 and 19, 20 October 1896 (Madras Municipality 1897).

Report 1897–98: Deaths include one elephant, one tapir, one Orang-outang, two tigers (Madras Municipality 1898).

The Zoo did well for the Orang-outang, big cats, rhinoceros and deer. The cooperation with Australian collections in Ballarat and Adelaide is noteworthy. The specimen of Tasmanian Wolf *Thylacinus cynocephalus* received in December

1886 from Adelaide is remarkable because the species went extinct in 1936. Apparently, the Adelaide Zoo sent two Thylacines in September 1886 (Paddle 2012: 85), so perhaps one died on the way. Their date of death remains unknown.

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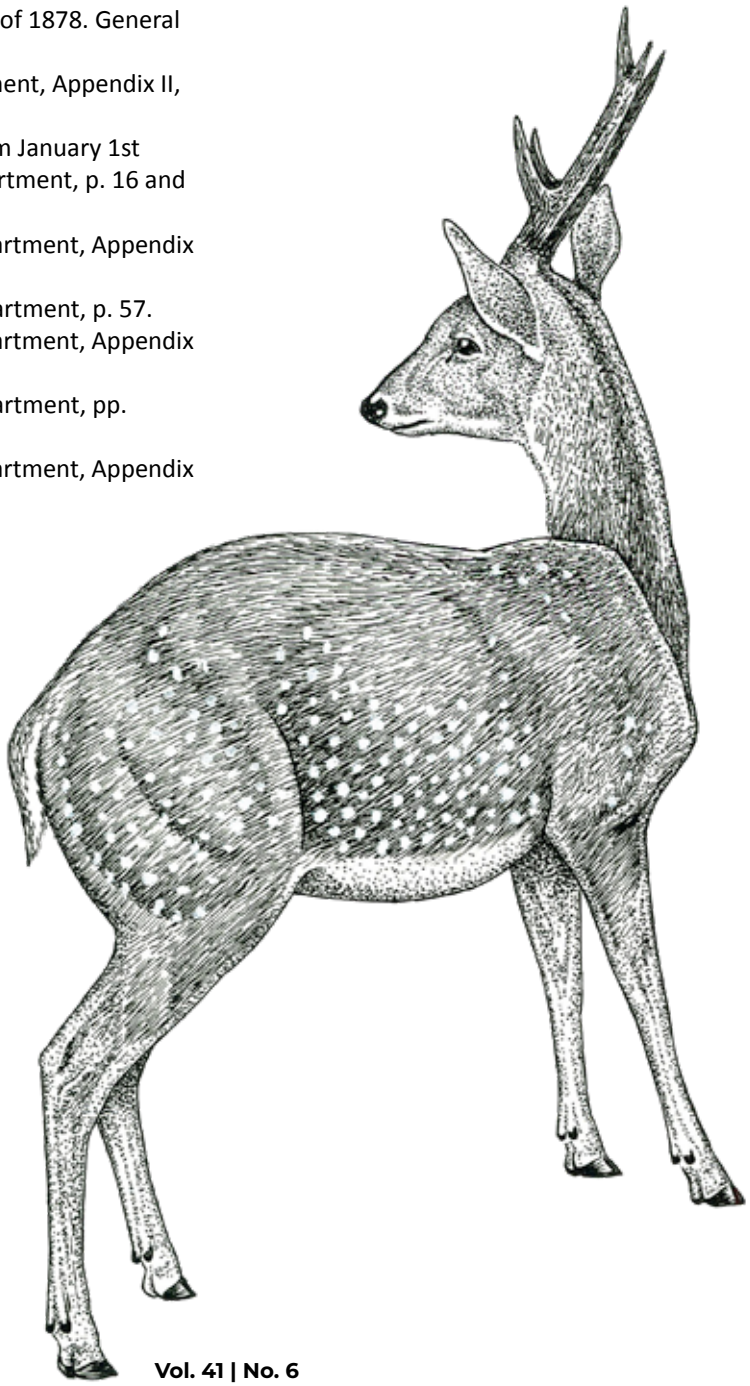

Similipal “Melanistic Tigers” are not “Pseudomelanistic”: Management of the Case of a Phenotypic Nomenclature Drift

ABSTRACT:
‘Melanistic tigers’ of Similipal was described first on 21 July 1993. It constitutes one of the 14-phenotypic colours (1987-2026) described for *Panthera tigris*. The ‘melanistic’ nomenclature has been used in a 131-year (1886-2017) review made in 2019, while consolidating records on colour variations in mammals. The term identifies itself within usage while describing the known range of global colour variations of leopard, *Panthera pardus.* In official records of Odisha from 2004 to 2019, the term has been in use for photographs and text. The term “pseudomelanistic tiger” follows from a scat analysis in 2021 in a multiauthor publication.

The “pseudo” prefix appeared out of nothing de novo, without any hint at or justification for replacement of the original “melanistic” phenotype nomenclature. The incorrect “pseudo” prefix has rapidly spread through media sound bites and derivative commentary. This drift has created avoidable confusion, including limited seepage into Government communication in 2025. Objection was raised before the editors of 2021-publication within six months of its publication, in September 2021, and after public resentment around Similipal, reiterated in March 2026. In April 2026, the editors have formally requested the authors to submit a correction. The “pseudomelanistic” prefix, was unknown in Indian literature on tiger. Since the incorrect “prefix” was given the rapid public diffusion, it needs to be dropped fast from further usage. Restoring exclusive use of the historically and biologically accurate term “melanistic tiger of Similipal” will protect scientific continuity, maintain administrative accuracy, and preserve Odisha’s phenotypic and ecological record spanning more than three decades.

KEY WORDS
Conservation, Gene-pool improvement, melanistic tiger, multi-author scenario, Similipal Tiger Reserve, terminology drift, phenotypic -14-colour model, pseudomelanistic prefix

1. INTRODUCTION

1.1. The first record of the *melanistic tiger* of Similipal

The first confirmed record of a *melanistic tiger* from Similipal dates to 21 July 1993, when a tiger carcass was collected from village Podagad and brought to Jashipur, on the southern fringe of the Similipal Tiger Reserve. Its body colour was neither the typical yellow-orange nor uniformly black, but distinctly blackish, exhibiting the characteristic phenotype pattern that got recognised as “melanistic”. The carcass, examined in the presence of several field staff, was video documented while L. A. K. Singh and Veterinary Assistant Surgeon Sitakanta Dash conducted measurements and the postmortem. This video record constitutes the first verifiable physical evidence of the “melanistic tiger in Similipal” (Singh, 1993).

Subsequent field observations and continued monitoring by the Research Officer and the Field Director provided additional corroboration. The phenomenon received its first formal scientific recognition in *Indian Forester* (1996) through a Letter to the Editor by C. G. Mishra, then PCCF (Wildlife) (Mishra 1996). This communication corrected widespread public and media misconceptions that had variously described the animal as a "black tiger", "a new tiger due to mutation", or even "a new species or subspecies".

The letter provided the earliest morphological description of the broad, fused, expanded black stripes, emphasised the rarity and conservation significance of the trait, and, importantly, it conferred administrative legitimacy to the field findings. Together, these contributions created the historical baseline from which all subsequent ecological, phenotypic, and genetic studies of Similipal's melanistic tigers have proceeded, and upon which later distribution maps have been constructed (Sagar & Singh 1989, Prusty & Singh 1996a, b; Singh 1999).

From 1996, it was established, for the first time in scientific literature, that got subsequent amplification with more field data, that a portion of the tiger population in Similipal confirms to a melanistic variant of *Panthera tigris*, not a taxonomic novelty or any outcome of exact-mutational repetitions.

1.2. Database and development of the 14-colour Phenotypic Model

From 2004, the state Government at Wildlife Headquarters, Odisha publishes books and reports, where all reference to unusual tigers of Similipal are referred to as the 'melanistic tigers of Similipal' (Mohanty et al. 2004, Pattnaik et al. 2008). By 1996 (Prusty & Singh 1996 a, b; Singh 1999), the 14-colour phenotypic model for *Panthera tigris* had already evolved from an earlier 5-colour model (Singh 2022a). This development drew upon field data from Similipal, including the record of a tiger without stripes (Sagar & Singh 1989, Singh 2024), external documentation of black tigers beginning with Buckland (Buckland 1889), and photographic evidence of multiple colour phenotypes compiled in Singh 1999.

The *Annual Report 2019* of the Wildlife Organisation explicitly states that "only Similipal houses the source population of melanistic tigers" (Wildlife Odisha - 2019). All official census figures likewise referred to *melanistic tigers.* The "melanistic tigers of Similipal" soon attracted wide interest among the intelligentsia, scientific community, general public, and in seminars and books (Singh 2000, Swain 2021).

The resulting 14-phenotype model accommodates every known tiger phenotype and also aligns with all major leopard colour variants worldwide (Singh 2022a), demonstrating the broad explanatory power of the model. The Odisha Science Academy subsequently published a special article in Odia describing the 14 recognised colour phenotypes of *Panthera tigris* (Singh 2022b).

A review of published literature confirms that the term "melanistic tiger" has been used continuously in Odisha and national scientific records since the first formally documented case from Podagad, Similipal in July 1993. This terminology is also followed throughout the monograph *Secrets of Similipal: A Wonderland of Elephants and Melanistic Tigers* (Swain

2021), authored by the former Field Director of Similipal Tiger Reserve.

The 239 aberration records between 1886 and 2017, reviewed by the *Journal of Threatened Taxa* (Mahabal et al. 2019), can be substantially harmonised with the 14-phenotype model of *Panthera tigris*. This cross-taxonomic compatibility underscores the value of adopting a spectrum-based, pattern-inclusive framework for future documentation and interpretation of phenotypic colour variations in Indian mammals. The 14-colour phenotype model is a **continuous and gradual spectrum** of pigment expansion, not a binary "true vs. fake" status.

1.3. Emergence of, and objections to, the "pseudo" prefix for the melanistic tigers of Similipal

In July 2021, the term 'pseudomelanistic tigers of Similipal' appeared as a sudden unwarranted departure and abrupt introduction of a neologism (Sagar et al. 2021).
, without any hint at or justification for replacement of the 28-years old phenotypic term "melanistic tigers of Similipal".

A **"buzzword effect"** appeared in popular media and official circles. Media interviews and popular science outlets quickly echoed this new terminology without consulting earlier literature or Government records. Magazines such as *Down To Earth* (2024) and *National Geographic* (2025) repeated the prefix (Mohanty 2024, Yadav 2025), giving it disproportionate visibility despite the absence of any supporting evidence beyond the 2021 paper.

This repetition created an incorrect scientific-sounding impression of legitimacy, even though the science of melanistic tigers has been developing continuously since 21 July 1993. As a result, a drift in terminology emerged in public communication, and by 2025 this inconsistency had begun to appear even in some Government documents alongside the correct term "melanistic tiger" (Wildlife Odisha - 2025).

Media sound bites further amplified the new term, and some officers repeated it in rapid interviews, unintentionally creating the impression that it was an officially accepted designation. This mixed usage has generated avoidable confusion among media personnel, field staff, and the public. To restore clarity and maintain continuity with three decades of scientific and administrative usage, the early discontinuation of the "pseudo" prefix is essential.

The phrase "pseudomelanistic tiger" in the 2021 study reflects the nomenclatural framework chosen by the lead authors of that multi-author publication. It is an approach not uncommon in collaborative scientific work. Its usage should therefore be interpreted as part of that paper's internal analytical framework, rather than as a revision of the terminology historically used in Similipal or in Dr. Swain's independent writings (Swain 2021).

In 2025, the Government record is inconsistent in the use of the terms "melanistic" and the one with the prefix "pseudo" at different pages of the 2025-report. The media statements in 2025 September, based on the incorrect use of "pseudo" prefix (meaning 'false') after National Geographic coverage in September generated the first objections by people in and around Similipal, and contacted this author

over the phone. Following requests first raised in September 2021 and reiterated in 2026, the PNAS Editorial Office formally asked the 2021 authors in April 2026 to submit a correction.

1.4. Purpose of this note

The "pseudo" prefix was introduced for melanistic tigers of Similipal only in 2021. It has already travelled widely through media interviews and popular magazines. Government documents remained consistent till 2025, and the science developed since 1993 is also consistent. But the incorrect use of "pseudo" prefix is deepening confusion among researchers, officers, and the public while describing the rare phenotypes of tiger. The incorrect term is spreading faster. The drift is occurring outside the scientific record, primarily in media communication and derivative commentary.

An early academic clarification is therefore essential to prevent further terminological drift. Dropping the use of the "pseudomelanistic" term now will protect both scientific accuracy and Odisha's historical record, ensuring continuity with three decades of verified field evidence and official usage.

2. METHODS

This clarification note is based on a direct examination of Government of Odisha documents spanning 1993–2025. It included, the annual reports, census summaries, monitoring records, and official publications that were systematically reviewed to assess terminology and consistency of usage. Newspaper reports and media articles were consulted only to trace how the "pseudo" term entered public communication.

Scientific literature from 1993 onwards was analysed for consistency, continuity, and acceptance across sources. The process included the 14-phenotype model (1999) and the 2019 JoTT review from 1886 to 2017 (Mahabal et al. 2019). Photographic records and published captions were also examined to verify the terminology used in field level documentation.

No unpublished data, informal communications, or speculative sources were used. The analysis relies exclusively on publicly available Government documents and peer reviewed scientific papers. This approach ensures that the clarification rests entirely on verifiable records and long established scientific understanding.

