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Published and printed quarterly by Dr. A.M. Bhagwat 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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Conservation at a crossroads!

It gives me immense pleasure to don a new hat as Director of BNHS and write to you.

We as a nation are at a crossroads. We have explored only one-third of our developmental potential. In the environmental context, we have destroyed one-third of our natural resources, while two-thirds are awaiting their turn – an interesting and telling perspective from Mr. Homi Khusrookhan, President, BNHS.

The pace of environmental clearances to large projects without due diligence is indeed worrisome. Though there cannot be second thoughts about the need for us to develop, the blindfolded pursuit of development brings all species and habitats to the brink of collapse.

There are several high profile issues currently under debate. Be it the 780 MW Nyamjang Chhu dam, to be constructed on Nyamjang Chhu river, that will submerge a wintering site of the rare Black-necked Crane; or the proposed expansion of NH 7 that will cut through one of the finest forests of Central India; or the proposed Sewri Nhava-Sheva Sea Link, which if not realigned, will pass through the heart of the foraging area of more than 40,000 flamingos in Mumbai; or the proposed Poshitra Port which will completely destroy one of the finest coral reefs of the Gulf of Kutch. Several such issues can be added to this list.

Linear projects such as highways through forests or forest corridors are insidious killers. Take the case of the busy Aurad-Sadashivgad State Highway 34, which passes through Dandeli-Anshi Tiger Reserve in north-west Karnataka. It has claimed the lives of 50 animals so far, of which six are individuals of the King Cobra that have been killed in the past two years alone. The expansion of NH 7 will impact two wildlife corridors – Pench-Kanha and Pench-Nagzira. Road kill count on NH 7 is also not ordinary. Take a look at the report of the Wildlife Institute of India, which includes a total of road induced kills of 272 mammals, 143 birds, 490 snakes, and 183 anurans in a span of 430 days of the study. If one takes a look at the national and state highways pan India, one can imagine the extent of wildlife decimation on the roads.

While the focus of conservation advocacy is primarily charismatic species like tigers, elephants, and rhinos, many species not as charismatic disappear unknown to us. At BNHS, however, we focus on all species, with special focus on the non-charismatic species. Take the case of the endemic Sea Slug *Sakuraeolis gujaratica*. This tiny, but astonishingly beautiful sea slug (Phylum Mollusca) is probably the world's most narrowly distributed marine faunal species. The global distribution of this species is confined to less than 300 sq. m within Poshitra Bay. The BNHS team is currently studying this species to develop a species conservation and recovery plan.

Another example is that of the Kondana Soft-furred Rat *Millardia kondana*, which was first described in 1975 from Sinhgad, Pune, Maharashtra, the only known site, measuring about 23 ha, for the species. Considering its extremely small range of distribution and declining habitat, IUCN Red List of Threatened Species 2015 classifies it as Critically Endangered. BNHS initiated a project in 2012–2014 to collect baseline data on distribution, population, habitat requirement, and threats to the species. We have discovered several new populations, estimated occupancy and population, determined habitat requirements, uncovered threats, and created public awareness for conservation of the species. Presently, we are working with the Forest and Archaeological Departments of Maharashtra for developing a policy for its long-term conservation.

Take the case of Giant Clam *Tridacna* sp., which are world's largest bivalves growing up to 1 m that can live up to 300 years. For the past 11 years, BNHS scientists have generated profound information on the population ecology of three species of giant clams from Lakshadweep and



Andaman & Nicobar islands. These are Schedule I species of the WLPA as well as IUCN Red List as Data Deficient and Vulnerable. BNHS research has helped in developing a Giant Clam Species Recovery Plan for the Government of India.

In a landmark judgement, an Australian federal court ruled against a mining company in a bid to save the local skink and snake species. Mining giant Adani's plan to build one of the largest coal mines in Australia suffered a major setback after a court revoked its environmental approval. The federal court found that impacts had been not properly considered for two threatened and non-charismatic species, the Yakka Skink and the Ornamental Snake, in the Galilee Basin project site before granting approval to the project. The \$16.5 billion project was expected to produce 40 million tonnes of coal a year in its first phase. The case forces many of us to introspect on the ever increasing need to highlight the plight of neglected species and habitats.

But not all prospects are so gloomy. In recent times, we have had some good news too. Spotting of a mother and calf of Blue Whale by a team of young researchers Mihir Sule and Ketki Jog, part of the BNHS course on marine and coastal biodiversity, along the coast of Malvan, Maharashtra, is one such news. Recently, the Government of Maharashtra declared an area of 16.90 sq. km as Flamingo Sanctuary in Thane Creek. This is a welcome addition to the marine protected area network on the west coast, though the boundaries of the Sanctuary would have been better delineated by including parts of the mudflats of Sewri, Navi Mumbai and Uran as important flamingo feeding and roosting areas. Karnala Sanctuary was expanded by 6.85 sq. km, while 91.52 sq. km of Toranmal forest and 5.69 sq. km of Anjaneri forest have been declared as a Conservation Reserve.

On February 08, 2015, the Ministry of Commerce, Government of India, issued an order prohibiting the export and import of shark fins in India. While most of the pelagic shark populations in India have plummeted, according to recent report by Central Marine Fisheries Research Institute (CMFRI), the ban may be of help to curb the targeted hunting of large sharks. Stocks of shark, skates and rays across Indian states are declining (Kizhakudan *et al.* 2015). There is a positive movement towards developing a National Plan of Action for Sharks in India, in line with the International Plan of Action for conservation and management of sharks (IPOA-Sharks) developed by FAO.

And lastly, I have pleasure in introducing two young nature enthusiasts and members of the BNHS, Sushant More and Mandar Sawant. Sushant is doing his first year graduation in science, and Mandar is pursuing his graduation in chemical technology. Their quest to document endangered flora like *Ceropegia* is remarkable. We are proud of both these youngsters who chose to document some of the non-charismatic and lesser known species. You can see their remarkable work in a photofeature in this issue of *Hornbill*.

We hope to receive for *Hornbill* more of the fascinating work that our members are doing across India. I am also glad to share the news that *JBNHS* is now online. We have already started the online portal for manuscript submission. We hope to bring out the *JBNHS* on time with this initiative.

Deepak Apte

Reference:

KIZZHAKUDAN S.J., P.U. ZACHARIA, S. THOMAS, E. VIVEKANANDAN & M. MUKTHA (2015): Guidance on National Plan of Action for Sharks in India. CMFRI Marine Fisheries Policy Series No. 2. 104 pp.

Sri Lanka: A Haven for Wildlife

Text: Kamolika Roy Chowdhury



Bon voyage', said the young man at the counter, smiling, as he finalized the bill for the raincoat my friend had just bought. October is an odd time to purchase raincoats in Chennai, which is why he probably guessed that we had travel plans. Indeed, we were a week away from our maiden trip to Sri Lanka.

Faced with a crunch for time, but also an overwhelming desire to visit Sri Lanka, two friends and I planned a short trip to the island. Our primary objective was to see endemic plants and animals, with photography a close second. With these in mind, we zeroed in on the pristine rainforests of Kitulgala and Sinharaja, and the scrub jungles of the Yala National Park. Other interesting places, if any, could be visited in transit.

The monsoon in Sri Lanka had receded, and it seemed an utterly appealing time to visit. While rains could not be completely ruled out, the probability of fair weather was higher. Armed with a basic itinerary, we sought local assistance from Colombo for transportation and accommodation.

It was a road trip spanning across Sri Lanka (Colombo-Kitulgala-Sinharaja-Yala-Colombo) and we covered a distance of about 1,000 km in four days.

We were rewarded with sightings of 11 endemic bird species, two endemic species of primates, one endemic reptile, and several endemic plant species.

Immediately after landing in Colombo, we connected with our driver and guide. After a quick exchange of pleasantries and some basic information regarding the trip, we proceeded directly to our first destination – Kitulgala Forest Reserve.

Kitulgala, a rain forest in western Sri Lanka is an important birdwatching destination on the island. To reach the Kitulgala Forest Reserve, we first crossed a narrow stretch of the Kelani Ganga river, running through Kitulgala, in a canoe-like boat that served as the local ferry. Thereafter, a short trek of 3–4 km would reach us to the entry point of the Reserve. En route, we were greeted by intermittent showers that were moderate to heavy forcing us to scurry for cover under trees. At one point, the rains were so heavy that even our leafy covers failed to protect us and we were compelled to seek shelter in the house of a local villager, dwelling on the fringes of the Reserve. Disappointingly, the heavy rains made it difficult to pursue any photography.

