

ZOO'S PRINT

Communicating science for conservation

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Memories of

Dr. Ajith Kumar

shaping the future of wildlife ecology
and conservation in india

1952-2025

(Second Special Issue)

Edited by
Akshay Surendra & Samira Agnihotri

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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.

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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.

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Cover photos: Dr. Ajith Kumar on an impromptu trip to Pushpagiri Wildlife Sanctuary to see Strobilanthes, 2021 © Ajith Kumar, In Memoriam, WhatsApp Group.



Editorial

Wildlifers are an odd bunch: a small fraction of humankind who don't just stop at finding a connection with wildlife, but who make the connection their life's purpose. No wildlifer can agree on what this purpose is, but every wildlifer shares the feeling it evokes. It's the feeling you get when you hike in shola-grasslands, swim amidst young groupers, learn in a classroom, read in a library or chat on a verandah, when our attention is tuned to the natural world, or just as often, our place in it. But it takes someone special to go beyond the many definitions of this sense of purpose and unite people in this universal feeling that connects all wildlifers. Ajith Kumar was this special person.

This special issue of Zoo's Print is a festschrift honouring Ajith Kumar. He was a primatologist, conservationist, and a wildlife biologist. He was also a teacher, mentor, and a friend to many. But Ajith's life and times cannot be captured in such pithy titles or monickers. As the essays in this issue illustrate, he built community, inspired wildlifers, and reinforced our relationship with the natural world in ways that will always be impossible to define. Perhaps this is why his passing evoked an outpouring of universal grief that could only be expressed by very specific and personal stories.

This second issue honouring Ajith (the first was published as the March 2026 issue of Zoo's Print) chronicles the legacy he left behind.

In the first piece, historian Mahesh Rangarajan reveals the many dimensions of Ajith, including his power of discernment. In the second essay, marine biologist Rohan Arthur shows how Ajith's magic lay in subverting that very word, legacy. Archivists Venkat Srinivasan and Anjali Ramachandran and ecologist Samira Agnihotri reveal

Ajith's key role in preserving the history of ecology in India. Next, wildlife biologist Ranjit Daniels recalls the care that Ajith showered him with in his career. Retired Kerala Forest Officer James Zacharias reminisces about the walks he had with Ajith, and the trails he walked later in his memory. An essay by some of his students at the Wildlife Conservation Trust is replete with stories that show how Ajith balanced rigour with humour as their professor. Retired Head of Forest Force, Tripura, AK Gupta shares how Ajith kickstarted his academic career and stayed alongside him as a pillar of support. Tanushree Srivastava, his PhD student, shares how Ajith facilitated her growth during the Sikkim-DBT project and beyond.

In a full-length research article, wildlife biologists Barry Noon, Ravi Chellam and Karthikeyan Vasudevan describe how they conceptualized and implemented a study of herpetofauna of the Western Ghats in collaboration with Ajith Kumar. A reprint of an article by Krithi Karanth and Deepa Padmanabhan of the Centre for Wildlife Studies chronicles the early interactions of Ajith with the organization and its founder, Ullas Karanth, and the foundation of the MSc programme that Ajith helmed for 16 years.

Another reprint of a piece by the Wildlife Trust of India reveals the profound influence Ajith Kumar had on the organization and its various members. The editor of this magazine, Sanjay Molur takes us back to the key moments of encouragement and support that Ajith showed him and his endeavours.

Eco-hydrologist Jagdish Krishnaswamy and primatologist Anindya 'Rana' Sinha trace the origins of his power of discernment to his training in primate observations and spotlight that he was that rare creature: a good human being. The penultimate essay, a partial reprint of a piece by Meera Anna Oommen and Kartik Shanker, regales us with an exhaustive list of the tangibles and intangibles that defined Ajith. And in the final essay of this special issue, ecologist Madhuri Ramesh shares the 10 lessons she learnt from observing Ajith.

Poet David Whyte describes an elegy as a conversation between loss and celebration. The essays in this special issue of Zoo's Print (and the seven essays in the March 2026 issue) are an attempt at this conversation, an elegy to Ajith Kumar. They show that although his passing has left us all a little alone, Ajith's grace, camaraderie and care will serve as a template for a connected future.

**- Akshay Surendra & Samira Agnihotri, Co-editors of
the 2nd Ajith Kumar Memorial Issue**

The many dimensions of Ajith Kumar

Having read his eminently accessible and lucid essay on the lion-tailed macaques in the book *In Danger* edited by Paola Manfredi, I was a bit in awe of him. In 1999, we met briefly at the Worldwide Fund for Nature (WWF) office in Delhi. Little did I know how closely we were destined to work together, how much I would learn from him about mentoring, let alone teaching, and the huge vacuum his sudden and untimely departure would leave in my life.

Ajith was introduced to me formally by Dr Ullas Karanth, founder of the Centre for Wildlife Studies, as the anchor of the Master's Programme in Wildlife Biology and Conservation at the National Centre for Biological Sciences (NCBS). I began teaching the first batch though only in their second year. We worked together for 25 years. I was the black sheep – a historian among scientists, and a social scientist among wildlife experts. Despite the strong personalities and opinions around me, I credit Dr. Ajith, then Director of NCBS Dr. K. Vijayraghavan, and Dr. Karanth for giving me the freedom to teach as I saw fit. Dr. Ajith was the one we turned to day in and day out, to solve the many problems we faced, especially in a new M.Sc. programme.

Teaching at the M.Sc. programme was a challenge worth taking head on. As a historian, I had to get across key themes in India's environmental history as well as 'conservation, science and society' to fifteen highly motivated post graduates, mostly from the sciences, in just three weeks. The energy and drive of the students across the six batches I taught in Ajith's time, helped.

But equally vital was his constant presence and counsel. He knew every student, both past and present, and was deeply aware of their strengths and weaknesses. His invaluable guidance helped me navigate my first teaching job in India, and my first time teaching students of science. Ajith was a great researcher, an unmatched mentor, tutor, and a fine friend.

There were at least three dimensions to him, two well known: the first was his original almost eccentric humour, never offensive and always setting all at ease. The second was a razor-sharp intellect, especially in the biological sciences.

It is the third and not so well-known dimension that I came to appreciate: his granular view of the strengths and weaknesses of each student. This included an assessment of how they were doing at any point in time. Needless to say, this included present and former students across the years. I always wondered about his instant recall and more so, his precise, almost cryptic assessments. This was combined with a genuine compassion for students.



Ajith Kumar with the 6th batch of M.Sc. students at the Kadamane field station, 2015. © Prasenjit Yadav.



Ajith with Chandni Gursrikar, and Gopal Khanal from the first international cohort of the NCBS MSc Programme, at Bharatpur, 2017. © Rasika TS.

Ajith was a leading scholar who set aside a large part of his life for institution building. When he retired, he visited former students and others in the field, sending me photos and videos on WhatsApp from those locales. These included pictures from Chilika Lake, Western Ghats, and from India's sea shores. His remarkable ability to communicate with all people at a human level was matched only by an insatiable curiosity about the natural world. He was last in Pachmarhi, central India, on a field trip, and I awaited photos of gerbil trapping and students negotiating steep slopes.

I never got those photos. No one ever will. But in my idea of his afterlife, he is cracking silly jokes in the evening, making everyone near him laugh, and enjoying the unending journey that began with his beloved macaques in the Anamalai hills of the Western Ghats. The flesh is gone but the spirit will live on, as will his legacy.

Mahesh Rangarajan

Professor of History and Environmental Studies
Chair of the Archives of Contemporary India,
Ashoka University, Haryana

Citation: Rangarajan, M. (2026). The many dimensions of Ajith Kumar. In *Zoo's Print* 41(8): 01–02.

Legacy

It is a tricky word, legacy. In the tomes you find it written, it is a small yet dense polysyllabic object that appears easy enough to pick up, but surprises you with the weight it bears. Once in your palm, it demands that you state its measure, as though the very act of holding it is a rite of appraisal. It traces a path of time on your hand, anchored in the past, spreading out into the future. And it draws a geography around it, mapping the coordinates over which it operates. Your evaluation done, you can set it gingerly back down again. Its gravity settles around it, creating rippling contours that from now on will define how we speak of the one who left this legacy behind for us to contend with.

I'm sitting here, holding this object in my hand, doing my best to reconcile it with the person that Dr. Ajith Kumar was. Perhaps I'll have to ask him himself. Reconstruct him from his ashes. I'm transported immediately to a dimly lit Kodava joint in Mysore, Ajith nursing his rum while ordering another fire pork. He looks at me quizzically, a question and a hint of mischief in his eye. I try to

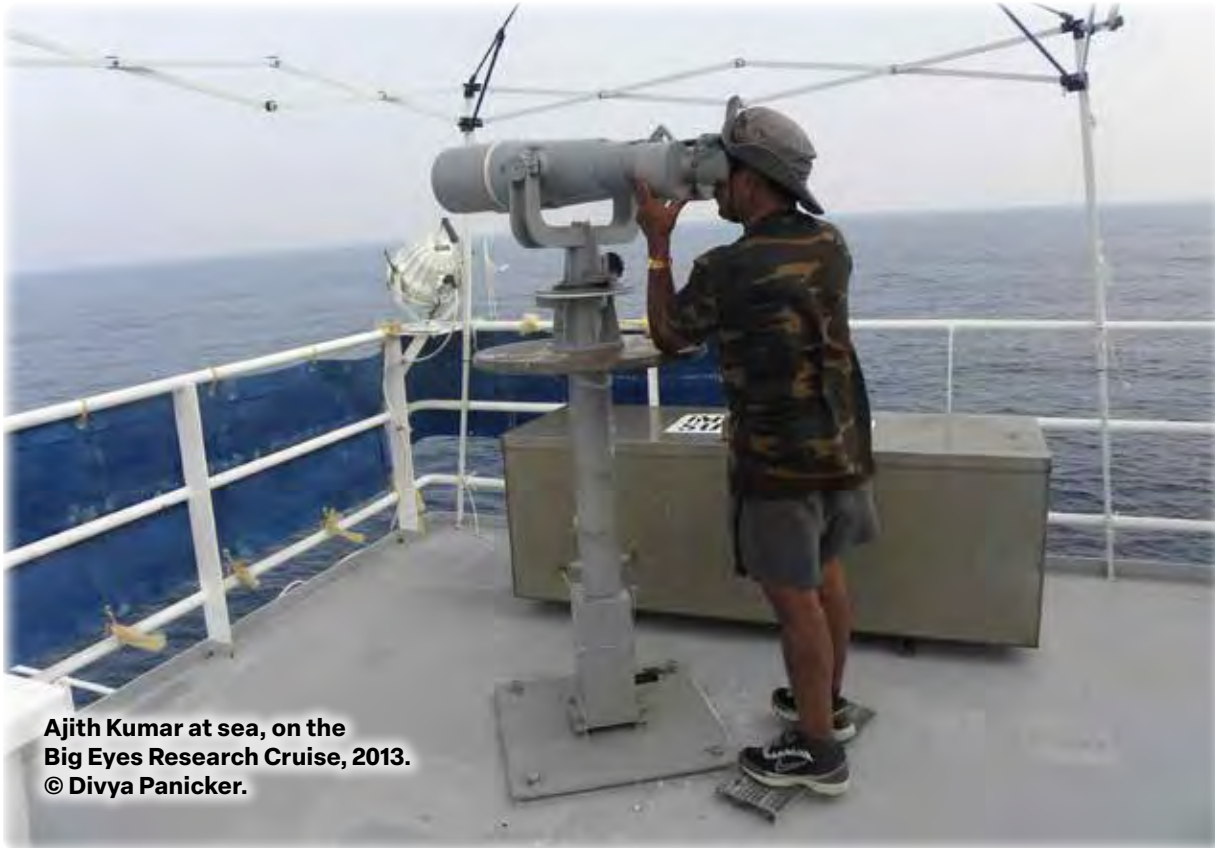
explain: *"We are building an edifice, here, Ajith, from the pieces that remain of your life. A legacy".* Ajith breaks into an unexpected guffaw, and the entire serious enterprise comes tumbling down. *"What do you think I am? A guess-my-weight fairground attraction? Drink your silly tonic and lime. And let me tell you the perfect recipe for natural hair dye – not that you are going to need it much longer, from what I can see".*

What frustrates this careful legacy project is Ajith himself. Given a choice between leaving a legacy and sharing a drink with his pals, I think I know which Ajith would choose. And yet his spirit looms large and there must be some accounting for its enduring impact.

Being a wildlife ecologist in India today is not for the faint of heart. In our lifetimes we have watched helplessly as the careful safeguards of natural systems we fought so hard to secure are being actively dismantled to make way for a certain brash version of modernity. The species we love retreat further into oblivion, the habitats they live in,



Ajith Kumar at the Student Meet on Ecology, Evolution and Conservation Science (SMEECS) Bangalore, 2008.
© Chandrima Home.



**Ajith Kumar at sea, on the
Big Eyes Research Cruise, 2013.
© Divya Panicker.**

fraying and tattered. The climate crisis has forced us to relearn everything we thought we knew about the resilience of the natural world as it struggles to cope with this new normality. The wilds themselves recede from many of us, walled off by a hobbling permit bureaucracy, while an increasingly authoritarian dispensation does its best to snuff out what remains of democratic dissent. Our institutions of wildlife knowledge and conservation action, hemmed in by funding restrictions and governmental hypervigilance, have been reduced to being brokers of shallow optimism or, worse still, simpering service providers. If there was a crisis at hand thirty years ago, today we see our coupled natural and human systems spiralling in a free fall, and we are somehow even less equipped to arrest it than we were a generation ago. Small wonder then that most of our lot are weeping philosophers, filled with righteous indignation and a rising sense of the futility of the task ahead.

It wasn't as though Ajith was unaware of the magnitude of this challenge. Yet, in the face of

it all, he maintained an indomitable joyfulness that was difficult to fathom. His was a ministry of creative mischief. Of evangelical playfulness.

The world, he seemed to suggest, was created in play, and for those of us who love the natural world, play should be at the heart of our enterprise. Otherwise, Ajith would say, what point is there to what we do? There is something of the radical genius in this framing of the enterprise. To counter the catastrophes looming around us, we have been told by our ever-so-wise conservation leaders, that we need more heroes, courageous wildlife biologists, struggling against the elements and the agents of evil, taking on epic quests to save the world. Ajith's advice is different. To be effective, he seems to say, we need fewer heroes and more court jesters. Because the jester is a sage with a harlequin hat, and can speak truth to power more effectively with a pratfall than a drawn sword. Play is not merely a way to maintain joy. It is a way to navigate power.

Ajith spent most of his career in research and conservation institutions big and small. And he was an advisor, counsellor and friend to many others, not least our own. Yet, somewhere inside I think he was deeply wary of the process of institutionalisation. Institutions are spaces where ideas come to die. Regardless of the soaring goals with which they are created, in time, institutions fall victim to the dangers of professionalism, where compliance, bureaucracy and productivity take over to make subjects of their members, so they can more easily be managed. Vocation becomes purpose, purpose becomes means, means becomes ends, and ends becomes self-preservation – of the institution, not the vocation.

Sitting at the heart of these institutions, Ajith still managed to escape this corrupting influence, always clear headed and pragmatic about what he was doing. Moribund as they are, institutions have their purpose if you use them well. For Ajith, the institution was a convenience. A space he could use to accomplish his real life's work – fostering a community. If play is central to the life of the wildlifer, then doing it in company is key. His gleeful love for wild nature was unquestioned, but it was trumped by the utter joy he felt in the company of people who loved nature as he did.

He placed his trust in something fundamental to the way knowledge is generated, spread and made effective in the world, where it is mediated through simple human interactions. While these interactions can sometimes be contained within the confines of institutional structures, they flourish much more naturally when you are out in shola grasslands complaining about tick bites, or seasick on an ocean-bound vessel, looking for whales, or in a toddy shop in Kerala, eyes streaming from a particularly spicy beef fry.

Knowledge generated by this community is thick with shared experience: somatically embedded knowledge, rich in anecdote and full of laughter. In the wake of his passing, there has been an outpouring of this precious anecdotal record,

multiple rich seams of memory-making that connect us with Ajith, with each other, and with the natural world we shared with him. You can, of course, subject this happy, unruly trove to an analytical process, and you can formalise this within the confines of an institutional procedure, but you will have captured the least interesting or useful part of this collective experience. The community, in Ajith's framing, is the convivial counter, keeping alive everything institutions were built to serve but forgot how to do so along the way. If Ajith had a creed, it was this. The power of our community lies in company. Company is where stories of the world are shared. Where ideas are formed together. Where the energy to shape those ideas into projects is generated. Where creative dissent is born. And where change can begin. So, what can we say of the legacy of this man?

He was sage. He was jester. He was friend. He reminded us always of what is true and what is important. He showed us the subversive power of relationship. He made us look beyond ourselves and our own little battles.

He gave us play. He gave us community. He took us back to the wild. These are ours to keep alive.

Ajith's impact on our lives can never be defined with such a sombre word as legacy. I'll place it back into the tome where I found it and head out for a swim among the rocks near my house, along with my wife, Teresa. We are on the lookout for young-of-the-year groupers, that sometimes hide in the crevices. The house wine in the fridge is rotgut enough for Ajith to enjoy. And my mum has made some tongue *moile* that I think he would have liked.

Rohan Arthur

Senior Scientist, Nature Conservation Foundation (NCF-India), Mysore.

Citation: Arthur, R. (2026). Legacy. In *Zoo's Print* 41(8): 03–05.

Archiving Like Ajith

Sometime in the summer of 2016, Venkat Srinivasan, met Ajith at the “Wildlife Office” (of the M.Sc. Programme) to learn about this somewhat unique program’s history. Venkat had joined the National Centre for Biological Sciences (NCBS) to set up an archive of the institution, but more urgently, to develop an exhibition around its history.

Ajith started narrating historical data points and moments in the path leading up to the M.Sc. programme. But he was also curious about the intent of an archive and what it was going to collect. When Venkat tried to explain that they didn’t have much about the history of NCBS yet, and would be open to any kind of material to begin with, Ajith offered him a bemused look. He turned around from his desk, and pinched out a set of perforated sheets with numbers on a grid. Ajith’s Braille paper notes were the first ecology collection at the then NCBS Archives, and paved the way for many more. [These field notes](#) about tree-living mammals in the Anamalai Hills scribbled on Braille paper are somewhat legendary in archiving circles and Ajith has held rockstar status in more than one discipline.

The story goes that as a financially constrained graduate student in the early 1980s, Ajith was in search of good non-blotting paper for his field notes, one that would survive the humidity of the rainforests. He met a fellow student who was visually challenged and had received “bundles” of the Bible in Braille from a church in the United States. Ajith and his colleagues would go on to request for their own copies of the Bible from this church. That brief conversation at the Wildlife Office was the beginning of Ajith’s close collaboration with the Archives at NCBS, one that continues through some of the alumni of the M.Sc. Wildlife programme.

In August 2016, Ajith gave a long interview for the Archives’ Oral History collections, where he

discussed his own journey, and the history of these notes. He followed it up with an innocuous ‘a question about archiving’ email on September 30, 2016. I have a question, he said. Folks in the conservation and wildlife biology community were keen to preserve the pioneering research of the ornithologist, Ravi Sankaran. “Any idea how this can be done? Possible in NCBS, as part of our involvement with the Andaman and Nicobar Environment Team (ANET)?” Ajith knew this was an “NCBS Archive”, and was trying to explore the institutional boundaries. But the more one went into Sankaran’s material, the more it became clear that this would be the first true set of archival papers sourced from outside the NCBS community. It hinted at what was to unfold soon. Anchored by the [Ravi Sankaran Papers](#), these archives [opened to the public](#) in 2019, not as the NCBS Archives but as the Archives at NCBS, a centre for the history of contemporary biology in India.

By 2020, the Archives at NCBS had started to receive queries from other scientific disciplines, and saw an opportunity and a responsibility in catering to science broadly. By 2022, this was cemented by a grant to catalyse its efforts in preserving the history of science in contemporary India. History of ecology and conservation in India was going to be the focus area for the first year of the grant. To make this happen, Venkat reached out to Ajith again for guidance, to Samira Agnihotri, alumna of the first batch of the M.Sc. Wildlife Programme, and to Hari Sridhar, a post-doctoral scholar then, who had initiated a project to document the stories behind celebrated journal papers in ecology. Samira had also joined the Archives, and through Ajith’s network that spread far and wide, some of the most valuable ecology collections are open to the public today.

One must browse through the entire digital catalogue, or visit the Archives in person to



An open call for collections from ecology and conservation, May 2023. © Dhatri S Aradhya.



MS-030-1-1-1-5 One-horned rhinos from Chitwan being released in Dudhwa National Park, 1985, Ashish Chandola Papers



MS-033-1-2-OS20-12 Tracing sheets of bird plates prepared for publication with notes and revisions marked in pen and pencil. Carl D'Silva papers

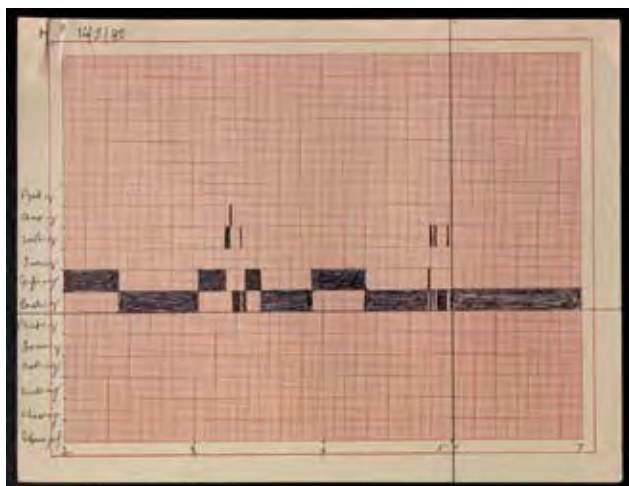
comprehend the richness of these collections, but we offer a brief glimpse through select documents for this article.

Ashish and Shanti Chandola donated Ashish Chandola's 35 mm slides, photo negatives and contact sheets that include photographs of Billy Arjan Singh at Tiger Haven and the Crocodile (Gharial) Project led by H.R. Bustard in 1977. Each of these tells a story. These include slides that covered the translocation of Greater one-horned rhinoceros from Nepal to India in the late 1980s, and much more. This collection demonstrates the significant role of wildlife photographers and film makers in capturing important moments in the history of wildlife conservation in India.

Through the Chandolas, the Archives was able to get in touch with the family of Carl D'Silva, the artist from Goa, famous for his illustrations for Salim Ali's *Book of Indian Birds*. While generations of bird enthusiasts and wildlife biologists would be familiar with the coloured plates from the book, few know that Carl also created life size decoy models of the Bengal florican, cementing the role of art in applied ecology. These models were used in a study on the florican's movement and dispersal patterns by Asad Rahmani at the Bombay Natural History Society.

In addition, the collections that Ajith helped bring in also reveal the artist behind the ecologist, through the field notebooks of Ravi Sankaran and R J Ranjit Daniels, and others. Field notebooks are a treasure trove in an archive, making visible the human side of research. They often contain grocery lists, personal notes for learning new languages, and journals of daily life in the field.

In 2023, Ajith offered to spend a few weeks in Dehradun with his old friends from the Wildlife Institute of India (WII) and help them pack their papers for the Archives. He joked that he was looking forward to the evenings reminiscing about good times with his friends over whiskey, and would perhaps manage to squeeze in some archiving work. The papers of [BC Choudhury](#) came



MS-042-1-1-2-5 Graph by Sunil U Gupta and B C Choudhury studying crocodile behavior before and during a solar eclipse at Nehru Zoological Park, 1980. BC Choudhury Papers

to the Archives sorted and carefully packed, with notes for the Archives Team and gifts sent for Ajith. Through this visit, the Archives also received its first botany collection: the [GS Rawat](#) papers.

Ajith's network was not restricted to wildlife biologists and academics. The Archives holds the papers of [Sanjoy Deb Roy](#), an officer of the Indian Forest Service, that include photographs from a function commemorating 10 years of Project Tiger. And through two generations of the M.Sc. programme's students, came the first collection of a civil society environmental movement: the [Wayanad Prakrithi Samrakshana Samithi](#)". Samira was the co-advisor for Abhijith AV, from



Ajith with members of WPSS at the Archives at NCBS, April 2024 (Photo courtesy: Ravi Kumar Boyapati)

the 2020-22 batch of M.Sc. Wildlife Programme at NCBS, and was visiting his field site and home in Wayanad. Abhijith introduced her to his father, Manoj Kumar, who told her that Ajith had stayed with them many years ago as well. "Strangers immediately felt like family", said Samira. "They told me about their collective that has been fighting for the environment and Adivasi rights for decades. We visited one of the founding members, N Badusha and asked him if he would be interested in giving an oral history interview. And the rest is history"! Sometime later, when members of the WPSS visited the Archives, Ajith was the interlocutor, translating between Malayalam and English, seamlessly engaging with everyone in the room, and speaking at length about the conservation issues in Wayanad.

Ajith brought ecology collections to the Archives with the spirit of gentle mischief and generosity he was known for. Ajith placed his humanism before everything else. It comes through in the material he has helped bring to the Archives as well, through the trust people placed in him, and the networks he invested in. Ajith's archival papers, too, now rest at the Archives at NCBS, including a collection of rare wildlife stamps from across the globe, which he joked could be useful in a financial crunch.

Every time we say that the Archives at NCBS is a public centre for the history of science in contemporary India, we remember Ajith for the nudge and his gentle query on how to work within and across its boundaries. Archives are a political act, and Ajith knew this best.

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Citation: Srinivasan, V., A. Ramachandran & S. Agnihotri (2026). Archiving Like Ajith. In *Zoo's Print* 41(8): 06–08.

