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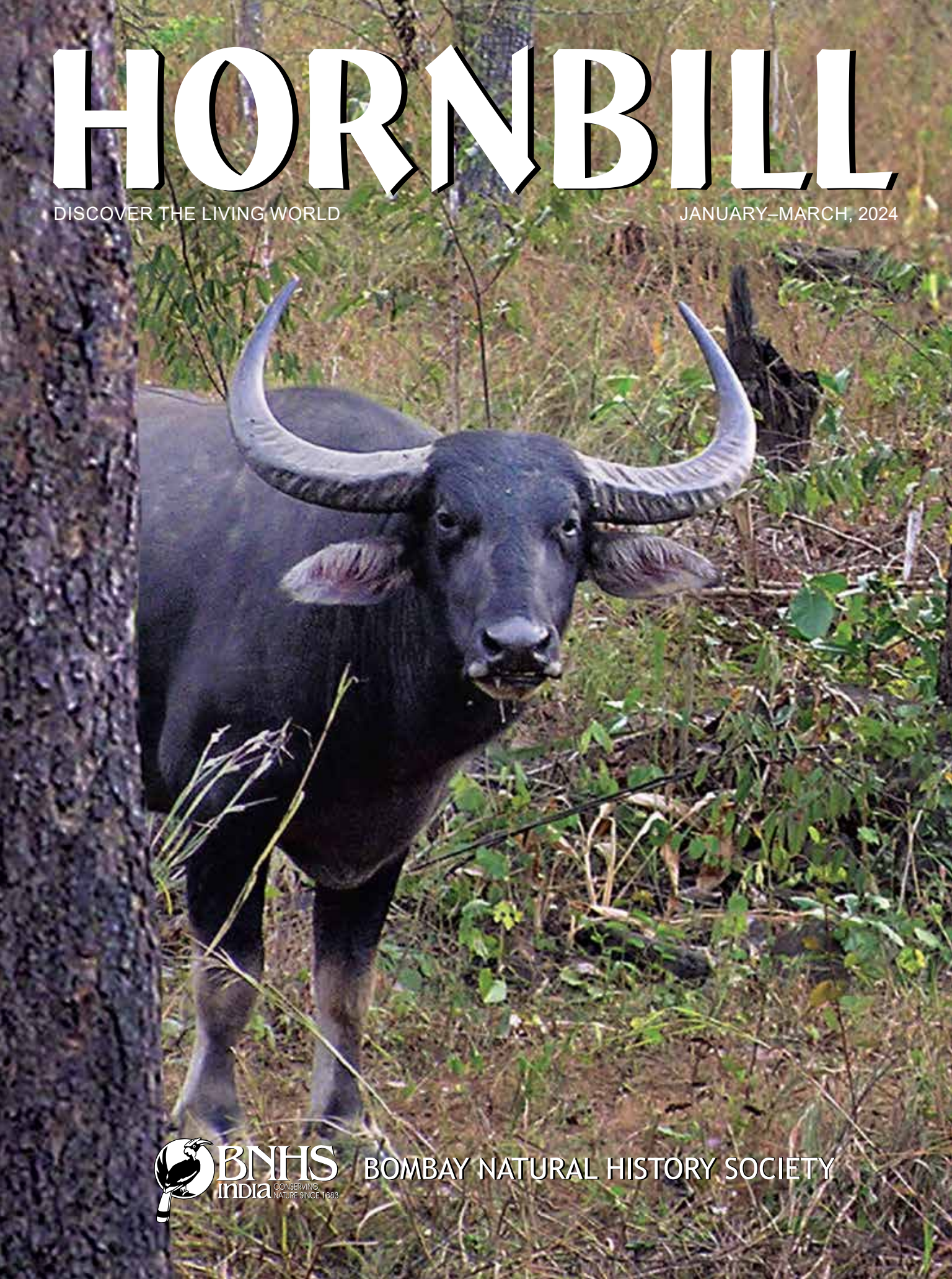
JANUARY–MARCH, 2024



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HORNBILL

January–March 2024

Cover: Wild Water Buffalo by Kishor Rithe

Published and printed quarterly by the Honorary Secretary for the Bombay Natural History Society, Printed at Akshata Arts Pvt. Ltd., Lower Parel, Mumbai.
Reg. No. RN 35749/79, ISSN 0441-2370.

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CONTENTS

FEATURES

PHOTO FEATURE

Others

Editorial...

In this issue, as the *Hornbill* goes to press amidst Mumbai's scorching 39.7 degrees Celsius heat, the city experiences its hottest April day in a decade. While Mumbai sweats, other parts of the country are drenched in unusual rains, highlighting the erratic behaviour of our climate. The *Hornbill*, known for its coverage of climate change, is dedicated to dispelling myths and shedding light on its real-world impacts.

While the country grapples with the realities of climate change, the dedicated members of BNHS have continued their expeditions, exploring diverse landscapes and documenting vital observations. This issue of the *Hornbill* takes you on a thrilling journey, from trekking in the Himalayan landscape, the unique grasslands of Nicobar Island, and birding in the historical Silk Route, to observing the unusual nesting behaviour of house sparrows, a page from the field diary of Dr Atharva Singh, a BNHS scientist, and learning about wild buffalo conservation efforts.

Following the footsteps of the legendary Jim Corbett through the Terai Arc Landscape (TAL) is an adventure in itself. Accompanied by legends like A.J.T. Johnsingh, scientist G.S. Rawat, and naturalist Vishal S. Ohri, every corner of TAL comes alive. I am sure you would love to discover the untamed beauty of Thak in Corbett's landscape, and be inspired to protect these natural wonders.

The Nicobar Islands, nestled in the Andaman Sea, have recently taken the spotlight in media discussions, due to concerns about destructive infrastructure development. This has understandably sparked worry among wildlife enthusiasts. The BNHS, a staunch advocate for protecting these islands, has long been conducting studies to delve into the various aspects of this unique ecosystem.

In his enlightening piece, Manish Chandi sheds light on the natural grasslands of Nicobar Island, unveiling a captivating feature of island biogeography. However, a pressing question lingers: are these grasslands truly native to the islands, or are they a product of human intervention? Manish offers his perspective on this issue, drawing from his observations and interactions with the individuals who utilize and coexist with these grasslands.

Journey to Kibber, the last village in Spiti on the traditional trade route to Ladakh and Tibet, renowned for its stone houses and rich wildlife sightings. Snow leopards, Himalayan red foxes, Himalayan griffons, and steppe eagles grace the skies and valleys, making it a haven for nature enthusiasts. Thomas Thomson's observations in 1847, about Kibber's unique stone houses, unlike the typical mud structures prevalent in other parts of Spiti, add a layer of intrigue to this village's charm.

MANISH CHANDI

The grasslands of Nicobar have for long served cultural, aesthetic, and ecological roles in the islands, however rapid developments raise questions about their future

This issue also features an uncommon nesting behaviour of house sparrows, shared by an avid reader. House sparrows are known to build nests in crevices and natural vegetation, and nest boxes. How did these resourceful birds come to reuse swallow nests? Does this reflect their adaptability or a touch of laziness?

Meet R. Subba Rao, a 78-year old retired cardiac surgeon turned nature photographer, whose passion for birding has been transformed by advances in camera technology. His captivating photo feature is sure to inspire budding wildlife photographers.

The Book Reviews section in *Hornbill* never fails to pique my interest and often adds a book or two to my reading list.

Dr Atharva Singh, a dedicated researcher with the BNHS working in Sikkim, recorded a tiger at 3,640 m, the highest elevation in India where a tiger has been spotted. I am sure you will enjoy reading a page from Atharva's diary, recounting his one remarkable day in the field.

Ram Gopalakrishnan, a physician from Chennai, embarked on a journey along the ancient Silk Route, a historic trade route that connected civilizations and cultures, all in pursuit of his love for birding. Ram not only enjoys the beauty of nature, but also seeks to inspire others to appreciate and conserve it. Reading about his travels, one can't help but be transported back to a time when traders traversed breath-taking mountain landscapes, exchanging horses, silk, and spices.

Lastly, the Conservation Notes remind us of the critical importance of preserving the wild buffalo, a significant species in central India. Despite facing local extinction in regions like Maharashtra, Madhya Pradesh, and Chhattisgarh, the survival of the wild buffalo in Assam offers a beacon of hope.

Enjoy reading!

Kishor Rithe

A.J.T. JOHNSINGH

Details about the rock identified by Quinton Ottley

A Pilgrimage to Thak

Text: **A.J.T. Johnsingh, G.S. Rawat and Vishal Sharat Ohri**

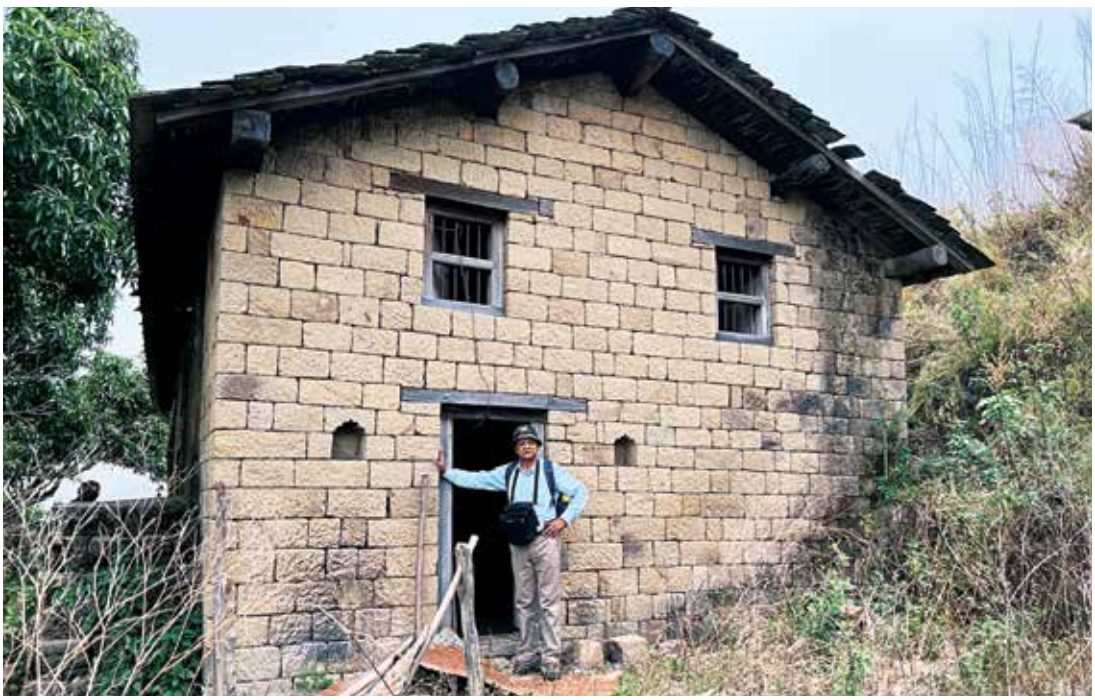
The sun rose behind the Nepal hills, painting the eastern sky pink as we prepared for the climb to Thak on May 27, 2022. The village of Chuka was already coming to life with the men preparing to till the land and women attending to the household chores. Flocks of red-breasted parakeets flew overhead with their sharp short calls and