Our delayed departure from Chennai and consequently delayed arrival in Colombo compelled us to alter some

▼ A bird of forests and dense scrub, the Black-capped Bulbul is endemic to Sri Lanka





KAMOLIKA ROY CHOWDHURY

of our plans for that day. The trek brought us to the gates of the Reserve. Time being a limitation, after much contemplation we decided not to enter the Reserve. If we didn't head back, we would not be in time for the next destination – Sinharaja Forest Reserve. It was frustrating having come all the way, but inevitable. We took the same ferry back, and by 5:00 p.m. headed south to Sinharaja. On the way, we sighted hundreds of Wire-tailed Swallows roosting on wires. As daylight faded and the scope for birdwatching grew minimal, we looked out for nocturnal animals. Day 1 was a dismal start marked by delayed arrival and marred by heavy rains.

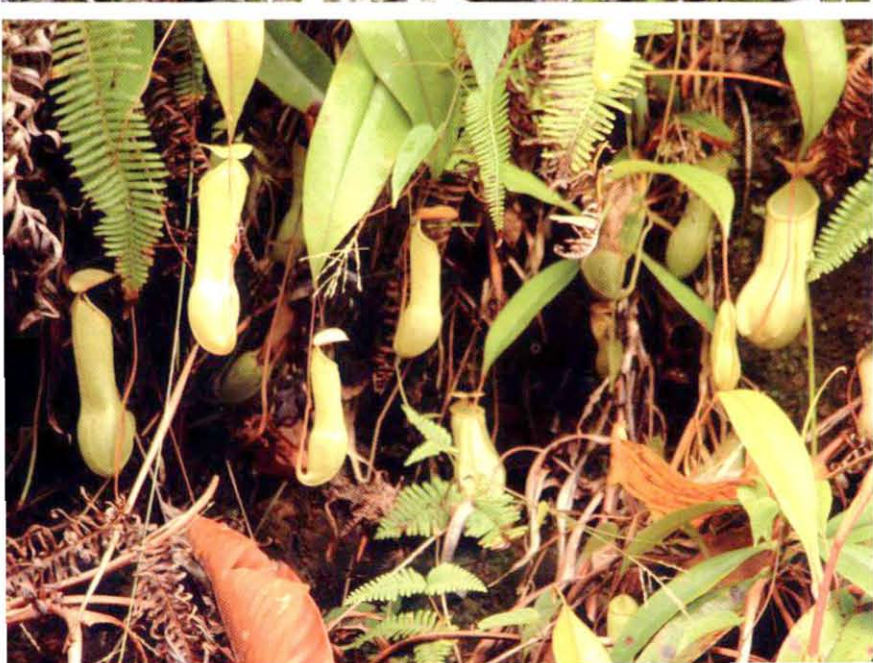


KUNAL JOSHI

Thanks to pothole ridden roads coupled with heavy downpours, our journey time to Sinharaja exceeded our expectations. It was late at night when we reached Sinharaja.

It was still dark when I woke up on my second day in Sri Lanka. As I stepped into the balcony, adjoining the room, myriad bird calls welcomed me. From among them, one call was unmistakably that of a Brown-headed Barbet, interrupted occasionally by the crowing of a Ceylon Junglefowl. The overcast sky worried me; would the Kitulgala experience be repeated? However, as daylight overcame darkness and the clouds gradually dispersed, my apprehensions were put to rest.

The scenery was breathtaking. Standing tall in front of me were the green hills of Sinharaja, the periphery dotted with tea gardens. Outside the hotel, a garden lizard basked in the sun. All around, life seemed to catch up with the warmth of the morning after the cold rains of the previous night. It was 8:00 a.m. when we left for the Sinharaja Forest Reserve.



KAMOLIKA ROY CHOWDHURY

A birdwatcher's paradise, Sinharaja Forest Reserve boasts of 21 of the 26 species of endemic birds found on the island. The endemic species on our wish list were Red-faced

Top: Kitulgala RF is an important bird watching destination

Centre: An arboreal species, the Purple-faced Leaf Monkey is found in closed canopy forests

Bottom: Pitcher plants in a forest clearing at Sinharaja Forest Reserve

Malkoha, Ceylon Blue Magpie, Ceylon Junglefowl, Ceylon Crested Drongo, Ashy-headed Laughingthrush, Green-billed Coucal and Purple-faced Leaf Monkey. It was a thirty-minute drive through winding hilly roads. As we approached the Sinharaja hills, the forest on either side formed a thick canopy over the road and shut out the greater part of the sunlight, making it dark even at that early hour of the day.

As was mandatory for all visitors to the Reserve, we were accompanied into the Reserve by an authorized guide. Throughout the trail, leeches kept us constant company. Lady Luck was kinder than the previous day. Though there were a couple of light showers, it was largely sunny.

Interestingly, barring the pair of Ceylon Junglefowl and Ceylon Blue Magpie, most of the other endemic bird species sighted were part of a mixed bird flock.

During the trail, we came across a male and female Ceylon Junglefowl that allowed us to come as close as two feet of them and yet demonstrated no fear. It was blissful to be trusted by a wild bird.

While still on the trail, a sudden commotion among the trees attracted our attention. It was a group of five or six Purple-faced Leaf Monkeys. Though the face was not exactly purple, it had a purplish hue. Shy by nature, the monkeys slowly dispersed into the rainforest, except for one bold one which stayed put.

The Red-faced Malkoha was the final sighting in Sinharaja. Though I failed to take a picture of it, the encounter is still etched in my memory. The bird had a beautiful red head that bobbed up from behind a branch full of green leaves. If not for the bright red head, it merged with its habitat. Restless, it sat briefly on a branch and permitted us just enough glimpses. It was a true beauty with a red head

Top: The dense rainforests of Sinharaja are home to a number of species

Centre: Common Green Forest Lizard is arboreal and found both in forests and human habitation

Bottom: The Ceylon Junglefowl is the national bird of Sri Lanka

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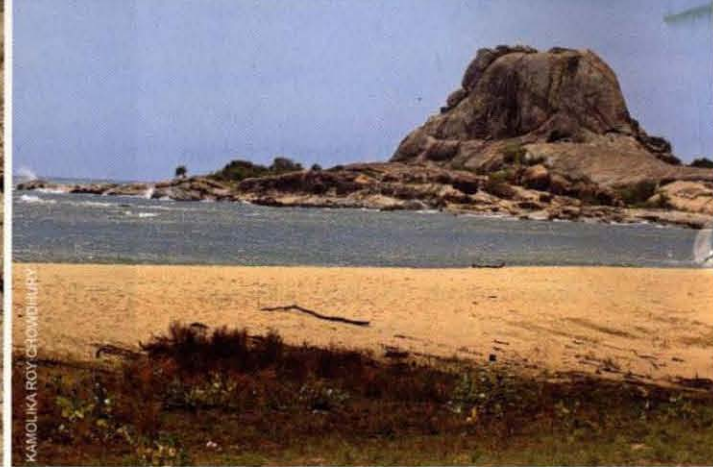


KAMOLIKA ROY CHOWDHURY





Ceylon Woodshrike is fairly common in dry zones



The mysterious Patanangala rock, Yala National Park



A herd of Asian Elephants at Yala National Park

and a bluish black body striped with white, a distinct white belly and a strikingly long tail.

The last bird on our wish list – the Green-billed Coucal evaded us till the end. Our visit to Sinharaja was certainly satisfying and given the short duration of stay, we couldn't ask for more. Onward to Day 3; the next destination on our itinerary – the Yala National Park.

It was nearing midnight when we reached Tissamaharama, the town nearest to the Park. En route we crossed Udawalawe National Park that adjoined the Udawalawe reservoir built on the Walawe river.

Of the five blocks in the Yala National Park, only Ruhuna and

Kumana are open to visitors, and the Park facilitates an organized safari within these blocks. We were told that the other blocks were closed to control the rampant poaching witnessed in the Park. Yala National Park is noted for one of the highest densities of leopard in the world.

Although this was a 6 a.m. to 6 p.m. safari, we started by 4.30 a.m., to avoid the queue for entry tickets. A monstrous looking jeep had been arranged for the safari, open on both sides with only a basic roof. I contemplated various defence tactics if attacked by an animal in the wild. Our driver, Dinesh, drove more like a formula one racing driver. He zoomed through the empty streets

at that early hour and overtook a host of similar looking jeeps, before we were the only ones rattling away on the *kuccha* road to the Park.

The first thing I noticed about the Park was the vast expanse of open land. The openness of Yala National Park was in sharp contrast to the thickly foliated rainforests of Kitulgala and Sinharaja. The Park strictly prohibits visitors from walking: one must stay inside the vehicle. The safari included a brief stopover at the beach bordering the Park, where visitors were allowed to alight. The spot overlooked the turquoise blue waters of the Indian Ocean and surely one couldn't miss the massive Patanangala Rock that projected from the sea. One will also see a memorial erected in memory of the tourists killed by the Tsunami that struck this area in 2004.