3. RESULTS

This section presents five correlated observations that collectively demonstrate the historical accuracy, scientific continuity, institutional legitimacy, and ecological insight associated with the long standing use of the term "melanistic tiger of Similipal." Similipal merits such treatment because of its documented history of melanistic tigers since 21 July 1993, as well as other colour variations described in the literature since the 1970s (Singh 1999).

3.1. Observation-1: Drift popularising the incorrect "pseudo" prefix

A clear example of terminology drift is evident in the media portrayal of Similipal's colour variants. *Down To Earth* (15 February 1998) accurately described the phenomenon as part of a natural continuum of tiger colour expressions, explicitly using the term "melanistic" and citing field-based explanations

that melanistic colouration is not caused by a mutant gene, but is part of the species' recessive genetic expression.

However, by 2024, the same magazine had overlooked its earlier accuracy and adopted the scientifically unsupported term "pseudomelanistic" (Mohanty 2024). Of course, it happened under a different reporter. This shift amplified a post-2021 media drift, rather than the long standing field evidence from Odisha. The change illustrates how popular communication can overwrite its own historical clarity and inadvertently propagate incorrect terminology, despite the availability of earlier, well documented scientific descriptions.

3.2. Observation-2: Drift within Government usage (1996–2025)

The review of Government of Odisha documents shows complete consistency in the use of the term "melanistic tiger of Similipal" for nearing three decades. From 1996 to 2019, every available official communication employed the scientifically correct term "melanistic tiger." This continuity begins with Mishra (1996), is reaffirmed in Mohanty et al. (2004) and Pattnaik et al. (2008), and continues unbroken through the Wildlife Organisation Annual Report 2019 (Wildlife Odisha - 2019), which prominently features the "melanistic tiger of Similipal" in both text and photographic captions.

However, by 2025, the incorrect term "pseudomelanistic" had also begun to appear in the Government's Annual Report, despite having no historical basis in Odisha's scientific or administrative record (Wildlife Odisha - 2025). This shift does not reflect new field evidence or explanation; rather, it represents an attempt to adopt a "scientific-sounding" expression influenced by post-2021 media usage and external academic terminology. The result is a clear case of terminological drift.

3.3. Observation-3: Context-dependent usage shaped by leading authors

A noteworthy pattern emerges when comparing the terminology used by Dr. D. Swain, the former Field Director of Similipal Tiger Reserve. in two separate publications from 2021. By July this year, Dr. Swain is a coauthor of Sagar et al., 2021, He is associated with the introduction and use of the term "pseudomelanistic tiger". This incorrect terminology had never appeared in Indian literature prior to July 2021.

But in his monograph *Secrets of Similipal: A Wonderland of Elephants and Melanistic Tigers* (Swain 2021), Dr. Swain consistently employs the term "melanistic tiger", fully aligned with the terminology in use since the first formally documented record of the Similipal melanistic phenotype in 1993. It is a silent, practical rejection of the neologism by someone who actually managed the landscape.

This contrast indicates that the adoption of the new term in the PNAS paper reflects the nomenclatural framework created by the lead authors of that multi-author study, rather than continuity with the terminology historically used in Similipal or in Dr. Swain's own independent writings. The difference is therefore best understood as a context-dependent usage, and co-author disconnect, shaped by the conventions and analytical choices of the respective publications, rather than as a shift in Dr. Swain's long standing descriptive practice.

3.4. Observation-4: Context-dependent choices shaped by media

The occasional use of the term "pseudomelanistic tiger" by senior officers in media interactions reflects 'buzzword effect' of the terminology that gained visibility after Sagar et al. (2021). It is often repeated uncritically by journalists.

In the context of the 2024 tiger census coverage, the census data quoted officers describing 13 individuals as "pseudomelanistic tigers" (Mohanty 2024). Around the same period, translocation efforts introduced normal colour tigers from outside Odisha into Similipal. One of these females successfully bred with a wild male and produced four normal cubs in May 2026. It was during this phase, which is the post-2021, the subject got further focused amid heightened media attention. The "pseudomelanistic" term began appearing in official statements and media reports.

However, in their own written communications, the authors consistently use the historically correct term "melanistic tiger of Similipal." This includes the articles in *The Indian Express* (Nanda 2026, Maharana 2026). This aligns fully with the 1993 Podagad record and with long standing scientific and administrative usage. The contrast indicates that such deviations are context-dependent. It is shaped by media-framing and the nomenclatural conventions of multi-author publications, rather than by any change in scientific understanding.

This reversion marks an important administrative correction: the scientifically unsound "pseudomelanistic" term was replaced by the historically and scientifically validated terminology. The episode demonstrates that timely scientific clarification can effectively restore accuracy in official communication and prevent further institutional drift away from established ecological knowledge.

3.5. Observation-5: "Full Circle Travel" of the Pseudomelanistic Term

Over the past five years, the term "pseudomelanistic tiger" has travelled a complete and unintended circle through multiple communication channels. In July 2021 the "pseudo" prefix reflected the nomenclatural framework adopted by the lead authors in Sagar et al. (2021). From there, the term entered media sound bites, where journalists and television anchors repeated it widely. They did so, evidently without reference to the implications built into the long established scientific usage of "melanistic tiger of Similipal."

This media echo then influenced spontaneous public statements using the term in interviews to align with the vocabulary circulating in the press. Yet, in their independent, reflective writing, including articles in national newspapers, the same officers returned to the historically correct term "melanistic tiger of Similipal," consistent with the 1993 Podagad record and nearly three decades of scientific usage. National newspapers such as the Times of India continued to use the correct term through 2025–2026 (Times of India 2025, 2026).

Lasting for less than five years, the "pseudo" prefix travelled fast from scientific paper to media, to public speech (Table-1). It has finally given way to corrected usage after creating avoidable confusion. Although the 2021-Journal has issued information to authors for correction

of the “pseudo” prefix, it also underscores the need for a faster academic clarification with evidences of avoidable confusion.

DISCUSSION

The subject of the melanistic tiger (21 July 1993) of Similipal has gained renewed importance after 2024. In early October 2024 the Chief Wildlife Warden of Odisha, Mr. Susanta Nanda, informed in media that the Ministry of Environment, Forest and Climate Change (MoEFCC) and the National Tiger Conservation Authority (NTCA) had given the green light to translocate two young, normal-coloured female Royal Bengal Tigers from the Tadoba-Andhari Tiger Reserve (TATR) in Maharashtra. The purpose is for improving the gene pool constituents of normal-coloured tigers in Similipal.

Breeding success of the translocated tigress Zeenat became evident when she produced four normal cubs in May 2026. It brought the biological and conservation implications of melanism back into sharp focus. These developments directly echo the concerns articulated in Singh (1999: pages 49-57). The work highlighted the potential genetic consequences of a small, colour-biased population and emphasised the need for strategic management, including genetic reinforcement and the establishment of functional tiger corridors.

The present situation that has emerged after successful breeding by the translocated tigress, therefore, reinforces the long-standing scientific position that accurate terminology is not merely semantic; it is essential for guiding appropriate conservation decisions. Mislabeling the phenotype as “pseudomelanistic” risks obscuring the very management challenges that Odisha had recognised decades earlier (Table-1).

Observations and findings in this article reveal a clear separation between official usage and public usage of the terms “melanistic” (from July 1993) and “pseudomelanistic” (from July 2021). Government documents from 1993 to 2025 have remained internally consistent, recognising the Similipal form as a melanistic phenotype. Scientific literature from 1993 to 2019 also supports this classification. Together, these demonstrate that the scientific basis for the melanistic classification is strong, stable, and widely accepted.

In contrast, the “pseudo” term entered public communication only after 2021, spreading through interviews, media reports, and popular magazines such as *Down To Earth* (2024) and *National Geographic* (2025). This spread occurred without reference to Government documents or long established scientific understanding. Such divergence between official usage and public usage can create longterm confusion and may weaken the continuity of Odisha’s own scientific record. Therefore, the issue requires timely academic clarification to prevent further drift.

Although PNAS issued an email to the authors of the 2021 paper in April 2026 requesting a correction, it has become pertinent for future wildlife conservation management to record the situations arising due to the incorrect use of “pseudo” prefix for melanistic tigers of Similipal. There is no justification for allowing additional time for the incorrect term to circulate further in media or creep into Government reports.

Table1. Chronology of the use of the terms "melanistic" and "pseudomelanistic" in the context of *Panthera tigris* in Similipal Tiger Reserve, Odisha

Year	Source	Term Used	Notes
1993	Podagad specimen (Singh 1993; Mishra 1996; Singh & Prusty 1996a,b)	**Melanistic tiger**	First scientific record of melanism in Similipal
1993–2020	Odisha Forest Department; Indian literature	**Melanistic tiger**	No usage of "pseudomelanistic" anywhere
2019	*Journal of Threatened Taxa* review	**Melanism**	Review does **not** use the term "pseudomelanistic"
2021 (July)	Sagar et al., PNAS	**Pseudomelanistic tiger**	First introduction of the incorrect term
2021	Swain, *Secrets of Similipal*	**Melanistic tiger**	Book title and text confirm correct terminology
2021–2026	Media & some officers	**Pseudomelanistic**	Spread due to PNAS paper; media amplification
2026 (April)	PNAS Editorial Office	**Term to be corrected**	Editors request authors to submit correction

The "pseudo" prefix for the melanistic tiger of Similipal needs to be dropped immediately before it causes further confusion in policy, communication, and public understanding.

Restoring the long established term "melanistic tiger" is essential to maintain continuity with Odisha's scientific record and to prevent the dilution of a nomenclature that has stood unchallenged for over three decades.

CONCLUSION

The present analysis demonstrates that the prefix "pseudo" entered usage not through longterm scientific consensus, but through a shortlived, superficially technical terminology that appeared only after 2021. Its uncritical adoption in administrative and media communication led to a gradual erosion of the established term "melanistic tiger." In turn, it has been used consistently and unambiguously in Odisha's scientific and governmental records since 1993.

The corrective communication is now formally conveyed to the PCCF (Wildlife) and Wildlife Headquarters. It has emanated from the PNAS Editors' correspondence and the 1993–1999 phenotype documentation. It provides the necessary scientific basis for restoring accuracy. The correct term is, and has always been, the "melanistic tiger" of Similipal.

The review clearly shows that the term "pseudomelanistic" has no foundation in Government documents and no foundation in the scientific understanding developed since 21 July 1993. The only consistent and evidence based term for the Similipal phenotype is melanistic tiger.

The "pseudo" term arose from a single scientific paper and spread through public communication without reference to long established field evidence or administrative usage. Its continued use risks distorting both scientific accuracy, administrative continuity

and of diluting the management actions for gene-pool improvement in Similipal.

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1OCEAN programme: Citizen Science

Monitoring Shark landings at Shakthikulangara Harbour

Introduction

Sharks are apex predators that play a pivotal role in maintaining the balance of marine ecosystems. Their presence regulates prey populations and ensures the health of coral reefs and seagrass beds (Heithaus et al. 2008). However, in recent decades, the global shark population has been declining due to overfishing, habitat degradation, and bycatch in commercial fisheries (Dulvy et al. 2014).

The Indian coastline, particularly Kerala, is a hotspot of elasmobranch diversity, yet it faces increasing pressure from mechanized fishing fleets (CMFRI 2024). Shakthikulangara, a prominent fishing harbour in Kollam district, serves as a critical landing site for a variety of marine species, including sharks. This internship was undertaken to monitor shark landings at this harbour, with a focus on identifying species diversity, fishing practices, and post-harvest utilization. The study aimed to document the frequency and nature of shark bycatch, record the fishing gear used, and understand the socio-economic pathways through which shark products are distributed.

Methodology

The shark monitoring internship was conducted over a series of field visits to the Shakthikulangara fishing harbour from 7–24 May 2025. During this short-term study period, systematic observation was conducted on six early mornings with data collected during peak landing hours typically between 06:00 AM and 08:50 AM, coinciding with the return of mechanized fishing vessels. Each survey session lasted between 1 to 2 hours. Data collection involved direct observation and informal interviews with fishers and traders. The primary variables recorded included the species name (where identifiable), type of

Table 1. Shark species landed at Shakthikulangara fishing harbour during study period

#	Name of the species	Number of individuals during study period	Catch type	Gear type	Fishing boat type	Uses
1	*Iago omanensis*	24	Bycatch	Small mesh size	Mechanized	Fertilizer, feed industry
2	*Iago mangalorensis*	7	Bycatch	Small mesh size	Mechanized	Fertilizer, feed industry
3	*Eridacnis radcliffei*	6	Bycatch	Small mesh size	Mechanized	Fertilizer, feed industry
4	*Halaelurus quagga*	1	Bycatch	Small mesh size	Mechanized	Fish meal
5	*Chilloscyllium arabicum*	1	Main catch	Small mesh size	Mechanized	Meat
6	*Heptranchias perlo*	1	Bycatch	Small mesh size	Mechanized	Meat, fish oil
7	*Echinorhinus brucus*		Bycatch	Small mesh size	Mechanized	Meat, fish oil

catch (main catch or bycatch), time of landing, fishing duration, gear type, mesh size, fishing depth, and distance from shore. Additional data on the number of individuals, their intended use (meat, oil, fertilizer, fish meal), price per kilogram, and market destination (local, export, industry) were also noted. Photographic documentation was attempted where possible, though weather conditions and handling practices limited image clarity on some days. The photographs were identified to species to genus level by Vishnu H. a PhD student from University of Kerala.