white-crested laughing thrushes foraged noisily in the dense undergrowth on the hillside as we prepared for the uphill trek of a little over three kilometres to Thak.

Our climb began around 7:30 a.m. AJT had last trekked to Thak with GSR nearly 30 years ago, in 1993. On that occasion they were accompanied by the late Umed Singh, the then Pradhan (headman) of Chuka. Accompanying us were Mr Mohan Singh Dhami, Forest Guard, Mr Dalip Singh, and Mr Dashrath, both knowledgeable guides from Chuka. Thak has seen many Jim Corbett admirers from several countries, all attempting to locate the actual rock from which Corbett shot the Thak man-eater in the gathering darkness on November 30, 1938. Corbett fans have made different claims about the location of this rock. Our primary goal was to try and identify the actual rock from which Jim Corbett had shot the man-eater. We were also keen to see the present condition of Thak village, the status of wildlife along the trail to Thak and assess the state of the village and the forest around.

Our walk to Thak, though not challenging for most hill-folk, passed through rugged terrain and along a broken trail. The dense jungle, with all its botanical bonanza, was alive with bird calls and the occasional call of the barking deer. There was a special thrill in walking the very trail along which Jim Corbett had walked many years ago.

As we walked, we recorded feeding signs on *Litsea chinensis*, *Mallotus philippensis*, and *Milletia auriculata*. The height at which the plants had been eaten, indicated the presence of sambar. Although AJT observed tiger scrapes at three places with the smell of tiger still fairly strong, prey base in the area appeared to be rather weak. We also saw giant trees of *Albizia procera*, *Adina cordifolia*, *Casearia tomentosa*, *Ficus rumphii*, *Mangifera indica*, *Shorea robusta*, *Syzygium cumini*, and *Terminalia bellirica*. At the end of the walk, we rested under a giant mango tree above Thak village, near a trail that wound its way past the tree towards Kot Kindri, which is around six to seven kilometres from Thak. The tree, growing near a nallah through which a trickle of cool and clean water flowed, appeared to be more than 200 years old. It was nearly 11:00 a.m. and already quite hot. Not having found water anywhere along the trail, we were glad to satiate our thirst at the stream. The stream course was well-wooded



ALOK SHARMA

Rawat in front of one of the well-built and abandoned houses in Thak

with thick understorey and therefore very cool. Major species along the ravine were *Debregeasia velutina*, *Ficus semicordata*, and *Juglans regia*. One of the guides, Dashrath, looking wistfully in the direction of Thak village, told us that a school once stood near the village and that he had studied in it up to class five. The sight of abandoned fields on a slope very close to where we rested only accentuated the all-pervading feeling of desolation.

While we were resting, GSR went for a walk to Thak village and to the site below the village where once stood a large mango tree with a spring emerging from its roots. He saw a sambar and also heard a sambar alarm call. Corbett writes about a good number of sambar and barking deer in and around Thak. GSR was impressed by the structure and design of some houses in Thak village and also observed that no matter what the quality of construction, a house abandoned is a house quickly lost to the forces of nature.

A.J.T. JOHNSINGH

Vishal Ohri, sitting on the rock from which Jim Corbett shot the man-eater and reading the Thak tigress story

The spring which emerged from the roots of the mango tree, which GSR had gone to see, has many interesting stories associated with it. One day, in late November 1938, Corbett drank from the spring, and a little later when he came back for a second drink, he found the tigress's pugmarks superimposed on his footprints. It was evident that the tigress had been tracking him! After having the second drink, Corbett did not take the first route, as he had a premonition that the tigress was preparing to waylay him! In April 1993, AJT and GSR drank from this spring, and in May 1998, the late Shri A.S. Negi, former Chief Wildlife Warden, Uttarakhand, and AJT had a drink from the same spring. The authors of the book BEHIND JIM CORBETT'S STORIES; had also made use of the spring when they had camped in Thak in April 2012. Jim Corbett writes about the dense understorey while following the man-eater, where he once saw only a bush moving owing to the passage of the tigress. We could visualize Corbett, tracking the tigress with a thumping heart, hoping to get a clear shot.

The abandoned fields of Thak are now covered with a dense growth of *Adhatoda vasica*, *Artemesia nilagirica*, *Clerodendrum infortunatum*, *Colebrookea oppositifolia*, *Murraya koenigii*, *Pogostemon benghalensis*, and the prickly *Rubus biflorus*. Jim Corbett has written that in the vicinity of Thak, he had seen more kaleej pheasant and red junglefowl than he had ever before seen, and from the way in which they permitted him to walk in close proximity indicated that the people of Thak did not believe in the taking of life. As we walked, we heard the calls of red junglefowl thrice, but kaleej remained unheard. Interestingly, Corbett does not mention peafowl, but we heard their calls often. There is a range extension of peafowl in many places in India, including the Western Ghats. Other bird calls we heard while on the walk were drongo cuckoo, Himalayan barbet, Indian cuckoo, oriental turtle dove, and scimitar babbler.

ALOK SHARMA

The authors (AJT, Vishal, and GSR) with Heera

After spending some time under the mango tree, we started our walk back to Chuka. Corbett writes about an 'almond tree' in which he had climbed up to 40 feet (*c.* 12 m) and watched the two goats, which he had tied as bait, one at a distance of 60 yards and the other 70 yards (1 yard = 0.9144 m), and a buffalo carcass. He thought the buffalo had in all probability died of snake-bite (there being many king cobras in the surrounding jungles). The only tree we found in that area which fits the description of his 'almond tree' was a tall *Terminalia tomentosa* tree, which appeared to be in the last stages of its life and had a fairly comfortable fork at a height more than 40 feet. We assume that the tree might have attained more height since the time of Corbett.

It is remarkable that Corbett at the age of 63 had climbed the tree. He had taken up with him, using a rope, his light .275 rifle, which was presented to him by Sir J.P. Hewett GCSI, KBE, CIE, Governor of the United Provinces in 1910, in recognition of his having killed the Champawat man-eater in 1907. Corbett had great faith in his .275 rifle, as he had found it to be very accurate, and he was confident of killing the tigress if she showed up anywhere on the ground he was looking over. He had used this rifle to kill the Rudraprayag man-eater, Talla-Des man-eater and its cubs, and the Chowgarh man-eater.

One cannot but marvel at the fitness of the man who went through so much while after the man-eater, first between October 23 and November 7 and again between November 24 and 30. During the chase, he trekked several times to Thak from Chuka, sat in machans for hours on end, braving the late November cold of the hills, rain, and stormy weather. The circumstances ranged from the difficult to the eerie. He once heard a scream 'Ar.. Ar.. Arr' coming from the direction of the deserted village, while in a tree waiting for the man-eater. In his own words, it sounded like 'the despairing cry of a human being in mortal agony". We could only imagine, what Corbett might have felt, when he heard the scream in that remote and desolate place.

As we descended, we examined three claims from researchers regarding the actual location of the rock. The first site was just after and to the

A.J.T. JOHNSINGH

Rawat on the rock identified in 2012, see the growth of climbers and tree in front

right of a Temple a short distance below Thak village. One of our guides, Mr Dashrath, told us that according to one local belief, this was the actual site. Nothing in the micro-topography of the site matched the details given by Corbett. So, this could not have been the actual site. Next, a short distance ahead and to the left of the path, in a rocky terrain there was a rock claimed in 2012 to have been the actual one. But upon close scrutiny, we concluded that this could not have been the rock from which Jim Corbett had shot the tigress. Corbett has written that there was 'a dense line of bushes approaching to within ten feet of the four-foot-high rock,' but we found a very large climber (*Milletia auriculata*) and a large tree (*Cordia dichotama*) blocking the vision of the rock in front. In this kind of rocky terrain such species take decades to grow to the size we had seen and possibly those two species would have occurred even during the period when Corbett had trekked the mountain slope several times in October-November 1938. Also, based on Corbett's account, a reconstruction of the events somehow did not gel with this location. Thereafter, we came upon the rock claimed by Quinton Ottley to have been the one on which Jim Corbett, sitting precariously, partly hidden, had called up the Thak man-eating tigress and shot it at point-blank range. We studied this rock and the small ledge on which Corbett is supposed to have rested his bottom while waiting for the tigress in minute detail. Sitting on the same ledge, VSO read out from the Thak man-eater story, the final moments of the encounter between Corbett and the tigress, concluding convincingly that this was very likely the rock from which Jim Corbett had shot the man-eating tigress of Thak. Interestingly, that part of the ground 'behind, and ten to twelve feet below … 'where the four men accompanying Corbett sat 'in a tight little circle'... 'with the two goats burrowing in under them'... 'probably by now frozen with fear' seems to have changed a bit. The original trail and the microtopography of the area in general have, in all likelihood, undergone a change over the last eight decades. It is easy to locate this rock as one goes up to Thak from Chuka. The trail to Thak after about a kilometre from the Chuka-Sem road, runs through a patch of majestic sal trees, and after crossing a stream goes up a steep

ridge and eventually reaches a flat bit of ground. There, at the edge of the flat ground, adjacent to the trail, is this big squarish rock perpendicular to the low ridge in the direction of Kumain chak.

