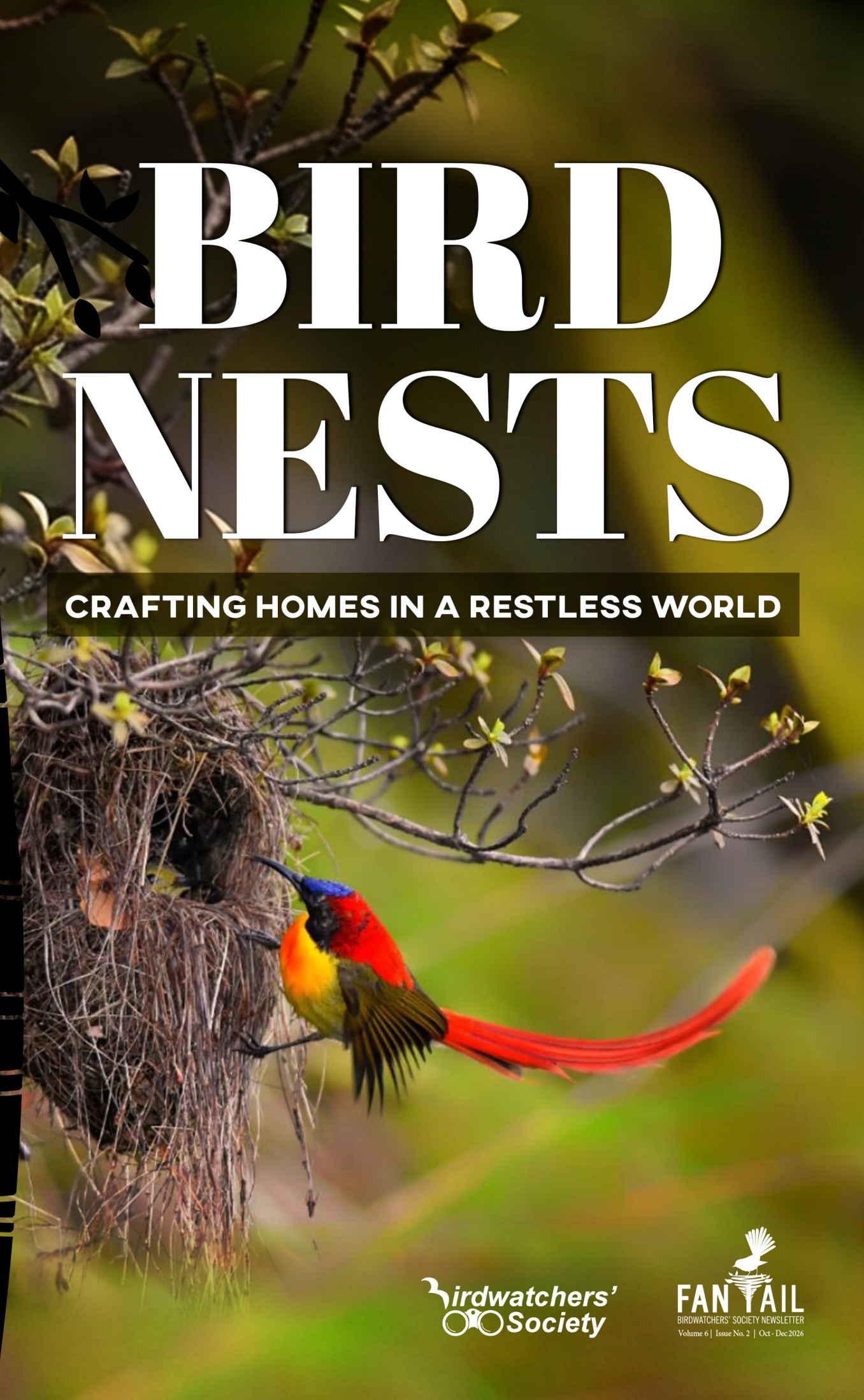


BIRD NESTS

CRAFTING HOMES IN A RESTLESS WORLD



PENTAX
BINOCULAR

Since 1938

NEW A-SERIES AND S-SERIES BINOCULARS

ED (Extra-low Dispersion)
optical elements deliver a sharp,
high-contrast, blur-free view.



*T&C APPLIED



+91 88044 04499 @ricohpentaxindia www.ricohpentax.in

Fantail is a newsletter published by Birdwatchers' Society. This newsletter's primary aim is collecting and disseminating learnings, experiences and anecdotes contributed by citizens through their observations from the field. While the emphasis is on the avian world, equally important are the observations of the habitat and environment of the avifauna including conservation, biodiversity and acknowledge citizen scientists of the region.

Editorial Flock:

Click on this link to know about FANTAIL editorial team
<https://birdwatcherssociety.org/publications-newsletters/flock>

Theme:

Bird Nests: Crafting Homes in A Restless World

Design, Layout & Graphics:

W3Webhelp (www.w3webhelp.com)

Front Cover:

Fire-tailed Sunbird; Photo -
Kallol Mukherjee

Inside Back Cover

Jungle Owlet; Paining -Lester Perera

Back Cover:

Young Birders' Month Announcement

Publisher:

Birdwatchers' Society
 Address: DB 75, Salt Lake,
 Kolkata 700064, INDIA

Printer:

Sadhana Udyog
 Address: 76 B B Ganguly Street.
 Kolkata 700012

Email:

birdwatcherssocietywb@gmail.com

Website:

<https://birdwatcherssociety.org>

TABLE OF CONTENTS

01	Editorial
03	The First Nest Rajdeep Mitra
10	The Wonders Of Bird Nests Dr Asad Rahmani
23	The Extraordinary Architecture of Bird Nests: Crafting Homes in a Restless World Dr Kanad Baidya
45	Among The Mangroves: Nesting Of The Collared Kingfisher In The Indian Sundarbans Deblina Biswas & Dr Kaushik Deuti
50	Guardians Of The Forest Cavities: What Eight Years Of Watching Hornbills Revealed In Buxa Tiger Reserve Hornbill Research Team, Nature Mates and Nature Conservation Foundation
58	Threads Of Survival: Comparative Nesting Landscapes Of The Finn's Weaver Shreya Samanta & Adhirup Ghosh
63	A Day At The Crane's Nest Somnath Goswami
66	Why Do Some Birds Choose To Nest Near Humans? Soumyojit Talukder
71	The Nest On The Sundari: Story Of Our Fantail Family Batul Pipewala
76	BBM 2026 Update Soumi Chaudhuri
102	Nature Etched In Art Animesh Manna
104	School Of Birds Update Titash Chakrabarti
109	Flights Of Fancy
112	অস্থির পৃথিবীতে পাখির আপন নীড় (A Bird's Own Nest In A Restless World) বিশ্বরঞ্জন গোস্বামী
117	Book Review - Birds Of Peculiar Beaks Author: MK Bhaskar Amitava Dutta
119	Fresh & Rare Sightings (Arrivals) Kousheyo Bagchi

Crossword

Hiya Chatterjee

Perspectives

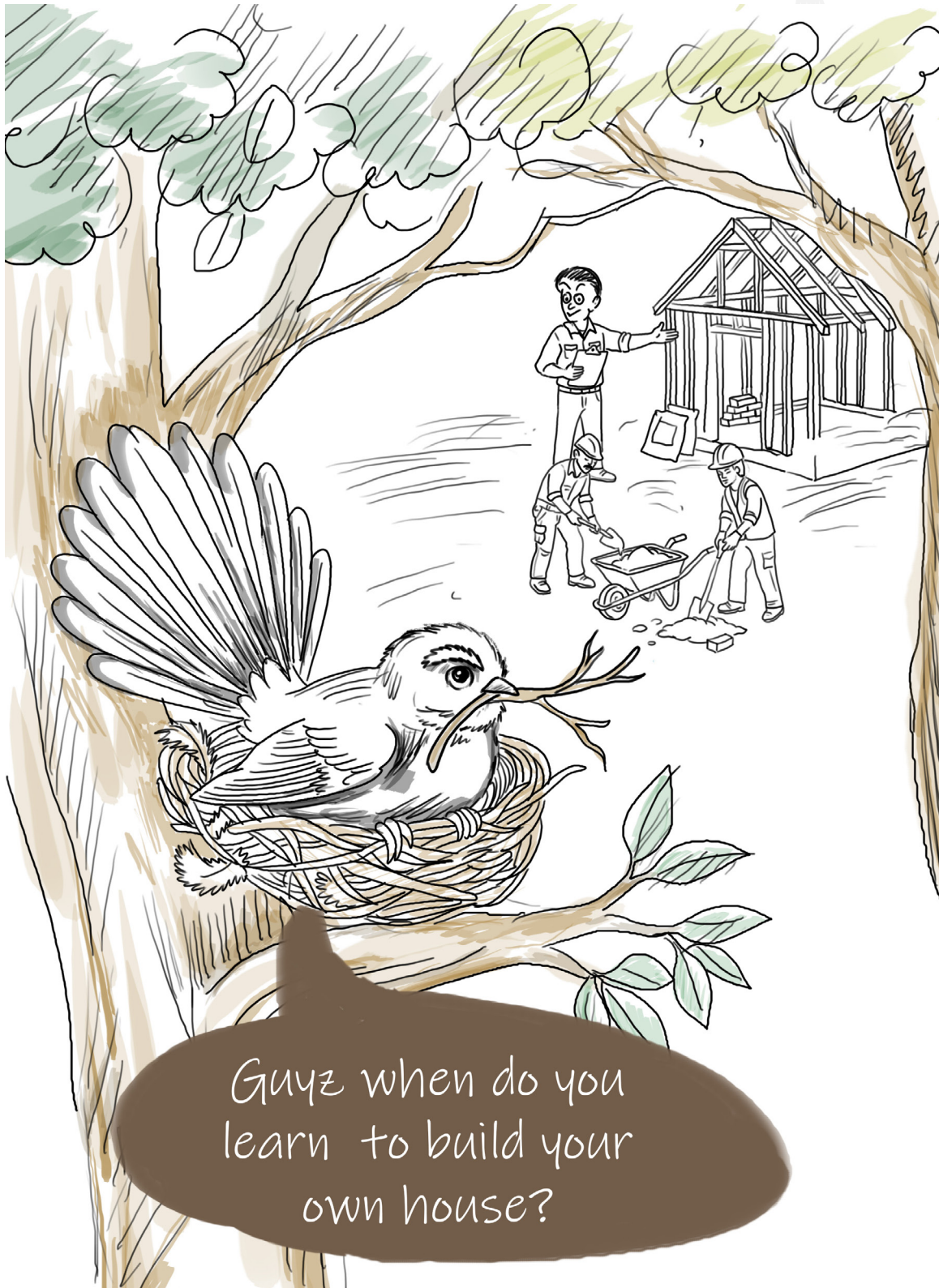
* Fanny:

Aindrila Sarkar Deb

* The Juvenile Birder:

Titash Chakrabarti

PERSPECTIVE



Courtesy: Aindrila Sarkar Deb

“The habit of forming a more or less elaborate structure for the reception of their eggs and young, must undoubtedly be looked upon as one of the most remarkable and interesting characteristics of the class of birds.

The Philosophy of Birds' Nest **Alfred Russel Wallace**”



“A masterpiece of courtship architecture—the Yellow-breasted Bowerbird’s bower, crafted not to nest, but to impress”.

Yellow-breasted Bowerbird’s Bower. Photo Credit: Sujan Chatterjee

EDITORIAL

Dear Readers,

Bird Nests: Crafting Homes in a Restless World

Few living beings can match the creativity, precision and craftsmanship of a bird building its nest. What may appear to us as a humble arrangement of twigs, grass, leaves, mud, fibres or feathers is, on closer observation, a remarkably purposeful piece of engineering. Every choice matters – the site, the foundation, the attachment, the structure, the materials, the lining, and sometimes even the camouflage or deception built into the design.

It is this extraordinary world that **FANTAIL Volume 6, Issue 2** puts together. Our theme, “**Bird Nests: Crafting Homes in a Restless World**”, takes the reader on a journey beyond the nest. Not merely a place where eggs are laid and chicks are raised. A nest is, in essence, a response to a challenge birds have faced for millions of years: how to protect the next generation in an unpredictable world.

Rajdeep Mitra opens the issue with his fascinating odyssey, “The First Nest”, travelling backwards through evolutionary time – from the intricate nests of modern birds to the much simpler reproductive structures of their dinosaur ancestors. **As he so evocatively puts it, birds first had to learn “how to build a safe place for hope”.** Dr Asad Rahmani, our beloved author and a regular contributor to FANTAIL, has graciously made time amid the release of his new book to write about the “Wonders of Bird Nests”. In his fluent and engaging style, he shares remarkable facts and fascinating examples, including unique nesting behaviours.

Dr Kanad Baidya then opens the door to the extraordinary architecture of nests. From scrapes and burrows to cups, domes, platforms and woven structures, birds employ an astonishing repertoire of construction techniques – sculpting, moulding, piling, interlocking, stitching and weaving. Their architecture tells us much about the birds that built them, and about the world in which they live.

The richness of this issue, however, lies not only in the building & structure but in observation. Our contributors take us into very different nesting landscapes. In the mangroves of the Indian Sundarbans, the Collared Kingfisher turns natural tree cavities into secure nurseries amid tides, heat, storms and predators as observed by Delina Biswas and Dr Kaushik Deuti. In Buxa Tiger Reserve, eight years of watching hornbills reveal the extraordinary dependence of these birds on forest cavities – and, in turn, the intimate connection between hornbills and the health of the forest as reported by the Hornbill Research Team. Observing the endangered Finn’s Weaver, Shreya Samanta and Adhirup Ghosh take us across contrasting floodplain landscapes, showing how a species can retain its distinctive nest architecture while adapting its nesting locations to local conditions.

Contributions from Somnath Goswami, Soumyojit Talukdar and Batul Pipewala, take us closer still – to the intimacy, vulnerability and unpredictability of nesting. We encounter birds choosing to nest near humans,

the remarkable story of a Fantail family on a Sundari tree, and the quiet drama of watching a nest through an entire breeding cycle. Together, these accounts remind us that field observation is often where ornithology comes alive: in patient watching, repeated visits, unexpected discoveries and the willingness to learn from what birds are actually doing.

Biswa Ranjan Goswami's article, written in Bengali, reveals what these tiny homes teach us about resilience, sustainability and our relationship with nature.

Perhaps the most striking lesson is that there is no such thing as a universally perfect nest. A nest is always a compromise – between strength and energy, concealment and accessibility, insulation and ventilation, safety and exposure. In a restless world, birds continually negotiate these trade-offs. Some adapt their nesting sites to human-altered landscapes; others depend on increasingly scarce cavities, grasslands, wetlands or mature trees. The nest therefore becomes a sensitive indicator of the pressures acting upon the habitat itself.

This issue has received an especially encouraging response from ornithologists, researchers and birdwatchers, who have generously shared their experiences, observations and learnings. Their contributions make this more than a thematic issue on nest architecture. It becomes a collective exploration, by observers, students and scientists alike, of how birds build, adapt, nurture, survive and persist.

And perhaps that is why nests fascinate us so deeply. **As you turn these pages, we invite you to pause the next time you come across a nest. It may seem small and silent, yet within it lies an extraordinary story of engineering, adaptation and life.**

Alongside these remarkable contributions on nests, this issue also brings readers highlights from the 3rd Bengal Birders' Meet 2026, whose proceedings have been carefully documented by Soumi Chaudhuri. We are also pleased to feature the creative artwork of Animesh Manna, inspired by his explorations in the forests of Central India.

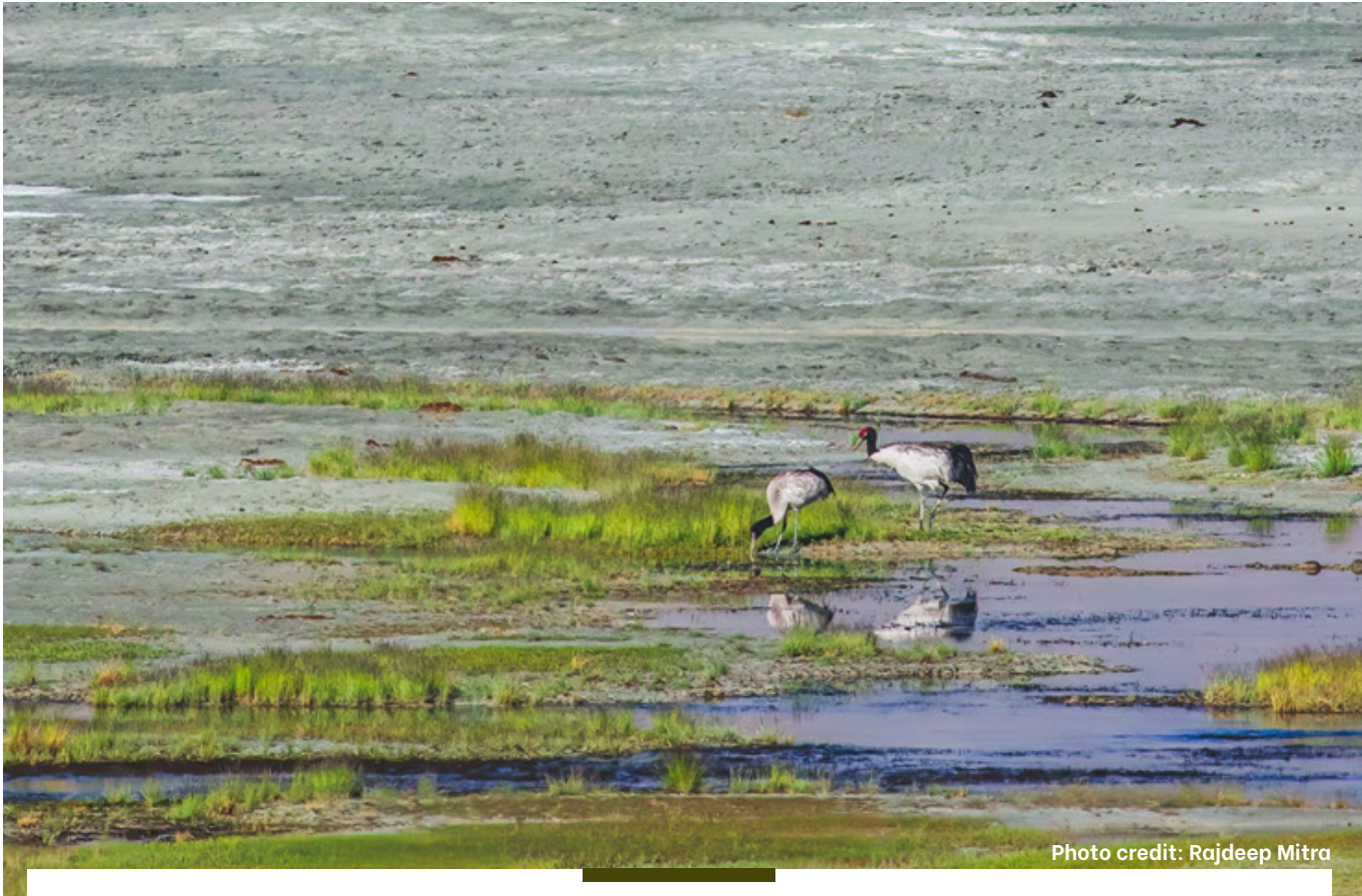
Amid all this, the School of Birds has continued to engage children and citizens through nature walks and other educational activities, with selected highlights presented in this issue's update. Most notably, the programmes presented by the School of Birds at the Bengal Birders' Meet 2026 were remarkable and received rousing applause.

Welcome to this special issue of FANTAIL. We really look forward your thoughts and feedback. Please do write to us birdwatcherssocietywb@gmail.com.

Happy Birding!

Editorial Team

FANTAIL



RAJDEEP MITRA

THE FIRST NEST

“Why do birds spend so much time building their nests”?

The question came unexpectedly. It was around 4 o'clock in the morning, and I had woken up early to catch a glimpse of the sunrise over Tso Kar. My Kashmiri friends and I were on a road trip. We drove from Srinagar to Leh, and for the last few days, we were exploring Ladakh. The sun was yet to rise, the wind had calmed, and the sky above the Changthang plateau looked impossibly clear, full of stars, sharp enough to cut through the darkness. A young forest

guard, wrapped in layers of woollens and old army jackets, sat beside me, warming his hands over the fire we had lit last night.

Somewhere out in the marshes, a pair of Black-necked Cranes had started calling. We had spotted the pair the previous evening, though they remained far out in the distance, ghostlike against the paling night

He pointed toward the darkness.

“They can fly across mountains, cover vast distances,

and go anywhere they wish to", he said. "Why then do birds put so much effort into building nests? Why not just lay eggs anywhere"?

The fire crackled softly. For a moment, I did not answer. Because suddenly I realised that his question was not merely about birds. It was about one of the oldest evolutionary stories on Earth. The story of how life first learned to protect its future.

"Well, Lobzang", I finally said, "birds were not always building nests the way they do now".

He looked surprised.

"You mean nests evolved"?

"Yes", I smiled. "And the first nests were probably nothing more than shallow scrapes made by dinosaurs".

The wind moved again across the plateau. Far away, one of the cranes bugled.

And under that Himalayan night, beside a fire faintly scented with juniper smoke, we began speaking about a story that stretches back to more than 150 million years, into a world ruled not by birds but by reptiles that were slowly becoming something else.

Modern birds make nests so intricate that they sometimes appear almost impossible. The hanging woven chambers of weaverbirds. The floating islands of grebes. The mud towers of flamingos. The cliff nests of vultures. The tiny lichen-covered cups of warblers. The underground burrows of puffins and petrels. The massive stick fortresses of eagles.

Today, more than ten thousand species of birds construct nests in an incredible diversity of forms and locations. Some suspend them over waterbodies. Some make them in sandbanks. Some make them in tree cavities. Others leave them fully exposed on bare Arctic tundra. But if one travels backwards through evolutionary time, through forests that no longer exist and oceans that vanished millions of years ago, the world of nests slowly becomes simpler.

Until eventually, nests disappear altogether.

Long before there were birds, there were dinosaurs.

And long before woven cups were hanging from branches, there were eggs buried underground.

The earliest dinosaurs, especially the basal Saurischians and Sauropodomorphs of the Jurassic, did not incubate their eggs using body heat the way modern birds do. Instead, they depended on the planet itself. Heat from warm soils. Heat from decaying vegetation. Heat from geothermal grounds. Heat from sun-baked floodplains. Their nests were not truly nests in the modern avian sense. They were scrapes. Hollows. Simple depressions in the ground.

Fossil evidence from Titanosaur nesting sites in Argentina's Auca Mahuevo and from the Late Cretaceous deposits of India's Narmada Valley suggests that many sauropods buried their eggs completely underground. Entire colonial nesting grounds once stretched across prehistoric floodplains, hundreds of animals perhaps returning seasonally to the same locations like gigantic reptilian seabird colonies.

"Very much like turtles"? the guard interrupted.

"In some ways, yes", I replied. "More crocodilian than avian".

The eggs of those early dinosaurs were likely white because they remained hidden beneath sediment, away from ultraviolet radiation and out of sight from predators. Their eggshells possessed high pore densities, allowing gas exchange even within humid buried substrates. Unlike modern birds, these eggs were probably never rotated. The Earth incubated them. In many ways, the planet itself was acting as the parent.

What fascinates me most is that traces of this ancient reproductive world still survive today. In the rainforests of the Nicobar Islands, Nicobar Megapodes build gigantic incubation mounds of decomposing vegetation. Steam rises from these nests during cool mornings. The birds constantly measure mound temperature with astonishing precision, adding or removing leaves like a biological engineer regulating

an external womb. Meanwhile, Polynesian megapodes bury eggs in geothermally heated volcanic sands. These birds are echoes. Living reminders of a time when incubation belonged more to geology than to the parent. The fire had started dying down.

I pushed another piece of wood into the flames.

"You know", I continued, "for millions of years, evolution was not trying to build beautiful nests".

"What was it trying to do"?

"Solve a problem".

"What problem"?

"How to keep eggs alive".

The Mesozoic world was not gentle.

Floodplains shifted unpredictably. Volcanism reshaped landscapes. Predators prowled constantly. Temperatures fluctuated wildly. Seasonal droughts transformed ecosystems.

An egg is an extraordinarily fragile thing.

Inside that shell lies an entire future nervous system, a beating heart, developing eyes, delicate bones, and the blueprint of a living animal. One flood, one hungry predator, one badly chosen nesting site, and millions of years of evolutionary investment vanish instantly. Nest evolution, therefore, is really the story of risk.

Where is the safest place to place the future?

As theropod dinosaurs evolved, their nests slowly began changing. Groups within Pennaraptora—especially the Oviraptorosaurs and Troodontids no longer completely buried their eggs. Fossil evidence suggests that their eggs remained partially exposed above the substrate. That may sound like a small shift. But evolutionarily, it was revolutionary. Because once the eggs were partially exposed, parents could interact with them directly. Guard them. Protect them. Warm them.

And eventually.... incubate them.

One of the most extraordinary fossil discoveries ever made was that of oviraptorid skeletons preserved sitting atop clutches in Mongolia's Gobi Desert. Their forelimbs spread protectively across eggs in postures hauntingly similar to brooding birds.

For decades, people imagined dinosaurs as giant reptilian monsters disconnected from birds. But then palaeontologists uncovered Troodon, Oviraptor, Velociraptor, feathered theropods exhibiting incubation behaviours astonishingly bird-like in nature. And then suddenly, the boundary between dinosaur and bird began dissolving.



Photo credit: Jonathan Chen

Figure 1: Fossilised oviraptorid (*Citipatiosmolskae*) preserved in a brooding posture atop its clutch of eggs from the Late Cretaceous deposits of Mongolia's Gobi Desert. The outstretched forelimbs surrounding the partially exposed eggs provide some of the strongest evidence that non-avian theropod dinosaurs exhibited bird-like incubation behaviour, representing a crucial evolutionary transition between buried reptilian nests and the contact incubation seen in modern birds.



Figure 2: An oviraptorid specimen [LDNHMF2008] consisting of an adult skeleton preserved atop an embryo-bearing egg clutch. Bi, Amiot, Peyre de Fabrègues, ... et Xu, 2020. DOI: 10.1016/j.scib.2020.12.018 facebook.com/PalaeoPittman twitter.com/ClairePdf Artwork by Zhao Chuang. english.IVPP.cas.cn

The first time I saw a reconstruction of one of those fossils in the Natural History Museum in London, it unsettled me. Because it no longer looked like a reptile. It looked like a parent.

The guard listened silently.

Above us, the Milky Way stretched across the Ladakhi sky.

“It’s strange”, he finally said. “You’re telling me parental care changed the course of evolution”?

“In many ways, yes”.

Because once theropods began investing more heavily in offspring survival, everything else began changing as well. Clutch sizes gradually reduced. Eggs became more specialised. Nest structures became more elaborate. And eventually, the chicks themselves became more dependent.

Even the anatomy of reproduction had transformed.

Basal dinosaurs and crocodylians possessed two functioning ovaries. But fossils of early avialans like Jeholornis and several Enantiornithines (opposite birds) suggest the emergence of a single functional ovary, one of the defining characteristics of modern birds. This probably evolved close to the origin of powered flight, reducing body mass during egg production. Modern birds are descendants of this increasing intimacy between parent and offspring.

The evolution of nests is therefore not merely architectural. It is physiological. Behavioural. Emotional.

One of the great transitions in avian evolution happened quietly. The shift from buried nests to open nests.

For millions of years, eggs had remained hidden inside the earth. But early birds slowly began freeing their eggs from the Earth.

The Enantiornithes, the dominant avialans of the Cretaceous, occupied an intermediate evolutionary stage in this transition. These archaic birds had teeth and clawed fingers on their wings, yet already looked remarkably bird-like. Fossils from Patagonia suggest that many Enantiornithes still laid elongated eggs partially buried in sand, often vertically oriented with the pointed end downward.

They were suspended between worlds. Not fully reptilian. Not fully modern. Like evolutionary experiments. Some probably nested colonially near ephemeral rivers cutting through ancient dune systems. I often try imagining those nesting grounds.

Cretaceous winds blowing over desert sands. Small-toothed birds moving between nests. Half-buried eggs protruding from warm substrate. Dromaeosaurids stalking nearby. Pterosaurs, the flying reptiles overhead. The world must have felt alien. Yet at the centre of it all remained something deeply familiar: parents trying to protect their young.

Then came catastrophe.

Sixty-six million years ago, the Chicxulub asteroid struck Earth.

The impact unleashed earthquakes, tsunamis, wildfires, darkness, acid rain, and ecological collapse on a planetary scale. Food webs collapsed. Forests burned. Atmospheric dust altered climates worldwide. Most dinosaurs disappeared. The Enantiornithes vanished.

Countless ancient lineages ended forever.

But some birds survived.

And perhaps one reason they survived lay in 'their nests'.

The Neornithes- the lineage containing all modern birds are thought to have nested above ground in more exposed locations and provided increasingly sophisticated parental care. Unlike eggs buried beneath sediment and dependent on stable environmental heat, exposed eggs could be behaviourally regulated by parents. If temperatures dropped, adults could incubate longer. If storms came, they could shield eggs. If environments changed rapidly, they could alter behaviour immediately.

It was flexibility.

And in mass extinctions, flexibility often decides which lineages endure and which vanish forever.

The strange thing about evolution is that enormous planetary events can hinge upon tiny biological details. Sometimes survival depends on whether an egg was buried or exposed.

By now, the fire had reduced to embers. But the conversation kept moving.

"So when did the birds begin building proper nests"? he asked.

"Probably when forests began changing the world".

Because after the mass extinction, Earth transformed again. Angiosperms, the flowering plants, spread explosively. Shrubs expanded. New canopy layers appeared. Forest architecture itself became more complex.

And birds responded. Some species nested in cavities. Some on cliffs. Some over water. Some on the riverbanks. Some in shrubs. Some high in newly evolved forest canopies. Nest architecture exploded into diversity.

Tree cavities became especially important. Piciformes such as woodpeckers excavated holes. Secondary cavity nesters, tits, barbets, parrots, rollers, and kingfishers later reused them. Cavities provided stable nest microclimates, shielding eggs from rainfall, thermal extremes, and many predators.

But cavities also imposed constraints. Suitable holes were not always available.

Competition became intense. Some cavity nesters could even become trapped inside by predators.

And so evolution continued experimenting.

Some birds began constructing domed nests. These enclosed nests were essentially portable cavities. Ovenbirds of the Furnariidae built elaborate clay chambers. Babblers wove enclosed structures close to the ground. Long-tailed Tits stitched moss, spider silk, and lichens into architecturally remarkable globes. Domed nests likely evolved partly to regulate nest microclimate and reduce environmental exposure, especially in harsh or arid habitats.

But eventually another innovation emerged.

The open cup nest.

Simple. Lightweight. Flexible.

And perhaps one of the most evolutionarily successful structures ever built by vertebrates.

Passerines, the songbirds, diversified explosively during the Cenozoic alongside the spread of shrubs and flowering vegetation. Open cup nests could be constructed almost anywhere.



Photo Source: wikimedia

Figure 3: Diversity in cup-shaped nests of passerine birds. These open cup nests, woven primarily from grasses, fibres, roots, and leaves, represent one of the most widespread and evolutionarily successful nesting strategies among songbirds

Forked branches. Grass stems. Mangroves. Cliff ledges. Cacti. Canopies. Urban buildings. Telephone poles. The world itself became a nesting habitat. And with that flexibility came ecological conquest.

Today, passerines dominate nearly every terrestrial ecosystem on Earth. Sometimes I think one of the greatest evolutionary revolutions was not flight. It was portability. The ability to carry safety into almost any environment.

The first light of dawn had begun touching the mountains. The marshes slowly emerged from darkness. The pair of Black-necked Cranes we saw yesterday stood silhouetted in shallow water.

Their nest was somewhere out there.

A mound carefully built above fluctuating water levels. Not woven. Not architecturally complex. But perfectly suited to the ecology of the landscape.

That is the important thing about nests.

There is no universally perfect nest.

Every nest is a compromise. Between camouflage and visibility. Between insulation and ventilation. Between safety and accessibility. Between structural strength and energetic cost.

Even nest materials became adaptive.

Birds in colder climates evolved to use more insulating materials. Species inhabiting wetter tropical environments frequently select materials that drain efficiently or resist fungal growth.

Nests are not static objects. They are behavioural extensions of climate.

Of geography. Of predation. Of vegetation. Of evolutionary history.

And perhaps most importantly, of parental investment.

As birds evolved increasingly altricial young, blind, naked, helpless nestlings dependent upon continuous provisioning, nests also evolved into nurseries capable of supporting those vulnerable offspring.

A hummingbird nest and an eagle nest may look vastly different. But both are answers to the same ancient question:

How do you keep the future alive?

The guard looked toward the cranes.

“So every nest”, he said slowly, “contains millions of years of trial and error”.

“Yes”.

“And every bird carries the memory of older worlds”.

I nodded.

Because hidden inside every modern nest lies the shadow of prehistoric Earth. The scrape nests of Sauropods. The geothermal incubation mounds echoing Megapodes. The partially buried clutches of Troodontids. The brooding Oviraptorosaurs. The transitional nests of Enantiornithines. The first exposed eggs of Neornithes. The first cavities. The first domed structures. The first open cups trembling in newly evolved shrubs during the Cenozoic.

A nest is never just a nest.

It is an evolutionary fossil made not from bone, but from behaviour.

The sun finally rose over the mountains. Golden light spilt across the marshes.

One of the cranes lowered its head and began rearranging vegetation beside the nest. Carefully. Patiently. Instinctively.

An act repeated for millions upon millions of years.

And suddenly I realised something.

Long before birds learned songs complex enough to fill forests...long before feathers became brilliantly coloured...long before migration stitched continents together...

Birds first had to learn something simpler.

How to build a safe place for hope.



About Author

RAJDEEP MITRA

Rajdeep is a PhD scholar at Wildlife Institute of India, Dehradun studying migratory birds. His interest lies in understanding movement ecology, migration strategies, and the factors shaping how birds navigate and respond to changing environments. His work aims to contribute to wildlife conservation by generating scientific knowledge that can support evidence-based conservation planning, strengthen the protection of important habitats, and inform strategies for safeguarding migratory birds and the ecosystems they depend on.