The Episode of the Leopard

Not long after we entered Yala that morning, our driver received a call on his mobile from another safari driver regarding a leopard sighting. Without further elaboration, he furiously sped on the bumpy forest road and stopped at a point where 20 more jeeps were lined up. He explained that a leopard had killed a deer that morning. It had been seen in the vicinity and was expected to return to its kill.

The carcass of a Spotted Deer lay in the dry grass 3–5 m from the dusty track. While the real owner of the kill was nowhere in sight, a Golden Jackal,



The Leopard and its kill at Yala National Park



The Golden Jackal and other predators enjoyed the leopard's kill

a family of two or three wild boars and a few jungle crows were feasting on the kill. The jackal eventually moved away, but the boars lingered. From behind the scrub jungle emerged the rosette spots of a leopard's body. It had come to claim its kill. It approached crouched on its hind legs with its tail up. We watched with bated breath. Contrary to all expectations, it was the pair of boars that chased away the leopard, which went bounding back into the jungle. The boars fed a little longer and left once they were satiated. Thereafter, the kill lay unattended.

Following this, we drove on to look for the leopard. And then someone spotted the leopard napping on a tree with its legs stretched across a branch. Convinced that it would be some time before the leopard descended, all the vehicles dispersed.

In the late afternoon, Dinesh got a call again, informing him that the same leopard had been spotted. There was a high likelihood of it returning to the kill. We drove to the spot of the kill, which was still in the open and quite accessible. A lot of it had been eaten away by passing animals. The wild boars and a pair of jackals nibbled at it. This time, the boars cleared away while the jackals stayed on. What followed next was a scene straight from a National Geographic documentary.

The leopard stealthily approached from behind the bushes. It completely ignored the hundred human onlookers



Cheek pouches enable Toque Macaques to store enough food while eating fast



Sambar in a freshwater swamp at Yala National Park

present. The jackals didn't pose much of a threat to the leopard, and least expecting such an ambush, they ran helter-skelter. It was clear that the leopard wanted its kill back. Once the coast was clear, the leopard took the kill in its mouth, gave an angry stare as if to say 'Dare if you can' and dragged it to the nearest bush. The grass concealed it. We saw no more of the leopard. The final action was over but was yet to sink in. For a long time after that, all discussions pivoted around the leopard and the kill.

On the final day in Sri Lanka, conflicting emotions of both contentment and sadness overcame

me. Our pursuits had been achieved. Like all good things, this visit too had come to an end.

Despite being an island, Sri Lanka is undeniably endowed with diverse habitats. Its rich ecosystem enables it to support a varied species of birds, animals and plants, making it a sanctuary and haven for wildlife. Interestingly, this visit could be compared to a very good film trailer. The big picture is waiting to be savoured. ■



Kamolika Roy Chowdhury is a wildlife enthusiast, nature writer and photographer.

Namdapha: A Paradise for Butterflies

Text and Photographs: Divakar Thombre



Dusky Diadem

The word butterfly immediately brings to my mind a wide spectrum of colours and patterns. I fell in love with these amazing creatures when I began capturing them with my camera about three years ago. As a layman, I was never aware of the wide diversity in this wonderful group. In an attempt to learn more about them, I sought the help of a BNHS bestseller THE BOOK OF INDIAN BUTTERFLIES by Isaac Kehimkar.

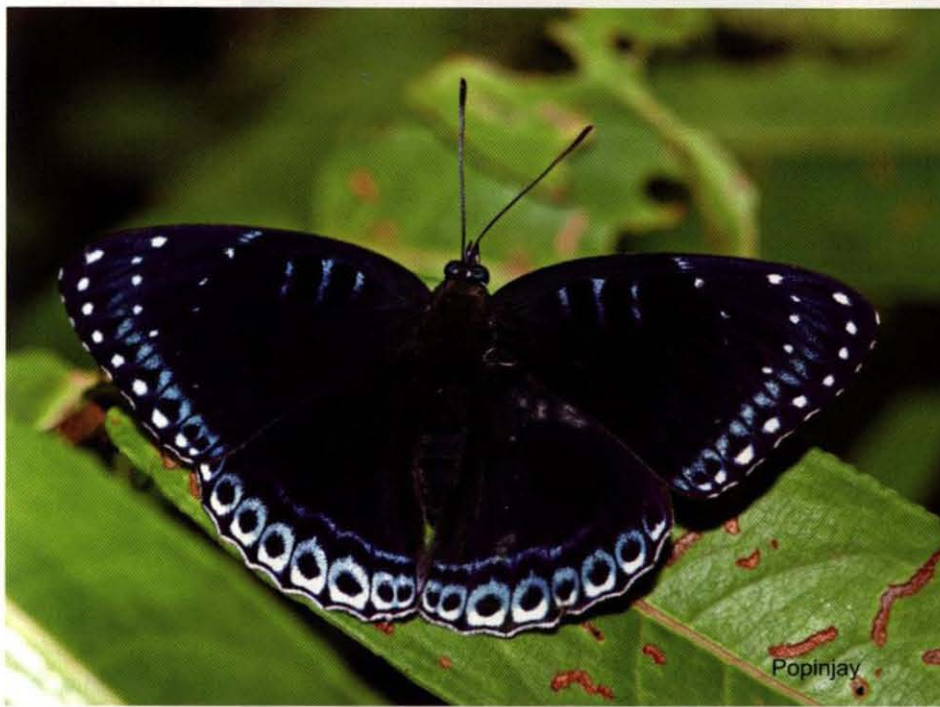
The book introduced me to a world I had neither heard of nor seen so far. I started recognizing the different species of butterflies, their key features and traits. Over a period of time, I started identifying the 'captures' in my camera. Every Sunday, my day started with visits to places like Yeoor, Nagla, Pelhar, Karnala, Chinchoti, and Tungreshwar, near Mumbai. Seeing my passion in this field, experts advised me that Arunachal Pradesh is a paradise for butterfly watching and that many of the species in Isaac's book could be sighted in Arunachal Pradesh. My mind was made up, I had to visit Arunachal. As luck would have it I soon learnt that BNHS was organizing a camp to Namdapha National Park, which would be led by Isaac Kehimkar. I immediately grabbed the opportunity, left Mumbai by flight for Guwahati, then by road to Jagoon, and later to Miao.

We started our journey from Miao to Namdapha in the morning. As we travelled, I was astonished to see the large numbers and variety of butterflies all along the road. There were species which, until then, I had seen only in books. When I could not hold myself back any further, I requested the driver to halt the vehicle. The 'gathering' included species like the Dark Archduke, Grey Count, Indian Cabbage White, Straight Swift, Pallas' Sailer, Tailed Red Forester, Purple Sapphire,

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Purple Sapphire



Popinjay



White Dragontail



Common Jester



Lesser Gull



Fluffy Tit

and the Elbowed and Straight Pierrot, among others. We saw most of them mud-puddling, a few of them nectaring on the plants. Namdapha is special as one gets to see large numbers of butterflies mud-puddling along the roads. These roads are not in good condition and the vehicles plying on them make them worse, however, this contributes to creating favourable stretches for mud-puddling!

We reached the Forest Guest House at Miao at 4:30 p.m., but the sun set at the unearthly hour of 4:45 p.m.! We soon realized that we were in the Northeast. The group leader instructed us to be ready by 5:30 a.m. the next day for a trip to Anamika Falls in Namdapha, c. 24 km from Miao. This is an open area, and since it has a waterfall, the soil is damp everywhere.

We reached the site at around 8:00 a.m., but were disappointed to find nothing around, and grew increasingly impatient for the Namdapha 'beauties' to arrive. The ideal situation for butterflies to be seen is the presence of bright sunlight falling directly on damp patches in forests, perfectly like in Anamika Falls. Soon the sun started shining on the damp patches, and the butterflies started arriving. I first saw a White Dragontail mud-puddling; one could easily mistake them for dragonflies because of their coloration. So bedazzled was I that I forgot to take pictures and kept marvelling at this beauty. However, I soon recovered and started clicking this endemic beauty, until I noticed a Common Jester very close to me. I was drawn to its colours which were totally different when it closed its wings (yellow with dark reddish brown markings) and opened them (dark brown with yellow or tawny markings).