From the Himalayas to the Western Ghats: My Journey with Ajith

It all began with Dr AJT Johnsingh, whom I met for the first time in May 1983. It was at the Indian Institute of Science in Bangalore, where he, along with Prof Madhav Gadgil, Dr Raghavendra Gadagkar, and Dr SN Prasad, took me for a walk through the campus looking for birds. Soon afterwards, Johnsingh found himself a niche at the Wildlife Institute of India (WII) and he was followed by Prasad.

I visited WII in the winter of 1991. WII was then nestled within the Forest Research Institute's Van Vihar campus in Dehradun. It was on this visit that I was introduced to Dr Ajith Kumar.

My visits to WII became more frequent after 1991. Once, my wife Vinetha and I were ferried by Ajith on his old scooter to Prasad's house for dinner. Ajith and I soon became friends. All this happened not long before Ajith moved to the Salim Ali Centre for Ornithology and Natural History in Coimbatore. At Coimbatore, we had more opportunities to meet and interact.

The transition from a professional association to a trusted friendship with Ajith may have happened in 1995, when Dr Frank Davis Singh's life came to a tragic end. Davis Singh and I were good friends. We shared a common interest, fish. Ajith was apparently too disturbed by the untimely death of his colleague and through a series of correspondence, shared his disillusionment and frustration. In his last handwritten letter, he had explicitly mentioned his plans to move out of Coimbatore.

In the early 2000s, I was the coordinator of the 'Western Ghats Forum' -- many meetings were held in Coimbatore, in which Ajith participated. The Western Ghats Forum was conceived by Dr Kamal Bawa (Ashoka Trust for Research in Ecology and the Environment) and Shri Darshan Shankar (Foundation for Revitalisation of Local Health Traditions); the first discussion about the scope of the Forum took place in Panama where I had the chance to spend a little time with Dr Bawa (and Dr Jagdish Krishnaswamy, now at the Indian Institute

of Human Settlements) on the sidelines of the Association for Tropical Biology Conference in 2002. In 2003, WII published a special issue of the *Wildlife and Protected Areas* titled "Conservation of Rainforests in India". Ajith, who was one of the editors, invited me to contribute an article to the volume, and I wrote "Biodiversity of the Western Ghats: An Overview" for the same.



Ajith with friends and family. © Divya Mudappa & Shankar Raman.

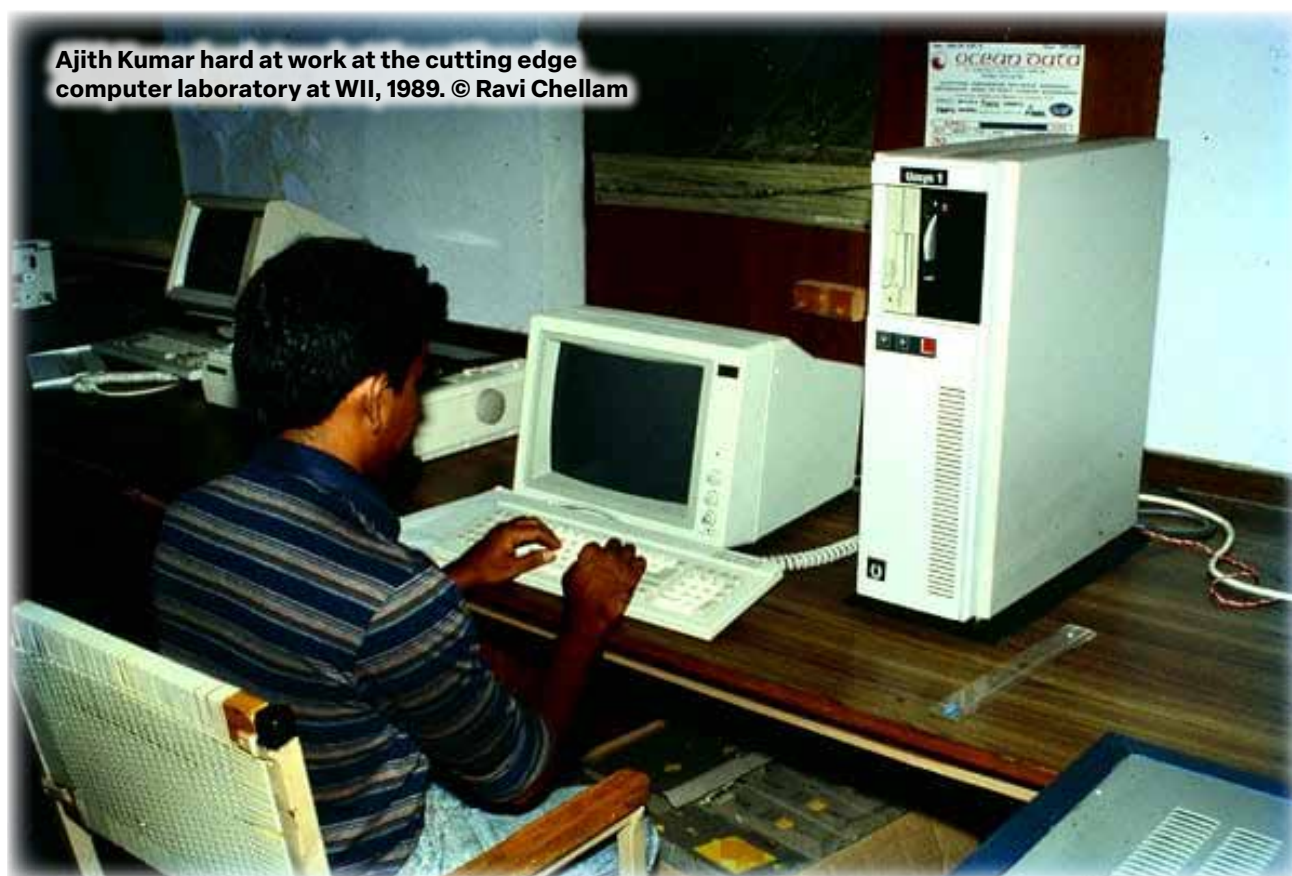
In 2003, I received a letter from Dr Ullas Karanth inviting me to a brainstorming event in Bangalore. This was about the M.Sc. Wildlife Biology course that was being launched at the National Centre for Biological Sciences (NCBS) with the support of the Wildlife Conservation Society. When I reached the hotel in the outskirts of Bangalore, Ajith was there, and I learnt that he would be the coordinator of the course.

Over the next ten years, although my role was limited to being visiting faculty, Ajith and I worked together at NCBS with scores of young students. We spent long hours chatting at the Canara Bank Layout Guest House (Bangalore), and travelled together with the students to Periyar Tiger Reserve and Topslip in Anamalai Tiger Reserve. During one of my visits to Periyar (Vallakadavu to be precise), I was to take the students out and show them how to sample herpetofauna. The students had already spent more than a week in the field, but had not seen a shield-tail snake, rock pit viper and caecilians. When we walked out of the dormitory,

Ajith told me, “You are not coming back without showing the students at least one of these elusive herps”.

I took the students to a patch of riparian vegetation and explained to them the ‘all-out-search’ method. It did not take long for the students to glean the small patch and pick up two shield-tail snakes and one caecilian. The rock pit viper was still at large. So, we walked through sparse undergrowth and I spotted a young pit viper resting in a low bush. This was from a distance and I waited till all others joined and then showed them the snake. Ajith was overjoyed; the challenge of finding the elusive herps was fully met!

Ajith and I once travelled from Bangalore to Kottayam and to the Periyar Tiger Reserve. We saw Nilgiri Tahr, Lion-tailed macaque and other wildlife. James Zacharias, a mutual friend, was our local guide. But the highlight of the trip was that I had my first glimpse of the lush forests of Megamalai. High Wavys, as the British called them, were very



different from the rest of the Western Ghats that I had known.

In fact, many years ago, Prof. Gadgil had narrated his experience in Megamalai during his first visit to the landscape. Prasad was doing his Ph.D. on bamboo in the late 1970s, and he and Prof. Gadgil had visited Megamalai in search of the climbing bamboo. When I saw a few clumps with Ajith, I was quite excited and nostalgic, vividly recollecting Prof. Gadgil's account of the unique species. Prof. Gadgil had also told me of leeches that parachuted down from the canopy. However, I was fortunate to have had the cover of a vehicle above me during most parts of my travel through the high and wavy landscape.

Ajith and I were once in Baroda, for a workshop organized by the Gujarat Ecological Society. Dr. Ravi Sankaran was also with us. One evening we walked down to the zoo to visit the director at his residence. What we anticipated to have be a 'gory' evening was not that bad after all. I had the company of a Great Dane, a Saluki, two Tibetan cats, two hedgehogs, one canary and a trinket snake. But the best is that the then zoo director's daughter, Shivani Jadeja, was many years later among our students at NCBS, as she chose to pursue her Master's in wildlife biology.

Ajith had a great sense of humour. And to those who may have already heard him narrate some hilarious anecdotes, I can only provide a censored gist. First, is one about the Lion-tailed macaques breeding, unexpectedly yet profusely, in the Delhi

Zoo. When all other factors failed to explain the LTM boom, Ajith said that there seemed to be more evidence in the then zoo director's horoscope!

Another hilarious anecdote Ajith would narrate was how one of his former colleagues bought two underwears in a shop and decided to wear one right there inside the changing room. The fun was in how he reached the counter with just one underwear in hand and a bill that said two!

Ajith was a very caring person. He called on me in Chennai in 2014 after my heart attack and hospitalisation. Whenever I visited NCBS, he paid for my lunch at the canteen. We sometimes cooked together at the Canara Bank Layout Guest House. That was when he narrated how he once cooked prawns at home and seasoned them with his wife Mini's hair oil!

In the last 21 years of his life, Ajith had devoted his life to guiding the students of wildlife biology in Bangalore. He passed on during the last of his field visits, doing what he loved. Let his legacy remain. He will always be remembered by his friends, and all the students he lovingly mentored.

R.J. Ranjit Daniels

Care Earth Trust, Chennai

Citation: Daniels, R.J.R. (2026). From the Himalayas to the Western Ghats: My Journey with Ajith. In *Zoo's Print* 41(8): 09–11.

Walking: towards, with, and for Ajith

When and where did I first meet Ajith? I jig, jog and pamper my memory-stock, but to no avail.

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Memory grows out of the barrel of a gun. 1985 or 86.

As we were turning the bend on the path at the base of Kathumala peak in Eravikulam National Park, my friend Unnikrishnan who was in the front suddenly stopped, turned towards me, and smiled. I remember his cap too well, a green one with a WWF emblem, and he had a satchel on his shoulders like the one we self-proclaimed ‘intellectuals’ adorned in the 1970’s and 1980’s. I stopped in my tracks, and followed his eyes to my left and down below: I saw the barrel of the gun pointed up towards me.

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Now I walk back my memory trail from Kathumala in Kerala to Valparai in Tamil Nadu: from Kathumala, down Michel’s valley to Poovar, up Podumala to Konalar, and then onto Akkamalai. I make my way down to Valparai town, to Coimbatore city, and stop at Sally Walker’s seminar hall (Sally “Runner” as my predecessor in Eravikulam, Mohan Alambath, used to describe her). Yes, that’s where I first met Ajith. At the seminar, a serendipitous meeting with some college kids enthusiastic about sighting Nilgiri Tahr in Grasshills paved the way for our ill-prepared walk from Konalar to Eravikulam via Kathumala.

Ajith never made a visit to Eravikulam in the 80’s. Those days, Munnar was *terra incognita* for researchers and academics.

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Coimbatore again. Early 1990s.

Sally Walker and team hosted a symposium on Population Viability Analysis, or something of that sort, and the focus was on lion-tailed macaques (LTMs). Obviously, Ajith was the protagonist. We

struck up a rapport not on LTMs, but on smaller mammals; especially the Malabar Civet.

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Again, memory flows out of an open gin bottle. In the mid 1990s, Ajith was visiting Periyar Tiger Reserve. He was with Peter Jackson, British conservationist and Chair of the IUCN Cat Specialist Group, and Prof John Eisenberg, a prominent mammalogist from Berkeley. Prof Eisenberg, according to Ajith, was the fastest gin drinker on Earth. And he proved it by emptying the bottle while we were on our first drinks.

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Mid 2000s, Periyar again. Ajith and his brood of MSc Wildlife students from the National Centre for Biological Sciences. I had organised a talk for the students on ideas of *longue durée* by a famous



Ajith in the field.



Ajith on a trek with the author to Hemkund in 2022. © James Zacharias.



Ajith with the 6th batch of M.Sc. students at Periyar, 2015.

a renewed quest for the Malabar Civet. Ajith was a most unassuming person who always preferred public transport.

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Our last walk together was on August 8th 2022. Valley of Flowers and Hemkund, Uttarakhand. I always considered myself to be a reasonably good climber, but Ajith was always far ahead of me. Ajith had always wanted to do the trek from Eravikulam to Valparai in the Anamalais. For various reasons, the trek never happened. In April this year (2026), I did that trek in his memory.

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Ajith, undoubtedly one of the best wildlife scientists in the country, was at his best when he was out in the field with his students. I was lucky to have taken part in many of his field trips which involved long hours of walking. What I found fascinating was his love and respect for his dear students.

intellectual specialised in French historian Fernand Braudel's work. The speaker from Trivandrum, in a deeply inebriated state, spoke for hours on empowerment of marginalised communities instead. Though I was directly responsible, Ajith never made a mention of it.

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Other instances of my many interactions with Ajith are shrouded in lost memories, emails and WhatsApp chats. Most of our last chats were about the Malabar Civet. He went to the Connemara Museum in Chennai to look at a specimen there. He also visited his early mentor Dr Kurup of the Zoological Survey of India who recovered two skins from Kerala in the 1970s thereby opening up

I will of course miss his wit and contagious laughter. And his knowledge, knowledge that begets humility.

And I grieve.

But, most of his emails had Jelaluddin Rumi at the bottom: Do not grieve. Anything you lose comes around in another form.

James Zacharias

Former Forest Officer (1981 – 2010), Kerala
Senior Advisor, Wildlife Trust of India

Citation: Zacharias, J. (2026). Walking: towards, with, and for Ajith. In *Zoo's Print* 41(8): 12–13.

With Dr. Ajith Kumar: a fun walk through the dark woods

For those of us who have been Dr. Ajith Kumar's students, a befitting eulogy is difficult to write. 'Ajith sir', 'Dr. Ajith', or simply 'Ajith' as he was fondly called, holds a juggernaut status among hundreds of students and colleagues. He relished life, loved his work, and somehow managed to be both perpetually busy and perpetually available. His sympathetic ear and unwavering support carried many of us through the trials and tribulations of our careers and life.

Herding a bunch of tenacious individuals through the rigours of a Master's dissertation in Wildlife Biology and Conservation was no easy task. Yet Ajith excelled at it – rounding up one motley bunch of M.Sc. students at the National Centre for Biological Sciences (NCBS) after another, nudging each one of us to think of a sensible ecological question, defend the question, execute fieldwork, analyse data, and eventually craft a presentable thesis! Ajith was also sharp and attentive to details: he could spot citation errors in our thesis draft in seconds.

But Ajith's vision for students extended beyond their thesis. For him, the true goal was a peer-reviewed scientific publication. Needless to say, this was a daunting prospect for many of us back then. After completing our dissertations, some of us would dodge Ajith in the NCBS corridors or at conferences, hoping to evade that inevitable question, "But what about your paper?" Given his persistence, and the dogged perseverance of the students, scientific papers were eventually published, adding to a body of work that Ajith proudly showcased to visiting faculty and scientists.

Ajith taught his students to live lightly – to find humour in the "burdens of the conservation world" that they had taken on themselves to

address, in ungratifying, emotionally draining, and bureaucratic contexts. Unlike many biologists of his generation who projected an overt or tacit sense of contempt towards those in the government or in research or educational institutions working towards conservation, he always reminded us to reach out and engage, and try to improve those situations. For even if they did not budge, there was ample humour and fun to be had along the way. It only dawned on many of us much later that he was so respected across the board (pun intended) because of how easy he made serious things appear: a hearty laugh and a nostalgic memory or story were enough to get through.

As a primatologist, Ajith was well known for his love of plants and wild fruits. Sometimes, however, the many scientific names of plants would be overwhelming. During a botany field course at Topslip in the Anamalai hills, a visiting faculty and Ajith were rattling away the scientific names of trees and their characteristics to the M.Sc. students. One of us, more interested in animals than plants, saw some civet droppings at the base of a large tree and recorded the observation with the tree's identity. The next morning, Ajith tested the students to observe characters and identify that tree. "*Vitex altissima*" came as a swift response, and Ajith was visibly impressed. Little did he know that the identification was based on animal poop, rather than plant characteristics! Later on, when he learnt the truth, he chuckled in his usual way: a reminder of his ability to laugh at life's many quirks.

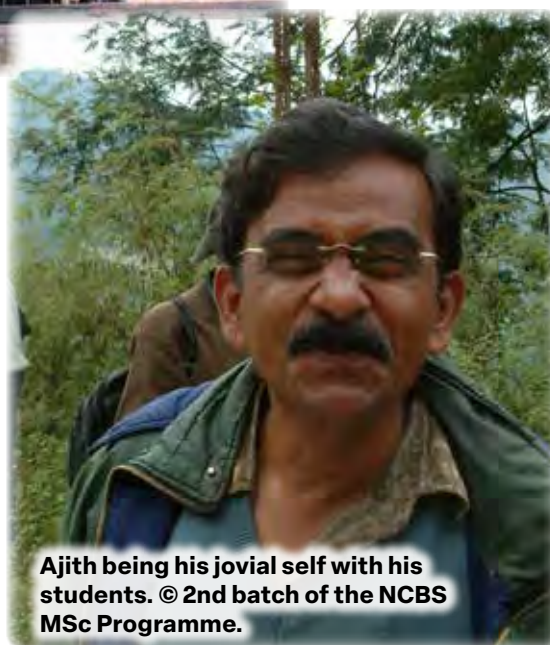
Another time, on a trip along a river a few years ago, Ajith was intent on matching the angling prowess of the late Dr. AJT Johnsingh, another stalwart in Indian wildlife biology. So Ajith sat upfront on the kayak, makeshift rod in hand, and



Ajith with his beloved lion-tailed macaque. © Authors.

used everything from dry fish, banana chips, coconut, biscuits, chocolate, and even pakodas as bait over the next couple of days, and yet he caught nothing! Not one to be easily discouraged -- his childlike enthusiasm still intact -- he set his sights on the crabs scurrying about the beach at the mouth of the river, and proceeded to demonstrate the art of catching crabs safely, only to be pinched promptly by the offended quarry. And for someone who didn't eat fish, drink 'sufficiently', or speak the language fluently, I (Tarun) often got a "What kind of a Malayali are you?", followed by his characteristic chuckle.

Time spent with Ajith was usually full of laughter and learning. And despite the frequent but gentle admonishments for not publishing enough, one always looked forward to catching up with him. He not only entertained and humoured his students, but also their partners and brood, human and animal. More often than not, these meetings involved food, drink, banter, laughter, and stories galore; the stories are too many and too outrageous to share! For someone so seasoned in the field, his eyes always brimmed with curiosity and his mind never ceased to observe. And his dollops of wisdom shaped the careers of many students. Though he may not be walking the



Ajith being his jovial self with his students. © 2nd batch of the NCBS MSc Programme.

woods beside us anymore, Ajith lives on in the forests he loved, in the humour he shared, and in the sagely wisdom he passed on to multiple cohorts of students he mentored.

Girish Punjabi, Tarun Nair, Nachiket Kelkar, Aditya Joshi & Anish Andheria
Wildlife Conservation Trust, Mumbai

Citation: Punjabi, G., T. Nair, N. Kelkar, A. Joshi & A. Andheria (2026). With Dr. Ajith Kumar: a fun walk through the dark woods. In *Zoo's Print* 41(8): 14–15.

Dr Ajith Kumar: The Scientist Who Shaped Minds and Lives

There are some individuals whose influence on our lives extends far beyond the boundaries of professional mentorship. Their guidance becomes a compass, their values become a standard, and their friendship becomes a cherished part of our journey. For me, Dr. Ajith Kumar was one such person. While the world rightly remembers him as one of India's foremost wildlife biologists and primatologists, I remember him as my Guru—a teacher in the truest and most profound sense of the word.

The news of his untimely passing in March 2025, while accompanying a group of students on a field trip, was deeply distressing. Yet, in retrospect, there is poignant symbolism in the manner of his departure. He left this world doing what he loved

most—being in the field, observing nature, sharing knowledge, and inspiring young minds. Few scientists have lived so completely for their chosen calling.

My association with Dr. Ajith Kumar began through the Wildlife Institute of India at a time when I was taking my first tentative steps into wildlife research. Having completed my Post-Graduate Diploma in Wildlife Management from the Wildlife Institute of India, Dehradun in 1987–88, I had initiated some field observations on my own on the endangered Phayre's Langur in Gumti Wildlife Sanctuary, Tripura – a primate species unique in its appearance and almost confined, in its geographical distribution, to the state of Tripura (there have been some reported sightings

in adjoining areas of Assam).

Those observations were modest and exploratory, but Ajith saw possibilities where I saw limitations.

Ajith examined my work with characteristic honesty and scientific rigour. He neither offered superficial praise nor discouraged my efforts as a young forest officer attempting to find his footing in the world of scientific research. Instead, he challenged me to think deeper, ask better questions, and build a stronger scientific foundation. It was he who encouraged me to transform those preliminary efforts into a full-fledged doctoral research proposal.



Ajith with AK Gupta and Krushnamegh Kunte at NCBS, 2017. © Dr. Atul Kumar Gupta.

Looking back today, I can say with certainty that my eventual Ph.D. -- on the ecology of three primate species and the impacts of shifting cultivation in Tripura -- would not have materialized without his encouragement and guidance.

His mentorship extended beyond advice. He travelled to Gumti Wildlife Sanctuary and spent time in the field with me, discussing research design, ecological processes, animal behaviour, and conservation challenges. He demonstrated that good science begins not with sophisticated tools but with careful observation, intellectual curiosity, and the courage to question one's own assumptions. Those interactions taught me lessons that no textbook could have provided.

I was fortunate to receive his guidance again, during my doctoral work at Cambridge University in England. We shared the privilege of being associated with one of the world's leading primatologists, Dr. D.J. Chivers. Having Ajith's support and counsel during that phase of my academic journey was invaluable. He helped me navigate scientific questions with greater confidence and provided insights that only someone with his depth of field experience, analytical ability and (a rare) generosity of spirit, could offer. Those interactions further strengthened a relationship that had by then evolved from that of teacher and student, to one of enduring friendship and mutual respect.

Among the many gifts that Ajith gave me, perhaps the most significant was helping me overcome my fear of statistics. Like many field biologists of my generation, and especially as someone from a background in administration, I was far more comfortable in forests than with numbers. Statistical analyses appeared intimidating and inaccessible. Ajith had a remarkable ability of demystifying complex quantitative concepts.

With extraordinary patience, he explained not merely how to apply statistical tools but why they mattered. Gradually, I came to appreciate statistics as an indispensable component of scientific

inquiry. Much of my subsequent scientific writing and publications owe a debt to those lessons.

Ajith also profoundly influenced my understanding of the role of science in wildlife conservation. As a career officer in the Indian Forest Service, my responsibilities were primarily managerial and administrative; I superannuated from service as Principal Chief Conservator of Forests and Head of the Forest Force (PCCF & HOFF) and Chief Wildlife Warden of Tripura. It would have been easy to regard scientific research as a parallel activity best left to academic institutions. But Ajith never accepted such a separation. He consistently emphasized that effective wildlife management must be informed by sound science and that managers and researchers should work as partners rather than in isolation.

Ajith encouraged me to integrate scientific enquiry into wildlife management decisions and cultivate a culture of evidence-based conservation within the Forest Department. Those discussions reinforced my belief that long-term conservation success depends on the seamless integration of management experience and scientific understanding. Those lessons I learnt from him in the formative years of my career as a forest officer left a lasting impression on me. They motivated me to pursue rigorous scientific research alongside management responsibilities throughout my professional life.

Despite his towering scientific stature, Ajith remained wonderfully approachable and delightfully humorous. One incident remains etched in my memory. During his visit to Gumti Wildlife Sanctuary in Tripura, he travelled from Agartala to the small subdivision town of Jatanbari. Upon reaching my field camp, he cheerfully remarked how pleased he was to discover that even such a small town possessed a "bar". My confusion quickly turned into laughter when he explained that he had seen a signboard reading "Jatanbar". I had to point out that the final letter "i" was missing from his interpretation and that the signboard referred not to a drinking

establishment but to the town of Jatanbari. For years afterwards, “Jatan Bar” became an enduring joke between us and often served as the opening line of our conversations. Such was Ajith’s humour—subtle, spontaneous, intelligent, and unforgettable.

As the years passed, our meetings became less frequent but our friendship remained strong. We met in Tripura, at the Wildlife Institute of India, in Bengaluru, and on several other occasions. My wife Gunjan and I had the pleasure of visiting him at his home, and he graciously visited ours as well. Our conversations gradually expanded beyond science to include family, life, and shared memories. These interactions revealed another side of Ajith: a compassionate, generous, and deeply humane individual whose concern for people was as genuine as his concern for wildlife.

I have been associated with the University of Transdisciplinary Health Sciences and Technology (TDU) in Bengaluru since retirement from the Indian Forest Service; and at TDU, Ajith readily agreed to be visiting professor and help guide doctoral students. This willingness to contribute, mentor, and inspire continued throughout his life. He never stopped being a teacher.