Pelican nests; Photo Credit: Asad Rahmani

DR ASAD RAHMANI

THE WONDERS OF BIRD NEST

Poetry in almost all languages is known for imaginary hyperboles and fanciful embellishments of words. Urdu language is no exception. There are a number of shairs (couplets) that talk about birds (chidyas) going to their baseeras or ghoslas (nests) as the sun sets in. Some consider it as a simile of a lost (bhatka) soul coming back home (senses). Here, I will leave it to your imagination how to interpret the following couplet:

*Shaam hote hi parinday bhi laut aate hain
Ek hum hain jo hijrat ki thakan bechte hain
Jaane kis des ko nikal gaye wo pankh phelaye
Jo subah chaman se udte hain, shaam ko laut aate hain*

Actually, no diurnal bird goes to its nest at dusk (except those that are breeding). For most part of the year, birds go to safe roosting sites, which may or may not be close to their nesting sites. Only on small islands, where space is a constrain, sea birds may come back close to their former nests. For example, murres, albatrosses, sea gulls, boobies, etc. do this.

As this special issue of Fantail is on birds' nest, I will refrain from mentioning types of nests and other mundane details that can be found in any good ornithology book. I will mention some interesting facts and some amazing examples of nest and nesting behaviour.

NATURAL HISTORY MUSEUM IN VULTURE NESTS:

Bearded Vulture (*Gypaetus barbatus*) is a massive bird of high mountains and valleys of Asia, Europe and northern Africa (with a small population in southern Africa). It nests on cliffs and shallow caves in mountains, and several generations use the same cliffs/caves. Recently, some intrepid scientists in Spain found a treasure trove of nearly 200 ancient human artifacts, including 750-years old shoe, in a vulture nest. The caves microclimate had preserved the material. Most were food items, i.e., bones, hooves, eggshells, hides, but also a slingshot, crossbow bolt, textiles, and human tools. Many came from the carcasses that the vulture had scavenged (vultures do not kill the prey but depend on dead animals), but some were collected as a nesting material. How can you explain a shoe or textile pieces in Bearded Vulture nests.

The Bearded Vultures disappeared from Spain (and many European countries) due to persecution in the mistaken belief that it kills sheep and goats; that is why its old name Lammergeier, a German word "Lamm" meaning "lamb" and "Geier" meaning "vulture", literally translating to "lamb-vulture". The old nesting material was preserved due to environmental reasons of caves, and now such nests are like natural history museums. The discovery was so amazing that it was published in a prestigious journal *Ecology* (*The Bearded Vulture as an accumulator of historical remains: Insights for future ecological and biocultural studies*. 2025;106:e70191).



Bempton Reserve, UK of RSPB; Photo Credit: Asad Rahmani

DOES THE BEAK SHAPE DECIDE THE NESTING MATERIAL?

Birds do not have hands, so their beak and to some extent legs manipulate food and nesting material. In a fascinating study based on the nesting material used by bird species and their beak shapes, researchers from the University of Bristol and the University of St Andrews show that a bird's beak shape and size can accurately predict the type of nesting material it uses. By analyzing data, using machine learning models, from nearly 6,000 bird species, scientists found that beak morphology combined with diet and material access predicts nest-building choices with 68–97% accuracy. The study reveals possible interactions between the evolution of beaks and manipulation, (such as nest building), and helps us to better understand how animals evolved to interact with the world with or without hands.

The study was published in the *Philosophical Transactions of the Royal Society B* (Sheard C, Street SE, Evans C, Lala KN, Healy SD, Sugawara S. 2023 *Beak shape and nest material use in birds*. Phil. Trans. R. Soc. B 378: 20220147. <https://doi.org/10.1098/rstb.2022.0147>)



Baya nest on wires in Visakapatnam;
Photo Credit: Asad Rahmani



Painted Stork nest in Keoladeo;
Photo Credit: Asad Rahmani

DOES BIRD CULTURE DECIDE THE NEST SHAPE?

Architecture of human dwellings depend on environment, availability of building material, history, and culture. But does bird nest shape also depend on bird cultures? Weaver birds make surprisingly elaborate nests. Scientists found that in the White-browed Sparrow-Weavers (*Plocepasser mahali*) in the Kalahari Desert in Southern Africa, different groups make different nest structures, sometimes two groups living a few metres away. For example, some groups build nests with long tube-like entrances while others do not have tubular entrance. Tube width also varied between groups. Furthermore, each group maintained the same architectural style over time—and when outsiders joined, they adapted to this style. When the scientists went looking for reasons for the different nests, they found that neither weather conditions, tree height, individuals' body sizes, or even genetic relatedness could explain it. If closely related birds build similar

structures, for instance, one might assume a genetic element. Yet none of these factors seemed to play a relevant role in shaping how the Kalahari sparrows built their nests. The scientist surmised that it could be due to 'culture'. This is further proved that if an individual joins a new group, it adapts and starts building nests like the those of the new group. We know that songs, knowledge of migratory route and tool use are transmitted socially and culturally but this is the first time that anyone has suggested that even nest shape is transmitted culturally. The study was published in 2024 by Mario C. Tello-Ramos and others in *Science*, Vol 385 (6712): 1004-1009.

Till very recently, nest building in birds was considered innate, i.e., an instinctive, genetically hardwired action that an organism performs automatically without any prior learning, teaching, or practice. Now this has been proved wrong in most of the species that have been studied in detail. For example, the Zebra Finches (*Taeniopygia guttata*) learn from their parents, and also change or continue using the same nesting material depending on the success or failure of nesting (breeding). The birds also modifying both handling techniques and increasingly choosing more efficacious material. In an experimental study on Zebra Finches, scientist found that when given the opportunity to build, males that had watched a familiar male build switched their material preference to that used by the familiar male. Males that observed unfamiliar birds did not. Individuals do not copy indiscriminately, however, they do so only in those situations where social learning is more beneficial than trial-n-error learning. This study titled 'Social learning in nest-building birds: a role for familiarity' by Guillette L. M., Scott A. C. Y., and Healy S.D. was published in 2016 in the *Proceeding of the Royal Society-B*.



Cormorant and Painted Stork breeding colony in Keoladeo; Photo Credit: Asad Rahmani



Danapur colony; Photo Credit: Arvind Mishra



Nesting colony of sea birds in Bampton, UK; Photo Credit: Asad Rahmani

ARTIFICIAL NESTING SITES:

We all know that the White Stork (*Ciconia Ciconia*) of Europe and North Africa nest on houses, often in bustling villages and small towns. I remember, nearly 40 years ago, I saw a stork's nest on a thick wall of a house in Morocco. White Storks are considered sacred and not killed, so humans and birds tolerate each other. Actually, an awkward question by a child to parents that how babies come is answered that it was sent by God through a White Stork – a sort of celestial home delivery! We now find that many species are using towers erected by humans for nesting. For example, in Bhagalpur district, Bihar, I saw a nest of Black-necked Stork (*Ephippiorhynchus asiaticus*) on a tall electric tower with two subadult young ones. I published this in the Journal of the Bombay Natural History Society. Recently, another study published in *Journal of Threatened Taxa* (JoTT) found four nests of the White-bellied Sea-Eagle

(*Haliaeetus leucogaster*) in Ramanathapuram District, Tamil Nadu, on telecommunication/electric towers, out of which three were successful. The authors say that only one artificial substrate nest was recorded in the previous decade. This represents a notable increase of nest on artificial substrate, compared to previous records from the region and suggests a potential behavioural shift. (Byju, H., N. Raveendran & H. Maitreyi (2026). Rapid increase in artificial-substrate nesting by White-bellied Sea-Eagle *Haliaeetus leucogaster* (Gmelin, 1788) (Aves: Accipitriformes: Accipitridae) in Tamil Nadu. *Journal of Threatened Taxa* 18(6): 29138–29142).

In some dense breeding colonies of Spot-billed Pelicans (*Pelecanus philippensis*) in south India, the forest department has erected artificial platforms. Even for these platforms there is intense competition by these majestic birds.

The Egyptian Vulture (*Neophron percnopterus*) is a



Greater Adjutant juveniles; Photo Credit: Asad Rahmani

cliff nester but wherever cliffs are not present, it will use old derelict buildings to make nests. In the desert where cliffs are missing, such as Kutch and Jaisalmer, I have seen nests on high-tension wire towers. Unfortunately, such towers also serve as 'ecological traps' or 'death traps', and many birds are killed after touching two wires accidentally.

In Mongolia, which is mainly covered by endless grasslands, even large eagles and peregrine nest on the ground where many nests fall prey

to ground predators. In order to increase the breeding success rate of peregrine, the United Arab Emirates (UAE) supported a conservation project in Mongolia by funding thousands of artificial pole nests for falcons. These nests were installed in open grasslands where natural nesting sites are scarce. The project helped increase the breeding success of falcons by providing safe places to nest. Although the project mainly focused on the Saker Falcon (*Falco cherrug cherrug*), the artificial nesting structures also benefitted other raptors such as the Peregrine Falcon (*Falco peregrinus*) and eagles, in suitable habitats. This initiative appears to be an example of international cooperation for wildlife conservation but its main purpose was to increase the population of Saker Falcon as it is considered a prime bird for falconry. Falconry is a craze in the Middle East, and in 2024 International Falcon Breeders Auction, one Saker Falcon was sold at 400,000 riyals or 1 crore Indian rupees.



Egyptian vulture; Photo Credit: Asad Rahmani

NESTING IN DEEP DESERTS:

Nesting colonies of birds are generally present in inaccessible areas to ground predators, such as tall thorny trees surrounded by water, or remote islands, or steep cliffs where ground predators such as foxes, jackals, mongoose, monitor lizards, snakes cannot reach. Some birds use remoteness and aridity as a tool to avoid predators. Due to lack of water, many predators avoid such arid areas but birds with ability to fly long distance, nest there. In Saudi Arabia, for example, Socotra Cormorants (*Phalacrocorax nigrogularis*) breeds in large, dense colonies on remote, barren desert islands, where the absence of predators provides a safe nesting environment despite the harsh arid conditions. These birds scrape shallow nests in sandy or gravelly ground and rely on nearby productive coastal waters for fish. Their colonies can



Sooty Tern nesting, and some Brown Noddy in Pitti; Photo Credit: Asad Rahmani

contain thousands of breeding pairs, making them one of the region's most spectacular seabird gatherings. Socotra Cormorant is a Vulnerable species, according to IUCN, therefore protection of these isolated desert islands is essential for the species' long-term survival.

Another species that came under threat was the Lesser Flamingo (*Phoeniconaias minor*). In 2006, Tata Chemicals, in partnership with Tanzania's National Development Corporation (NDC), proposed a large-scale soda ash extraction project at Lake Natron. The project aimed to exploit the lake's rich trona deposits (*sodium bicarbonate*) for industrial soda ash production. However, the proposal quickly became one of the most controversial conservation issues in Africa because Lake Natron is the only regular breeding site in East Africa for the Lesser Flamingo, supporting around 75% of the world's population of the species. An international campaign led by BNHS and BirdLife International forced the Tatas to withdraw the proposal. At present Lake Natron is remote and almost free from predators such as hyenas, foxes, jackals, and adjutant stork. Once a factory and housing colonies are developed, there was a danger that these animals will come, first depending on human waste for food and then slowly on flamingo eggs and chicks. The campaign also argued that constructing a soda ash plant would require extensive infrastructure, including pipelines, roads, water extraction systems, and processing facilities. These activities threatened to alter the lake's fragile hydrology, disturb breeding colonies, and reduce the salinity conditions essential for flamingo nesting. Conservationists also warned that the project could negatively affect tourism and the livelihoods of local Maasai communities that depend on the lake's natural resources. Fortunately, the Tanzanian government has now declared Lake Natron as Ramsar Site but the threat of soda extraction is not over.

MUD NESTS:

We all know of mud nests of swallows and martins in ceilings of old buildings, and even in live houses, temples, mosques, historical monuments and underneath bridges. Birds' dexterity needs to be appreciated of how soddy blobs of mud are transformed by it in a cozy cup shape nest, attached to the ceiling of a house that can tolerate the weight of the bird and eggs/chicks. Some colonies if not disturbed survive for many years/decades but the nests are rebuilt or repaired year after year. However, suddenly for no apparent reasons, the whole colony is abandoned, perhaps to avoid parasite built-up or overcrowding. We still do not know the main reason.

The master mud builder is the Rufous Hornero (*Furnarius rufus*) of South America. These nests often likened to rustic ovens, are a testament to the bird's architectural prowess and adaptability,



Swallow nest inside a shop in Gangtok;
Photo Credit: Asad Rahmani

hence the common name Ovenbird. Made primarily from wet mud (but also with clay or plant matter in some cases), these nests are shaped like domes, with a small side entrance leading to a spacious chamber inside. As the mud dries over time, the nest becomes a sturdy, weather-resistant home capable of withstanding rain and heat. Rufous Hornero is a common bird of gardens, parks, forests, and cultivated fields with sturdy trees. Where trees are few, it builds nest on walls and fences. I saw a nest on a fence in Argentina a few years ago. There are 14 bird species world-wide that make mud houses.

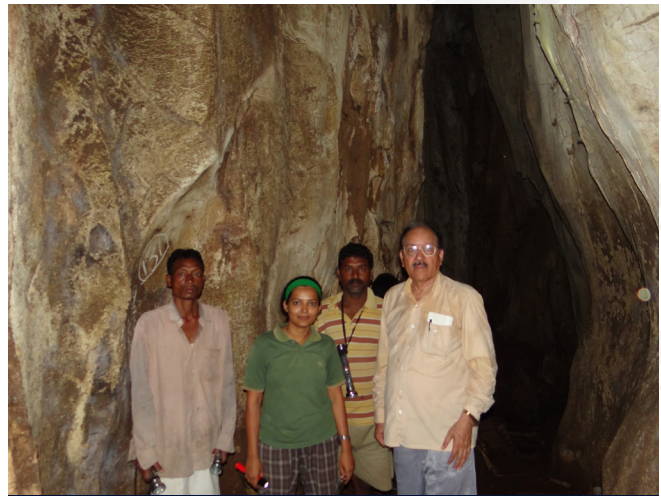
TASTY BIRD NESTS:

Bird nests are generally made of twigs, leaves, branches, feathers, and mud. But do you know that there is one species that make nests of its own saliva? Human being somehow found the 'medicinal value' of these nests, and soup made of nests of Edible-nest Swiftlets (*Aerodramus fuciphagus*) sells for thousands of rupees. One kilogram of Edible-nest Swiftlet nests costs from ₹2,00,000 to ₹8,30,000. The soup has been consumed for hundreds of years in East Asia, particularly China, and is considered a luxurious, health-promoting food, often associated with anti-aging and immune-boosting properties. I once tasted it in Taiwan and found it bland and tasteless. It certainly did not have any effect on my aging!

Along with the late Ravi Sankaran and later his students, Akshya Mane and Shirish Manchi, I have been inside the caves of Edible-nest Swiftlet in Chhhalis-eak, and counted the Swiftlets entering the cave in the Interview Island in Andaman. About my trips and the commercialization of nests of this bird, I will write separately.



Nests of Edible-nest Swiftlet; Photo Credit: Asad Rahmani



Inside cave to study Edible-nest Swiftlets with researcher and staff; Photo Credit: Asad Rahmani

EXPOSING THE NEST:

As eggs and chicks are vulnerable to predation, the main aim of a bird is to hide the nest or build in inaccessible areas. We can leave the large raptors here as they can easily take care of predators, but small passerines face all types of predators and adverse environmental conditions. However, there is one species that intentionally exposes its nest. The highly endangered Finn's Baya or Yellow Weaver (*Ploceus*

megarhynchus) build nests in two types of habitats: reed-covered wetlands, and on tall trees in grasslands. I have written a chapter on this species in my book, *Where Have the Birds Gone?* so will not go into detail of its decreasing numbers and threats to this near endemic species of India and Nepal. I will concentrate on its strange behaviour of exposing its small hanging nests of grass threads with a side entrance. Located on the top canopy of trees, the bird removes all the leaves, leaving the nests exposed. I do not know why it does so. I have seen a small nesting colony in Kaziranga National Park, Assam, on a moderately tall tree, growing in an anti-poaching camp: leaves of the tree around the nest had been removed by the birds. Ornithologists are still debating this strange behaviour of Yellow Weaver.



Finn's Weaver Nest close to Haripura Reservoir; Photo Credit: Kalyan Singh Sajwan

DOES THE COLOUR OF THE EGG DEPEND ON NEST TYPE?

This is another interesting question that had been researched and debated for a long time. We can understand that some hole-nesting birds, such as owls, barbets, kingfishers, and wood peckers have glossy, smooth white eggs. As these birds nest in holes, tunnels, tree cavities and burrows which are dark inside, it is advantageous to have white eggs so they can see them. But why do doves, that makes flimsy nest of stick have white eggs? Their eggs are not only visible from the top but often from the ground.

Some birds that make cup-shape nests, such as bulbuls, warblers, babblers, flycatchers etc. have

coloured eggs. For example, bulbuls have whitish eggs, heavily marked with spots and blotches of dark red, brown, or purplish-brown. Other birds have coloured, speckled, or blotched eggs. Browns, olives, greys, buff shades, and irregular markings may help break up the outline of the eggs and reduce their conspicuousness against the nest material or surrounding vegetation. However, egg colour in open nests is highly variable and is not always strongly associated with reduced predation. Mynas, for example, though nesting in holes have bright-blue eggs.

Ground-nesting species such as lapwings, plovers, waders, coursers, etc. have blotched eggs, mimicking the surrounding areas for camouflaged purpose. Ibisbill (*Ibidodhynchus struthersii*) that lives in boulder-strewn high-altitude rivers has eggs that perfectly merge with the stones that characterize its habitat. So is the case with Indian Courser (*Cursorius coromandelicus*). On stony ground in the Deccan plateau, it is almost impossible to find its nest.

Before I go to the next example of bird nest, it will be useful to mention here that many ground nesting birds are conspicuously coloured during the breeding season (e.g., Dunlin *Calidris alpina*; Curlew Sandpiper *Calidris ferruginea*; Ruff *Calidris pugnax*) or are large (Great Indian Bustard *Ardeotis nigriceps*) so how do they protect their eggs/chicks from ground predators? Such birds, including all waders, employ a distraction display. While incubating eggs, they are extremely alert and look all around. As soon as a potential predator is sighted at a distance, the incubating bird slinks away from the nest, and then alert the predator towards itself and indulges in wing-injury or broken-wing display. The bird drags or droops one wing, flutters awkwardly, and appears injured and unable to fly, thereby attracting the predator's attention. Once the predator has been lured a safe distance away from the nest, the bird suddenly takes flight and escapes. This remarkable distraction display is common among



Black-bellied Tern; Photo Credit: Dhritiman Mukherjee

ground-nesting birds such as plovers, lapwings, sandpipers, and some duck, larks, pipits and even some shrub-nesting birds do this.

It is a common maxim that when danger threatens, Ostrich bury their head in the sand, as if the danger is gone. This adage is used for people who run away from problems, instead of solving them. However, there is an explanation to this popular aphorism. Ostrich nest on the ground in deserts or grasslands where they are easily visible, particularly with their long neck stretched up. The female generally incubates during day time, but the male hangs around the nesting area. As soon as a predator is sighted, the female lowers her head and neck and place it on the ground, thus breaking her characteristic silhouette. From the distance, she looks like a heap of mud, easily confusing a predator. At the same time, the male tries to attract a predator towards itself but escapes when the attacker is near.

WHICH IS THE LARGEST BIRD NEST IN THE WORLD?

If you ask people, "Which bird has the largest nest in the world"?, most people will say Sociable Weaver (*Philetairus socius*). These small birds build massive nest with sticks on trees, weighing tonnes, sometimes even on electric poles. The nesting colonies of the Sociable Weaver are amongst the largest bird-created structures. Sometimes many generations breed in these colonies. But this massive bundle of twigs is not one nest. Multiple nests, sometimes 100, are found in one structure. Therefore, technically it is not one nest but a nesting colony, a type of avian condominium.

The credit for having the largest nest goes to the Bald Eagle (*Haliaeetus leucocephalus*), American national bird. Its enormous stick nest, called eyrie, may reach about 3 metres in diameter, 6 metres in height, and weigh more than a tonne. Such large nest, in which nesting material are added year after year may belong to multiple generations. Some nests become so large that they break the tree branches.

ROTTEN MOUNDS AS NEST:

The most unusual nests belong to 21-22 species of megapodes. Instead of using body heat, Megapodes incubate their large eggs using environmental heat from decomposing vegetation, solar-heated sand, or geothermal sources. For example, Nicobar Megapode (*Megapodius nicobarensis*), makes a large heap of fallen leaves, small branches and earth and lays its large eggs in the heap and covers them. Heat for incubation is provided by rotting vegetation. They also lay large eggs relative to their body size. The chick hatches after 70-80 days, and takes from a few hours to days to emerge from the mound, depending upon how deep the egg was present. Parents play no role in incubation but maintain the egg mound temperature by removing leaves or bringing more



Nicobar Megapode;
Photo Credit: Sandeep Dhumal HIRES

leaves, depending upon the weather. This way they somehow regulate the heat inside the mound, that is why they are popularly known as 'thermometer birds'.

BIRD NEST AND RELIGIONS:

Bird nests are generally not disturbed, and from childhood we are taught to leave eggs and chicks untouched. Bird nests are often associated with home, family, fertility, protection, devotion, peace, and the continuity of life. In Christianity, for example, a bird nest symbolizes God's care and shelter. The Bible refers to birds finding homes and nests near sacred places, while the nest is also used metaphorically to represent security, refuge, and parental care. In Judaism, harming a bird on the nest is considered a sin. Similarly in Islam, destroying or disturbing eggs or chicks is considered 'haram', and even killing a chicken during her egg-laying phase is considered undesirable. Nests of swallows or 'ababeel' and pigeons/doves are considered a good luck, that is why we can see these birds unharmed in mosques and dargahs. In Sikhism, all birds and nests within the premises of a Gurdwara are protected.

In Hinduism, nesting of swallows in temples and houses is considered as a good omen. All over the Himalayas, swallows are encouraged to nest in houses and even shops. While on his bird study tour of Sikkim, Dr Salim Ali mentioned in his book, *Birds of Eastern Himalayas*, swallow nests inside shops in the main Gangtok market. When I visited Gangtok many decades later, I asked Usha Lachungpa, one of the topmost naturalists of Sikkim, to show me these shops. I found that the swallows were still there. The shop owners even leave a window for the birds to come and go when the shop is closed. Such is the devotion of these folks. Simple acts of compassion like this make Indians great.



Brown-headed Barbet; Photo Credit: Bhasmang Mehta



Ibisbill in Gurez, Kashmir; Photo Credit: Asad Rahmani

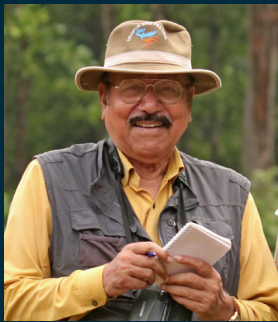
Though there are many stories to tell about bird nest, I will end my article with a poem by the famous Bengali poet, Jibanananda Das (1899–1954), widely regarded as the premier modernist Bengali poet after Rabindranath Tagore. Jibanananda introduced a new, introspective lyricism, deep nature imagery, and existential angst.

At the end of all days,
evening comes like the sound of dew;
The kite wipes the scent of sunlight from its wings.
When all the colours of the world fade,
The manuscript prepares for stories,
Sparking the fireflies for a golden glow.
All the birds return to their nests—all the rivers—
All the transactions of this life end

(translated from Bengali)

সমস্ত দিনের শেষে শিশিরের শব্দের মতন
সন্ধ্যা আসে; ডানার রৌদ্রের গন্ধ মুছে ফেলে চিল;
পৃথিবীর সব রং নিভে গেলে পাণ্ডুলিপি করে আয়োজন
তখন গল্পের তরে জোনাকির রঙে ঝিলমিল;
সব পাখি ঘরে আসে— সব নদী— ফুরায় এ-জীবনের সব লেনদেন;

(Original Bengali version)



About Author

DR ASAD RAHMANI

Dr Asad Rahmani is an ornithologist and conservationist who was also the former Director of Bombay Natural History Society (BNHS). He is currently the scientific adviser to The Corbett Foundation. He has been member of several committees of Ministry of Environment and Forests (MoEF) and was Global Council member of BirdLife International, UK for eight years. Having authored about 28 books and over 150 peer-reviewed research papers in scientific journals, Dr Rahmani has also guided scores of scholars of biological sciences. He is deeply interested in grassland and wetland birds and often highlights the plight of bird species and bird habitats. Dr Rahmani's highly acclaimed autobiography titled, *Living with Birds*, came out in 2024. Recently, he has written another book, *Where Have the Birds Gone?*



Green Cochoa: a moss-covered cup nest, Jhandi, Kalimpong; Photo credit: Sourav Mondal

DR KANAD BAIDYA

THE EXTRAORDINARY ARCHITECTURE OF BIRD NESTS

Crafting Homes in a Restless World



The nest and other structures that birds build are varied in size, materials and design.

They deserve to be better known and celebrated



– Prof Mike Hansell

A bird's nest is one of the most remarkable examples of animal architecture. What may appear to us as a simple collection of twigs, grass, leaves or other materials is, in reality, the outcome of a complex interaction between evolution, behaviour, morphology, habitat, climate, predation and the availability of construction materials. Birds construct an astonishing diversity of

structures. Some species merely create a shallow scrape on the ground, while others excavate deep burrows or tree cavities. Some build elaborate domes, while others weave intricately constructed nests that may hang from branches with remarkable mechanical precision. The evolutionary pattern of nest building remains debated. It is difficult to establish a single evolutionary pathway through which the enormous

diversity of bird nests has arisen. However, it is clear that nest evolution can be remarkably rapid, as demonstrated by the different nest forms found even within a single bird family. Closely related species can construct nests that differ substantially in shape, position, materials, attachment and construction technique.



CALIOLOGY:

is the branch of ornithology that deals with the study of birds' nests—including their construction, structure, materials, location, and nesting behaviour.

The word comes from the Greek *kalia* (nest) and *logos* (study). Once used relatively frequently in ornithological literature, “caliology” is now an uncommon and somewhat old-fashioned term, having largely been replaced by broader terms such as nesting ecology or breeding biology.

Caliology covers fascinating aspects of bird life—from the selection of nesting sites and building materials to the architectural adaptations that help protect eggs and chicks from predators and environmental conditions.

This diversity suggests that nest building is not simply a rigid, genetically predetermined behaviour. Rather, it represents an interaction between inherited behavioural tendencies and ecological opportunities and constraints. At its most fundamental level, the nest is dependent upon, and adapted to, the habitat in which a bird attempts to survive and reproduce. The materials available, the structure of the vegetation, the local climate, the abundance of predators and the physical characteristics of the nesting site all influence the architecture of the final structure. Among vertebrates, the building abilities of birds are particularly impressive and consistent. Although other animals construct shelters, burrows and breeding structures, birds display an extraordinary diversity of construction behaviour. Perhaps most remarkable is that birds achieve this without specialised external tools. Their principal construction equipment consists of their bill, feet and body, together with a sophisticated repertoire of behavioural actions.



Red-billed Leiothrix: A well-hidden cup nest nestled deep within dense foliage, Majua, Darjeeling; Photo Credit: Mridul Kanti Kar

THE NEST AS A SPECIES-SPECIFIC STRUCTURE

Bird literature has generally accepted that nests possess species-specific characteristics. A nest can therefore provide important clues to the identity, ecology and behaviour of its builder. Species specificity, however, does not imply absolute uniformity. Nests of the same species can vary according to habitat, geography, availability of materials, weather conditions and the experience of individual birds. Consequently, a systematic study of nesting should consider much more than simply the overall appearance of a nest. Important features include: nesting site, nest zone or position within the habitat, shape, size, diameter and depth, attachment, construction technique, construction materials, structural organisation, method of construction, relationship between the nest and its supporting substrate. Taken together, these characteristics allow us to understand a nest not simply as an object but as a functional structure produced by behaviour.

PROF MIKE HANSELL AND THE STUDY OF BIRD NESTS

Prof Mike Hansell's work has been particularly important in developing a broader understanding of nest biology. His book *Bird Nests and Construction Behaviour* provides an extensive examination of the biology of nests and the fascinating construction behaviours of birds.

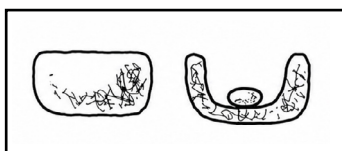
Hansell examined 518 nest specimens from museum collections, representing 44 non-passerine and 32 passerine families. Such a large comparative sample provides an opportunity to look beyond individual species and identify broad patterns in nest architecture. One of the useful frameworks arising from this comparative approach is the recognition of eight mutually exclusive categories of nest shape and site.



Black-winged Kite: A platform nest built on a Jamun tree, Shantpukur, Habra, North 24 Parganas; Photo Credit: Shantanu Prasad

EIGHT CATEGORIES OF NEST SHAPE AND SITE

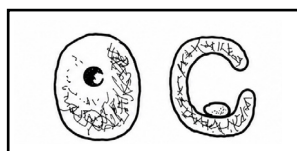
The recognised nest-shape categories are: **Cup, Dome, Dome and tube, Plate, Bed, Scrape, Mound, Burrow.** The first four—cup, dome, dome and tube, and plate—are generally located above the ground. Bed, scrape and mound are generally associated with the ground, while burrow refers to a cavity excavated by the bird either in the ground or in trees.



- Bulbul,
- Barn Swallow

CUP

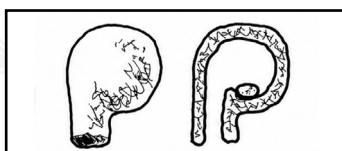
The cup is perhaps the most familiar nest form. It consists of a depression surrounded by a rim and is usually open from above. The size, depth, wall thickness and materials of cup nests can vary enormously.



- Pitta
- Munia

DOMES

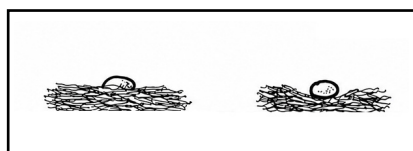
A dome nest encloses the nesting chamber to some degree and may provide additional protection from weather and predators compared with an open cup.



- Weavers

DOMES AND TUBE

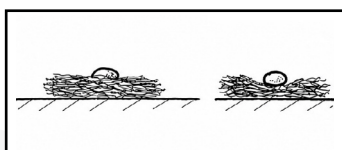
This form consists of an enclosed or domed chamber with a tubular entrance. The entrance passage can increase concealment and make direct access by predators more difficult.



- Stork,
- Dove,
- Crow

PLATE

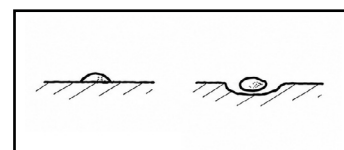
A plate nest is relatively shallow and may depend substantially on the supporting structure beneath it. Its simple architecture can be effective where the nesting site itself provides considerable stability.



- Lark
- Pipit

BED

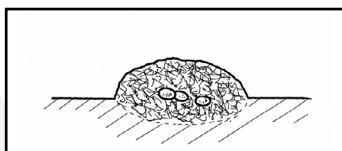
A bed is generally associated with the ground and may consist of accumulated material forming a bedding platform.



- Plover
- Lapwing

SCRAPE

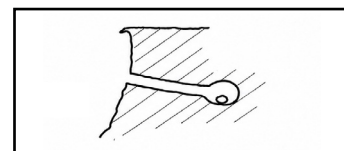
The scrape is one of the simplest nest forms. The bird creates a shallow depression in the ground, sometimes adding little or no material.



- Megapode
- Flamingo

MOUND

A mound nest involves the accumulation of substantial quantities of material, usually on or near the ground. It represents a striking example of birds manipulating environmental materials on a relatively large scale.



- Woodpecker
- Kingfisher

BURROW

A burrow is a cavity excavated by the bird either in the ground or in a tree. The bird may create the cavity itself or, depending on the species, occupy or modify an existing cavity.

NEST SITES

Nest shape is inseparable from nest location. Hansell's classification recognises eight principal nest-site categories: **Tree/bush, Grass/reeds, Ground, Tree hole/cavity, Ground hole/cavity, Wall, Ledge, Water.**

TREE AND BUSH

Trees and bushes provide branches, forks, foliage and natural cavities that can be used for nesting. The position of a nest within vegetation can strongly influence its exposure to predators, wind, rain and sunlight.

GRASS AND REEDS

Grass and reeds provide flexible stems that can serve both as building material and as natural support. Some birds exploit the living vegetation itself when attaching their nests.



GROUND

Ground nesting is widespread. The ground can provide most of the necessary support, allowing some species to construct extremely simple nests.

TREE HOLE OR CAVITY

This category includes cavities in rotting branches and trunks, whether excavated by the nesting bird or adopted from naturally occurring or previously excavated cavities.



GROUND HOLE OR CAVITY

These are cavities occurring below or within the ground. They may be excavated by the bird or naturally available and subsequently modified.

WALL

A wall refers to nests attached to natural cliffs or the walls of buildings where the nest receives or no support from below.



LEDGE

A ledge describes a site on a cliff or building where the nest receives substantial support from below.

WATER

Some species construct nests on or immediately above water, sometimes using floating vegetation. Stability and buoyancy become important considerations in such nests.



Indian Pitta: A large, dome-shaped nest built over a Sonajhuri tree, Jharria, Bishnupur ; Photo Credit: Rahul Chakraborty

CONSTRUCTION TECHNIQUES: HOW BIRDS BUILD THEIR NESTS

Knowing the final shape of a nest tells us only part of the story. Equally fascinating is how the bird actually constructs it. A fundamental distinction in nest-building techniques is between sculpting and assembling. In **sculpting**, the bird creates or modifies the nesting space by removing material from an existing substrate. In **assembling**, the bird gathers separate materials and puts them together to produce a structure. Between these two broad approaches lies a remarkable range of construction techniques.



White-breasted Kingfisher : Excavating nest in the earthen banks of water bodies, Shanpukur, Habra, North 24 Parganas; Photo Credit: Kanad Baidya

A. SCULPTING

Sculpting involves creating a nest chamber by excavating or modifying a substrate rather than assembling a free-standing structure from collected materials. This is characteristic of birds such as: Woodpeckers, Kingfishers, Bee-eaters, Parrots, Trogons. These birds use their bills as highly effective excavation tools. The substrate itself becomes the walls and roof of the nest chamber, reducing the requirement for additional construction materials. Cavity nesting therefore demonstrates an important principle of avian architecture: sometimes the most efficient way to build a nest is to remove material rather than add it.