While we spent some time at the rock, we saw two women from Chuka carrying some provisions on their heads walking to Thak. We came to know from our guides that some people of Chuka cultivate ginger (which is neither eaten by wild pigs nor by porcupines) in Thak with permission from the owners of the land who were previously living in Thak. Associated with the Poornagiri temple, most of them now lead a comparatively comfortable life in Poornagiri or Tanakpur. Looking at the women plodding along the narrow and rugged path through the jungle, we wondered whether the women and the men who use the jungle trails, where we had seen tiger signs, would be safe if a tiger, wounded either by a porcupine or a poacher or due to old age, becomes a man-eater. We can only wish and hope that no tigers turn man-eaters in this landscape, for, if a man-eater does appear, it would not only cause great hardship to the people but also pose an immense challenge to the Government for the restoration of normalcy.

We learnt from the locals that even now, occasionally, people of Thak and Kotkendri face problems from trespassers, some of them reportedly from Nepal. They threaten people, rob material stored in the houses in Thak that are used by the people of Chuka and most likely indulge in poaching too. Such criminals should be identified and dealt with firmly by the authorities concerned (this can be done as some of the Nepalese living on the left bank of Sarda, do most of their shopping in Tanakpur and they can be enlisted for help and support). The Sashastra Seema Bal (SSB) can include Thak and Kotkendri in their zone of patrolling. We had made this request to the officer and the jawans of the Chuka SSB camp when we addressed them on the morning of May 28. We suggest that a few mango and jamun saplings be planted around the spring at Thak village where a mango tree once stood in order to ensure survival of the spring*. The cool and clean water of the spring will be available not only to the people who work in the fields of Thak, but also to Corbett admirers like us, on a pilgrimage to Thak and to the wildlife including tigers that range in the area. We understand that the Government of Uttarakhand is keen to develop eco-tourism in District Champawat and showcase Jim Corbett's trails such as the trails in Chuka and Thak as important eco-tourist destinations. We pray and earnestly request that in the name of 'tourism development' the trails, and the associated natural features such as the rocks and trees described by Corbett in his stories are not defaced, removed, altered, used as platforms for ugly man-made structures, or damaged. Utmost care should be taken to preserve them so that the wonderful magic woven by Corbett through his writings comes alive through them and gives the visitor a true picture (as far as possible) of the events that happened long ago. ■

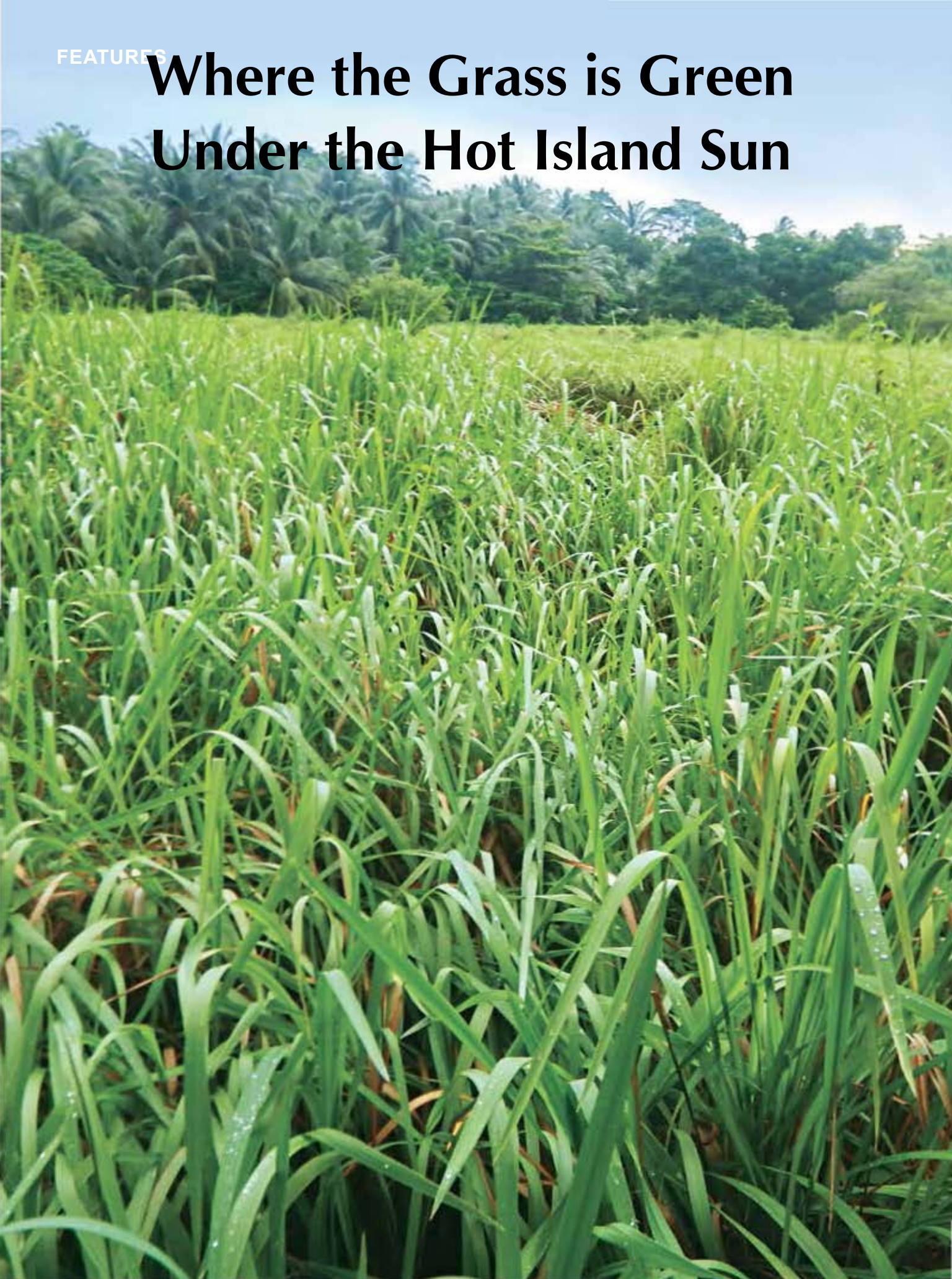
*The idea of planting mango and jamun saplings at the Thak spring was translated into action by GSR and his students from the Wildlife Institute of India on July 10th, 2022.

A.J.T. Johnsingh is Senior Conservation Biologist with WWF-India and The Corbett Foundation.

G.S. Rawat is Senior Ecologist and Board Member, Wildlife Trust of India.

Vishal Sharat Ohri is a naturalist and a wildlife enthusiast.

Where the Grass is Green Under the Hot Island Sun



Text and Photographs: **Manish Chandi**

Islands dominated by grass are not commonly encountered, but where they exist, they have fostered cultures of pastoralism and provided resources and habitat for a range of species, including humans.

The Nicobar Islands are unique in the Andaman Sea with natural grasslands spread over several hundred acres across several islands. These grasslands are interspersed with forests and valleys, and in some places even edged by cliffs and seashores. However, debate surrounds their origin, with some arguing that they are man-made. In this article, I will share my conclusions on this issue based on personal observations and interactions with those who use and live amidst these grasslands. Recent research from Ambedkar University further explores the grasslands' persistence and ecological nuances, and refutes claims of human intervention in their formation.

The Forest Museum in Port Blair, displays a skull of a large water buffalo with a caption stating that "the Dutch introduced a dairy and grassland on Kamorta Island before the Portuguese and British came to the islands. After they left the islands, the buffalo they left behind became feral and are still available on the island." This caption has only one correct conclusion: that the buffalo left behind became feral. This species of water buffalo is now extinct on Kamorta Island, while a few feral Indian buffalo and cattle range across the undulating grasslands and forest patches on the islands of Kamorta, Trinket, and Nancowry. Historical records indicate that it was the Danes, not the Dutch or Portuguese, who briefly colonized Kamorta and neighbouring Nancowry Island. These men were missionaries attempting to bring the islanders into the fold of Christianity. The Danish colony lasted for only a few years,

Village settlements in the grasslands of Kamorta Island are now far from their original habitation along the seashore

as the colonizers succumbed to tropical illnesses, pirate attacks, in addition to realization of their inability to spiritually convert the islanders. The Danes, I conclude, attempted to establish dairy on seeing the abundance of grasslands. The mission in all probability, imported large-hooved and long-horned water buffalo from one of their colonial establishments in Indonesia.

The grasslands in the Nicobar archipelago extend beyond Kamorta and Nancowry islands, covering Chowra, Teressa, Bompoka, Trinket, and parts of Car Nicobar and Katchal Islands. As contested, if the grasslands were established to further a dairy in the Nicobar Islands, how would large, patchy, and dispersed grasslands be established in islands where the Danes had neither presence nor human resources to aid this process? The other islanders have no record or memory of Danish presence or introduction of dairy farming at Nancowry and Kamorta islands.