Observation

1. ***Iago omanensis Bigeye Houndshark***
   A small shark species is often caught as bycatch. It's found in deep waters and typically targeted by mechanized boats using small mesh gear. Used mainly in fertilizer and feed production.
2. ***Iago mangalorensis Mangalore Houndshark***
   Closely related to I. omanensis, this species shares similar habitats and capture methods. It's valued for its role in the low-cost industrial feed and fertilizer sectors.
3. ***Eridacnis radcliffei Pigmy Ribbontail Catshark***
   A slender deep-sea shark, rare in catch records. Its small size and low market value make it a common bycatch, used chiefly in feed and fertilizer.
4. ***Halaelurus quagga Quagga catshark***
   Identified by its striped pattern, this species is infrequently caught and primarily processed into fish meal. It inhabits soft-bottom marine areas.
5. ***Chiloscyllium arabicum Arabian Carpetshark***
   Also known as the Arabian bamboo shark, it's a demersal species targeted for meat. It's usually caught as part of the main haul and is prized in niche food markets.
6. ***Heptranchias perlo Sharpnose Sevengillshark***
   Commonly called the Sharpnose Sevengill shark, this deepwater predator is used for meat and fish oil. It's notable for its unique seven-gill anatomy.
7. ***Echinorhinus brucus Bramble shark***
   The bramble shark is a rare deep-sea species with thorny skin. Caught as bycatch, it's processed for both meat and oil, though its rough texture limits its appearance.

Discussion

The observations glimpses pattern of shark bycatch across multiple fishing days. Seven shark species with over 55 individuals were recorded from over six survey days. The number of individuals recorded does not reflect the actual landings as only a few crates were sampled each day (Table 1). Although sharks are not the primary target species, their frequent occurrence as bycatch poses a threat to population stability. The economic incentives for meat and oil extraction are limited to a few species, while the majority are relegated to low-value uses such as fertilizer and fish meal. The findings from this internship highlight the prevailing shark bycatch issue at Shakthikulangara, and the need to act on it. The lack of species-level identification and data recording at landing sites hampers conservation planning. Training programs for fishers and harbour staff, along with the introduction of species identification cards and mobile apps, could bridge this gap. Moreover,

Eridacnis radcliffei

Heptranchias perlo

Halaelurus quagga

Ehinorhinus brucus

Chilloscyllium arabicum

Iago omanensis

Iago mangalorensis

Citizen Science

Community | Research | Learn | Share

a—*Torpedo panthera ray* | b—Dipturus sp. (longnose skate) | c—guitar fish | d—Chimera (Neoharriota pinnata) | e—Remora *(Echeneis naucrates* | f—Cephalopods | g—puffer fish | h—shrimp

policy interventions such as bycatch quotas, gear restrictions, and seasonal closures may help reduce shark mortality. Collaboration with research institutions and NGOs can further support data collection and awareness campaigns. Ultimately, balancing economic livelihoods with ecological sustainability will be key to ensuring the long-term survival of shark populations along the Kerala coast.

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1OCEAN programme: Citizen Science

Predator or Prey? Preliminary Observations on Shark Landings at Dhakke

Introduction

Dhakke Fishing Harbour is one of the largest and busiest harbours in Karnataka, located along the Arabian Sea in Mangaluru. It plays a vital role in supporting the local fishing economy with its advanced infrastructure and daily landings. The harbour also serves as a key site for fish trade, processing, and export activities. Mangaluru, located along the Arabian Sea in Karnataka, is a prominent hub for marine fisheries on India's west coast. With rich fishing grounds and a favourable continental shelf, the region supports a wide range of fish species and sustains thousands of livelihoods.

The city is home to major fishing harbours like Dhakke (Old Port), Bunder, and Malpe, where both traditional and mechanised boats operate. Commonly landed species include pomfrets, sardines, mackerels, prawns, tunas, and seer fishes. Overfishing of marine resources has pushed more than one-third of chondrichthyan species toward extinction (Dulvy et al. 2021).

India is among the top three shark-fishing nations in the world (Tyabji et al. 2020). While the global fin trade is a major driver of shark declines, there is increasing evidence that local consumption adds to the complexity of these pressures (Karnad et al. 2024). Poorly regulated fisheries have also contributed to population declines (Karnad et al. 2019). The present study aims to understand the local context of shark fisheries in Mangalore by addressing the following questions: Is there a significant shark fishery in the region? Which shark species are landed at Dhakke? What

is the scale of landings? What fishing gears are used to catch sharks? Is there active local consumption? Where are sharks sold, and how are they used?

Methodology

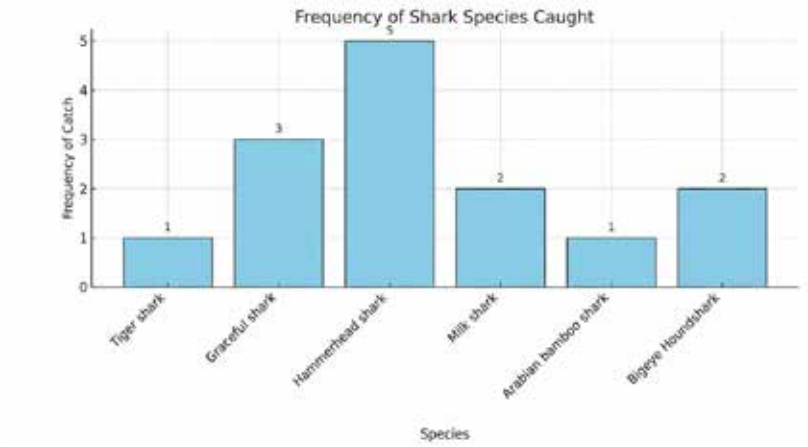
We conducted fish landing surveys at Dhakke fish market in Mangalore with particular focus on shark species, their abundance, trade, and other uses. We visited the harbour every alternate day from 02–26 May 2025 to collect data on shark landings. We monitored the landing and unloading of the fishes and mainly looking for the shark landings. Efforts were made to click pictures of the sharks focusing on its key characteristics necessary for identification. A reference like pen or foot was placed in every picture to get an estimate of the length of sharks. The shark species were identified from morphological features in photographs by Vishnu H, an elasmobranch researcher at University of Kerala.

To understand more of the economic aspects, the team interacted with the local fishermen to get more information on the selling prices of different shark species, market value, and demand. Interacting with the fishermen helped us understand the fishing practices or gears used, duration of their fishing trips and about the seasonal varieties of the sharks. Most of the boats that go for fishing were observed to go for a duration of around 10 days.

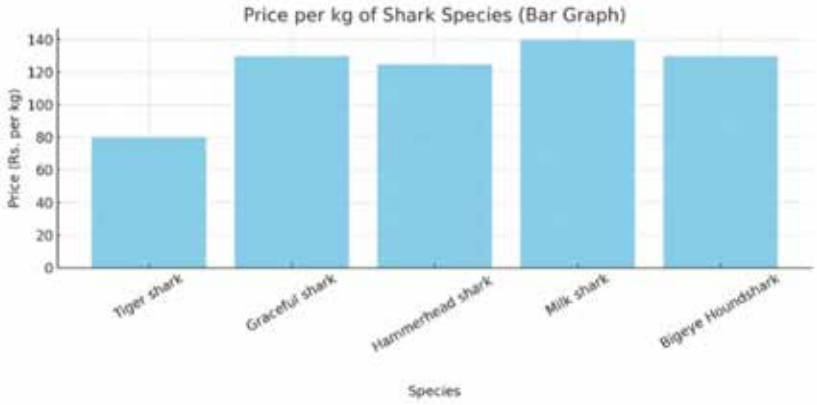
Observations & Results

We found out that there are species that were not consumed by the people but instead were utilized for the preparation of fertilizer, poultry feed, fish meal, fish oil factories etc.

Many of the shark species were also transported to other bigger harbours in and



Frequency of each shark species caught on the days of the survey. Each bar represents how many different days each species was observed being landed at the harbor.



Graph 2. Rates the shark species were sold for.

Rates the shark species were sold for.

out of the city due to its good meat quality, demand, and market value.

Our survey was conducted for a period of nine days, by which we understood the landings of sharks, species that are caught and the local trading practices.

From our survey photographs, six (6) different species of sharks were observed-

1. Tiger Shark *Galeocerdo cuvier*
2. Graceful Shark *Carcharhinus amblyrhynchoides*
3. Scalloped Hammerhead Shark *Sphyrna* cf. *lewini*
4. Bigeye Houndshark *Iago omanensis*
5. Arabian Bamboo Shark/ Arabian Carpet Shark *Chiloscyllium arabicum*
6. Milk Shark *Rhizoprionodon acutus*

Table 1. Measurements and stage of life of sharks landed at Dhakke during survey period.

Shark Species	Total Length (Snout Tip to Tail Length) recorded for few individuals during survey	Inferred Stage of Life	Rationale for inferred Stage of Life
1. Tiger Shark	120 cm	Juvenile	Pups are of 80-90 cm TL; Males mature at 300 cm; females mature at 290 cm from Simpfendorfer et al. (2001)
2. Graceful Shark	100 cm	Juvenile	Length at Maturity is 115 cm (fishbase 2026a)
3. Scalloped Hammerhead Shark	140 cm	Juvenile	Length at Maturity is 210 cm (fishbase 2026b)
4. Bigeye Houndshark	80 cm	Juvenile	Length at Maturity is 55.7 cm (fishbase 2026c)
5. Arabian Bamboo Shark	60 cm	Adult	Length at Maturity is 49.5 cm (fishbase 2026d)
6. Milk Shark	95 cm	Juvenile	Length at Maturity is 75 cm (fishbase 2026e)

Our observations & inferences

Observations	Inferences/thoughts
O1. From our data listed in table 2, species were mostly sold to local markets	I1. O1 implies there exists local consumption of sharks in the area.
O2. From table 2, species along with the decomposed ones were sent for fertilizers	I2. According to the fishermen, due to the presence of zinc in shark body fluids, the decomposed sharks were sold to fertilizers. Although some sharks are commercial species, the reasons why they are not preserved in good conditions and are instead sent to fertilisers is not clearly understood.
O3. From table 1, mostly juveniles were being caught	I3. Juveniles are often caught as bycatch (unintended catch) when targeting other species, especially in mixed-species fisheries.
O4. Three individual Tiger sharks were found at the same place unsold for six days	I4. The species may not be commonly consumed or could be avoided as it was found decomposing
O5. Around the last few days of the survey, (end my May month) there were not many sharks in the catch.	I5. Perhaps due to the heavy rain and storms that hit the coastal region
O6. Lot of species were exported to various other places like Madras, Kerala, Udupi, Kundapura, Kochi etc	I6. Suggests the consumption of the species is quite widely spread across Karnataka coastline region.

Table 2. Survey log – Information on shark species landed, their abundance and gear used at Dhakke from 02–26 May 2025.

Date	#species observed	Species name	Trade information	Gear used	Abundance
02.v.2025	2	1. Milk Shark	Feed (decomposed)	nets for deep fishes, Mechanised boat	25–28 individuals (of sizes given in image)
		2. Arabian Bamboo Shark	People do not buy them; they won't be consumed.	N/A	1 individual
08.v.2025	6	1. Tiger Shark	Sold for local consumption, sold as whole for Rs. 1,500 / or Rs. 80/kg	Net catching, mechanised boat	individual
		2. Graceful Shark	Local consumption (juveniles)or exported to Kochi (adults).	Deep sea net catcher fishing, mechanised boat	Only 1 of along with 20–26 juveniles (of sizes given in image)
		3. Hammerhead Shark (likely Scalloped)	Local consumption or exported to Udupi, Puttur or Thalapady, sold for Rs 120/kg, consumed or sold as feed, fertilisers or medicinal purposes.	Deep sea net catcher fishing, mechanised boat	3–4 individuals
		4. Arabian Bamboo Shark	Consumption or decomposed ones are sold as feed or fertilisers	Automatic crane net catching, mechanised boat	4–5 individuals in a basket, 26 decomposed individuals found
		5. Tiger Shark	Exported to Kerala; local consumption of individuals and egg containing individual goes to fishery feed factory mechanised	Deep sea net catcher fishing, Mechanised boat	7–8 individuals (one of them was carrying eggs not allowed to click picture)
		6. Tiger Shark	Exported to Mumbai for a 5-star hotel, sold for Rs 45,000	Deep sea net catcher fishing, mechanised boat 'Geeta'	1 individual
13.v.2025	3	1. Hammerhead Shark (likely Scalloped but could be mixed with other hammerhead shark species)	exported to Kannur and some to local market	Mechanised boat 'Nizamuddin Shah'	3 individuals along with another crate of 30+ individuals
		2. Graceful Shark	Sold to local market for consumption	Mechanised boat 'Nizamuddin Shah'	1 individual along with 3 species in crate.
		3. Arabian Bamboo Shark		Deep sea net catcher fishing, mechanised boat BH fisheries	9 individuals in total, 7 juveniles
15.v.2025	2	1. Milk Shark	sold to dhakke fish market (for local consumption) Rs 130–150/kg	Mechanised boat 'Firza'	2 individuals
		2. Hammerhead Shark (likely Scalloped but could be mixed with other hammerhead shark species)	local market and the crates transported to madras for consumption	Mechanised boat 'Searose'	3 individuals separated for selling and a crate full for transport approximately 35+
17.v.2025	1	1. Graceful Shark	Sold for local consumption to the local market for Rs 130/kg	Automatic crane net catching, mechanised boat 'Imam Bukhari'	4 individuals
19.v.2025	0	N/A	N/A	N/A	N/A
22.v.2025	5	1. Hammerhead Shark (likely Scalloped)	Local consumption for Rs 130/kg	Mechanised boat 'Sainidhi'	1 individual
		2. Bamboo Shark	Local consumption in Mangalore Dhakke fishing market for Rs 130/ kg	Deep sea net catcher fishing, mechanised boat 'Shri Devi Prasad'	4 individuals
		3. Graceful Shark	local consumption Rs 150/kg	Deep sea net catcher fishing, mechanised boat	1 individual

Date	#species observed	Species name	Trade information	Gear used	Abundance
22.v.2025	5	4. Hammerhead shark (likely Scalloped but could be mixed with other hammerhead shark species)	Local consumption for 130 per kg	Mechanised boat 'VH Fishery' bycatcher	Approximately 20 individuals
		5. Bigeye Houndshark	Local consumption Rs 150/kg for the adult individual, juveniles at Rs 130/kg	N/A	1 individual between 6 juveniles
23.v.2025	1	1. Bigeye Houndshark	Deep sea net catcher fishing, mechanised boat	Local consumption in Mangalore Dhakke fishing market	3 individuals and 1 juvenile
26.v.2025	2	1. Bigeye Houndshark	Mechanised boat	Local consumption, Rs.130/kg	150+ individuals kept in 2 baskets
		2. Hammerhead Shark (likely Scalloped)	Deep sea net catcher fishing, mechanised boat	Local consumption	1 individual along with juveniles of other species

Tiger Shark. Landed on 08 May 2025 at Dhakke. © Authors.