Nepal House Martin: A sturdy mud nest being built beneath a road bridge, Paparkheti, Kalimpong;
Photo Credit: Arup Kumar Banerjee

B. MOULDING

Another technique is **moulding**, in which soft or plastic material is shaped into a nest structure. The classic material is mud, used by birds such as: Swallows, Martins. Mud can be manipulated into cups, chambers and other forms. Once it dries, it becomes sufficiently rigid to retain the desired shape. Moulding is essential for fusing successive mud loads into a coherent and durable nest wall. Two major problems arise during construction: air spaces between loads and uneven moisture content, which can cause the mud to contract unevenly as it dries and develop cracks. Barn Swallows overcome this by vibrating their heads while applying fresh mud, using relatively liquid mud that spreads evenly and fills small air gaps. In House Martins, incorporating grass or horsehair into the mud may further strengthen the structure by providing additional tensile support. The technique is particularly remarkable because the bird must collect the material, transport it, manipulate it and place it precisely before it dries.

C. PILING UP

Piling up is a comparatively simple but highly effective construction technique. Materials are accumulated until they form a sufficiently large and stable nest. Examples include: Storks, Pelicans, Herons, Crows and Eagles. These birds may accumulate large quantities of twigs and other materials. Such nests can become substantial structures and may be repeatedly repaired and enlarged over successive breeding seasons. In piling, the stability of the nest depends partly upon the weight, arrangement and interlocking of the accumulated materials.



Kentish Plover (*seebornii* subsp.) : A simple scrape nest on a sandy sea beach, Henry Island; Photo Credit: Shantanu Prasad

D. STICKING MATERIALS TOGETHER

Some birds construct their nests by **sticking or cementing** materials together, using mud, moss, roots, vegetation and other loose materials to form a firm and coherent structure. In some species, this method overlaps with moulding, where mud acts not only as a building material but also as a natural cement that binds plant materials together. The Black-legged Kittiwake and Seagull, for example, builds a bulky nest from mud, moss and rootlets, often placing it on a ledge or wall. Dipper, Redstart and Forktail reinforce their grassy cup nests with mud, making the structure stronger and more durable. An especially remarkable example is the Asian Palm Swift, which uses saliva as a biological adhesive to cement feathers together. These examples show how birds can transform loose and fragile materials into stable nests using natural adhesives and binding substances.



Pallas's Fish Eagle: A huge platform nest built on a Silk Cotton tree in Kaziranga National Park, Assam; Photo Credit: Kallol Mukherjee



Satyr Tragopan: Unlike most ground-dwelling pheasants, tragopans prefer to nest high up in trees, using natural tree cavities, branch forks, or abandoned nests made by other large birds, Singalila National Park, Darjeeling; Photo Credit: Mridul Kanti Kar



Collared Scops Owl: A secondary tree-hole nester, occupying natural cavities or abandoned holes in trees. Photo Credit: Kanad Baidya



Small Pratincole: Scrape nest on bare ground, Henry Island; Photo Credit: Shantanu Prasad



Little Grebe: A floating nest anchored to aquatic vegetation, Shantpukur, Habra; Photo Credit: Shantanu Prasad



Sikkim Treecreeper: Nests behind loose bark or in narrow bamboo crevices; Photo Credit: Mridul Kanti Kar



Chestnut-tailed Nuthatch: Nests in natural tree holes; Photo Credit: Mridul Kanti Kar



Yellow-bellied Prinia: A neatly woven, deep cup nest suspended among grasses or low vegetation. Dankuni, Hooghly; Photo Credit: Sandip Das



Plain Prinia: A small, compact cup nest with eggs; Photo Credit: Kanad Baidya and Arghya Adhikary.



E. INTERLOCKING MATERIALS

Another major construction technique is interlocking. In this method, the materials are generally dry and are held together without the aid of an adhesive. Their strength comes from the physical relationship between individual pieces.

Interlocking itself can take several forms.

a. Entangling

In **entangling**, nests are constructed primarily from twigs, bark, vine tendrils, grass and other flexible vegetation. As noted in nests built by piling up, considerable care may be taken to manipulate and position each new piece so that it fits effectively within the developing structure. The flexible materials bend, cross, overlap and intertwine with one another, gradually becoming entangled and forming a coherent and stable nest. Unlike sticking or cementing, no adhesive material is required; the interlocking arrangement of the vegetation itself provides structural integrity. Examples include the nests of the Jungle Babbler, Striped Tit-Babbler, Indian Pitta, Orange-headed Thrush, and Greater or Lesser Coucal.



Common Tailorbird: Famous for its precise nest-making technique, in which leaves are "sewn" together—a nesting behaviour immortalized by Rudyard Kipling through the character Darzee in *The Jungle Book*;
Photo Credit: Kanad Baidya

b. Stitches and pop-rivets

Some birds use remarkably specialised methods resembling **stitching or pop-riveting**. Examples include: Common Tailorbird, Spiderhunters, Prinias, Cisticolas.

These birds manipulate leaves or other plant structures and use fibres or spider silk to secure them. The resulting construction demonstrates an extraordinary level of precision in the manipulation of flexible natural materials.

The analogy with human sewing is particularly appropriate: rather than simply piling materials together, the bird creates specific points of connection that increase the stability of the structure.

c. Velcro-like Interlocking

An especially effective form of interlocking operates on a principle remarkably similar to **Velcro**. The advantage of such a fastening mechanism is twofold: first, the materials can be locked together through simple movements and minimal

manipulation; second, they can be separated and refastened repeatedly without losing their ability to grip. Birds such as the Flowerpecker, Bushtit and Long-tailed Tit may exploit materials with fine, flexible or hook-like structures that readily catch and interlock with one another. The components therefore do not need to be glued, stitched or cemented together. Instead, their inherent physical properties provide the grip, allowing the materials to lock together and form a surprisingly stable and cohesive nest.

F. WEAVING

Perhaps the most celebrated form of avian construction is weaving. The Weavers, Oropendolas and Caciques are the classic example. Weaving involves passing flexible materials over and under one another in a controlled sequence to create a stable three-dimensional structure.

Unlike simple piling or entangling, weaving involves a relatively high degree of behavioural precision. The bird must manipulate individual strands and maintain the developing geometry of the nest. The resulting structures can be remarkably elaborate, with carefully constructed entrances, chambers, supporting loops and woven walls. Weaving demonstrates perhaps most clearly that bird nest building is not merely the accumulation of materials. It is a form of behavioural engineering.

These categories are useful for understanding construction behaviour, although a single species may employ more than one technique or combine techniques during different stages of construction.



Himalayan Black Bulbul: Always selects a medium-sized, leafy green tree for nesting, where its cup-shaped nest is carefully camouflaged with moss and dry bark fragments, Jhandi, Kalimpong; Photo Credit: Mainak Maitra



White-throated Fantail and its 'cocktail-glass' nest—with a distinctive 'tail', Dankuni, Hooghly. Photo Credit: Sandip Das



Yellow-eyed Babbler uses 'Bottom multiple (branched) attachment' to secure its cup nest in low bushes, Jaguli, Nadia. Photo Credit: Shantanu Prasad & Kanad Baidya



Fire-tailed Sunbird: A large, dome-shaped nest built with moss, lichens, grasses and fine plant fibres, creating a well-camouflaged structure. The male's graceful movements around the nest make the nesting scene even more fascinating, Thambi, Dzuluk. Photo Credit: Kallol Mukherjee



Blue-naped Pitta, Rongtong, Darjeeling;
Photo Credit: Peter Beck



Verditer Flycatcher, Majua, Darjeeling;
Photo Credit: Mridul Kanti Kar

FUNCTIONAL ARCHITECTURE OF THE NEST

The construction technique explains how a nest is made, while functional architecture explains what its different components do. From the exterior towards the interior, four principal zones can be recognised: Attachment, Outer or decorative layer, Structural layer and Inner Lining.

These zones do not occur with equal clarity in every nest. Simple ground nests and cavity nests may lack one or more distinct layers.

1. ATTACHMENT ZONE

Nest attachment refers to the device or structural arrangement that holds a nest in position. Prof Hansell recognised ten attachment types: Top, Top lip, Top side, Bottom side, Wall, Bottom multiple or branched, Bottom, Leaf purse, On ground, No attachment. Not every nest requires a distinct attachment structure. Ground nests and many cavity nests, for example, rely primarily upon the surrounding substrate. The attachment becomes especially important in nests constructed on branches, reeds, cliffs and buildings. It must withstand wind, movement of vegetation and the additional weight imposed by adult birds and growing nestlings.



Long-tailed Broadbill: Builds a large, elaborate, pear-shaped hanging nest using plant fibres, roots, leaves, moss, and dry twigs, Latpanchar, Darjeeling; Photo Credit: Arghyadeep Das

2. OUTER OR DECORATIVE LAYER : CONCEALMENT, CAMOUFLAGE AND DECEPTION

The outer decorative layer of a bird's nest may have little or no significant structural role. Instead, it may serve a variety of protective and visual functions, including camouflage, background matching, disruptive coloration, predator confusion, water protection and temperature regulation. Lichen flakes, moss, white membranous spider silk and white spider cocoons are among the materials frequently incorporated into nest surfaces. Pale outer layers are often associated with open nesting sites, whereas darker nests tend to occur in darker, shaded environments.

One important effect of such a layer is simply to make the nest look different from an ordinary nest, making it less obvious to visually hunting predators. This suggests that concealment may be one of its principal functions. In larger birds, however, an additional possibility is 'active nest defence': the adult bird may be capable of deterring or attacking potential predators. If concealment is particularly important for small birds, we might therefore expect elaborate outer coverings to be more characteristic of small birds and their nests than of larger species.

An interesting question is how a predator actually perceives a decorated nest. Does it detect the nest as an object but mistake it for part of the tree, or does the nest simply blend into its visual background? Robinson (1981) regarded the former mechanism as a form of mimicry, reserving the term 'crypsis' for objects that actually blend into their background. This distinction leads to two alternative hypotheses for lichen-covered tree nests.



Grey-headed Canary-Flycatcher: A classic example of the branch-matching or masquerade hypothesis, blending with the lichen- and moss-covered tree trunk; Photo Credit: Mridul Kanti Kar

The **background-matching or light-reflection hypothesis** (*crypsis hypothesis*) proposes that lichens and other pale materials make the nest resemble a light background, particularly the sky visible through or beyond the branches. This is especially interesting because many lichen-covered nests have a distinctly pale appearance. The hypothesis may also explain the apparently bizarre combination of lichen with white membranous spider cocoons found in the nests of Minivets, Asian Paradise Flycatcher and Black-naped Monarch. An even more striking example is the almost completely white outer covering of membranous spider cocoons on the nest of the Common Iora. For this hypothesis to be supported, several predictions follow: Lichen, moss or spider silk should occur on nests even when these materials are absent from the supporting branch. Additional light-reflecting materials on the nest surface should increase its visual similarity to a light background. Nests may be attached to branches considerably narrower than the nest itself, so that the nest cannot realistically be mistaken for part of the branch.

The alternative **branch-matching or masquerade hypothesis** makes different predictions. If the nest is intended to resemble its immediate attachment site, the lichens on the nest should be associated with lichens growing on the supporting branch.

Furthermore, lichen-covered nests should generally be attached to branches of similar or greater diameter than the nest, allowing the nest to be perceived as part of the branch or its surrounding structure. Examples include Hodgson's Frogmouth, Crested Treeswift, and some hummingbirds.

Thus, the two hypotheses—*crypsis* through background matching and masquerade through resemblance to the attachment site—make testable and contrasting predictions.

Another possibility is **disruptive camouflage**. Hansell proposed that lichen flakes or pale spider cocoons may act as light-reflecting spots on an otherwise dark nest surface. These spots could create the impression of light passing through an insubstantial object, thereby breaking up the solid outline of the nest and making it less worthy of a predator's attention. A similar principle occurs in the spotted pattern of animals such as the Spotted Deer and leopard, where contrasting spots break up the apparent outline of the body. In both cases, the purpose is not necessarily to make the entire object identical to its background, but to make its shape more difficult to recognise.

Oniki (1985) proposed a related explanation for certain egg colours. White eggs in thin nests, such as those of the Spotted Dove and Green Pigeon, may be visible from below yet resemble patches of light or openings through the nest. Conversely, blue eggs in thick, dark cup nests, such as those of the Jungle Babbler, may resemble spots of sunlight filtering through dark foliage. Thus, even the eggs themselves may participate in the visual concealment of the nesting structure.

Camouflage becomes even more complicated in open nests. A predator does not necessarily see an isolated nest; it may see the nest together with the adult bird sitting on it. Therefore, the camouflage of the nest and the camouflage of the attending bird should be considered as a single visual system. This may be particularly relevant in species such as Frogmouth, Tree Swift and Nightjar where the bird's own plumage and posture can interact remarkably with the structure and surroundings of the nest. Ultimately, these mechanisms need not be mutually exclusive. Background matching, masquerade, disruptive camouflage, concealment, predator deterrence and active nest defence may operate simultaneously, depending on the species, nesting site, predator community and behaviour of the adult bird. The decorative outer layer of a nest may therefore be far more than an aesthetic addition: it can be part of a sophisticated visual strategy

that helps conceal the nest, confuse predators or reduce the probability that the nest will be recognised as a vulnerable object. Snake skins are particularly intriguing examples of unusual nest decoration. Their presence may contribute to visual deception, disruptive camouflage or predator deterrence. Rather than simply matching the surrounding vegetation, such conspicuous materials may alter the visual impression of the nest or make a potential predator hesitate.

Some birds go even further by constructing additional structures that deliberately distort the normal appearance of the nest: Head and Tail. A head may function as a false nest or false chamber. In the Common Waxbill and Yellow-rumped Thornbill, for example, a domed chamber occurs above the actual egg chamber. Such architecture raises the possibility that a predator approaching the nest may be misled about the location of the eggs. A tail is another architectural device that changes the apparent outline of a nest. Extensions of this kind occur in birds such as Fantails and Broadbills. These structures may make the nest appear larger, more complex or structurally different from what it actually is. Together, false heads, chambers and tails demonstrate that nest architecture is not necessarily concerned only with strength, insulation and shelter. It may also involve visual deception and predator avoidance.



Orange-headed Thrush : Fluttering 'tails' of loose nest materials may act as a visual decoy, confusing predators and drawing attention away from the nest entrance; Photo Credit: Kanad Baidya

3. STRUCTURAL LAYER

The structural layer provides strength, shape and integrity. It is particularly important in elevated nests exposed to wind and movement. Twigs, stems, grasses, roots, bark and plant fibres may form the principal framework. Ground and cavity nesters often require less structural investment because the substrate provides much of the necessary support.



Fresh green leaves are often added to nests to repel parasites, regulate moisture, and signal health to potential mates while shed snake skin may deter small predators such as rodents.
Clockwise from top: Shikra, Green-billed Malkoha, Common Myna using green leaves and Indian Pied Starling using shed snake skin in its nest; Photo Credit Kanad Baidya

4. LINING

The lining forms the immediate environment around the eggs and nestlings. It may consist of: feathers, fine grasses, hair, fur, moss, soft leaves, plant fibres and other fine materials. Its important functions include insulation during incubation and potentially parasite control. Sometimes, in species such as the Plain Prinia and Baya Weaver, the structural layer itself may also serve as the lining material. Leaves from certain plants may be incorporated into nests and may influence ectoparasites or microorganisms, although individual materials can have several simultaneous functions. From my personal observations, Shikra has been recorded using Mahogany leaves as nest-lining material, while Common Myna has been observed using Shirish (Albizia) leaves for lining its nest.

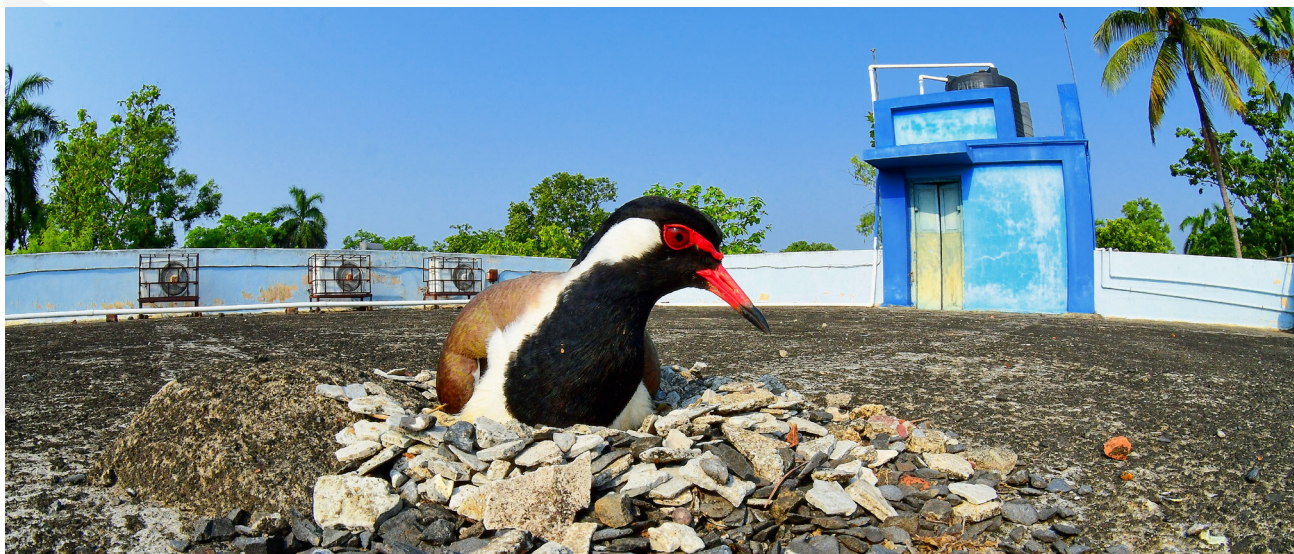


THE COST OF NEST BUILDING AND HUMAN DISTURBANCE

Nest building is an energetically demanding process. Birds must invest time and energy in finding materials, transporting them, constructing the nest and defending it, often while avoiding predators. The cost increases when suitable nesting materials or sites are scarce.

Human disturbance can further increase this cost. Habitat loss, removal of vegetation, noise, artificial structures, pollution and frequent human activity may force birds to travel farther, rebuild damaged nests or abandon otherwise suitable sites. Repeated disturbance can also reduce feeding time and increase stress and predation risk. In this age of urbanisation, certain birds have started to adapt to the rapid anthropogenic changes to the environment. This is exemplified by the Red-wattled Lapwing (*Vanellus indicus*), a ground-nesting species that is now known to breed near dense human habitation, and even on the roofs of buildings. They have collected small stones with similar colours to their egg and build a nest in on an undisturbed roof!! The challenging effort of picking every stone and fly to the nest for thousand times is really unbelievable!! This is the result of human encroachments in the open field and unplanned urbanisation. These birds are forced to change their nesting habit.

It is well known that ground-nesting birds are vulnerable to high rates of depredation of their eggs and young. Human threats to ground-nesting birds, are either direct i.e., damage to nest or young ones, or indirect i.e., habitat destruction and augmenting predator populations or by the inadvertent trampling of eggs or chicks by cattle. The locality under consideration has a very high degree of human interference, livestock, and potential predators. These factors could be the main reasons for the pair to nest at this elevated site. It is unfortunate that there have been several reports of unusual nesting sites on rooftops by this species across India. Sadly, despite all these efforts, the chances of successful fledging are very low. Perched on a three-storey-high roof, the hatchlings may struggle to reach the ground safely. Yet, the birds persist in their attempt to reproduce—a remarkable testament to their resilience.



The poor Red-wattled Lapwing: A poignant reminder of the challenges faced by ground-nesting birds, Singur, Hooghly;
Story and Photo Credit: Kallol Mukherjee

Overall, Bird nests are far more than receptacles for eggs. They are architectural, behavioural and evolutionary products, shaped by natural selection and adapted to the environments in which birds live and reproduce. From sculpting a cavity to moulding mud, piling twigs, cementing materials, entangling fibres, stitching leaves, interlocking materials and finally weaving elaborate structures, birds have evolved an extraordinary repertoire of construction techniques.

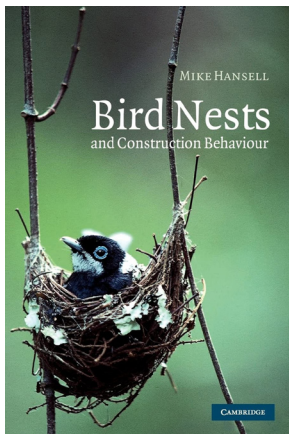
At the same time, the finished nest is functionally organised. Its attachment keeps it secure; its outer layer may camouflage it, regulate its microclimate or protect it from weather; its structural layer maintains strength and shape; and its lining provides insulation and potentially helps control parasites.

The study of nests therefore brings together evolutionary biology, behavioural ecology, biomechanics, materials science and natural history. A nest should therefore be approached with the same curiosity with which we study a bird itself.

We can ask: Where is it built? Why there? What is its shape? How is it attached? What materials are used? How are those materials assembled? What construction technique has the bird employed? What are the functions of its different layers? How does it avoid predators? How does it withstand climate and weather? And what does its architecture tell us about the evolution and behaviour of its builder?

Once we begin asking these questions, a nest ceases to be merely a collection of twigs, grass, mud or feathers. It becomes a record of behaviour, a product of evolution, an example of natural engineering, and perhaps one of the most intimate expressions of a bird's relationship with its environment.

Acknowledgment :



Bird Nests and Construction Behaviour by Mike Hansell,
Cambridge University Press, 2000



About Author

DR KANAD BAIDYA

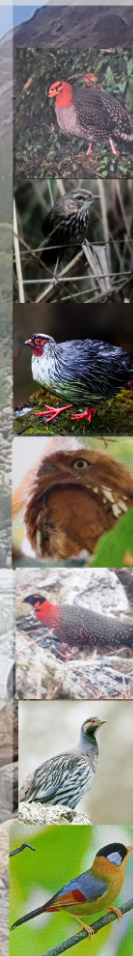
Kanad is a founding member of the Birdwatchers' Society and an Obstetrician and Gynaecologist by profession. He is also the co-author of *Banglar Pakhpakhali*, widely regarded as one of the most popular Bengali books on birds in West Bengal.

SIKKIM BIRDS TOURS & TRAVELS

A GOVT OF SIKKIM REGISTERED
TOUR OPERATOR



EXPERIENTIAL
BIRDING TOURS IN
NORTH-EAST INDIA



WWW.SIKKIMBIRDS.COM
INFO@SIKKIMBIRDS.COM
9382083201 7003389381





Photo Credit: Dr Kaushik Deuti

DEBLINA BISWAS & Dr KAUSHIK DEUTI

AMONG THE MANGROVES

Nesting of the Collared Kingfisher in the Indian Sundarbans

Speak of the Sundarbans, and most people immediately think of the Royal Bengal Tiger. Every traveller secretly hopes for a glimpse of the striped predator emerging from the mangroves. While the tiger often dominates attention, the region also supports a rich avifauna that plays an equally important role in maintaining the health of this fragile ecosystem.

Yet tiger sightings are rare and often fleeting. More often, it is the kingfishers that leave the most lasting impression on visitors. Perched on mangrove branches, hovering over creeks, or darting across the rivers like living

jewels, kingfishers appear to be everywhere. The Sundarbans is a paradise for kingfisher enthusiasts, harbouring nine of India's twelve kingfisher species, an extraordinary diversity unmatched by any other landscapes in the country.

Among them, one species is particularly difficult to overlook. It's loud, sharp, ringing call frequently echoes across the mangrove creeks long before the bird itself comes into view. Following the sound often reveals a Collared Kingfisher (*Todiramphus chloris*) perched on an exposed branch overlooking the water, its striking blue-green upperparts and white or buff-coloured underparts standing out

vividly against the dark green backdrop.

Despite being one of the most frequently seen birds of the Sundarbans, the breeding life of the Collared Kingfisher often goes unnoticed. Nesting observations at Pakhiralaya mangroves on Gosaba Island offered an opportunity to witness how this colourful bird raises its young amidst one of the world's most dynamic and challenging environments.

FINDING A SUITABLE NEST

Unlike weaver birds that meticulously construct intricate nests or tailorbirds that stitch leaves together, the Collared Kingfisher takes a simpler approach. Instead of constructing a nest from scratch, it relies on natural cavities in trees, often reusing old hollows previously excavated by woodpeckers. If left undisturbed, the exact same cavity may be used for several consecutive breeding seasons.

The nests observed in Pakhiralaya mangroves, Gosaba, were positioned at least 5–6 feet above the ground. This elevation likely serves to protect eggs and chicks from rising tides and many ground-dwelling predators. The surrounding maze of mangrove vegetation, tidal creeks, and mudflats further hides the nests, transforming an ordinary tree hollow into a secure nursery for growing nestlings.

One particularly interesting aspect of the observation was that although the species nested in healthy living mangrove trees, it also showed a preference for dead or partially decaying trees whenever suitable cavities were available. Such trees often contain natural hollows that provide ideal nesting sites. On rare occasions, the species may also nest in earthen banks, similar to the White-throated Kingfisher and Common Kingfisher, although mangrove tree cavities appear to be its preferred choice in the Sundarbans.

To many people, a dying tree might seem useless or insignificant, but in reality, it can be one of the most valuable structures in a forest. For cavity-nesting birds like the Collared Kingfisher, the availability of appropriate hollows can be crucial for successful breeding.



Latitude: 22.137339
Longitude: 88.836348
Elevation: 57.16±17 m
Accuracy: 3.9 m
Time: 06-03-2023 07:42



Location of the nest (arrow-marked) on the *Avicennia alba* mangrove tree
Photo Credit: Deblina Biswas

Four eggs inside the nest.

THE ART OF AVIAN PARENTING IN THE MANGROVES

With a suitable nest cavity secured during March–April, the next chapter in the life of the Collared Kingfisher begins, the demanding task of raising a family. Throughout the breeding season (March–July), both members of the pair share responsibilities, from preparing the nest cavity to caring for their young. The nest typically contains 3–5 eggs, highlighting the remarkable parental investment displayed by the species.

The pair worked tirelessly to keep their growing chicks fed. Instead of flying directly to the nest entrance, an adult would often pause on a nearby perch, carefully scanning the surroundings for potential threats. Only after ensuring that the area was safe did it make a swift dash to the cavity entrance. This cautious behaviour was repeated countless times and appeared to be an important strategy for avoiding predators and preventing the nest location from being compromised.

Their diet reflected potential rich food diversity that can be supplied by the mangrove ecosystem. Crabs and mudskippers formed a major part of the diet, while insects such as mole crickets and dragonflies were also frequently delivered to the nest. Other prey included grasshoppers, beetles, snails, earthworms, and occasionally small frogs and mangrove snakes. Every successful hunting trip was rewarded with excited calls of hungry nestlings from deep within the nest cavity.



Provisioning chicks with a crab; Photo Credit: Deblina Biswas



Bringing mudskipper to the nest; Photo Credit: Deblina Biswas

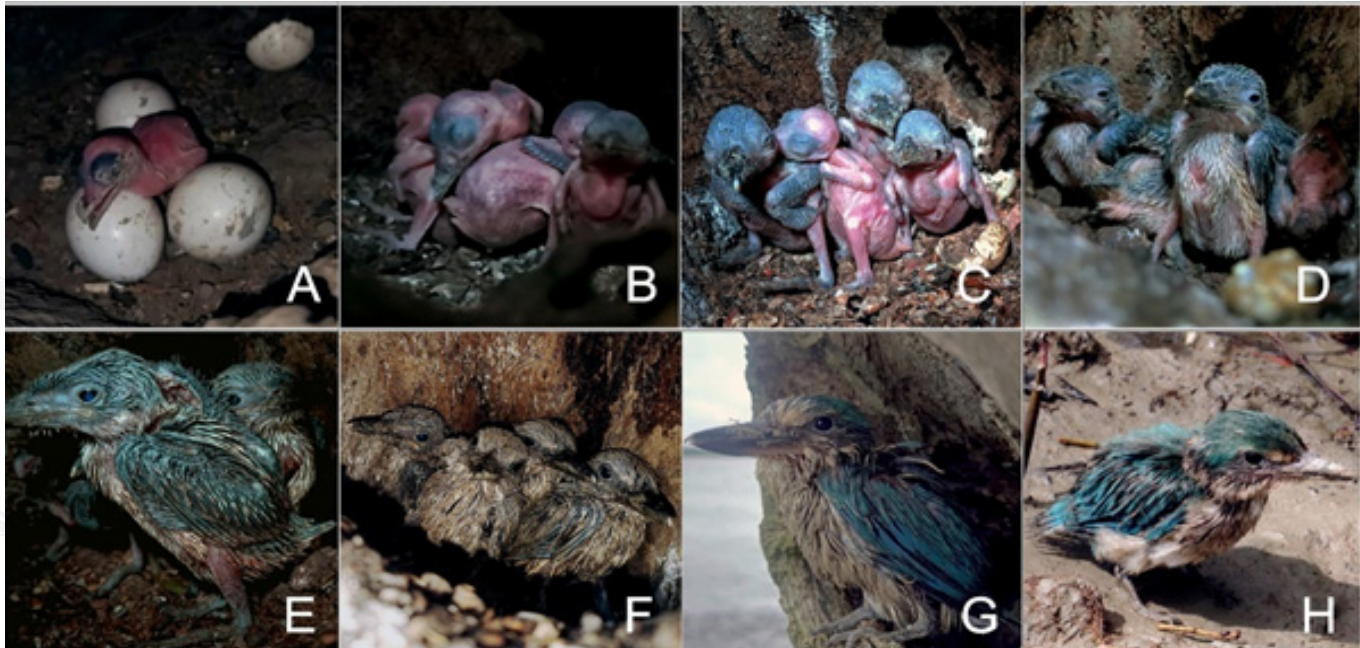
DEVELOPMENTAL STAGES

After hatching, the chicks passed through several developmental stages before fledging. Based on our field observations, we identified eight major stages of development:

A) Hatching Day; B) Neonatal Stage; C) Eye-opening Stage; D) Feather Development Stage; E) Tail Development Stage; F) Eye-colour changing Stage; G) Juvenile Stage; H) Collar development at the Fledgling Stage. Monitoring these stages provided valuable insights into the growth and transformation of the chicks from helpless hatchlings to fully feathered fledglings ready to leave the nest.

A photographic sequence illustrating all these developmental stages of Collared Kingfisher chicks from a

single nest in an *Avicennia alba* mangrove tree is shown below. The nest was first noticed during a routine survey at Pakhiralaya mangroves when repeated visits by a pair of Collared Kingfishers to a tree cavity caught our attention. Careful tracking over the following weeks revealed a clutch of four eggs, allowing us to document the development of the chicks from hatching to fledging.



Nestling development of Collared Kingfisher in Indian Sundarbans. A) Hatching Day; B) Neonatal Stage; C) Eye-opening Stage; D) Feather Development Stage; E) Tail Development Stage; F) Eye-colour changing Stage; G) Juvenile Stage; H) Collar Development at the Fledgling Stage.

Photo Credit: Deblina Biswas

THE FIRST GLIMPSE AND TAKING FLIGHT

One of the most rewarding moments came towards the end of the nesting period, when tiny heads first appeared at the cavity entrance. After days of hesitation, wing stretching, and encouragement from the adults, the chicks cautiously peeped into the outside world for the first time, taking a glimpse at the mangrove forest that would soon become their home.

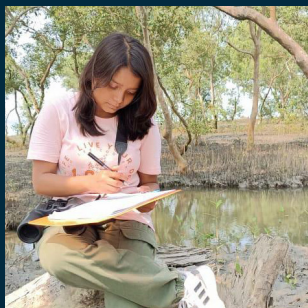
Their initial flights were neither graceful nor particularly long, but they marked an important milestone. A new generation of Collared Kingfishers had successfully entered into the wild of the Indian Sunderbans. Even after fledging, the journey was not over. The adults continued to feed and guide the juveniles as they learned essential survival skills. Finding food, avoiding predators, and navigating the maze-like mangrove habitat would require time and practice.

LIFE IN AN EVER-CHANGING MANGROVE ECOSYSTEM

Raising a family in the Sundarbans is no easy task. The mangrove forest presents challenges at nearly every stage of the breeding cycle. Tides rise and fall twice each day. Powerful storms and cyclones can arrive with very little warning, threatening both nests and nestlings. Predators such as snakes are always searching for an easy meal, posing a constant risk to eggs and young chicks. During summer, intense daytime heat can

also become a potential threat, especially for vulnerable nestlings. In addition to these natural hazards, we also observed several anthropogenic pressures that could potentially impact the survival and breeding success of the nestlings.

However, the nesting journey of the Collared Kingfisher offers a fascinating glimpse into the resilience and dedication required to raise a family in the challenging environment of the Sundarbans. Safeguarding the Sundarbans and its diverse habitats will ensure that future generations can continue to witness these remarkable moments of life unfolding among the mangroves.



About Authors

DEBLINA BISWAS

Deblina is a Senior Research Fellow at the Zoological Survey of India who studies the biology of the Collared Kingfisher in the Indian Sunderbans for her PhD thesis.



DR KAUSHIK DEUTI

Dr Kaushik Deuti is a Scientist at the Zoological Survey of India who works on the biology and biogeography of frogs, salamanders, lizards, snakes, birds and mammals and also guides the first author for her thesis.



HORNBILL RESEARCH TEAM, NATURE MATES AND NATURE CONSERVATION FOUNDATION

GUARDIANS OF THE FOREST CAVITIES

What Eight Years of Watching Hornbills Revealed in Buxa Tiger Reserve

ARJAN BASU ROY, APARAJITA DATTA, KARISHMA PRADHAN, SHILPITA MANDAL, DOLLAR GANGULY,
ARKAJYOTI SHOME, SITARAM MAHATO, KEZAJACHO DUKPA, SIKANDER DEWAN

Deep inside the forests of "Buxa Tiger Reserve", West Bengal, the breeding season begins with a flurry of activity. Bird calls, insect hums, and among the towering trees, hornbill pairs initiate one of the most remarkable breeding rituals in the animal kingdom. A female hornbill enters a tree cavity, seals herself inside using mud, fruit pulp, and her droppings, and disappears from the world for months. Only a narrow slit remains through which the male delivers food. Hidden inside that dark chamber, one of the most extraordinary parenting stories in the bird world unfolds.