Perhaps this is why I always regarded him not merely as a mentor but as my Guru. Every year, on the 5th of September, India’s Teachers’ Day, I consider it both a privilege and a duty to convey my respects and gratitude to him. Those annual greetings were not a matter of formality; they were an expression of sincere reverence for a person who had profoundly influenced my life and career. Today, when I reflect on his legacy, I see much more than an accomplished scientist. I see a teacher who shaped generations of conservationists, a scholar whose work transformed Indian primatology, a mentor who invested selflessly in the growth of others, and a friend whose warmth enriched the lives of all those who knew him.

Ajith’s scientific contributions will endure through his publications, his students, and the conservation programmes that continue to benefit from his insights. But for many of us, his greatest legacy lies in something less tangible yet far more enduring—the values he embodied: intellectual honesty, scientific rigour, humility, kindness, humour, and an unwavering commitment to learning.

The forests of India have lost one of their finest interpreters. The scientific community has lost an outstanding scholar. His students have lost a teacher. I have lost my Guru. Yet his voice, his lessons, and his example continue to guide me. In that sense, he remains very much present—walking beside me on the forest trail, encouraging me to observe more carefully, think more deeply, and serve Nature with greater wisdom and humility. May his noble soul rest in eternal peace.

Dr. Atul Kumar Gupta, IFS (Retd.)

Former Principal Chief Conservator of Forests, Head of Forest Force, and Chief Wildlife Warden, Tripura
Professor, The University of Trans-Disciplinary Health Sciences and Technology (TDU), Bengaluru

Citation: Gupta, A.K. (2026). Dr Ajith Kumar: The Scientist Who Shaped Minds and Lives. In *Zoo’s Print* 41(8): 16–18.

Dr. Ajith Kumar and the Sikkim-DBT Project: Building Science, Capacity, and Conservation in the Eastern Himalaya

The previous special issue of *Zoo's Print* highlighted Dr. Ajith Kumar's enduring association with the Sikkim Himalayas and his deep commitment to nurturing young researchers (Acharya et al. 2026). Building on that article, this piece reflects on his mentorship and his pivotal role in shaping the Sikkim-DBT Project: one of the most significant ecological research programs in the Eastern Himalayas.

In 2010, Dr. Ajith Kumar, together with an eminent team of scientists from the National Centre for Biological Sciences (NCBS) and the Ashoka Trust for Research in Ecology and the Environment (ATREE) initiated the Department of Biotechnology (DBT)-funded project titled *Technological Innovations and Ecological Research for the Sustainable Use of Bioresources in the Sikkim Himalaya*. The team included Dr. Mahesh Sankaran, Dr. Uma Ramakrishnan, and Dr. Suhel Quader from NCBS, and Dr. Jagdish Krishnaswamy, Dr. Robert John Chandran, Dr. Soubadra Devy, and Dr. Suman K. Rai from ATREE. The project sought to establish a state-of-the-art research program that would advance knowledge of biodiversity in the Eastern Himalayas, identify relationships between biodiversity and ecosystem functioning, assess the potential impacts of climate change on biodiversity and ecosystem services, and strengthen local capacity for the sustainable management of bioresources.

As part of this initiative, nine young researchers from Sikkim -- recent graduates with Master's degrees in Wildlife Science, Biotechnology, Zoology, Environmental Science, and related disciplines -- were recruited through in person interviews conducted there. Two additional researchers, one from Bihar and another (this

author) from Uttar Pradesh were selected through telephonic interviews. Together, we formed a group of eleven researchers on the project that later became known as the "Sikkim-DBT Group."

After a series of field trips and orientation sessions, each researcher undertook independent studies on different aspects of wildlife and plant ecology, guided by the project's principal investigators. Among them, Sunita Khatiwara from Sikkim and I, shared a common interest in mammal ecology and began our work with Dr. Ajith Kumar.

We worked in the Kyongnosla Alpine Sanctuary of eastern Sikkim, a landscape that had fascinated Dr. Ajith since his visit with students from NCBS in 2009. I focused my research on mountain ungulates while Sunita worked on the ecology of small carnivores.

My First Meeting with Dr. Ajith

After my telephonic interview, I was asked to meet Dr. Ajith Kumar in Siliguri before receiving my formal appointment letter. At the time, I was working with WWF-India on red panda conservation in Arunachal Pradesh. Dr. Ajith was accompanying the 2008–2010 M.Sc. Wildlife Biology students from NCBS on their field trip to Sikkim.

I was to meet him at New Jalpaiguri Railway Station. Having never met him before, I wondered how I would recognise him. Soon, I noticed a group of cheerful students enthusiastically waving at me, with Dr. Ajith standing among them. He warmly introduced himself and his students, asked about my work, and engaged me in a brief but encouraging conversation. That first interaction

immediately put me at ease and left a lasting impression of his humility, his warmth, and his genuine interest in young researchers.

Dr. Ajith as My PhD Supervisor

Soon after joining the project, I expressed my desire to pursue a doctoral degree under his supervision. Rather than rushing into research, Dr. Ajith advised me to spend time reading extensively, refining research questions, and thoroughly understanding the study system. For nearly two years, I immersed myself in literature while conducting reconnaissance surveys in the Kyongnosla Alpine Sanctuary. This period of intellectual preparation proved invaluable and laid the foundation for my doctoral research.

Dr. Ajith also introduced me to Dr. G. Umapathy, his first PhD student, from the Laboratory for the Conservation of Endangered Species (LaCONES) at Hyderabad, who specialised in the reproductive physiology of endangered mammals. He encouraged me to attend training programs and workshops on reproductive and stress physiology, broadening both my technical skills and scientific perspectives.

By December 2012, I had developed a clear research framework. I registered for my PhD, titled “Ecology of Feeding and Reproduction in Mid-altitude Wild Ungulates in the Sikkim Himalaya”, under the supervision of Dr. Ajith Kumar, and co-supervision of Dr. Uma Ramakrishnan. Dr. G. Umapathy and Dr. Yash Veer Bhatnagar served on my doctoral advisory committee, bringing complementary expertise in wildlife physiology and mountain ungulate ecology.

Throughout my doctoral journey, Dr. Ajith remained a constant source of guidance and encouragement. He regularly visited me in the field, met with forest department officials to ensure logistical support, motivated me to present my work at national and international conferences, and strongly encouraged all members of the

Sikkim-DBT group to participate annually in the Student Conference on Conservation Science (SCCS) in Bangalore. We also attended a variety of courses on advanced tools and techniques on data analysis, scientific writing, and various laboratory techniques at NCBS, ATREE, and IISc. He actively helped us secure travel grants, wrote recommendation letters, and encouraged us to build international scientific networks. On his advice, I even obtained my passport soon after joining the project, anticipating future opportunities for global scientific engagement.

Key Findings from My Doctoral Research

Dr. Ajith had long been fascinated by the distribution of mammals across elevational gradients. Together, we sought to understand not only these patterns but also the ecological processes driving them in the subtropical Himalayas.

Mountain ecosystems experience pronounced seasonal changes in climate and forage availability. These fluctuations interact with complex topography to create diverse microhabitats over short elevational distances, influencing plant phenology and, consequently, the feeding ecology and reproductive strategies of herbivores. Although such relationships have been extensively studied in temperate ecosystems, they remain poorly understood in the subtropical Himalayas.

Our research was conducted in the 31 km² Kyongnosla Alpine Sanctuary, spanning elevations from 3,000 to 4,200 m. Nearly half the year, the sanctuary remains snow-covered, making it an ideal natural laboratory to study seasonal variation in habitat use, forage availability, diet, and reproduction in three sympatric ungulates: Himalayan Musk Deer *Moschus chrysogaster*, Himalayan Serow *Capricornis thar*, and Himalayan Goral *Naemorhedus goral*.



Dr. Ajith Kumar and Dr. Jagdish Krishnaswamy with the Sikkim-DBT group at the Kyongnosla Alpine Sanctuary in East Sikkim (May 2010). © Tanushree Srivastava.

To understand forage dynamics, we repeatedly sampled 52 permanent vegetation plots 752 times over one year, documenting 283 plant species, including grasses, forbs, ferns, and mosses. Contrary to patterns reported from temperate ecosystems, plant biomass increased with elevation while forage quality declined, with season emerging as the dominant driver of vegetation dynamics.

Our studies on habitat use revealed distinct ecological strategies among the three ungulates. Himalayan Serow exhibited seasonal elevational migration, descending to lower elevations during winter. Himalayan Goral remained largely resident at lower elevations throughout the year. In contrast, Himalayan Musk Deer displayed a unique behavioral strategy of maintaining similar elevations while shifting between mountain aspects: moving from cooler north-facing slopes to warmer south-facing slopes in winter (Srivastava & Kumar 2018). This work received international recognition and led to my invitation in 2023 to join the Global Initiative on Ungulate Migration (GIUM), where I now represent India in discussions on movement ecology.

We further investigated reproductive physiology using non-invasive fecal hormone monitoring in collaboration with Dr. Umapathy. Our studies first established baseline reproductive physiology in captive Himalayan Musk Deer (Mithileshwari et al. 2016) before extending these methods to free-ranging musk deer and Himalayan Serow (Srivastava et al. 2021). We also examined physiological stress patterns in these species.

We found contrasting reproductive strategies among sympatric ungulates. Himalayan Goral exhibited highly synchronized seasonal breeding closely linked to the phenology of graminoids, whereas musk deer showed a more prolonged breeding season associated with the relatively stable availability of browse. Stress hormone levels peaked during spring and summer, likely reflecting increased disturbance from grazing by domestic yak and their interactions with feral dogs.

Collectively, our studies demonstrated that seasonal patterns of habitat use, feeding ecology, and reproduction in Himalayan ungulates are shaped by the combined influence of environmental conditions, topography, forage



Dr. Ajith Kumar with Sunita Khatiwara and me during a field trip to the Kyongnosla Alpine Sanctuary in East Sikkim. © Tanushree Srivastava.

availability, and body size. More importantly, they established one of the first ecological baselines for assessing the impacts of climate change on Himalayan herbivore communities. This work subsequently laid the foundation for my postdoctoral research on the critically endangered Kashmir Hangul with Dr. G. Umapathy and Dr. Karthikeyan Vasudevan at LaCONES, CCMB.

Success of the Sikkim-DBT Project

Between 2010 and 2019, the Sikkim-DBT project evolved into one of the most successful capacity-building initiatives in Himalayan ecology. Eight researchers completed doctoral degrees covering diverse topics, namely, rhododendrons, primulas, pikas, small carnivores, hydrology, large cardamom, oak forests, ecosystem services provided by orange orchards, and the impacts of climate change on alpine ecosystems.

The research generated under the program has been published in leading international peer-reviewed journals and has significantly advanced our understanding of Himalayan biodiversity and ecosystem functioning. More importantly,

the project created a generation of scientists who continue to contribute actively to research, conservation, and environmental management across India.

The Sikkim-DBT project is among Dr. Ajith Kumar's most enduring contributions to ecology and conservation in the Indian Himalaya. While the project generated important scientific knowledge on biodiversity, climate change, and ecosystem processes, its greatest achievement was perhaps the community of young scientists it nurtured.

Dr. Ajith believed that good science begins with curiosity, careful observation, and intellectual independence. He invested generously in his students—not only by guiding their research but also by creating opportunities, building collaborations, and instilling confidence in them to pursue ambitious scientific questions.

For me personally, Dr. Ajith was much more than a PhD supervisor. He was a mentor who shaped my approach to science, encouraged me to think critically, supported me through every stage of my academic journey, and inspired me to pursue excellence with humility. The scientific

foundation he helped build continues to guide my research today, from understanding Himalayan ungulates to contributing to global initiatives on wildlife movement ecology. His legacy lives on not only through his publications and scientific achievements but also through the many students and colleagues whose lives and careers he profoundly influenced.

References:

- Acharya, B.K. et al. (2026). Dr Ajith Kumar's association and passion for Sikkim Himalaya: pioneer in initiating conservation biology research and developing human resources in the region. *Zoo's Print* 41(3): 5–13.
- Srivastava, T. & A. Kumar (2018). Seasonal habitat use in three species of wild ungulates in Sikkim Himalaya. *Mammalian Biology* 88: 100–106.
- Mithileshwari, C. et al. (2016). Non-invasive assessment of fecal progestagens and pregnancy detection in Himalayan Musk Deer (*Moschus chrysogaster*). *Theriogenology* 85(2): 216–223.
- Srivastava, T. et al. (2021). Diet drives differences in reproductive synchrony in two sympatric mountain ungulates in the Himalaya. *Frontiers in Ecology and Evolution* 9: 647465.

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The effects of rainforest fragmentation on herpetofauna of the Western Ghats: A tribute to Dr. Ajith Kumar

Background and Introduction

This study of herpetofauna of the Western Ghats in South India was conceived and designed collectively by Dr Ajith Kumar, and two authors of this article (B.R.N. and R.C.) in the mid-1990s. Small mammals were the third taxa that was the focus of this research project, a taxon which was among Dr. Ajith's favourites. We were funded by the United States Fish and Wildlife Service, routed through the Wildlife Institute of India. Our study had three broad objectives:

1. To examine community structure and ecology of herpetofauna in relatively undisturbed rainforests of the Kalakad-Mundanthurai Tiger Reserve, in terms of species richness and relative abundance; and to understand the factors governing their variation.
2. To identify the nature and extent of changes in the herpetofauna community in rainforest fragments of the Anamalai hills, and the habitat correlates of such changes.
3. To identify implications of above findings for conservation, and for future research of herpetofauna in the Southern Western Ghats.

Dr. Ajith Kumar's major intellectual contributions to this rainforest fragmentation study focuses on two main areas, First, is the development of a set of research questions that are grounded in predictions arising from ecological theory. And the second, is an exploration of the utility of novel sampling designs to estimate the abundance and distribution of rare species of reptiles and amphibians.

Research questions grounded in ecological theory can provide insights into key mechanisms underlying the distribution and abundance of species in ecological systems (Twombly & Hastings 2022). Such knowledge can help managers address complex conservation challenges. The application of novel sampling designs is key because the empirical data required for unbiased estimates of distribution and abundance of rare species are poorly served by traditional sampling methods.

In this article, we focus and reflect primarily on research findings relevant to the abundance, distribution and species richness of forest floor amphibians (see Vasudevan et al. 2001, 2008) and reptiles (see Ishwar et al. 2001). Both these studies estimated two state variables: the density (or abundance scaled by sampled area) and species richness, of amphibians and reptiles. Our discussion in this article focuses primarily on the estimation of species richness patterns derived from the sampling of forest floor environments in intact rainforests of the Kalakad-Mundanthurai Tiger Reserve (henceforth, KMTR) and the rainforest fragments in the Anamalai hills.

Ecological theory underlying diversity in forest fragments

Forest fragmentation theories address how species richness, abundance and population viability are affected by habitat amount and spatial structure. The major theories relevant to the distribution and abundance of wildlife species were well known by Dr. Kumar. Based on his guidance, these theories formed the framework of our research in the rainforest fragmentation project.

The dominant theoretical frameworks relevant to habitat fragmentation at the time -- and ones that influenced our a priori hypotheses -- were the theory of island biogeography (TIB; MacArthur & Wilson 1967) and the related species-area relationship (SAR). The SAR predicts that the relationship between species richness (S) and habitat area (A) is defined by the power function. The TIB includes the monotonic increase in species richness with area, but it also predicts how S decreases with isolation, when habitats are similar (MacArthur & Wilson 1967). One explanation for the positive species-area relationship is based on the habitat heterogeneity hypothesis—that is, larger areas provide more habitat types (Rosenzweig 1995).

A second explanation, based on population viability analyses, is that larger populations are less extinction prone than smaller, more isolated populations (Noon et al. 1999).

We hypothesised that forest fragmentation is an ultimate causal factor leading to the eventual and proximate declines in species richness and local abundances of species. For this, we relied on a typology that distinguishes between two broad classes of stressors (Lawton 1994).

Factors that result in populations being rare and isolated in the first place are called “the ultimate causes of extinction” (Simberloff & Abele 1976) or collectively referred to as the “declining population paradigm” (Caughley 1994). A second set of factors that result in eventual extinction once populations have become small and disjunct, represent the “proximate causes of extinction” (Simberloff & Abele 1976), or what Caughley (1994) grouped together as consequences of the “small population paradigm”. It is useful to qualify these two sets of threats, wherein ultimate factors are the deterministic events that initially put the population at risk, and proximate factors are the stochastic events that lead to eventual extinction.

Regardless of the chosen theoretical framework, it is important to recognize that all scientific theories are conditional on our understanding of causation, and subject to the limits of current knowledge and empirical data.

Methods

We used a suite of sampling methods, including 5 × 5 m quadrats for sampling amphibians and reptiles on the forest floor, line transects for arboreal reptiles, and stream surveys for stream-dwelling amphibians and reptiles.

Classical sampling theory lacks the flexibility to adjust sampling location based on the spatial patterns of animal abundance. These deficiencies were addressed by the work of Thompson (1990, 1991), and Thompson & Seber (1996). A number of sampling designs emerged, collectively referred to as adaptive sampling. Adaptive designs have proven to be particularly useful for sampling rare species, or species with patchy spatial distributions as well; this was the case for many forest-floor reptiles and amphibians in the Western Ghats.

In our study, quadrat sampling designs complemented simple random sampling (SRS) with adaptive cluster sampling methods (ACS; Thompson & Seber 1996; Christman 2000). We adopted an ACS design because sampling efficiency would be greater when sampling rare species with aggregated spatial distributions. We expected key environmental variables on the forest floor to be spatially correlated, resulting in aggregated spatial distributions of most reptiles and amphibians. ACS allows the inclusion of additional sampling units (e.g., quadrats) in the immediate neighbourhood of any quadrat in which the focal taxonomic groups are found.

In our ACS sampling design, whenever ≥ 1 individual of a forest floor amphibian or reptile was detected within the quadrat, additional units -- called secondary units -- sharing a common

boundary with the original unit were added to the sample (Thompson & Seber 1996). The process continued until the cluster of neighbouring quadrats was surrounded by quadrats with no animals (see Noon et al. 2006 for additional details).

The sampling design for amphibians also included longitudinal surveys of montane streams (Vasudevan et al. 2006). Counts of the number of amphibian species detected within a given stream provided an estimate of alpha diversity. Among stream comparisons allow estimates of the degree of change in species diversity from one stream to another, i.e., beta diversity. And gamma diversity was estimated as the number of different species across all surveyed streams within the study region (Magurran 2004). An important limitation of our study design was that it did not provide estimates of species' detectabilities (Thompson & Seber 1994). As a consequence, estimates of abundance and density based on our counts reflect indices of abundance and density, and not absolute measures.

Estimates of species richness based on survey data are generally biased low because of heterogeneity in species detectabilities, and their imperfect detection ($p < 1$) (Boulinier et al. 1998; Williams et al. 2002). To address limitations of adaptive sampling design, the survey data collected by Drs. Ishwar and Vasudevan, were reanalysed (Noon et al. 2006) using two methods to compute an asymptotic estimate of species richness (Colwell 1997) from the reptile and amphibian quadrat data sets. The first was based on interpolated estimates of species richness using rarefaction (Coleman 1981; Coleman et al. 1982). Rarefaction methods estimate species richness as a function of sample size n (where n is the number of quadrats in the sample) by taking repeated random samples of size k ($k = 1, 2, \dots, n$), without replacement, from the collection of all sampled quadrats. Interpolated estimates fall within the range of known sample estimates.

Because of imperfect detectability, we also explored an extrapolation method to compute an asymptotic estimate of species richness. Extrapolation methods estimate species richness by including species believed to be present in the survey area but unobserved in the sample because of imperfect detectability and/or rarity. Extrapolated estimates fall outside of the range of sample estimates.

Results and Discussion

Test of fragmentation theory: reptiles

Results from our study for reptiles were generally consistent with a priori predictions based on theoretical expectations, namely, that species richness declined with declining patch size and increasing isolation. For example, the overall species richness of reptiles in rainforest fragments of the Anamalais was considerably lower (40 species) than in the contiguous rainforest in KMTR (54 species). However, the density of reptiles on the forest floor -- overall, as well as that of individual taxon -- showed no correlation with fragment area. The density of reptiles was related to different habitat features instead.

The species accumulation curves and species richness estimates based on both SRS and ACS sampling methods were similar, but ACS estimates were lower for both the interpolation estimator and the extrapolation estimator. Thus, information on the true number of reptilian species in KMTR was accumulating less quickly with ACS.

Test of fragmentation theory: amphibians

In the case of amphibians, in contrast to theoretical predictions, more species were recorded from the rainforest fragments of Anamalai Hills (40 species) than in the continuous forests of KMTR (32 species). This finding was attributed to the patchy distribution of amphibians and turnover of species across different streams (high beta diversity). Despite an overall increase in species richness with fragment area, however, the large and medium sized fragments had

more species than the largest fragment. Thus, the fragment area effect seems to be greater in reptiles than in the amphibians, especially in the case of endemics.

As in the case of reptiles, the density of amphibians too showed no association with fragment area; instead, the occurrence or abundance of many taxa was associated with specific habitat features. It should therefore be possible, from a management perspective, to maintain the vegetation structure and composition of fragments regardless of size in order to retain

populations. Specific measures would depend on the taxa and their conservation importance.

Reconciling fragmentation theory with our findings

Failure to find strong support for predicted fragmentation effects on species richness based on the theory of island biogeography, is not a refutation of the theory. Several factors may have contributed to variable results. Most significant may have been variable detection probabilities among species in each of these communities.



Figure 1 (clockwise, from top-left): (A) Metamorph of venated gliding frog taken in Andiparai Shola, Anamalais before its description to science. The distinctive patterns on the back of the metamorph froglet prompted the taxonomic investigation. (B) The survey team spent extensive periods in the field including in Kakkachi in Kalakad-Mundanthurai Tiger Reserve. The Kakkachi Fern House offered only a single room accommodation for the entire team to stay and the team performed the surveys from here. (C) Ajith Kumar and Barry Noon interacting with students in the field at Sengaltheri in Kalakad- Mundanthurai Tiger Reserve where the project had its first base camp. (D) The first camera trap image of a Brown Palm Civet *Paradoxurus jerdoni*, a flagship species that was studied in the project. The camera trap was fabricated by converting a point-and-shoot camera to trigger a photo when an animal walked on the pressure pad; the pressure pad itself was made by lining the inside of an air pillow with aluminium foil. Some attractive baits were placed carefully on top of the pressure pad. The camera trap was fabricated in Coimbatore by someone that Ajith knew. It worked!

At the time of conducting this study (1990s), the importance of variable detection probabilities among species was not fully appreciated, and survey methods to estimate p-values were not well developed.

In addition, estimates of abundance generally involve repeated sampling of populations, for which the identity of individuals is often required—for example, mark-recapture studies (White & Burnham 1999). These were the constraints under which the project operated and tried to come up with findings that are useful to inform conservation.

Test of alternative sampling designs: ACS versus SRS

For a fixed sampling effort, adaptive cluster sampling (ACS) resulted in higher estimates of species richness than simple random sampling (SRS). Both reptiles and amphibians in KMTR showed evidence of spatial clustering: they were more likely to occur in adjacent quadrats than expected at random. However, the estimates of reptile and amphibian density from the SRS and ACS sampling protocols were similar with overlapping 95% confidence intervals occurring in all cases (Noon et al. 2006).

Species richness of reptiles – measured through species accumulation curves and as species richness estimates –from the two re-sampling methods was similar. ACS estimates were lower than SRS for both the interpolation and extrapolation estimators. Thus, information on the true number of reptilian species accumulated less quickly with ACS than with SRS.

For amphibians, the SRS method detected only 10 species based on 87 individuals. Both the interpolated and extrapolated species accumulation curves for ACS were consistently above those for SRS, indicating a faster rate of encountering new species with ACS. For fixed sampling effort, ACS resulted in higher estimates of species richness than SRS.

Reanalysis of the reptile and amphibian quadrat sampling data from KMTR suggests that ACS was marginally more efficient than SRS in: 1) estimating species richness, because rare species were more likely to be detected, particularly evident for amphibian species, 2) providing larger sample sizes for habitat studies of focal taxa, and 3) documenting the degree of spatial aggregation, in terms of both multi-species assemblages and multi-individual aggregations.

The Linnean Shortfall

At the initiation of the project, 75 species of anurans were known from the Western Ghats, with most species described in the early 1900s, or earlier. Initially, knowledge of the species' taxonomic relationships was poorly known. This was a major hindrance for our research as several morphologically or acoustically distinct anurans were just labelled as species 1, 2 and so on. However, at the conclusion of our project, there was a steep rise in taxonomic descriptions and the number of amphibian species documented within the bounds of our study area. As of 2020, the number of anurans in the Western Ghats was thrice as high (226 species), and is likely to be even higher today (Dahanukar & Molur 2020).

Dr. Ajith Kumar was worried about the gap between the species detected and documented in our study and the greater number of species that were being described more broadly. However, there was little we could do beyond waiting for new descriptions to be available and updating our species designations with new binomial names as appropriate.

Our study resulted in rediscoveries of species not observed and documented for over 100 years. These species were *Melanobatrachus indicus*, *Rhacophorus calcadensis*, and *Walkerana phrynoderma*. It was reassuring to discuss these findings with Dr. Ajith Kumar: he was appreciative of the effort put into taxonomic identification of anurans, given the limitations in taxonomic capacity in

India. Our project also contributed to a broader understanding of the diversity of anuran species in India. In addition, we examined specimens collected from the Western Ghats study area at the Field Museum of Natural History at Chicago, USA. This resulted in the description of the Venated Gliding Frog *Rhacophorus pseudomalabaricus* (Vasudevan & Dutta 2000). *R. pseudomalabaricus* is now a flagship species that is driving an Amphibian Recovery Program in the southern Western Ghats (<https://www.wti.org.in/projects/amphibian-recovery-project/>).