Not all grasses in Nicobar's grasslands are consumed by cattle, which primarily feed on select species and low-hanging leaves from trees and shrubs in forest patches, found in valleys dispersed among these meadows. Establishing a grassland is not as simple as burning a forest and cultivating grasses. The diversity of species inhabiting these meadows is unique to this habitat and some are not found in the adjacent forests, as the soil in the grasslands differs significantly from that found in the forests and ridges on the islands. The clayey grassland soil is unsuitable for forest growth. A few small-leaved tree species of the grasslands like cycas and pandanus that have thick gnarly bark to survive fire, are the only trees that thrive amidst the grasses. It is therefore not surprising that, despite almost two centuries, since the colonists left the islands, the forest species of trees have not taken over or established themselves in the grassland.

In addition to the difference in vegetation found in the grasslands and adjacent forests, the Nicobar grasslands host three grassland birds exclusively, the king quail *Excalfactoria chinensis trinkutensis*, zitting cisticola *Cisticola juncidis*, and white-rumped munia *Lonchura striata semistriata*. Were these birds that exclusively live in the grasslands also introduced? It would be far-fetched to believe that either the small Danish mission or the British introduced these birds. They surely had many more things to do during the short stay than introduce these small birds for pleasure or passion.

Grasslands on Kamorta, with naturally occurring pandanus trees

The ritual of burning grasslands renews the quality of grass available for thatching; it is also a time for celebration and feasting using produce hunted during the burning

The grasslands of the Nicobar Islands are cherished by the local Nicobarese people for their ability to absorb rainwater, provide refreshing breezes, and offer expansive views. However, following the 2004 tsunami that devastated their coastal villages, many of the local islanders have been relocated by the Andaman Administration to these grasslands, as part of a housing rehabilitation program. They often lament the intense heat of the sun in these areas and the challenge of adapting to a different way of life, which is less serene and connected

A pit viper, *Trimeresurus* sp., in the Kamorta grasslands

Zitting cisticola is a true grassland bird

Nicobar blue-breasted quail, a cryptic subspecies endemic to the Nicobar Islands

to nature than their previous coastal existence. The soil in the grasslands, being thick and clayey, lacks the nutrients necessary for growing trees or vegetables, making it difficult for them to regenerate their beloved coconut groves or establish kitchen gardens as they had done for generations along the coast.

The Nicobarese in Car Nicobar, Chowra, and Teressa islands have a tradition of setting fire to the grasslands to renew grass leaves, which are used to thatch round huts and houses. However, today only the islanders of Chowra and Teressa continue to practice this ritual. In the Central Nicobar Islands, the islanders use leaves of *Nypa fruiticans* to thatch their huts; but until recently, they also observed the ritual burning of grasslands. The ritual, known as '*Issoh*' in Chowra, '*Sanoha* (*Sönohö*)' in Teressa and Kamorta islands, typically occurs towards the end of the dry, hot season in May, and marks the arrival of the monsoon. During this ritual, grasslands are set alight while adjacent plantations and homesteads are protected to prevent the fire from spreading. The heavy moisture content in the oceanic air, triggers

fresh grass sprouts within a few days, renewing the quality of grass available for thatching. This period is also a time for celebration and feasting using produce hunted during the burning, such as wild boar and rats, tubers from food gardens, and meals of rice purchased from markets. Toddy and other alcoholic beverages are also served, making it a social bonding event. However, today this celebration and ritual are largely restricted to Teressa and Chowra islands. Most other islanders have stopped conducting this event, as their new post-tsunami houses are located within the grasslands and their houses are constructed from tin sheets, wood, and galvanized steel.

After the 2004 tsunami a wave of cultural change has swept through the island over the past decade. Well-intentioned yet misguided short-term governmental schemes aimed at rehabilitating the islanders have led to significant social and cultural changes, creating a greater dependence on impulsive governmental schemes and market mechanisms. Before the tsunami, there was a misconception that the grasslands were wastelands created by human agency through fire and for dairy. This belief prompted initiatives by the A&N Forest Department to plant trees in these grasslands, particularly in places like Kamorta. Unfortunately, the chosen tree species were non-native, including acacia, casuarina, wattle, and rusty shield bearers, selected for their hardiness and fast growth, despite being ecologically detrimental. The spread of acacia and casuarina trees is now visible across the islands. Additionally, the construction of roads for a small fleet of buses to transport locals, along with the influx of weeds, construction materials, and heavy machinery from the mainland after the tsunami, has further altered the grasslands. Weeds, now well-established in many areas, are paving the way for trees to overtake the grasslands, particularly on Chowra Island.

The grasslands of Kamorta face potential development, as the Indian Air Force seeks land to construct an airstrip for its fleet and augment defence operations in the region. Barter arrangements are being considered to facilitate this proposal, as tribal land cannot be sold outright. Another concerning proposal is conversion of the grasslands into oil palm plantations pushed by vested interests despite the failure of such plantations in the Little Andaman Island to bring prosperity. The islanders, aware of the cultural, economic, and social relevance of their coconut plantations, are generally not in favour of this change. These rapid developments raise questions about the future of these grasslands, which have served their cultural, aesthetic, and ecological roles in the islands. It is crucial for the Andaman Nicobar Administration and especially the A&N Forest Department to recognize these grasslands as specialized habitats with specific ecological and cultural significance, rather than as wastelands. Only then can they continue to provide grass, beautiful vistas, habitat, breeze, and water to both humans and wildlife, under the hot island sun, through heavy monsoons, and the sizzling heat of summer.■

Learning to live in the grasslands – a father and daughter attempt to use a cargo tricycle

Manish Chandi is a social ecologist, based in Goa, with interests in genres of art. He has researched human ecology among Nicobar islanders.

In the den of the Shen

I joined a group of five wildlife enthusiasts, hailing from different corners of India, to visit the Kibber Wildlife Sanctuary. Kibber village, the gateway to this expansive Sanctuary spanning 2,220.12 sq. km is home to 25–30 snow leopards, also known as Shen in Tibetan. This elusive species, recognized as the 'ghost of Himalaya,' has recently transitioned from being classified as Endangered to the less critical status of Vulnerable, thanks to global conservation efforts.

Our expedition, meticulously organized by the renowned wildlife documentary filmmaker Mr Liton Paul, was seamless due to the dedicated homestay staff and field supervisors. Braving the bone-chilling cold, we spent two nights in picturesque villages en route from Chandigarh to Kibber, indulging in birdwatching, which included witnessing Himalayan griffon feuding over a carcass and several steppe eagles.

On reaching Kibber, our excitement soared upon hearing about the sighting of a female snow leopard with two young cubs, nestled in a cave, shared by Tasi, our guide. We quickly joined other eager photographers in a viewing gallery on a precarious ledge, and waited for the leopard on foldable narrow camp stools. Despite the harsh conditions, our individual guides skilfully guided us across rocky and icy terrain, carrying heavy cameras at the altitude 15,000 ft and ensuring we were nourished with hot meals.

Spotting the perfectly camouflaged snow leopards demanded patience, but after about four hours in the bitter cold, the mother emerged, followed by her cubs, offering a rare and mesmerizing spectacle. Above the Shen family on the ridge, Himalayan ibex with their majestic horns and flamboyant beards grazed, while bharal tread the ridge perilously close to the edge.

Our stay at the homestay, situated at the peak of the village, showcased the locals' resilience in agriculture and year-round tourism. A visit to Kye Gompa, a Tibetan Buddhist monastery dating back to the 11th century, added a rich cultural dimension to our study. Encountering another snow leopard near Langza village and witnessing a Himalayan red fox foraging highlighted the ecological threats looming over this fragile ecosystem. Despite being in awe of the ecosystem's beauty, concerns about its long-term sustainability lingered in our minds.

– Subir Ghosh
Kolkata, West Bengal

We are grateful to

SETH PURSHOTAMDAS THAKURDAS & DIVALIBA CHARITABLE TRUST

for a generous donation to the

Pratap Saraiya Hornbill Fund

to support the publication of *Hornbill*

Unusual nesting behaviour of House Sparrow

The house sparrow is a ubiquitous bird found from Europe and North Africa to South-East Asia, with introductions into South America, South Africa, Australia, and New Zealand. In India, it is a familiar sight from Leh in the north to Kanyakumari in the south and from the Somnath Temple in the west to Kamorta Island in the Bay of Bengal in the east.

Despite urbanization replacing its traditional habitats, in the wilderness and the once mud-and-thatch human dwellings, with glass and concrete, the house sparrow has adapted well.

On a sunny afternoon, near Ranikhet Sadar Bazar, we came across a pair of house sparrows near a 'mud nest'. The nest was unlike any I had seen before. It was an abandoned nest of a swallow, most likely the red-rumped swallow, as the entrance tunnel was horizontal. The female sparrow frequently visited the nest with food, revealing nestlings during feeding. Meanwhile, the male was perched nearby, calling but making no other movements.

House sparrows are known to build nests in crevices and natural vegetation, and nest boxes. The absence of such features in modern architecture has led to studies suggesting that artificial nest boxes, provide safety from weather and predators, enhancing reproductive success. In Australia, sparrows have shown adaptability, challenging the notion that natural vegetation is the only alternative nesting option.

The mating season of the red-rumped swallow lasts from April to August, during which it is known to reuse the nests, repairing or rebuilding them as necessary. It is likely that the nest was claimed by the house sparrows before the red-rumped swallow arrived, as the sparrow's breeding season begins earlier.

– Mirza Altaf Baig, Nazneen Zehra and Prof. Jamal A. Khan
Aligarh, Uttar Pradesh

ABOUT THE POSTER

The steppe eagle is a diurnal raptor belonging to the genus *Aquila*, which includes the 'True Eagles'. They are often observed roosting on the ground or in large groups in trees, especially during winters.

Endangered and migratory, steppe eagles undertake long journeys between breeding grounds in central Asia and wintering grounds in India and Africa. Their presence in Rajasthan (where this picture was taken) during March and April, coincides with the breeding season of the spiny-tailed lizard. This lizard, with its tough exterior and swift movements, is a highly coveted prize for the eagle. Capturing it requires skill and precision, yet the battle is not over upon a successful hunt, as other steppe eagles often attempt to steal the prey from the victor. In this particular case, the lizard was alive, and during the fight between eagles, it managed to escape, albeit with injuries.