Other butterfly species started arriving at the damp patches one after another. We were all amazed as now we could view two or more butterflies in the camera view finder, and were confused on which to shoot. Within a short while, the butterflies were arriving like beautiful models, one after another, on a ramp walk, and we were the shutterbugs



Common Maplet

desperately trying to photograph them. All I could hear around me was the sound of camera clicks. The subjects included the Long-banded Silverline, Colour Sergeant, Courtesan, Constable, Fluffy Tit, White Dragontail, Plain Puffin, Powdered Baron, Straight Pierrot, and Purple Sapphire. Soon, I stopped counting and concentrated only on observing the beauties, and when emotions permitted, did some clicking. We were totally mesmerized by the butterflies and the rich biodiversity around us. With time, I was famished and realized it was 1:00 p.m., which meant that we had been chasing the butterflies for about four to five hours at the falls. Our team leader informed us that lunch had been arranged onsite for us, which was a great relief. On our way back to the guest house, we saw many more north-eastern species like the Maplet, Red Lacewing, and Ringlet.

After a rest, we gathered in the dining hall in the evening, which was converted into a meeting cum discussion hall for the next 4–5 days. There was a wonderful presentation by Isaac on the butterflies of India. Thanks to digitization, I was able to show my day's capture to him for help in identifying the catch of the day.

Early in the morning at 5:30, on the third day, we started for "19th Mile". The track had many damp patches, and we saw hundreds of butterflies. At the end of this trek, I had clicked more than 2,500 images in my 32 GB card.

Next morning we were on the bank of Deban river. Across the river, on the other bank, was Haldibari forest. But that day the river was swollen and the current was strong. Crossing it in a small boat was not possible. Since we had no plans of turning back, we crossed the river on elephant back, with a little help from the Forest Department. The Haldibari forest is deep and thick with huge trees. In this memorable track, we not only found beauties of Namdapha like Fivebar Swordtail, Lascar, Filda Ace, Courtesan, Blue Tit, Orange Staff Sergeant, Veined Jay, Wizard, Red Lacewing, Chocolate



Indian Purple Emperor



Long-banded Silverline



Cruiser



Banded Lineblue



Mud-puddling Swallowtails and Yellows



Paris Peacock



Elbowed Pierrot

Albatross, Ceylon Blue Glassy Tiger, Chocolate Tiger, Striped Blue Crow, Magpie Crow, and Lesser Gull, but were rewarded with a rare encounter with the elusive Kohinoor and Naga Treebrown.

The last night at Namdapha was full of excitement. There was a heavy downpour, starting at around 9:30 p.m., which continued until dawn. When we got up in the morning, it was still drizzling, and there appeared no possibility of a clear sky with bright sunshine. With heavy hearts, all of us started packing up, as we had to reach Miao by 1:00 p.m. But suddenly, the rain stopped and the sun started

shining, and I was astonished to see a Paris Peacock basking with fully open wings in front of our dining hall. OMG! What a specimen it was! I went crazy photographing it. As we were about to leave the guest house, I saw another north-eastern beauty, I ran to the vehicle, pulled out my camera, and started clicking the Indian Awlking. This species is a rich shining green under the hindwings, with black veins, and orange area with black spots. It was only when I heard my name being called to board the bus that I realized that I was the only one left with the Indian Awlking. It was time to leave this paradise.

The Namdapha camp had been

marvellous from the word go till the end when we left the guest house. All the support staff, our cook, helpers, local guide, and our local Leader Mr. Phupla Singpho had taken good care of us. The very energetic and enthusiastic local staff made our stay quite delightful. If you want to enjoy a unique forest, along with hornbills and thousands of butterflies, then this is one place you must visit. ■



Divakar Thombre is the Director of Sys Computer Education Pvt. Ltd., which primarily deals with e-learning. He loves watching and photographing butterflies.

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**Arimugakkaiyedu: Vannathuppoosigal
(Introductory Handbook: Butterflies)**

Author: R. Bhanumathi

Published by: Crea-A, Thiruvanimiyur,
Chennai. 2015.

Size: 14 x 10.5 cm

Pages: 264

Price: Rs. 295/-

Paperback

Language: Tamil

Reviewed by: **Kumaran Sathasivam**

This compact book was born as a result of a two-year project that the author undertook, which she called Learning through the Lens. The title may be translated as *Introductory Handbook: Butterflies*. Notwithstanding the title, the book is an introduction specifically to the butterflies of Tamil Nadu. Designed to fit in the pocket, the book has a solid feel to it. It is liberally illustrated with colour photographs, and has a simple and attractive layout. Species accounts make up the major part of the book, with pictures and the corresponding text appearing on facing pages.

The book deals with 90 species. For most of these, photographs showing the butterfly both with the wings held open and with the wings closed

have been provided. The photographs and reproduction leave little to be desired. The species accounts include descriptions of the adult forms. They do not deal with identification of caterpillars. Some information related to the behaviour, habitat preference, and seasonality of each species is presented in the form of a bulleted list. A few species of plants that each butterfly species feeds on as a caterpillar are listed, with both the Tamil and scientific names given. Because of the inclusion of the scientific names and the photographic content, the book will be of use even to a butterfly enthusiast who does not read Tamil.

The publication has a preliminary section that introduces the reader to various aspects of the life cycles of butterflies, butterfly watching, butterfly conservation, and so forth. A list of books and websites that may be consulted for more information is provided. A table listing the 90 species dealt within the book, with the corresponding larval host plants, is also provided.

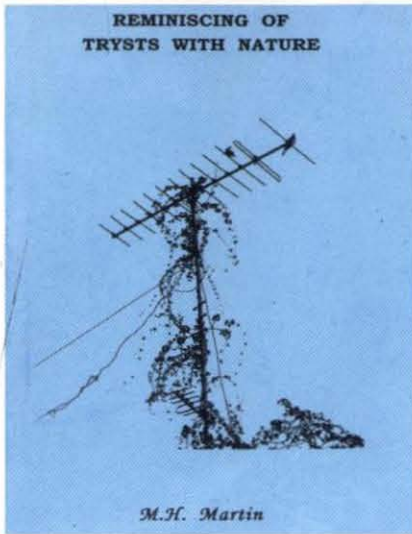
Tamil Nadu has rich butterfly fauna, notable among which are a number of species endemic to the Western Ghats. This book is the first to be devoted to the butterflies of the state. Hitherto only books with a broader geographical scope were available to naturalists. Thus, this book fills a gap. Indeed, regional field guides are in general needed in India now, and so the publication of this book is very timely. And as the book is in Tamil, it has a considerably greater reach in Tamil Nadu and can stimulate widespread interest in butterflies, and natural history in general, in the state.

Subsequent editions should provide distribution records, and state specifically the localities or regions where each species occurs. This

information is needed for those who wish to go in search of species that are not ubiquitous. It is information such as this that will permit users to assess the scientific value of their own observations. Future editions could also include more hints on distinguishing similar looking species, particularly among the lycaenids.

A note on Tamil literature would not be out of place in this review. Tamil literature is of great antiquity. The earliest available works, collectively known as Sangam literature, were composed around 2,000 years ago. Nature, including plants and animals, has a very important part in this literature. There are innumerable references to specific birds, flowers, mammals, fish, and so forth. Yet, some creatures are never mentioned. Prof. M. Varadarajan, in his book *THE TREATMENT OF NATURE IN SANGAM LITERATURE*, identifies the jackal as one of these. Butterflies too, do not seem to have been described by the ancient poets – this is a curious omission, considering how readily many of these insects present themselves to the eye and how attractive they are. And the subsequent literature in Tamil too has not discussed butterflies. Curious it may be, but because of this lacuna, Dr. Bhanumathi has had to face certain challenges in writing her book.

Dr. Bhanumathi has had to coin names in Tamil for the butterfly species and families that are the subject of her book. She has also had to create technical terms in Tamil to describe the butterflies. Dr. Bhanumathi has met this challenge well. On reflection, it is not so much a challenge as a rare opportunity that has come the author's way. After all, how frequently does one get the chance to christen 90 living things in one swoop! ■



Reminiscing of Trysts with Nature

Author: M.H. Martin

Published by: M.H. Martin.

Size: 18 x 11.5 cm

Pages: 74

Price: Not mentioned

Paperback

Reviewed by: **Atul Sathe**

Light reading on nature is a popular genre. Personal experiences of flora and fauna around us are a pleasure to read and bring peace to the mind.

The title of this pocket book, which is good for a quick read during a suburban commute, is sure to create nostalgia of pleasant encounters with the world of nature. Descriptions of the author's childhood in his ancestral home in southern India, surrounded by nature, particularly invoke such feelings.

The cover page, though simple, has a sketch of a creeper growing on an old time television antenna atop a terrace, with birds resting on it. This depicts an era when satellite television and other facets of 'fast' life were absent, but life itself was more peaceful and bountiful with simple pleasures, including the company of nature. The author remarks that contrary to the adage "Curiosity killed the cat," curiosity plays a vital role in discovering nature. He rightly adds that most people ignore the beautiful manifestations of nature all around. But, there are others who cherish this amazing world from their backyard to the jungle.