Implications for anuran community assemblage in the Western Ghats

Despite taxonomic limitations, we were able to identify several key drivers of amphibian diversity in the southern Western Ghats. A significant finding was the discovery of beta-diversity in river basins and mountain ranges that act as the important spatial units, contributing to landscape scale (gamma) diversity of anurans in the southern Western Ghats (Vasudevan et al. 2006). For example, we documented a strong turnover of species from one river basin to another—at any given river basin there were only 30–40 species of anurans, even though we documented many more species across the Western Ghats.

This study was followed by studies on the diversity of anurans along the elevation gradient (Naniwadekar & Vasudevan 2007), and the impact of large dams on anuran community (Naniwadekar & Vasudevan 2014) in KMTR. Dr. Ajith Kumar was available for discussions and feedback on all these studies, and his mentoring played a pivotal role in building confidence of young researchers; these young researchers went on to establish successful careers in conservation biology.

Broad implications of this study for conservation of herpetofauna

The project was able to reveal for the first time, some fundamental knowledge about the species richness, abundance and distribution of

amphibians and reptiles in the Western Ghats. The distribution of both amphibians and reptiles in the Western Ghats is very irregular. Turnover in species composition from site to site arises from many factors, including the natural heterogeneity of the landscape resulting from steep topographical gradients, and human-induced fragmentation of otherwise continuous habitats. The combination of inherent heterogeneity and human induced fragmentation emphasises the necessity of landscape connectivity to facilitate species' movement and successful dispersal.

The patchy distribution of herpetofauna has important conservation implications. For example, protected areas in the Western Ghats need to enclose ecological gradients and continuous drainage systems. Conservation must also emphasise mature or old-growth rainforest fragments that are rare in the Western Ghats, and are of particular importance to arboreal reptiles.

Matrix habitats between forest fragments are also critical and in need of management and protection to facilitate movement of herpetofauna. This importance arises from the critical need of species with metapopulation structures to successfully disperse among habitat fragments by traveling through matrix habitats. Finally, it was proposed that conservation efforts should focus first on the largest patches that remain in the landscape, because sufficiently large forest patches support large, persistent populations (average birth rates exceed average death rates), thus providing potential colonists to smaller, neighbouring patches (Source-sink theory, Pulliam 1988).

Literature Cited

- Boulinier, T. et al. (1998). Estimating species richness: the importance of heterogeneity in species detectability. *Ecology* 79(3): 1018–1028
- Caughley, G. (1994). Directions in conservation biology. *Journal of Animal Ecology* 63(2): 215–244.
- Christman, M.C. (2000). A review of quadrat-based sampling of rare, geographically clustered, populations. *Journal of Agricultural, Biological, and Environmental Statistics* 5(2): 168–201.

- Coleman, B.D. (1981). On Random Placement and Species–Area Relations. *Mathematical Biosciences* 54: 3–4.
- Coleman, B.D. et al. (1982) Randomness, area, and species richness. *Ecology* 63: 1121–1133.
- Colwell, R.K. (1997). EstimateS: Statistical estimation of species richness and shared species from samples. Version 5: User's guide and application.
- Dahanukar, N. & S. Molur (2020). JoTT Checklist of Amphibians of the Western Ghats (v1.0), 01 January 2020.
- Ishwar, N.M. et al. (2001). Distribution of forest floor reptiles in the rainforest of Kalakad-Mundanthurai Tiger Reserve, south India. *Current Science* 80(3): 413–418.
- Lawton, J.H. et al. (1994). Population dynamic principles. *Philosophical Transactions: Biological Sciences* 344(1307): 61–68.
- MacArthur, R.H. & E.O. Wilson (1967). *The Theory of Island Biogeography*. Princeton University Press, Princeton, NJ.
- Magurran, A.E. (2004). *Measuring Biological Diversity*. Blackwell Publishing.
- Naniwadekar, R., & Vasudevan, K. (2007). Patterns in diversity of anurans along an elevational gradient in the Western Ghats, South India. *Journal of Biogeography* 34(5): 842–853.
- Naniwadekar, R., & Vasudevan, K. (2014). Impact of dams on riparian frog communities in the Southern Western Ghats, India. *Diversity* 6(3): 567–578.
- Noon, B.R. et al. (1999). *Population Viability Analysis: A Primer on its Principal Technical Concepts*. Elsevier Publishing.
- Noon, B.R. et al. (2006). Efficiency of adaptive cluster and random sampling in detection of terrestrial herpetofauna in a tropical rainforest. *Wildlife Society Bulletin* 34: 59–68.
- Pulliam, H.R. (1988). Sources, sinks, and population regulation, *American Naturalist* 132: 88–97.
- Rosenzweig, M.L. (1995). *Species diversity in space and time*. Cambridge University Press, Cambridge, UK.
- Simberloff, D. S. and Abel, L. G. (1976) Island biogeography theory and conservation practice. *Science*, 191, 283–286.
- Thompson, S.K. (1990). Adaptive cluster sampling. *Journal of the American Statistical Association* 85: 1050–1059.
- Thompson, S.K. (1991). Adaptive cluster sampling: designs with primary and secondary units. *Biometrics* 47: 1103–1115.
- Thompson, S.K. & G.A.F. Seber (1994). Detectability in conventional and adaptive sampling. *Biometrics* 50: 713–724.
- Thompson, S.K. & G.A.F. Seber (1996). *Adaptive sampling*. John Wiley and Sons, New York, USA.
- Twombly, S. & A. Hastings (2022). New theory for increasingly tangled banks. *Issues in Science and Technology* 38: 39–44.
- Vasudevan, K. & S.K. Dutta (2000). A new species of *Rhacophorus* Tschudi, 1838 (Amphibia: Anura: Rhacophoridae) from the Western Ghats, India. *Hamadryad* 25(1): 21–28.
- Vasudevan, K. et al. (2001). Structure and composition of rainforest floor amphibian communities in the Kalakad-Mundanthurai Tiger Reserve. *Current Science* 80(3): 406–412.
- Vasudevan, K. et al. (2006). Species turnover: the case of stream amphibians of rainforests in the Western Ghats, southern India. *Biodiversity Conservation* 15: 3515–3525.
- Vasudevan, K. et al. (2008). Density and diversity of forest floor anurans in the rain forests of southern Western Ghats, India. *Herpetologica* 64(2): 207–215.
- White, G.C. & K.P. Burnham (1999). Program MARK: survival estimation from populations of marked animals. *Bird Study* 46: S120–S138.
- Williams, B.K. et al. (2002). *Analysis and management of animal populations*. Academic, San Diego, California, USA.

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Dr Ajith Kumar: primatologist, educator, leader

This essay is a modified version of an article that first appeared in the Centre for Wildlife Studies' "Rewilding India" book celebrating 40 years since its inception.

Dr. Ajith Kumar's passion for primate wildlife biology ignited soon after his Master's degree in Zoology. He participated in a government survey from 1977 to 1980, aimed at assessing monkey populations in South India. There were reports that monkeys had been exported to Europe and the USA in the late 1950s, as a result of which, their populations had plummeted. In 1977, Prime Minister Morarji Desai was told that these monkeys were being used for military research, to test the effects of nuclear radiation. Dismayed by these reports, the Government of India launched a project to assess the population of monkeys nationwide. Dr. Kumar traveled to several hundred villages in Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu, to estimate urban and rural populations of monkeys. During this time, he developed an interest in the ecology and biology of Lion-tailed macaques (LTMs) that he studied as part of his doctoral research at Cambridge University (Box 1). In 1981, Dr. Kumar began his field research on LTMs at the Anamalai National Park in Tamil Nadu.

It was here, in the Anamalais in 1984, that Dr K. Ullas Karanth, tiger biologist and founder of the Centre for Wildlife Studies, first met Dr Ajith Kumar. Dr Karanth's visit was prompted by his own interest in the species. Earlier in 1978, the American biologist Steven Green suggested, after a survey, that there were practically no LTMs in Karnataka. But Dr. Karanth had observed LTMs in Karnataka before. The second time the two met was in March 1988, when Dr. Karanth was conducting a survey of LTMs in the Bhagamandala Range in Karnataka (Box 2). Contrary to Steven

Green's findings, Dr Karanth's surveys suggested that a significant population of LTMs, about 10,000, existed within Karnataka.

Despite the lack of email or phone, Dr. Kumar and Dr. Karanth maintained a connection and followed each other's work. After obtaining his Ph.D. degree, Dr. Kumar joined the Wildlife Institute of India (WII) in 1989. From 1992 to 2003, he worked at the Salim Ali Centre for Ornithology and Natural History (SACON) in Coimbatore. In August 2003, Dr. Karanth approached him asking if he would be interested in leading a Master's programme in Wildlife Biology. Dr. Karanth had planned a multidisciplinary course grounded in ecology and biology, and with subjects such as advanced statistics, needed for analysing field data.

In 2003, Dr. Ajith Kumar joined CWS, and WCS – India, with the specific task of launching

Box 1

I wondered why LTMs were so rare. So, I started looking at their life cycle, birth rates, survival rates, and food habits. (I found that) their population cannot increase very fast as they give birth only once in two and a half years. They also start giving birth late in life, around five to six years of age, compared to three years for other monkeys. I found that they primarily eat fruits, and need large areas to forage for fruits which are difficult to find throughout the year.

- Dr Ajith Kumar

MSc Wildlife students with Ullas Karanth, AJT Johnsingh, Ajith Kumar and other faculty.



Ajith Kumar, Ullas Karanth and other faculty with outgoing students of the second batch of the M.Sc. Wildlife Programme, 2008. © From the WhatsApp group, Ajith Kumar, In Memoriam.



Box 2

The local range officer in Bhagamandala did not take me seriously until Ullas arrived in his Gypsy. As we finished planning our survey, the Range Officer passed me a slip of paper gesticulating to pass it on to Ullas. In it was written ‘Sir, please, I want three more years in this range!’ Only then did I realize the influence that Ullas had in the bureaucracy then. In the evening at the forest rest house in Talakaveri, the same Range Officer arrived with a bottle of McDowell Premium whiskey which Ullas promptly declined. The next morning this officer informed his Forester in Mundrote over the wireless that Ullas Karanth and his friend were coming down to the forest, and that he should show them LTMs and a tiger! Ullas said the tiger was not needed! That day we saw one male LTM!

What Ullas and I share(d) is a deep interest in species ecology and biology, an important element in wildlife conservation. His work has improved the understanding of several species, such as the tiger. That is something I appreciate, being a biologist myself.

- Dr Ajith Kumar

the Master’s programme that Dr. Karanth had envisioned, and to direct the programme. An MoU had already been signed among the partners – CWS to fund, NCBS to host, NIAS to advise, and Manipal University (MAHE) as academic host. In December, they advertised the course and received many applications within a short period (Box 3). Dr. Ajith Kumar was first Director of the Master’s programme in Wildlife Biology and Conservation, initiated by Dr. K. Ullas Karanth and founded by CWS, and now run by the National Centre for Biological Sciences (NCBS).

The Master’s programme started in June 2004, selecting 15 passionate and stellar students. Their tuition was waived, thanks to funds raised by Dr. Karanth from the Wildlife Conservation Society, New York; he had also donated his \$200,000 J. Paul Getty Award received for Conservation Leadership. An academic committee was set up to design the course. Along with Dr. Kumar, the committee included several eminent scientists such as Dr. Karanth, Dr. Mahesh Rangarajan (now a Professor of Environmental Studies and History at Ashoka University), Dr. Anindya Sinha (professor at the National Institute of Advanced Studies), and Dr. Jagdish Krishnaswamy (now the Dean of the School of Environment and Sustainability at the Indian Institute of Human Settlements). They discussed the syllabus and structured the programme to offer multiple courses: courses included statistics, social science, environmental history, ecological history, mammalogy, vertebrate ecology, GIS and remote sensing, plant-animal interactions, ecosystem ecology, and science communication, among others.

The program was offered once every two years. It had a distinctive structure that set it apart from other universities and institutions in India. The course began with three semesters of coursework, and ended with a research project in the final semester. Research projects could be undertaken anywhere in India, with full funding provided. Students were required to submit and defend a project proposal in a public seminar. Each student

was assigned two or more advisors to guide their research. A distinguishing feature of this programme has been that more than 75% of the dissertation projects were published in high quality peer-reviewed journals.

As the programme gained repute, other institutions showed interest in supporting it (Box 3). The Tata Institute of Fundamental Research (TIFR) was affiliated with the programme in 2008, and supported it with fellowships. The Government of India's Department of Science and Technology, and the Tata Trust, supported it from 2014 to 2019. As of 2024, 135 students have graduated from the programme, and over 100 dissertations have been published in reputed journals. Dr. Kumar and Dr. Karanth jointly mentored students who studied unusual species such as goral, musk deer, and woodpeckers in remote locations. Many graduates of the Master's programme went on to do their Ph.D. and established themselves in premier research institutions such as NCBS, IISc, Krea University, and Ashoka University. Some joined conservation NGOs such as ATREE, Dakshin, International Snow Leopard Trust, NCF, The Habitats Trust, and Wildlife Conservation Trust.

In 2020, after a successful stint of 16 years, leading the program, Dr. Kumar stepped down as Director of the program.

Deepa Padmanabhan & Krithi K. Karanth, CEO
Centre for Wildlife Studies, Bangalore

Citation: Padmanabhan, D. & K.K. Karanth (2026).
Dr Ajith Kumar: primatologist, educator, leader. In *Zoo's Print* 41(8): 32–35.

Box 3

There was only one Master's programme in Wildlife Biology at that time offered by the Wildlife Institute of India (WII). But the WII faculty was in-house and they did not have expertise to teach certain subjects like environmental history or statistics. Because the structure was so interesting, it attracted faculty from CWS along with ATREE, Dakshin, IISc, NCF, NCBS, and WCS-India. Bangalore is very ideal that way because there are many institutes here.

This made it possible to run the programme with faculty from many different backgrounds, which is otherwise difficult in one single institution. When we started the Master's programme, there was no wildlife biology research at NCBS. The primary focus was molecular biology research. The programme became so well known that wildlife biologists started applying here for faculty positions. It (has) fostered a new generation of wildlife biologists with critical thinking skills, and a fundamental understanding of wildlife biology and ecology, and the implications of that for conservation.

- Dr. Ajith Kumar

In Memoriam: Dr Ajith Kumar (1952 - 2025)

This article is an edited reprint of an obituary that first appeared on the Wildlife Trust of India website, on this link: <https://www.wti.org.in/news/in-memoriam-dr-ajith-kumar-1952-2025/>

Dr. Ajith Kumar's contributions to conservation in India have left an indelible mark on the field. A mentor, researcher, and educator, Dr. Kumar dedicated his life to the study and protection of India's rich biodiversity, inspiring generations of conservationists to follow in his footsteps.

Dr. Kumar's career spanned over four decades, beginning with his pioneering research on the Lion-tailed macaque in the Western Ghats. His work highlighted the critical importance of preserving large, contiguous forest landscapes for the survival of this endangered primate. His contributions extended far beyond primatology, encompassing rainforest ecology, small carnivore studies, and habitat conservation across India.

As a respected scientist, Dr. Kumar played a pivotal role in capacity building for wildlife conservation in India. He led the Master's Programme in Wildlife Biology and Conservation at the National Centre for Biological Sciences (NCBS), where he mentored and trained numerous students who have gone on to



Ajith planting a *Cullenia exarillata* sapling in the Anamalais. © Divya Mudappa & Shankar Raman.

shape conservation efforts nationwide. His emphasis on rigorous scientific research, combined with a deep passion for the natural world, made him a guiding light for aspiring ecologists and conservationists.

Dr. Ajith Kumar's passing is an immense loss to the conservation community. His wisdom, humility, and unwavering commitment to wildlife protection will continue to inspire those striving to safeguard India's natural heritage. His legacy in wildlife conservation will continue to inspire and guide all who were fortunate enough to know him and work with him.

Ajith at the first edition of the Indian Wildlife Ecology Conference (IWECC), 2024. © G. Umapathy



Ajith was an exceptional wildlife ecologist and teacher who led an exemplary life in the field, walking forests and hiking mountains with his students. He passed away like he lived, with his boots on. What I would like to remember of Ajith is a kind man who shared all he had with those around him; his innate wisdom, his explosive laughter, his gentle ribbing, his love of good food and drink. And between bouts of all that, a fierce passion for science and a yearning to explore all that nature has yet to reveal to us.

- Vivek Menon,
Founder and Executive Director

After his seminal work on the Lion-tailed macaque and a Ph.D. from Cambridge, Ajith joined the Wildlife Institute of India (WII) and brought attention to the conservation of the Western Ghats, rainforests, and primates. He was instrumental in introducing computer technology at WII and establishing its computer lab. His planning also contributed to the development of WII's library. Ajith played a major role in bridging the gap between wildlife biologists, researchers, and managers, a role he continued in his later work at SACON in Coimbatore.

- Prof. B. C. Choudhury, Senior
Advisor – Aquatic Realm

Teacher—this word embodied Dr. Ajith Kumar in every sense. It didn't matter if he taught you personally or where you were from; he was always there with his wisdom, knowledge and humour. He was there for me during one of the toughest times in my life and supported me, pushing me to be where I am, without judgment, even when we hadn't spoken in years. Always helpful and supportive, I never heard the word 'no' from him... he will be missed more than words can describe.

**- Dr Bindu Raghavan
Head—Wild Rescue**

I feel incredibly fortunate to have known Dr. Ajith for over 25 years. He was not only a dear senior and mentor but also a hard taskmaster but always available with his knowledge, encouragement, loads of humour and rum. Never missing an opportunity to bring smiles with his clever puns, Dr. Ajith will be deeply missed by all.

**- Dr N M Ishwar
Executive Director, The Nature
Conservancy--India (previously,
Sr. Director & Chief Development
Wildlife Trust of India)**

Wildlife Trust of India

F-13, Sector 8, National Capital Region (NCR)
Noida 20130

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Ajith: the go-to person

I first met Ajith on my second day at Zoo Outreach Organisation (Zooreach). Sally Walker, the founder of Zooreach, and I, were visiting the Salim Ali Centre for Ornithology and Natural History (SACON) campus, then a rented office in Kalampalayam. We were on a two-day visit to work on the Red Data Book for the Birds of India. We were greeted by Ajith's typical caterpillar upper-lipped smile and I, a greenhorn in wildlife and conservation, felt immediately welcomed and comfortable. The combination of Ajith Kumar and Ravi Sankaran (another stalwart of the discipline), were highlights of my first foray into wildlife biology and conservation.

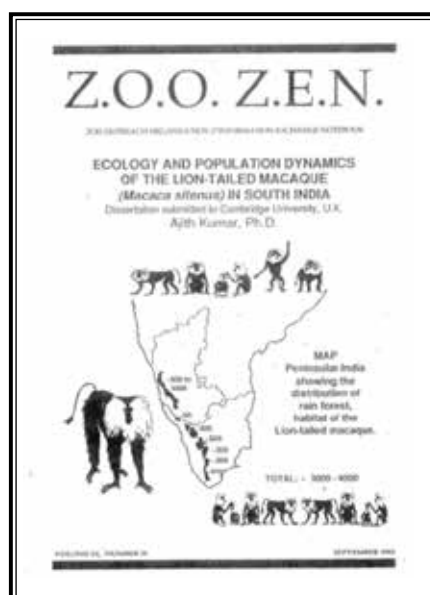
Three months in, I had another opportunity to spend time with Ajith. It was at a workshop on the Population and Habitat Viability Analysis (PHVA) of Lion-tailed macaques (LTMs) *Macaca silenus*. Zooreach had organised this workshop in collaboration with Arignar Anna Zoo in Chennai, the Central Zoo Authority, and scientists and conservationists from various institutions, at Vandalur in Chennai, in October of 1993. At the workshop, I was stuck with the working group that compiled demographic information, patterns in reproduction and migration, and threats to LTMs.



Ajith Kumar with Mewa Singh and Rauf Ali at the South Asian Primate CAMP workshop in Coimbatore in 2002.

Ajith was the go-to person for this information: he had completed his PhD on the topic and had published his thesis in an issue of ZOO ZEN, a monthly technical compilation of Zooreach. Ajith's thesis on LTMs, and his personal observations of LTMs, in particular, were tremendously important for the working group to model overall and subpopulation-level extinction probabilities (on Vortex software) as a response to ongoing threats to the species. Ajith's contribution to the breeding biology of wild LTMs (along with forester Mangalraj Johnson), and knowledge of captive breeding of the species by Don Lindburg and team from the San Diego Zoo in USA, were instrumental in strategising the first coordinated captive breeding program for LTMs in India. The proposal was to repatriate viable captive individuals from member institutions of the Association of Zoos and Aquariums in the USA to facilities in India. What happened (or not!) subsequently is another story, but I was very influenced by Ajith's contributions in the workshop. The outcome of the workshop was published as a report in 1994.

The cover of the September 1993 issue of ZOO ZEN published by Zooreach with Ajith's PhD Dissertation.





The first CAMP workshop with the BCPP in Kukrail on Himalayan medicinal plants.

After the PHVA workshop, a few of us participants had the opportunity to visit Valparai plateau and its various rainforest fragments in the southern Western Ghats with Ajith. We were in search of those elusive primates hiding high up in the canopy. It was magical to be amidst a 40+ strong troop of LTMs at Puduthottam Estate. In the relatively dense canopy of native shade trees in the coffee estate, many of the LTMs sat just above us; they were occasionally visited by Great Indian Hornbills *Buceros bicornis* and Malabar Giant Squirrels *Ratufa indica*. All through our visit, we were regaled by various stories from the field by Ajith. This visit fills me with solastalgia each time I visit Valparai now and see LTMs in Puduthottam, their population burgeoning and overflowing in a highly degraded habitat.

Ajith was a big fan of what Zooreach used to do, especially its use of new tools and processes introduced in the India chapter of what was then the Captive Breeding Specialist Group (now called Conservation Planning Specialist Group) of the International Union for Conservation of Nature (IUCN)'s Species Survival Commission. By 1996, we had conducted six PHVAs for single species action planning, and three Conservation Assessment and Management Plan (CAMP) workshops to assess multiple species as per the IUCN Red List.

One morning in August 1996, Ajith dropped by our office and asked Sally and me if there was any way to prioritise species for conservation. He went on to introduce us to the planned national undertaking called the Biodiversity Conservation Prioritization Project for which different organizations were given the responsibility to look at ecological, social, and species attributes.

Ajith, through his association with SACON and with him, being a "species" person, was given the responsibility of species prioritisation. He knew Zooreach had done species assessments before, and had approached us for help with the effort. Sally and I were ecstatic to hear this; we had



Ajith delivering the welcome address to the participants of the Indian amphibian assessments at Utkal University in Bhubaneswar in 1993.

assessed the IUCN status of 100 medicinal plants in three workshops. We presented the entire CAMP process to Ajith, and he was excited.

He jumped at this opportunity for collaboration between our organizations. Later, in October 1996, Sally and I presented our prioritisation process to a gathering of decision makers at World Wide Fund for Nature (WWF). Our conservation prioritisation process was adopted. Ajith, Sally, and I spent a lot of time together, planning the various workshops, putting together experts and compiling checklists. We eventually conducted seven workshops, one workshop almost every month, from January to October, 1997. The output from these species prioritisation exercises was the first to be compiled and published as part of the Biodiversity Conservation Prioritization Project.

It was a proud moment for us all. Of course, it was also interesting to see the way Ajith handled various bureaucratic hurdles, financial hiccups, and other red tape that marred the entire process. He made it easy and smooth for Sally and me to work through the workshop processes; there were no glitches and we marched through the various assessments.

I used to visit Ajith at his home in Kovaipudur, now in the outskirts of Coimbatore. It was usually in the evenings, several of his colleagues would be there, and the atmosphere was quite jolly, raucous, and highly spirited. Those insightful and shoulder-jerking laughter sessions were typical for any such meeting with Ajith, irrespective of location and situation. Be it CAMP workshops across the country, or Gangtok during Ajith's work on small mammals of the eastern Himalaya, or primate assessments in Coimbatore, Phnom Penh, and Singapore, or in Bangalore after lectures to postgraduates on IUCN Red List trainings and small mammal field techniques: I had several opportunities to spend memorable times with him.

A silent bow.

Sanjay Molur

Executive Director, Zoo Outreach Organisation

Citation: Molur, S. (2026). Ajith: the go-to person. In *Zoo's Print* 41(8): 39–41.

Hail to Thee, Blithe Spirit! To Our Very Own Skylark

As we sit down to pen a few thoughts about a unique individual, our dear friend, colleague, collaborator, and mentor—the one and only Ajith Kumar—Percy Bysshe Shelley's *To a Skylark* rings loudly in the skies within us. Has there ever been such a truly spirited and joyful, yet so remarkably unassuming, presence, as Ajith was, in our lives, one whose song was so full of life and light, we wonder?

One of us, Jagdish, first met Ajith in the summer of 1982 in the Forest Department office in Palakkad, Kerala, when I was a schoolboy from Delhi, going to Silent Valley during a summer break and seeking a permit for research. The allure of the lion-tailed macaque and the rainforests brought us together in that chance meeting. Although we

only met again in 2000 – I have had the privilege of becoming, since 2004, a colleague and close friend of his. Fate would have it that I was also with him on that last field trip in Pachmarhi with students and fellow ecologists, when Ajith left us on his solitary walk into his beloved forests, sadly for the last time.

I, Anindya, first met Ajith a decade later, on a warm afternoon, possibly in July 1992, at the Centre for Ecological Sciences in what was then a much quieter Bangalore. I was a fresh doctorate in molecular biology from Bombay, dreaming of being a primatologist – and who could be a more ideal individual to meet and have an inspiring conversation with, than Ajith? We spoke at great length—across that day over many cups of coffee



Ajith and Rana with the first batch of the M.Sc. programme, at the Republic Day celebrations in NCBS, 2005. © 1st Batch of the NCBS MSc Programme.

and across many years over chilled glasses of rum and coke—and over time, we became kindred spirits, he, of course, a rainforest macaque while I remained a more urbane macaque of the city.