Buxa Tiger Reserve, nestled in the foothills of the Eastern Himalayas, is a forest of rain, rivers, hills and ancient trees. During summer, as dawn breaks, the first rays of sunlight gently break through its canopy, gradually awakening the forest with warm golden light. Winters cloak the landscape in a blanket of fog, while the monsoons drape it in drifting mists, lending the wilderness an almost ethereal evergreen charm. An extraordinary diversity of birds can be spotted flying in the skies of this forest, accompanied by the loud wingbeats of hornbills and the distant trumpeting of elephants. And, if fortune smiles upon you, you may even catch

sight of a leopard striding gracefully along the forest trails with butterflies flying around.

Between 2018-2025, through Nature Mates and Nature Conservation Foundation's long-term project of monitoring hornbill nests in Buxa Tiger Reserve, we documented the breeding biology of four hornbill species: the Great Hornbill (*Buceros bicornis*), Oriental Pied Hornbill (*Anthracoceros albirostris*), Rufous-necked Hornbill (*Aceros nipalensis*) and the Wreathed Hornbill (*Rhyticeros undulatus*). Our study provides one of the most detailed long-term insights into hornbill nesting ecology from North Bengal and this work would not have been possible without the support of forest department of Buxa Tiger Reserve.

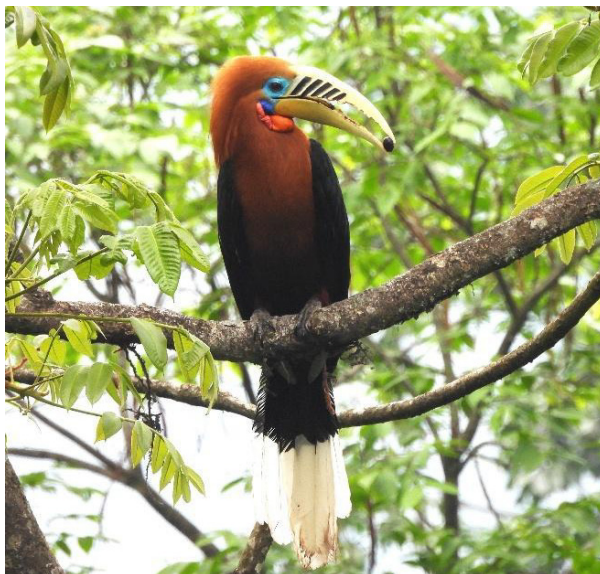
Hornbill Research Team, Nature Mates and Nature Conservation Foundationon



Great Hornbill



Oriental Pied Hornbill



Rufous-necked Hornbill



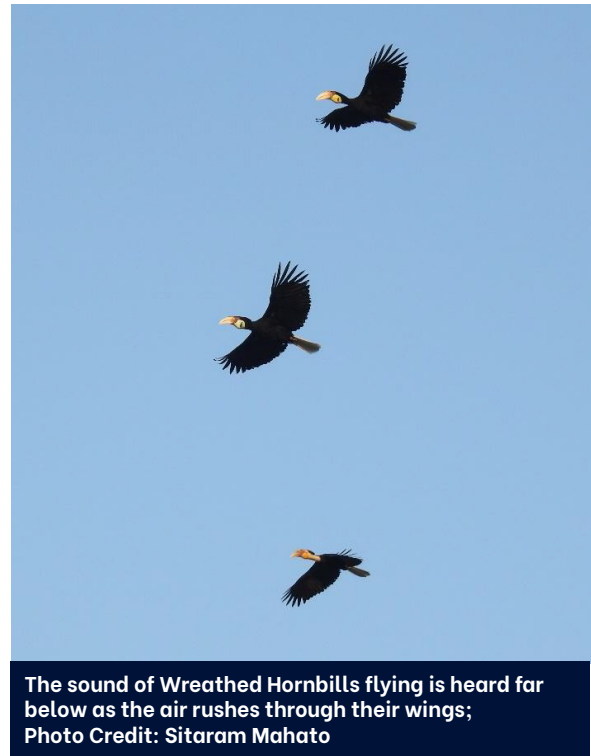
Wreathed Hornbill

Photos from Buxa and Latpanchar by Hornbill Research Team

BIRDS THAT BUILD FORESTS

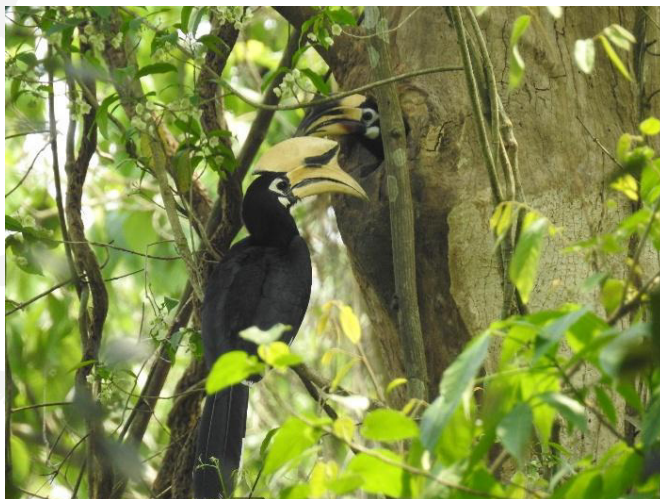
Hornbills are known as the **"farmers of the forest"**. Feeding on the fruits of a diversity of native tree species, they regurgitate and drop seeds, dispersing them over large distances. Many tropical trees depend on hornbills for regeneration. In forests like Buxa, where Asiatic Elephants, Gaurs, and Clouded Leopards still survive, hornbills play a quiet but irreplaceable ecological role. Hornbills are also extremely vulnerable. They need large, old trees with natural cavities for nesting, a resource that is rapidly shrinking in numbers and thus is a matter of great concern. A single nesting tree can take up to a century to grow large and tall enough for these cavities to occur. Losing these trees means losing generations of hornbills.

This is where breeding studies matter. Monitoring nests tells us whether the forest still supports life.



The sound of Wreathed Hornbills flying is heard far below as the air rushes through their wings;
Photo Credit: Sitaram Mahato

EIGHT YEARS BENEATH THE NEST TREES



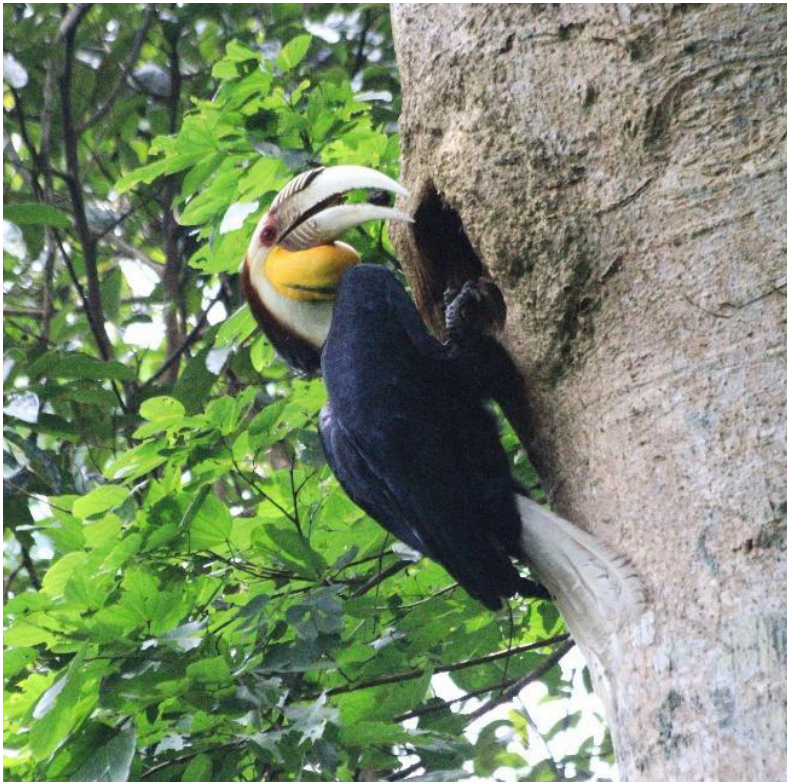
Oriental Hornbill pair cleaning a nest cavity before the female enters the nest; Photo Credit: Sitaram Mahato



Great Hornbill female sealing the nest cavity; Photo Credit: Sitaram Mahato

Behind every data point lies a journey through the forests of Buxa. The journey begins long before a nest is reached for monitoring. Our team spent hours walking through rugged trails, wading across rivers, climbing steep slopes, and pushing through dense undergrowth. During the monsoon, leeches cling to the body with every step, while encounters with wild elephants and gaurs are a constant reminder that these forests belong first to wildlife. It is because of the team's persistence that an eight-year record of hornbill breeding

has been made possible. However, these arduous days of searching and monitoring nests are rewarded with thrilling sights like a male hornbill arriving with a gular pouch full of fruits to feed the female hidden inside a sealed nest, or a young chick emerging from its cavity to take its very first flight into the forest canopy. Our Buxa research team has monitored nests across multiple forest patches between 2018 and 2026. Over the years, researchers recorded increasing numbers of nests, from 11 in the first year of nest searching and monitoring to 55 in 2026. This steady rise may partly reflect increased survey effort and improved detection, but it also suggests that Buxa continues to remain an important breeding landscape for hornbills. Among the four species, the Oriental Pied Hornbill accounted for the highest number of successful nests across years, followed by the Great Hornbill.



Wreathed Hornbill male visiting the nest to feed the nest inmates- female and chicks; Photo Credit: Kezajacho Dukpa



Wreathed Hornbill female and chick peeking through the narrow slit of the sealing, waiting for the male to deliver them food; Photo Credit: Kezajacho Dukpa

THE REMARKABLE MATHEMATICS OF SURVIVAL

Across 8 years (2018–2025), 83 successful nesting attempts have been documented. Nesting success often remained impressively high despite predation, weather uncertainty, and even incidents of poaching. In 2024, monitored nests showed 100% nesting success among nests with known outcomes. The average nesting success was 81% across 8 years. This long-term study recorded at least 112 chicks successfully observed before or after fledging from the nesting cavity. The yearly increase in the number of chicks is striking. Behind every hatchling lie months of hard work and sacrifices by the male and the female, and the survival of an entire nest tree ecosystem.



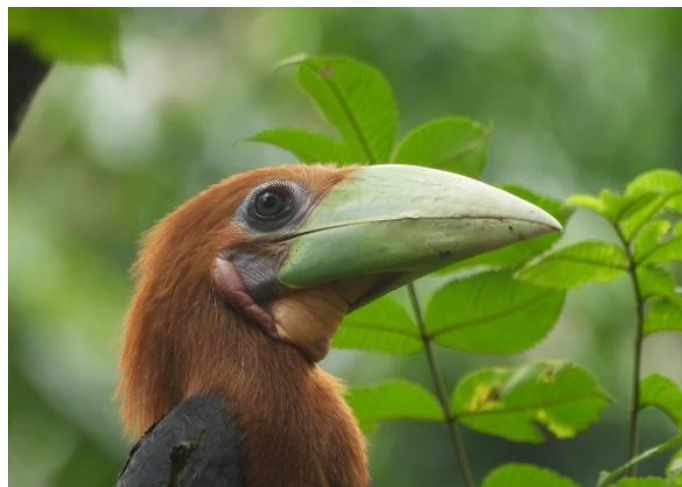
Great Hornbill Chick; Photo Credit: Shilpita Mandal



Oriental Pied Hornbill Chick; Photo Credit: Sitaram Mahato



Wreathed Hornbill Chick; Photo Credit: Kezajacho Dukpa



Rufous-necked Hornbill Chick; Photo Credit: Sikander Dewan

RHYTHMS AND PATTERNS IN NESTING

One of the most fascinating findings of the study was the variation in nesting duration among species. The Oriental Pied Hornbill had the shortest nesting period, averaging about 88 days. In contrast, the Wreathed Hornbill remained inside nest cavities for an average of 132 days. The Great Hornbill and Rufous-necked Hornbill showed nesting durations of around 117–118 days.

The timing of the breeding also follows seasonal rhythms. Great Hornbills generally seal themselves inside cavities around late February or early March, while Oriental Pied Hornbills often initiate nesting later around April. Rufous-necked Hornbill and Wreathed Hornbill follows soon after. Chick emergence correspondingly occurs from June through August.

In tropical forests, timing is everything. Nesting must align with fruit availability, rainfall patterns, and forest productivity. A mismatch between breeding and food supply affects chick production, hatchling survival, and nesting success.

Although hornbills are most often known as frugivores, their diet also includes animal matter. Our study found that each hornbill species has its own unique feeding preferences. Great Hornbills relied on figs (38%) and other fruits (50%), with animal prey making up about 10% of their diet. Oriental Pied Hornbills consumed relatively fewer figs (18%) but a higher proportion of other fruits (59%) and animal matter (23%). Wreathed Hornbills were observed to feed on 26% figs, 62% other fruits, and 12% animal prey. Hornbills typically feed on the fruits of native trees such as *Polyalthia simiarum*, *Dysoxylum gotadhora*, *Horsfieldia kingii*, *Aglaia spectabilis*, *Syzygium cumini*, etc. along with several fig species including *Ficus altissima*, *Ficus religiosa*, *Ficus nervosa* and many more. They also supplement their diet with protein-rich prey such as insects, crabs, geckos, snakes, bird eggs, and nestlings.

THE KINGDOM OF GIANT TREES

Perhaps the most important message from the study comes from the nest trees themselves. Hornbills do not use just any tree.

A massive proportion of nests were associated with large emergent tree species, especially *Tetrameles nudiflora*, which alone accounted for more than 43% of documented nest trees. Other important nesting trees include *Terminalia bellirica*, *Shorea robusta*, *Bombax ceiba*, *Schima wallichii*, and *Ailanthus grandis*. These are not merely trees. They are like ecological apartment complexes. Large cavity-bearing trees support hornbills, owls, parrots, squirrels, civets, reptiles, bees, and countless insects. When such trees fall to logging or infrastructure expansion, entire micro-ecosystems disappear.



Each tree is like a micro-ecosystem which many animals and organisms rely on; Photo Credit: Sitaram Mahato

THREATS HIDDEN INSIDE SUCCESS STORIES

Even successful nests revealed vulnerabilities. The study documented incidents where females and chicks were poached from nests and at least a few cases where the chicks were predated. There were also instances of abandonment of nests due to excessive rains, and at least six nesting trees were lost due to forest fires and storms. Such incidents highlight how fragile breeding success can be. There were also instances of interspecific competition and nest take-overs between hornbills. Two such instances include one where Great Hornbill took over a Rufous-necked Hornbill nest and Wreathed Hornbill nest, and one instance where a Wreathed Hornbill took over a Rufous-necked hornbill nest. Sometimes monitor lizards have also occupied Oriental Pied Hornbill nest cavities during the breeding season. Hornbills face multiple threats across their range, such as loss of large nest and food trees, fragmentation of forest habitats, hunting and chick poaching, and climate-driven changes in fruiting patterns. Because hornbills breed slowly and invest heavily in each nesting attempt, their populations can decline rapidly when adult survival or breeding success is disrupted.

WHY BUXA MATTERS

The forests of Buxa, which form part of a larger Eastern Himalayan landscape, are rich in biodiversity. The presence of four breeding hornbill species in the same landscape is ecologically significant. There are also past eBird records of Indian Grey Hornbill in Buxa. Especially important is the continued nesting of the Rufous-necked Hornbill and Wreathed Hornbill, for whom North Bengal is the westernmost limit of global distribution. Its breeding presence suggests that parts of Buxa still maintain high conservation value. Long-term datasets like this are rare in India. Hornbill breeding studies require patience, repeated visits, difficult terrain work, and years of continuity.

The Buxa findings highlight the need to protect old cavity-bearing trees, monitor active nests, conserve native fruiting species, strengthen community stewardship, and maintain forest connectivity to secure hornbill populations. Every successful hornbill nest is a testament to the survival of ancient trees, the remarkable dedication of breeding pairs, and the resilience of a thriving forest ecosystem. As long as Buxa continues to



Field team monitoring hornbills in the forests of Buxa Tiger Reserve; Photo Credit: Kezajacho Dukpa

resonate with the powerful wingbeats of hornbills, it signals hope not only for these iconic birds but also for the health and future of the forest itself.



Field team monitoring hornbills in the forests of Buxa Tiger Reserve; Photo Credit: Sitaram Mahato

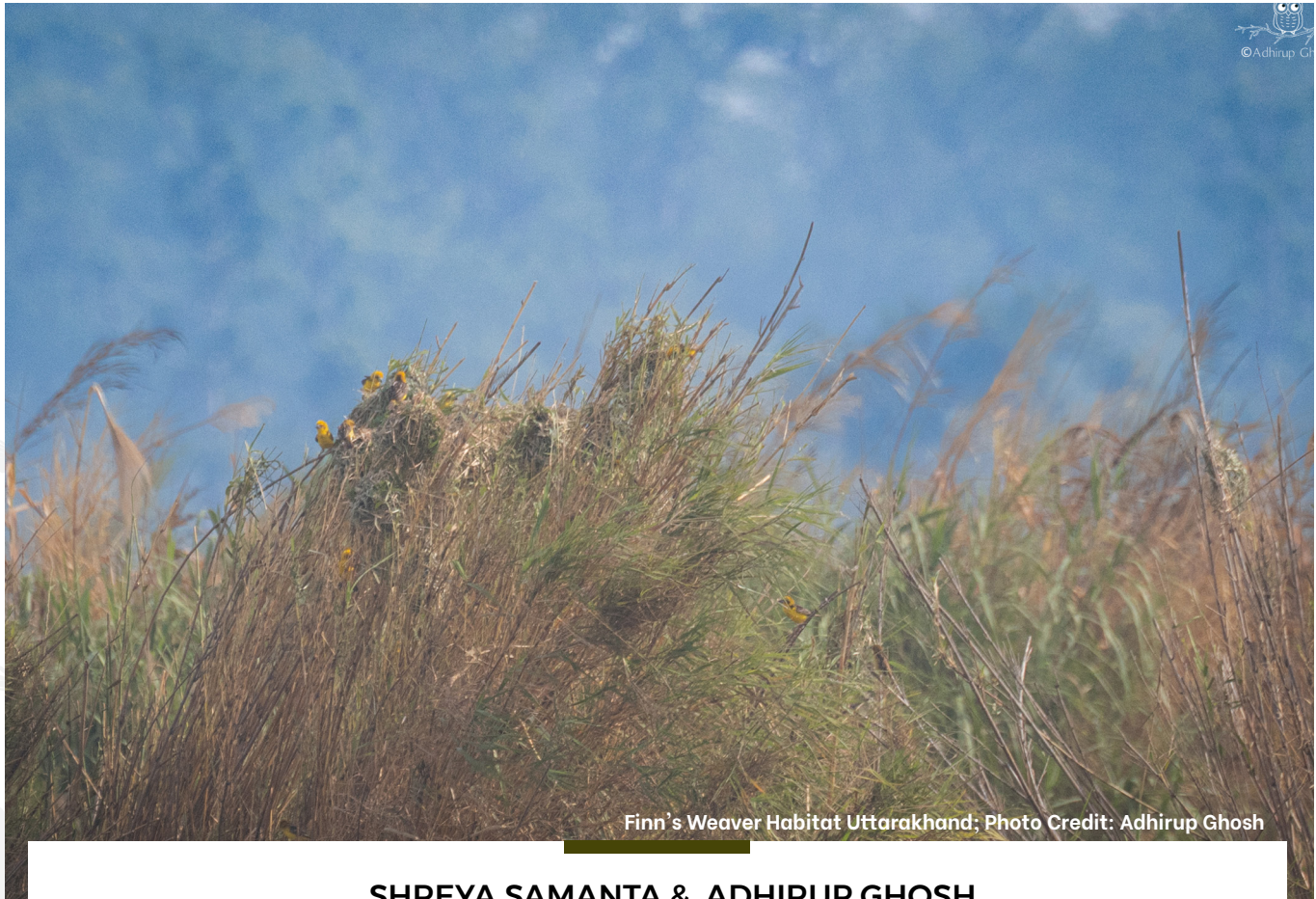
For nearly four months, life remains in darkness inside the cavity. Hidden within the safety of a tree cavity, a hornbill chick knows only the warmth of its mother and the steady arrival of food delivered faithfully by its father through a narrow slit. Beyond the sealed entrance lies an entire forest it has yet to explore. Then, one day, the wall that has protected it, is broken. Sunlight streams in and fills the cavity; the chick peers out, looking at the big trees all around. Hesitant at first, it shuffles to the edge of its tiny home, squeezing its body out and taking its first flight to settle in a nearby branch. Its first flight is uncertain and filled with risk, but it is also the beginning of a life that will help shape the very forest into which it flies.

Soon this chick will fly through the forest, dispersing the seeds of large native trees, helping regenerate the very forests that countless other species depend on. And so, the story that began in the silence of a hidden dark cavity continues in the beating wings of a young hornbill, ensuring that the forests of Buxa remain alive for generations to come.

About Authors

Arjan Basu Roy, Shilpita Mandal, Aparajita Datta with field inputs from Karishma Pradhan, Sitaram Mahato, Kezajacho Dukpa, Sikander Dewan, Dollar Ganguly and Arkajyoti Shome.

HORNBILL RESEARCH TEAM - NATURE MATES AND NATURE CONSERVATION FOUNDATION



Finn's Weaver Habitat Uttarakhand; Photo Credit: Adhirup Ghosh

SHREYA SAMANTA & ADHIRUP GHOSH

THREADS OF SURVIVAL: Comparative Nesting Landscapes of the Finn's Weaver

Among the four species of Weavers found in the Indian subcontinent, the **Finn's Weaver** (*Ploceus megarhynchus*) stands as one of the most less frequently encountered members of the family. Unlike the familiar Baya Weaver whose pendulous nests adorn trees across much of India, Finn's Weaver survives only in scattered pockets of the Terai grasslands and floodplains, where it constructs its distinctive globular nests amidst tall wet grasses and isolated trees.

Today, the species is globally listed as **Endangered**, with its Indian population reduced to only a few

hundred to a few thousand individuals distributed across fragmented breeding localities in Uttarakhand, Uttar Pradesh and Assam in India, making every surviving nesting colony exceptionally significant for its long-term conservation.

The history of Finn's Weaver is inseparable from the legacy of Dr Salim Ali, whose fascination with this elusive bird became one of the most talked about chapters in Indian ornithology. After unsuccessful expeditions in 1934 and 1954, Dr Salim Ali finally rediscovered the species in the Kumaon Terai in 1959, nearly sixty years after it had virtually disappeared from scientific records. His detailed observations, published

with J H Crook in the Journal of the Bombay Natural History Society revealed a bird whose breeding biology, nest architecture and social behaviour differed strikingly from that of the common Baya Weaver. In his autobiography “The Fall of a Sparrow”, Ali recalled the excitement of finally locating the colonies after years of searching, an achievement that transformed Finn’s Weaver from a “lost bird” into one of India’s highest conservation priorities.

Today, **Baur Reservoir** in Uttarakhand and **Manas National Park** in Assam represent two of the most important remaining nesting strongholds of the species, yet they differ markedly in geography, climate and habitat structure. Baur Reservoir lies within the western Terai, where breeding colonies occupy reservoir margins, marshes and agricultural fields interspersed with scattered trees. In contrast, the floodplain grasslands of Manas provide a more natural alluvial landscape, supporting the eastern subspecies (*P m salimalii*) amidst extensive riverine grasslands. Together, these two landscapes offer a rare opportunity to compare how Finn’s Weaver responds to contrasting ecological conditions while retaining its remarkable nest-building instincts.

Our first encounter with Finn’s Weaver came in June 2023 at Baur Reservoir in Uttarakhand, where an active breeding colony occupied a small island surrounded by open water. The nesting trees stood isolated within the reservoir, creating a natural fortress against terrestrial predators. The colony appeared remarkably cohesive, with numerous globular nests suspended from the outer branches, while the surrounding marshes provided abundant nesting material and feeding grounds. The open expanse of water not only reduced predator access but also offered an unobstructed approach for adults commuting between feeding sites and the colony.



Finn's Weaver at Baur Uttarakhand; Photo Credit: Adhirup Ghosh



Finn's Weaver Nesting at Baur Uttarakhand; Photo Credit: Adhirup Ghosh

Three years later, in May 2026, we encountered the eastern subspecies, *Ploceus megarhynchus salimalii*, in Manas National Park, Assam. In striking contrast to Baur, the breeding colony was established on a roadside tree bordering the park's extensive alluvial grasslands. At first glance, such a nesting site appeared surprisingly exposed to human activity. However, closer observation suggested that the nesting tree overlooked a mosaic of tall *Saccharum* grasslands, seasonally inundated wetlands and open foraging areas, providing the essential ecological requirements for breeding. Such a location, adjacent to a large perennial water body appears to provide several ecological advantages. The extensive wetland supported abundant emergent grasses, sedges, and reed beds, which served as the primary source of nesting material. The surrounding marshes also harboured a high abundance of insects



Finn's Weaver Nesting at Manas; Photo Credit: Adhirup Ghosh



Finn's Weaver Nesting at Manas; Photo Credit: Adhirup Ghosh

and other invertebrates, providing an essential protein-rich food source during courtship, egg laying and chick rearing. Furthermore, the open water likely created a natural buffer against many terrestrial predators while maintaining higher local humidity, which may reduce thermal stress on both incubating adults and developing nestlings.

The synchrony observed among these individuals suggested that environmental cues preceding the monsoon, particularly increasing day length, rising temperature, elevated humidity and the availability of fresh nesting materials play an important role in stimulating reproductive behaviour. Initiating breeding before the arrival of heavy monsoon rains likely allows chicks to hatch during a period of peak insect abundance while avoiding the destructive effects of intense rainfall on newly constructed nests. This timing represents an adaptive strategy that maximizes reproductive success within the dynamic floodplain ecosystem of the Brahmaputra Valley.

Although both colonies belonged to the same species, they reflected two contrasting ecological strategies. At Baur Reservoir, isolation by water appeared to be the primary defence against predators, whereas in Manas the birds relied on the vastness of the floodplain grasslands and carefully selected nesting trees that overlooked productive feeding habitats. These observations reinforce an important principle in the breeding ecology of Finn's Weaver: while the immediate nesting substrate may differ from reservoir islands to roadside trees, the species consistently selects landscapes that combine secure nesting sites, abundant nesting fibres, nearby seed-rich grasslands and shallow wetlands capable of supporting insects required for nestlings.

A comparison between the western population of Baur Reservoir and the eastern birds of Manas reveals subtle but noticeable differences in appearance. Breeding males of the eastern race generally possess a richer golden-yellow crown and nape, a broader and darker black facial mask extending around the lores and throat, warmer chestnut-brown upperparts and slightly paler buff underparts. In contrast, males from the western Terai tend to appear slightly duller overall, with a comparatively restricted facial mask and less saturated upperparts. The heavy, conical bill, a defining feature that inspired the scientific name *megarhynchus* ("large-billed") is prominent in both populations, although it often appears slightly stouter in western birds. Females and non-breeding birds of the two subspecies are considerably more alike, making field separation difficult without locality information. Despite these subtle regional differences in plumage and morphology, both populations construct the same characteristic globular nests with a short entrance tube, underscoring the remarkable evolutionary conservatism of their nesting behaviour across two geographically distinct floodplain ecosystems. These observations also remind us that Finn's Weaver is far more flexible than once believed. The species can adjust its nesting locations to local environmental conditions while faithfully retaining its unique nest architecture and colonial breeding behaviour. Such behavioural plasticity may prove crucial for its survival in an increasingly fragmented landscape. Nevertheless, with only a handful of known breeding colonies scattered across northern and north-eastern India, every nesting site assumes immense conservation value. Long-term monitoring of colony locations, breeding success, habitat quality and annual population trends is essential if we are to understand how changing hydrology, grassland management, climate variability and human disturbance influence the future of this endangered Weaver. Continued collaboration between researchers, forest departments, citizen scientists and birdwatchers will be indispensable in securing the future of this remarkable species.

For us, the journey from Baur to Manas was far more than a comparison of two breeding colonies. It was an opportunity to witness the same ancient instinct unfolding across landscapes separated by more than a

thousand kilometres. Whether weaving above the waters of a reservoir in Terai or over the floodplains of Assam, the Finn's Weaver continues to craft its intricate home with the same precision that has fascinated naturalists since the days of Hume and Salim Ali.

Perhaps that is the greatest lesson the Finn's Weaver offers us. Conservation is not merely about protecting a rare bird, rather it is about safeguarding the landscapes that have shaped its instincts over countless generations. A belief that as long as these delicate nests continue to appear each breeding season, the Finn's Weaver remain living symbols of nature's resilience and gentle reminders that even the smallest architects have the power to inspire the greatest admiration.



About Authors

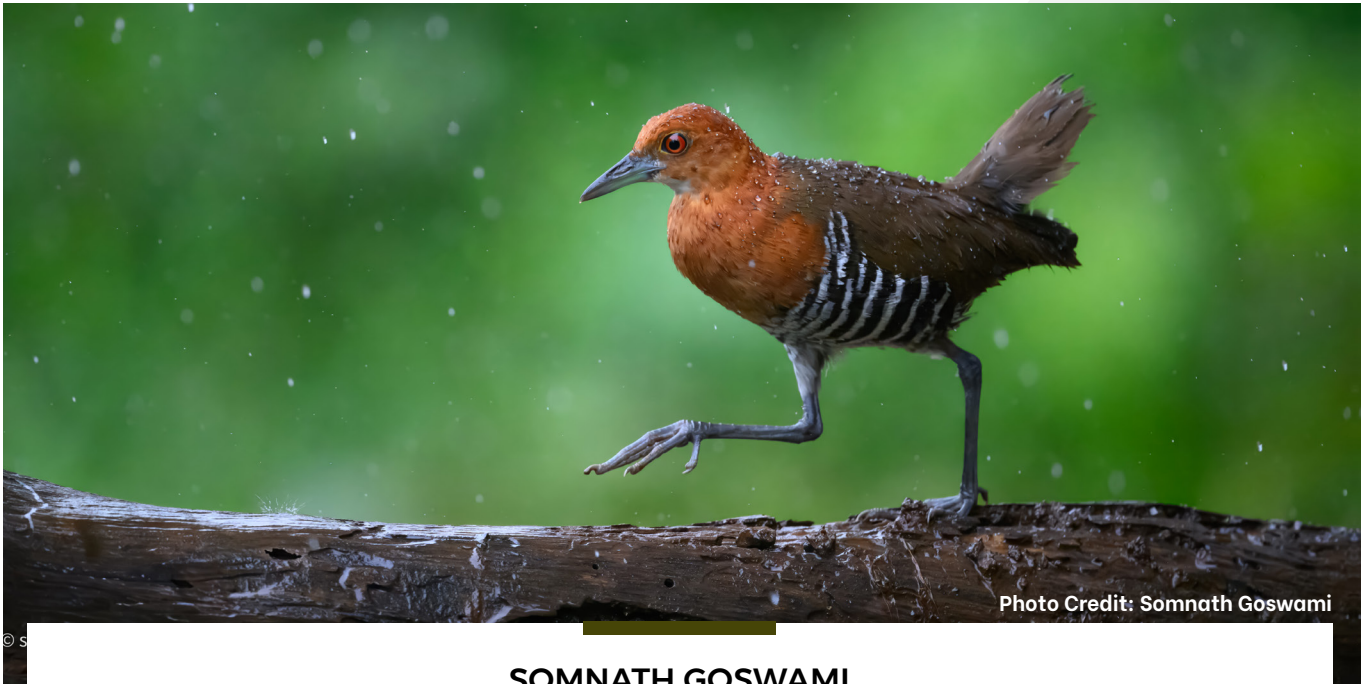
SHREYA SAMANTA

Shreya is a Biodiversity Conservation Manager at Nature Environment & Wildlife Society (NEWS), where she works on biodiversity research, field monitoring, and conservation initiatives. Her interest in birdwatching developed during her extensive fieldwork as an Applied Entomology researcher, when regular observations of birds became an integral part of her work. Over the years, Shreya has meticulously chronicled her field observations, creating a remarkable body of work that enriches our understanding of species ecology and highlights the critical importance of biodiversity conservation.



ADHIRUP GHOSH

Adhirup is a birdwatcher from Santiniketan, whose roots lent him a spontaneous inclination towards birds and nature since childhood. Birds- common and rare, excited and interested him. Over the years, he has deepened this early passion through extensive fieldwork, documentation, and participation in citizen-science initiatives. His keen eye for detail and love for natural history continue to shape his journeys as he explores and discovers India's diverse habitats.



SOMNATH GOSWAMI

A DAY AT THE CRAKE'S NEST

In August 2025 we could observe nesting of Slaty-legged Crake (*Rallina eurizonoides amauroptera*) at Kalhe Village, Maharashtra. This subspecies breeds during the monsoon months in South-west India. Following is our very loose account of the day!

The Vande Bharat reached Panvel in the late hours of 6:30 in the morning. Sounds early, perfect time to get up and look for that cup of tea to clear the cobwebs of sleep. But for a birder 6:30 AM is too late to be elsewhere other than the field, even if you are in the western part of the country where day breaks a bit late. We should have already been in the bushes, binoculars and cameras ready, eyes wide open and ears pricked; Yet here we are, at the station, braving a drizzle which is slowly getting heavier and trying to catch the autorickshaw drivers over phone, who would be the mode of our journey for the next leg.

We arranged ourselves and our substantial baggage in two autorickshaws. It was pouring quite hard and we were drenched. Our plan would be to reach Kalhe Village which is approximately an hour's drive by those autorickshaws. We would be birding throughout the day and then would continue our journey by a separate car towards Bhigwan for another leg of our birding trip.

In due course we reached Kalhe and met ever so smiling and helpful Samadhan Pawar, who would be our guide for the day. Our baggage was left at his place and we continued our journey by those same autorickshaws towards the place where the sighting of the Slaty-legged Crake was taking place.