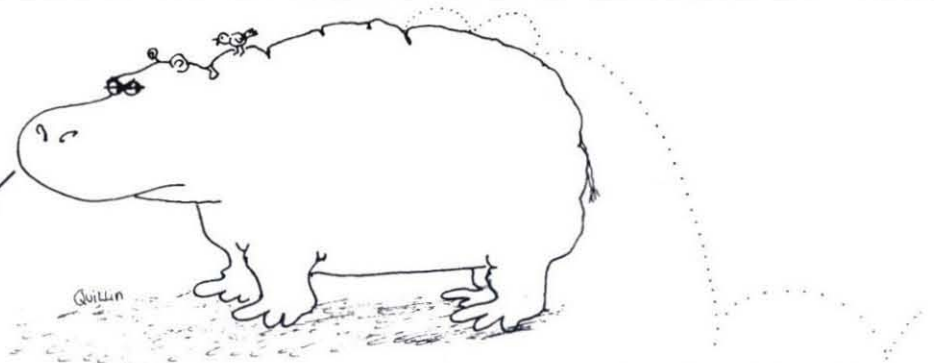
The book starts off with an exciting

thought – seeds of love for nature are sown while the baby is still in the mother's womb when she sings lullabies based on natural wonders. The child grows appreciating the myriad sights, smells, and sounds of nature. The book is a vivid narration of a nature lover's decades of observations. It describes the happy hours spent in the company of nature. Some of the photographs from among the few colour plates are attractive. The chapter about a man-eating tiger reminds one of the thrilling but ethical hunting practices followed by hunters such as Kenneth Anderson.

However, the chapters are too brief; by the time one gets engaged in the story, it ends. The asterisks, in several places, do not correspond to footnotes. In one chapter, the author appears to have gone out of context, getting sympathetic towards the British Raj and describing freedom fighters as "damaging with a vengeance". The book would be of interest to amateur nature lovers and book lovers of all ages. ■

EDITORS' CHOICE...

it's no use fighting it Godfrey
we both need each other



Courtesy: Earth Mirth / by Jonathon Porritt and Robin Maynard

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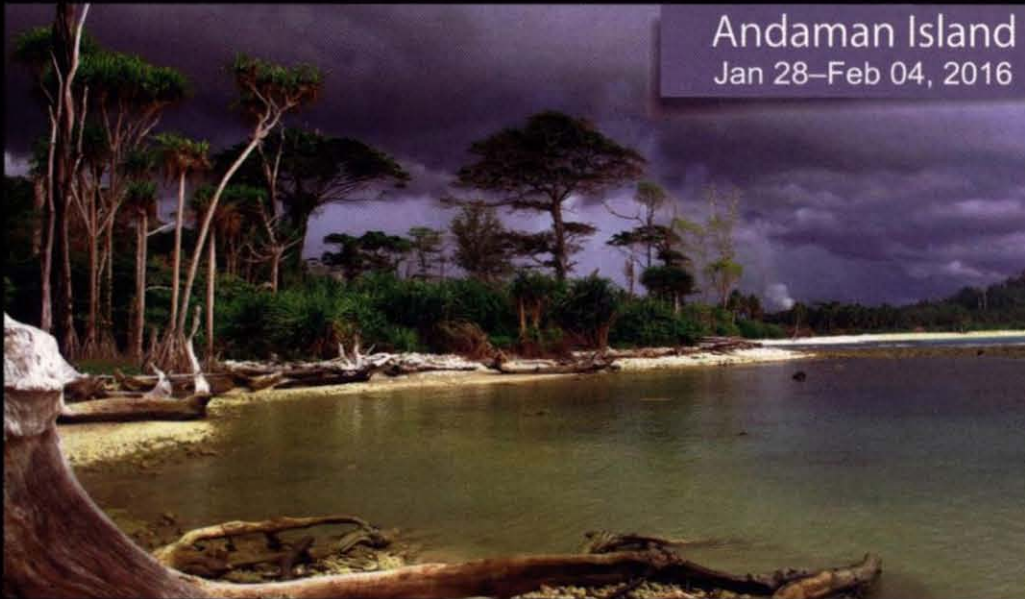
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Lantana: Friend or Foe?

Lantana is a plant for which you have to take a stand – for or against – depending on the perspective you adopt in evaluating it. The layman, and especially the garden lover, rates it highly as an ornamental flowering bush. Foresters and environmentalists categorize it as an obstinate invasive that damages the ecosystem. It is a birder's delight, as many birds include its berries in their staple diet, but farmers consider it a blight since cattle, goats, sheep, and other bovine species find Lantana toxic.

Little did the British know when they brought this exotic bush (the origin of which has been traced to equatorial America and Africa) and planted it in 1807 in the Calcutta Botanical Garden, charmed by its colourful blooms and as a useful hedge, that Lantana would two hundred years later colonize a vast tract of 13 million hectares in India! It is still expanding, far and wide, unchecked. Pacific and Australian regions have witnessed the same phenomenon, posing a challenge to scientists who have failed to find a remedy to eliminate or check its unsolicited, rampant advance. Lantana is very hardy, thrives in unyielding dry and baked soil with just traces of moisture, even in brackish soil. Use of the plant is limited to making baskets and brooms, and for firewood. Though Lantana helps prevent loss of top soil and the fallen leaves add to the

nutritional value of soil, it does not allow growth of grass or other plants under its canopy. Attempts to burn, cut, uproot, trample, or use chemical or biological methods to eliminate or to arrest its growth have failed to give results – Lantana marches on!

Lantana belongs to the Verbenaceae family, and incidentally, two most valuable timber species Teak *Tectona grandis* and Gamahar *Gmelina arborea* are also members of the same family. Whenever forests of these species are felled, Lantana at once starts invading the felled areas. Most vulnerable are the young seedlings of other species that get suppressed by the fast growing Lantana bushes. Lantana has been identified as the main culprit that caused unprecedented destruction in the famous C.P. Teak forests of Allapally and the Chanda forest areas falling in Chandrapur, Maharashtra.

Lantana is a pretty and practical choice for garden lovers. The perennial blossoms display a riot of colours – red, pink, white, blue, yellow – and in combinations of colours and hues. It grows well in pots, demands minimal care in terms of fertilizer, watering, or insecticide application. Lantana flowers are store houses of nectar, attracting butterflies, especially the swallowtails, brush-footed and skippers. For this reason, Lantana finds an honourable mention in butterfly gardens, rivalling other plants including Bougainvillea.

Incidentally, these two plants tolerate each other and can coexist, providing double opportunity for butterfly watching and photography.

Lantana grows fast and develops into a dense thicket with the spiked branches crossing each other, making it difficult for humans or mammals to pass through without being injured. When fully mature, it grows to a height of 3 m, but sometimes reaches up to 5 m where it finds some support to grow on. It has been estimated that a mature plant produces about 28,000 seeds in a year. Birds relish the berries. Other than its fruit value, many bird species find shelter, nesting sites, and foraging opportunities inside its impenetrable thorny bushes. In fact, not just birds, but several animals, including tiger and sloth bear too prefer Lantana thickets.

Having familiarized ourselves with some contrasting characteristics I leave it upon you to decide if Lantana is a friend or foe?

I thank Shri B.D. Bhagat, retired Principal Chief Conservator of Forests, Jharkhand, who provided useful information for this piece. ■

Prabhat Kumar
Jharkhand

Editors' Note: An effective technique to eradicate Lantana has been implemented at Corbett NP. For details, refer to the paper by Suresh Babu *et al.* in *Ecological Restoration*, December (2009): 27(4): 467–477.

Poisonous Plants

Mr. Vijay B. Tuljapurkar's article, 'Poisonous Plants' (*Hornbill*, Oct.-Dec. 2014) is very informative. While the seeds of Gunja *Abrus precatorius*, 'chanoti' in Gujarati, are highly poisonous, the leaves are edible with a sweetish taste. The dried leaves are used in paan, as chewing fresh leaves

gives much relief to a sore throat.

The dry seeds of Velvet Bean *Mucuna pruriens*, called 'kaucha' or 'kavach' in Gujarati, are first boiled in cow's milk to remove toxins. The powder of the purified seeds is prized in ayurvedic preparations for increasing strength and vitality. Application of fresh cattle dung

is said to be very effective in relieving the severe itching caused by contact with the hairy surface of the dry pods.

The yellow sap of Mexican Poppy *Argemone mexicana* has many medicinal properties. ■

J.P. Irani
Maharashtra

Marmots in Ladakh at risk?