We now realise, looking back, that although both of us first met Ajith under rather different circumstances, recognising that he was possibly the right individual to address our varying requirements, he subsequently transcended all imagined barriers and soon became a close friend, with whom we both wanted to work on our respective research programmes.

And as it had been with us, his colleagues, Ajith was always able to establish, in his own unique

style, a deep rapport with his students—not only those who came to work with him for their doctoral degree but also those in every cohort of the Postgraduate Program in Wildlife Biology and Conservation at the National Centre for Biological Sciences in Bengaluru, which he helped set up and guide over many long years. While on the one hand, he emphasised informality and familiarity with each of them, he also kept a formal distance from them at just the adequate levels.

To cite an example, most students would profusely acknowledge the contributions that Ajith, their close ‘friend’, had made to their work, in their acknowledgements but they would always refer to him as ‘Ajith Sir’ – and we know for a fact that Ajith quietly approved of this title!

Interestingly, these unique relationships were not based on a model that most of us, other faculty, could pull off without stumbling and faltering, but Ajith managed to achieve this balancing act rather casually, perhaps because of one other quality that he had: his ability to size up individuals effectively within a brief period of time, through the keen and observant lens of an adept and insightful primatologist that he truly was. This high-performing radar for emotional intelligence gave him adequate signals and information for interventions and conversations that invariably focused on the individual student, whoever they would be, and allowed both compatriots to build up mutual trust and understanding that lasted over years and often withstood difficult tests of time.

However, Ajith’s approach to interactions with students came at a price. He often ended up spending an enormous amount of his time with students and their issues, and that reduced the time he had, to pursue his own personal and professional goals. Not many senior faculty and academics would risk diminishing their individual academic and research contributions the way Ajith did. But, in return, he invested deeply in the legacy of his students and their careers, keeping in touch with them throughout their lives, a friend and mentor they could always depend on. The



Ajith and his troop. © Dipti Humraskar.

collective wellbeing of his students and his fellow faculty thus triumphed over his own academic aspirations – and he never seemed to think twice about this. Ajith, in fact, saw the entire set of field ecologists across India as members of his ‘troop’ and he would always justify why he never lost his faith even in a single one of them. He would strive incessantly to discover and know the work of his students and associates, and find ways to publicise their achievements widely. It is, therefore, no surprise that Ajith founded the IWECC or the Indian Wildlife Ecology Conference—which he had been struggling to establish for years on end—and this became one of his last contributions to maintain and nurture his pan-India troop: the all-inclusive community of wildlife biologists of his beloved India.

At a more personal level, there were, of course, occasionally some odd members of Ajith’s troop, who would not speak to each other for various reasons, but Ajith could, remarkably, get along wonderfully well with virtually all of them. And he would never ever take sides or even more admiringly, never have a harsh word for anyone. He would always justify to himself and to those around him why the actions of certain others—even if criticised from various quarters—could be defended and, in his opinion, rightfully so. He was simply a good man, with the quality that the writer Somerset Maugham would term the rarest of all: “...niceness, sheer niceness”.

Another attribute of Ajith’s was his commendable ability to engage with diverse colleagues and collaborators over long periods of time, blurring the boundaries between friendship, companionship, and the professional. He would keep in touch with all of them, communicating with them as much as he could, raising a glass or two whenever he could, helped to no less extent by his penchant for travel all over the country and occasionally, across other parts of the world. The varying degrees of professional success of his colleagues, and sometimes, even projects or research that would be considered ‘failures’ by other academics, would be met with Ajith’s

empathy and respect. His personal time with colleagues and collaborators—often peppered by Malayali fish curry, which he loved to cook and feed, washed down by rum, of course—was unhesitatingly treasured by us all.

Ajith, as could be guessed by now, was rooted very deeply in his native Malayalam culture, literature, cuisine, and the general sensibilities of Kerala, sometimes much, as far as we could make out, to the envy of those, who were not necessarily rooted anywhere, despite accomplishments in their research endeavours. Enviably, he followed few dietary restrictions, and was adventurous in experimenting and appreciating varied cuisines from across the country. Ajith’s much loved habit of breaking local bread and imbibing indigenous wine with people, irrespective of their status, from diverse regions, won over many hearts and minds. Ajith was also a pragmatic and, in a sense, a frugal gourmand – he did not necessarily care much for fine food, for he had a sense that it took quite a bit of resources and time to prepare such items, and those resources were often out of reach of the proletariat, with whom he closely identified with.

Ajith loved the rainforests as an ecosystem from the depths of his soul, and his beloved lion-tailed macaques could do no wrong, for they were the epitome of all rainforest beings. His attitude towards other ecosystems, especially those subject to human influences and anthropogenic change—and this undoubtedly included some of his long-known lion-tailed macaque groups of Valparai—were sometimes uncharitable, but always in a mischievous and humorous manner, accompanied by his typically fragmented chuckles, interrupted by sharp intakes of breath. He called those ecosystems “screwed up”, much to the discomfiture and mild embarrassment of his students and fellow faculty, whose focus of work was—unfortunately enough, in Ajith’s eyes—these modified ecosystems. And yet his encouragement for their work, and their mutual respect for one another, were never impacted. On the practice of research, especially that conducted in the forests that he loved so much, Ajith was unsparing in his

critique, if the quantity and depth of fieldwork were not up to his standards. He even frowned upon the embellishment of data, using GIS and other approaches, as a way to make up for inadequate time spent on primary data collection.

Looking back, we remember fondly how Ajith would often say to us that academics and scientists would either be remembered for their notable published work, which would nevertheless soon be replaced by new work done by others, or by the students they would have nurtured and mentored over their lifetime. Without any doubt, he chose the living legacy. And that legacy continues to live brightly amongst the many students—and friends like us—he mentored tirelessly, but effortlessly, and who now shine in their own ways, a quiet reflection of all that Ajith gave off to us so liberally, often at some cost to himself.

Each of us felt seen by Ajith. And that is precisely why we miss him, and always will, so deeply.

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Dr. Ajith Kumar: an otter amongst primates

This essay, sans the box items, first appeared in Current Conservation Magazine, March 2025 issue
<https://www.currentconservation.org/dr-ajith-kumar-an-otter-among-primates/>

When Dr. Ajith Kumar passed away on March 1, 2025 on a field trip, it shook the world of Indian wildlife biology. Soon after, a WhatsApp group would form with hundreds of students, colleagues and well-wishers. A couple of days after, a message on the WhatsApp group for his memorial enquired about his cat. But Malli would be fine because she inhabited many homes. Much like his beloved cat, Ajith had many institutional homes, and each one thought he belonged to them. Ajith had a special place in everyone's life.

Many encomiums have and will be written, as they should be. Ajith was an extraordinary person, in the true sense of that word. He was a passionate primatologist and exceptional wildlife biologist, but so are many others. He had an unquenchable thirst for travel to India's wildest places, but he shared that with his brethren. He was a fine scientist, but he was not alone in that. He was a kind mentor and colleague, but some others are too.

Ajith was more than all that. His endless charm, the constant wit, an almost inexplicable calm in the face of all the slings and arrows of life such as it is, endeared him to just about everyone he encountered. To his academic colleagues, government officials, forest officers, students; to his own mentors, his peers, the next generation, the one after that, the list goes on and on. In a community where success is measured by individual brilliance, Ajith was the finest of collaborators. In an ecosystem where conservationists hold vitriolic, polarised opinions, Ajith walked the tightrope with ease, as if it were a

stroll in his favourite forest. In a field where conflict is common, Ajith was unflappable. In a world where pettiness is all too common, Ajith was generous to a fault with his boundless enthusiasm. With his stories, his ideas, with his affection.

Ajith began his research career in 1974 following a master's degree in Zoology from the University of Kerala. As a research fellow with the Zoological Survey of India in the late 1970s, his academic journey started with the enigmatic lion-tailed macaque (*Macaca silenus*) in the forests of the Western Ghats. In 1987, he went on to complete a doctoral degree, the first on the species, from Cambridge, under the guidance of Prof. David Chivers. Following his return, Ajith went on to teach and guide research at India's premier wildlife



Ajith at Cancona beach, Goa, 2007. © Second batch of MSc students.



Ajith and Malli at his home. © Priyanjana Pramanik.

institutions such as the Wildlife Institute of India (WII) and the Salim Ali Centre for Ornithology and Natural History (SACON). During this period, he led several research projects not only related to primatology but also dealing with rainforest ecology and fragmentation, species diversity and small mammal ecology and conservation. He guided several students during this period and many of them have continued his legacy, becoming experts in their own right.

In 2004, with the Wildlife Conservation Society, the Centre for Wildlife Studies and other like-minded institutions, Ajith established the Master's Program in Wildlife Biology and Conservation at the National Centre for Biological Sciences (Bangalore). With over 10 batches of students from different parts of India and beyond, this programme is currently one of the most sought after and productive enterprises in the Indian conservation sphere. During these years, Ajith also served as an advisor and mentor to many wildlife and conservation organisations in India. In 2024, fulfilling a long-held dream, Ajith conceptualized

and convened the Indian Wildlife Ecology Conference (IWECC) which witnessed wide participation from researchers all over the country. Both the Master's course at the NCBS as well as the IWECC conference will continue to benefit from his legacy and vision.

To have your (strong) points of view, and yet accommodate a diversity of others, in fact to embrace them, is a very special skill. Ajith was thus uniquely positioned to be the founding director of his Master's programme which he led and advised for 20 years. He also brought that particular flavour to the many faculty positions and advisory roles he held in institutions across the country in his professional career.

Above all this, he was the teller of tales, a purveyor of odd ideas, a connoisseur of cheap rum, a fine fryer of fish (!) and an irresistible wave of merriment. He often said that he wanted to be reborn as an otter. Their love of water, their fondness for fish, some things about their social structure perhaps, resonated with him. Words will fail to capture all that was Ajith, his ineffable aura.

Ajith Kumar may have passed away, but he will live long in all our memories. What better tribute can we pay than to try to be just that little bit more like him.

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Kartik Shanker

Many of Ajith Kumar's students and friends remember the exact moment that he became part of their life. But when I look back on the 1990s when we became acquainted, he just seemed to have been part of my journey throughout. The fragmentation project of the Wildlife Institute of India, Dehradun, which was largely conceived by him, was eerily similar to my PhD, except that their project spanned many landscapes (and researchers), whereas mine was confined to the Upper Nilgiris (and my field staff). Both were based on the theory of island biogeography: where their project looked at both natural and anthropogenic fragments, mine focussed entirely on shola-grassland montane ecosystems. Both involved amphibians, reptiles and small mammals. With all these ingredients, no wonder we discussed the project with great excitement every time we met. Fittingly, he was my thesis examiner – there was red ink before and beverages afterwards.

Many years later, Ajith Kumar and I ran the Indo-US Knowledge Initiative project together in collaboration with Dr. Barry Noon of the Colorado State University in Fort Collins, USA. The project was based on knowledge exchange and capacity building and largely involved workshops, training and faculty visits to encourage collaborations. While many projects and partnerships were seeded through this programme, it had little for us personally in terms of research or collaboration. But Ajith Kumar and Barry Noon both believed that this was worth far more than many of the other things we did as scientists. They were both amazing role models for a community that otherwise privileges individual success over collective benefit.

Over the years, Ajith supported innumerable initiatives that I was involved in. He persuaded the National Centre for Biological Sciences (NCBS) to support the magazine, Current Conservation, during its early years, specifically for it to be sent to Forest Departments and educational institutions around the country. He was one of the early editors of Conservation and Society and a huge source of support during its transformation into a globally recognised journal. He was a staunch supporter of NCBS's support for the field station, Andaman and Nicobar Environment Team (ANET). I could go on. Ajith's capacity for supporting ideas, projects and people was limitless – not only was he enthusiastic about things that he found exciting himself, but he could be energised by your passion. And that is rare and priceless.

Meera Anna Oommen

Many years apart from each other, Ajith and I studied at the same college in Kerala, a unique institution not particularly known for its academic prowess, but for its energetic student body which had a dubious reputation for taking up cudgels against the state government. During our first meeting at the Wildlife Institute of India (WII), we bonded fondly over common memories of these misdemeanours - demonstrations at the Trivandrum Secretariat, stone-throwing, and the occasional arson attempt on public property, promptly followed by being lathi charged, tear gassed and pursued by the police, and eventually taking refuge in the Indian Coffee House, which served as a safe haven. We barely remembered the causes we fought for, but just that there was a distinct attraction to the politics of EMS Namboodiripad, who was a defining figure during both our tenures as students.

Some years later, Ajith was a PI of the fragmentation project at the WII where I joined as a researcher on the Himalayan biodiversity project. As both were funded by some surplus funds from the PL 480 scheme, the US Fish and Wildlife Service was a partner on both projects. Ajith was a sounding board for us researchers, and with his Co-PIs Barry Noon and Ravi Chellam, we had a great many discussions, and the meetings and mid-term assessments were merry events because of these three individuals. We learnt a lot in the process, not just about research, but life in general.

Ajith, Kartik (Shanker) and I moved to Bangalore around the same time. Ajith was setting up the Master's programme at NCBS and the initial phase was very exciting as he designed the course with his old accomplices such as Barry Noon and Jack Frazier. Since we lived in the same apartment complex, he was also roped into child care duties that he performed with great ease. Some years later, he got his pound of flesh as I had to reciprocate by teaching environmental history to the NCBS students. Ajith was also one of the first advisory board members of Dakshin Foundation, the NGO that we started, and he continued to support us all through the years.

Our last unfulfilled project was to make sausages out of wild boar in Kerala. Although our views on many issues differed considerably, we discussed the possibility of developing a circular economy model involving the sustainable use of wild pigs involved in conflict. Ajith was greatly excited by the possibility that this would be a locally acceptable solution in the Central Travancore landscape, a place where both he and I originally hailed from. Alas it was not to be, but time will tell.

Ten lessons from observing Dr Ajith Kumar

“Are you *sure* you want to collect monkey poop?” was the only question Ajith asked me in my interview, conducted over a phone call. My answer was an enthusiastic “Yes”, and that is how I spent a year working with Dr Ajith Kumar in Valparai, Tamil Nadu.

I was twenty years old and after completing my undergraduate studies in zoology, I decided to take a year off to intern on a field project. I wanted to have a realistic sense of what conservation research entailed, and see if it was a direction I wanted to pursue seriously. At the time, Ajith was a principal scientist at the Salim Ali Centre for Ornithology and Natural History in Coimbatore, and one of the goals of his Valparai project was to study the hormonal cycles of female lion-tailed macaques *Macaca silenus*. I had to follow a large troop of these macaques all day around the Puduthottam area, learn to identify individuals (especially adult females), and carefully collect fecal samples over their oestrus cycles.

The fieldwork was absorbing because it tested -- and extended -- my physical and emotional stamina. But intellectually, I was bored stiff after two months. He responded to my confession with his characteristic throaty chuckle and I continued to work with him for a year, learning about a range of topics from chi-square tests to the best way to eat *kappa*. We stayed in touch for over two decades, but sporadically so because, on a few occasions, we profoundly disagreed over some professional matters. Nevertheless, I first met Ajith when I was at an impressionable age, and his approach to research and teaching greatly enriched my perspective. Here are ten assorted lessons I learned from watching Ajith although I do not claim to meet his standards:

Read widely and regularly

Ajith read a wide range of books with interest and appreciation, from Somerset Maugham’s *Far Eastern Tales* to Thomas Struhsaker’s *Ecology of an African Rain Forest*. Every time he came to



Ajith Kumar with students in northeast India, looking up at Pig-tailed macaques. © Conservation Initiatives.

the Valparai field station, he would bring along printouts of research papers he was reading, or a new book on ecology, and urge me to read them too – there would be sheaves of papers floating all over the place because he never remembered to staple the printouts together. His faded photocopied version of Seigel and Castellan’s textbook introduced me to non-parametric statistics (and he would explain clearly *why* I had to use one test and not the other in a particular case).

Sit with your questions

I understood only a fraction of what I read and Ajith would patiently listen to all my questions but respond to only some. As a teacher now, I recognise that it is important to *not* answer every question a student has. I understand the pedagogical value of his giving me space to search for some answers on my own: it taught me to enjoy the process for its own sake, and cope with the possibility of being on the wrong track altogether.

Laugh at yourself

Ajith often shared anecdotes about his own mistakes. One of his favourite stories was about how he thoroughly misunderstood an invitation when he was a doctoral student in the University of Cambridge and, somehow, ended up running a marathon while wearing a hot woollen sweater. It was inspiring to see someone that accomplished accept they had less-than-stellar moments and find humour in them.

Make room for mistakes

Ajith would often reassure me that it was alright to make mistakes or to fail at some data collection target we had set out to achieve, but he was very particular that I reported everything honestly. “Zero is also a data point” he would remind me. That nudged me to be a little braver than I might otherwise have been; I still repeat that line to myself and my students when we take a misstep or when a line of inquiry fails.



Ajith Kumar, looking up, Valparai. © Divya Mudappa & Shankar Raman.

Argue with logic, not seniority

I sometimes contested Ajith’s views on research, or had trouble accepting a perspective I had read about in one of his books. He used to respond each time with logic or his reasons for subscribing to that point of view – I never heard him draw on his age or seniority to close a discussion. It was an impressive demonstration of communicative rationality.

Engage with people

I saw Ajith chat with checkpoint guards, tea shop owners, colleagues, retired field assistants and doctoral students with the same level of courtesy. He was also quick to encourage anyone who showed an interest in higher education. I learnt much later that he had studied in a Malayalam-medium government school but eventually taught himself English in college. However, his spellings and grammar were so sound that several colleagues, including another of my mentors Ravi Sankaran, used to send him their manuscripts to review their use of both statistics and infinitives. This approachability also explains why Ajith had so many collaborative projects regardless of which institution he was affiliated with.

Get your design right

Once he became reconciled to the fact that I was not really interested in ‘looking up’ i.e. primatology and was instead keen on ‘looking down’ i.e. herpetology, he spent many evenings on the verandah of the Valparai field station telling me about research designs that people had used to study various elusive species and the challenges they had faced. His main point was that a researcher should think of a design that suited the natural history of the species as well as the more formal requirements of sampling and analyses. It was a valuable course on how to think in an integrated manner.

Understand your field site

Ajith had a deep, interdisciplinary understanding of the field site, well beyond the boundaries of his own research. He would recommend C.R.T. Congreve’s historical account *The Anamallais* to every researcher who came to work in Valparai and was a fantastic field botanist. He also knew about the socioeconomic status of different communities in the area, could rattle off literacy and employment rates, and loved to tell a series of darkly funny stories about the prevalence of mental health problems in the plateau.

Keep your notes

Ajith always carried palm-sized hardbound notebooks with him for jotting down various observations. He was evangelical about maintaining field journals, and *keeping* them to look back and learn from. That I still have my field botany notes from Valparai, 25 years later, is a testament to his influence.

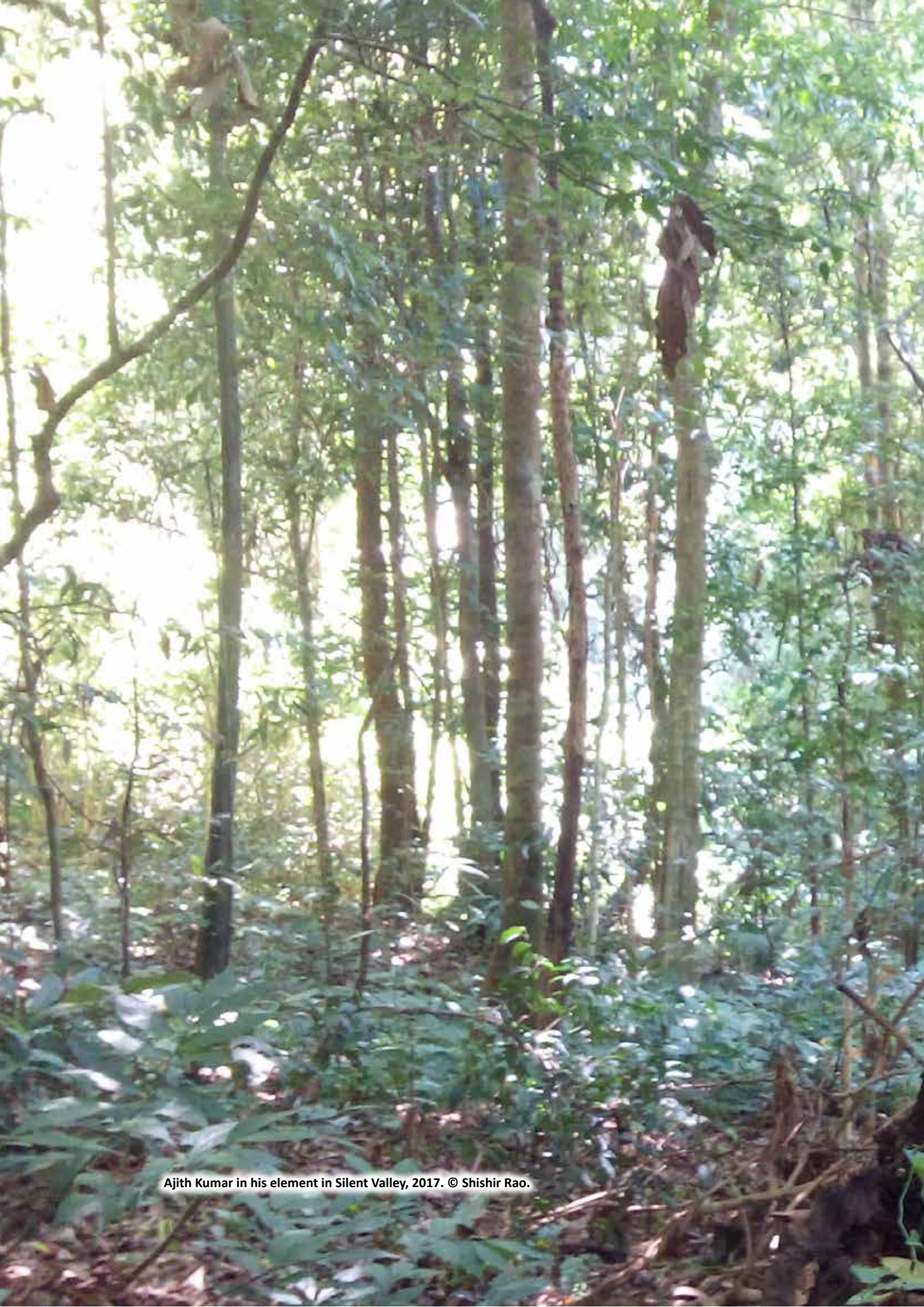
Make a subject relatable

I once expressed appreciation for his enthusiasm to teach. He chuckled and said “Mini [his wife] recently banned me from teaching Ammu [his daughter] history”. When asked why, he confessed that on drives with his daughter, he had been pointing out detergent advertisements painted on boulders along the highways (Rin? Or was it Regal?) and telling her that those were Ashokan edicts because she found history a dull subject.

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Ajith Kumar in his element in Silent Valley, 2017. © Shishir Rao.



The Nursery We Thought We Knew

Our native plant nursery had never seemed ordinary. As the saplings grew, they drew in butterflies, dragonflies, bees and birds, each adding a little more life to the space. Sunbirds regularly visited the flowers, bulbuls moved through the shrubs, and tailorbirds were familiar residents. Their presence had become so much a part of the nursery that we rarely paused to think about it. We believed we knew the place well.

It turned out we didn't.

One morning, as we walked through the nursery, a chorus of sharp alarm calls broke the usual rhythm of birdsong. Curious, we stopped to look more closely. Hidden among the foliage were three recently fledged tailorbirds accompanied by two adults, presumably their parents. Without realising it, we had wandered into the middle of a family trying to keep a watchful eye on us.

The adults continued calling from nearby branches while one of the fledglings fluttered onto a perch surprisingly close to where we stood. Whether it was confused, frightened or simply uncertain of where to go next, we could only guess. It remained there for several moments, answering the persistent calls of the adults.



Photo and video. © Priyanka Iyer.

For the first time, we were able to observe a recently fledged tailorbird from only a few feet away. Its plumage still carried the softness, and its tail was so short that it was almost unnoticeable - a gentle reminder that this tiny bird had only recently left the nest and was still taking its first steps into an unfamiliar world.

As our attention remained fixed on the fledgling, another detail slowly revealed itself.

What appeared to be a leaf hanging from the very same branch suddenly shifted. It was not a leaf at all, but a remarkably well-camouflaged praying mantis. Perfectly blended into the surrounding foliage, it had remained invisible until that moment.

Without warning, the mantis thrust its raptorial forelegs towards the young bird. The strike missed the fledgling's head by what seemed no more than a hair's breadth. Another attempt followed, and then another, each falling short.

Whether the mantis was attempting to capture the fledgling or simply reacting defensively to an unexpected visitor on its perch is impossible to know from such a brief encounter. Before either possibility could unfold further, the fledgling suddenly took flight, disappearing towards the waiting adults whose alarm calls echoed through the nursery.

Within moments, calm returned.

The entire encounter lasted only a short while, yet it revealed a side of the nursery we had never truly appreciated. We had entered thinking about plants. We left thinking about relationships- between native plants and the creatures they support, between parents and their young, between camouflage and vigilance, between predator and prey.

Native plant nurseries are often celebrated for attracting wildlife. Yet perhaps their greater achievement lies in something deeper. They become places where life does more than simply exist; it begins to interact. Birds find shelter, insects find food and refuge, predators find opportunities, and countless stories unfold beyond our notice every single day.

That morning reminded us that our nursery was no longer just a place where native plants were being grown. Quietly, season by season, it had become part of a living ecosystem.

The nursery we thought we knew had been full of these stories all along.

We had simply taken the time to notice.