But we were not the first to be there. Samadhan ji intimated us that there already have been a couple of fleet-footed birders who have beaten us in reaching the spot first. And as the saying goes "early bird" has

already got the worm, I mean the Crake. They had already seen the Crake. That evoked both hope and despair in us. Hope because at least the bird is there. Despair because shy and reclusive as Crakes are, who knows if the bird shows itself again or not. I tried to eke out encouragement from Samadhan Ji but all I received was a philosophical nod and a sad smile which could be interpreted in thousand different ways.

The autorickshaw soon veered from the paved road to a kuccha red soil road. It was a beautiful journey. All around us were verdant fields full of crop. Lush fields were bounded by thick forest that crept on to small undulating hills which had thick vegetation. The rain had stopped but one canal was following us besides the kuccha road and it was full of water. Besides the road lots of puddles of water were testamentary to the fact that the area was having plenty of rains.

After another short 5 minutes journey, the autos stopped and we started to walk on foot. It was just a little walk with mildly upward gradient. Our destination was a little house which appeared out of nowhere from within the full cover of various trees. We walked a few more steps and ended up behind the small house.

There they had arranged a rudimentary place where the birders would presumably wait for the birds. It was a most natural set up. A long and robust piece of wood was screwed into the earthen floor which would work as the bench where 7-8 birders could be crammed. Unfortunately the "bench" was not evenly parallel to the ground. In fact the ground itself was steeply sloping and as a result the bench was also very high in the far side. That made the seating very precarious as the farthest birder would inevitably keep sliding and slipping sideways pushing the nearer ones out of the bench. Anyway luckily we were only 5 of us, including the birders from the earlier batch and that eased the management of slipping and sliding to some extent. In front of the bench a place was left open to keep

the cameras and then a green cloth was hung to hide the birders from the bird. The cloth had been cut to accommodate holes through which birders could aim their cameras.

In front of the hide there was a small clearing and beyond the clearing at a distance of 20-25 feet all around were thick vegetation. Medium sized trees and thick underbrush made the place very dark. About 10-12 feet away from us there was a thick and dry trunk of a tree that ran parallel to the ground for about 6 feet and then went upward gradually rising to suddenly end. At the top end of the trunk there was a thick bush of vegetation, apparently a clump of various mix of greens, leaves and twigs: it resembled a shock of unruly hair on the head of a teenager.

We were told that, that was the nest of the Crake. It had it's eggs and till a few days ago both the parents were present. Sadly a few days back the mother had fallen prey to some predator and now it was the duty of the single father to keep the nest in proper shape and incubate the eggs. We were all in a reflective mood mulling over the precariousness of the life a wild bird, it's extremely hard challenges and the odds that they face.

As we were told that the bird had already shown itself once, we were not sure that we would be lucky to see it at all. They have a time restriction and if the bird doesn't come within such limit, that is it, we have to take another chance the next day and that was not possible for us.

Anyway we started to wait with baited breath. The first few minutes our senses were at the sharpest. Eyes were searching for the minutest of movements, ears were picking the faintest of rustles. Then we started to relax as minutes were passing by endlessly. A few birds were flying here and there, triggering our reaction only to deceive. Despair was starting to mount as was anxiety. And then something moved.

We first saw the blob of impossibly bright chestnut color that adorns the head and the chest. Like all

Rails and Crakes, this bird too is a brilliantly fast mover through the undergrowth. Before we could see it properly in the brushes, it broke cover and with impossible speed moved in a zigzag pattern through the open ground and reached the end of the tree trunk. One smart hop and it was atop the horizontal trunk and before one could blink the bird speed-walked into the clump of the vegetation that was the nest. I could not take a single good photograph and only a couple others were fast enough to do better.

That started another wait. No one knew how long the bird would take to break cover again. And now the rain started, the whole atmosphere was moist and warm. Someone supplied us Vada-pao for breakfast and we gobbled them as fast as we could. And then as suddenly as the bird went in, it came out. This time we were prepared better and could take a few photos before it ran and climbed down to vanish into the trees. This routine repeated itself a couple more times, sometimes it returned with nesting materials to perhaps repair the nest, sometimes not. We could observe the bird better now, the photos also went gradually better. Before long it was time to go. A nesting bird is a sensitive creature. Yes, we were hidden well and perhaps the bird was habituated to the presence of humans but yet lesser the time we spend in the proximity, lesser the stress on the bird.

We were lucky to have the opportunity to see this elusive bird and its nesting behavior in its natural surroundings. Samadhan supposedly discovered the nest by accident and only this year the nesting happened so close by. In other years it nests elsewhere and who knows when a similar opportunity presents itself.

When we researched about its nesting behavior we could find that they regularly build nests on top of tree stumps up to a meter above ground, presumably to avoid potential predators. The nest we saw was a classic example of that. The bird was in our thought while we returned. We were thinking about the impossible challenges that it faces to raise its chicks. The odds are definitely stacked against it. But this time it was a happy ending. A fortnight later we heard that the bird left the nest with chicks. Nothing could make us happier!

Here is the checklist link:

<https://ebird.org/checklist/S269401873>



Crake with nesting material;
Photo Credit: Somnath Goswami

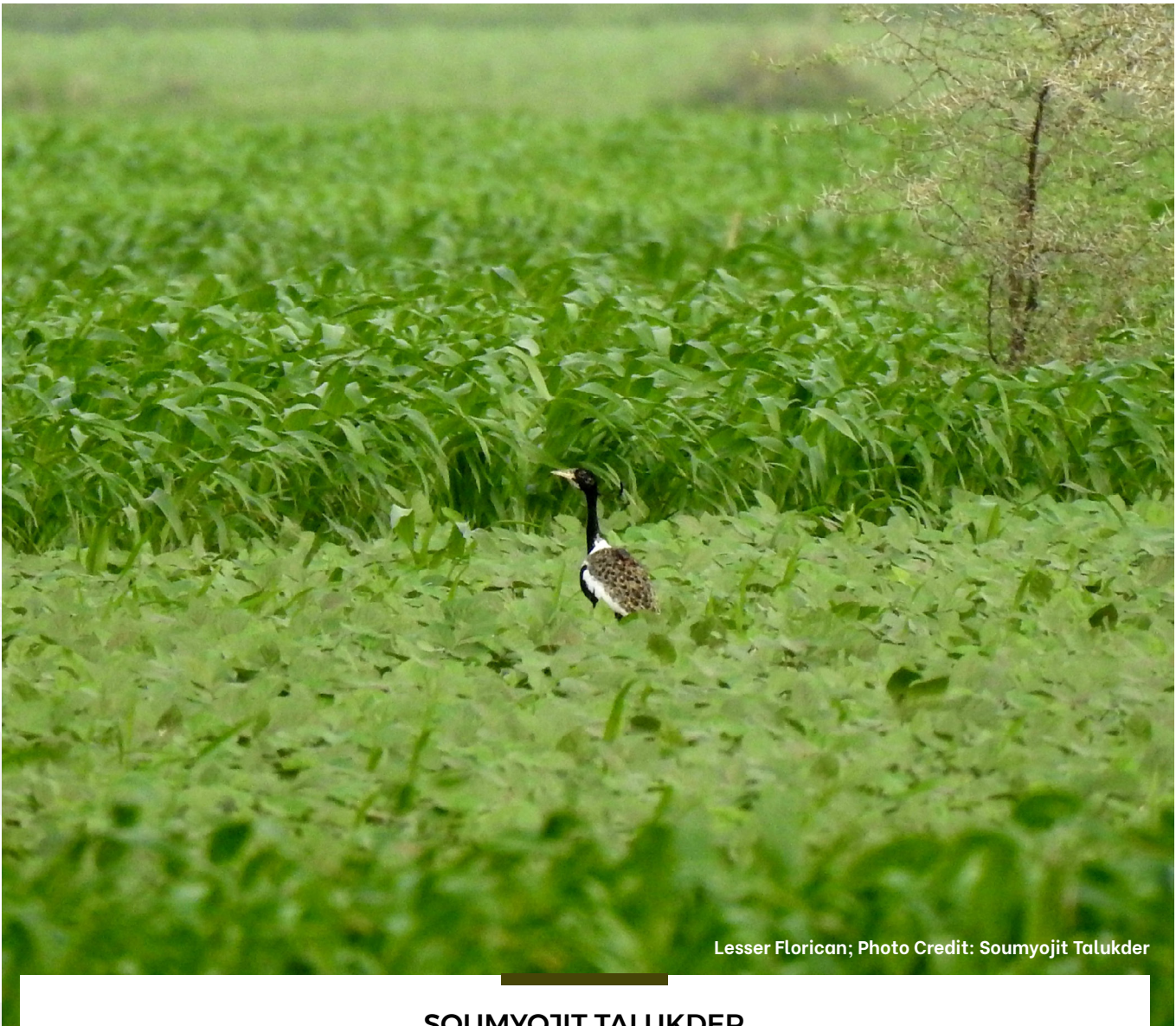


Crake coming out of nest;
Photo Credit: Somnath Goswami



About Author **SOMNATH GOSWAMI**

Somnath is a practising Chartered Accountant based in Kolkata. He has nurtured a passion for photography, nature observation, and reading since his early teens. In addition, he is actively involved in conservation initiatives.



Lesser Florican; Photo Credit: Soumyojit Talukder

SOUMYOJIT TALUKDER

WHY DO SOME BIRDS CHOOSE TO NEST NEAR HUMANS?

If you have ever looked closely at the trees, buildings, electric poles, roadside vegetation, or even the messy corners of a city, you may have noticed something interesting: **birds are everywhere—and some of them seem surprisingly comfortable living right next to us.**

At a time when habitat fragmentation and rapid urbanisation are major threats to birds, it may seem strange that certain species choose to build their nests close to people. While many birds prefer quiet, undisturbed places, others have figured out that human settlements can offer something quite useful: **food, shelter, nesting sites, and sometimes even protection from predators.**

BIRDS THAT LEARNED TO LIVE WITH US

Humans have been modifying natural landscapes for centuries. We build houses, roads, bridges, farms, parks, and cities, often without considering how wildlife will respond. But birds are remarkably adaptable. Some species have changed their behaviour and habitat preferences to take advantage of these human-dominated environments. These birds are often described as **synanthropic species**—species that can live alongside humans and sometimes even benefit from our activities.

Urban areas may provide surprisingly good opportunities for adaptable birds. Buildings offer cavities and ledges, gardens provide food and vegetation, garbage provides easily accessible resources, and artificial structures can replace natural nesting sites.

Cavity-nesting birds such as the **House Sparrow, Rock Pigeon, and Jungle Myna** are excellent examples. Instead of searching for a natural tree cavity, they may happily use a hole in a wall, a building crevice, a roof space, or another convenient man-made cavity.

From a bird's point of view, a building can sometimes be just another cliff with better amenities.

NOT JUST CITY BIRDS

The relationship between birds and humans is not limited to cities.

Even ground-dwelling species such as the **Red-wattled Lapwing and Indian Courser**, as well as more sensitive species such as the **Lesser Florican and Sarus Crane**, may breed in or around agricultural fields. Fields can provide food, open nesting areas, and suitable breeding habitat. In some situations, the presence of people may even discourage certain predators from approaching. Recognising the importance of these landscapes, community-based conservation programmes have also been developed to encourage farmers to protect birds and their nests. This is an important reminder that **wildlife conservation does not always happen inside a forest or a national park. Sometimes, it happens in a farmer's field.**



Sarus Crane; Photo Credit: Soumyojit Talukder

CITIES HAVE THEIR OWN BIRD REFUGES

Even a concrete-heavy city can contain surprisingly valuable pockets of habitat. Gardens, parks, wetlands, roadside trees, lakes, and other patches of vegetation can provide food, shelter, and nesting opportunities. Places such as **Rabindra Sarobar in Kolkata** and **Green Valley Park in Mumbai** demonstrate how urban green spaces can support a surprisingly diverse bird community. These spaces may look small when compared with a forest, but to a bird searching for food, a nesting tree, or a safe place to rest, even a small patch of green can be extremely important.

WHEN A LAMP POST BECOMES A NESTING TREE

Old lamp posts, bridges, building ledges, roadside trees, metro structures, and other places never designed for wildlife can suddenly become nesting sites. One particularly fascinating example is around the **Belgachia Metro area in Kolkata**, where large colonies—or heronries—of **Asian Openbills, Cormorants, Egrets, and Black-crowned Night Herons** can be found close to busy roads and footpaths.

ONE FROM MY MEMORIES

A few months ago, I discovered a **Spot-breasted Fantail** nest built on a tree immediately beside a busy road. There was constant traffic. People were walking past. Vehicles were moving just a few metres away. And yet the birds seemed completely unfazed.

I monitored the nest for almost a month. Eventually, however, the pair abandoned it. At first, it was tempting to blame the obvious suspects: traffic, noise, and human disturbance.

But nature had another explanation.

A **Large-billed Crow** appeared to be the more likely threat.

This observation was a good reminder that what looks like human disturbance is not always the actual reason behind a bird's nesting failure. Sometimes, the real danger is another bird watching from a nearby branch.



Spot-breasted Fantail ; Photo Credit: Soumyojit Talukder

TWO MONTHS WITH A BLACK KITE

Another memorable experience was monitoring a **Black Kite** nest for more than two months.

This time, I was fortunate enough to observe much of the nesting process—from egg laying to the hatching of chicks.

One of the most interesting things about the nest was its construction material.

The kites had incorporated pieces of plastic and other human-generated waste collected from the surrounding area. For the birds, these materials were simply available resources.



For us, however, it raises an uncomfortable question:

Are we helping birds by providing easily available materials, or are we creating new dangers for them at the same time?

THE ANSWER MAY BE BOTH

A plastic strip may be easy to find and useful for constructing a nest. But that same plastic can become entangled around a bird or chick, causing injury or even death. So, while birds are remarkably good at adapting to our changing world, that doesn't mean everything we provide is good for them.

SO WHY DO BIRDS NEST NEAR US?

There isn't one universal answer.

Different species—and even different pairs of the same species—may make different choices. But several factors may make human-dominated areas attractive:

- ✓ **Reliable food:** Human settlements often provide abundant and predictable food.
- ✓ **Nesting opportunities:** Buildings, bridges, trees, ledges, poles, and other structures can replace natural nesting sites.
- ✓ **Shelter:** Buildings and other structures protect from rain, heat, wind, and other harsh weather.
- ✓ **Fewer predators:** Some predators may avoid areas with frequent human activity.
- ✓ **Easy access to resources:** Food, nesting material, water, and shelter can all be found within a relatively small area.



Barn Owl; Photo Credit: Soumyojit Talukder

For some birds, therefore, living near humans may not be a desperate last resort.

It may actually be a **perfectly practical survival strategy**.

THE BIGGER PICTURE

At first glance, stories of birds nesting beside roads, buildings, farms, and garbage dumps may seem like interesting little anecdotes. But they tell us something much bigger.

A large proportion of India's wildlife exists **outside formally protected areas**. That means the small pieces of habitat scattered across our cities, villages, farms, wetlands, gardens, and roadsides can be far more important than we sometimes realise.

A roadside tree may hold a nest.

A farm may become a breeding ground.

A city lake may provide food for hundreds of birds.

A small urban park may become a stepping stone connecting fragmented habitats.

Together, these places can form a network through which wildlife survives in an increasingly human-dominated landscape. Birds have survived changing landscapes, shifting climates, predators, competition, and countless other challenges.

Now they are facing one of their biggest challenges: **us**.

Yet, remarkably, many species are learning to live alongside we humans. They are changing where they nest, what they eat, what materials they use, and how they respond to our presence.

Perhaps the famous line from *Jurassic Park* puts it best: "**Nature always finds a way**".

Our responsibility is to make sure that, as nature finds its way through our rapidly changing landscapes, **we leave enough space for it to do so**.



About Author SOUMYOJIT TALUKDER

Soumyojit is a Zoology postgraduate specialising in Biodiversity and Ecosystem functioning, presently associated with the Bombay Natural History Society (BNHS). Deeply interested in birds and wildlife, the author combines fieldwork and writing to share ecological observations.



Fantails nest; Photo Credit: Batul Pipewala

BATUL PIPEWALA

THE NEST ON THE SUNDARI

Story of Our Fantail Family

It began with a song. On 10th May 2026, I heard the unmistakable notes of a White-throated Fantail near the pond in the Flora Fountain complex(Kolkata), coming from the Sundari trees. It stopped me in my tracks - this pair is usually found in Narendrapur and the CKBS (Chintamani Kar Bird Sanctuary) area, not here in Tangra. What had brought them to us? A little research gave me the answer: White-throated Fantails nest on Sundari trees. That single fact was enough to begin an exciting quest, to follow this pair and see where their story would go. Eleven days later, on 21st May, chance rewarded my patience. While watching the fantails go about

their business, I noticed a nest nestled amongst the Sundari leaves, tucked into a horizontal fork of the branches, about three feet above the ground. And then I saw it! A parent sitting quietly on the nest. That could only mean one thing: eggs had already been laid.

The nest itself was a small marvel of instinctive engineering - a compact, wine-cup shaped structure woven from moss, dried grass, and shredded leaves, with a signature "tail" of loose nesting material trailing from its base, so characteristic of fantail nests that it can identify the species at a glance.

What held it all together was more remarkable still.

The fantails had used spider webs as both glue and structural reinforcement, working the sticky silk in with their beaks and breasts alongside the moss and plant fibre. The silk did more than bind the nest together. It was elastic, able to stretch as the nestlings inside grew heavier and more restless. In roughly ten days, working almost entirely with what the tree and its surroundings offered, the pair had built a home engineered to expand with their family, and by the time I found it, it had already laid eggs.

The eggs themselves, white with a concentrated band of brown speckles around the middle, were a neat, deliberate pattern, as if signed by the birds themselves.

TWO DEVOTED, SECRETIVE PARENTS

Watching the tree became my routine. Every visit, I would find the parents tending alternately to the eggs, taking turns so that one was always incubating while the other foraged or stood guard. But they were sharp-eyed about me too – secretive almost to a fault. If I came anywhere close to the tree, they would see me and simply wait, refusing to approach the nest until I had moved well away.

One habit stood out as particularly unusual: rather than approaching the nest from a branch above it, as many birds do, the fantails would always come to it suddenly from a branch below, never from above. It was a small, deliberate choice whose purpose I could only guess at, perhaps caution, perhaps simply the shape of the branches around them.



Fantail birds in Flora Fountain complex, Tangra; Photo Credit: Batul Pipewala

TWO OPEN BEAKS

On 2nd June, my patience was rewarded again. Peering at the nest, I saw, for the first time, a tiny, colourful open beak poking up from among the moss and grass. The eggs had hatched.

There were two young ones in the nest, and they seemed to work as a pair from the very start. The moment a parent approached, both would raise their heads in unison, beaks open wide, waiting to be fed, as if on cue.

It was here that I learned something I had not expected: that the parents continue to sit on the nest even after the young ones have hatched, sheltering them much as they had sheltered the eggs. Through it all, their sweet, familiar song – a musical phrase of six or seven notes that rises and then falls – went quiet. The parents were too absorbed in their nestlings to sing. The silence, in its own way, said as much about their devotion as any sound could have.



Fantail babies; Photo Credit: Batul Pipewala

A SILENCE THAT DID NOT LIFT

The two young ones grew steadily in the weeks that followed, watched over by their tireless parents. By mid-June, they were fully developed but had not yet fledged, still days away, perhaps, from that first flight.

And then, abruptly, the family was gone. I believe a mishap occurred on the afternoon of 13th June. The young ones, likely out of the nest but not yet capable of sustained flight, may have fallen prey to the very cat their parents had once so valiantly driven away. From 14th June onwards, there was no trace of

the family at the tree. I could think of no other explanation for their sudden, complete absence. It is a hard thing to watch a story like this end in likely loss rather than triumph. But nature rarely offers neat conclusions, and a small, stubborn hope remained: that perhaps the young ones and their parents had simply moved on, flown safely to another spot, away from danger.

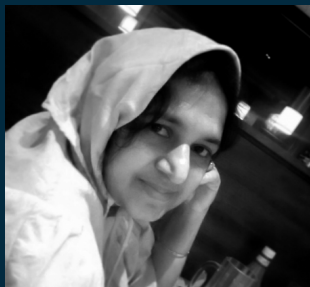
A GLIMPSE OF RETURN

On 23rd June, ten days after that silent afternoon, two fantails were seen again - first at Flora, and then at a few other spots around Tangra. There is no way to know for certain, but it is tempting, and perhaps not unreasonable, to think that these were the same parents: survivors of a difficult season, still moving through the same stretch of trees they once called home.

The nest on the Sundari is empty now. But for ten days of building, weeks of quiet incubation, one fierce afternoon of defence, and a story that ends somewhere between loss and hope, it held a small, complete world, one shaped entirely by instinct, devotion, and the will to keep building, even in a restless world.



Incubation period; Photo Credit: Batul Pipewala

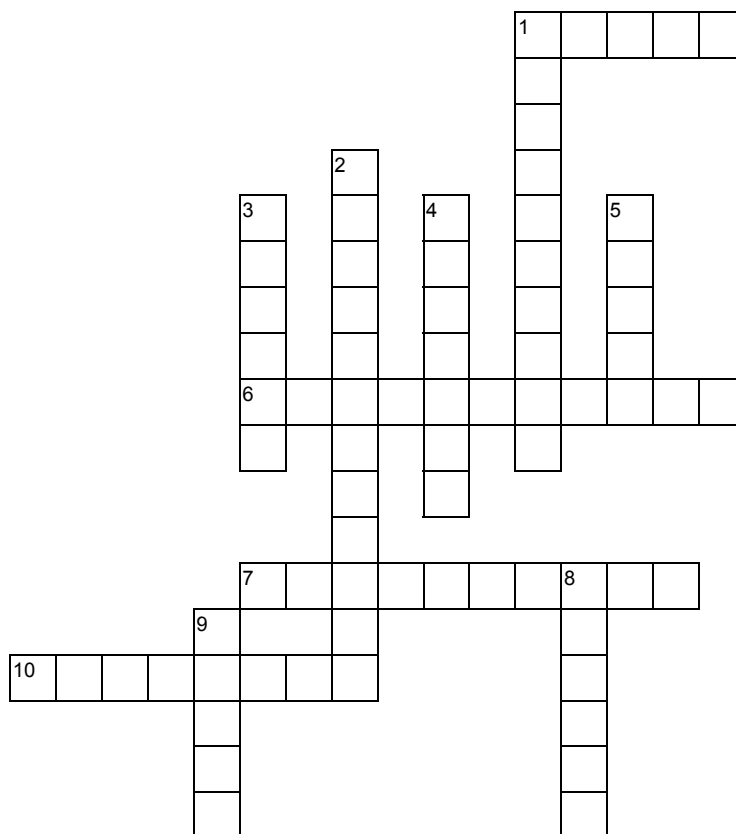


About Author BATUL PIPEWALA

Batul is a mentor with CUBE (Collaboratively Understanding Biology Education) under Kishore Bharati, founded by Prof. Anil Sadgopal. A birding enthusiast, she has completed a basic course in Ornithology. A member of BWS, BNHS and HEAL, she lives in Kolkata.

CROSSWORD

Do You Know The Nest?



Across

- 1 Common building material found on trees
- 6 A type of nest that hangs down from a tree branch
- 7 These birds use their nests for generations
- 10 Other than Cuckoos, these birds also lay their nests in other birds' eggs

Down

- 1 Where does the Coppersmith Barbet typically make its home
- 2 These birds use spider silk to build their nests
- 3 A simple ground or depression used as a nest by plovers or terns
- 4 These ducks line the sides of their nests with feathers
- 5 A high nest of a bird of prey
- 8 Study of eggs and nesting
- 9 Latin term for a nest or breeding



SOUMI CHAUDHURI

BENGAL BIRDERS' MEET 2026

Two Days of Wings, Wetlands and Citizen Science

The Birdwatchers' Society (BWS) closed the curtains on the Bengal Birders' Meet (BBM) 2026 at the Biswa Bangla Convention Centre with a two-day gathering (July 18-19) that pulled together scientists, conservationists, forest officials, birders and schoolchildren under one roof, united by a single conviction: that watching birds is no longer just a hobby, but a form of science that anyone can practise.

Everyone likes birds. What wild creature is more accessible to our eyes and ears, as close to us and everyone in the world, as universal as a bird?

– Sir David Attenborough

The 3rd Bengal Birders' Meet 2026, organised by the Birdwatchers' Society (BWS) in collaboration with eBird, Bird Count India, and Pentax Binoculars, brought together ornithologists, researchers, conservationists, bird photographers, professional and amateur birders, students, and nature enthusiasts from across the country. Conceived as a platform for knowledge exchange and collaboration, the two-day event celebrated the shared commitment of the birding community towards avian research, citizen science, and biodiversity conservation. Over the past year, Birdwatchers' Society has continued to strengthen its conservation initiatives through

active citizen participation and collaboration with partner organisations. Against the backdrop of increasing environmental challenges, the Bengal Birders' Meet served as a timely forum to share scientific knowledge, field experiences, and innovative conservation approaches. Through keynote lectures, technical presentations, discussions, and interactive sessions, the programme explored a wide range of topics encompassing bird conservation, habitat management, ecological monitoring, citizen science, environmental surveys, and emerging technologies that are shaping the future of biodiversity conservation.

The proceedings commenced with the Welcome Address by Mr Biswapriya Rahut, President of the Birdwatchers' Society, who reflected on the Society's journey over the past year and formally welcomed the distinguished speakers, delegates, and participants to the 3rd Bengal Birders' Meet 2026.

DAY 1 – 18 JULY 2026

Welcome Address

Mr BISWAPRIYA RAHUT, *President, Birdwatchers' Society (BWS)*

The proceedings of the first day commenced with the Welcome Address by **Mr Biswapriya Rahut**, President of the Birdwatchers' Society (BWS), who warmly welcomed the distinguished guests, speakers, delegates, and participants to the **3rd Bengal Birders' Meet 2026**.

In his address, Mr Raut highlighted the importance of conserving nature through collective action and emphasised the growing role of citizen science in understanding and protecting biodiversity. Reflecting on the Society's achievements over the previous year, he outlined several significant initiatives undertaken by BWS. Among these were the ongoing statewide **Owl Survey** conducted in collaboration with WWF-India, the documentation of the **Australasian Grass Owl** during the Malda River Bird Survey, the notable record of the **Spoon-billed Sandpiper** at Patibunia, Bakkhali, and numerous educational bird walks and awareness programmes organised under the School of Birds initiative.

He remarked that these accomplishments were made possible through the active participation of birders, volunteers, researchers, and conservation enthusiasts across the state, reaffirming BWS's commitment to promoting bird conservation, scientific documentation, and environmental awareness through community participation.



Building an organisation is much like watching birds build a nest. No single twig seems significant. But one twig becomes ten. Ten become a hundred. And before long, there stands something capable of nurturing life.

– Mr Biswapriya Rahut, President, BWS

Address by the Guest of Honour

Mr RAJESH KUMAR, IFS, Chief Wildlife Warden, Government of West Bengal

The **Chief Wildlife Warden, Government of West Bengal**, addressed the gathering as the Guest of Honour and spoke on the growing importance of citizen participation in wildlife conservation.

Referring to the recently initiated **statewide Owl Survey**, launched by WWF-India, he observed that while the survey primarily focused on estimating owl populations, understanding the distribution of species across different landscapes was equally important. Such information, he noted, provides a scientific foundation for future conservation planning and habitat management.

He further emphasised that although considerable attention is often directed towards conservation within National Parks, Wildlife Sanctuaries, and Reserved Forests, equally significant conservation efforts are required outside protected areas. The survival of many species depends on landscapes that fall beyond formally protected forests, making the participation of the general public indispensable.

Highlighting the value of collaborative conservation, he advocated for a common platform where government agencies, non-governmental organisations, researchers, and citizen scientists could collectively share research findings as well as authentic field observations. Such collaborative documentation, he remarked, would strengthen biodiversity databases, identify emerging conservation priorities, and ultimately contribute to more effective conservation policies across the state.



Mr Rajesh Kumar

Welcome Address

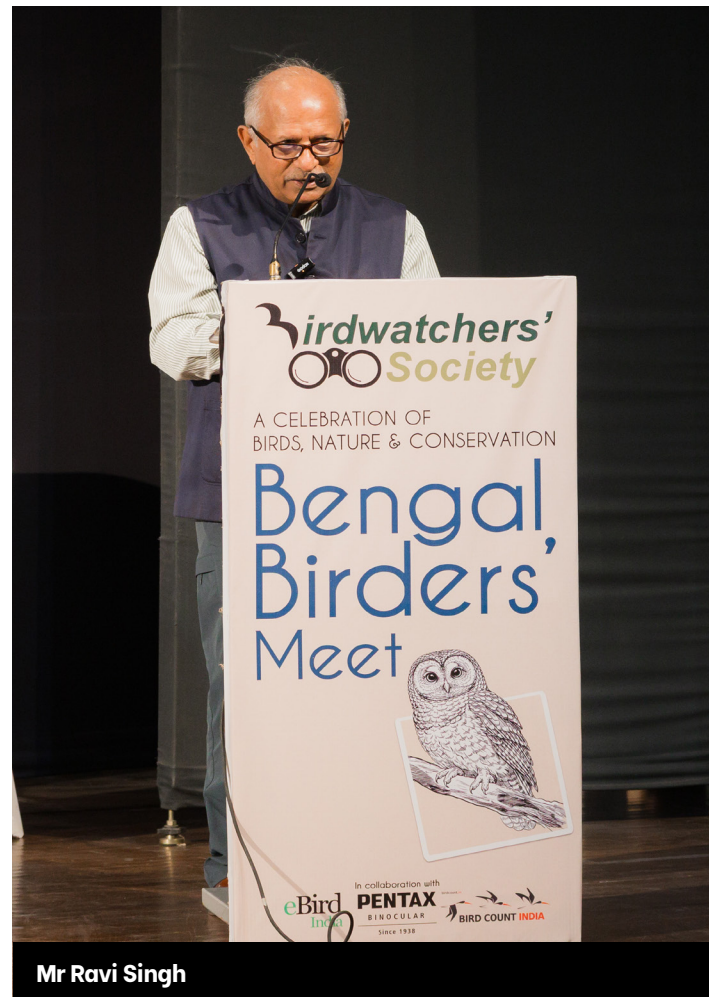
Mr Ravi Singh, *Secretary General and CEO, WWF-India*

The keynote address was delivered by **Mr Ravi Singh**, having transitioned from a successful banking career to wildlife conservation in 2003, Mr Singh has since played a pivotal role in shaping WWF-India's conservation programmes and representing the organisation at national and international forums. His address drew upon decades of experience in biodiversity conservation, citizen science, and environmental policy.

Mr Singh began by sharing his fond memories of Kolkata and expressed his gratitude to **Mr Biswapriya Rahut**, **Mr Sujan Chatterjee**, **Dr Sonali Ghosh**, **Dr Prachi Mehta**, the organising committee, and all participants for bringing together such a vibrant gathering of birders and conservationists. He reflected on the invaluable ornithological records preserved by the **Zoological Survey of India (ZSI)** and the **Bombay Natural History Society (BNHS)**, describing them as an enduring legacy for Indian ornithology. While acknowledging the role of modern technology in bird documentation, he remarked that a pair of binoculars continues to remain the most indispensable tool for every birder.

Speaking on the changing landscape of conservation, Mr Singh observed that although biodiversity data collection has improved significantly over the past two decades, conservation itself has become increasingly challenging due to habitat degradation, urbanisation, and growing human-wildlife conflicts. He pointed to the noticeable decline of once-common species such as **Munias** and **Weavers** in and around Kolkata as an indicator of these ecological changes.

Recalling his own conservation journey, Mr Singh shared that his association with WWF began in **1976**, inspired by **Humayun Abdul Ali**, whose passion for natural history and close association with the legendary ornithologist **Dr Salim Ali** profoundly influenced his career. He reflected on the transformation of urban ecosystems over the decades, noting that large soaring birds such as **Black Kites**, **Storks**, and **Eagles**, once abundant in cities like Delhi, have become increasingly uncommon. Even species that continue to inhabit urban environments, such as the **Coppersmith Barbet**, appear to exhibit changes in their natural behaviour, with their distinctive calls being heard less frequently.



Highlighting the alarming decline of vultures across India, Mr Singh referred to his observations in **Mudumalai**, where **White-rumped Vultures**, once regularly encountered, have become increasingly scarce. He acknowledged the dedicated Vulture Conservation Centres established at **Rajaji National Park** and **Corbett National Park**, while noting that similar conservation priorities are yet to receive adequate attention in several other protected areas. Drawing attention to the **Sundarbans**, he remarked that the abundance of large birds, particularly birds of prey, appears to have declined considerably over the past fifteen years. This, he stressed, calls for systematic monitoring and focused conservation initiatives.

Mr Singh underscored the importance of long-term monitoring programmes, especially for raptors. He observed that while northern and western India have developed several successful raptor-monitoring initiatives, West Bengal possesses enormous potential to become a leader in this field. Projects such as the proposed **Bengal Bird Atlas**, coupled with the extensive local knowledge of community birders, could generate invaluable information on bird distribution and population trends across the state. Illustrating the challenges faced by migratory birds, he cited the example of the **Steppe Eagle**, which enters India through the western flyway but encounters diminishing food resources as it travels eastward owing to the degradation of grassland habitats. In one documented instance, a Steppe Eagle found near the **Koshi River** was suspected to have died from heavy-metal contamination, highlighting the far-reaching consequences of environmental pollution on migratory species.

Expressing confidence in the birding community of West Bengal, Mr Singh remarked that the state possesses both the expertise and enthusiasm to emerge as a global centre of excellence in bird

research and citizen science, provided sustained financial and institutional support can be ensured. Reflecting on the history of Indian ornithology, he referred to the formal description of the **Australasian Grass Owl** by **Thomas Caverhill Jerdon** in 1839 and acknowledged the pioneering contributions of early naturalists such as **C M Inglis** and **E C Stuart Baker**, whose observations from Jalpaiguri and Malda continue to remain historically significant.

He also highlighted India's rich historical association with birds by referring to the **Syainika Shastra**, authored by **Raja Rudra Deva of Kumaon**, an important treatise on falconry and traditional ecological knowledge, parts of which continue to find relevance in certain regions even today.