Recently, during a trip to Ladakh, I observed tourist vehicles stopping at three different places to feed the Long-tailed Marmot *Marmota caudata*. Tourists were feeding the marmots with all kinds of food, ranging from sandwiches to biscuits. In one such place, where we believed the road block was due to natural reasons, we realized that it had been created by cars deliberately parked in the middle of the road to see marmots.

The Long-tailed Marmot can be seen along motorable roads at some places in Ladakh. Food, during winter, is scarce in such high altitude areas. The animals, therefore, store food for the winter during summer. It is likely that the food scarcity during winter pushed them closer to humans providing them alternative food. Marmots are known to feed on tender grass, leaves, grass seeds, and small insects, and the food provided by the tourists is not their natural food.

The marmots appear to have become so used to human presence that they come out of their burrows on hearing a human voice and expect to be fed. In fact, I saw some marmot females taking food inside their burrows either to store it or to feed their young ones.

Can this act of feeding the marmots affect their



population? Does it make the marmots more familiar with humans, thereby making it easier for humans to hunt them in winter? I raise these questions only for their future protection, as no record of hunting or otherwise is found so far. ■

Satyendra Tiwari
Madhya Pradesh

Editors' Note: Feeding human food to wild animals is unethical and should not be encouraged.

It Ain't Cricket!

Sorry, folks, if you thought that this is yet another bulletin on Kapil and the other devils. It is cricket of another sort. Here in BNHS, you can investigate other species of crickets. These are the six-legged variety that inhabit the dark corners in and around your home, to add their chirruping calls to those of frogs, toads, cicadas, owls, and other creatures that are heard incessantly in the rainy season – heard more often than seen, as they start early in the evening, and keep up their orchestra right through the monsoon nights.

Close relatives of the grasshoppers, locusts, and katydid, crickets do not fly, but jump up high to move around, enabled by the impressive musculature of their hind legs. The Hindi name *jhingur* applies to many different species, all of which have in common their love of making music! The English name cricket is derived from the French *criquer*, meaning “little creaker.”

The male produces his tune by rubbing the edges of his wings together, to produce the chirrup. At the base of the forewing, there is a ridged vein which acts as a file. The upper surface of the forewing is hardened, and serves as a scraper. The male cricket lifts his wings and pulls the file of one wing across the scraper of the other. The membranous wings vibrate, amplifying the sound. This is called stridulation.

It seems that the frequency of the chirrup increases with temperature and is affected by humidity — your very own biological weatherman! They have no ears, but hear with the help of the tympanum, a membrane situated on either side of the head. The call of the male may be heard for distances of more than two kilometres, and guides the female to locate the male. On seeing her approach, the male begins a courtship song, urging her to mate with him. It is recorded that some males also sing a post-copulation song.

In China, a cricket singing in the home is believed to be a sign of good luck. The ancient Chinese kept them in elaborate golden cages and fought them against rival crickets. Like their lordships' concubines, the crickets were prisoners in luxury, and sang as sweetly. Chinese torture, did you say?

Inside the house, crickets prefer the warm, moist, dark corners of your kitchen, and when you are outdoors, look down to the ground under stones and loose bricks in damp walls, or in leaf litter. The nocturnal serenade you hear comes from that puny little creature sitting on the ground, crooning to his lady love. ■

Vibha Kaul
Maharashtra

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A noted environmentalist and ornithologist, Prakash Gole was known for his pioneering work on environment conservation and education. He played a major role in establishing various national institutes of ornithology. His work on the Black-necked Crane, Sarus Crane, Siberian Crane, and Wetland Conservation is respected the world over.

Gole held a Masters degree in Economics and had worked for Gokhale Institute of Politics and Economics for some time after his graduation. He had also written a book on Indian history during the same time period. In 1963, he started a group Outward Bound Pioneers Club, from where he started his work in the field of environment conservation and education.



Prakash Gole
1938–2013

Remembered as a friend, genius and visionary, no one would now believe that an economist by training later ventured into ornithology and became respected across the world.

Some of his key contributions are the establishment of Ecological Society in 1982, which runs a one-year diploma course in Sustainable Management of Natural Resources. Gole successfully carried out a restoration project on the barren land behind Panshet dam near Pune. He also successfully helped in the conservation of grasslands at Vinchurni in Satara district. He was a founder of the Maharashtra Pakshi Mitra Sanghatana.

Gole had also worked with the late Dr. Salim Ali, and had a long association with the Bombay Natural History Society. He wrote many books, including 'Nisargachya Asha Vata,' 'Ranva,' 'Understanding Reality', 'Cranes of India' and 'Restoration of Nature.' ■

Acclaimed as India's leading wildlife artist whose rich repertoire of ornithological illustrations is unsurpassed in India and acknowledged throughout the world, Carl D'Silva was one of the most sought-after artists for field guides, with several best-selling guides to his credit. Carl's understanding of birds was extensive. He not only painted what he saw, but added a depth and dimension that made the subject come alive. The secret to his success lay in the fact that though he studied fine arts, he trained as a scientific naturalist through a system of intensive wildlife research,



Carl D'Silva
1963–2015

dedicating a substantial amount of time to field work and documentation. To him, history and wildlife went hand in hand. For him, having Salim Ali as his mentor was his greatest blessing. Carl's paintings were selected by the UK Society of Wildlife Artists to be exhibited at the prestigious Mall Galleries, London, five times in a row.

Beyond his art, friends referred to him as a humble man with a great sense of humour. A taxidermist and drummer, he added a new dimension to his innings as a wildlife artist. He was a man who followed his heart and kept his focus on his work. ■

Ode to a Dear Friend

*My heart was aflutter,
Numbed by the early morning news,
Then it went into a stupor,
My brain not keeping pace,
Pages of the past turned...
I lost my comfort,
Such a young life, gone so fast ...
I stepped into my garden,
Picked up the saplings,*

*Called the garden help,
...and planted a forest
In honour of the great artist,
Fellow ornithologist, co-worker,
And a great friend.....!!!
...and when the saplings turn into trees,
Flowers and bees and birds come visiting,
... I know Carl will have loved it!
To sit under these trees and sketch
A Hornbill or an Oriole ...*

*Or even a Jacobin Cuckoo,
Will see Carl's artwork in the
Colours of the Gulmohur
And Amaltas ...
Chandni and Crepe Myrtle,
Mulberry and Siris....
What a palette that will be...to Carlo!
You will be missed though.....*

Lima Rosalind

Often called an old-school ornithologist, Lavkumar Khachar's association with birds started in the 1950s and continued until his final days. Among the pioneers of nature conservation in the country, he worked throughout his life and career to spread awareness about ornithology, nature and wildlife conservation. Khachar's key contributions to preserving India's ecological heritage include conservation work in the Gulf of Kutch islands and the Gir forest. He advocated and worked in the creation of the Marine National Park in Gulf of Kutch, the first marine national park in India.

Lavkumar Khachar was educated at Rajkumar College, Rajkot, where he also started his career teaching Biosciences and Geography in 1956, after completing B.Sc. (Hons) from St. Stephen's College, Delhi University. His creative implementation of the nature studies programme so impressed the Board of World Wildlife Fund-India that he was given the responsibility of conceiving and initiating its Education and Youth Movement in 1976. In 1984, Khachar took charge as the Director of the Nature Discovery Centre at the Centre for Environment Education (CEE).

Khachar, who belonged to the erstwhile princely family of Jasdan in Gujarat, worked closely with another stalwart

of the field, the late Dr. Sálím Ali, and had a long association with the Bombay Natural History Society (BNHS) and World Wide Fund for Nature-India (WWF-I).

He was also involved in organizing nature education camps in the Hingolghadh Nature Education Sanctuary in Jasdan, which was created by the Jasdan royal family. The beautiful property of Hinglaj Farm overlooking the Beas river in the Himalaya had been his home for the last 25 years. It was from this home that he launched the nature conservation education and camping movement that has been replicated nationwide by other nature lovers. The Hingolghadh Nature Conservation Education Program (HNCEP) has been instrumental in opening the eyes of nature lovers to outdoor life in India and in turn contributing to the local economy without threatening the local culture.

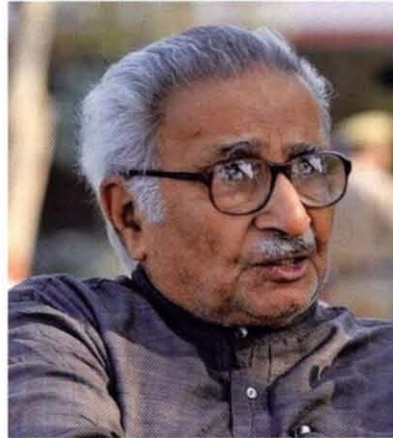
Lavkumar Khachar has been the recipient of:

– Sálím Ali-Loke Wan Tho Lifetime Achievement Award for Excellence in

Ornithology, by the BNHS in 2003, for his contribution to the field of conservation of birds and their habitats.