Sidharthan

LivelyWaters!, Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India.

Citation: Sidharthan (2026). The Nursery We Thought We Knew. In *Zoo's Print* 41(8): 55–56.

In My Own Words

“Where has this Sidharthan been all this time?”

It was a casual remark at the end of a teacher training workshop in Kerala. A few others smiled and nodded in agreement. They had seen someone they hadn’t expected—someone constantly interacting with participants, answering questions, sharing stories, and moving effortlessly through discussions.

I smiled too. But the comment stayed with me. Anyone who has worked with me at Zoo Outreach Organisation would probably describe me as quiet. Not withdrawn or hesitant, but someone who prefers to observe before speaking. I speak when there is something to say, especially when work demands it, but I have never been the most talkative person in the room. Over time, that quietness had

become almost a part of how my colleagues knew me.

The workshop itself was part of the Save Denise and Friends campaign on freshwater conservation, and brought together teachers from Kerala’s National Green Corps programme.

Our educator, Payal Molur, led the sessions. Since she does not speak Malayalam, I naturally found myself interacting more with the participants.

At least, that was my role on paper.

What unfolded throughout the workshop felt less like translation and more like conversation. Questions led to discussions. Discussions turned into stories, and stories often ended with



© Neenu Purushothaman

shared laughter. I found myself explaining ideas, exchanging experiences, and engaging with the teachers in a way that felt completely natural.

It was only afterwards, when my colleagues remarked that they had discovered “another Sidharthan”, that I began to think about what had actually happened.

Was it the educator in me finally finding the right opportunity? Was it the confidence that had quietly grown through months of conservation training and field experience? Or was it simply the comfort of speaking in my mother tongue?

Perhaps it was all of these.

We often think of language as something we either know or do not know. If we are fluent in a language, we assume communication should come naturally. But fluency and naturalness are not always the same. A language we learn can become familiar, even comfortable. A mother tongue is different. It is not merely learned; it is acquired. Long before we understand grammar or vocabulary, it becomes intertwined with our thoughts, emotions, humour, and memories.

Perhaps that is why speaking in our mother tongue often feels less like translating ideas and more like allowing them to flow.

Working in a multilingual organisation has taught me the importance of communicating across languages and cultures. Every language opens a door to new people and new perspectives. Yet this experience reminded me that our mother tongue opens a different kind

of door. It allows us to communicate with a spontaneity and ease that is difficult to recreate elsewhere. The knowledge remains the same, but the expression becomes effortless.

Looking back, I still cannot say with certainty what made that workshop different. Maybe it was the setting. Maybe it was the accumulated confidence that comes with experience. Maybe it was simply Malayalam giving my thoughts their most natural voice.

Whatever the reason, the experience left me with a question that continues to linger. Is language really a barrier?

Or is it, sometimes, the bridge that allows us to become the most authentic version of ourselves?

Sidharthan

LivelyWaters!, Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India.

Citation: Sidharthan (2026). In My Own Words. In *Zoo's Print* 41(8): 57–58.

Becoming Friends of Wetlands: 320 Young Explorers Discover Coimbatore

10 interactive workshops | 320 students | Grades 5–7 | Coimbatore

A CSR initiative of Bosch Global Software Technologies | School support by YI Thalir

The 'Friends of Wetlands' under the *LivelyWaters!* program by Zooreach has over the past three years striving to work with communities and children to help them understand why wetlands matter and encourage them to become informed participants in their conservation. In July and August 2026, 10 workshops reached 320 students from Grades 5 to 7 from Chinmaya Vidyalaya School, Vadavalli; Kikani Global Academy School, Perur, Chettipalayam; and Chinmaya Vidyalaya School, R.S. Puram facilitated by the Zooreach team. Through interactive workshops, games, education materials and hands-on activities, the children explored wetlands as living ecosystems connected to wildlife, rivers, landscapes and ultimately the ocean. The sessions, ranging from one hour to half day, used different entry points to build one larger understanding that everything in nature is connected.

The workshops began with simple assessments through the 'sit and stand game' to understand what students already knew. When asked what wildlife meant to them, many immediately named tigers, lions and elephants. The sessions then brought wildlife closer to home to birds in schoolyards, frogs, geckos, snakes, native plants and the species that depend on freshwater habitats. Payal and Priyanka used local wildlife to explore why snakes, frogs and geckos are important in Coimbatore's landscapes. Students shared their own encounters, including stories

of roadkill and one memorable sighting of a pangolin. These conversations helped shift the idea of wildlife from something distant to something already present around them.

Sidharthan and Koshik introduced students to different freshwater habitats, including rivers, lakes, ponds, reservoirs and check dams, and explained the terms lotic and lentic for flowing and relatively still water. A lively movement game reinforced the concepts. Students jumped, moved their hands like flowing water or stood still depending on the wetland's name.

The Friends of Wetlands education packets extended the learning beyond the workshop, while friendship bands and pledges encouraged students to share what they had learnt with others. Birds provided another engaging way to understand wetland ecosystems. Neenu and Priyanka's 'Birds – Our Feathered Friends' sessions introduced identification through shape, size, colour, behaviour and habitat, along with resident and migratory birds and the work of Dr. Salim Ali.

The Flapping Game helped students appreciate the effort involved in migration and opened a discussion on why wetlands and other stopover habitats need to remain safe and healthy for visiting birds.

Other sessions introduced students to native and non-native plants, led by Sidharthan and





Poojitha. Five plants native to Coimbatore – Indian Almond *Terminalia catappa*, Pongamia Tree *Pongamia pinnata*, Indian Silk Cotton Tree *Bombax ceiba*, Indian Rain Tree *Albizia lebbeck*, and Flame of the Forest *Butea monosperma* were explored through plant cards and a creative leaf-painting activity.

The programme also helped students understand that freshwater does not exist in isolation. Rivers and wetlands are connected through watersheds and ultimately to estuaries and the sea. What happens on land and in freshwater can therefore affect the ocean.

Tandrili and Kritika using origami and the 'Magic of the Ocean' learning website of Zooreach helped the students connect the marine world with rivers. While making origami whales and crabs the students learnt about whales, including the enormous blue whale, baleen feeding and the role of the ocean in supporting life and regulating climate.

A carbon-sink game further demonstrated how fossil fuel use increases carbon dioxide while ecosystems such as forests, soils and the ocean absorb it. Students could see how increasing emissions create an imbalance and why healthy ecosystems are essential.

Taking the Learning Home

A key part of the 'Friends of Wetlands' programme is the specially designed education packet (Tamil and English) developed to help children continue exploring beyond the workshop. The packet includes an informative wetlands booklet introducing students to freshwater ecosystems and their importance with species found specifically in Coimbatore,

along with a photocard designed to help children frame and focus their photographs while observing and documenting nature around them.

The packet also includes a set of beautifully designed wildlife stickers, making the learning experience more engaging and giving children something they could continue to use and share. Three specially created posters focused on geckos, snakes and frogs, explaining why these often misunderstood animals are important to healthy landscapes. The posters also addressed common myths, fears and superstitions surrounding these species, helping replace misconceptions with simple, science-based understanding.

Together, the materials extended the programme beyond a single classroom session. They gave children tools to look, observe, identify, question and share, reinforcing the idea that being a Friend of Wetlands begins with paying attention to the living world around us.



Neenu Purushothaman, Tandrali Baruah, Sidharthan, Dupathi Poojitha, Priyanka Iyer, Koshik V. Rao & Payal Molur.

LivelyWaters!, Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India.

Citation: Purushothaman, N., T. Baruah, Sidharthan, D. Poojitha, P. Iyer, Rao. K.V & P. Molur (2026). Becoming Friends of Wetlands: 320 Young Explorers Discover Coimbatore. In *Zoo's Print* 41(8): 59–62.

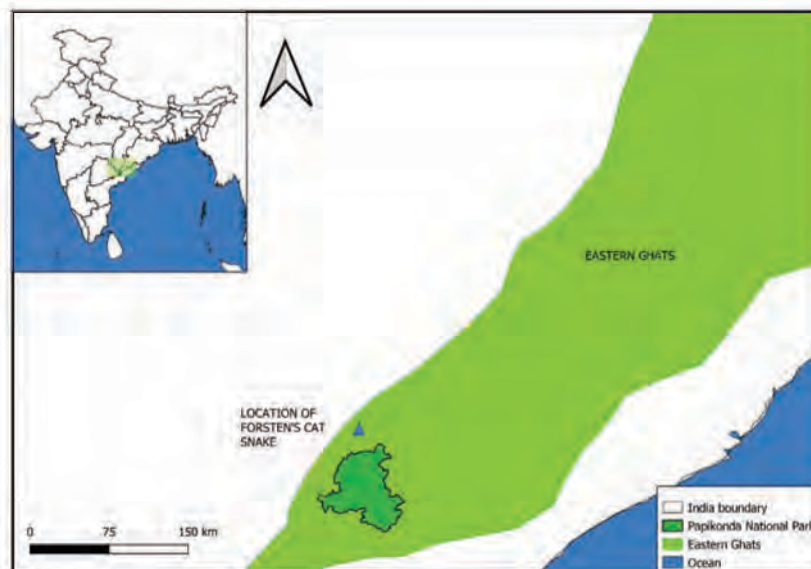


#273
21 August 2026

Forsten’s Cat Snake, a new record for Papikonda Hills, northern Eastern Ghats

The Forsten’s Catsnake *Boiga forsteni* is a mildly venomous, rear-fanged colubrid, exhibiting a broad yet patchy distribution across Nepal, Sri Lanka, and India (Whitaker & Captain 2004; Hussain & Das 2017). In India, its presence has been documented in hilly/forested tracts across the country, including the Shivalik ranges in the north, the Western Ghats, parts of the Eastern Ghats and the hills of central India and Gangetic plains (Gharat et al. 2021; Visvanathan et al. 2022). It is known to be an uncommon snake, not found in close proximity to human habitation (Mohapatra et al. 2009). In this note, we report a case of roadkill of this uncommon snake species, from within a protected area.

On 25 May 2024, at 0924 h, during a field survey inside Papikonda National Park in the northern Eastern Ghats located



The location of Forsten’s Cat Snake roadkill observed in Papikonda National Park.



The road-killed Forsten’s Cat Snake at Papikonda National Park. ©Yogesh Pasul.



in Alluri Seetharama Raju District, Andhra Pradesh, we recorded a road-killed Forsten's Cat Snake (17.760° N, 81.483° E, 88 m). This is the first record of the Forsten's Cat Snake from The Papikonda National Park (Dhama 2023) emphasizing the urgent need for further detailed biodiversity surveys to update species lists and understand ecological processes shaping animal populations in the Eastern Ghats.

In the Eastern Ghats of Andhra Pradesh, *Boiga forsteni* has been reported to be a rather uncommon snake and the only previous record of *B. forsteni* in published literature was in the Nallamala ranges of the central Eastern Ghats in Kurnool District approximately 530 km far from the present record (Rao et al. 2005; Srinivasulu et al. 2006; Ganesh & Guptha 2021). We identified the species based on the distinct body structure, positioning of the eyes and colouration. The head was triangular in shape and distinct from neck. The specimen had large eyes with vertical pupil and a broad black stripe that run behind the eye to the angle of mouth. The dorsal colouration is greyish with alternating irregular transverse markings giving it a checkered pattern.

Papikonda Hills and adjacent regions are known to harbour rich biodiversity, including several rare, endemic, and threatened reptile species, such as the Golden Gecko *Calodactylodes aureus*, Jeypore Ground Gecko *Cyrtodactylus jeyporensis*, Spotted Limbless Skink *Sepsophis punctatus*, Vossmer's Writhing Skink *Riopa vosmaerii*, and the Caecilian *Gegeneophis orientalis* (Aditya et al. 2021) and new species

are continuously discovered which underscores the need to do systematic survey of the lesser known taxa in this part of the Eastern Ghats.

Papikonda National Park (PNP) spread over 1,012 km², is located in the northern section of the Eastern Ghats. It was declared a wildlife sanctuary in 1978 and a national park in 2018 and is therefore one of the oldest protected areas in Andhra Pradesh. Unlike the Western Ghats and the Himalayas, however, the Eastern Ghats has very low protected area coverage, leading to significant anthropogenic pressure, particularly from hunting for wild meat, extensive land cover change from infrastructure development, and agriculture (Aditya et al. 2021).

In addition, the extensive road network within PNP poses a significant threat to reptiles particularly snake populations, increasing mortality during dispersal, as highlighted by the discovery of a road-killed *Boiga forsteni* which is nocturnal and essentially arboreal but would freeze rather than flee when encountered by a vehicle and subsequently run over (Mohapatra et al. 2009). Addressing such issue through targeted conservation strategies and increasing public awareness of threatened reptiles is crucial for mitigating the impact of roads on snakes. Implementing effective mitigation measures can help preserve the biodiversity of this ecologically rich but under-protected landscape, ensuring the survival of its diverse snake species.

Thus, our finding of the Forsten's Cat Snake roadkill inside the PNP, the most important



protected area in the largely neglected Eastern Ghats, reveals significant gaps in the current knowledge of biodiversity and conservation concerns that continue to affect small, lesser-known wildlife, even inside protected areas. Given the high anthropogenic pressures and significant threats to wildlife in the northern Eastern Ghats, urgent and comprehensive field surveys are essential to enhance conservation efforts and ensure the survival of diverse species in this under-protected landscape.

References

- Aditya, V. et al. (2021). Integrating camera traps and community knowledge to assess the status of the Indian Pangolin *Manis crassicaudata* in the Eastern Ghats, India. *Oryx* 55(5): 677–683.
- Dhama, R. (2023). Papikonda National Park Management Plan (2023–24 to 2032–33 Part-A and Part-B) 2023. Forest Department, Government of Andhra Pradesh, India.
- Gharat, G. et al. (2021). Snakes of the Matheran Hill Station in Maharashtra, India, with notes on natural history. *Reptiles & Amphibians* 28(1): 47–51.
- Ganesh, S.R. & B. Guptha (2021). Herpetological diversity in the Central Eastern Ghats, Peninsular India. *Journal of Animal Diversity* 3(3): 18–44.
- Hussain, Z. & A. Das (2017). Distribution of *Boiga forsteni* (Duméril, Bibron et Duméril, 1854) in northern India. *Indian Forester* 143(10): 1091–1092.

- Mohapatra, P.P. et al. (2009). Taxonomy, natural history, and distribution of *Boiga forsteni* (Duméril, Bibron and Duméril, 1854) (Serpentes: Colubridae) from Orissa, India. *Russian Journal of Herpetology* 16(4): 243–252.
- Rao, K.T., et al. (2005). Fauna of Protected Areas-19: Herpetofauna of Nallamalai hills with eleven new records from the region including ten new records for Andhra Pradesh. *Zoos' Print Journal* 20(1): 1737–1740.
- Srinivasulu, C. et al. (2006). Reptilian Fauna of Nagarjuna Sagar Srisailem Tiger Reserve, Andhra Pradesh. *Records of the Zoological Survey of India* 97–122.
- Visvanathan, A. et al. (2022). Snakes of Telangana: An annotated checklist with new locality records and notes on natural history. *Reptiles & Amphibians* 29(1): 279–285.
- Whitaker, R. & A. Captain (2004). *Snakes of India. The Field Guide*. Draco Books, Chennai, India, 481 pp.

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Report on tail bifurcation in *Hemidactylus* gecko from Odisha, India



The bifid tail of the *Hemidactylus* sp.
© Ashirwad Tripathy.

Caudal autotomy, the voluntary self-amputation of the tail by intravertebral breakage followed by regeneration, is a phenomenon observed in many reptile species and is widely recognized as a means of avoiding predation (Slowinski & Savage 1995; Clause & Capaldi 2006). It aids in evading predators (Maginnis 2006), and it can negatively impact reproductive fecundity, as the tail serves as an energy reserve for females to produce eggs (Smyth 1974). The loss of the tail in lizards can impair various aspects of their ecological and physiological well-being, including behaviour, movement, foraging,

metabolism, prey-predator relationships, and reproductive fitness (Bateman & Fleming 2009).

After the release of a tail along the fracture plane of a caudal vertebra, the regeneration process can occasionally result in malformations, such as a split or multi-branched tail (Higham et al. 2013).

Baum & Kaiser (2024) reviewed tail furcation in lizards, reporting its occurrence in 250 species across 25 families based on existing records. They noted that 78% of these species exhibit



bifid tails, 13% are reported to have tails that are either bifid or multifid and 9% of species are documented to display exclusively multifid tails. Notably, tails with more than three branches are exceedingly rare, with only 10 such cases reported.

Tail bifurcation has been reported in gekkonids belonging to the genera *Cyrtodactylus*, *Gehyra*, *Gekko*, *Gonatodes*, *Hemidactylus*, and *Lygodactylus*. In the case of the House Gecko *Hemidactylus frenatus* Duméril & Bibron 1836, records of tail abnormalities exist across several continents (Caicedo-Martínez et al. 2022).

Tail furcation in the genus *Hemidactylus* has been reported in 14 species around the world. The species include *agrius* Vanzolini, 1978; *almakhwah* Šmid et al., 2023; *bowringii* (Gray, 1845); *Hemidactylus* sp. (as *H. brookii*); *flaviviridis* Rüppell, 1835; *frenatus* Duméril & Bibron, 1836; *giganteus* Stoliczka, 1871; *gleadowi* Murray, 1884; *leschenaultii* Duméril & Bibron, 1836; *mabouia* (Moreau de Jonnés, 1818); *persicus* Anderson, 1872; *platyurus* (Schneider, 1797); *prashadi* Smith, 1935; and *turcicus* (Linnaeus, 1758) (Baum & Kaiser 2024).

On 29 January 2021 at 0033 h, in Jagannath Vihar, Baramunda, Bhubaneswar, Odisha, India (20.2872° N, 85.7905° E) a large sized House Gecko was observed moving during the night. The gecko appeared normal and healthy, despite minor scars on its right forelimb and left hindlimb, as well as a small healed scar on its tail. Photographs of the lizard were sent to an expert and was tentatively identified as *Hemidactylus flaviviridis* Rüppell based on the

following combination of characters: stout body, oval head, small head scales, and dorsum lacking tubercles (Das & Das 2017). However, accurate species identification requires a specimen, which was not collected. Therefore, the identification at the species level could not be confirmed. The gecko was observed over the next 10 days before it disappeared from the area. Notably, the gecko had a bifurcated tail, which split around a quarter of the way down from the base. During this period, no difficulties in locomotion or food gathering were noted, although the gecko moved slowly.

There are several reports of tail bifurcation in lizards across India. One of the recent records from Odisha was reported by Fullonton et al. (2024), and our observation represents the second report of tail bifurcation in a lizard from Odisha, India. Such reports are important as they contribute to understanding rare morphological anomalies in reptiles, providing insights into developmental biology, ecological adaptations and the potential impact of environmental factors such as predation and habitat stress.

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References

- Bateman, P.W. & P.A. Fleming (2009). To cut a long tail short: a review of lizard caudal autotomy studies carried out over the last 20 years. *Journal of Zoology* 277(1): 1–14.
- Baum, T.J. & H. Kaiser (2024). Tail furcations in lizards: a revised summary and the second report of tail duplication in the Western Fence Lizard, *Sceloporus occidentalis* Baird & Girard, 1852. *Herpetology Notes* 17: 459–475.



Caicedo-Martínez, L.S. et al. (2022). Tail abnormalities in four lizard species (*Anolis*, *Hemidactylus*, *Iguana*, *Kentropyx*) from Colombia. *Herpetology Notes* 15: 797–803.

Clause, A.R. & E.A. Capaldi (2006). Caudal autotomy and regeneration in lizards. *Journal of Experimental Zoology Part A: Comparative Experimental Biology* 305(12): 965–973.

Das, I. & A. Das (2017). *A Naturalist's Guide to the Reptiles of South Asia: India, Bangladesh, Bhutan, Nepal, Pakistan, Sri Lanka and the Maldives*. John Beaufoy Publishing Limited, 176 pp.

Fullonton, S. et al. (2024). First record of tail bifurcation in the Indian House Gecko *Hemidactylus flaviviridis* from Odisha. *Reptile Rap* #259, In: *Zoo's Print* 39(10): 32–34.

Higham, T.W. et al. (2013). Integrative biology of tail autotomy in lizards. *Physiological and Biochemical Zoology* 86(6): 603–610.

Maginnis, T.L. (2006). The costs of autotomy and regeneration in animals: a review and framework for future research. *Behavioral Ecology* 17(5): 857–872.

Slowinski, J.B. & J.M. Savage (1995). Urotomy in *Scaphiodontophis*: evidence for the multiple tail break hypothesis in snakes. *Herpetologica* 51(3): 338–341.

Smyth, M. (1974). Changes in the fat scores of the skinks *Morethia boulengeri* and *Hemiergis peronii* (Lacertilia). *Australian Journal of Zoology* 22(2): 135–145.

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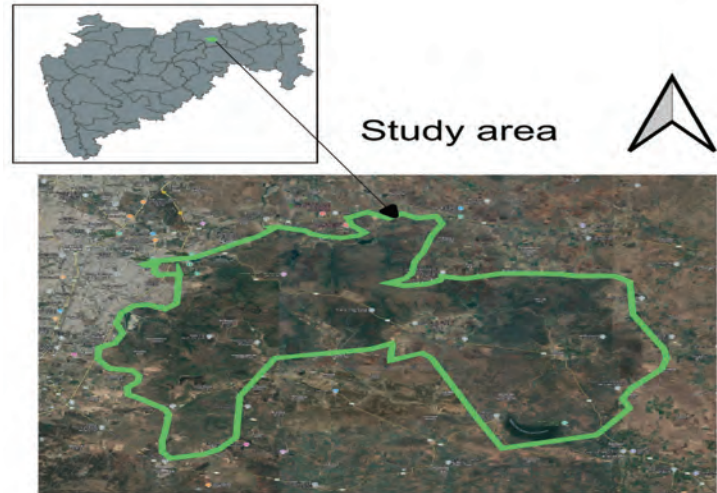
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Citation: Tripathy, A. & R. Kapoor (2026). Report on tail bifurcation in *Hemidactylus* gecko from Odisha, India. *Reptile Rap* #274, In: *Zoo's Print* 41(8): 66–68.

The first photographic record of Gaur from Pohara Malkhed Forest, Amravati, Maharashtra

During regular monitoring with camera traps for leopards in Pohara Malkhed Forest (PMF), a reserve forest adjoining Amravati, Maharashtra, we recorded the presence of a Gaur for the first time. Gaur *Bos gaurus* also known as Indian Bison (sic) is a 'Vulnerable' species as per the IUCN Red List (Duckworth et al. 2016) and is protected under Schedule I of the Wildlife Protection (1972) Act. The estimated global population of Gaur is 15,000–35,000 of which nearly 85% is present in India (Duckworth et al. 2016). Their distribution is highly fragmented and is majorly found in southwestern India, central India, and northeastern India (Choudhury 2002). Out of the three regions central India holds the highest population of Gaur possibly because of the availability of favorable habitats (Ashokkumar et al. 2011).

Gaur is one of the largest herbivores belonging to the family Bovidae. The males are bigger and heavier than the females. An adult male weighs 1,000–1,500 kg whereas a female weighs 700–1,000 kg. The availability of forage is one of the major drivers for distribution of



Study area of Pohara Malkhed Reserve Forest.



Camera trap images of Gaur at Pohara Malkhed Reserve Forest.

Gaur. Though most of the population is found in protected areas, they do move towards the edge for foraging and feeding purposes (Chaiyarat et al. 2021). The home range varies among males and females and is usually observed to have a larger home range in summer as compared to winter and monsoon.

Males can have a home range of 135–142 km² whereas the home range of the female is 32–169 km² (Prayoon et al. 2024). The habitat suitability study by Imam & Kushwaha (2013) in Chandoli Tiger Reserve, India shows that Gaur prefers areas mostly covered by grasses, scrubs, and shrubs, and avoids disturbed areas. Overall, they are adaptable and are found in evergreen, semi-evergreen, moist deciduous, and dry deciduous forests of India (Ashokkumar et al. 2011).

PMF is one of the most diverse reserve forests (Vairale & Wagh 2021) in the Amravati District (Maharashtra) located between 20.903817 N and 77.851733 E. It is a tropical dry deciduous forest (Onkar 2016) with some grassland and spreads in the area of over 80 km².

Youth for Nature Conservation Organization (YNCO), a non-governmental organization along with the Amravati Forest Department, has been working on conservation and monitoring of PMF, especially for Leopard population, since 2010, and started camera trapping from 2015. The Gaur was not reported from this forest in the last 14 years, but in the middle of November, while our Leopard monitoring was going on through camera traps, the Gaur was captured on 20 November 2024, at 0315 PM.

PMF is known to be connected with a wildlife corridor to Melghat Tiger Reserve (MTR) as per the working plan of MTR, which is known to have a good population of Gaur (Choudhury 2002). This reserve forest is nearly 100 km from the tiger reserve. Another tiger reserve is Bor, which is around 138 km from PMF, where the last sighting of Gaur was reported in 2020 (Pinjarkar 2020). BTR is being used as a corridor between Satpuda mountain and Tipeshwar Sanctuary in Yawatmal by large cats and other mammalian species (Wadatkar et al. 2014).

PMF faces several issues such as encroachment for agricultural expansion, illegal cutting of trees, and grazing by locals. Habitat degradation and fragmentation, anthropogenic pressure, and transmission of diseases can be a major possible threat to gaur population in PMF.

Poaching for meat and horns is also a serious concern (Wadatkar et al. 2014). The presence of Gaur in this forest signifies the importance of conserving this forest. Also, it focuses on the need to carry out more studies on habitat use and the movement of the species in the area. Further a genetic study may unveil the migratory route of gaur to PMF to know the potential corridors.