Kleptoparasitism or piracy, is a fascinating behaviour observed in birds where one individual steals prey from another. Steppe eagles engage in this behaviour as they compete for ownership of hard-earned meals. Despite their regal appearance, these raptors are opportunistic hunters, often scavenging or stealing food from other predators. ■

NAYAN KHANOLKAR

Steppe Eagle *Aquila nipalensis*

NAYAN KHANOLKAR

Steppe Eagle *Aquila nipalensis*

Birds Around Valley School

Text and Photographs: **R. Subba Rao**

Yellow-eyed Babbler

I have been birding since 2002 in the wooded area of Valley School – a private day school 20 km south of Bangalore city in India. This wooded area, nestled within the Badamanavarthekaval-Agara forest, covers approximately 0.5 sq. km and includes the western segment of the Roerich estate, situated 15 km south of Banashankari. The region hosts several streams flowing during the monsoon and Agara lake, a perennial water source attracting many aquatic birds.

Over the years, I have captured over 120 bird species through my camera lens in this area. Among the feathered wonders encountered by me, some notable species include bulbuls, babblers, tits, sun birds, flycatchers, kites, cuckoos, munias, and flamebacks. This diversity has, however, diminished over the years due to development and vehicular pollution.

Indian White-Eye: While photographing these birds enjoying a makeshift shower from a watering hose, I heard their distress cries as a shikra preyed on one of them in a cluster of bamboo plants.

Indian Paradise-flycatcher: These beautiful birds grace the area every winter until March; they are my favourite subject for photography.

Ashy Prinia: This bird holds a special place in my memory as it was the first bird I captured with my digital Olympus Camera, around my house in the mid or late '90s. This moment sparked my interest in both birds and photography.

Black-naped Monarch: A stunning bird that I was fortunate to capture near my home long before encountering it in the forest.

Shikra: The second most common raptor at the site, after the black kite, this bird is not shy and holds its ground.

Small Minivet: A common bird in the area, usually seen in pairs and identified by its loud calls. A male in flight caught my attention due to its distinctive colours.

Blue-bearded Bee-eater: I captured this bird in flight. Upon reviewing, I noticed square-ended tail feathers and a blue tint on the neck. I have not encountered this elusive bird since my initial discovery.

Pale-billed Flower-pecker: Captured carrying an oversized food item, almost as large as its head, likely for its nest and chicks.

Oriental Magpie-robin: Initially unidentified, I posted a photo on a forum to confirm it as a juvenile, resolving a lingering mystery.

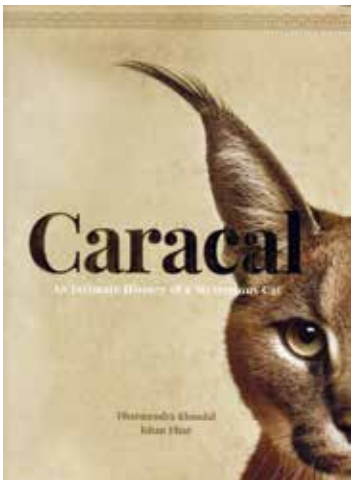
Pied or Jacobin Cuckoo: Initially recorded from a distance, I later observed and documented this bird at close quarters, known for heralding the onset of the monsoon.

Tickell's Flycatcher: A small, common bird with a distinctive cry and not shy in nature. The first time I encountered the juvenile male in eclipse plumage left me undecided on its charm compared to the adult.

The lessons that I have learned over my years of birding include the importance of patience in bird photography, avoiding sudden movements that may disturb the birds. Techniques for locating birds involve following sounds, observing environmental cues, and recognizing subtle movements such as leaves or branches. Camouflage often hides birds, requiring careful observation, and shadows on the ground can reveal birds during scarce sightings. Capturing birds in flight, unintentionally or planned, highlights the intricate wing architecture and colours.

Continuous photography advancements contribute significantly to capturing birds in motion. Autofocus technology, servo mode autofocus, and eye detection have revolutionized wildlife photography, though challenges persist in capturing fast-moving subjects. The accidental nature of photographing birds feeding in the wild is common, with surprising discoveries while reviewing, particularly with telephoto lenses. While the area's bird diversity has diminished due to development and pollution, the thrill of birding persists throughout the year, with some species becoming less frequent or disappearing entirely. ■

R. Subba Rao, 78, recently retired from a demanding career as a cardiac surgeon, remains busy with his hobby of nature photography.



Caracal:
An Intimate History of a Mysterious Cat
by: Dharmendra Khandal and Ishan Dhar
Published by: Tiger Watch, 2024
Size: 29 x 22 cm
Pages: xiv +339
Price: ₹ 3,850/-
Hardback

Reviewed by: **Dhirendra Devarshi**

When I first learned that Dharmendra Khandal and Ishan Dhar had authored a book on the caracal in India, I was rather intrigued. I wondered what the authors could have possibly discovered about this enigmatic and little-known small cat species that merited an entire book!

I had reasons for measuring my expectations judiciously. Since childhood, I have been fascinated by the caracal, historically known in India by the Persian name Siya Gosh. I first read in a 1980 reprint of S.H. Prater's THE BOOK OF INDIAN ANIMALS that the caracal was a rare and elusive animal on the verge of extinction in India. The book, first published in 1948, elaborated on the dearth of information about the caracal in the wild in India. Much later, I found a slightly longer description of the species in T.J. Roberts's (1997) MAMMALS OF PAKISTAN. Later still, I was surprised that A.J.T. Johnsingh and Nima Manjrekar's (2012) valuable and elaborate two volume set MAMMALS OF SOUTH ASIA, had only one mention of the caracal in a chapter on small cats, authored by Shomita Mukherjee.

Now that I finally have the book before me, it is a revelation! Every page is an unprecedented treasure trove of information. The references section spans 457 works, and the authors follow an in-text citation style that allows the reader to trace and examine the data sources easily. It is notable that 27 of these references are from the *Journal of the Bombay Natural History Society*, highlighting the importance of this longstanding journal to such ground-breaking research. The book is a must-have for discerning readers interested in the wildlife of the Indian subcontinent, mammals in general, carnivores, small cats, and, of course, the caracal. Additionally, this book should be procured by all educational institutions that teach biology, ecology, or wildlife science, and by research institutions engaged in the same fields.

The book extensively covers all there is to know about the caracal's biology, ecology, and historical relationship with humans in India and beyond. There is also a fascinating and detailed chapter on the historical and contemporary distribution of the caracal in India. The book, by example rather than intent, provides a template for authoring a complete monograph of a species.

In addition to information collated from literature, the book features personal communications from many experts, including historians, biologists, and local community members from the caracal's historical and contemporary range areas in India. These insights add fresh and unique perspectives to the analyses presented by the authors in this seminal work.

The book is richly illustrated with photographs (both contemporary and historical), illustrations, and depictions of historical art from India and overseas. Some of these have never been published nor known to the scientific community and are a delight to examine. The authors have acknowledged and credited the sources for these images in the captions, enabling interested readers to access the sources easily and directly.

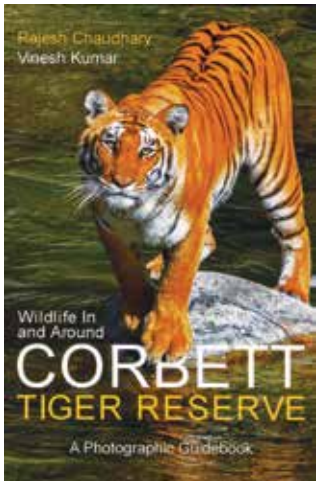
Equally noteworthy is the meticulous documentation of historical caracal specimens catalogued in museums (including those in the museum of the BNHS) and private collections in India and overseas. The locality information of these specimens has already helped map the historical distribution of this species in India, and this information will hopefully significantly aid geneticists in the future.

While the book's price may seem high at first glance, it is important to recognize that four and a half years of extensive research and groundwork went into its creation. Such research would otherwise have been unlikely to be undertaken on this species in India. It is advisable to release an electronic version of the text to reach a wider audience and to publish a simplified children's book on the species. Additionally, the font of the references section could perhaps be distinct from that of the body text.

Both authors are affiliated with Tiger Watch, an NGO that has worked in the Ranthambhore landscape for over two decades. Tiger Watch's tiger tracking and monitoring team, composed of local youth dubbed the Village Wildlife Volunteers, have gathered 274 camera trap detections of the caracal and other observations between 2015 and 2023, creating a large and unique database for this species in the country. Tiger Watch operates in the districts of Sawai Madhopur, Karauli, and Dholpur, which are crucial parts of the caracal's current range in India. Thus, the authors have an in-depth understanding of the landscapes and habitats critical to the caracal's survival in India today.

The authors' documentation of the species' putative range loss in India should raise alarm bells for all of us. It merits a larger national conversation on the next steps to conserve the species in India. They have highlighted the urgent need for more research and surveys to inform any conservation measures correctly.

Perhaps this book is just the resource needed to help scientists and conservationists chart a way forward out of this dilemma.



Wildlife In and Around Corbett Tiger Reserve: A Photographic Guidebook

by Rajesh Chaudhary and Vinesh Kumar,
Published by: Niyogi Books, New Delhi, 2023
Size: 23 × 15.5 cm
Pages: 404
Price: ₹ 1,495/-
Paperback

Reviewed by: **Asad R. Rahmani**

Starting with a cliché, the Corbett National Park and Tiger Reserve is one of the most famous tiger reserves of India. It also holds the distinction of being the country's first national park, established in 1935 as Sir Hailey National Park by the British. Setting aside these introductory prosaic expressions, I am delighted to read this book by Dr Rajesh Chaudhary, Associate Professor, Biomedical Science, Acharya Narendra Dev College, New Delhi, and the equally talented nature photographer, Vinesh Kumar. Their combined efforts, spanning six years of field visits to the Park, have resulted into an invaluable resource for tourists visiting this famous destination.