Graceful Shark or Grey Reef Shark. Landed on 8, 17, 22 May 2025 at Dhakke. © Authors.

Hammerhead Shark (likely Scalloped). Landed on 8, 13, 15, 22, 26 May 2025 at Dhakke. © Authors.

Milk Shark. Landed on 13 & 15 May 2025 at Dhakke. © Authors.

Arabian Bamboo Shark. Landed on 22 May 2025 at Dhakke. © Authors.

Bigeye Houndshark. Landed on 23 and 26 of May 2025 at Dhakke. © Authors.

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LivelyWaters!: Nallusamy Wetland Restoration Project

Observations on presence & threats of the following plant species, *Caralluma adscendens* var. *bicolor*, *Cordia diffusa*, *Crotalaria willdenowiana* in Coimbatore, Tamil Nadu

1. *Caralluma adscendens* var. *bicolor* (V.S. Ramach., S.Joseph, H.A. John & Sofiya) Karupp., Ugraiah & Pull.

Distribution: The species is endemic to India. It is found in Tamil Nadu, Andhra Pradesh (POWO 2025) and Kerala (Anilkumar et al. 2013).

In Tamil Nadu: Bharathiar University Campus (BSI 2024; Ramachandran et al. 2011), Maruthamalai hills, and Karunya Nagar (Ramachandran et al. 2011).

Habitat: Grows in scrublands, in gravelly soil.

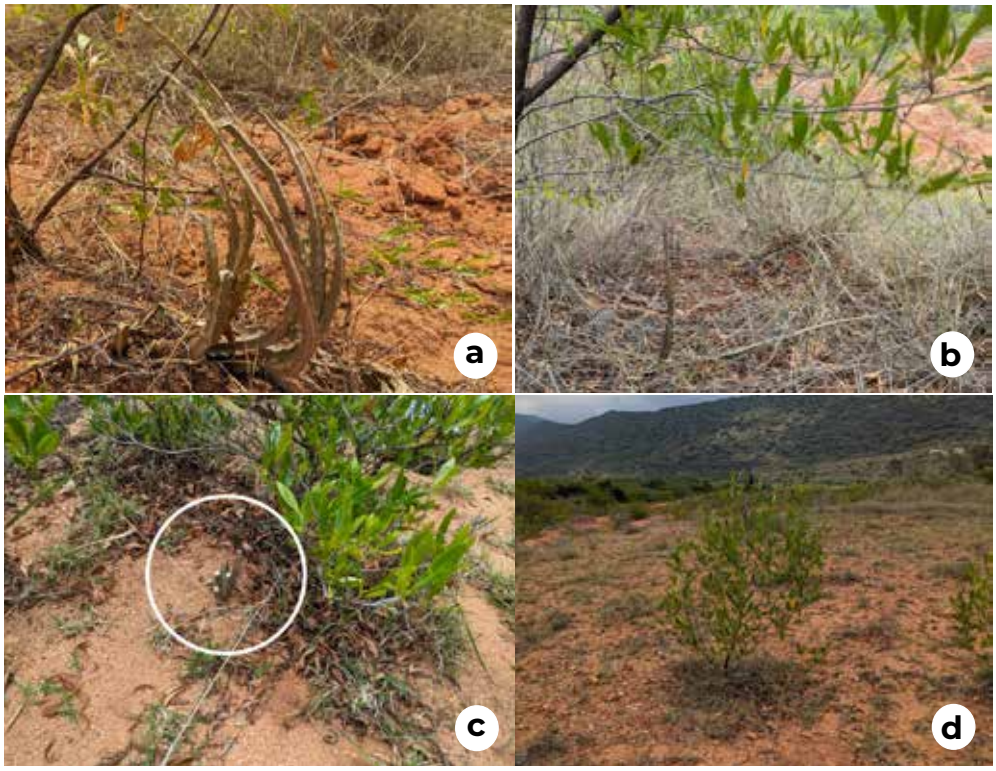
Survey date: 02 October 2024

Observations: The species was located in dry, open areas of shrublands and grasslands of around 0.7 km^2, at the foothills of Maruthamalai hills inside Bharathiar University Campus, 500 m after the Swimming pool centre inside the campus. The terrain was rugged, non-uniform with a series of small canyons and mounds characterized by red soil & sand with rocky substratum. We found at least one individual every 20 m, from our random walk of at least 300 m. Most of the individuals were found under the shade of *Dodonaea viscosa* and some under grasses. Each plant was of up to 60 cm height with 2–7 arms and were observed to be in solitary and not in groups. A few cuttings were transferred to Zooreach nursery and the plants are growing well.

Threats: Tractors were seen excavating the red soil, although the purpose is unknown, there were a few plants very close to the activity. There were also signs of land being burnt. Eucalyptus plantation (planted many years ago) is a historic threat to the habitat as it changes shrubland grassland nature of the region to monoculture plantations and dries out the watertable.

What next: The entire area needs to be surveyed for population assessment of the

Extent of possibility of occurrence of *Caralluma adscendens* var. *bicolor* in Bharathiyar campus, along the foothills of Maruthamalai hills, based on scrubland texture of the land mapped from Google Earth (0.71 km^2). The blue patch in the image is the swimming pool.



a—*Caralluma adscendens* var. *bicolor* | a, b, & c—Individuals seen with *Dodonaea viscosa* | d—Shot of *Dodonaea viscosa* with habitat.
© Usha Ravindra.

Habitat of *Caralluma adscendens* var. *bicolor*, Bharathiar Campus, Coimbatore, 02 October 2024.
© Usha Ravindra.

Habitat threats. a—Burning of land (purpose unknown) & Eucalyptus plantations (historic threat) | b—Soil excavation | c—Land change | d—pollution.
© Usha Ravindra.

species. The species association with *D. viscosa* should be studied. The habitat threats need to be documented and their extent should be assessed. Presence of the species in other areas of Coimbatore need to be identified.

2. Crotalaria willdenowiana DC

Distribution: It is found in southern India and Andaman Islands (POWO 2025).

In Tamil nadu: Gandhi Memorial Library, Coimbatore dist, Madras state, 467 m (BSI 2024)

Habitat: Grows in scrublands.

Survey date: 01 October 2024

Observations: The Gandhi Memorial Library location turned out to be the current Central Prison in Grey Town, near ATT colony. The prison has undergone complete land use changes with ongoing developments inside. Surrounding areas of the prison are made of roads, buildings, and parks. The nearby parks were surveyed to find pruned gardens and exotic or naturalized plants with no sighting of the species. If this was indeed the location the specimen was collected in 1961, the species is locally extirpated due to complete urbanization of the area.

Threats: The population is likely extirpated due to rapid urbanization.

What next: The species occurrence in other locations needs to be identified from literature/ expert consultation and surveys should be conducted for confirmation of its occurrence in Coimbatore and Tamil Nadu.

3. Cordia diffusa K.C. Jacob

Distribution: The species is endemic to Tamil Nadu, India (POWO 2025).

In Tamil nadu: As per BSI (2024) records, the specimens were collected in the Railway line, Coimbatore in Tamil Nadu by K.C. Jacob on 02 May 1938. It's recorded in Vaalankulam in Coimbatore along the railway line in 1959; Ramanathapuram in TN in 1965; Forest College Compound in RS Puram in Coimbatore in 1968; RS Puram, Botanical Garden IFGTB campus in 1987 (the population here is extirpated as per Arumugam et al. 2019); near Nanjundapuram along railway line (Podanur Jn) in 2018; in Karaichalli island in Thoothukudi in Gulf of Mannar Biosphere Reserve in 2001; in Nallathanni island in Rameswaram and in Chettipalayam, Coimbatore TN (Dr. Arumugam pers. comm. 25 December 2024). Its occurrence in Chengalpattu District (Ramamurthy 1987; Nayar 1996; Singh et al. 2015), and from Deccan (Ahmedullah & Nayar 1987) is doubtful as per Arumugam et al. (2019) due to no available specimens from these regions.

Habitat: Grows in scrublands.

Survey date: 30 September 2024 & 15 December 2024.

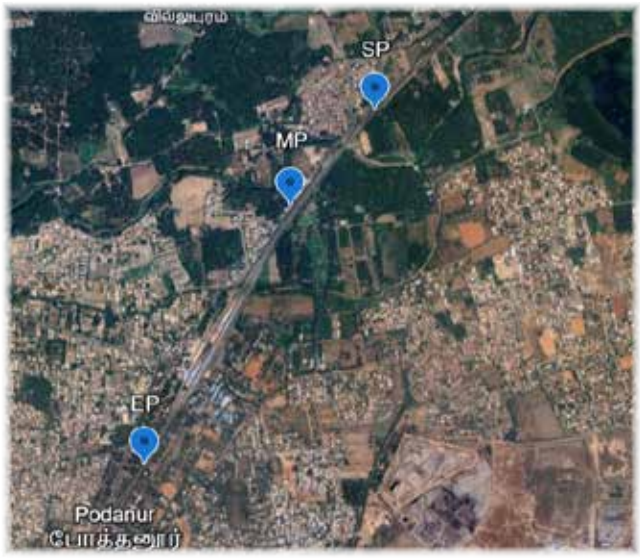
Observations: Our search for the species in Podanur railway line of nearly 1.5 km (near Nanjundapuram) in September 2024 was futile as we could not find even a single individual although it was last seen by Dr. Arumugam in 2018 (Figure 1). Another record of the plant in Chettipalayam was surveyed and only two individuals were seen on 15 December 2024,

however, in 2017–2018, there were 40–60 individuals recorded in the same place (pers. comm. Dr. Arumugam Dec 2024).

The plant was at least 2 m high. One individual was found amidst the dense Acacia sp. and other invasives and another individual was found growing next to the fence. A few cuttings of the plant were transferred to Zooreach nursery but they dried up within 3–4 days and didn't survive.

Threats: The habitat in Chettipalayam is surrounded by farmlands, land plots (some for sale), and roads. Invasive plants like Abutilon indicum and Senegalia mellifera have invaded the habitat (Image 4). People are also fencing their lands by clearing plants. Some constructions were also recorded in the vicinity. The local extirpation of the populations in its type locality, Podanur railway line was suspected by the author as the railway lines are cleared for weeds and constructions, regularly. The species' medicinal properties are being researched which could lead to wild extractions or in situ breeding –

***Cordia diffusa* in Chettipalayam, Coimbatore District, found in December 2024. © Usha Ravindra.**



Survey length in Podanur railway line on 30 September 2024. Starting Point (SP): 10.971º N, 76.993º E, a distance of 2 km was surveyed. No individuals were found.

Survey length of 1.9 km deviating from Chettipalayam main road, to insides was surveyed as per map. Two *Cordia diffusa* individuals were seen within 200 m distance.

Habitat threats to *Cordia diffusa*, clearing plants for fencing, farming, and constructions. © Usha Ravindra.

Habitat threats to *Cordia diffusa.* Invasive plants dominating the habitat. a—*Abutilon Indicum* | b—*Senegalia mellifera.* © Usha Ravindra.

propagating plants by cuttings. Some have been introduced in Singanallur tank bund road.

What next: Drastic decline in population of the species in Chettipalayam, Coimbatore, TN requires regular monitoring and the factors impacting decline needs to be understood. Its presence in other areas needs confirmation with further assessments on threats.

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IUCN Red List Assessment Workshop and Assess-To-Plan for Snakes of Western Ghats

The newly formed Snake Conservation Coalition of the Western Ghats (SCC-WG) along with Zoo Outreach Organisation and Conservation Planning Specialist Group (South Asia) organized a 5 day Western Ghats Snake IUCN Red list Assessment and Assess-to-Plan Workshop from 1–5 June 2026, at Anaikatti, Coimbatore. The workshop was funded by Upadhyaya Foundation and Elins Switch Boards Pvt Ltd. The exercise helped bring together 22 experts from 18 organizations, including experts in snake conservation, ecology, taxonomy, rescue, management, and policy, establishing a multidisciplinary approach for snake conservation in the Western Ghats. The workshop is the first comprehensive reassessment for the Snakes of Western Ghats since 2019, and also additionally assessed 24 snake species that were described after 2019 and had never before been evaluated for the IUCN Red List.