Mr Singh emphasised that conservation cannot succeed without effective public engagement and responsible use of the media. Citing the remarkable observation of a **Malabar Pied Hornbill** assisting in feeding the chicks of an **Indian Grey Hornbill** at Delhi's Lodhi Garden, he demonstrated how a single well-documented behavioural observation captured public imagination and inspired local communities to actively protect nesting birds. Continued monitoring of the incident subsequently led to the discovery of seventeen Grey Hornbill nests, illustrating the powerful role of citizen participation in conservation.

Reflecting on Kolkata's ecological history, he observed that the city supported a much richer diversity of birds during the 1970s and 1980s than it does today. He advocated for integrating bird-friendly urban planning, scientific research, technological innovations, and conservation education to create sustainable urban habitats for birds.

He further shared inspiring examples of successful community-based conservation initiatives from different parts of India, including village-led bird

festivals, the conservation efforts that contributed to **Udaipur** attaining **Ramsar Site** status, studies on the impact of power transmission lines on **Egyptian Vultures**, and satellite-tracking research on **Black Kites** frequenting the Ghazipur landfill, which revealed the potential long-distance dispersal of pathogens.

During the interactive session, **Mr Sujan Chatterjee**, Secretary of BWS, sought Mr Singh's views on tree plantation programmes in grasslands, rocky habitats, and wetlands. Responding to the query, Mr Singh emphasised the urgent need to review the existing **Wasteland Classification Policy** and update grassland conservation policies.

Concluding his address, Mr Singh observed that conservation should be viewed as a long-term investment. While ecosystem restoration may take several years before ecological and socio-economic benefits become visible, such sustained efforts are essential for securing both biodiversity conservation and sustainable livelihoods.

Technical Session I

Dr SONALI GHOSH, IFS, Council Head, Forest Department, Bodoland Territorial Council (BTC); Field Director, Manas Tiger Reserve; CEO, Assam Agroforestry Development Board

The first technical presentation was delivered by **Dr Sonali Ghosh, IFS**, an eminent Indian Forest Service officer with more than twenty-five years of experience in forest and wildlife management. Having managed two UNESCO World Heritage Sites—**Kaziranga National Park** and **Manas National Park**—Dr Ghosh has made significant contributions to biodiversity conservation, ecological research, and the application of remote sensing technologies in wildlife management.



Dr Sonali Ghosh

Her presentation, titled "**Wetlands of Kaziranga and Manas – World Heritage Sites of Assam**", highlighted the ecological significance of wetlands and their indispensable role in sustaining biodiversity, particularly migratory and resident waterbirds.

Beginning on a personal note, Dr Ghosh described herself as an "accidental birder", sharing how her interest in birds developed through interactions with fellow forest officers and colleagues. She recalled that her earliest experiences of birdwatching began in zoological parks before gradually evolving into an enduring passion for observing birds in their natural habitats.

Emphasising the importance of wetlands, she referred to the **Important Bird and Biodiversity Area (IBA)** framework and noted that Assam is home to nearly **3,000 wetlands**, of which approximately **300 occur within the Kaziranga landscape** spread across four districts and adjoining protected areas. These wetlands support an extraordinary diversity of resident and migratory birds and form one of the most productive freshwater ecosystems in the country.

Dr Ghosh shared the experience of the annual migratory bird census conducted in Kaziranga, a programme she has led for the past three years as part of an eight-year monitoring initiative. The survey witnessed the participation of nearly **200 volunteers**, who collectively recorded close to **100,000 birds** across the wetlands of Kaziranga. Among the most notable observations was the sighting of a **male Smew**, a rare winter visitor to the region. She informed the audience that detailed reports of these annual bird censuses have been made publicly available through the **Kaziranga National Park** website.

During the interactive session, a participant enquired why the internationally important wetlands of Kaziranga have not yet been designated as a **Ramsar Site**. Responding to the question, Dr Ghosh explained that the Ramsar nomination process requires an extensive compilation of ecological and management data. More importantly, she pointed out that Kaziranga is globally renowned for its population of the **Greater One-horned Rhinoceros**, and unrestricted dissemination of detailed ecological information could inadvertently increase security concerns related to rhino poaching. Balancing habitat conservation with the protection of highly threatened megafauna, she noted, remains an important consideration in such decisions.

Concluding her presentation, Dr Ghosh emphasised that wetlands should be recognised not merely as seasonal water bodies but as dynamic ecosystems supporting birds, wildlife, ecological processes, and local livelihoods. Their long-term conservation, she remarked, depends upon sustained scientific monitoring, informed management, and active public participation.

Technical Session II

Dr PRACHI MEHTA, DIRECTOR, *Wildlife Research and Conservation Society (WRCS)*

The second technical session featured **Dr Prachi Mehta**, of the whose pioneering work on owl ecology and conservation has significantly contributed to research, policy, education, and public awareness in India. Besides her internationally recognised work on the critically endangered **Forest Owlet**, Dr Mehta has also been actively involved in addressing human–elephant conflict and promoting evidence–based wildlife conservation. Her presentation, at BBM "**Owls of India**", provided a comprehensive overview of owl diversity, evolution, biology, ecology, behaviour, and the conservation challenges faced by these remarkable nocturnal predators.



Dr Prachi Mehta

Introducing the audience to the evolutionary history of owls, Dr Mehta explained that owls are distributed across every continent except **Antarctica**, where the absence of suitable prey such as rodents prevents their occurrence. She noted that the world currently supports approximately **225 species of owls**, comprising **17 species of Barn Owls (Family Tytonidae)** and **208 species of True Owls (Family Strigidae)**. She also referred to the **Laughing Owl** of New Zealand, which became extinct during the twentieth century, illustrating the vulnerability of even well–established species.

Moving to owl biology, she described the extraordinary diversity in body size, ranging from the tiny **Elf Owl**, the world's smallest owl, to the imposing **Great Grey Owl**, one of the largest. She explained how owls possess

forward-facing binocular vision similar to that of humans, enabling precise depth perception while hunting. Unlike most diurnal birds of prey, which search for prey while flying and rely upon wide lateral vision, owls typically locate their prey from a stationary perch before silently gliding towards their target.

Dr Mehta elaborated on the remarkable anatomical adaptations that make owls efficient nocturnal hunters. Their asymmetrically positioned ears enable them to accurately determine the direction and distance of sounds, even in complete darkness, while the high concentration of rod cells in their eyes provides exceptional low-light vision. She also discussed dietary variations among different species, noting that **Barn Owls** primarily prey upon small mammals, whereas **Scops Owls** largely depend on arthropods and insects. Certain owl species, she added, also exhibit instances of cannibalism under particular ecological circumstances.

Turning to conservation concerns, Dr Mehta highlighted the major threats responsible for the decline of owl populations across India. Habitat degradation, electrocution from power lines, poisoning through rodenticides, predation of nestlings by species such as civets, and the illegal trade in owls continue to pose significant challenges to their survival.

She concluded by acknowledging the collaborative support received from several organisations that have strengthened owl research and conservation in India, including the **Raptor Research and Conservation Foundation (RRCF)**, **The Habitat Trust**, **The Peregrine Fund**, **the Ministry of Environment, Forest and Climate Change (MoEFCC)**, **the Department of Science and Technology (DST)**, and the Forest Departments of **Madhya Pradesh, Maharashtra, and Gujarat**. She emphasised that sustained scientific research, institutional collaboration, and public awareness remain essential for securing the future of India's owl diversity.

Technical Session III

Ms VASUDHA MISHRA, *Project Coordinator, Human and Environment Alliance League (HEAL)*

The third presentation was delivered by **Ms Vasudha Mishra**. Her work focuses on biodiversity conservation, community engagement, wildlife research, and evidence-based conservation planning, with particular emphasis on promoting coexistence between people and wildlife.

Her presentation, "**The Drive Against the Poaching of Larks in Central Bengal**", shed light on the persistent yet often overlooked issue of illegal hunting of small grassland birds across several districts of West Bengal. Ms Mishra explained that species such as the **Mongolian Short-toed Lark**, **Pipits**, and **Bengal Bush Lark**, collectively referred to



locally as "Bogari", continue to be trapped and hunted in parts of **Malda, Murshidabad, Birbhum, and Purba Bardhaman**. She observed that the primary drivers behind this practice include inadequate awareness among local communities, weak law enforcement, and the commercial value associated with the illegal bird trade.

Highlighting successful conservation interventions, she described the transformation of **Amlai village**, which has emerged as the first community in the region to actively protect these birds from poaching. Local participation in destroying trapping nets and safely releasing captured birds has demonstrated how community-led initiatives can significantly reduce hunting pressure on vulnerable species.

Ms Mishra also discussed the formation of **District Humane Committees**, constituted following a 2023 judgement of the Calcutta High Court in response to a Public Interest Litigation filed by HEAL against organised recreational hunting festivals in southern West Bengal. These committees, chaired by the District Judge and comprising representatives from the District Legal Services Authority, District Administration, Police, Forest Department, Railway Protection Force, and HEAL, have strengthened coordination among enforcement agencies and conservation organisations.

She reminded the audience that larks are protected under the **Wildlife (Protection) Act, 1972**, and emphasised the legal consequences of their hunting and trade. Presenting the outcomes of HEAL's conservation efforts since 2022, she reported that **24 poachers have been arrested, more than 5,000 larks rescued**, and an estimated **800,000 to 1,000,000 birds** have been indirectly protected through awareness campaigns, enforcement, and community participation.

Concluding her presentation, Ms Mishra emphasised that the conservation of small grassland birds requires not only stronger enforcement but also sustained public awareness, local stewardship, and continued collaboration between communities, conservation organisations, and government agencies.

Technical Session IV

Mr LESTER PERERA, *Environmentalist, Bird Artist and Ornithologist, Sri Lanka*

The afternoon session featured **Mr Lester Perera**, an acclaimed Sri Lankan bird artist, naturalist, and ornithologist whose work spans bird research, cetacean studies, pelagic bird surveys, and wildlife art. Beginning his career as a research assistant studying sea turtles and marine mammals, Mr Perera's discovery and documentation of Sri Lanka's first **Blainville's Beaked Whale** (*Mesoplodon densirostris*) marked an important milestone in his conservation journey. A self-taught artist, he has since gained international recognition for his bird illustrations and has dedicated much of his work to documenting the avifauna of Sri Lanka and the northern Indian Ocean.

His presentation, "**Birds of Sri Lanka**", offered an engaging overview of the island nation's remarkable avian diversity, endemism, and birding opportunities.

Sharing his personal journey into birdwatching, Mr Perera recalled that his earliest exposure to wildlife came through his father, an avid hunting enthusiast. Childhood visits to zoological gardens gradually developed into a fascination for birds, culminating in his first birding expeditions to the **Sinharaja Forest Reserve** at the age of sixteen. Among his earliest memorable sightings was the iconic **Sri Lanka Blue Magpie** (*Urocissa ornata*), an experience that inspired his lifelong passion for birds.



Mr Lester Perera

He explained how recent advances in molecular genetics and historical DNA studies have reshaped our understanding of avian evolution in South Asia, revealing previously hidden evolutionary relationships among several tropical Asian songbirds. These discoveries continue to refine the taxonomy of Sri Lanka's endemic birds and reinforce the island's global conservation significance.

Mr Perera then introduced the audience to Sri Lanka's rich assemblage of endemic bird species and outlined an ideal birding itinerary covering the country's major ecological regions. He recommended a well-planned twelve-day circuit encompassing the rainforests of **Sinharaja**, the montane forests and grasslands of the Central Highlands, several intermediate biodiversity hotspots, and the dry-zone national parks. Such a route, he explained, offers birdwatchers an opportunity to observe nearly all of Sri Lanka's endemic birds alongside a remarkable diversity of resident and migratory species.

Beyond its terrestrial avifauna, Sri Lanka has emerged as one of the premier destinations for pelagic birdwatching in the Indian Ocean. Mr Perera highlighted the ecological importance of the **Adam's Bridge** region and adjacent marine waters, which serve as breeding and feeding grounds for numerous seabirds. He described the collaborative conservation efforts undertaken by the Sri Lanka Forest Department and the Sri Lanka Navy to safeguard these sensitive marine habitats. Referring to Peter Harrison's *Seabirds* as an indispensable field reference, he discussed the logistics, opportunities, and challenges associated with pelagic birding around the island. To date, nearly **58 species of pelagic birds** have been recorded from Sri Lankan waters, with photographic documentation available for **52 species**, reflecting the growing understanding of the region's offshore biodiversity.

Throughout his presentation, Mr Perera complemented scientific discussions with his own illustrations,

demonstrating how wildlife art can serve as a powerful medium for documenting species, inspiring appreciation for nature, and promoting conservation. His presentation provided participants with valuable insights into Sri Lanka's extraordinary avian wealth and reinforced the importance of conserving both terrestrial and marine ecosystems across the region.

Technical Session V

Dr SUBHAM BANERJEE, *Postdoctoral Researcher, Colorado State University, USA*

The next technical session was delivered by **Dr Subham Banerjee**, an ecologist and ecoacoustics researcher whose work integrates bird vocalisations, passive acoustic monitoring, satellite remote sensing, and artificial intelligence to understand biodiversity and ecosystem health. Having previously conducted research at IISER Kolkata, Purdue University, and Colorado State University, his work bridges cutting-edge ecological research with citizen science and bird monitoring.

His presentation, "**Listening to Nature: What Bird Sounds Reveal about Ecosystem Health**", explored how soundscape ecology is transforming the way scientists study birds and ecosystems.

Dr Banerjee opened his presentation with the philosophical concept of "**Nada Brahma**"—the belief that the universe itself is sound. He remarked that while birders often listen to birds to identify species, ecologists listen to nature to understand the health of entire ecosystems.

Using examples from the **Sundarbans**, he demonstrated how passive acoustic monitoring is being used to record environmental sounds continuously across different salinity zones. Autonomous sound recorders deployed across hypo-saline, meso-saline, and hyper-saline habitats collect acoustic data over several months, enabling researchers to monitor bird communities across large landscapes with minimal human disturbance. Analyses of these recordings indicate that dawn (6–7 a.m.) and dusk represent the peak periods of bird vocal activity, providing valuable information on species presence and behavioural patterns.

Dr Banerjee explained that every environmental recording contains three fundamental components: **Biophony**, representing sounds produced by living organisms; **Anthrophony**, consisting of human-generated sounds; and **Geophony**, which includes natural physical sounds such as wind and rainfall. Together, these elements create a soundscape that reflects the ecological condition of a habitat.

He introduced participants to several acoustic indices used by researchers to interpret these soundscapes, including the **Acoustic Complexity Index (ACI)**, **Acoustic Diversity Index (ADI)**, **Bioacoustic Index (BI)**, **Normalized Difference Soundscape Index (NDSI)**, and measurements of background noise. These analytical tools enable scientists to quantify biodiversity, evaluate habitat quality, and assess the impact of human activities on natural ecosystems.

Drawing an interesting comparison, Dr Banerjee remarked that while applications such as **Merlin Bird ID** help birdwatchers identify species, ecoacoustic analyses answer broader ecological questions. A single recording, he explained, can simultaneously reveal the presence of species, patterns of ecological interactions, habitat quality, and levels of anthropogenic disturbance.

Illustrating the practical applications of this technology, he described monitoring efforts in **Manas National Park**, where passive acoustic recorders have successfully detected the calls of the elusive **Pygmy Hog**, a

species often too small and secretive to be reliably photographed using conventional camera traps. Such examples demonstrate how sound-based monitoring is expanding the possibilities for biodiversity assessment and wildlife conservation.

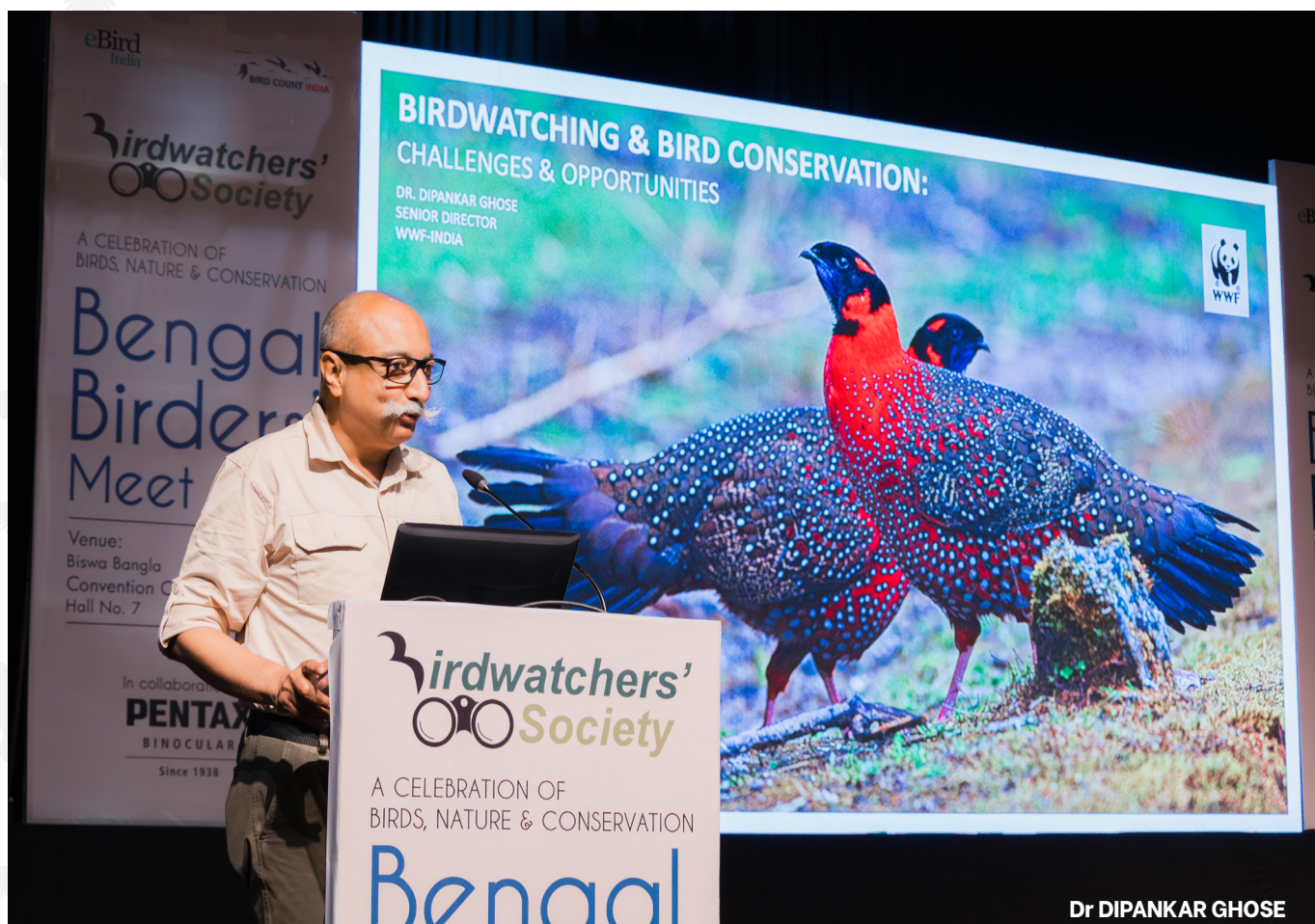
Concluding his presentation, Dr Banerjee encouraged birdwatchers to move beyond visual observations and develop the habit of listening to nature. By contributing bird sound recordings through citizen science initiatives, birders can play an important role in documenting biodiversity, monitoring ecosystem health, and supporting long-term conservation research. His closing message resonated strongly with the audience:

"We listen, we learn, and we protect. Together, our ears can help secure a better future for birds and the planet".

Technical Session VI

Dr DIPANKAR GHOSE, Senior Director, Biodiversity Conservation, WWF-India

The final technical session of the day was delivered by **Dr Dipankar Ghose**, an ornithologist by training and conservation manager by profession, Dr Ghose has devoted more than two decades to biodiversity conservation, species recovery, wildlife trade control, and landscape-level conservation planning. His presentation, **"Birdwatching and Bird Conservation: Challenges and Opportunities"**, brought together



science, policy, citizen participation, and practical conservation into a comprehensive vision for the future of bird conservation in India.

Dr Ghose began by emphasising that birdwatching has evolved far beyond a recreational activity. Today, observations made by birders contribute significantly to biodiversity research, conservation planning, habitat management, and environmental policy. Citizen-generated information, when collected systematically through platforms such as eBird and long-term monitoring programmes, has become an invaluable resource for understanding changes in bird populations and ecosystems.

A recurring theme throughout his address was the urgent need to recognise the ecological importance of every habitat. Echoing a sentiment expressed earlier during the conference, he argued that **no landscape should be regarded as "wasteland"**. Grasslands, wetlands, scrublands, rocky outcrops, and even seemingly unproductive areas support complex ecological communities and provide essential habitats for birds, insects, microorganisms, and other wildlife. Conservation planning, he stressed, must therefore extend beyond forests to embrace the entire landscape mosaic.

Drawing upon recent examples from across the country, Dr Ghose highlighted encouraging instances of community-led conservation. He referred to the discovery of an orchid species after several decades, initiatives aimed at reducing plastic use in ecologically sensitive regions of Uttarakhand, and the inspiring example of a farmer voluntarily leaving part of his agricultural land undisturbed to enable a pair of **Sarus Cranes** to successfully raise their chick. Such examples, he observed, demonstrate how individual actions can make meaningful contributions to biodiversity conservation.

He encouraged the birding community to become active citizen scientists and responsible ambassadors for conservation. Responsible birdwatching, he

explained, involves not only documenting birds but also respecting nesting sites, minimising disturbance, and contributing reliable scientific observations that can guide conservation action.

Expanding upon habitat conservation, Dr Ghose discussed the growing threat posed by ecological homogenisation. Commercial plantations dominated by single tree species often replace structurally diverse native forests, resulting in simplified habitats that fail to support specialised forest birds. Healthy ecosystems require complex vegetation layers, native tree species, and heterogeneous habitats that provide nesting opportunities, food resources, and ecological resilience.

Presenting recent global population trends, he highlighted contrasting trajectories among different bird groups. While urban-adapted species such as pigeons continue to increase, many migratory shorebirds, grassland specialists, and forest canopy birds are experiencing significant population declines. These trends, he noted, underscore the importance of conserving specialised habitats before ecological degradation becomes irreversible.

Dr Ghose also drew attention to the rapidly growing threat of plastic pollution. Increasing evidence indicates that microplastics are being ingested by numerous bird species, particularly seabirds, leading to toxicity, digestive blockages, entanglement, and reduced breeding success. Addressing plastic pollution, therefore, has become an integral component of modern bird conservation.

Despite these challenges, he remained optimistic about the opportunities available for conservation. India currently supports more than **1,100 Protected Areas**, including numerous Important Bird and Biodiversity Areas that collectively safeguard a substantial proportion of the country's avifauna.

However, he emphasised that protected areas alone cannot secure the future of birds without complementary conservation efforts across agricultural landscapes, wetlands, grasslands, coastal ecosystems, and urban habitats.

Dr Ghose highlighted the growing importance of **bird tourism (avitourism)** as an effective conservation tool. Responsible bird tourism generates sustainable livelihoods for rural communities, creates economic incentives for habitat protection, and offers significantly lower environmental impacts than many conventional forms of tourism. When local communities directly benefit from conserving birds and their habitats, conservation becomes both socially and economically sustainable.

Concluding his address, Dr Ghose outlined several practical actions that birdwatchers can undertake to strengthen conservation efforts. These include contributing observations through eBird, participating in initiatives such as the **Asian Waterbird Census (AWS)**, documenting nest failures and mortality events, monitoring bird collisions and power-line impacts, recording threats to grassland ecosystems, and supporting collaborative habitat mapping initiatives. He encouraged the birding community to work closely with organisations such as WWF-India and the Birdwatchers' Society in developing comprehensive datasets that can inform conservation planning and policy decisions.

DAY 2 – 19 JULY 2026

Technical Session VII

Mr ATHARVA SINGH,

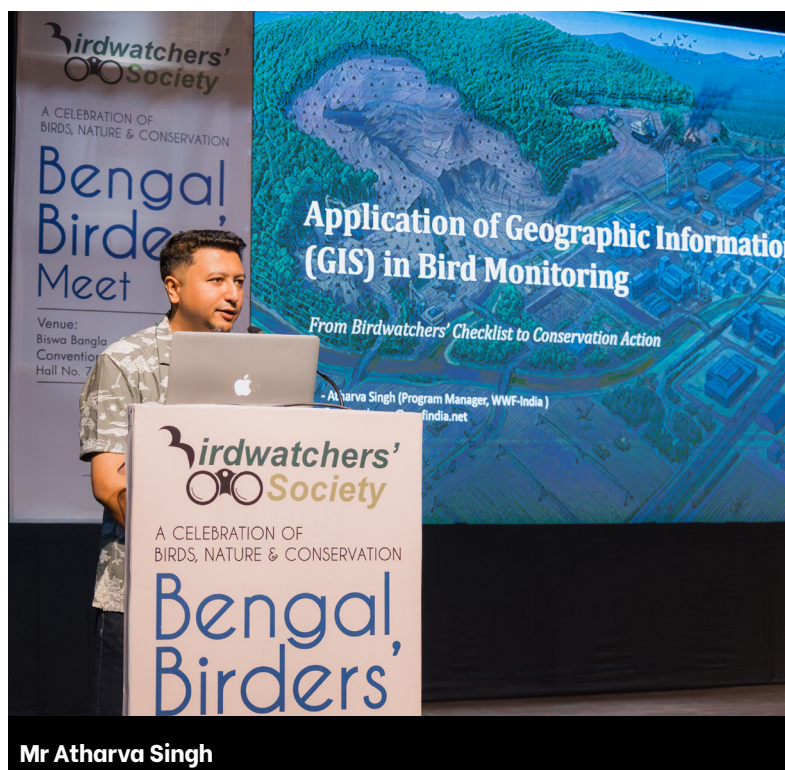
Spatial Ecologist, WWF-India;

PhD Scholar, CSIR-NEERI

The second day of the Bengal Birders' Meet commenced with a technical session by **Mr Atharva Singh**.

His presentation, "**Application of GIS in Bird Monitoring: From Birdwatchers' Checklists to Conservation Action**", demonstrated how modern geospatial technologies are transforming bird observations into powerful conservation tools.

Mr Singh began by describing remote sensing as the "eyes" of conservation and **GIS as its brain**, illustrating how satellite imagery, field observations, and spatial databases work together to



understand ecological patterns. He explained that GIS enables conservationists to monitor habitat loss and land-use change, map wildlife corridors and movement routes, identify habitat fragmentation and emerging threats, prioritise restoration sites, and support long-term monitoring, patrolling, and conservation planning. Emphasising the importance of citizen science, he demonstrated how birdwatchers' checklists, when combined with accurate geographical information, can evolve from simple species records into scientifically valuable datasets capable of informing conservation decisions. He outlined the journey **from checklist to conservation**, stressing that reliable data collection, collaboration among stakeholders, scientific validation, and policy integration are all essential steps before observations can influence management actions.

Drawing upon his own research in the eastern Himalayas, Mr Singh presented a case study on the **Three-banded Rosefinch** from the **Sela Pass landscape**, where GIS-based species distribution modelling was used to predict suitable habitats beyond known localities. Such predictive models, he explained, are particularly valuable for locating poorly known species, identifying priority survey areas, and assessing future habitat suitability under changing climatic conditions.

Presenting examples from climate-change modelling, Mr Singh demonstrated how predictive spatial analyses can estimate future habitat loss and altitudinal range shifts in Himalayan birds, highlighting the importance of proactive conservation planning in rapidly changing mountain ecosystems.

Referring to recent findings from the **State of India's Birds Report 2023**, he highlighted the growing contribution of citizen scientists to conservation. The report, supported by observations from more than **30,000 birdwatchers**, assessed **942 bird species**, identified **178 species** requiring high conservation priority, and documented widespread habitat degradation and long-term population declines. These findings, he noted, clearly demonstrate how carefully collected bird observations can directly contribute to national conservation assessments and evidence-based policy.

Young Birder's Session

Mr KOUSHEYO BAGCHI

Representing the younger generation of birders, **Mr Kousheyo Bagchi**, a Zoology student at the University of Calcutta, shared his presentation titled "**From Childhood Curiosity to Birding Enthusiasm: My Journey with Birds**".

He reflected on how his fascination with birds began during a family visit to **Gorumara National Park** in 2012, where a field guide on the birds of the Dooars sparked his curiosity. During the COVID-19 pandemic, he devoted himself to learning bird identification through the field guide by **Grimmett, Inskipp & Inskipp**, while participating in regular nature walks with **Mr Shubhankar Patra**.

His interest gradually developed into serious birdwatching under the guidance of veteran birder **Mr Swaroop Sarkar**, a member of the Birdwatchers' Society. Exploring wetlands and green spaces around Kolkata, he sharpened his identification skills through field observations and discussions on online bird identification forums.

Mr Bagchi strongly advocated binocular-based birdwatching, expressing his belief that young birders should first cultivate observation skills before relying extensively on photography. His presentation reflected the enthusiasm, curiosity, and dedication that continue to inspire a new generation of birdwatchers.



Mr Kousheyo Bagchi

Technical Session VIII

Mr SANDIP DAS, *Founder Member, Birdwatchers' Society*

Mr **Sandip Das**, a veteran birder and active member of the Birdwatchers' Society, delivered an inspiring presentation titled "**Refinding Spoonie: A Tale of Hope Across the East Asian–Australasian Flyway**". Having participated in both the West Bengal Owl Survey and the rediscovery of the Australasian Grass Owl during the Malda Waterbird Survey, Mr Das shared the remarkable story behind the rediscovery of the **Spoon-billed Sandpiper** in West Bengal.



Mr Sandip Das

He recounted that the species was first recorded from **Kargil Beach** in 2018. Despite repeated surveys over subsequent winters, the bird remained elusive. Continued exploration eventually led him to the nearby mudflats of **Patibuniar Char**, whose richer intertidal habitats attracted larger numbers of migratory waders. On **29 March 2026**, together with **Mr Soumya Aon** and **Mr Kaustav Khan**, **Mr Das** rediscovered an unflagged Spoon-billed Sandpiper. Remarkably, the following day, **Mr Jayanta Manna** photographed a second individual carrying a lime-green leg flag marked "**2K**". This bird remained at the site until **29 May 2026**, providing an exceptional opportunity for documentation and international collaboration.

Mr Das explained how researchers from the **Spoon-billed Sandpiper Task Force**, ringing teams in Russia, and **Dr Sayam U Chowdhury** of Bangladesh helped reconstruct the bird's life history. Ringing and colour-flagging programmes, he noted, play a crucial role in understanding migration routes, survival, and site fidelity of this Critically Endangered species.

He also highlighted emerging conservation concerns along the West Bengal coast. Human-induced modifications at Kargil Beach, expansion of the dry-fish industry, and habitat alteration are gradually reducing feeding and roosting areas for migratory shorebirds, forcing them to shift towards more suitable mudflats such as Patibunia. Additional threats include fishing nets affecting shorebirds and other coastal fauna, including Horseshoe Crabs.

The significance of this rediscovery was recognised internationally through the publication of the **first record of a leg-flagged Spoon-billed Sandpiper** from India by the Spoon-billed Sandpiper Task Force.

Dr KOUSHIK DEUTI, *Scientist, Zoological Survey of India*

Dr Koushik Deuti, presented "**Spoonie in Bangladesh**", sharing valuable observations from his independent visits to Bangladesh to study the winter ecology of the **Spoon-billed Sandpiper**.

He described his first encounter with the species and explained how its distinctive feeding behaviour immediately distinguishes it from other shorebirds. The Spoon-billed Sandpiper continuously probes the soft mud before sweeping its uniquely shaped bill sideways to capture tiny invertebrates.

Laboratory analyses of shallow sediment samples collected from feeding grounds revealed that the species primarily feeds on small crabs, molluscs, and other microscopic organisms inhabiting the upper layers of intertidal mudflats. Dr Deuti emphasised that conserving these fragile coastal ecosystems is fundamental to ensuring the long-term survival of this globally threatened migratory bird.



Dr Koushik Deuti

School of Birds Initiative

Mr TITASH CHAKRABARTI & Mr TIRTHANKAR ROY CHOUDHURY

Representing the **School of Birds** initiative, **Mr Titash Chakraborty** and **Mr Tirthankar Roy Choudhury** presented the programme's vision of nurturing environmental awareness among children through experiential learning.

The speakers outlined the initiative's activities, including guided nature walks, bird education through science and art, educator training programmes, and community outreach. They shared future plans to expand beyond neighbourhood bird walks into immersive residential learning camps based on the theme "Tree of Life". Regular interactions among educators, mentorship programmes for young birders, and



Mr Tirthankar Roy Choudhury



Mr Titash Chakraborty

inclusive participation across diverse communities remain central to the initiative's philosophy. The presenters also acknowledged the invaluable support extended by several partner organisations, including **Early Birds, Nature Mates, Bird Count India, Trees of Kolkata, AAWAZ, AATAVI, Clean Up Kolkata Collective, Keystone Foundation, Point of Impact (POI), SHH, Wings, Bon Foundation, and Disappearing Dialogues**, whose collaborations continue to strengthen environmental education and youth engagement.



Children's Showcase – Little Wings, Tall Tales

One of the most heartwarming moments of the meet was the performance by children from **Makaltala Village, East Kolkata Wetlands**, presented under the banner "**Little Wings, Tall Tales**", Performing on stage for the very first time, the children captivated the audience with their confidence and enthusiasm under the guidance of **Nibedita Naskar** and **Sujan Sardar** of the **Disappearing Dialogues** Foundation, with continued support from the Birdwatchers' Society through the **School of Birds** programme.

The young performers were **Shiuli Mondal, Anwasha Sardar, Rohan Sardar, Ishan Sardar, Prithish Mondal, Debashish Sardar, Pushpenjit Mondal, Manik Sardar, Mohit Sardar, Ritika Sardar, Nabab Sardar, Sayan Sardar, Deep Sardar, and Sayantika Pramanik**.

 The Songplay Link: <https://youtu.be/qGPfubfyORc>

A true conservationist is a man who knows that the world is not given by his father, but borrowed from his children.