The book is a treasure trove of insights. For example, I was not aware that the Corbett Tiger Reserve (CTR) had places of mythological and historical importance, like the ancient city of Vairatpattan and temple in Sitabani jungle. Adding to the allure are the century-old, British-era guest houses, some of which tucked away in remote corners of the Park, accessible only to keenly interested wildlife enthusiasts.

While the brochures, books, and research papers on Corbett TR tell us that nearly 500 bird, 55 mammal, 156 butterfly, and 100 tree species are seen in the Park, this book surpasses the standard information, presenting informative vignettes that reflect the scholarly depth of the professor-writer. For example, 'Communication in Deer' (page 62), 'Mammals that were once seen or common in CTR and Surrounding Areas (page 83), 'The Mystery of the Peafowl Train' (page 92), 'Bird Egg – A chamber where life is fashioned' (page 101), and 'Some Facts About Butterflies' (page 265), are interesting to read.

Following the customary Introduction, the book delves into a chapter on mammals, prominently featuring the majestic tiger that one cannot live without appreciating; every sighting is glorious, every miss a deep frustration. The 'Prince' of the Indian jungle, the leopard, follows soon after with lovely pictures highlighting its lithe and spotted exquisiteness. Every species has two or three pictures and informative text. I like the subchapter on Asian elephant, my favourite animal.

The first few chapters prepare you for the brilliant information to follow on bird, reptile, amphibian, butterfly, dragonfly, and plants. It is a book to be read at leisure after returning from a safari, or to be used in the field for quick species identification (although not a true field guide). The images are excellent, and book's brilliant design enhance the reading experience. The map on page 369, illustrating the Ecotourism Zones in CTR, is an exceptional addition. This map is accompanied by maps of different tourist zones providing valuable information for safari operators and tourists about their allocated safari zone.

Overall, this is a wonderful book of both known and unknown facts about CTR and its inhabitants. Even after nearly five decades in the wildlife field, I found myself learning many new things. I strongly recommend it to the Uttarakhand government and Park authorities for promotion, ensuring visitors leave the Park with a deeper understanding of its biodiversity. The book should be placed in every resort around Ramnagar and other areas. Unfortunately, most tourists visit the place to see the tiger, and most often they return disappointed. With this book in hand, they might discover the beauty in a Common Silverline (butterfly), bristled grassbird, Indian muntjack, stream glory (damselfly), or Indian rosewood (tree). The book conveys that beauty lies everywhere in the Park, even dung piles of elephants reveal many secrets to those with an observant eye.

Acquiring this book before you visit the Park will transform your safari into a memorable experience. Our *granths* tell us "*kan kan mein bhagwan*", this book reinforces that there is beauty in every species in the Park – one just needs to enjoy their glory. If this book manages to shift focus of the tourists from megavertebrates, it would mean that it has played its role successfully.

Mountain Memoir:
A day beyond the clouds

Text and Photographs: **Atharva Singh**

Today, on the second day of fieldwork in the high-altitude mountains, I awoke before my alarm, feeling acclimatized to the altitude. Gone was the sleep inertia; all I needed to kick-start the day was a steaming cup of black coffee. The scent of kerosene wafting from the Bhukari (a traditional Himalayan room heater) in the kitchen filled me with the courage to leave the cozy warmth of my sleeping bag.

Entering the kitchen, I was greeted by Agya Karma, addressed as agya meaning elder brother in Bhutia. He peered out the small window and asked, "Are you sure you guys can do the fieldwork today?" Karma, a resourceful local from Sikkim's stunning high-altitude Gnathang village, in Gnathang Valley, is hardworking, humble, and possesses a delightful sense of humour. He exemplifies the typical traits of mountain folk: humility, industriousness, helpfulness, and humour.

Looking outside, I beheld a scene fit for Santa's sleigh, with a foot of freshly fallen snow covering the landscape. The overnight snowfall had rendered our field sites inaccessible. Consequently, my team decided to take the day off, allowing me to back up my data and ensure my equipment was fully charged. Power outages in this weather are not uncommon in the mountains.

After completing my tasks, I glanced at my watch; it was only 7:00 a.m.! Time seems to stretch in the high-altitude mountains, where every moment feels more profound. Spending the day indoors felt like falling into a time trap, especially knowing that our study species, including pheasants and finches, would likely be embarking on altitudinal migrations triggered by the sudden weather change.

A valley blanketed by clouds, with the Khangchendzonga Range in the background

Recalling the words of a fellow mountaineer from my past fieldwork in Ladakh, "There is no such thing as bad weather in the mountains, only bad gear, mate!" I realized the truth in this statement. While we cannot control the erratic mountain weather, we can control our preparedness. This philosophy extends metaphorically to life itself.

Without hesitation, I geared up and set out to explore the northern ranges of Pangolakha Wildlife Sanctuary, the largest sanctuary in Sikkim. The sanctuary boasts a range of vegetation, from subtropical to alpine, and is home to elusive species like the red panda, snow leopard, musk deer, satyr tragopan, and Himalayan black bear. Bordering the forests of Bhutan and China, it's a region of incredible biodiversity.

As I ventured out, the biting wind from the surrounding mountains greeted me. My goal was to conduct a reconnaissance survey, exploring new habitats for pheasants and finches a few miles from the valley. Setting my watch and GPS, I embarked on the trail.

Walking away from Gnathang Valley, the only sounds were the rushing wind and the crunch of snow underfoot, punctuated by the occasional sleet shower. I couldn't help but think, "Not a perfect day for a walk, eh?" Yet, as I neared the halfway point of the reconnaissance site, I paused to catch my breath. At over 4,000 m, even a simple act like walking becomes challenging, highlighting the importance of acclimatization in high-altitude terrain.

As I sipped water, the weather began to clear, revealing the abandoned ruins of an army bunker amidst the open alpine meadows. These ruins, remnants of the 1967 Sino-Indian war, once held strategic importance, serving as a gateway to the Jelep La and Nathu La passes leading to Tibet, then known as "the forbidden land." The region was the highest battlefield in the world and the highest military point ever captured by Europeans.

Scanning the binoculars over the ruins, I noticed a rusted sign in Hindi warning of a minefield ahead, a stark reminder of the area's tumultuous past. It is said that some mines from the 1967 war remain active, with instances of mine explosions triggered by grazing yaks. One memory flashed back, of a day climbing that hill

with a colleague, only to find the signpost fallen by the wind. We silently erected it back, a small yet significant act of survival in such rugged terrain.

A beep from my watch jolted me back to the present; it was time to move on. As I passed through the alpine meadows, I spotted distant rhododendron patches, my reconnaissance site. The weather cleared further as I approached, revealing how topography shapes the vegetation of the mountains, evident in the varied slopes and aspects above the tree line.

Taking a meal break, I relished some chapatis, vegetables, and tsampa (roasted barley flour) packed by Agya Karma, ideal for high-altitude fieldwork. Delving into my thoughts, I marvelled at the open rhododendron patches and vast alpine meadows, defining absolute peace and silence.

A rustling behind me broke the silence, and I turned slowly, only to find a moupin pika foraging in the snow-covered bushes. Nearby, a female Himalayan monal dug and foraged, unfazed by my presence. Spotting two males nearby, I observed their vibrant, iridescent feathers, a spectacle of nature's beauty. It was my first close encounter with these birds in the wild, a truly mesmerizing sight.

Reflecting on the importance of alpine ecosystems, I realized their fragility in the face of anthropogenic threats. Despite being listed as Least Concern on the IUCN Red List, the Himalayan monal faces habitat degradation, poaching, and climate change, highlighting the urgent need for conservation efforts.

Another beep from my watch reminded me to continue my survey. Watching the Himalayan monal fade into the mist, I took it as a gentle reminder of life's impermanence and the need to cherish the present. It seemed these elusive species understood the purpose of my visit, not seeing me as a threat. As daylight waned, I decided to head back to base, knowing the weather could change rapidly in the mountains.

I always assign a search time and a rendezvous point to my team. If I am not seen at the mentioned site and time, means it's time to find me! It has proven to be handy in several occasions during our fieldwork in the mountains.

Himalayan Monal (male) in its typical habitat

Contemplating the significance of these ecosystems, I was struck by their fragility. Threats like habitat destruction and climate change loom large, underscoring the urgency of conservation efforts.

As I made my way back, I felt a deep sense of gratitude and a duty to protect these delicate ecosystems. I recalled the words of Yvon Chouinard, the founder of Patagonia, "The hardest thing in the world is to simplify your life; it is so easy to make it complex."

Navigating down the valley, the headlights of our field vehicle beckoned in the distance. As I approached, our driver and field assistant, Mr Baleshore Thapa, greeted me eagerly, asking, "Did you find something?" I replied, "Yes daju! Something you wouldn't want to miss."

Back at base, Agya Karma had prepared the best Thukpa imaginable. After dinner, I shared my sightings with the team, and we adjusted our survey strategy for the days ahead. With bedtime approaching, we retired for the night, the day's adventures etched into my memory forever. ■

Atharva Singh, Scientist - B, BNHS, works in high altitude landscapes of the Eastern Himalayan region. His research interest lies in studying ecological patterns and geospatial tools addressing problems related to high-altitude ecosystems. A native of Darjeeling hills, he is deeply passionate about conserving alpine tundra habitats.