– Certificate of Merit from HRH Prince Philip for his contribution in initiating the Youth Education Movement and developing Nature Camps for WWF-India.

– Venu Menon Lifetime Achievement Award in 2004. ■



Lavkumar Khachar

1931–2015

ABOUT THE POSTER

Butterflyfishes are a group of conspicuous tropical marine fish of Family Chaetodontidae. The family contains 10 genera with 114 species, the majority being from genus *Chaetodon*. Jaw shape and size of these fish correlate with the type of prey consumed. Some feed upon small invertebrates or algae, others solely on coral polyps (known as obligate corallivores). These are also used as an indicator species to assess the status of coral reefs, as they are completely dependent on corals for feeding and shelter, and are highly vulnerable to coral reef degradation.

The Blue-cheeked or Golden Butterflyfish *Chaetodon semilarvatus* is mostly found in the Red Sea and Gulf of Aden. It is extremely rare



Golden Butterflyfish *Chaetodon semilarvatus*

in Indian waters. The species is known to be monogamous and always found in pairs. This fish feeds on hard corals as well as benthic invertebrates as most of the butterflyfishes do, and is confined exclusively to coral reefs.

Andaman and Nicobar Islands has one of India's four major coral reefs. Almost 6% of total continental shelf of these islands is made up of fringing reef. The archipelago consists of 350 islands, of which only 38 are inhabited. The knowledge

on the marine fauna of Andaman and Nicobar islands is limited. Being close to the coral triangle, the fauna is highly diverse and complex. The Golden Butterflyfish was recently photographed in Andaman Islands by Digant Desai. ■

Blue-cheeked or Golden Butterflyfish
Chaetodon semilarvatus



Lantern Flowers of Northern Western Ghats

Text: Mandar Sawant, Sushant More & Pradnyavant Mane

Ceropegias were named by Carl Linnaeus who first described this genus. He felt that the flowers looked like a fountain of wax, hence the scientific name: 'keros' meaning wax and 'pege' meaning fountain. The tube-like inflated bottle-shaped corolla is one of the characteristics of *Ceropegia*. The corolla lobes are fused or open. Follicles (fruits) are paired and straight. Commonly known as lantern flower or churning stick or flytrap flower, 240 species of *Ceropegia* are distributed over tropical and subtropical Asia, Africa, Australia and Malaysia, and in Canary and Pacific islands. In India, 59 variants (55 species and 4 varieties) are reported, of which 38 species are endemic to Western Ghats. Many of these climbers and herbs are rare.

The tubular structure of the flowers is adapted to capture pollinators. When an insect enters the flower, the stiff downwardly directed hairs inside the tube ensure that it can only move downwards, where a specialized structure containing pollen is housed. Pollen sacs get attached to the body of the pollinator. When the flower starts to wilt, the hairs become soft and the pollinator can leave its 'cage'. Cross pollination takes place when the insect enters another flower. Generally flies pollinate *Ceropegias*.



Mohanram's *Ceropegia*

Ceropegia mohanramii

A tuberous, erect, narrow-leaved herb with many green flowers 3.5 cm long. It grows on lateritic plateaux at 50–60 m in rock crevices, in the shade of large bushes. Extremely rare, so far known only along a stretch of 1–2 km in its type locality in Malwan, Konkan. A well-camouflaged species, it is difficult to spot due to its green colour. Major threats are conversion of habitats for human use and consumption of tubers by wild boars.

Fl. & Fr.: August–September.

Anjaneri Ceropegia *Ceropegia anjanerica* ▶

Closely related to *C. attenuata*, but differs in having shorter flowers and flat corolla lobes. Flowers are 3–4 cm long, slightly curved and greenish yellow. Leaves are opposite, narrowing into stalks 2.5 mm long. It is restricted to exposed plateaux of Anjaneri hills in Nashik district, Maharashtra. Threat to this endemic species is much higher than to other *Ceropegias*. Botanists and enthusiasts have uprooted many of them in the name of study.

Fl.: August–November, **Fr.:** December.

Hairy Ceropegia *Ceropegia hirsuta* (bottom right)

A twining, hairy-leaved climbing plant, with broad, elliptic to ovate leaves covered with hair on both sides. Flowers are 5 cm long. It grows around bushes and among grasses in hilly regions. The elegant flowers show great variation in colour and corolla size. Fairly good fruit formation and seed setting are also seen. Cattle herders dig and eat the tubers raw. It is widely distributed in the Indian subcontinent and is the most common Indian *Ceropegia*.

Fl. & Fr: August–September.

Anant's Ceropegia *Ceropegia anantii*

An erect plant with narrow lance-shaped leaves, it grows on hilltops under the canopy of big shrubs. It is closely related to *C. attenuata* but differs in the shape of corolla, has two or more characteristic dark brown spots on either side of corolla lobe in lower region. Flowers are quite large, c. 5 cm. It is usually seen at c. 500 m altitude in rocky places around Phonda and Salva hills. As it is endemic to the Konkan region, development and building projects in the area are threats to this species.

Fl. & Fr.: July–October. ▼



SUSHANT MORE



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Narrow-leaved Bulbous Ceropogia ▲

Ceropogia bulbosa var. *lushii*

A succulent, tuberous, twining, narrow-leaved variety of *C. bulbosa* with many flowered cymes. It is comparatively rare and usually shares its habitat with *C. bulbosa* var. *bulbosa*. Flowers are 1–1.5 cm long. Leaves and tubers are edible and used in traditional medicine.

Fl.: August–September, **Fr.:** January–March.

Medium Ceropogia *Ceropogia media* (top left)

A tuberous, twining, slender climber 1–1.5 m long. Leaves are lance-shaped and opposite. Flowers are 2.5–3.5 cm long, and occur in many colours, from green to dark pinkish. The tubers are edible. The flowers are delicate and of ornamental value. The species grows around bushes, shrubs and among grasses on steep slopes along forest borders at higher elevations of the Western Ghats.

Fl. & Fr.: July–September.

◀ **Fragrant Ceropogia** *Ceropogia odorata*

This twining, narrow-leaved species has yellowish flowers 3–3.5 cm long. It grows around 2 m in length. The flowers are gregarious, and 200 flowers were observed on a single climber. It grows along forest borders on remote hill slopes. Found in thick vegetation among shrubs, herbs, and grasses, it is extremely rare, and the only *Ceropogia* with fragrance. The flower is very fragrant at dusk.

Fl.: September first week.



SUSHANT MORE



MANDAR SAWANT

Broad-leaved Bulbous Ceropegia ▲

Ceropegia bulbosa var. *bulbosa*

Flowers are c. 2 cm long. Reddish tinge on corolla make spotting it difficult in the field. The climber is tuberous, broad-leaved and over 1 m long, with many flowered cymes. Found in drier regions on hill slopes amongst thorny bushes like Euphorbia, Lantana, sometimes on *Carvia callosa*. Tubers are edible. Flowers are of ornamental value and the climber is easy to grow in gardens.

Fl.: August–September, Fr.: January–March.

Santapau's Ceropegia *Ceropegia santapau* (top right)

A twining, narrow-leaved herb, with lance-shaped, 5–12 cm long leaves. Flowers are white to yellowish white, 1–2 cm long. Flowering is gregarious. Around 200+ flowers were observed on single plant. It grows among grasses on the unstable rocks along roadsides in Mahabaleshwar and Amboli Ghats at c. 1,150 m. As the species is restricted to a narrow area, it faces high risk of extinction due to landslides and road construction.

Fl.: August, Fr.: October.

Konkan Ceropegia *Ceropegia concanensis* ➤

An erect herb with tuberous rootstock, tuber 2–4 cm in diameter, and linear leaves. Found in shrubby, open lateritic plateaux among small rocks. A recently described species, it is restricted to Tillari (Kolhapur district) and Devgad (Sindhudurg district), in the Konkan region of Maharashtra. Collection of tubers for consumption and clearing of shrubby vegetation around lateritic plateaux by humans are the major threats to the species.

Fl.: August.



SHARAD KAMBLE



MANDAR SAWANT

◀ **Leafless *Ceropegia juncea***

A non-tuberous (tuber chain formation very rare) scaly leaved, succulent herb, with a thick fleshy twining stem and curiously formed flowers. It appears leafless as leaves are scaly, in opposite pairs. The flowers are in cymes. It grows in rocky places along hill slopes and plains, trailing on shrubs or herbs like *Jatropha* sp., *Euphorbia* sp., and *Acacia* sp. This is the only succulent Indian *Ceropegia*. It is easily cultivated.

Fl. & Fr.: Usually August–October. Can flower in any month if conditions are favourable.