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We would like to express our sincere gratitude to the Amravati Forest Department for their invaluable support and cooperation during the wildlife monitoring activities in the Pohara-Malkhed Reserved Forest. Their assistance and dedication were instrumental in the success of this study. We are also deeply thankful to all the members of the Youth for Nature Conservation Organisation for supporting in the fieldwork and collecting data.

References

- Ashokkumar, M. et al. (2011). Distribution, ecology and conservation of the Gaur (*Bos gaurus*, H. Smith, 1824), pp. 77–94. In: V.K. Gupta & A.K. Verma (eds.). Animal Diversity, Natural History and Conservation- Vol.1. Daya Publishing House, New Delhi, India, 121 pp.
- Chaiyarat, R. et al. (2021).** Food and nutrition of Gaur (*Bos gaurus* C.H. Smith, 1827) at the edge of Khao Yai National Park, Thailand. Scientific Reports 11: 3281
- Choudhury, A. (2002). Distribution and conservation of the Gaur *Bos gaurus* in the Indian Subcontinent. Mammal Review 32(3): 199–226.
- Imam, E. & S.P.S. Kushwaha (2013). Habitat suitability modelling for Gaur (*Bos gaurus*) using multiple logistic regression, remote sensing and GIS. Journal of Applied Animal Research 41(2): 189–199.
- Duckworth, J.W. et al. (2016). *Bos gaurus*. The IUCN Red List of Threatened Species 2016. <https://doi.org/10.2305/IUCN.UK.2016-2.RLTS.T2891A46363646.en>. Accessed on 18.vi. 2025.
- Wadatkhar, J.S. et al. (2014). Biodiversity of Pohara-Malkhed Reserve forest, Amravati district, Maharashtra. FES & WECS Report, 36 pp.
- Onkar, A.A. (2016). Ethnobotanical notes from Pohara-Malkhed Reserve Forest, Amravati, Maharashtra, India. Bio Bulletin 2(1): 107–111.
- Pinjarkar, V. (2020). 'Maharashtra: Gaur sighted in Bor Tiger Reserve after 8 years', *The Times of India*, 5 June. <https://timesofindia.indiatimes.com/city/nagpur/gaur-sighted-in-bor-reserve-after-8-yrs/articleshow/76204734.cms>. Accessed on 18.vi.2025.
- Prayoon, U. et al. (2024). Home range and habitat utilization of gaur (*Bos gaurus*) in transition zone between protected forest and human-dominated landscape, Eastern Thailand. Global Ecology and Conservation 50: e02811.
- Vairale, A.B. & G.A. Wagh (2021). Diversity of spiders in microhabitats of a tropical reserve forest of Amravati, Maharashtra, India. Bioscience Biotechnology Research Communications 14(1): 446–452.

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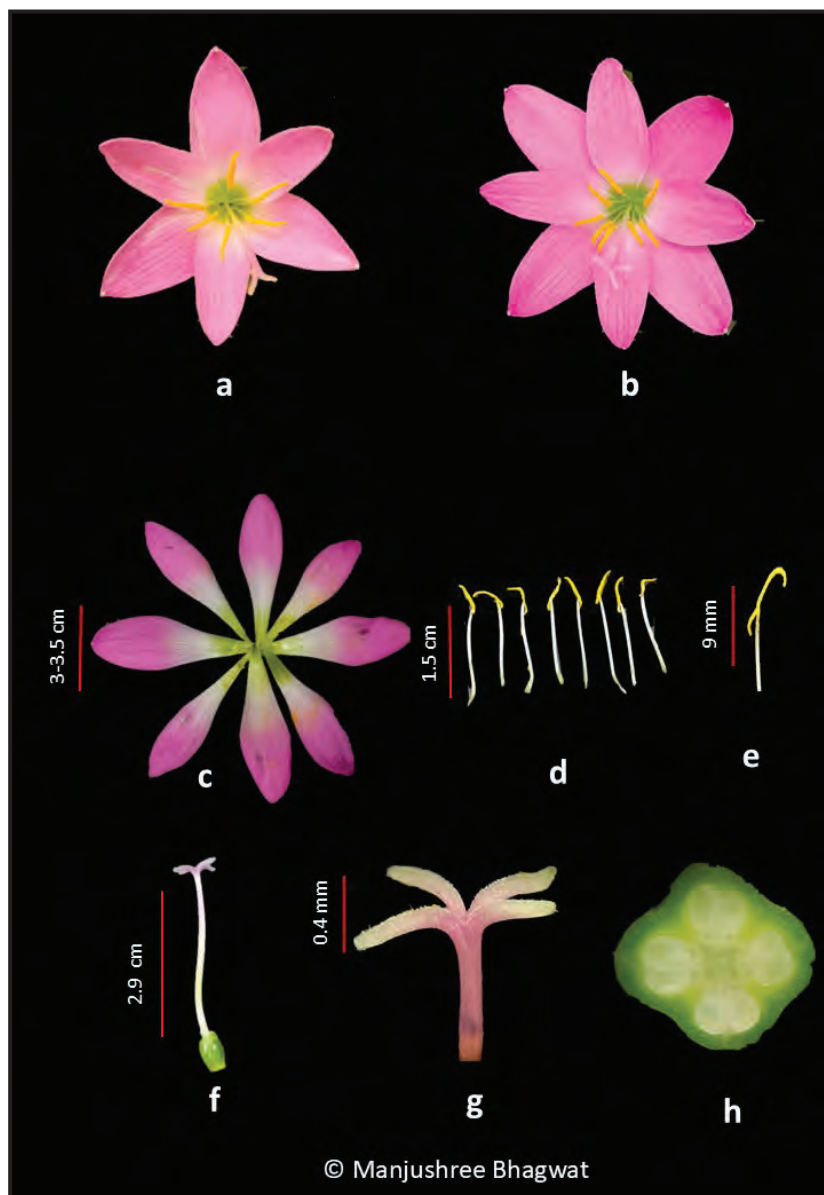
Occurrence of tetramerous flower in the non-native *Zephyranthes carinata* in Maharashtra

Floral morphology plays a crucial role in plant classification and identification. The morphological characters such as habit, underground parts, stem, and leaves prove to be useful to mark out particular plant or family of a plant. One such character that is reliable for classifying plants are the floral characters. The floral characters are relatively stable and consistent within plant families; making them useful for grouping and identifying different species and families.

On the basis of presence of number of cotyledons in the seeds; plants are grouped into dicotyledons and monocotyledons. Another striking feature of the monocotyledonous plants is the trimerous arrangement of the flowers, i.e., the petals, sepals and other floral structures are arranged in groups of three or six (two whorls of three). Thus, this character can be used to identify the monocotyledonous plants.

Zephyranthes Herb. is a genus of temperate and tropical bulbous plants, native to tropical and

sub-tropical America and widely cultivated as ornamentals. *Zephyranthes carinata* Herb. is a taxon belonging to the family Amaryllidaceae. The native range of this taxon is Mexico to Colombia. It is a bulbous geophyte and grows



Flower of *Zephyranthes carinata* Herb.: a—Trimerous condition | b—Tetramerous condition | c—Tepals | d—Stamens | e—Anther | f—Carpel | g—Tetra lobed stigma | h—Tetralocular ovary. © Manjushree Bhagwat.

primarily in the seasonally dry tropical biome (POWO 2025). It bears linear, hollow, strap-shaped or grass-like leaves.

During the routine floristic survey of the campus of Radhabai Kale Mahila Mahavidyalaya, Ahilyanagar, Maharashtra for documenting the flowering plant diversity author has spotted a tetramerous flower in *Zephyranthes carinata*. The flower had eight tepals arranged in two whorls. The stamens were eight in number, arranged in two whorls, and tetracarpellary ovary with 4-lobed stigma.

Such anomalies were reported in other genera of the Amaryllidaceae as well. Formation of eight tepals were reported in *Narcissus tazetta* ssp. *aequilimbus* (Herb.) by Mifsud & Lanfranco (2024), and in *Beauverdia hirtella* ssp. *lorentzii* (Herter) by Sassone et al. (2014).

Zephyranthes carinata Herb. Bot. Mag. 52: t. 2594 (1825)

Flower solitary, with pink tepals. Flowers slightly inclined on 18 cm long peduncle. The deep lilac to purplish spathe is 3 cm long. Tepals 8, 3–3.5 cm long, arranged in two whorls. Stamens 8, arranged in two whorls. Filaments 1.5 cm long, anthers 9 mm long. Ovary tetracarpellary, syncarpous, inferior. Style filamentous, 2.9 cm, stigma tetra lobed, each lobe 0.4 mm.

References

- Mifsud, S. & S. Lanfranco (2024). An updated taxonomic appraisal of *Narcissus* (Amaryllidaceae) in the Maltese Islands. *Diversity* 16(7): 397.
- POWO (2025). Plants of the World Online. Royal Botanic Gardens, Kew. <https://powo.science.kew.org/>. Accessed on 16.viii.2025.
- Sassone, A.B. et al. (2014). *Beauverdia*, a resurrected genus of Amaryllidaceae (Allioideae, Gilliesieae). *Systematic Botany* 39(3): 767–775.

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The Krishna Fig in Chota Nagpur Plateau, West Bengal, India

Ficus krishnae C. DC. belongs to the section Urostigma, Moraceae family, is native to India and has been introduced in Sri Lanka (POWO 2024). In India, the plant is well recognized as the Krishna Fig. It is linked to two myths that explain the origin of its cup-shaped leaves. It is believed that the Hindu deity Rama created this species, and its unusual cup-shaped leaves have led to its veneration as a holy tree in India (Tiwari et al. 2015). Another popular tale is that Lord Krishna created this plant having cup-shaped leaves so that makkhan could be taken (Candolle 1902). The species is named honouring Lord Krishna for that reason. The curious species was initially noticed by David Pain year 1896 in a private garden near Calcutta and introduced it in Royal Botanical Garden, Calcutta (now AJC Bose Indian Botanic Garden, Howrah, West Bengal), by the help of stem cuttings taken from the original plant (Prain 1906). The Calcutta Garden later distributed the stem-cuttings of this species to other gardens throughout India (Vaid 1963).

Taxonomist have variously treated the Krishna Fig, some as a distinct species and others as a variety of *Ficus benghalensis* based on its morphological and floral characteristics (Chaudhary et al. 2012). The taxonomic position of *F. krishnae* remains unresolved despite the fact that it differs from *F. benghalensis* in many respects, including morphology, anatomy, chromosomes, genome size, pollination vector, ITS-2, cpDNA, and other molecular markers

(Candolle 1906; Prain 1906; Joshi & Raghuvanshi 1970; Ohri & Khoshoo 1987; Priyadarsanan 1999; Tiwari et al. 2015; Mahima et al. 2021; Anilkumar et al. 2023). No prior documentation of *F. krishnae* plant growing wild on the Chota Nagpur Plateau was found.

The plant specimen was collected from the Ajodhya Hill forest, Purulia District, West Bengal (23.3589° N, 86.1975° E) on 18 December 2023. The new geographic record of the plant species was initially identified by observing the leaves. No other species in *Ficus* genus has cup like leaves. The species' identity characters were verified by consulting reliable literatures (Prain 1906; Tiwari et al. 2015). The purpose of providing these field images is to aid in identification and to offer evidence of the species collected. The herbarium specimens were deposited in Banwarilal Bhalotia College herbarium, Asansol.

Taxonomy

Ficus krishnae C. DC., Bull. Herb. Boiss., Ser. 2, 2: 760. 1902; Curtis's Bot. Mag. 132: t. 8092. 1906. *F. benghalensis* var. *krishnae* (C. DC.) Corner, Gard. Bull. Singapore 21 (1): 14. 1965.

Local names: Makkhan Katori (Hindi), Krishna Bot (Bengali).

Medium size tree, 18–20 m tall, sometimes with arial roots; bark light-greyish, stems 1.25 m in diameter. Pubescent present over the young

branches, petioles and figs. Leaf scar present over the young branches; latex white, bud scale 36–62 mm long, cone-shaped cap, pointed at the tip, silky pubescent outside, smooth and shining inside. Leaves simple, alternate, coriaceous, glossy, lamina 6.8–12.6 x 1.8–8.2 cm, typically cup-shaped at the base beneath, ovate to obovate, acute when young and obtuse with age, mostly twisted and turn along the leaf edges, fine hairs on upside and fluffy on the downside of leaves, 4–8 nerved from the base, and 5–8 (or perhaps 9) pairs of nerves present on either side of midrib, the size and shape of the cup vary; petioles 5.3–9.6 cm long, white downy, almost circular with petiolule base. Figs are green while younger, axial positioned, present generally in pairs sometimes single, sessile, three orbicular bracts present at base, almost spherical, base-emarginated, notched apex having three lunar shaped bract around ostiolum, woolly, diameter 1.78 cm, bracts found in the ostiole's lumen.

Both the male and gall flowers are transparent linear-stalked; many sterile bracts, colourless, measuring 1.85–2.2 mm in length, with an obtuse base and entire margins, attached at the base of the flower pedicel, located within figs. Male flowers are colourless, mostly present at ostia, three ellipsoid free tepals are seen, one smooth stamen present, perianth is longer (1.75–4 mm) than the filaments (0.6–1.3 mm), which are linked to the posterior side of the egg-shaped anthers. Female flowers exist all around inside thalamus, stalked 0.9–1.10 mm long, tepals are smooth, 1.3–1.8 mm long, butter knife shaped, pointed at tip, and 3–4 in numbers, ovary globular and sessile, gracilis

style 1.2–2.0 mm long, straight plumeous stigma present. Gall flowers 3.0–4.10 mm long, tepals three, exist all around inside thalamus, slightly altered from female flowers, reddish-brown in colour.

Flowering & fruiting: November to March.

Distribution: India (planted in various gardens in the states of Karnataka, Kerala, Uttar Pradesh, Uttarakhand, and West Bengal), now in Chota Nagpur Plateau. As a decorative plant in Pakistan, Sri Lanka, and Malesia (Tiwari et al. 2015).

Uses: Ayurvedic medicine uses the plant to treat ulcers, leprosy, dysentery, syphilis, and inflammation. Different plant parts of *F. krishnae* have been researched for antibacterial, anti-oxidant, anti-diabetic, anti-inflammatory, anticancer, and immunomodulatory properties (Kumar et al. 2021).

Specimen examined: INDIA. West Bengal: Howrah, AJCB Indian Botanic Garden, CNH, near Roxburgh's building, 25.v.2012, J.V. Sudhakar 126320 (MH).

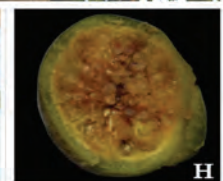
References

- Anilkumar, C. et al. (2023). Genetic diversity of *Ficus krishnae* C.DC. and *Ficus benghalensis* L. International Journal of Current Research 15(02): 23805–23808.
- Chaudhary, L.B. et al. (2012). Synopsis of the Genus *Ficus* L. (Moraceae) in India. Taiwania 57(2): 193–216.
- Candolle, C. de. (1902). Nouvelle etude des hypoascidies de *Ficus* (ser 2). Bulletin del' Herbarier Boissier 2: 753–762.
- Candolle, C. de. (1906). *Ficus krishnae* C.DC. Curtis's Botanical Magazine 132: ad t. 8092.
- Joshi, S. & S.S. Raghuvanshi (1970). Accessory Chromosomes in a tree – *Ficus krishnae*. Annals of Botany 34(5): 1037–1039.
- Kumar, M. et al. (2021). Taxonomical and ethnomedicinal studies of *Ficus krishnae* L. (Dicotyledonae: Moraceae). Bulletin of Pure & Applied Sciences- Botany 40B(1): 24–29.



Herbarium sheet of a *Ficus krishnae* twig collected from Ajodhya Hill forest, Purulia. © Animesh Mondal.

A twig of *Ficus krishnae* tree collected from Ajodhya Hill forest, Purulia. © Animesh Mondal.



Ficus krishnae plant parts:
A—Tree | B—Leaves of different ages | C—Bud scale | D—Tree bark | E—Venation on upper side of a leaf | F—Leaf base & Figs | G—Vertical section of a fig.
© Animesh Mondal.

Mahima, K. et al. (2021). Systematic reinstatement of highly sacred *Ficus krishnae* based on differences in morphology and DNA barcoding from *Ficus benghalensis* (Moraceae). *PhytoKeys* 186: 121–138.

Ohri, D. & T.N. Khoshoo (1987). Nuclear DNA contents in the genus *Ficus* (Moraceae). *Plant Systematics and Evolution* 156(1–2): 1–4.

POWO (2024). Plants of the World Online. Royal Botanic Gardens, Kew. <https://powo.science.kew.org/>. Retrieved 10.x.2024.

Prain, D. (1906). *Ficus krishnae*. *Curtis Botanical Magazine* 132: t. 8092.

Priyadarsanan, D.R. (1999). A new species of agaonid wasp (Hymenoptera, Chalcidoidea) pollinating *Ficus krishnae* C.DC. (Moraceae). *Journal of the Bombay Natural History Society* 96: 106–110.

Vaid, K.M. (1963). Trifoliation—a new freak in *Ficus krishnae* C. de C. *Indian Forester* 89(7): 475–476.

Tiwari, R. et al. (2015). Revisit the taxonomy of *Ficus krishnae* (Moraceae). *Phytotaxa* 192(3): 169–180.

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Hand rearing and rehabilitation techniques for Lesser Whistling Teal

The Lesser Whistling Teal *Dendrocygna javanica* is a small, migratory waterfowl found across south Asia, known for their distinctive whistling calls. These birds primarily inhabit wetlands, feeding on aquatic vegetation, insects, and small invertebrates. With increasing threats to their habitat, incidents of ducklings becoming orphaned have risen, necessitating effective rehabilitation strategies for such abandoned chicks (Ali & Ripley 1983). Monitoring the growth in rehabilitated birds is essential for assessing health, nutritional adequacy, and release readiness.

A total of 20 Lesser Whistling Teal ducklings were rescued and brought to the rehabilitation centre of Jivdaya Charitable Trust, Ahmedabad. Of these three weakened ducklings died within the first two weeks of their arrival. The deaths were suspected to be due to hypothermia and were not considered for the growth study. The process implemented to ensure their survival and successful release into the nature are described below.

Upon arrival, the ducklings were weak, and in need of immediate care. They were placed in a controlled environment to mimic maternal warmth. A combination of a 100 W UV bulb and a 55W mercury heat bulb was used to maintain a constant temperature of 35°C over the resting area. In addition to room heater, the bulbs were positioned at a safe distance and operated 24/7 for the first three weeks to ensure consistent warmth. The room temperature and duckling behaviour were

regularly monitored. Towels and dry grass were provided as bedding for comfort and insulation. Initially, the ducklings were housed in two separate cages. Observations revealed that the ducklings appeared more comfortable when housed together in a single medium-sized cage, promoting flocking behaviour and shared warmth. The diet of Lesser Whistling Teal ducklings evolved through three distinct phases, transitioning from hand-fed soft foods to more natural, foraging-based diets (Klasing 1998).

Initial phase (weeks 1–3): Ducklings were fed with a mix of boiled rice, spinach/coriander, beans, and dry insects three times daily. Water plants (gappie grass, hydrilla, duckweed) were introduced to familiarize them with natural food sources.

Transitional phase (weeks 4–6): Protein intake was increased by raising the proportion of dry insects to 30%. Grains like juvar, bajra, and mung were added to the diet. Feeding frequency was reduced to twice daily.

Pre-release phase (weeks 7–13): Water plants constituted 30% of the diet, while rice was reduced to 5% and grains increased to 40%. Ducklings were fed once daily, encouraging foraging behaviour. It was observed that they preferred insects but readily consumed grains as well.

Bathing was an essential component of duckling care, facilitating natural behaviours, feather maintenance, and cleanliness. Shallow plastic



Feeding. © Kirti Jadhav.



Release. © Kirti Jadhav.



Enclosure set up. © Kirti Jadhav.



Bathing. © Kirti Jadhav.

Diet composition (given in two divided fractions)

Food items	Initial phase (weeks 1–3) 700 g	Transitional phase (weeks 4–6) 1,000 g	Pre-release phase (weeks 7–13) 1,500 g
Rice (boiled)	30%	20%	5%
Spinach & Coriander	10%	10%	5%
Other beans (assorted)	10%	5%	—
Dry insects (crushed)	30%	30%	15%
Carnivorous fish food	5%	5%	5%
Water plants	5%	10%	30%
Grains	10%	20%	40%
Multivitamins (Vimeral Containing vitamin A, C, D3, E & B12)	7 ml mixed with food on alternate days	5 ml mixed with food on alternate days	Stopped

Weekly body weight of *Dendrocygna javanica* ducklings (n = 17).

Week	Body weight (g) mean $\pm$ SE
Week 1	36.00 $\pm$ 0.80
Week 2	56.47 $\pm$ 1.68
Week 3	82.47 $\pm$ 2.23
Week 4	111.59 $\pm$ 3.91
Week 5	160.06 $\pm$ 3.48
Week 6	197.06 $\pm$ 4.70
Week 7	247.47 $\pm$ 5.79
Week 8	292.35 $\pm$ 5.48
Week 9	355.35 $\pm$ 7.56
Week 10	393.24 $\pm$ 10.02
Week 11	440.53 $\pm$ 12.64
Week 12	473.53 $\pm$ 17.15
Week 13	555.88 $\pm$ 2.12

tubs were used as bathing pools, with water levels kept low to prevent drowning. Ducklings were allowed to bathe after each meal and were sun-dried to avoid hypothermia.

Enclosures were cleaned daily using diluted bleach or bird-safe disinfectants. Plastic sheets placed under food dishes facilitated easy cleanup of spilled food and droppings.

Gradual exposure to natural environments was implemented to ensure successful adaptation to the wild. During the first two weeks, controlled environment was provided with limited bathing and temperature-controlled enclosure. During weeks 3–5, short sun exposure was provided for promotion of feather development.

Outdoor acclimatization was achieved through introduction to a small release pond and returning to the enclosure at night. During weeks 7–13, aviary housing encouraged their natural behaviours. Finally, during week 13, their successful release was possible into their natural habitat.

Ducklings demonstrated consistent growth during the first four weeks, corresponding with provision of controlled warmth and a protein-rich diet dominated by crushed insects and supplemental fish food. Visual assessment and periodic weighing indicated steady mass gain and improved vigor. Feather development commenced by the fourth week, with near-complete juvenile plumage observed between weeks 6 and 8, suggesting adequate nutrients intake.

The mean body weight of Whistling Teals ducklings increased progressively from 36.00 $\pm$ 0.80 g during the first week to 555.88 $\pm$ 2.12 g in week 13. The growth pattern demonstrated a gradual increase during the initial weeks followed by a rapid growth phase between weeks 4 and 10, and a plateau towards the later weeks. Mukherjee & Mukherjee (2021) worked on Comb Duck which is a larger species with body weight 39–52 g at hatch and 134–168 g by 15 days of age. In contrast, body weight of Whistling Teal with staple diet showed average body weight of 36 g during first week and 556 g at 13th week of age. The Whistling Teal is relatively a smaller species that matures early.

However, the rehabilitation of any bird species is species specific and as such not directly comparable.

Data were analyzed using one-way analysis of variance (ANOVA) to compare weekly body weights. Statistical significance was set at $p < 0.05$.

One-way ANOVA revealed a highly significant difference ($F = 518.28$, $p < 0.001$) in body weight across weeks, indicating that age had a significant effect on growth. The standard error increased in later weeks, suggesting moderate individual variability among birds during advanced growth stages. However, these results were based on small sample size and needs further studies on larger population.

Behavioural development progressed in parallel with dietary transitions. Introduction of aquatic vegetation and grains during the transitional and pre-release phases resulted in increased exploratory feeding, dabbling, and grazing behaviours. While insects were preferentially consumed, ducklings readily adapted to grains and plant matter, reflecting the species' natural omnivorous feeding ecology.

Communal housing enhanced flocking behaviour, reduced stress, and promoted social learning. Bathing opportunities supported feather maintenance and preening, essential for waterproofing. Similar benefits of group housing and phased feeding have been reported in hand-reared Comb Duck chicks, reinforcing the applicability of this approach across waterfowl species (Mukherjee & Mukherjee 2021).

The major challenges encountered during the rearing process included intermittent feed refusal and transient chilling during bathing sessions. These issues were effectively managed through close monitoring, modification of feeding frequency, and immediate post-bath warming. The survival of the majority of the ducklings and their successful release is a coordinated teamwork of Jivdaya Charitable Trust.

Overall, the integration of thermal regulation, nutritionally balanced phased feeding, hygiene management, and gradual outdoor acclimatization resulted in high survival and successful reintegration into the wild.

Acknowledgements

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References

- Ali, S. & S.D. Ripley (1983). Handbook of the Birds of India and Pakistan (compact edition). Oxford University Press, New Delhi, 816 pp.
- Klasing, K.C. (1998). Comparative Avian Nutrition. CAB International, Wallingford, 352 pp.
- Mukherjee, S. & A. Mukherjee (2021). Hand-rearing and rehabilitation of comb ducks *Sarkidiornis melanotos*. International Journal of Zoology Studies 6(4): 5–8.

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Courtship rituals of Black-headed Ibis

Black-headed Ibis (BHI) *Threskiornis melanocephalus* belongs to the family Threskiornithidae and is categorized as 'Least Concern' under the IUCN Red List (BirdLife International 2024). It is a large white water bird with a prominent bare black head and neck, a long down-curved black bill and its tail bears grey ornamental feathers. During the breeding season, bare regions under the wings turn into brighter red colour (Ali & Ripley 1987; Hancock et al. 1992). Sexual dimorphism is not seen due to the presence of similar plumage, so most sex identification occurs during courtship behaviour.