A total of 152 species of snakes of the Western Ghats were considered with the primary focus of assessment was the endemics, totaling 98 species. During the course of the assessments, apart from the Red Listing questions, a series of detailed queries to determine conservation priorities were administered.

The workshop was facilitated by Dr Sanjay Molur from CPSG South Asia, who guided participants on the assessment process and IUCN Red List standards. On the second day the participants were divided into 3 working groups, each facilitated by Dr Chelmala Srinivasulu from South Asian Reptile Network, Dr Aditya Srinivasulu from Zooreach, and Dr Bhargavi

Dr Sanjay Molur explaining all the participants about Criterias and Categories for IUCN Red List for Species Assessment
© Payal Molur

Workshop volunteers organizing the different documents and maps before the workshop began. © Payal Molur

One of the working groups discussing about the threats faced by Uropeltids in the Western Ghats.© Payal Molur

Working groups discussing the threats faced by snakes and uploading on the SIS datasheet. © Payal Molur

Dr Srinivasulu explaining participants the need of the Red List Assessments and success stories from past Reptile Assessment Workshops. © Payal Molur

Group Photo: IUCN Red List Assessment Workshop and Assess-To-Plan for Snakes of Western Ghat 2026. © Gowri Shankar

Group discussing about the species, preliminary assessed as threatened by during the workshop and understanding how to use the Assess to Plan process for better conservation efforts. © Payal Molur

Srinivasulu from Zooreach & Ms Priyanka Iyer from CPSG South Asia / Zooreach. The three groups focused on different sets of species, collating the available scientific data and expert knowledge to evaluate risk of species extinction.

After species assessments, the participants again formed a single group and discussions on Assess-to-Plan (A2P) and Key Biodiversity Areas (KBA) were held to understand how the assessments will help in informing conservation action. The experts tried to explore the major threats that snakes face across Western Ghats including habitat loss, degradation, fragmentation, persecution, tourism, infrastructure development, and emerging climate crisis pressures. Locations, habitats, or species requiring urgent priority were discussed for major Key Biodiversity Areas.

The workshop gave opportunity to 12 early career conservationists from different parts of the country to support the event by documenting discussions, updating species distribution maps in real time, managing assessment records, and collecting planning-relevant information from experts for each species. The workshop helped them understand how Red Listing Workshops take place and got the opportunity to interact with herpetology experts and in turn ensured efficient data management & collating conservation knowledge.

Now, the outcomes of the assessment will be used to prioritize conservation needs, inform future research & monitoring, and understand potential of different priority sites for snake conservation. By linking species-level assessments with site-based conservation planning, the workshop brings a holistic, evidence-based approach to conserve snakes of Western Ghats.

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Monitoring of Restoration Sites in Chamba

Ecological restoration is important because it helps reverse the degradation, damage, and destruction of ecosystems. It is especially vital in places where many people depend on natural resources for their livelihoods. In Chamba, Himachal Pradesh, restoration work has been carried out on agricultural land and forest land since 2024, with active involvement from local communities.

Monitoring at the restoration site in Dugli Village. © Sachin Verma.

Monitoring these restored sites is equally important because it helps us understand the condition of saplings and tree guards after plantation. It also allows us to record sapling survival, the condition of tree guards, and the overall success of the restoration efforts.

Study Area and site description

Monitoring was carried out at several restoration sites in Chamba District, Himachal Pradesh, during March and April 2026. These sites included both nonarable farmland and degraded forest land restored in 2024 and 2025. The restoration work involved 23 stakeholders from eight villages who willingly offered their non-arable land for the project.

Among them, five stakeholders were from Chinjoti, four each from Dugli, Jhalein, and Langa, three from Randoh, and one each from Baadi, Matwardi, and Basodan villages.

The elevations of the restored sites range 1,600–2,100 m. Since the sites are located at different elevations and have different site conditions, selecting suitable plant species for each location is important for better survival and growth.

The restored sites in Chamba support a mixed native species approach which supports ecosystem restoration, mitigates crop-raiding by wild animals, benefits livelihoods, contributes to long-term ecosystem stability, and builds climate resilience.

Methodology

Field monitoring was conducted through site visits during March and April, 2026. At each restoration site, observations were recorded manually on the condition of tree guards and saplings. Through the observation, the survival rate of saplings was assessed.

List of the plant species used in restoration in the years 2024 and 2025

	Chambiyali name	Scientific name	English common name
1	Gu	*Aesculus indica*	Horse Chestnut
2	Deyyar	*Cedrus deodara*	Deodar
3	Phagra	*Ficus palmata*	Wild Fig
4	Dhaman	*Grewia optiva*	Bihul
5	Akhrot	*Juglans regia*	Walnut
6	Darek	*Melia azedarach*	Himalayan Neem
7	Krun	*Morus serrata*	Mulberry
8	Poplar	*Populus ciliata*	Poplar
9	Chulli	*Prunus armeniaca*	Wild Apricot
10	Pajja	*Prunus cerasoides*	Wild Himalayan Cherry
11	Dhadu	*Punica granatum*	Wild Pomegranate
12	Kainth	*Pyrus pashia*	Himalayan Pear
13	Ban	*Quercus leucotrichophora*	Ban Oak

Damaged tree guards due to forest fire. © Amrin Ansari.

Monitoring in landslide affected area. © Jayoti Bardhan.

Sapling of Punica granatum without a tree guard. © Shreya Yadav.

The following parameters were documented:

- Number of upright tree guards
- Fallen tree guards
- Bent tree guards
- Missing tree guards

Result and Observations

Condition of Tree Guards

The condition of tree guards varies from site to site. At many sites, tree guards were found fallen, damaged, bent, or stacked together. This usually happens because of strong winds, heavy rain, snowfall, forest fire, livestock movement, and human disturbances. In some sites, where the tree guards were properly fixed, and those sites showed better survival growth rate. The difference in stability of the guards is also due to the soil conditions, which hampers some from being erected stably.

Sapling Growth

The growth of saplings depends on the species. Some fast-growing native species have already reached a good height, while others are still small and delicate. However, some hardy plant species are growing well even without tree guards.

At one site in Matwadi, where a landslide occurred last year, 34 out of 67 saplings are still surviving without tree guards. One reason for this may be due to the slippery soil that the nomads do not take goats or cattle for grazing in the landslide affected area.

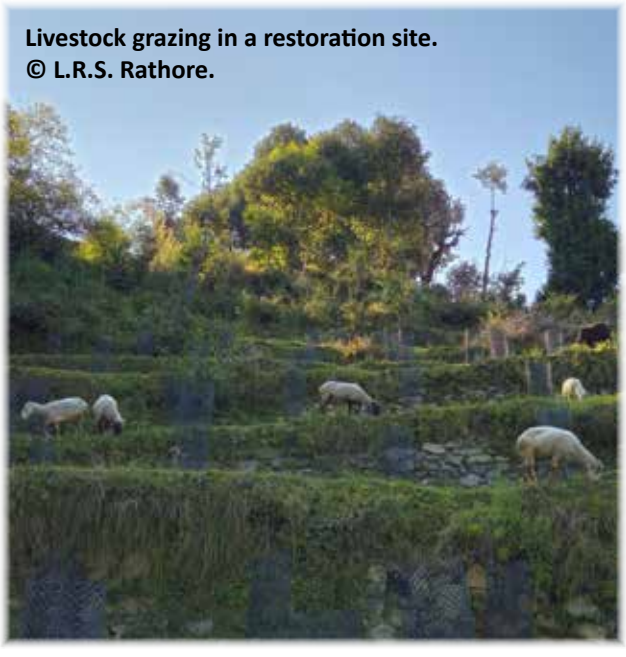
Site-wise Variation

Sapling survival and the condition of tree guards differ from site to site. Some sites show a good survival rate, while others have exhibited poor survival. The highest survival rate was recorded at Reena's farm in village Dugli (94.92%), followed by Ramesh's farm in village Basodan (92.67%), where no major natural disasters were reported post restoration. In contrast, the lowest survival rates were observed at Jaiko Ram's farm in Jhalein (16%), Miyadigala forest fragment (46 %), Roshni's farm in village Matwari (50.74%), mainly due to the impacts of natural calamities. The former land faced a forest fire in November 2024, which took a toll on the restored saplings, resulting in the death of 84% (42 out of 50) saplings. The latter two sites were swept away due to landslides, leading to the devastating result. Even among the landslide affected sites, the variation is noticeable. One landslide site is showing comparatively better sapling survival, while the other is in much worse condition, with only around 92 saplings remaining out of 200 planted saplings. The following table depicts

Table 1. Site-wise sapling survival rates and number of surviving saplings.

Year of restoration	Name of stakeholder	Village	Area	No. of saplings planted	Surviving saplings (April 2026)	Survival rate (%)
2024	Shakti kumar	Dugli	592.81	100	89	89
	Shanti devi	Dugli	245.93	45	40	88.88
	Pooja	Baadi	1247.33	300	267	89
	Roshni	Matwari	275.4	67	34	50.74
	Jaiko ram	Jhalein	229.66	50	8	16
	Vikram	Jhalein	872.47	150	140	93.33
	Anil	Jhalein	1212.33	260	226	86.92
2024 & 2025	Forest land (near nursery)	Dugli	270.41	183	171	93.44
2025	Beena	Dugli	222.20	50	42	84
	Reena	Dugli	98.91	138	131	94.92
	Seema	Chinjoti	331.27	150	470	88.01
	Indra	Chinjoti	60	75		
	Kailasho	Chinjoti	565.18	79		
	Parsuram(Pushpa devi)	Chinjoti	375.50	80		
	Chaman lal	Chinjoti	535.20	75		
	Pankaj Kumar	Randoh	453.50	75		
	Nirmal & Nathuram	Langa	1795	320	224	70
	Seema	Langa	807.15	382	326	85.34
	Darbari	Langa	385.59	100	94	94
	Rajkumar	Jhalein	764.49	202	157	77.72
	Bhagto	Randoh	576.74	184	169	91.84
	Pawan	Randoh	527.76	50	45	90
	Ramesh Puri	Basodan	3558.71	805	746	92.67
	Forest land	Miyadigala	24318.63	200	92	46

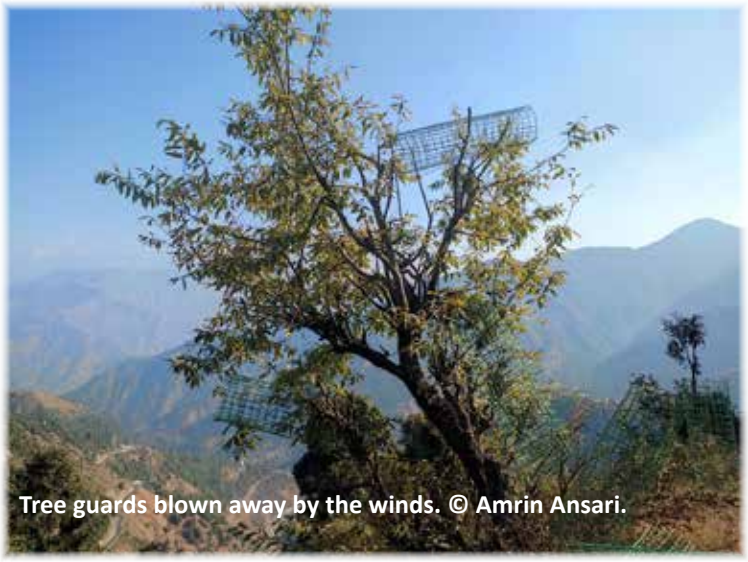
the restoration details along with the present survival rates of the restored saplings.



Livestock grazing in a restoration site. © L.R.S. Rathore.

Challenges Observed

At all restoration sites, tree guards were found fallen or bent. The main causes of damage were strong winds, rain, and snow, in combination with loose soil to hold the guard down. During winter, saplings face greater difficulty in surviving because of snowfall. Small saplings are often unable to withstand the pressure of snow and eventually die. Strong winds also shift tree guards from their original position or blow them away. This was one of the most common


Tree guards blown away by the winds. © Amrin Ansari.


Tree guards in Baadi Village. © L.R.S. Rathore.

challenges observed across the sites. Saplings without tree guards also become more vulnerable to grazing by goats and cattle.

At some sites, it was observed that certain plant species were drying and needed water at regular intervals. In Basodan Village, a few Ban Oak trees were found dried up. This was mainly because the site was exposed to direct sunlight, which likely affected the survival of this species. In contrast, another site in Randoh Village showed a good survival rate of *Aesculus indica*. Survival rate depends on the species and the environmental conditions.

Human disturbance was also noticed at several restoration sites. In some places, tree guards that had fallen or blown away were taken by local people and reused to protect their own non-native trees near houses. Some were also used for fencing around homes. At one site in Jhalein, tree guards were being used as support for cucumber plants since they are climbers and can easily grow with such support. In another site in the same village, most of the tree guards had been removed and used for personal purposes. Another challenge was the lack of proper maintenance. We regularly request stakeholders to care for the tree guards and saplings, but while some people do this sincerely, others do not give the same attention.

Conclusion

The monthly monitoring provides important insights into the current condition of restoration sites. While several sites showed encouraging survival and protection status, some areas require timely maintenance and continued monitoring. Consistent field assessment will help improve restoration effectiveness, encourage local participation, and long-term ecological recovery.