– Anonymous

The organisers also acknowledged the dedicated efforts of **Nobina Gupta, Ilina Gupta, Nayna Naskar, Nibedita Naskar, Sujan Sardar, Santanu Kar, and Titash Chakrabarty**, whose continued commitment is inspiring the next generation of nature enthusiasts and conservation ambassadors.

The two-day programme concluded with the Vote of Thanks delivered by Mr Sujan Chatterjee, Secretary, Birdwatchers' Society, who expressed his gratitude to the speakers, delegates, volunteers, sponsors, partner organisations, and participants for making the 3rd Bengal Birders' Meet 2026 a memorable celebration of birdwatching, citizen science, and biodiversity conservation.

Click below to watch the recordings

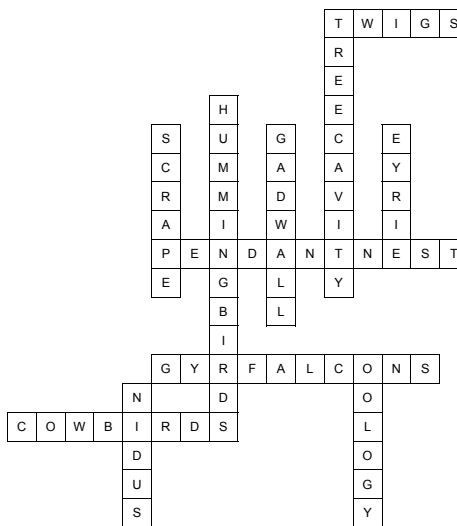
[BWS BBM 2026 Highlights](#)

[Complete Talk by Dr Prachi Mehta](#)

[Complete Talk by Dr Dipankar Ghose](#)

[Complete Talk by Dr Subham Banerjee](#)

CROSSWORD ANSWERS



Across

- 1 Common building material found on trees
- 6 A type of nest that hangs down from a tree branch
- 7 These birds use their nests for generations
- 10 Other than Cuckoos, these birds also lay their nests in other birds' eggs

Down

- 1 Where does the Coppersmith Barbet typically make its home
- 2 These birds use spider silk to build their nests
- 3 A simple ground or depression used as a nest by plovers or terns
- 4 These ducks line the sides of their nests with feathers
- 5 A high nest of a bird of prey
- 8 Study of eggs and nesting
- 9 Latin term for a nest or breeding

BBM 2026 FEEDBACK



এমন স্বাক্ষর আলোচনা গুলো নতুন নতুন দিকের সন্ধান দেয়। কেস স্টাডি বা সার্ভের প্রামাণ্য তথ্য গুলো পরবর্তী কাজের পাথেয়। বিশেষ ভাবে উল্লেখযোগ্য কাজিরঙ্গার উপস্থাপনা। পাখীর ডাকের বিস্তারিত আলোচনা। কারাগিলের পক্ষীকুলের টিকে থাকা। স্কুলের বাচ্চাদের সাথে প্রকৃতি ও পরিবেশের কাজ করার চিন্তা মন ছুঁয়ে গেল। ধন্যবাদ আয়োজকদের। এমন উদ্যোগ দীর্ঘ পথে পা রাখুন।

SABITA KUNDU



Ebarer prog. Khub sundor hyche...prottek ta presentation e eto compact chilo j mone hychilo r ektu hole valo hoto...sbai k dhonnobad eto sundor onusthan korar jnno
All the best for BBM 4.

SOURAV MOTILAL



What an incredible two days at the Bengal Birders' Meet. A heartfelt thank you to the Birdwatchers' Society for organising what was, without a doubt, one of the finest birding events I have ever attended. The sessions by the eminent speakers were insightful and inspiring, and I came away having learned so much from every talk and interaction. For an IT professional like me whose job is in a closed cubicle, this was a wisp of fresh air.

From the meticulous planning and seamless execution to the excellent food and every little detail of the arrangements, everything was absolutely top-notch. I have attended birding meets in and outside India, yet I can honestly say that this event surpassed them by all means. I genuinely believe it will be difficult to find another birding meet in our country that is organised with such care and warmth.

A very special thank you to Sujan da, Pampa di, Kanad, and the entire BWS team. You'll have set a benchmark for birding events.

DASRANA711



I couldn't join today but yesterday's programme was outstanding. Hearing from the masters of the field regarding ecosystem, environment and preservation really wonderful. Thanks to the organisers for this beautiful arrangements of the meet.

TARUN SARKAR





আমি সত্যি বলতে প্রজাপতি নিয়েই বেশি মুগ্ধ—নিজেকে Butterfly Enthusiast বলতেই স্বচ্ছন্দ বোধ করি। পাখি চিনতে বললে এতদিন মজা করে বলতাম, "সুন্দর পাখি!" কিন্তু এই দুদিনের কর্মশালাটা যেন আমার ভেতরে নতুন একটা আগ্রহ জাগিয়ে দিল। বিশেষ করে কৌশেয় যেভাবে গল্পের ছলে বলল, কীভাবে ও পাখি দেখা শুরু করেছিল আর আজ এত কিছু জানে—ওর পাখির প্রতি ভালোবাসা আর মুগ্ধতা আমাকে সাহস জুগিয়েছে। মনে হচ্ছে, চেষ্টা করলে আমিও একদিন পাখি চিনতে শিখতে পারব। আর আজকের নাটকটা আমার ভীষণ ভালো লেগেছে। গানগুলো এতটাই শান্ত, ম্লিঙ্ক আর মন ছুঁয়ে যাওয়া ছিল যে শুনে সত্যিই মনটা আরাম পেয়েছে।

হয়তো আলোচনার অনেক কিছুই আমি পুরোপুরি বুঝিনি। ভালো ছাত্র নই বলেই হয়তো প্রশ্নও করিনি। তবে এবার থেকে নিজে পড়ে আসব, আর কিছু না বুঝলে অবশ্যই প্রশ্ন করব। পড়া দরকার, জানা দরকার—এই বোধটা এই দুদিনে আরও অনেকটা গভীর করে জাগিয়ে তোলার জন্য BWS-কে আন্তরিক ধন্যবাদ।

CHANDRIMA



Had a wonderful experience at BBM, though I couldn't attend on Saturday. Speakers were excellent and special mention for the Makaltala team for enacting a beautiful play.

BIPASH SAHA



Many many thanks to all the BWS people who organised this wonderful event. I couldn't attend yesterday and missed the valuable sessions, but had great time today. My daughter Praiti and me, both enjoyed the children sessions thoroughly and were greatly inspired by them. Love for the junior performers and their mentors. Special mention should be made of the excellent exhibition by the children. Spreading the news and the messages.

SAGARI MAJUMDAR



Thank you BWS... The programme has been superbly arranged, classy and aesthetic in many senses. I enjoyed the enriching lectures and the cheerful and positive ambience and the vibe of the spectacular venue which includes the tasty foods too. The gathering felt homely. Thanks BWS!

DR BINITA DUTTA



It was an Another amazing programme with lots of information, photos and memories. Thank you Organisers and Each & every participant to make this programme one of the best. See you all soon in the next BBM

MRINAL KAUSHIK (BHAGALPUR)





Thank you, BWS, for organizing such engaging and enriching sessions. I was particularly mesmerized by the segment on the Spoon-billed Sandpiper and the HEAL session; both were incredibly profound and thought-provoking.

Although I missed the first day but thoroughly enjoyed today. What is most motivating to see that so many learned people are working to spread awareness, do research, and inducing love of nature to the new generation. I don't know whether we can protect nature, may be we are too little and nature can save herself. A group of creatures help building the ecosystem better and another group do all menace to destroy the balance. With such initiative, probably we can try to be the part of the right group!

Thanks to BWS and all organisers for arranging such a meet! Looking forward to next one!

KAUSHIK SENGUPTA



STUDENT'S FEEDBACK



Spent two inspiring days at the Bengal Birders' Meet 2026, and it was truly an enriching experience. As a Zoology student, listening to such passionate conservationists, researchers, and birders felt incredibly motivating. Every session offered a new perspective from bird conservation and citizen science to wetlands, migration, and ecosystem health. It wasn't just about birds; it was about understanding our responsibility towards nature. Grateful to the Birdwatchers' Society for creating such a wonderful platform where learning meets passion. Walking out of the venue after these two days, I carried not only notes but also a renewed sense of purpose. Looking forward to applying these lessons in my own journey as a wildlife enthusiast, and I'm already looking forward to the next Bengal Birders' Meet to learn, connect, and be inspired once again.

ANUSUYA (STUDENT)



Here's a heartfelt thanks to Birdwatcher's Society on behalf of Presidency University for hosting such a wonderful event on Birding and conservation. We sincerely appreciate the initiative of nurturing young minds on this topic and spreading awareness in the most effective way. It was really an enriching experience to hear about the discoveries, threats and facts about birds from those who have been through the field, we could indeed connect to it and it did leave a long term impact on our understanding. Thanks for making the event so engaging and inspiring throughout, and for keeping our attention locked in the knowledge being shared over this weekend.

We loved the sharing of this passion with us deepening our understanding.

And above all it was an enjoyable experience. Looking forward to many more such amazing events along with the next Birder's meet.

SHREE (STUDENT)



THROUGH THE RIGHT LENS

THE PENTAX-BWS STORY:

How an engaged all-weather support has helped a generation of Bengal's birders see the world more clearly

Some partnerships announce themselves with fanfare. Others simply show up – year after year, meet after meet – until their presence becomes part of the fabric of the event itself. For the Birdwatchers' Society, PENTAX belongs firmly in the second category.

Amid the talks, the paper presentations and the excited chatter of attendees, a steady stream of visitors made their way to the PENTAX corner, picking up optics, testing the focus wheels, and asking the questions that every birder eventually asks: *which one should I buy, and why does it matter so much?*

MORE THAN A STALL

It would be easy to describe this as sponsorship – a company buying visibility at a niche event. But that framing misses what has actually developed over the years: a genuine, working relationship between an optics brand and a community of citizen scientists, built on a shared understanding of what birders actually need in the field. BWS members are not casual hobbyists browsing for a weekend accessory. Many are serious field observers – some contributing to statewide surveys, others documenting rare sightings that make it into ornithological records. For this audience, a pair of binoculars is not merely a gadget; it is the instrument through which the entire practice of birdwatching becomes possible.

This is the "win" for BWS: reliable, expert access to the tools that turn curiosity into competence. And the "win" for PENTAX is just as real – a community of discerning, vocal users who genuinely rely on and vouch for the equipment, meet after meet, survey after survey.

INVESTING IN THE NEXT GENERATION

If the stall represents PENTAX's steady, visible presence, this year's gesture toward one young naturalist showed the other, quieter side of the partnership – a willingness to invest specifically in the people who will carry birdwatching in Bengal forward.

At BBM 2026, PENTAX gifted a Pentax Papilio binocular to Agastya Chanda, a Class X student at Calcutta International School and one of BWS's most promising young naturalists. Despite his age, Agastya has already led several 'BWS – School of Birds' nature walks, introducing his fellow students to a part of the natural world that is easy to overlook: insects and butterflies.



Agastya and Mr Pankaj Varshney (Pentax)

The moment was part of a broader highlight of this year's meet: the enthusiastic participation of school children and students from across Kolkata, a sign that the future of birdwatching in the state is in good hands. BWS extended its thanks to PENTAX for a gesture that did more than reward one student – it recognised and nurtured a passion, and offered a signal to every young naturalist watching that this pursuit is worth encouraging.

A MODEL WORTH NAMING

It is worth pausing on why this particular partnership has lasted. Corporate support for conservation and citizen-science groups can often feel transactional – a logo on a banner, a cheque at year-end, little real engagement in between. The PENTAX-BWS relationship has taken a different shape: a company showing up in person, year after year, putting its instruments directly into the hands of the people who use them, and occasionally choosing to recognise individual talent within that community rather than simply funding the community as a whole.

For BWS, this has meant consistent access to expertise and equipment that strengthens its members' fieldwork and, by extension, the quality of the citizen science it produces. For PENTAX, it has meant a foothold in a community that trusts the brand because the brand has earned that trust in the field, not just in advertising.

As Agastya continues to lead nature walks – now with a Papilio in hand – and as next year's Bengal Birders' Meet brings the familiar PENTAX stall back into view, the partnership offers a template that other organisations, on both sides of the sponsor-society divide, might do well to study: show up consistently, invest in the people rather than only the platform, and let a shared love of the field do the rest.

Cheers to PENTAX – for an all-weather partnership, and for continuing to back the next generation of Bengal's birders and naturalists.



BBM 2026 – Pentax display counter

ANIMESH MANNA

NATURE ETCHED IN ART

Over the past seven to eight years, I have taken up sketching, sculpting – birds, animals and plants as a way of deepening my study of nature and honing my powers of observation. While leading safaris and nature walks, I realised that when I quietly observe a subject and later recreate it through art—whether as an illustration, sculpture or embroidery—the experience becomes permanently etched in my memory. This practice has greatly enriched my understanding of the natural world and continues to bring me immense satisfaction.



Great Egret (*Ardea alba*) -

There was a piece of wood I collected, during my walks, which had an unusual curve. That curve reminded me the curve of Great Egret. This handcrafted sculpture of the Great Egret reflects the grace and elegance of one of our most iconic wetland birds. Carved meticulously from wood, the artwork captures the bird's poised stance and understated beauty, celebrating the timeless relationship between traditional craftsmanship and nature.

Medium: Hand-carved wood.



Orange-headed Thrush (*Geokichla citrina*) –

I worked exclusively with natural materials. While experimenting with organic pigments, I discovered that the seeds of the Sindur Tree (*Bixa orellana*) produced a colour remarkably similar to the bird's rich orange plumage. The handmade paper was crafted using the vibrant flowers of Palash (*Butea monosperma*), whose fiery spring blossoms provided the perfect canvas for depicting one of the season's most enchanting songbirds. The bird's warm orange tones were created using Sindur seeds, while Bougainvillea flowers were used to colour the wings.

Medium: Organic colours on handmade paper embedded with Palash flowers.



About Artist
ANIMESH MANNA

Animesh is the Chief Naturalist associated with Tathastu Resorts, where he leads wildlife safaris and nature interpretation programmes. A keen observer of nature and a self-taught artist, he expresses his deep connection with the natural world through sketches, wood carvings, embroidery and paintings created using organic colours and handmade materials.



TITASH CHAKRABARTI

SCHOOL OF BIRDS

May - August 2026

Spread the word, bird by bird

School of Birds is the flagship initiative of Birdwatchers' Society, with the vision of nurturing empathy towards wildlife and conservation as a way of life. At the heart of these initiatives lie the pillars of our teaching method – Nature Observation, Creative Expression, Scientific Approach, Reflection & Sharing.

The last four months were defined by a celebration of local biodiversity, community participation, and creative approaches to nature learning. Through the Young Birders' Workshop during the summer vacations, we introduced 5 beginners to the bounty of the natural world that otherwise remains hidden in plain sight.

Through July we plunged whole-heartedly into Bengal Birders' Meet 2026, with exhibitions of children's works and presenting our project in front of eminent personalities and stakeholders in the field of nature education and conservation science. We are immensely proud of the warm reception, ovation

and applause we received at the event.

Our Nature walks aimed to bring awareness related to the seasonal abundance our backyards have to offer have continued in full flow with increased participation from citizens.

YOUNG BIRDERS' WORKSHOP

The Kolkata edition of Early Bird's 7th Young Birders' Workshop was conducted by Team School of Birds over a week in May 2026. Combining nature observation, games, quizzes, creative assignments, and assessments across two walks and two online sessions, we introduced children to backyard birds and the many other forms of life that share these spaces, while telling stories about their lives.

At its heart was the aim of fostering empathy towards our backyard neighbours. Through these varied tools, we explored animal behaviour, interconnected food webs, and our place within them, culminating in a deeper awareness of the need to conserve the habitats we share—for their survival and ours.



Birdwatching – The primary activity



On the last day of the workshop, the curious children watching a trail of ants during a short breather in the summer heat



Guided nectar sipping of the Rangan flowers



Smiles at the end of the workshop are the certificates of the facilitators

BENGAL BIRDERS' MEET

Preparation started way too early for Team School of Birds for the 2-day highlight of the BWS calendar, "Bengal Birders' Meet" 2026. Apart from presenting our work in front of scientists, conservationists, birders and nature enthusiasts at large, we also showcased our flagship projects old and new, through exhibitions and a puppet performance by the children of Makaltala in the East Kolkata Wetlands (a collaboration with the Disappearing Dialogues). The exhibits were a welcome addition to the 3rd edition of BBM, adding not just colour, but raising necessary questions and furthering the cause of a much required annual meet. Apart from the showcases highlighted below, were story panels created by Kheria Sabar children of Purulia, which were the basis of the compilation of imaginary bird songs album "Imagination Takes Flight". A butterfly story by Chandrima Biswas tied up the avian class to the other winged wonders of the natural world. The event was also graced by PENTAX's generous gesture of gifting our young educator and insect expert Agastya Chanda with a pair of Papilio binoculars, a welcome recognition for the passionate 9th grader from Calcutta International School.



Young educator Agastya Chanda poses with a much deserved PENTAX Papilio



"Backyard birds & where to find them" - A model entirely made out of scrap by the Sarsuna Bird Club



Cast and crew of "Save the wetlands", a song-play using puppets and masks which concluded BBM 2026

NATURE WALKS

During this period, we further expanded our nature walks beyond birds to explore other facets of urban biodiversity. We conducted the following walks with members of BWS-Citizens' Interest Group:

- Firefly Walk at Rabindra Sarobar (Night)
- Mushroom Walk at Rabindra Sarobar (Day)
- Butterfly Walks at Eco-Park (Day)
- Moth Walk at Banabitan (Night)
- Moth walk at Eco-Park (Night)

Our first walks conducted after sunset were illuminated by enthusiastic participants.



We also conducted two Bird walks at Pakhibitan, Eco-park (New Town), a recent popular hotspot among birders that offer exciting sightings of the otherwise shy Yellow, Cinnamon and Black Bitterns. The site, maintained by our partners Nature Mates overlooks a reed bed with nesting populations of these species apart from regular backyard birds of the Rajarhat area. One walk was conducted with members of BWS-Citizens' Interest Group and one more in collaboration with ATAABI Bird Foundation, our long-standing partners.

While birds remain our primary lens, the spirit of the School of Birds has always been to nurture curiosity, observation, and a sense of connection with all forms of life.



THE WAY FORWARD

This quarter, each programme, whether focused on birds, wetlands, trees, or insects, strengthened a growing culture of stewardship by encouraging participants to observe, understand, and care for the ecosystems around them.

Looking ahead, we aim to build on this momentum by reaching new communities, nurturing young leaders, and creating more opportunities for people to connect with nature. By deepening these relationships, we hope to further strengthen the network of informed and engaged stewards that is already taking shape through our work.

MAY 2026 TO AUGUST 2026

• Number of
Children

197

• Children
Contact Hours

820

• Number of
Institutions

4

• Adult Contact
Hours

245

• Number of
Adults

121



FLIGHTS OF

A MORNING I WILL NEVER FORGET

We went on a trip to Kaziranga in the winter of 2022 with my parents and my cousin. Kaziranga has four ranges—Burapahar, Kohra, Agoratoli, and Bagori. Jeep safaris can be enjoyed in all these four ranges.

My mother planned the trip after discussing it with the renowned nature activist and guide, Prafulla Duarah, whom I call Prafulla Uncle. We decided to begin our journey from Burapahar. Prafulla Uncle asked us to wake up very early in the morning because he had a surprise for us. We became very curious.

When we woke up, we saw that Prafulla Uncle was already waiting for us with the safari jeep. I could not wait to find out what the surprise was. After having morning tea, we started our safari with him. After some time, he stopped the jeep in front of a large banyan tree.

Then he told us a touching story. A pair of Oriental-pied hornbills had once made their nest in a hole in that banyan tree. They had a baby hornbill, which gradually grew up and learned to fly. Sadly, one day, while flying across the road, it was hit by a speeding truck and died instantly. According to Prafulla Uncle, the parent hornbills still came near that tree early every morning, as if remembering the happy moments they had spent with their baby.

Just as he finished the story, we heard the loud and distinct call of hornbills. A few moments later, two hornbills flew in from an unknown direction and perched on the roof of a small one-storied house beside the tree. The scene was truly fascinating. The birds looked beautiful, and the colours of their feathers were so bright and vibrant that I could hardly describe them in words. Everyone in the jeep watched them without blinking.

We clicked many photographs. Even today, I feel that we were very fortunate to witness such a special moment. Much of the credit goes to Prafulla Uncle, whose knowledge and love for nature made the experience unforgettable.

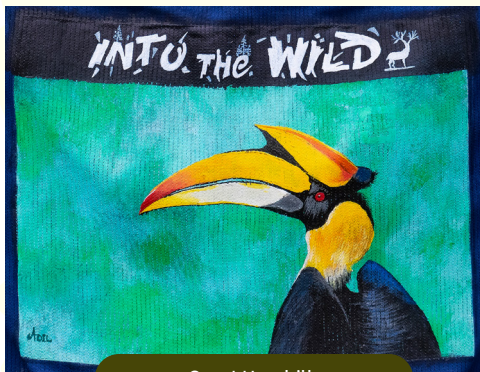
My first experience of seeing hornbills was not only exciting but also deeply emotional. It is a memory that will remain etched in my mind forever.

Srinjoy Moulick

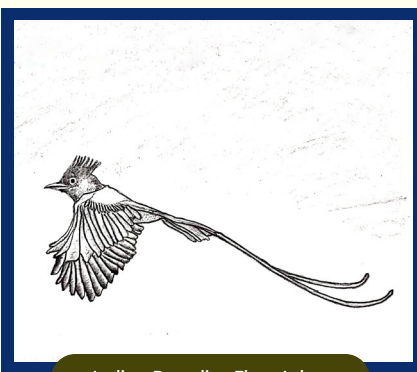


Srinjoy Moulick

Srinjoy is a student of Class VI at Garden High School, Kolkata. He is deeply interested in elocution, recitation and creative writing. He also runs a YouTube channel where he regularly shares his thoughts on topics that fascinate him, such as blue whales, the importance of time and recitation. His Bengali writings have been published in leading magazines like Anandamela. For Srinjoy, having a publication in FANTAIL would be a meaningful step towards strengthening his bond with nature and wildlife.



Great Hornbill



Indian Paradise Flycatcher

Drawings by Adil Chowdhury



Adil Chowdhury

Adil is a project fellow at the Zoological Survey of India, a passionate zoologist, nature enthusiast, painter, bird watcher and a wildlife photographer who loves to document different wildlife behaviour. His primary interest covers the Avian and Herpetology studies. Giving a blank canvas a touch of colours is his hobby. He has won various photography competitions at the college level and also secured a position amongst the top 15 in a photography competition conducted by BBC Earth, 2020 (India).



FANCY

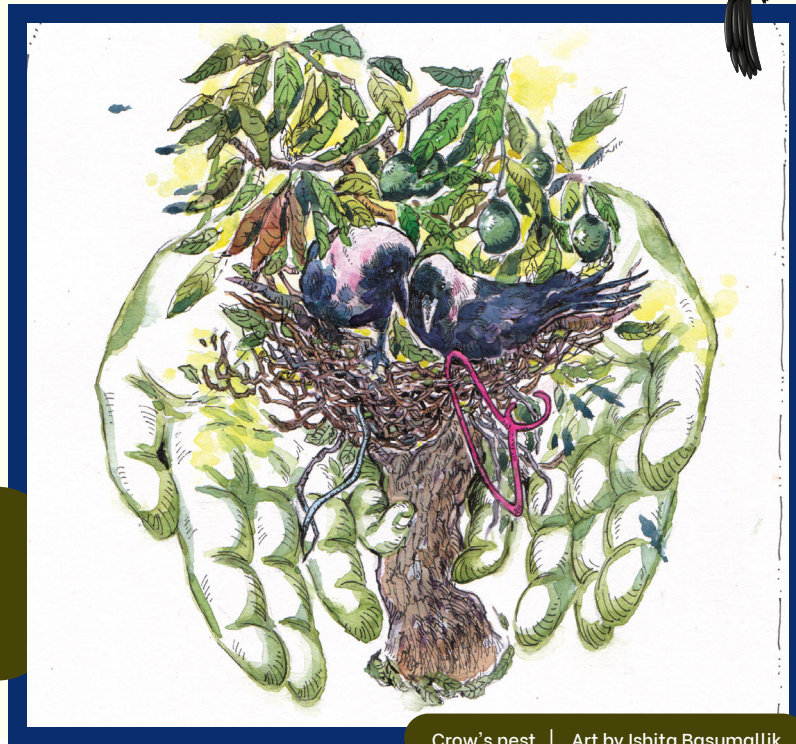


SHORT DESCRIPTION OF ARTWORK:

Crows are everywhere in the city with their harsh calls, their resourceful acquisition of food, their keen intelligence observing and deciding things without ever disrupting the balance of nature. I was inspired to create this illustration by watching a pair of crows building a nest and raising their young in a nearby mango tree. Both this generous tree and the harmless bird's nest have drawn negative attention from humans. Maybe the artwork is a way for me to express and deepen a desire to protect the natural world.

Ishita Basumallik

Ishita is a writer/poet/cartoonist/visual artist whose work often explores themes of urban fauna and flora, and personal meditations on humans' place in the environment. She shares art more or less regularly on instagram @sunbornart.



Crow's nest | Art by Ishita Basumallik

THE PIGEONS OF MY SCHOOL

I have been promoted to Class VII and the classes are going on for last three weeks. For some time, I have been happily observing the daily behaviour of a few pigeons in our school building from my classroom window. Since I have been observing birds for last few years, I have come across the house crows of India and reviewed their emotions and their modes of expression closely multiple times. But I have not yet observed pigeons, as I have not come so close to them before nor tried to understand them deeply.

In case of both birds, going deeper and understanding them involves much patience, as they might be extremely boring for a beginner of any age. It might feel pointless at times to some people, but I never get bored watching the pigeons at my school. Although they might be very similar in their characteristics in the field of intelligence and adaptability, the modes of communication of the pigeons are slightly different from the crows, maybe because the former are less intelligent. We might feel that the pigeons try to disturb us or seek food by making repetitive, irritating calls, but behind each note there lies the mystery of pigeon communication. I shall continue to observe them more closely, to understand the common but mysterious nature of pigeon communication and I hope to gather more knowledge about their behaviour.

Anurag Debsarkar



Anurag Debsarkar

I am a 12 year old boy with the soul of a bird. I am studying in Class VII. I am a member of my school Nature Club. I dream of becoming an Avian Veterinarian when I grow up. I love my backyard birds very much; I feed them everyday and love to communicate with them. I also love music, painting, writing and cooking.

THE JUVENILE BIRDER

TITASH CHAKRABARTI





Photo Credit: Pampa Mistri

বিশ্ব রঞ্জন গোস্বামী

অস্থির পৃথিবীতে পাখির আপন নীড়

A Bird's Own Nest In A Restless World

মা

নুমের ইঁট-পাথর দিয়ে কাঠামো তৈরির অনেক আগে থেকেই পাখিরা ছিল দক্ষ স্থপতি। তারা সহজাত প্রবৃত্তি ও অসামান্য বুদ্ধিমত্তার সাথে নিখুঁতভাবে তাদের বাসা তৈরি করে। পাখির বাসা হলো তাদের সহজাত প্রকৌশল-দক্ষতা ও নীরব সহনশীলতার এক অসাধারণ নিদর্শন। প্রতিটি বাসাই এক একটি গল্প বলে। বেঁচে থাকা, মানিয়ে নেওয়া এবং প্রকৃতির সাথে এক দীর্ঘস্থায়ী সম্পর্কের গল্প।

আবাসস্থল সংকুচিত হওয়া, নগরায়নের বিস্তার এবং প্রতিনিয়ত ঘটতে থাকা পরিবেশগত পরিবর্তনের এই অস্থির পৃথিবীতে পাখিরা তাদের বাসা তৈরি করে, পরিস্থিতির সাথে মানিয়ে নেয় এবং নিজেদের নীড় রক্ষা করে। এই নিবন্ধে আমরা পাখির বাসার বিস্ময়কর জগৎটি ঘুরে দেখবো। জানবো বিভিন্ন ধরনের বাসা ও সেগুলো তৈরির উপকরণ

সম্পর্কে আর দেখব কীভাবে এসব বাসা আমাদের জীবনযাপনের নকশা ও প্রতিকূলতা কাটিয়ে ওঠার সম্পর্কে শিক্ষা দেয়।

পাখিরা বংশবিস্তারের জন্য নিখুঁত স্থাপত্যের বাসা তৈরি করে। পরিবেশের সাথে খাপ খাইয়ে নিতে বুদ্ধিমত্তার পরিচয় দেয় আর প্রাকৃতিক ও মানুষের তৈরি বিভিন্ন চ্যালেঞ্জ জয় করে টিকে থাকে। তাদের এই জীবনচক্রটি অত্যন্ত সুপরিকল্পিত এবং অভিযোজন ক্ষমতায় ভরপুর।

একটা সময় বাসা তৈরি করাটা বিজ্ঞানীদের মনে হয়েছিল পাখির এটা সহজাত প্রবৃত্তি। অবশ্য গত এক দশক বা তার কিছু বেশি সময় ধরে প্রচলিত ধ্যান – ধারনার পরিবর্তন হয়েছে। চার্লস ডিক্সন যিনি বাসা তৈরির ক্ষেত্রে পাখিদের সক্রিয় বুদ্ধিমত্তার বিষয়টি খোলা মনে মনে নিয়েছিলেন। তিনিও বিশ্বাস করতেন পাখিরা তাদের বাসাকে সুন্দর করে বানানোর চেষ্টা করে। পাখিদের নান্দনিক রুচি নিয়ে বৈজ্ঞানিক আলোচনা সাধারণত সঙ্গী

নির্বাচনের বিষয়টিকে কেন্দ্র করেই বেশি আলোচনা হয় যেমন ময়ূরের পেখম বা বাওয়ারবার্ডের তৈরি করা শৈল্পিক সাজসজ্জা। তবে পাখিদের মধ্যে বাসা তৈরির ক্ষেত্রে হয়তো এমন অনেক রীতিনীতি রয়েছে যা এখনও আমাদের অজানা। নান্দনিক বোধ বা উপলব্ধি নিয়ে গবেষণারত কিছু বিজ্ঞানী মনে করেন যে সৌন্দর্যের অনুভূতি আসলে বিবর্তনের ধারায় অর্জিত একটি অভিযোজন মাত্র।

বাসা তৈরির ক্ষেত্রে সহজাত প্রবৃত্তির ভূমিকা অবশ্যই আছে, তবে এর সাথে আরও অনেক কিছুই যোগসূত্র রয়েছে। এখানে জড়িয়ে থাকে বিচার, বিবেচনা, শিক্ষা, অভিজ্ঞতা, অন্তর্দৃষ্টি ও সম্ভবত নান্দনিক বোধও। অথচ এমন একটি জটিল ও নিখুঁত বস্তু যা চিন্তাভাবনা ছাড়াই কেবল সহজাত প্রবৃত্তির ফলে সৃষ্টি হতে পারে তা সহজে বিশ্বাসযোগ্য মনে হয় না। ১৮৬৭ সালে প্রখ্যাত প্রকৃতিবিজ্ঞানী আলফ্রেড রাসেল ওয়ালেস যিনি প্রাকৃতিক নির্বাচনের মাধ্যমে বিবর্তনবাদের ধারণাটি চার্লস ডারউইনের সমান্তরালভাবে গড়ে তুলেছিলেন তিনিও অনেকটা এমনই মনে করতেন। ৪০ বছর পর পক্ষীবিজ্ঞানী চার্লস ডিক্সন পাখির বাসা সম্পর্কে বলেন এগুলো পাখির যুক্তি ও চিন্তা করার ক্ষমতার এক সবচেয়ে প্রত্যক্ষ দৃষ্টান্ত। বিংশ শতাব্দী যতই এগিয়েছে ওয়ালেস ও ডিক্সনের সেই মতবাদ বিজ্ঞান ও জনসংস্কৃতি থেকে হারিয়ে গেছে। কেন এমন ঘটল তা পুরোপুরি স্পষ্ট নয় কারণ সহজাত প্রবৃত্তির (instinct) প্রাধান্যকে সমর্থন করার মত বৈজ্ঞানিক প্রমাণ খুব কম।

স্কটল্যান্ডের জীববিজ্ঞানী সুসান হিলি বিংশ শতাব্দীর মাঝামাঝি সময়ে ক্যানারি পাখিদের নিয়ে কিছু পরীক্ষা-নিরীক্ষা করেন। যেখানে দেখা গিয়েছিল, বাসা তৈরির কোনো পূর্ব অভিজ্ঞতা না থাকা সত্ত্বেও পাখিগুলো বাসা বানানোর চেষ্টা করেছিল।

সম্প্রতি গবেষকরা যখন দক্ষিণ আফ্রিকার 'হোয়াইট-ব্রাউড স্প্যারো উইভার' পাখিদের মধ্যে বংশানুক্রমিক বাসা তৈরির রীতির সন্ধান পেলেন, তখন নিউ ইয়র্ক টাইমস মন্তব্য করল বাসা তৈরি যে একটি জন্মগত বা সহজাত আচরণ — দীর্ঘদিনের সেই ধারণাকে এই আবিষ্কার উল্টে দিয়েছে।

হিলি বলেন, "আমরা জানি যে গান গাওয়াটা শেখার বিষয়। কোনো পুরুষ পাখি যখন তার বাবার মতোই গান গায়, তখন আমরা বুঝি যে সে তা বাবার কাছ থেকেই শিখেছে। অথচ সে যদি তার বাবার মতোই ছবছ বাসা তৈরি করে, তবে লোকে বলবে, সে এটা বাবার কাছ থেকে শেখেনি। তার জিনের মধ্যেই এর নির্দেশ ছিল। অধিকাংশ লোক পাখির বাসা তৈরির বিষয়টিকে এখনো এভাবেই দেখে থাকে।

বিজ্ঞানী হিলি গত দুই দশকেরও বেশি সময় ধরে তিনি বাসা তৈরির প্রক্রিয়া নিয়ে গবেষণা করছেন। তিনি জানান জেরা ফিঞ্চ অস্ট্রেলিয়ার স্থানীয় প্রজাতি হলেও পাখির আচরণ নিয়ে গবেষণার ক্ষেত্রে এদের প্রায়ই মডেল হিসেবে ব্যবহার করা হয়।