The species remains very active between July and August as mostly the wading birds. We observed the courtship behaviour during the breeding season at Bareli pond, Hurda (25.5393 N & 74.4109 E) of Bhilwara, Rajasthan, India. A focal method (Bibbly et al. 1992) was used for the observation of courtship behaviour without disturbing them, timing was measured using a stopwatch and followed all the guidelines for the study of the nesting biology of birds (Barve et al. 2020).

We see the sequence of courtship behaviours in BHI such as:

1. Male aggressiveness and female return: At or near the possible nest sites, several males and females aggregate in small groups, and when they get close, birds of the same sex behave aggressively toward one another. The group is wandering on or around the vicinity when the male approaches and gives up wings. The male

then viciously attacks the female, pushing her away with beak thrusts to the head and neck. The female wings stay far away from or near the male. In a small group, this sequence is repeated multiple times.

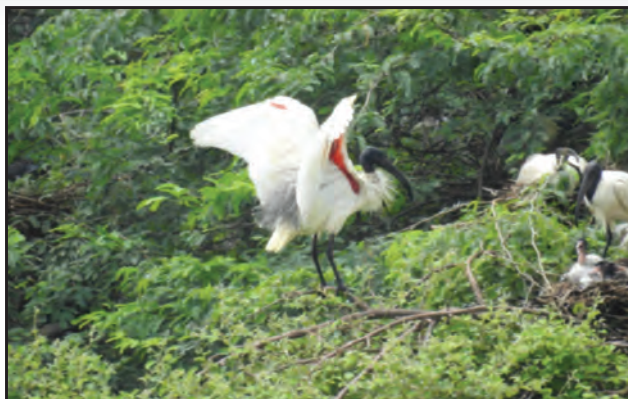
2. Pairing: Display accessories like black plumes and red-winged patches are at the peak. Females attempt to land near the male, assuming a submissive posture, but the male first repulses them.

3. Bowing display: A female bows her neck and beaks forward, away from her body, and rhythmically descends below the horizontal when she settles close to an unpaired male. The wings continue to be partially open. A female usually does this as she approaches an aggressive male during mate selection and tries to enter his display area.

4. Pairing: When a female accepts him, they both bow, bill, and preen.

5. Site selection: The male selects a suitable nest site and uses it as a platform for aggressively defending the display site while performing demonstrations of bowing and stretching.

6. Bill shaking: In pairs, one individual takes the other partner's bill and gives it a hard shake whether seated or standing. The majority of the time, this display is seen after pairing, either when sitting at the nest site or typically before copulation.



Male displays his red-winged patches.



Bowing display.



Pairing.



Selection of nesting site.



Bill shaking.



Shoulder touching.



Spreading wings.



Mounting.



Cloacal kissing.

Photos © Anil Kumar Sharma.

7. Shoulder touching: After the selection of the nest site, mating takes place during nest building. The male approaches the female tentatively and touches it on his shoulder while the female places twigs offered by the male who then places his head over her neck and presses her into a submissive position.

8. Mounting: The male balances himself by spreading both wings prominently displaying a red-winged patch. The male bird balances on the female's back. Now the male leaps onto her back holds her tightly and grabs her bill with his own in a bill lock position.

9. Copulation clattering: After attaining the desired position, the female moves her tail, latterly to expose her cloaca. The male presses his cloaca on his counterpart to achieve a 'cloacal kiss' which lasts for 05 to 15 seconds.

The cloacal kiss is performed four to six times. After one copulation, the male descends from the back. After a few seconds, the male flies away to collect more nesting material and the female starts preening herself. The whole copulatory process takes 3–5 minutes. The male bird takes more time to balance on the female's back than for making the cloacal contact. Courtship is the behaviour by which different species select their partners for reproduction.

Usually, the male starts the courtship, and the female chooses to either mate or reject the male based on his 'performance'. Courtship behaviour

can help birds distinguish between species to help them choose compatible mates and it can also reduce the aggression normally displayed when defending the nest. Courtship rituals are also used to show strength and health and their ability to produce offspring.

References

- Ali, S. & S.D. Ripley (1987). Compact Handbook of the Birds of India, Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka. Oxford University Press, New Delhi, 841 pp.
- Barve, S., et al. (2020). When and how to study nesting biology of Indian birds: research needs, ethical considerations, and best practices. *Indian BIRDS* 16(1): 1–9.
- Bibbly, C.J., et al. (1992). Bird Census Techniques. Academic Press, Oxford, 257 pp.
- BirdLife International (2024). *Threskiornis melanocephalus*. The IUCN Red List of Threatened Species 2024. <https://doi.org/10.2305/IUCN.UK.2024-2.RLTS.T22697516A252063963.en>. Accessed on 12.viii.2025.
- Hancock, J., et al. (1992). Storks, Ibises and Spoonbills of the World. Academic Press, London, 385 pp.

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Nesting of Oriental Pratincole in Tamil Nadu: photographic evidence from Pichavaram mangroves

The Oriental Pratincole *Glareola maldivarum*, a distinctive member of the family Glareolidae, is known for its unique nesting behaviour and extensive migratory patterns. The species breeds across the southeastern Palearctic and Indo-Malayan realms, with populations ranging from the Indian subcontinent to eastern Mongolia, China, and parts of Japan, and winters across the Indo-Malayan to the Australasian biogeographic realms (BirdLife International 2024). In the Indian subcontinent, its breeding distribution includes Sindh, northern India, Odisha, West Bengal, Assam, and Bangladesh, with additional records from Kerala, Sri Lanka, the Maldives, and the Lakshadweep Archipelago (Khan 2017).

Despite this broad range, detailed breeding records are relatively isolated and underreported, particularly in southern India (Manakadan et al. 2011). Nesting behaviour of this species was observed at Karaivetti Bird Sanctuary, however, the observation remained unpublished (S. Balachandran pers. comm. April 2024).

This unpublished record further underscores the significance of the present study, which provides the first photographic confirmation of nesting in Tamil Nadu.

Pichavaram Mangrove Forest is located in the

Cuddalore District on the eastern coast of Tamil Nadu, which is one of the largest mangrove ecosystems in India. It covers approximately 1,100 ha and supports a diverse array of flora and fauna, including numerous bird species (Kathiresan 2000). The area is characterised by its complex network of tidal waterways, mudflats, and mangrove vegetation, providing ideal habitats for both resident and migratory birds (Sampath & Krishnamurthy 1993).

An avifaunal study was conducted as part of a PhD project (2022–2025) in Pichavaram. On 23 April 2024, during a monthly ornithological survey of the Pichavaram mangrove forests and the adjacent C. Manampadi Village (11.4689° N, 79.7602° E), six Oriental Pratincoles were observed exhibiting aggressive behaviour by repeatedly chasing a *Corvus* species in an open area. Following the discovery of nesting activity, targeted nest surveys were conducted twice weekly by a single observer.

Observations were made from a safe distance using Nikon 10 × 50 binoculars and a Nikon P600 camera to minimise disturbance, following standard ethical guidelines (Barve et al. 2020). This chasing behaviour was interpreted as indicative of nest defence. The Pratincoles successfully deterred the crow, after which one individual alighted approximately 65 m from the observer and moved towards its nest.



Adult Oriental Pratincole in grassland habitat. © I. Jamil Hussain.



Adult Oriental Pratincole displaying wing-spreading behaviour. © I. Jamil Hussain.



Oriental Pratincole nest with clutch of eggs and scale reference. © I. Jamil Hussain.



Juvenile Oriental Pratincole in open habitat. © I. Jamil Hussain.

The bird displayed vigilant behaviour before settling. The nests were subsequently located opportunistically based on adult behavioural cues.

As the observer approached cautiously, another individual engaged in distraction displays.

Owing to the strong camouflage of the eggs, nest detection was challenging. Initially, a nest containing two eggs was located, followed by a second nest with a single egg approximately 20 m away on 23 April 2024. On 26 April, two additional nests were identified, containing two and three eggs, respectively. Further surveys on 02 May revealed three more nests, each containing two eggs. In total, seven nests were documented, with clutch sizes ranging from one to three eggs.

The eggs measured an average of 2.8 cm (length) × 2.4 cm (width) ($n = 5$; range: 2.7–2.9 cm in length and 2.2–2.6 cm in width). Nests consisted of shallow, unlined ground scrapes on compact sandy-muddy substrate, typically associated with dried, cracked mud and sparse grass cover. The eggs were oval to slightly pyriform, with a pale buff to sandy brown background densely marked with dark brown to black blotches, closely resembling the surrounding substrate and thereby enhancing crypsis.

Nest sites were located in open, sparsely vegetated areas, making them vulnerable to disturbance and predation from cattle, dogs, and crows. Additionally, a juvenile of the Oriental Pratincole was observed in the nesting area, indicating successful hatching at least

in part of the colony. However, monitoring could not be continued beyond the third week because rainfall and freshwater influx caused flooding of the nesting site. All observations were documented through photography and videography to analyse nesting characteristics.

The present nesting record is consistent with previous breeding records from other parts of India. Nesting has been documented from the Hirakud Reservoir in Odisha (Das et al. 2021) and on open substrates in southern Gujarat, where clutch sizes ranged from one to four eggs (Patel & Moksh 2025). Similarly, nests in the present study were located on exposed sandy-muddy substrates with sparse vegetation, and clutch sizes ranged from one to three eggs.

These observations suggest ecological flexibility in habitat use, with the species utilizing a variety of open habitats ranging from inland reservoirs to coastal mangrove-associated flats.

Comparable nesting ecology has also been documented outside India. Chaiyarat & Eiam-Ampai (2014) demonstrated that grazing pressure can influence nesting success, whereby moderate disturbance may help maintain open habitats, whereas excessive trampling increases nest vulnerability. Similar patterns have been reported in the related Small Pratincole breeding on exposed wetland substrates in Kerala (David et al. 2020). Studies on ground-nesting birds further suggest that reducing disturbance and protecting nesting patches can significantly improve nest survival (Kiss et al. 2024).

Collectively, these studies highlight an ecological compromise in habitat selection. Open, sparsely vegetated habitats enhance egg crypsis and facilitate predator detection; however, they also increase vulnerability to disturbance, predation, and flooding. In the present study, the nesting sites were exposed to threats from cattle, dogs, crows, and flooding caused by rainfall and freshwater influx. Although the nesting area lies within the protected Pichavaram mangrove reserve forest, disturbance in the buffer-zone arising from grazing, fishing, and tourism may affect nesting success. These findings underscore the importance of continued monitoring and targeted habitat management for the conservation of the species.

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References

Barve, S., T.R.S. Raman, A. Datta & G. Jathar (2020). When and how to study the nesting biology of Indian birds: research needs, ethical considerations, and best practices. *Indian Birds* 16(1): 1–9.

BirdLife International (2024). Species factsheet: Oriental Pratincole *Glareola maldivarum*. <https://datazone.birdlife.org/species/factsheet/oriental-pratincole-glareola-maldivarum>. Accessed on 29.iv.2026.

Chaiyarat, R. & K. Eiam-Ampai (2014). Effects of grazing on nesting of the Oriental Pratincole (*Glareola maldivarum*) in Bueng Boraphet Wetland, Thailand. *Zoological Science* 31(2): 77–82.

David, J.P., C. Sivakumar, S.V. Kumar & G. Matchachan (2020). First breeding record of the Small Pratincole *Glareola lactea* and River Tern *Sterna aurantia* in Periyar Lake, Periyar Tiger Reserve, Kerala, India. *Bird-o-soar* #40, In: *Zoo's Print* 35(2): 25–27.

Das, A.K., S.K. Jena, B.K. Majhi & S. Behera (2021). Nesting record of Oriental Pratincole in Debrigarh Wildlife Sanctuary, Odisha, India. *Bird-o-soar* #84, In: *Zoo's Print* 36(5): 33–36.

Khan, A.N. (2017). First record of Oriental Pratincole *Glareola maldivarum* from Lakshadweep Archipelago. *Journal of the Bombay Natural History Society* 114.

Kathiresan, K. (2000). A review of studies on Pichavaram mangrove, southeast India. *Hydrobiologia* 430: 185–205.

Kiss, Á., Z. Végvári, V. Kubelka, Á. Monoki, I. Kapocsi, S. Góri & T. Székely (2024). Breeding in an agricultural landscape: conservation actions increase nest survival in a ground-nesting bird. *Oryx* 58(2): 240–249.

Manakadan, R., J.C. Daniel, N. Bhopale & J.H. Dick (2011). *Birds of the Indian Subcontinent – A Field Guide*. Bombay Natural History Society, Mumbai, 409 pp.

Patel, J.H. & P. Moksh (2025). Notes on breeding of Oriental Pratincole *Glareola maldivarum* in South Gujarat. *Flamingo Gujarat* 8(4): 10–18.

Sampath, K. & K. Krishnamurthy (1993). Birds of the Pichavaram mangroves and the adjoining coastal environs. *Journal of Ecological Society* 6(1): 23–38.

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Tracking from the traces: forensic tools to combat Galliformes trafficking

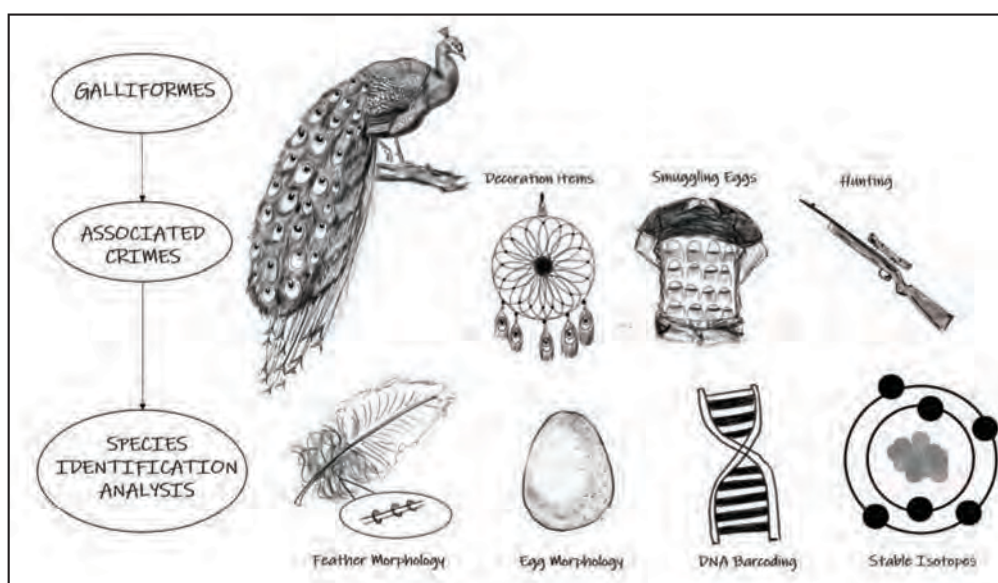
“Stolen from the wild, secretly sold in silence” – illegal wildlife trade is a major threat to global biodiversity. Wildlife crime thrives in secrecy, but forensic science uncovers the truth. It isn’t just about poaching, it is a multibillion-dollar illegal industry where feathers, meat, bones, and eggs are monetized. India ranks among the top 20 countries, serving both as a source and transit country for wildlife products. According to NCRB (National Crime Records Bureau) data, seven (7) Indian states registered for large number of wildlife crime cases in the last eight years (2014–2021) (Rana & Kumar 2023). What was once practised for subsistence has now turned into a ruthless trade, and India has become a major hub for wildlife trafficking.

Illegal bird trade is a growing concern in India, with Galliformes among the most commonly trafficked groups. Of the 290 species worldwide, over 25% are at risk of extinction

as per IUCN (McGowan & Garson 2002). India has a rich diversity of 43 Galliformes, all are protected under the Wildlife (Protection) Act, 1972, including 22 Schedule-I species and 21 Schedule-II species. Recently, the IUCN Red List categorized two species as ‘Critically Endangered’ (*Perdica manipurens* & *Ophrysia superciliosa*), one as ‘Endangered’ (*Pavo muticus*), five as ‘Vulnerable’ (*Megapodius nicobariensis*, *Tragopan melanocephalus*, *Tragopan blythii*, *Syrmaticus humiae*, & *Catreus wallichii*), three as ‘Near Threatened’ (*Arborophila mandellii*, *Ortygornis gularis*, & *Coturnix japonica*), and the remaining 32 as ‘Least Concern’ (Praveen & Jayapal 2025).

Threats to Galliformes

Gamebirds are targeted for plumage, meat, sport, and cultural value. Poachers use traps, and even raise chicks from wild eggs using domestic fowls and sell as an ornamental pet



An illustration depicting the bird-associated crimes and modes of species identification using forensic ornithology.

(Aiyadurai 2011). Exotic Galliformes are also bred in zoos and private aviaries for aviculture collection in India (Fernandes 2018).

Meanwhile, ornamental pheasants especially the *Pavo cristatus*, is admired for its vibrant feathers and deep cultural significance in Indian culture. Peacock feathers can be found being sold in market places-they have become an inseparable part of tradition, spirituality, and fashion. With rising demand, feathers are widely sold via e-commerce platforms for use in souvenirs, costume decorations, fashion accessories, and craft materials (Singh & Israruddin 2022). Even, social media platforms (Sharma 2024) have further fueled this trend, making these colorful feathers a must-have accessory in every household. Though Indian law permits the legal domestic trading of naturally shed feathers, poachers often trim the base, making it difficult to distinguish between illegally plucked ones, thereby raising concerns about their true origin. In the battle against this crime, forensic ornithology is emerging as a breakthrough.

Forensic Ornithology

1. Morphological analysis: Feather morphology

Feathers are key evidences in forensic ornithology. A feather consists of a calamus, rachis, barbs, barbules, and sometimes afterfeather. Pennaceous barbs interlock with hooklets and plumulaceous barbs have nodes and internodes. This arrangement vary across different feather types such as contour, flight, down, semiplume, filoplume, and bristle. Under a light microscope & scanning electron microscope, structures like hooklets, ventral

teeth, cilia, spined nodes, and ring nodes can be observed in Galliformes feathers. The diagnostic characteristic ring nodes along with multiple ring nodes (multiple anuli) are distinguishable characteristic feature (Dove & Koch 2010) (Figure). Therefore, a reference feather database can aid law enforcement for solving mysteries related to Galliformes cases (Sabat et al. 2025). Egg morphology: Galliformes eggs are typically oval to elliptical and show distinct variation in size, color, and shell texture.

A morphometric and photographic egg database would be useful for identifying smuggled eggs (Ivan et al. 2015; Hicks et al. 2023).

2. Molecular analysis: DNA barcoding

This technique uses mitochondrial gene to identify species from degraded samples like blood, tissue, eggshell membranes, and feathers. DNA is extracted, amplified, FINS (forensically informative nucleotide sequencing) sequenced, and compared with databases like NCBI (National Center for Biotechnology Information) and DDBJ (DNA Data Bank of Japan) (Singh et al. 2020). This approach is vital where traditional morphological analysis is challenging and when the samples are in ornamental forms and not in its original form.

3. Stable isotope analysis

This emerging tool traces the origin, animal diet, migration pattern, and distinguish wild from captive birds by analyzing natural variations in stable isotopes like carbon ($^{13}\text{C}/^{12}\text{C}$, $\delta^{13}\text{C}$), and nitrogen ($^{15}\text{N}/^{14}\text{N}$, $\delta^{15}\text{N}$). For instance, $\delta^{13}\text{C}$ values are influenced by relative proportion

of C3 and C4 plants at the base of the food chain whereas $\delta^{15}\text{N}$ values are influenced by diet and trophic position. This technique, thus, helps in verifying wild birds from those raised in captivity, as captive diets tend to be more uniform and reflect artificial feeding regimes (Hill et al. 2025).

With rising avian crimes, forensic ornithology is advancing through tools like scanning electron microscopy, UV vis spectroscopy, transmission electron microscopy for accurate species identification. Studies like Ray et al. (2022) on the Common Myna highlight the need for more feather-based research in India. Expanding plumology and developing comprehensive forensic databases will significantly aid law enforcement in protecting both native and exotic avifauna. To achieve further databases for different birds, wildlife forensic laboratories must be modernized and staffed with skilled technicians. By building strong forensic databases, we will not just be identifying birds, we could give them a voice to fight against wildlife crime.

References

- Aiyadurai, A. (2011). Bird hunting in Mishmi Hills of Arunachal Pradesh, north-eastern India. *Indian Birds* 7(5): 134–137.
- Dove, C.J. & S. Koch (2010). Microscopy of feathers: a practical guide for forensic feather identification. *Journal of American Society of Trace Evidence Examiners* 1(1): 15–61.
- Fernandes, M. (2018). Galliformes in illegal wildlife trade in India: a bird's eye view. *TRAFFIC Newsletter* 29: 30–34.
- Hicks, M. et al. (2023). The identification of bird eggshell by scanning electron microscopy. *Journal of Archaeological Science* 151: 105712.
- Hill, K.G.W. et al. (2025). Feather forensics: tracing the origins of parrots in wildlife trade with stable isotopes and citizen science. *Animal Conservation*
- Ivan, M. et al. (2015). Application of bird egg morphometrics in phylogeny. *Acta Biologica Sibirica* 1(3-4): 92–102.
- McGowan, P.J.K. & P.J. Garson (2002). The Galliformes are highly threatened: Should we care?. *Oryx* 36(4): 311–312.
- Praveen, J. & R. Jayapal (2025). Checklist of the birds of India (v9.0). <http://www.indianbirds.in/india/>. Published on 5.v.2025.
- Rana, A.K. & N. Kumar (2023). Current wildlife crime (Indian scenario): major challenges and prevention approaches. *Biodiversity and Conservation* 32(5): 1473–1491.
- Ray, S.D. et al. (2022). Feather characteristics of Common Myna *Acridotheres tristis* (Passeriformes: Sturnidae) from India. *Journal of Threatened Taxa* 14(6): 21161–21169.
- Sabat et al. 2025. (2025). Traditional Ethnozoological Practices of Galliformes by Indigenous Inhabitants in Koraput District of Odisha, India. *Ethnobiology Letters*, 16(1): 40-55.
- Sharma, M. (2024). 'Keep Peacock feathers at these places to attract luck and wealth' Times of India, 17 September. <https://timesofindia.indiatimes.com/astrology/vastu-feng-shui/keep-peacock-feathers-at-these-places-to-attract-luck-and-wealth/>. Accessed on 07.vii.2025.
- Singh, A. & M. Israruddin (2022). Trade of Indian Peafowl *Pavo cristatus* Feathers on E-commerce Websites in India. *Journal of the Bombay Natural History Society* 119: 166969.
- Singh, G. et al. (2020). Identification of selected wild felids using hair morphology and forensically informative nucleotide sequencing (FINS): Wildlife forensics prospective. *Legal Medicine* 14(44): 101692.

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Threats to Indian Thick-knee in West Medinipur, West Bengal

Indian Thick-knee also known as Indian Stone-curlew *Burhinus indicus* is mystifying bird found distinctively in dry, deciduous and thorn forest in India. They are widespread resident species in most parts of India (Madhya Pradesh, Uttar Pradesh, Rajasthan, Maharastra). They live in chalky soils or steppe like grasslands and dried out riverbeds for breeding (Gupta & Kaushik 2012; Grimmett et al. 2013). This shy bird can easily be identified by their characteristic sandy brown colour, with long yellow legs, yellow and black bill with typical large yellow eyes.

The prominent black and white wings bars, which help them to camouflage with background habitat (Ali 1996; Green & Taylor 1995). They used to feed on invertebrates,

earth worms, insects, dung beetles, small frogs & toads (Green et al. 2000).

West Medinipur is a district in West Bengal, the average temperature in hot and cold seasons are 35°C and 20°C, with an average rainfall of 150 mm between June and September months. During our study in March 2025 (22.4436° N, 87.2567° E) we found six pairs of Indian Thick-knee.

This area is mixed up with unfertile hard lateritic and loam soil with mixed vegetation of Sal forest along with Mahua *Madhuca* sp., Jamun *Syzygium* sp., Tal *Borassus* sp., Khejur *Phoenix* sp. trees, small grasses scattered on abandoned agricultural land, and a water body.



Indian thick knee sitting at ground level



Indian thick knee standing curiously.

In our study, we observed that during daytime all birds were vanished in Sal forest. But in the evening, they slowly come out into the open fields and makes loud call. They are generally more active in dark. When they are terrified by humans or any wild animals, they crouch down and hide in a dry leaf or grass, very difficult to detect the camouflaged bird.

Their major threats are from wild predators. In this area we observed boost in the number of Golden Jackals during last few years. Jackals continuously disturb them during resting and incubation. This area is also used for cattle grazing which is also affecting their breeding.

On the contrary their prime threat is man-made forest fires. During our last visit in the end of April we observed burned forest floor (consuming the surface litter and underbrush); adjacent grassland has been severely affected by forest fires. As a result, all birds used to move in different places. We talked with local people and informed them about the presence of the bird, its importance in environment and how human activities (forest fires) and random

use of non-specific pesticides wiping out their feeding ground. We tried to convince them not to set fire at least during breeding months. The presence of Indian Thick-knee indicates environmental health of this habitat.

References

- Ali, S. (1996). The Book of Indian Birds. Bombay Natural History Society and Oxford University Press, Mumbai, 354 pp.
- Green, R.E. & C.R. Taylor (1995). Changes in Stone Curlew, *Burhinus oedichnemus* distribution and abundance and vegetation height on chalk grassland at Porton Down, Wiltshire. Bird Study 42(3): 177–181.
- Green, R.E. et al. (2000). Habitat selection, ranging behavior and diet of Stone Curlew (*Burhinus oedichnemus*) in southern England. Journal of Zoology 250(2): 161–183.
- Grimmett, R. et al. (2013). Birds of Indian Subcontinent. 2nd Ed., Oxford University Press, 528 pp.
- Gupta, R.C. & T.K. Kaushik (2012). Field observations on Stone Curlews in and around Kurukshetra, Haryana. Our Nature 10: 71–75.

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