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HRP outreach activities

Education and outreach form the base for any successful conservation project. The Himalayan Restoration Project (HRP) makes sure to give equal importance to planting native saplings and connecting the local communities with the project. Through community meetings, awareness programmes, and regular interactions with local stakeholders, HRP seeks to build trust, encourage participation, and ensure that local communities become active partners in the restoration process. This month, our team engaged in three major outreach activities.

Outreach in Bharmour. ©Amrin Ansari.

Conservation challenges: insights from Bharmour

The town of Bharmour is located approximately 60 km from Chamba and is home to diverse flora and fauna, including Asiatic Black Bears Ursus thibetanus. Lately, there have been multiple reports of increased human–bear negative interactions, with two unfortunate attacks on humans over the last month. This has caused increased rage and anger among the communities. In order to address the increased pressure of the communities to translocate bears, the Forest Department had organised a meeting with the villagers on 4 June in Khani Village. The meeting was attended by 68 participants, including 40 villagers and 28 forest department personnel. Our team was present to support the forest department by sharing our knowledge and field-based learnings from Chamba.

Outreach in Sahoo. © Payal.

However, due to recent incidents of negative interactions, the villagers were visibly enraged. Many participants openly shared their anger, frustration, and deep concerns about repeated human–bear encounters and the safety risks they face in their daily lives. Because of this charged atmosphere, the discussion became very intense and interactive, and our team was unable to complete the planned presentation. The people expressed strong


WSHG participants. © M. Nishigandha.

opinions regarding the translocation of bears from the landscape and demanded that the forest department initiate urgent translocation measures.

We tried communicating the practical challenges of translocation by emphasising how translocation is not a permanent solution in the long run. We shared that the eradication of one bear from the landscape would not necessarily reduce negative interactions because another individual might eventually move into the same space. In the emotionally charged situation, our words went to waste as it was very difficult to be heard. The DFO of Bharmour, Navanath Shivaji Mane, had to intervene and calm the raging crowd, but he was too bombarded with pressure from the villagers to translocate the bears.

Our team also suggested the possibility of ecological restoration to be one of the practical and long term solutions for the issue and explained how restoring degraded habitats can reduce pressure on villages over time. We also discussed about managing horticulture waste and using preventive measures such as travelling in groups and carrying torches at night to reduce interactions. Surprisingly, the villagers agreed to collaborate with the forest department for restoration, and it was concluded that the department will actively take part in dibbling of native species seeds during the monsoon season to increase the natural regeneration of the surrounding forests.

Despite the tense atmosphere, this meeting provided valuable insights into local perceptions and concerns of the people. It also highlighted the urgency of conducting systematic research and extracting baseline data from the landscape to formulate conservation intervention methods to mediate coexistence in the landscape.

Environment Day celebration

On the eve of World Environment Day, a function was organised by the Paryavaran Chetna Evang Gramin Vikas Prashikshan Kendra (PCEGVPK), a local NGO working on environmental awareness in Chamba. The event brought together more than 100 participants, including students from three local schools, along with people from the village, fellow organisation members and a few chief guests. The event progressed with different types of activities like poster, quiz and debate competitions to encourage environmental awareness among the students. The HRP team also had the opportunity to address the


WSHG participants. © M. Nishigandha.

attendees, where we introduced our project and the importance of ecological restoration. The wildlife themed sticker sets were an absolute hit, especially among the students who found them informative and fun.

Moreover, PCEGVPK also launched their annual magazine titled “Paryavaran Chetna” during the event, which marked an important highlight of the programme. The magazine featured contributions from various participants, including Payal, a community intern with HRP, who shared her one-year journey, experiences, and learnings with the project. We expect that her story will resonate strongly with local readers, helping convey conservation messages in a relatable way. By sharing her personal perspective in Hindi language, the article has the potential to inspire others—especially young individuals from the region—to take initiative and actively participate in conservation efforts, fostering a sense of stewardship towards the local environment.

Beyond outreach, this event was also a wonderful opportunity for the team to follow up with the NGO members and build connections with local stakeholders like the forest department staff and Panchayat Pradhans for future collaboration. Participating in events like these not only helps spread awareness about ecological restoration but also creates opportunities for dialogue, partnership, and integrates a holistic approach with respect to the communities.

WSHG meeting

On 6 June, the HRP team held a meeting with the women’s self-help group (WSHG) in the village of Kakeda, attended by 16 women. The meeting provided an opportunity for the team to engage with the communities and understand their personal experiences through open discussion. All the participants expressed concerns about crop depredation by local wildlife, such as langurs, macaques, and bears and agreed on the urgency for finding a landscape specific solution to their problem. The HRP team then introduced the project’s objectives, history and achievements to the participants to explain the importance of ecological restoration in the landscape. Posters helped simplify complex ideas and served as visual tools to explain the challenges faced and the goals envisioned for the future. The wildlife themed sticker sets further helped the team to spark their curiosity and engage better with the communities.

To our delight, two of the participants showed interest in collaborating with HRP for the plantation of native saplings in their non arable farms for the upcoming year. Meetings like this help us reach out to the communities, and one-on-one interactions help us further to build trust essential for long term connection of the communities to the project.

Acknowledgements

The HRP team acknowledges the support of the divisional forest officer of Bharmour, Mr Navanath Shivaji Mane, IFS and the Chamba Forest Department for collaborating with our project and providing our team a learning opportunity and understanding the field challenges of the landscape. Grateful acknowledgements are also made to Mr Gajender Verma and Paryavaran Chetna Evang Gramin Vikas Prashikshan Kendra, to support our team in building local contacts and give us a platform to connect with the communities.

Amrin Ansari

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Citation: Ansari, A. (2026). HRP outreach activities. *Zoo’s Print* 41(6): 41–43.

Who dug up the walnuts?

Last year, we sowed nearly 2,000 seeds of Himalayan Walnut Juglans regia in our native nursery. Each seed carried a season's worth of hope. Before sowing, we soaked them in a dung slurry for fifteen days, an effective method to speed up germination and improve survival.
Then came the looooooong wait…
For almost three months, the nursery beds stayed silent beneath the soil. And finally, tiny shoots began to emerge. It felt like the hard-work started to pay off. But that excitement did not last long.

One morning we noticed something strange. Many of the walnut seeds had been dug out from their polybags. Some were half-eaten, others completely damaged. Beds we had carefully prepared now looked disturbed overnight. At first, everyone in the nursery blamed porcupines ("Saiil"- common name). It sounded convincing as porcupines are burrowing animals and are known to love walnut seeds before they germinate. Still, we wanted proof before accusing the poor species.

So , we installed camera traps around different corners of the nursery, especially near the walnut beds. Camera traps revealed that the nursery was far from empty at night. Red Foxes, porcupines, dogs, and even Khalij Pheasants were frequent visitors, quietly moving through the beds after dark. Yet despite all of these nightly appearances, none of the footage captured the actual culprit feeding on the walnuts.

Installing camera-traps with a team member

A Khalij Pheasant paid a visit.

To protect the remaining seeds, we surrounded the whole nursery step with thorny Berberis stems. It helped a little, but the damage continued. What made it more painful was the timing. In the mountains, nursery work moves with the seasons. Once the sowing window passes, there is no easy way to undo the loss.

From collecting or buying the seeds, filling polybags, preparing beds, treating the seeds, watering and guarding them. Months of labour had gone into those walnuts. And now, much of them seemed wasted.

Yet, the biggest mystery remains unsolved. There were no burrows near the beds. No, clear footprints. No evidence in the camera traps.

The porcupine still remains the prime suspect, but without proof, the culprit cannot be named. Somewhere in the nursery, under the silence of the night , something is still visiting the walnut beds. And we are still waiting to catch it.

If you want to know who the real culprit is, stay tuned for the next anecdote. Hopefully, by then we will finally have our culprit.

Porcupine finally appears

A Red Fox tail

Lakshay Tyagi
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Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India.

Citation: Tyagi, L. (2026). Who dug up the walnuts? *Zoo's Print* 41(6): 44–45.

Denise and Friends at the Kasargod Train-the-Trainers Workshop

For three lively days from 12–14 June 2026, the serene setting of Kadaleevanam in Cheruvathur, Kasargod, transformed into a vibrant learning space as teachers gathered for *Teaching with Denise and Friends,* an innovative train-the-trainers workshop conducted by the Zoo Outreach Organisation under its LivelyWaters! initiative.

Supported by SHOAL, ReWild, and Synchronicity Earth, and the Kerala University of Fisheries and Ocean Studies (KUFOS), the workshop focused on one of the Western Ghats' most iconic freshwater fishes—*Sahyadria denisonii,* nicknamed Miss Kerala. This striking freshwater fish is found only in 11 west-flowing rivers of the Western Ghats. Once heavily collected for the international aquarium trade, the species continues to face threats from habitat degradation, pollution, and illegal fishing.

A key feature of the workshop was the specially designed educational resource manual and a packet with activity labels, colouring books, educational cards, and stickers, provided to every participant.

Following in the footsteps of Zooreach's founder, Sally Walker, the workshop began with the customary tying of the friendship band and taking a pledge to save Denise by learning and disseminating information to others. After a quick mindmap exercise to assess the teachers perception towards rivers and fish, the teachers were introduced to the topic and given the specially designed manual.

Registration of participants on the opening day of the workshop. © Payal Molur

Kadaleevanam served as the perfect backdrop for the three-day residential workshop. © Payal Molur

LivelyWaters! Activity Update

zoOreach
Zoo Outreach Organisation

A collective pledge by participants and the Zoo Outreach team reaffirmed their commitment to the conservation of Denise and Friends.
© Payal Molur

Participants enthusiastically engage in the flashcard game during the first day of the workshop © Payal Molur

Payal facilitating the activity session by introducing the program and the educational material. © K. Gokul

An insightful expert talk on the fishes of the Western Ghats by Rahul G Kumar on Day 1 of the workshop.
© Payal Molur

This was followed by one and a half hour engaging talk by renowned ichthyologist Rahul G. Kumar, a lifelong aquarist whose passion for fishes evolved into a distinguished career in fish conservation, research, and taxonomy. With over three decades of experience studying freshwater fishes, Rahul took participants on a fascinating journey through the rivers and streams of the Western Ghats, revealing the incredible diversity of fish life that inhabits this global biodiversity hotspot. He explained that stretching over 1,500 km from north to south along the western coast of India, the Western Ghats are home to a remarkable array of freshwater fish species.

The session introduced teachers to several unique fish groups found in the region. Among them were native Cichlids, including species that are restricted to specific river basins. Rahul also discussed the two species of *Horabagrus,* both endemic to the Chalakudy River, and the endemic fish *Labeo chekida,* another conservation priority from the same river system. He further explained how scientific understanding of fish diversity continues to grow. For instance, the genus *Dawkinsia* included only five recognized species in 2000, but through continued research and taxonomic studies, this number has increased to 14 species by 2025.

A special focus of the session was Denisonii (Denise), the fish that forms the heart of the educational programme. Teachers learned that Denise occurs in many west-flowing rivers, from the Chandragiri River in northern Kerala to the Bharathapuzha River further south. The participants watched stunning underwater videos showcasing the fish in its natural habitat.

Another memorable moment was the video of a Hillstream loach, a master of camouflage. The fish blended so perfectly with the streambed stones that it was difficult to spot at first glance. These visual demonstrations helped teachers understand how fishes interact with their habitats and provided practical insights into identifying species in the wild.

The presentation also introduced participants to several important river systems, including the Valapattanam River, the Chandragiri River, and their tributaries. Understanding these river networks helped teachers appreciate how freshwater ecosystems are interconnected and why conserving entire watersheds is essential for protecting aquatic biodiversity.

Participants engage in the map activity by designing and naming rivers within their group's landscape. © Payal Molur

Each group identified and placed stickers representing species found in and around freshwater habitats, along with the threats they face. © Payal Molur

The talk concluded with a discussion on the threats faced by Denise and its freshwater companions. Armed with knowledge on fish, the teachers then played the 'Who am I' card game that helped remember and recall the fish and other animals they had just heard about.

The chapters of the manual unfolded through Denise's Living River map, an interactive learning experience built around a giant map of a typical west-flowing river of the Western Ghats—the very landscape where Miss Kerala *Sahyadria denisonii* lives. More than just an activity, the map became the thread that connected the entire workshop, allowing participants to experience the journey of a river from source to sea.

Working in groups, teachers joined and coloured a five-foot-long river map made up of 24 illustrated puzzle sheets created by P. Kritika. As they pieced together the river, they brought to life shola forests, streams, rapids, pools, riverbanks, floodplains, estuaries, and the ocean. They then populated their rivers with stickers depicting the rich biodiversity of freshwater ecosystems, including Miss Kerala, otters, kingfishers, crabs, dragonflies, and numerous other species. Each group named its river and shared stories about the habitats and wildlife it supported, transforming a collection of paper sheets into a living ecosystem with its own identity.

Although participants were initially given the option of completing only selected sections

The second day's expert talk featured Naufal, who spoke about his journey of exploring and understanding fish diversity. © Payal Molur

Participants engage with a tunnel book to visualise and understand an entire ecosystem. © Payal Molur

due to time constraints, one group became so immersed in the activity that they spent their free time finishing the entire map and proudly shared it on the participants' social media group. Inspired by their enthusiasm, the other groups continued working late into the evening and early the next morning. By the end of the workshop, all four groups had completed their rivers, carefully colouring and illustrating even the smallest details.