The Silk Route winds through the Pangolakha Wildlife Sanctuary

Birding on the Silk Route and East Sikkim

Text and Photographs: **Ram Gopalakrishnan**

Birding on the Silk Route promised a captivating blend of history, geography, and birdwatching – an irresistible concoction that had me hooked from the moment I first heard about it. Renowned since ancient times as the trade route from the Bay of Bengal through Sikkim into Tibet, the Silk Route evokes images of adventurous traders navigating breathtaking mountain passes, exchanging horses, silk, and spices in exotic foreign lands. The ancient path from Lingtam to Padamchen, traversing the Pangolakha Wildlife Sanctuary to Zuluk, the Nathang Valley, and finally Nathu-la Pass, adds an extra layer of allure to the journey.

Our expedition began with a drive from Bagdogra to Rangpo, where the road turned east along the Rangpo River, leading us to join the Silk Route just beyond Rongli at Lingtam. Our first night was spent at a homestay in Padamchen, where the morning sun's rays, following a night of heavy rain, lifted our spirits. Steep, towering green mountains of the Pangolakha Wildlife

Sanctuary surrounded us, creating a mesmerizing backdrop. Adjusting our schedule to coincide with the morning activities of pheasants, we ventured forth, navigating the winding roads that took us past Zuluk (2,865 m) and Thambi Point (3,536 m), only to be halted by iced-up roads at 3,658 m.

The excitement reached a peak when our group leader, Mandar Khadilkar of Nature India, exclaimed, "Great God, it's the great parrotbill!" This elusive and largest member of the parrotbill family, resembling a babbler, was a long-awaited lifer for me. The birding experience, enhanced by the backdrop of Khanchendzonga and the snow-dusted mountains, surpassed our expectations. Despite the challenges posed by overnight snow, I relished the sightings of the grey-sided bush-warbler (another lifer), alpine accentors, the vibrant Himalayan white-browed rosefinch and the fire-tailed myzornis within touching distance.

The afternoon was dedicated to exploring the Sanctuary fringes around Padamchen, where commoner lower altitude species, including yuhinas, minlas, and warblers, made appearances. Our search for the rare blue-fronted robin led us to the white-tailed blue robin, while a black-throated prinia became another lifer. The return to Pangolakha rewarded us with a golden-breasted fulvetta and the majestic Himalayan monal. The fire-tailed sunbird could not make up its mind whether to display its "on fire" back and tail or it's golden belly to the rays of the sun. The long down-curved bill of the slender-billed scimitar-babbler would surely be identified by even the beginner. On the way back to Padamchen, photographs of the rufous-winged fulvetta preceded an even more treasured sighting: brown parrotbills clambering up and down a bamboo tree like little monkeys. As the altitude rises above the tree line, the numbers and species of birds drop, but spectacular indeed are the specialists that inhabit this zone.

Continuing our journey, we retraced our steps along the Silk Route, heading north to Pakyong and then east to Khimseeka for birding in the forest fringes. Morning brought the enchanting call of a bay woodpecker, setting the tone for a day filled with sightings, including the red-faced liocichla and a variety of cuckoos. The forest revealed pocket powerhouses like the golden-throated barbet. The day's tally reached an impressive 51 species.

This being the month of April, a panoply of unseen but raucous cuckoos (Indian, Himalayan, common and large hawk) kept up an unrelenting background score. A little pied flycatcher and a fire-breasted flowerpecker were seen right near our homestay. Piculets are pocket powerhouses of the woodpecker family and we saw both the Speckled and the White-browed: the latter

Great Parrotbill

Spot-bellied Eagle-owl

White-browed Piculet

permitting us detailed shots while pecking away in staccato fashion at its favourite bamboo. The golden-throated barbet had even more golden on its head than its throat. A pale blue flycatcher obligingly settled on a twig and allowed us to video its call. The piercing metallic tweets of the pygmy cupwing were a dead give away for this tiny undergrowth skulker. Fifty-one species for the day!

Amidst the forest trails, encounters with laughingthrushes – common white-throated and striated as well as the rarer grey-sided , specially the Himalayan, elevated our excitement. The hunt for the elusive large hawk-cuckoo, identified by its shrill tones, was finally rewarded. Our guide, Suraj Khulal, led us to a remote spot where the spot-bellied eagle-owl awaited, providing a magnificent finale to our four-day birding adventure.

And there literally was dessert after the main meal: a delicious home-cooked meal with completely home sourced food including ghee, curds and vegetables at Suraj's homestay. Not done yet: its distinctive two-toned metallic call led us to a chestnut-winged cuckoo, and a lesser necklaced laughingthrush followed. What a finale to four days of birding!

Yet, amidst the awe-inspiring natural wealth of Sikkim, a stark reality emerged – the urgent need for conservation. Unregulated development, housing construction, and unchecked tourism threaten the richly forested lands of East Sikkim. A call for designated conservation areas and stringent measures to protect untouched regions is imperative to preserve the ecological balance.

As we bid farewell to the Silk Route and East Sikkim, the allure of their natural wonders and avian treasures lingers – an invitation to explore and conserve this enchanting realm. ■

Pygmy Cupwing

Ram Gopalakrishnan is a physician practising in Chennai. He enjoys birding in remote locations and hopes to stimulate love for nature and its conservation through his writings.

Hopes for the Wild Water Buffalo

Text: **Kishor Rithe**

P.M. LAD

A rare picture of a wild water buffalo herd, captured by the late Mr P.M. Lad in the Pamed Wildlife Sanctuary of Chhattisgarh state

KISHOR RITHE

Habitat management efforts in Udanti Wildlife Sanctuary, Chhattisgarh

Some of India's wildlife species are in urgent need of attention to ensure their survival on Earth. This is particularly true for species that depend on terrestrial waters impacted by climate change, and increasing water-related needs of humans. These species require special focus and extraordinary conservation efforts, both in-situ and ex-situ, with specific scientific management prescriptions. However, standard projects and existing administrative frameworks may not suffice for such ambitious goals for the long-term survival of these species. It requires passionate leadership, expert collaboration, and political patronage. One such species in immediate need is the wild water buffalo *Bubalus arnee*.

The wild water buffalo, also known as Arna or Arni (Hindi), is considered one the most economically important animals, as it is the ancestor of the domestic buffalo. However, it is currently listed as Endangered on the IUCN Red List (2016) and faces threats such as poaching, habitat loss, and genetic pollution from hybridization with domestic stock.

The International Commission on Zoological Nomenclature (2003) ruled that the name for this species is invalid, despite being antedated by a name based on a domestic form. Therefore, IUCN considers the wild forms of water buffalo under *Bubalus arnee*, while the domestic forms are considered under *B. bubalis*.

Distribution and Geographic range

During the Pleistocene epoch the genus *Bubalus* was widely distributed throughout Europe and southern Asia and contained forms conspecific with *B. arnee*. When the climate became drier the genus became restricted to the Indian subcontinent, mainland South-East Asia, and some of the South-East Asian islands. In historical times *B. arnee* ranged across South and South-East Asia, occurring from Mesopotamia to Indochina.

It is native in origin from Bangladesh, Bhutan, Cambodia, India, Indonesia, Lao People's Democratic Republic, Myanmar, Nepal, Sri Lanka, Thailand, and Vietnam. Remnant populations of the wild water buffalo are thought to occur at single sites in each of southern Nepal, southern Bhutan, western Thailand, eastern Cambodia, and northern Myanmar, and at few sites in India, predominantly in Assam.

The species is believed to be extinct in Bangladesh, Peninsular Malaysia, Vietnam, Myanmar, Lao People's Democratic Republic, Sri Lanka, and Cambodia and on the islands of Sumatra, Java, and Borneo.

The domestic form (considered by IUCN as *B. bubalis*) occurs as feral and domesticated populations worldwide. While it is essential, discussing the wild type strain of the remaining global buffalo population may prove fruitless. There are several research articles that discuss whether the surviving stock in their historic range descended from domestic buffalo or their wild counterparts.

Population

The global population of the Asiatic wild buffalo is likely under 3,400, with fewer than 2,500 mature individuals, inhabiting an area of less than 20,000 sq. km. This signifies an estimated population decrease of at least 50% over the last three generations for certain populations

KISHOR RITHE

Enclosure of the Captive Breeding Centre within Udanti Wildlife Sanctuary, Chhattisgarh

(generation length estimated at 8–10 years). However, these figures are approximations, as distinguishing between free-ranging domestic buffaloes, feral buffaloes, truly wild buffaloes, and hybrids between wild and other buffaloes is challenging. This difficulty arises because some domestic populations may closely resemble or even be identical to the wild species. For instance, in Cambodia and Kaziranga, traditional husbandry practices blur these distinctions. While there have been few rigorous analyses of the purity of remaining populations, some feral and domestic groups may harbour genetic diversity crucial for conservation, particularly in regions like Indochina.

KISHOR RITHE

Sambar poaching was detected by the author during a field survey in Kolamarka Conservation Reserve in Gadchiroli district

In India, preliminary genetic studies suggest relatedness between north-eastern and central populations, with Kaziranga samples showing differentiation into wild, mixed, and feral clades. Central Indian populations, however, lack such distinctions. Estimates for north-east India initially suggested a population ranging from about 3,300–3,500 animals here alone, later revising the figure to 2,800–3,000 individuals, although recent figures may be lower.

In Central India, population estimates vary widely. For instance, in Chhattisgarh, estimates range from 26 to 240 wild buffaloes in different areas, with significant declines noted over the years. Reports indicate dwindling numbers, with some areas facing local extinction. Presently, Udanti Wildlife Sanctuary (WLS) houses only nine wild buffaloes, with concerns raised about the survival of the species in the region. Efforts to assess and conserve populations have been initiated, such as the Kolamarka Conservation Reserve in Maharashtra, reporting a population of 22 wild buffaloes.

KISHOR RITHE

A male wild buffalo attempting to mate with a female domestic buffalo in Jugad village, near Udanti Wildlife Sanctuary in Chhattisgarh, highlights the alarming situation in the wild

Overall, over three decades, the population in central India has witnessed a significant decline. The majority of the wild water buffalo population in India is concentrated in the north-eastern states, with Assam accounting for almost 82% of the population spread across approximately 20–23 protected areas of the state. Kaziranga National Park harbours the largest aggregation, with approximately 2,600 individuals, followed by Manas National Park (*c.* 250) and Dibru-Saikhowa Wildlife Sanctuary (*c.* 400), supporting significant populations.