জেরা ফিঞ্চের বাসা নিয়ে বিজ্ঞানীরা একটি পরীক্ষার আয়োজন করে। বাসা তৈরির জন্য পাখিগুলোকে নানা রঙের সুতা দেওয়া হয়েছিল। রঙের

কারণে বাসাগুলোর নকশা বা বিন্যাস সহজেই চোখে পড়ে। একটি ফিঞ্চের তৈরি বাসা দেখে মনে হয় তা যেন কোন বিশেষ শিল্পকর্ম। যেখানে নানা রঙের ছড়াছড়ি। আরেকটি বাসা বেশ পরিপাটিভাবে কেবল তিনটি রং যেমন সবুজ, কমলা আর আরেকটি সাদা রং দিয়ে সাজানো। আবার একটি ফিঞ্চ পাখি কেবল নীল সুতা ব্যবহার করে। বাসা তৈরির বিষয়টি যদি পুরোপুরি সহজাত প্রবৃত্তি-জনিত হতো, তবে সব ফিঞ্চের বাসা একই রকম হতো। কিন্তু বাস্তবে এখানে পাখিগুলোর নিজস্ব বৈশিষ্ট্য ফুটে ওঠে।

তার মানে এই নয় যে সহজাত প্রবৃত্তি বা 'ইনস্টিংক্ট' গুরুত্বহীন। প্রাকৃতিক নির্বাচনের প্রক্রিয়ায় পাখির নির্মাণশৈলীর কিছু বিষয় বংশগত বৈশিষ্ট্য হওয়াটাই স্বাভাবিক। তবে সহজাত প্রবৃত্তি কখনই বিচ্ছিন্নভাবে কাজ করে না।

বিভিন্ন গবেষণায় শেখার বা অভিজ্ঞতার গুরুত্বের বিষয়টি উঠে এসেছে। হিলির পরিচালিত আরেকটি পরীক্ষায় জেরা ফিঞ্চ পাখিদের বাসা তৈরিতে নরম ও শক্ত দুই ধরনের সুতা দেওয়া হয়েছিল। তবে উভয় ধরনের সুতা ব্যবহার করে দেখার পর পাখিরা শক্ত সুতাটিই বেছে নেয়। সম্ভবত শক্ত সুতা দিয়ে বাসা তৈরি করলে বাসাটিও মজবুত হয় ও পরিশ্রমও কম। বিষয়টি শুনতে সাধারণ মনে হলেও এর তাৎপর্য গভীর। ফিঞ্চ পাখিরা কাঠামোগত বৈশিষ্ট্য সম্পর্কে জ্ঞান অর্জন করে এবং অভিজ্ঞতার ভিত্তিতে সিদ্ধান্ত নেয়। আরও একটি গবেষণায় দেখা গেছে, কম বয়সী 'ভিলেজ উইভার' পাখিদের তৈরি বাসাগুলো সাধারণত অমসৃণ ও আলগা গাঁথুনির হয়, অথচ বয়স্ক পাখিরা বেশ নিরেট ও দৃঢ়ভাবে বোনা বাসা তৈরি করে। বলা চলে তারা এই নির্মাণকৌশলটি অনুশীলনের মাধ্যমেই শেখে।

এভাবে শেখার প্রক্রিয়াটির পেছনে থাকে বেশ উঁচু মানের মানসিক দক্ষতার ভূমিকা। বিজ্ঞানী গিলেটের মতে, "পাখিকে মনে রাখতে হয় তারা কী দিয়ে বাসা তৈরি করেছিল আর তাদের ফলাফলের মূল্যায়ন করার সক্ষমতা থাকতে হয়। এরপর যখন নতুন বাসা তৈরির সময় আসে, সেই স্মৃতি তাদের পরবর্তী সিদ্ধান্ত বা পছন্দের ওপর প্রভাব ফেলে। বিষয়টি সত্যিই বিস্ময়কর"।

তবে বাসা তৈরি করা ৯,০০০-এরও বেশি প্রজাতির পাখির ক্ষেত্রে কোনোটিই কোনো সুনির্দিষ্ট নিয়ম মেনে চলার ইঙ্গিত দেয় না। কোনো কোনো প্রজাতি হয়তো বেশি বুদ্ধিবৃত্তিক ক্ষমতার অধিকারী, আবার কোনোটির কম। হিলি মনে করেন যেসব প্রজাতি বেশিদিন বাঁচে অভিজ্ঞতা থেকে শেখার প্রবণতা তাদের মধ্যেই বেশি থাকার সম্ভাবনা। অস্ট্রেলিয়ার মেলবোর্ন বিশ্ববিদ্যালয়ে পাখির বাসা তৈরির বিবর্তন নিয়ে গবেষণারত বিজ্ঞানী ইলিয়ানা মেদিনা গুজমানও মনে করেন যে বিষয়টি মূলত পাখির প্রজাতির ওপর নির্ভর করে। তবে একটি বিষয় স্পষ্ট যে, বাসা তৈরির বিষয়টি কেবল সহজাত প্রবৃত্তি দিয়েই সর্বজনীনভাবে ব্যাখ্যা করা সম্ভব নয়।

পাখিরা কিভাবে বাসা নির্বাচন করে

প্রজনন মরসুম এলেই পাখিদের মধ্যে শুরু হয় নিরাপদ আশ্রয় খোঁজার ব্যস্ততা। ডিম পাড়া ও ছানা লালন – পালনের জন্য উপযুক্ত জায়গা তাদের জীবনের অন্যতম গুরুত্বপূর্ণ ধাপ। খাবারের প্রাচুর্য, পরিবেশে শিকারি পাখির উপদ্রব ও নিরাপত্তার বিষয়গুলো বিবেচনা করেই পাখিরা বাসা তৈরির জায়গা বেছে নেয়।

প্রতিটি পাখি প্রজাতির বাসা তৈরির ধরন ও পরিবেশগত চাহিদা একেকরকম। যেমন কাঠঠোকরা পাখিরা সাধারণত আংশিক পচে যাওয়া বা নরম গাছ বেছে নেয়। গাছ নরম থাকায় সহজে গর্ত তৈরি করা যায়। আবার বাইরের শক্ত অংশ বাসাকে নিরাপদ রাখে। খাবারের সহজলভ্যতাও বাসা নির্বাচনের বড় শর্ত। কীটভোজী পাখিরা যেখানে পোকা বেশি পাওয়া যায় সেখানেই পছন্দ করে। শিকারি পাখিরা খোলা পরিবেশে বাসা তৈরিতে স্বাচ্ছন্দ্য বোধ করে। বকেরা (Egret) সাধারণত নদী, হ্রদ বা কোন জলাশয়ের কাছাকাছি উঁচু ও শক্ত গাছে বাসা বানায়। এতে সহজে মাছ শিকার করা যায় এবং দূর থেকে চারপাশ পর্যবেক্ষণ করা সম্ভব হয়। কিছু কিছু পাখি আবার গাছের কোটরে অথবা জলাভূমির খাড়া পাড়ে গর্ত করে বাসা বানায়।

নিরাপত্তার দিকটিও পাখিদের কাছে বেশ গুরুত্বপূর্ণ। ঘন পাতার আড়ালে বা গাছের ডালের মাঝে বাসা বানায়, যাতে শিকারিরা সহজে খুঁজে না পায়। শহর এলাকায় এরা দিবা মনিয় নিয়েছে। পাখিরা পাকা বাড়ির কার্নিশ, ছাদের নিচে, ঘরের ফাটলে, ঘরের কড়িকাঠের ভেতর, এমনকি বৈদ্যুতিক খুঁটিতে বাসা বানায়।

পাখিরা বাসার আশেপাশে নিজস্ব এলাকা তৈরি করে নজরদারি চালায়। কোন হানাদের দেখলেই তারা একক বা দলবদ্ধ ভাবে প্রতিরোধ গড়ে তোলে। কিছু পাখি নিরাপত্তার জন্য ছদ্মবেশের ওপর নির্ভর করে। তারা খোলা মাটিতে ছোট বাসা তৈরি করে ডিম পাড়ে। ডিমের রং বা দাগ এমন ভাবে পরিবেশের সাথে মিশে থাকে যে সহজে তা চোখে পড়ে না।

পাখিদের বাসা নির্বাচন শুধু সহজাত প্রবৃত্তির বিষয় নয়, বরং পরিবেশের সঙ্গে অভিযোজন ও টিকে থাকার এক অনন্য কৌশল। নিরাপদ আবাস নিশ্চিত করতে তারা যে পরিকল্পিত আচরণ করে তা জীবজগতের এক বিস্ময়কর দিক।

বাবা-মা ছেলে-মেয়ে সবাইকে নিয়ে মানুষের পরিবার। তবে পাখিদের এমন পরিবার নেই। মানুষের মত পাখিদের স্থায়ী ঘর-বাড়ির দরকার হয়না। তাহলে পাখিরা বাসা বানায় কেন? যখন ওদের ডিম পাড়ার দরকার হয়, তখন পাখিদের বাসা তৈরি করতে হয়। গাছের ডালে কিংবা পাতাতে তো আর ডিম পাড়া যায় না। ডিম গড়িয়ে পড়ে যেতে পারে। তাই বাটির মত কিছু একটা দরকার হয়। এজন্য পাখিরা বাসা বানায়। তারপর ডিম ফুটে ছানা বেরোয়। কিন্তু সেই ছোট ছানারা তো আর উড়তে পারেনা। তাই ওদের লালন – পালনের জন্য দরকার হয় বাসা। আবার ছানাদের শীত-গরম আর বাড়-বৃষ্টির হাত থেকে বাঁচতেও বাসার দরকার হয়।

পাখির আকার অনুযায়ী বাসাও আলাদা হয়। যেমন টুনটুনি (Common Tailorbird), হামিংবার্ড ছোট পাখি; এদের বাসা তাই খুব ছোট। আবার শামুকখোল (Asian Openbill), ঈগল কিংবা শকুন (Vulture) ইত্যাদি পাখি আকারে বড় হওয়ায় এদের বাসাও অনেক বড়। বেনেবউের (Oriole) বুলন্ত গোলাকার বাসা, সুইফটলেটের লালা দিয়ে তৈরি পাত্রে মতো বাসা, যা কিছু ক্ষেত্রে ভক্ষণীয় কিংবা মঙ্ক প্যারাকিটদের বিশাল যৌথ আবাসের মতো বাসা, যা কখনও কখনও একটি রেফ্রিজারেটরের সমান বড়।

প্রজনন কাল আসলেই পাখিরা বাসা বাঁধার তোড়জোর শুরু করে। তবে সব পাখির প্রজননকাল তো আর এক নয়। কোন পাখি বসন্তে, কোন পাখি বর্ষায়, আবার কোন পাখি শরতে বাসা বাঁধে। বাংলায় পাখিরা একেক সময় বাসা তৈরি করে। কিন্তু কেন? কারণটা খুব সহজ। সব পাখির খাবারের পছন্দের তালিকা এক নয়। খাদ্যের প্রাচুর্য অনুযায়ী পাখি বাসা বাঁধে। বাংলায় বেশিরভাগ পাখি বাসা বাঁধে বসন্ত ও গ্রীষ্মকালে। পাখির ছানাদের খাদ্য হল নানা রকম পোকা-মাকড়। আর বেশিরভাগ জলজ পাখি বাসা বাঁধে বর্ষাকালে। এ সময় এদের খাবারের যোগান বেশি থাকে। তাছাড়া বাসা তৈরির বিষয়টি সাধারণত হরমোন ও ঋতুভিত্তিক সংকেত দ্বারা নিয়ন্ত্রিত হয়। কিছু প্রজাতি বছরে একবারেই ডিম পাড়ে, আবার অনেকে বছরে একাধিকবার ডিম পাড়ে।

বাসার ধরণ

পাখির বাসা তাদের প্রজাতি, আবাসস্থল এবং পরিবেশগত পরিস্থিতির ওপর ভিত্তি করে আলাদা হয়। এখানে প্রধান কয়েকটির উল্লেখ করা হলো:-



কাপ আকৃতির বাসা (Cup shaped):

এটি সবচেয়ে সাধারণ ধরনের। ছোট বাটির মত আকৃতির। বুলবুল (Bulbul), দোয়েল (Oriental Magpie Robin), দুধরাজ (Paradise Flycatcher) ইত্যাদি পাখির মধ্যে এই ধরনের বাসা দেখা যায়।



গহ্বর বা কোটরের বাসা (Cavity Nests):
কাঠঠোকরা (Woodpecker), টিয়া(Parakeet),
বসন্তবৌরি (Barbet) ও প্যাঁচার (Owl) মত
পাখিরা গাছের গর্তে বাসা বাঁধে।



মাচার মত বাসা (Platform):
ঈগল (Eagle) ও বকেরা (Egret) বড়
ও চ্যাপ্টা আকৃতির বাসা তৈরি করে।



ঝুলন্ত (Pendent):
নিপুণভাবে বোনা ঝুলন্ত বাসা যেমন বাবুই
(Baya) পাখির বাসা।



গর্ত (Scrape):
মাটির ওপর তৈরি সাধারণ গর্ত বা নিচু
জায়গা, যা উপকূল বা মরুভূমিতে
বসবাসকারী কিছু পাখি ব্যবহার করে।



টিবির মত বাসা (Mound nest):

পাতা ও মাটির স্তর দিয়ে তৈরি বিশাল টিবির মত বাসা যেমন ম্যালিফাউল পাখি এমন বাসা তৈরি করে যেখানে পাতার
পচন প্রক্রিয়ায় তৈরি তাপ ব্যবহার করে ডিম ফোটান হয়।

প্রতিটি ধরনের বাসাই নিজস্ব বৈশিষ্ট্যে অনন্য। শিকার থেকে রক্ষা পাওয়া, তাপমাত্রা নিয়ন্ত্রণ ও কাঠামোগত স্থিতিশীলতার মধ্যে ভারসাম্য বজায় রাখার
জন্য বিবর্তনের ধারায় এগুলির উদ্ভব হয়েছে।

উপকরণ

পাখিরা প্রাকৃতিক ও মানুষের তৈরি উভয় ধরনের উপকরণ যোগাড় করে বাসা বানায়। সাধারণত উপকরণগুলোর মধ্যে রয়েছে ছোট ডালপালা, পাতা ও
ঘাস, কাদা ও মাটি, পালক ও পশম, শ্যাওলা ও মাকড়সার জাল, প্লাস্টিকের টুকরো, সুতো বা কাগজ ইত্যাদি।

জেব্রা ফিঞ্চ পাখিদের রঙের পছন্দের বিষয়টি আগেই উল্লেখ হয়েছে। হিলি বলেন, "দেখা গেছে যে পুরুষ জেব্রা ফিঞ্চদের গোলাপি ও কমলা রঙের
বিষয়ে নিজস্ব পছন্দ রয়েছে। তবে তাদের রঙের এই পছন্দ ঠিক কোথা থেকে হলো তা বিজ্ঞানীরা এখনও জানেন না"।

প্রায় একশ বছর আগে প্রকৃতিবিদ হেনরি স্মিথ উইলিয়ামস তাঁর বাড়ির আঙিনায় ওরিওল পাখিদের জন্য লাল, সাদা, নীল, বেগুনি, কমলা ও হলুদ রঙের
সুতা ঝুলিয়ে দিয়েছিলেন। শুরুতে পাখিদের রঙের পছন্দের ক্ষেত্রে ভিন্নতা থাকলেও, এক দশকের মধ্যে ওই এলাকার পুরো ঝাঁকটিই তাদের বাসা
তৈরির জন্য কেবল সাদা সুতা ব্যবহার করতে শুরু করে। পরবর্তী সময়ে আশেপাশের অন্যান্য প্রজাতির পাখিদের মধ্যে অনুকরণের একই ধরনের
প্রবণতা দেখা যায়।

দৃশ্যগত পছন্দের বিষয়টি কি কেবল রঙের মধ্যেই সীমাবদ্ধ, নাকি এর মধ্যে জ্যামিতিক বৈশিষ্ট্যও কিছু আছে? ধরা যাক, কোনো বাসার প্রতিসাম্য
(symmetry) ও সুশৃঙ্খল গঠনশৈলী যদি তার কার্যকারিতার সাথে যুক্ত থাকে, তবে প্রাকৃতিক নির্বাচন কি কোনো পাখিকে বাসা তৈরির সময় সেই
গুণগুলো কোন সুবিধা দেয়? মেডিনা-গুজমান বলেন, "এটি সত্যিই খুব চমৎকার একটি প্রশ্ন। তবে এ বিষয়ে আমরা নিশ্চিতভাবে কিছু জানি না"।

স্পেনের আরেকটি শিকারি পাখি কালো চিলের (Black Kite) ওপর এক গবেষণাতে জানা যায় এরা বাসার ভিতর সাদা প্লাস্টিকের টুকরো দিয়ে
সাজিয়ে সম্ভাব্য প্রতিদ্বন্দ্বীদের দূরে থাকার বার্তা দেয়। ম্যালার্ড হাঁসের মায়েরা তাদের বুকের নরম পালক তুলে বাসা সাজায়। অনেক পাখিই তাদের
বাসায় উষ্ণতা ধরে রাখার জন্য পশম ও আপেক্ষিক আর্দ্রতা বজায় রাখতে প্লাস্টিক ব্যবহার করে।

একটি গবেষণায় বলা হয়েছে পাখিরা বাসায় ভেষজ গাছ-গাছড়া ব্যবহার করে ক্ষতিকর পোকামাকড় বা জীবাণু রোধ করে। হামিংবার্ডের লাইকেন বা
চড়াই পাখির বাসায় নিমপাতার ব্যবহার নিয়ে ঔষধি গাছের এই ব্যবহার প্রশ্ন জাগায় যে এসব উদ্ভিদ সম্পর্কে পাখিরা আসলে কতটা জানে। হয়তো
বাসায় বেড়ে ওঠার সময় তারা এসব গাছের সংস্পর্শে এসেছিল, বড় হওয়ার পর তারা সেগুলোই খুঁজে বেড়ায়। গিলেটের ধারণা, পাখিরা হয়তো কেবল
গাছগুলোর গন্ধ বা রূপ পছন্দ করে। কোনো নির্দিষ্ট গাছ ব্যবহারের ফলে তাদের ছানারা যদি সুস্থ-সবলভাবে বেড়ে ওঠে তবে সেই অভিজ্ঞতা পরে কাজে
লাগায় বলে বিজ্ঞানীরা মনে করেন।

পাখির বাসা থেকে আমরা কী শিখতে পারি?

১. স্থায়িত্ব ও পুনর্ব্যবহার

পাখির সহজাতভাবেই বিভিন্ন উপকরণ পুনঃ ব্যবহার করে, যা আমাদের ‘আপসাইক্লিং’ এর গুরুত্ব মনে করিয়ে দেয়।

২. নকশায় দক্ষতা

পাখির বাসাগুলো প্রায়শই দেখতে সাধারণ উপাদানে তৈরি মনে হলেও এগুলো অত্যন্ত মজবুত হয়। বাবুই পাখি শুধুমাত্র চঞ্চুর সাহায্যে জটিল সব গিঁট তৈরি করে। প্রকৌশলী ও নকশাকাররা স্থাপত্যশৈলী উন্নয়নের লক্ষ্যে বিশেষ করে হালকা ও টেকসই কাঠামো তৈরির ক্ষেত্রে বাসাগুলো নিয়ে গবেষণা করেন।

৩. পরিবেশগত নির্দেশক

পাখির বাসার উপস্থিতি কোনো বাস্তুতন্ত্রের (ecosystem) স্বাস্থ্য ইঙ্গিত করে। যেমন, বাসা বাঁধে এমন সামুদ্রিক পাখির সংখ্যা কমে যাওয়া প্রায়শই অতিরিক্ত মাছ শিকার বা জলবায়ু পরিবর্তনের সংকেত দেয়। প্রকৃতি সংরক্ষণে পাখির বাসা পর্যবেক্ষণ কর্মসূচি এখন একটি অপরিহার্য হাতিয়ার হয়ে উঠেছে।

৪. ধৈর্য ও অধ্যবসায়

সহজাত প্রবৃত্তি ও প্রয়োজনে পাখির একটি বাসা সম্পূর্ণ করতে প্রায়শই কয়েক দিন বা এমনকি কয়েক সপ্তাহ সময় নেয়। তাই তাদের দৃঢ় সংকল্প লক্ষ্য অর্জনের এক বড় শিক্ষা।

যাইহোক, আপনি যেখানেই থাকুন না কেন চারপাশে পাখির বাসা চোখে পড়তে পারে। প্রতিটি বাসাই যেন এক একটি শিল্পকর্ম। এগুলো আমাদের জানায় যে বাস্তব অভিজ্ঞতার ক্ষেত্রে কীভাবে সহজাত প্রবৃত্তি ও বুদ্ধিমত্তার সমন্বয় ঘটে। আর কীভাবে কোনো আচরণ দীর্ঘসময়ের বিবর্তনীয় ইতিহাস এবং সেই সাথে কোনো নির্দিষ্ট পাখির নিজস্ব খেলা বা পছন্দের দ্বারা গড়ে উঠতে পারে। আমরা এমন সব প্রাণসত্তার দ্বারা পরিবেষ্টিত, যাদের মনন বিস্ময়কর ও রহস্যময়। যদি কখনো এ কথাটি মনে করার প্রয়োজন হয়, তবে কেবল একটি পাখির বাসা খুঁজে দেখুন।

তথ্যসূত্র:-

- 1.Nest Vay Nature: <https://baynature.org>
- 2.Environmental Education programme: <https://ecpmocfcee.nic.in>
- 3.CBS News: <https://www.cbsnews.com>
- 4.The Conversation: <https://theconversation.com>
- 5.ব্যবহৃত ছবিগুলো Pampa Mistri এবং <https://learnthebirds.com> থেকে সংগ্রহ করা



About Author

BISWA RANJAN GOSWAMI

Biswa Ranjan is a science writer and an active member of the Biodiversity Conservation Academy, Kolkata. Passionate about promoting scientific awareness and biodiversity conservation, he has contributed extensively to the field through his writings. He is a regular contributor to Fantail too. Based in Sonarpur, South 24 Parganas, he remains engaged in various initiatives aimed at fostering environmental consciousness.



BOOK REVIEW

BIRDS OF PECULIAR BEAKS

What can a bird's beak tell us? According to MK Bhaskar, almost everything. In *Birds of Peculiar Beaks*, the author takes readers on an engaging journey into fascinating examples of evolution in action, demonstrating how beaks have been exquisitely shaped to suit the lifestyles of different birds.

Written in a conversational style, the book makes science approachable without sacrificing accuracy. The concise species accounts are complemented by delightful custom created, illustrations, engaging cartoons and witty limericks that add both humour and charm. These imaginative touches make the book enjoyable for readers of all ages while reinforcing the biological concepts in a memorable way.

Perhaps the book's greatest achievement is that it will inspire its readers to change the way we look at birds. Once you've read it, identifying a bird is only the beginning -you begin to wonder why its beak has evolved in that particular shape and how it enables the bird to survive in its environment. That shift in perspective is what makes this book especially rewarding for birdwatchers and naturalists.

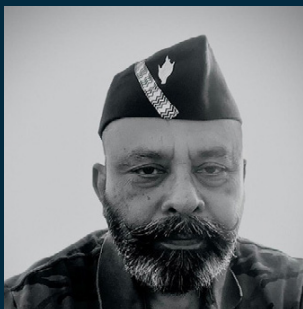
Birds of Peculiar Beaks is an engaging blend of natural history, science and creativity. It celebrates the ingenuity of evolution while quietly reminding us of the importance of

conserving the habitats that sustain these remarkable birds. Informative, beautifully presented and highly readable, it deserves a place on the bookshelf of every bird enthusiast.



Verdict: A delightful and insightful celebration of nature's most versatile avian tool—the beak. An excellent read for birdwatchers, students and anyone curious about the wonders of evolution.

Please connect with MK Bhaskar (9845502641) email: mkbhaskar15@gmail.com for further queries or feedback.



About Author AMITAVA DUTTA

Amitava is a seasoned leader with a passion for mentoring and nurturing young talent. A dedicated conservationist, birder, and adventure seeker, he actively engages in environmental advocacy, citizen science, and youth leadership development. He also leads the editorial team at the Birdwatchers' Society (BWS), shaping content that fosters awareness and appreciation for birds and biodiversity. His commitment to education and awareness initiatives, such as the School of Birds program, reflects his empathy for wildlife and inspiring the next generation.

FRESH & RARE SIGHTINGS (ARRIVALS)

KOUSHEYO BAGCHI

From June '26 till beginning of September '26, the avian world was abuzz with activity and so were our birders. This vibrant season brought the excitement of migration and the signs of breeding behaviour, keeping eyes glued to binoculars and notebooks filled with observations. It was a thrilling time for both birds and birders, as the list below reveal.

2026-2027 Arrivals (Jun 8th, 2026 - Sep 7th) - Mar-Apr-May-Jun

Sr No	BIRD SPECIES	LOCN - 1	LOCN - 2	SIGHTING DATES
01	Violet Cuckoo	Mahananda WLS, Darjeeling	Mahananda WLS, Darjeeling	8th June 2026, 29th Aug 2026
02	Pied Cuckoo	Barabath, Birbhum	Bahadurpur RF, Nadia	9th June 2026, 8th Sep 2026
03	Western Hooded Pitta	Parmadan, North 24 Parganas	Parmadan, North 24 Parganas	8th June 2026, 22nd Aug 2026
04	Ruby-Cheeked Sunbird	Parmadan, North 24 Parganas	Mahananda WLS, Darjeeling	8th June 2026, 22nd Aug 2026
05	Banded-Bay Cuckoo	Dhalla, Birbhum	Mahananda WLS, Darjeeling	10th June 2026, 29th Aug 2026
06	Grey-Bellied Cuckoo	Dhalla, Birbhum	Biharinath, Bankura	10th June 2026, 29th Aug 2026
07	Indian Cuckoo	Aamjaamtala, Malda	Mahananda WLS, Darjeeling	10th June 2026, 6th Sep 2026
08	Blue-Naped Pitta	Mahananda WLS, Darjeeling		10th June 2026
09	Himalayan Owl	Senchal WLS, Darjeeling	Senchal WLS, Darjeeling	11th June 2026, 29th Aug 2026
10	Blood Pheasant	Singalila NP, Darjeeling		11th June 2026
11	Pale-Headed Woodpecker	Mahananda WLS, Darjeeling	Mahananda WLS, Darjeeling	13th June 2026, 3rd Sep 2026
12	Long-Billed Thrush	Lepchajagat, Darjeeling	Maney Bhanjang, Darjeeling	14th June 2026, 16th Aug 2026
13	Richard's Pipit	Singur, Hooghly		14th June 2026
14	Hodgson's Hawk-Cuckoo	Latpanchar, Darjeeling		20th June 2026
15	Slaty-Legged Crane	Lohari, Birbhum	Gazipur, Howrah	22nd June 2026, 22nd June 2026
16	Indian Pitta	Near Kulik WLS, Uttar Dinajpur	Ajodhya Hill, Purulia	25th June 2026, 5th Sep 2026
17	Tawny-Bellied Babbler	Illambazar, Birbhum	Ajodhya Hill, Purulia	22nd June 2026, 22nd Aug 2026
18	Abbott's Babbler	Sundarban Tiger Reserve, South 24 Parganas	Parmadan, North 24 Parganas	27th June 2026, 22nd Aug 2026
19	Black-Winged Cuckooshrike	Sundarban Tiger Reserve, South 24 Parganas	Kherjora, Darjeeling	27th June 2026, 8th Sep 2026

Sr No	BIRD SPECIES	LOCN - 1	LOCN - 2	SIGHTING DATES
20	Fork-Tailed Drongo Cuckoo	Mohishila, Purba Bardhaman	Baghmundi, Purulia	28th June 2026, 30th Aug 2026
21	Ashy-Headed Green-Pigeon	Dunlop, Hooghly	Majua, Darjeeling	29th June 2026, 26 July 2026
22	Great Parrotbill	Senchal WLS, Darjeeling	Senchal WLS, Darjeeling	28th June 2026, 26th Aug 2026
23	Ward's Trogon	Neora Valley NP, Kalimpong		29th June 2026
24	Fulvous Parrotbill	Senchal WLS, Darjeeling	Senchal WLS, Darjeeling	28th June 2026, 26th Aug 2026
25	Great Thick-Knee	Galmakhari, Darjeeling		10th July 2026
26	Purple Cochoa	Ghoom, Darjeeling		17th July 2026
27	Black-Backed Dwarf Kingfisher	Mahananda WLS, Darjeeling		19th July 2026
28	Osprey	Domohani Wetlands, Jalpaiguri	Sundarban Tiger Reserve, South 24 Parganas	20th July 2026, 7th Sep 2026
29	Lesser Coucal	Baruipur, South 24 Parganas	Rajarhat, Kolkata	21st July 2026, 8th Sep 2026
30	Red-Necked Falcon	Nitjaraf, Cooch Behar	Kargil Beach, South 24 Parganas	23rd July 2026, 8th August 2026
31	Common Greenshank	Nitjaraf, Cooch Behar	Sundarban Tiger Reserve, South 24 Parganas	23rd July 2026, 3rd Sep 2026
32	Thick-Billed Green-Pigeon	Sundarban Tiger Reserve, South 24 Parganas	Kherjora, Darjeeling	25th July 2026, 8th Sep 2026
33	Curlew Sandpiper	Kargil Beach, South 24 Parganas	Kargil Beach, South 24 Parganas	25th July 2026, 29th Aug 2026
34	Black-Capped Kingfisher	Sundarban Tiger Reserve, South 24 Parganas	Sundarban Tiger Reserve, South 24 Parganas	25th July 2026, 7th Sep 2026
35	Lesser Yellownappe	Sundarban Tiger Reserve, South 24 Parganas	Sundarban Tiger Reserve, South 24 Parganas	25th July 2026, 6th Sep 2026
36	Oriental Hobby	Sittong, Darjeeling	Mahananda WLS, Darjeeling	25th July 2026, 25th July 2026
37	Red-Necked Stint	Kargil Beach, South 24 Parganas	Patibunia, South 24 Parganas	25th July 2026, 2nd Aug 2026
38	Great Knot	Kargil Beach, South 24 Parganas	Patibunia, South 24 Parganas	26th July 2026, 2nd Aug 2026
39	Brown Shrike	Kargil Beach, South 24 Parganas	Rabindra Sarobar, Kolkata	26th July 2026, 7th Sep 2026
40	Wedge-Tailed Shearwater	Sundarban Tiger Reserve, South 24 Parganas	Offshore within Indian EEZ	31st July 2026, 28th July 2026
41	White-Winged Tern	Hijli Beach, Purba Medinipur		2nd Aug 2026
42	Yellow-Legged Buttonquail	Dhalla, Birbhum		2nd Aug 2026
43	Bristled Grassbird	Barshul, Purba Bardhaman	Illambazar, Birbhum	9th Aug 2026, 26th July 2026
44	Red-Crested Pochard	Pakhibitan WLS, Jalpaiguri		10th Aug 2026
45	Rain Quail	Chharrah, Purulia	Chharrah, Purulia	13th Aug 2026, 24th Aug 2026
46	Great Grey Shrike	Chharrah, Purulia	Chharrah, Purulia	13th Aug 2026, 6th Sep 2026

Sr No	BIRD SPECIES	LOCN - 1	LOCN - 2	SIGHTING DATES
47	Pin-Tailed Snipe	Chharrah, Purulia		13th Aug 2026
48	Rufous-necked Hornbill	Latpanchar, Darjeeling	Latpanchar, Darjeeling	18th Aug 2026, 2nd Sep 2026
49	Brown-Breasted Flycatcher	Latpanchar, Darjeeling	Rabindra Sarobar, Kolkata	18th Aug 2026, 8th Sep 2026
50	Brown-winged Kingfisher	Sundarban Tiger Reserve, South 24 Parganas	Sundarban Tiger Reserve, South 24 Parganas	22nd Aug 2026, 7th Sep 2026
51	Chestnut-Winged Cuckoo	Parmadan, North 24 Parganas	Nurbang, Darjeeling	22nd Aug 2026, 23rd Aug 2026
52	Oriental Scops-Owl	Sirkabad, Purulia	Kurseong, Darjeeling	22nd Aug 2026, 22nd Aug 2026
53	White-Hooded Babbler	Mahananda WLS, Darjeeling		23rd Aug 2026
54	Dunlin	Patibunia, South 24 Parganas		29th Aug 2026
55	Bar-Tailed Godwit	Patibunia, South 24 Parganas		29th Aug 2026
56	Parasitic Jaeger	Sunderbans Tiger Reserve. S.24 Parganas		6th Sep 2026
57	Green Cochoa	Latpanchar, Darjeeling		7th Sep 2026
58	Large-Billed Leaf Warbler	Rabindra Sarobar, Kolkata		8th Sep 2026
59	Yellow-breasted Bunting#			

Species according to Highest Priority by State for West Bengal as per State of India's Birds Report, 2023

Data-deficient for the time period of this Report



About Author

KOUSHEYO BAGCHI

Kousheyo is a Zoology student whose love for birds took flight when he was just five years old. Encouraged by his parents to explore the outdoors and guided over the years by many of Kolkata's finest birders and naturalists, Kousheyo has grown into a passionate observer of nature.



ABOUT THE PAINTING:

Owl have always been a subject of interest, from a birding and painting perspective. Painting them often to symmetry is challenging. I have painted the Endemic Chestnut-backed Owlet (*Glaucidium castanotum*) on many occasions. The JUNGLE OWLET (*Glaucidium radiatum radiatum*) a widely distributed species though uncommon in Sri Lanka, was of interest and similar in size thus the initial pencil sketch was spontaneous. Using earlier field sketches and photographs yielded this painting.

ARTIST - LESTER PERERA:

Renowned Bird Artist and Environmentalist. He is a member of the Rarities and Records Committee of the Ceylon Bird Club, Sri Lanka and also a member of Birdwatchers' Society.

MEDIUM: WATER COLOUR



A Nationwide Celebration of Birds
for Young People



YOUNG BIRDERS' MONTH

returns

THIS NOVEMBER



Birdwatchers' Society

DB 75, Salt Lake, Kolkata-700064, INDIA

Email: birdwatcherssocietywb@gmail.com

Website: www.birdwatcherssociety.org