The next day, the participants began with a talk by Naufal Nazium on how he went from being a fish trader to protector. His personal story and turning point showed the teachers the importance of educating at an early age as well as how to encourage their children to take up careers in conservation of wildlife research.

Among all the activities, the DIY Tunnel Book emerged as a clear favourite for most participants, although for a few it shared first place with the river map-making exercise. This beautifully illustrated and designed activity had the teachers puzzled at first.

The “Spots and Stripes” activity encouraged participants to observe and appreciate patterns found in nature. © Payal Molur

Sticking pieces of paper and folding them in strange ways gave them no clue as to what the end result would be. What had appeared to be a collection of flat paper components transformed into a stunning three-dimensional diorama depicting the journey of water from the shola forests of the Western Ghats through rivers and estuaries to the Arabian Sea. The hall soon filled with exclamations of delight and wonder as participants peered through their completed tunnel books, discovering depth, movement, and interconnectedness within the landscape.

Role playing to understand how all disciplines play a role in saving the river and Denise, playing games like 'Lentic-Lotic Jump' and spots and stripes, observation games and citizen science activities helped the teachers appreciate how everyone can participate in knowledge building of species, landscape changes and create scientific rigour in schools.

As the workshop progressed the teachers began to see how serious issues like threats to the river and to Denise and her friends could be brought out through play. Through a lively game inspired by musical chairs, and another inspired by 'Oranges and Lemons', participants introduced threat stickers representing pollution, habitat destruction, sand mining, dams, invasive species, and overfishing. With each round, more threats accumulated, and the stickers of the dam, the invasive fish and others covering their river and its wildlife. By the end of the activity, teachers could clearly see how multiple human pressures can overwhelm an ecosystem. Nearly half the teachers later remarked that map-making visual, hands-on method of bringing the river system and its problems to the fore, was a powerful way to help students begin to understand not only how a river works, but also why it is worth caring for and protecting.

Using all that they had learnt, the teachers then were given topics like aquarium trade, invasive species, sandmining and plastic waste to convert into skits and performed for each other. The workshop ended with Dr. Sanjay Molur from Zooreach and Shyamkumar discussing the need to create Community Conservation Areas. All of the participants pledged their support to saving Denise and her friends and their habitats in a community-led initiative that would be initiated in identified locations.

Each participant was given a certificate along with 25–40 packets for them to conduct the program with their students.

Reflections

A group of teachers said that the workshop was a privilege which other teachers in their school did not get and they are going to make use of it as well as train others. They want to take this workshop to the school and apart from kids they would like to run the workshop for the Parents Teachers Association (PTA). One participant reflected that the games reminded him of his childhood and that he would love to teach his students in a similar way.

One of the oldest teachers opined that she was forced to attend the workshop by the NGC coordinator, but after the workshop she didn't regret attending it and it reminded her why she loved teaching. She also added that she feels like she is equipped with more information and activities and feels confident to take the

An exhibition showcasing the artworks created by participants during the workshop activities

students through the journey of a west flowing rivers of Western ghats.

Of course, there was criticism too. One of the teachers was concerned about the age group of the children to which they can take this to. She was a lower primary teacher (1st to 4th standard). She shared her concern on how well those younger participants would be able to grasp these things and do these activities. And she also added that taking up more time and having extra patience might work.

They also added that the education materials were heavy to carry, but they are not ready to compromise on the number of education materials they are taking, because they do not want their kids to miss the opportunity which they got. They wanted their children to go through the workshop as they did. One of the participants was from a University and she felt that this manual could easily be brought

Participants proudly view their activity-based artworks displayed as part of an exhibition

Participants and facilitators celebrate the successful completion of the workshop with a group photograph.
© Shyamkumar Purvankara

into higher education as well. As each different activity and chapter was revealed the teachers commented that the way the education materials are created it gave them the freedom to adjust their timings and with the learning pace of the children. Towards the end of the workshop, teachers did not want to leave the workshop and felt connected with one another and vowed to keep in touch and exchange ideas on how to take this forward.

The workshop was led by Payal Molur and Sidharthan, with creative support from Dupati Poojitha and Neenu Purushothaman, logistical assistance from S. Gokul, and overall guidance from Dr. Sanjay Molur. The programme was made possible through the efforts of local coordinator Shyamkumar Puravankara, who managed the event seamlessly, and Sushmitha T.M., Green Corps coordinator, who facilitated teacher participation from the region.

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Citation: Molur, P., Sidharthan & N. Purushothaman (2026). Denise and Friends at the Kasaragod Train-the-Trainers Workshop. *Zoo's Print* 41(6): 46–53.

Wetland restoration: Community engagement series

1

As the founder of Zoo Outreach Organisation – Sally Walker always said, “There are 3 Cs of Conservation – Communication, Cooperation, Collaboration”, and we at Zooreach truly follow these immortal words and believe in carrying forward her legacy in all our projects.
The outreach component of the Nallusamy Wetland restoration project (which is its final year of execution) also embodies this.

This project is a CSR initiative of Bosch Global Software Technologies limited. The restoration of this wetland has been ongoing for past two years and is now in its final year. We have been collaborating with, and empowering the local community members/influencers after conducting knowledge and perception surveys. The outreach is called the Friends of Wetlands program which included an introductory workshop in the second year. We are now in the process of training local community members to become communicators for biodiversity.

With this vision we had an interaction with a team of close to 15 people who are part of different local chapters of Kousika Neerkarangal (a local NGO) who endeavour in their own way by volunteering to conserve water bodies and the Kousika river restoration. During this workshop on 11 April 2026 we started with the tradition of tying rakhis to each other symbolising our willingness to befriend biodiversity and protect it. The importance

of native plants and the threat of non-native plants were discussed with much interest. We also spoke about different types of water bodies, their definitions and played games with relevance to this. We also informed them of our expectations and reporting structures and invited them to become part of the outreach program. In other words, this program was an initial interaction to invite members from Kousika Neerkarangal to become trained in outreach activities related to biodiversity and take it to various target audiences like local community members, colleagues, and kids. The interaction ended with the enrollment form given to the members to take the plunge and become a trainer. It was a special moment for us to see these members of the community, enthusiastic volunteers, and well-wishers of biodiversity & people come forward for this Friends of Wetlands training.

2

After a spirited interaction and fascinating discussions during our first interaction with members of Kousika Neerkarangal for the final year of the Nallusamy Wetland Restoration project, we met again on 16 May 2026.

This time our group was smaller and tight knit with a key agenda of planning the topics of training, methods of teaching and associated materials/tools. There were six members who have now signed up for the training program and these six members will be conducting outreach programs after being trained by us in their own local spaces with school kids, youth, colleagues, and local community members.

After a recap of the previous session, the team members were introduced to wetland and wetland associated biodiversity observed at Nallusamy wetland, their roles and importance. A few games and activities were demonstrated to give the participants an idea of how they can

conduct similar sessions while teaching their own audiences. Next we went through different topics of training, the tentative timeline and kinds of materials that will be supplied to them to empower them to conduct the outreach programs for their audience. This was followed by the expectations that we require from them in terms of reporting, details regarding frequency of outreach, audience details, and the kind of support they may need to complete the outreach programs with their audiences.

The session ended with a talk on importance of birds including their roles, their identification technique, and some adaptations that make them unique, to give them a taste of the expert talks that will be held to support the Friends of Wetlands trainers. On the whole it was a wonderful experience, bringing together many hardworking people who volunteered their time to contribute towards conservation. It was inspiring and reminded us that conservation is always a result of teamwork, and collective effort, never just the work of a single person!

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Citation: Iyer, P. & N. Purushothaman (2026). Wetland Restoration: Community engagement series. *Zoo's Print* 41(6): 54–56

Wetland Clean-up Drive at Nallusamy Wetland Restoration Project

As part of the Nallusamy Wetland Restoration Project, supported through the Corporate Social Responsibility (CSR) initiative of Bosch Global Software Technologies Limited, a wetland clean-up drive was successfully organized on 06 June 2026 under the LivelyWaters! programme of Zoo Outreach Organisation. The activity brought together 23 enthusiastic employees from Bosch, and 14 other volunteers who dedicated their time and effort towards restoring the ecological health of the wetland while gaining first-hand exposure to the challenges faced by urban and peri-urban wetlands.

Wetlands provide a wide range of ecological benefits, providing habitat for numerous species of plants and animals. However, indiscriminate dumping of waste continues to be one of the major threats to wetland ecosystems. The clean-up drive was designed not only to remove accumulated waste from the site but also to raise awareness about the importance of protecting these critical ecosystems.

The volunteers assembled at the wetland in the morning and were briefed on safety protocols, waste segregation procedures, and the work undertaken at the Nallusamy Wetland for the past two years. Working in teams, participants systematically covered different sections of the wetland and its surrounding areas, collecting and segregating various categories of waste.

The clean-up effort resulted in the removal of 441 kg of waste from the wetland ecosystem. The collected waste was carefully sorted into different categories to facilitate appropriate disposal and recycling wherever possible. The

waste collected included:

- Sanitary waste: 32 kg
- Glass: 98 kg
- Refuse derived fuel (RDF): 174 kg
- Hard plastic: 104 kg
- Paper: 17 kg
- Metals: 3 kg
- Rubber and clothes: 13 kg
- The large quantity of RDF and plastic waste highlighted the ongoing challenge of improper waste disposal and the need for greater public awareness regarding responsible waste management practices. Similarly, the presence of glass, sanitary waste, and other non-biodegradable materials underscored the risks posed to wildlife and the overall health of the wetland ecosystem.

The active participation of Bosch employees demonstrated the positive role that corporate volunteering can play in environmental conservation. Beyond the immediate impact of waste removal, the activity fostered a deeper appreciation among participants for the ecological services provided by wetlands and the collective responsibility required to protect them. Following the clean-up, participants gathered for a conclusion where we talked on the importance of wetlands, their role in

supporting biodiversity and human well-being, and the objectives of the Nallusamy Wetland Restoration Project.

The event concluded with a shared breakfast, allowing participants to interact informally and celebrate the successful completion of the activity. The clean-up drive not only contributed to improving the condition of the wetland but also strengthened engagement between corporate volunteers and local conservation efforts.

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Citation: Iyer, P. (2026). Wetland Clean-up Drive at Nallusamy Wetland Restoration Project. *Zoo's Print* 41(6): 57–58.

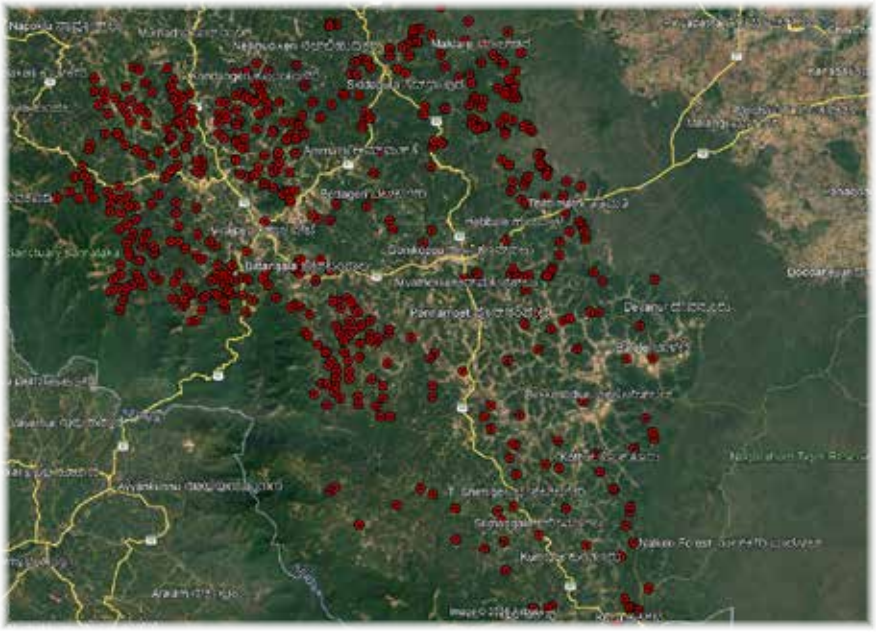
Perception Studies on Human–Elephant Interactions in Kodagu

The Zoo Outreach Organisation, in collaboration with Humane World for Animals, initiated perception studies in Kodagu District, Karnataka, under the Human–Elephant Coexistence (HECx) Project in September 2025. During the pilot phase, Ponnampet and Virajpet taluks were identified as the primary study areas.

The study aims to understand local perceptions, experiences, and attitudes toward elephants and other wildlife, with a particular focus on identifying areas characterized by high, moderate, and low levels of negative human–elephant interactions. The assessment also documents incidents involving human fatalities, injuries, and property damage attributed to elephants, as well as compensation provided by the forest department for crop and plantation losses. In addition, the study seeks to understand community perspectives on the factors driving elephant movement from forest habitats into agricultural and plantation landscapes and to document locally suggested measures for mitigating negative interactions.

During the initial phase of fieldwork, perception interviews were conducted with local residents, plantation owners, plantation workers, and panchayat representatives. Data collection was temporarily suspended in December 2025 to accommodate the peak coffee-harvesting season, when community members were heavily engaged in plantation activities. Surveys resumed in April 2026, and by the end of the month, a total of 558 individual perception interviews had been completed.