Outside Assam, small populations are reported in Meghalaya, Arunachal Pradesh, West Bengal, and Bihar. Meghalaya likely hosts a few dozen individuals, primarily in Balapakram and Nokrek National Parks. Arunachal Pradesh, despite being an unlikely habitat, may still have some individuals in select regions, although populations have likely declined. West Bengal, historically home to several sub-populations, no longer supports wild buffaloes, with the last sightings dating back to the early 20th century. Bihar, once home to distributed populations, now faces local extinction since the 1960s.

Habitat and Ecology

Wild water buffalo are highly dependent on the availability of water. Historically, they favoured habitats such as low-lying alluvial grasslands, including lakes (*bheels*) and their surrounds, river banks, and *chaporis* (small sandy islands within braided river systems). They also utilized riparian forests and woodlands. However, their present distribution is limited to areas where human activities have been largely excluded. In Nepal, they are found in seasonally flooded grasslands and mixed forests of the Saptkosi floodplain. In Bhutan and Assam, they inhabit alluvial grasslands along the Manas and Brahmaputra rivers. In the Bastar region of Madhya Pradesh (now Chhattisgarh), they inhabit tropical dry deciduous forests with a grass-dominated understorey. In Thailand, they are restricted to grasslands, mixed deciduous forests, and dry evergreen forests along rivers in the Huai Kha Khaeng Wildlife Sanctuary. In Sri Lanka, they are associated with grasslands, scrubby grasslands, and discontinuous forest areas, spending more time in forested areas during the dry season.

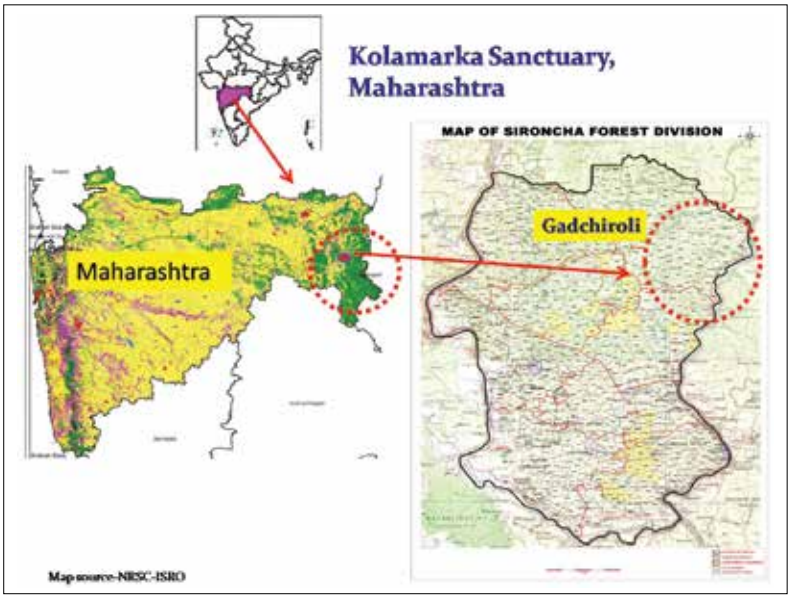
Wallowing Behaviour: Wild water buffalo spend significant amounts of time lying and wallowing in pools of water and mud. Where large pools of water are not available, the buffalo will make use of smaller depressions, providing some moisture remains which they can churn

to a muddy consistency. Wallowing has a thermoregulatory function, as buffaloes have fewer sweat glands per unit area of skin than cattle, making evaporative cooling through sweating less effective. Mud is considered more effective at cooling animals than clean water because the water held in the mud evaporates slowly, prolonging the cooling effect. Wallowing also provides a thick coating of mud on the body that protects the animals from insect bites.

Ranging Ecology: Research in Assam and Sri Lanka has shown that herd movements are closely related to climatic factors, with buffaloes being widely dispersed in small herds during the wet season, but gathering at permanent water holes in large aggregations during the dry season. In Udanti WLS, the home range of wild water buffalo is almost fixed, ranging between 15–20 sq. km, mostly around permanent water holes with no human disturbance. Daily movements include feeding in the open at dusk and dawn, moving into cover or lying in wallows during the heat of the day.

Human Disturbance: Wild water buffalo are generally averse to human disturbance and seek refuge in remote habitats, except for solitary bulls seeking domestic buffalo for mating. In some areas, such as Indravati and Pamed, the buffalo prefer to come out only at night, although they are normally diurnal.

Diet and Feeding Behaviour: Wild water buffalo are likely grazers by preference, feeding mainly on grasses when available, but also consuming forbs, fruits, bark, and browsing trees and shrubs. They have been reported to feed on crops such as rice, sugarcane, and jute, sometimes causing considerable damage. They are selective feeders and may wander long distances in search of food, sometimes invading farmland to depredate crops.



COURTESY: MAHARASHTRA FOREST DEPT.

Despite various challenges, Kolamarka Wildlife Sanctuary has played a significant role in conserving the wild water buffalo with the support of the forest department and local communities

Local community and insurgency

Extensive livestock grazing can lead to severe resource competition for the wild water buffalo, including pasture depletion and lack of water resources, potentially resulting in direct conflict. In areas of central India where the buffalo exists, there are often difficulties related to insurgency and law enforcement. Consequently, conservation efforts in such areas are challenging without the support of local communities.

Out of the estimated global population of 3,400 wild buffaloes, approximately 3,100 (91%) are found in India, mostly in Assam, with less than 60 individuals in Central India. They are reported in Udanti-Sitanadi and Indravati in Chhattisgarh, and Kolamarka in Maharashtra. These two populations are within protected areas: Udanti-Sitanadi Tiger Reserve, Indravati Tiger Reserve in Chhattisgarh, and the bordering Kolamarka-Kopela forest in Maharashtra. The Kolamarka-Kopela forest forms a compact habitat together with Indravati Tiger Reserve of Chhattisgarh.

In November 2012, the Government of Maharashtra organized a national workshop on 'An Action Plan for Conservation of Asiatic Wild Buffalo in Central India' in partnership with the International Union for Conservation of Nature, IUCN SSC Asian Wild Cattle Specialist Group, Satpuda Foundation, and Wildlife Trust of India in Nagpur. The workshop assessed the population and drew up a draft national action plan to increase the central Indian population from approximately 60 to 200 wild water buffaloes. The plan emphasized the need for proactive conservation actions, habitat restoration, and a breeding programme for pure wild stock.

In response to the critical situation discussed in the workshop, the Government of Chhattisgarh initiated a conservation breeding programme. They placed the last remaining buffalo population (all males) in an enclosure

at Udanti WLS with only female (disputed) and later brought in a few individuals from Assam for conservation breeding, which will determine the fate of wild buffaloes in Chhattisgarh. I am skeptical about the project's success because approximately 4,000 domestic buffaloes and village cattle continue to roam in Udanti WLS, posing risks of spreading disease and interbreeding. Despite three meetings held by the CEC of the Supreme Court in 2006 and 2007, which established a Task Force and urged the state to expedite the relocation of three villages – Jugad, Bargaon, and Sahebin – there has been little significant progress.

Following the workshop, the Government of Maharashtra began conservation efforts in Gadchiroli district to protect the last remaining population of wild water buffalo. Despite opposition, the state government declared Kolamarka forest as a conservation reserve in January 2013 to conserve the wild water buffalo. To involve the local community in habitat management, the government initiated water conservation and desilting of lakes and water bodies, aiming to stop community hunting of the animals. These efforts, along with village development works, brought people closer to the forest department. The population monitoring was challenging, so the forest department involved local youth in estimation and conservation activities, resulting in an increase in the population to 22 individuals in 2017.

COURTESY: MAHARASHTRA FOREST DEPT.

Delegates participated in a brainstorming session during the 2012 International Conference in Nagpur

In 2022, the Kolamarka Conservation Reserve was upgraded to a wildlife sanctuary, known as Kolamarka Wildlife Sanctuary. This sanctuary is expected to play a significant role in the conservation of wild water buffalo in the central Indian landscape. Despite facing threats from naxalites and challenges related to accessibility and lack of staff, the success of the conservation efforts in Kolamarka can be attributed to the collaborative efforts of the forest department and local communities.

Conservation breeding of the Wild Buffalo:

The Maharashtra Forest Department's in-situ conservation efforts need to be strengthened further by initiating ex-situ conservation. Combining in-situ and ex-situ conservation efforts can accelerate conservation and help increase the population. In February 2024, the Maharashtra State Board for Wildlife decided to focus on the conservation breeding of wild buffaloes and reintroduce them in potential habitats in Central India. As no buffaloes occur south of the Godavari river in India, conservation breeding in Maharashtra to translocate them to forests in the Kanha and Pench landscape around dams and perennial rivers like Pench, Wainganga, Pranhita, and Indravati will be crucial. The BNHS has been tasked with preparing the proposal for conservation breeding and reintroduction in potential areas in central India.

It is crucial to establish a captive-bred population of genetically pure wild water buffalo in Central India for restocking wild populations through reintroductions in their original habitat. To achieve this, a Captive Breeding Centre is proposed to be set up in the Gorewada Zoo at Nagpur. The success of this programme would not only aid in the recovery of the wild water buffalo, but also contribute to the restoration of grasslands and swamp habitats, as well as support global conservation efforts for the species.■

Kishor Rithe, Director, BNHS, has been working for wildlife conservation through sustainable livelihoods, conservation action, advocacy, and policy for over three decades.

Published on March 29, 2024 by the Honorary Secretary for Bombay Natural History Society, Hornbill House, Dr Sálim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai 400 001, Maharashtra, India.

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