Human–elephant interactions continue to pose a significant challenge in Kodagu. According to information shared by local communities, negative encounters with elephants resulted in eight human fatalities and several serious injuries within the six months preceding the survey period. Among the documented fatalities, two occurred in Ponnampet Taluk and one in Virajpet Taluk. A substantial proportion of fatal incidents were reported to have occurred during early-morning encounters,



Study area map

Paddy crop damage caused by elephants. © Koshik V Rao

Group discussion on human-elephants negative interactions. © Koshik V Rao

Interview with villager. © Lokesh Manjanerira

Interview with plantation owner. © Lokesh Manjanerira

when people were travelling to work or engaging in routine outdoor activities.

Community members consistently reported that elephant encounters are more frequent during the rainy season. Respondents also stated that the period from April to July coincides with the ripening of mangoes and jackfruits, which attract elephants into plantations and agricultural areas. As a consequence, some plantation owners reported harvesting or removing jackfruits before they ripen in an effort to reduce elephant visitation. Interestingly, residents in several locations indicated that elephant presence in their areas has become more noticeable only within the past two to three years. This perception suggests that many people may have limited experience living alongside elephants and may lack adequate awareness of elephant behaviour, movement patterns, and appropriate responses during encounters. Such factors may contribute to the increasing number of human injuries and fatalities reported in the region.

An important trend that emerged during the interviews was the substantial decline in paddy cultivation across the study area. More than 85% of respondents who were previously engaged in paddy farming reported having discontinued cultivation. The primary reasons cited were recurrent crop damage caused by elephants, increasing labour shortages, and low market returns for paddy. As a result, many landowners have either left their agricultural lands fallow or converted them into coffee and areca plantations.

Respondents also noted that these land-use changes may be influencing elephant foraging behaviour. Several community members reported that, over the past two years, elephants have increasingly been observed feeding on coffee berries within plantations.

One villager remarked that coffee beans could often be found in elephant dung, suggesting regular consumption of the crop. While such observations require further investigation, they may indicate an emerging behavioural adaptation by elephants to changing agricultural landscapes and food availability.

Another recurring theme raised by respondents concerned the impact of physical barriers on elephant movement. Several community members suggested that fences and other movement obstructions may restrict traditional elephant pathways, forcing animals to seek alternative routes through areas where elephant presence was previously uncommon.

According to respondents, this shift in movement patterns has contributed to the emergence of negative human–elephant interactions in locations that historically experienced little or no elephant activity. Throughout the study, we encountered a wide range of emotions among community members, including fear, frustration, anger, sadness, and uncertainty. While many respondents demonstrated an understanding of the ecological and social factors contributing to human–elephant interactions, the findings highlight the need for sustained community engagement and dialogue to foster long-term coexistence.

Setting Camera Traps. © Thammaiah Chakkera

Based on preliminary field observations, regionally coordinated community workshops, awareness programmes, coexistence-focused interventions, policy support, and habitat restoration initiatives could play an important role in reducing negative interactions between people and elephants. However, it should be noted that these observations are preliminary and are based on field perceptions collected during the survey process. A comprehensive thematic analysis of the data is yet to be completed, and the conclusions presented here should therefore be considered indicative rather than definitive.

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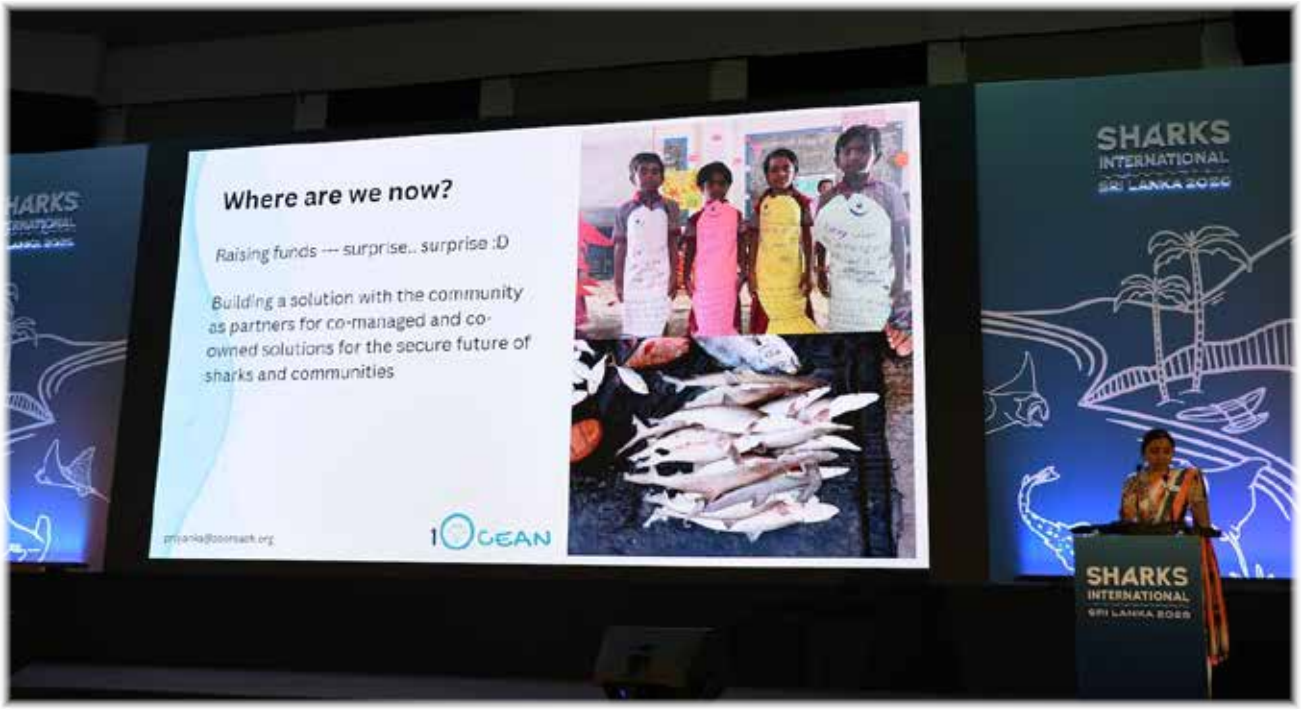
Citation: Rao, K.V. & T. Bhattacharjee (2026). Perception Studies on Human–Elephant Interactions in Kodagu. *Zoo's Print* 41(6): 59–61.

Report on Participation in Sharks International 2026, Sri Lanka

The Zooreach team had the opportunity to participate in Sharks International 2026, held in Sri Lanka on 4–8 May 2026, one of the world's leading conferences dedicated to the conservation, research, and management of sharks, rays, and chimaeras. The event brought together more than 800 participants from over 80 countries, including scientists, conservation practitioners, policymakers, educators, fisheries experts, students, and representatives from non-governmental organizations. The conference provided a unique platform for sharing knowledge, discussing emerging challenges, and fostering collaborations for the conservation of elasmobranchs globally.

The conference featured a wide range of presentations, panel discussions, and networking opportunities covering diverse aspects of shark and ray conservation. Throughout the event, experts presented the latest research on shark and ray biology, ecology, population dynamics, distribution patterns, and habitat use. Several sessions highlighted advances in tracking technologies, genetic studies, and monitoring approaches that are improving our understanding of species movements and population trends. Discussions also emphasized the importance of integrating scientific evidence into conservation planning and fisheries management. There was a specific session focussed on deep elasmobranchs and their study.

A major theme of the conference was the growing need to address threats faced by sharks and rays, including overfishing, habitat degradation, climate change, and illegal wildlife



trade. Numerous presentations examined trade dynamics and market trends affecting shark and ray populations locally and worldwide. Researchers and practitioners shared insights into the complexity of international trade networks and their impacts on vulnerable species. In addition, several sessions focused on national and international laws, policies, and regulatory frameworks designed to improve species protection and their efficacy. Discussions around implementation challenges, compliance mechanisms, and the role of multilateral agreements highlighted the importance of collaboration between governments, researchers, and local communities.

Among the many contributions presented at the conference, the 1OCEAN team represented by Priyanka Iyer and Usha Ravindra delivered two important talks that showcased community-based conservation and public engagement initiatives being implemented in India.

The first presentation focused on working with coastal communities to build a sustainable fisheries model that balances conservation goals with local livelihoods. The talk highlighted the importance of engaging fishers and fishing communities as key partners in conservation rather than viewing them solely as resource users. Through participatory approaches, awareness programmes, stakeholder consultations, and livelihood-focused interventions, the initiative seeks to promote sustainable fishing practices while supporting the socioeconomic well-being of coastal communities.

The presentation emphasized that long-term conservation success depends on community ownership, trust-building, and the incorporation of traditional ecological knowledge into fisheries management. The audience showed considerable interest in the practical lessons learned from implementing community-based conservation strategies and the potential for

scaling such models across other regions. The second presentation introduced the Citizen Science Portal developed under the 1OCEAN programme and highlighted efforts to engage young people in marine conservation. The talk described a series of workshops conducted with students from eight colleges located in coastal regions across the states of Kerala, Karnataka, and Tamil Nadu. These workshops were designed to build awareness about sharks and rays, improve understanding of marine biodiversity, and train students in citizen science methodologies. Participants were introduced to the portal and encouraged to contribute observations and data that can support research and conservation efforts. The initiative demonstrates how citizen science can bridge the gap between scientific research and public participation, creating opportunities for students and communities to become active contributors to marine conservation. The presentation generated positive discussion regarding the role of technology, education, and youth engagement in strengthening conservation outcomes.

In addition to the scientific sessions, the conference provided valuable opportunities for interaction with researchers and practitioners working across different regions of the world. Informal discussions and networking sessions facilitated knowledge exchange on best practices in conservation planning, fisheries management, policy advocacy, community engagement, and capacity building. Learning about successful initiatives from diverse geographical contexts helped broaden perspectives on addressing conservation challenges and identifying opportunities for future collaboration.

One of the most significant takeaways from Sharks International 2026 was the recognition that effective shark and ray conservation requires a multidisciplinary approach. Scientific research alone is insufficient without strong policy frameworks, stakeholder participation, education, and community involvement. The conference repeatedly highlighted the importance of integrating ecological knowledge with social, economic, and governance considerations to achieve lasting conservation impacts.

Overall, Sharks International 2026 was an enriching and inspiring experience. The conference successfully brought together a global community committed to the conservation of sharks and rays, facilitating the exchange of scientific knowledge, practical experiences, and innovative solutions. The participation of over 800 delegates from more than 80 countries demonstrated the growing international commitment to addressing the challenges facing these ecologically important species. The presentations delivered by the 1OCEAN team showcased meaningful examples of community-based conservation and citizen science engagement, reinforcing the value of collaborative approaches in advancing marine conservation. The knowledge gained and connections established during the conference will contribute significantly to future efforts aimed at promoting sustainable fisheries, enhancing public participation, and ensuring the long-term conservation of sharks and rays.

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Biodiversity Day Celebrations and Telangana Youth Biodiversity Conference

The Telangana Biodiversity Board organized the Telangana Youth Biodiversity Conference, a first-of-its-kind initiative, at the Telangana State Forest Academy, Dulapally, Hyderabad. The conference was aimed at encouraging the youth of Telangana to learn about, document, and contribute to biodiversity conservation. The theme of the conference was **"**Act Locally for a Global Impact".

Day 1 Proceedings

The conference commenced with an inaugural session, followed by an address from a young startup founder who emphasized the importance of self-learning and making effective use of the vast information available through digital resources. An introduction to the Telangana Biodiversity Board and glimpses of previous National and International Youth Biodiversity Conferences were also presented.

An overview of biodiversity in Telangana was delivered by Dr. C. Srinivasulu, who highlighted the need for greater documentation of the state's flora and fauna. Dr. Sai Priyanka Pagadala of the Deccan Development Society spoke on the conservation of indigenous millet varieties through women's self-help groups and the promotion of millet-based food products. Ms. Madhulika Chaudhary, founder of Dhruvansh, discussed innovative approaches to wetland restoration and water quality improvement in Telangana. A session on entrepreneurship was conducted by Mr. Shravan Chaitanya from the Atal Incubation Centre, T-Hub, who provided guidance on establishing startups and accessing incubation support.

Participants later engaged in group discussions on biodiversity-related topics, which encouraged knowledge sharing and collaborative learning. The final technical session was delivered by Ms. Gunde Padma, who spoke about the preparation of People's Biodiversity Registers (PBRs) through field-based biodiversity documentation. The day concluded with an interactive discussion featuring Dr. C. Srinivasulu and Sri Kalicharan S. Khartade, IAS, who encouraged participants to actively contribute to biodiversity conservation and environmental stewardship.

Dr. C. Srinivasulus engaging with Participants.
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Day 2 Proceedings

The second day coincided with the Biodiversity Day celebrations and was held at the Birla Planetarium Auditorium, Hyderabad. The program began with a cultural performance showcasing the biodiversity and unique characteristics of different districts of Telangana, highlighting the state's ecological and cultural richness.

Following the arrival of the dignitaries, speeches were delivered on the importance of biodiversity conservation and sustainable environmental practices. Awards were presented to winners of various competitions, including painting, photography, and essay writing. Members of Biodiversity Management Committees who had actively contributed to the preparation of People's Biodiversity Registers were also felicitated for their efforts.

The event concluded with the distribution of certificates to participants of the Telangana Youth Biodiversity Conference. The conference provided a valuable platform for learning, interaction, and networking among participants from diverse academic and professional backgrounds.

I am grateful to the Telangana Biodiversity Board for providing this enriching opportunity and for organizing an informative and inspiring conference dedicated to biodiversity conservation.

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Participants for the Conference.
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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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