Sahyadri *Ceropegia sahyadrica* (bottom left)

An erect, broad-leaved herb, 20–40 cm tall. Flowers are 3–6 cm long. It grows on hill slopes at c. 700–1,000 m in the Sahyadri and is distributed from Pune to Amboli in southern Maharashtra. Many variations in size and colour of the flowers are found in this long range. Although it flowers profusely, fruit setting is very rare. Landslides and destruction of tubers by cattle herders are the two major threats to the species.

Fl. & Fr.: August–October.

Rolla's *Ceropegia rollae*

An erect, broad-leaved herb with many flowers 3–4 cm long, with 1.5–2.5 cm long tube. Leaves are ovate. It grows on open rocky places and steep slopes in the Sahyadri. Restricted to a small area in Pune district, it is found at 1,200–1,300 m. Fruit setting is rare. It is a highly habitat-specific species. Hoardings placed in one of its localities seem to be disturbing the habitat of this extremely rare *Ceropegia*. Tourists were seen plucking the flowers.

Fl.: August and September, **Fr.:** October. ▶



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Evans Ceropegia *Ceropegia evansii* ▶

A tuberous, twining, broad-leaved climber with many flowered cymes. Leaves are 7–15 cm long and ovate or ovate-lanceolate. Flowers yellow white, sometimes greenish, c. 3 cm long. Usually grows in dense vegetation among shrubs and herbs, on inaccessible slopes at 300–1,000 m, thus it is difficult to locate. Sparsely distributed throughout the Sahyadri, from Peth region, Ahupe Pathar range, Khandala in the north to Amboli in the south.

Fl. & Fr.: August–October.

Law's Ceropegia *Ceropegia lawii* (bottom right)

A tuberous, erect, broad-leaved herb, 30–60 cm tall with large green leaves, 5–10 cm. It is closely related to *Ceropegia panchganensis*. It has the highest number of colour variants recorded among Ceropegias. The tubers are edible. It is restricted to the higher peaks of northern Western Ghats. It grows on steep slopes at c. 1,000–1,400 m. The major threat to it is destruction of habitat.

Fl. & Fr.: August–September.

Huber's Ceropegia *Ceropegia huberi*

A twining, narrow-leaved species with many tiny flowers c. 1–1.5 cm long. The curiously formed corolla is glistening snow-white, with a flat top. The leaves are lance-shaped, c. 6 cm long. Restricted to the higher peaks of Sahyadri, it grows among the grasses on the steep western slopes at 400–1,200 m. Tubers are edible. This species is restricted to a very narrow area, and in the same habitat as *C. santapau*, a closely allied species.

Fl. & Fr.: August–September. ▼



MANDAR SAWANT



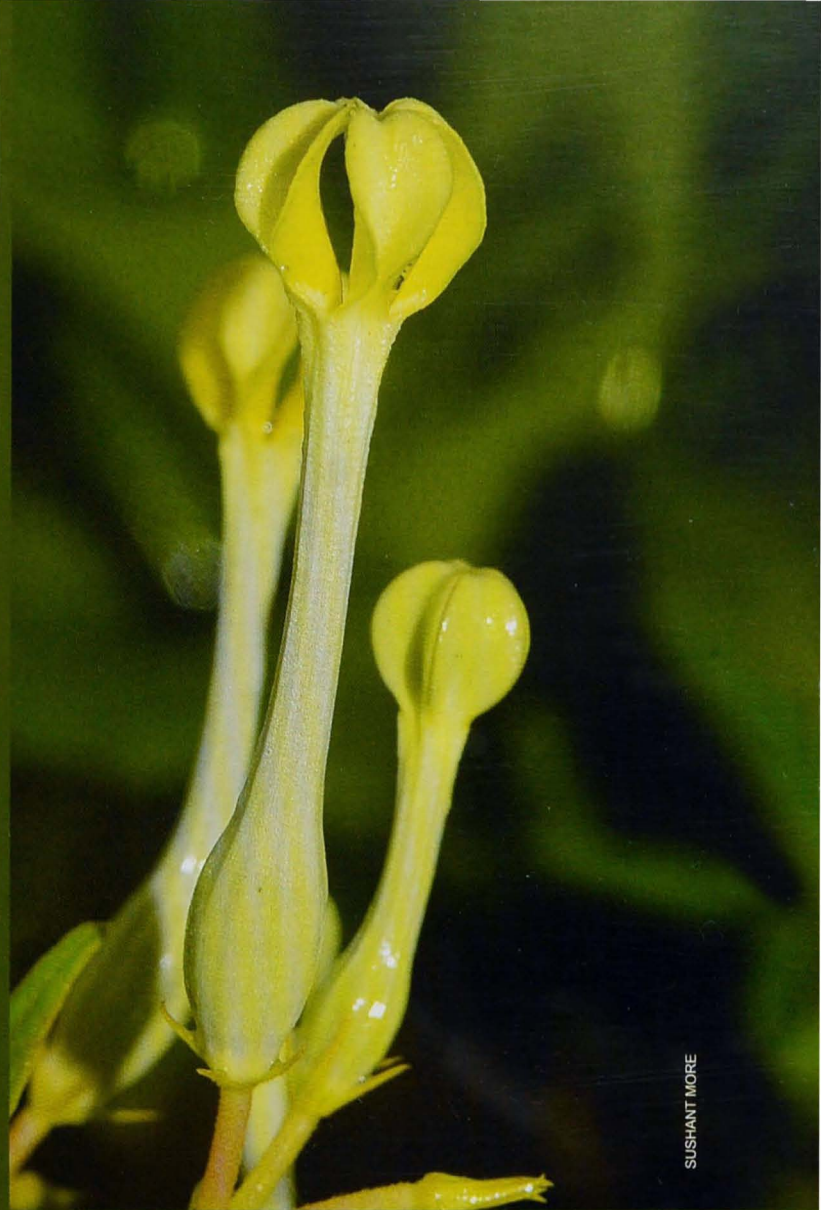
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PRADYAVANT MANE



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Panchgani Ceropogia *Ceropegia panchganensis* ▲

A fleshy, sparsely hairy, erect, broad-leaved herb. Leaves are ovate. Flowers are up to 4 cm long, tube 2.2–2.8 cm long. It is known only from Mahabaleshwar hills in Satara district, and was recently found near Varandha ghat near Raigad district. It grows in forest clearings on steep slopes of hills at c. 1,200 m. It is restricted to a small area, with just 40 plants. It was observed being trampled by Gaur *Bos gaurus*. High altitude and a dense canopy of *Karvi* play an important role in the habitat of this species.

Fl. July–August, Fr.: October.

◀ **Peacock Ceropogia** *Ceropegia oculata*

A large twining herbaceous climber, broad-leaved with many flowers, grows on bushes, sometimes among grasses at 400–1,200 m. The tubers are edible and the flowers are very significant and attractive. It shows great variations in the form of corolla; one described variety found in Satpuda Hills, Maharashtra is named *Ceropegia oculata* var. *satpudensis*. Population of this species is good in its habitat. The only threat observed was tuber collection by locals.

Fl. & Fr.: August–November.



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Maccann's Ceropegia *Ceropegia maccannii* ▲

A tuberous, erect, broad-leaved herb with many flowered cyme. Flowers are small, 2.5–3.5 cm, yellowish white and bottle-shaped. Leaves are ovate, lance-shaped. It grows among small herbs on the edges of hill slopes, sometimes at forest edges. Found between 400–1,200 m, this narrow ranged endemic is recorded only from three districts of Maharashtra – Pune, Ahmednagar, and Raigad. The foremost threat to it is from development projects, mainly road constructions, along the Western Ghats.

Fl. & Fr.: August and September.

Noorjahan Ceropegia *Ceropegia noorjahaniae* ▶

A tuberous, erect, sometimes twining, narrow-leaved herb with 2.5 or 3 cm long slightly curved flowers. Owing to its small size and colours, it is camouflaged in its grassy habitat. Grows on gentle slopes of hills, also in stony plains in well-drained soil. It is found only in Satara and Yavatmal districts of Maharashtra. No threat has been recorded for this species; however, the population is very small in the wild.

Fl. & Fr.: August–September.



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PRADNYAVANT MANE

Tender Ceropogia

Ceropogia attenuata

A tall tuberous herb, it grows up to 20–30 cm. Flowers are borne in clusters at the end of branches. Flower tube is swollen at the base and linear, hairy petals are 3–4 cm long. Flower stalks are 1 cm long. It grows at 200–1,200 m altitude along forest borders. Locals harvest the tubers from forests, and also grow them for food.

Fl. & Fr.: August–October.

Fantastic Ceropogia

Ceropogia fantastica

A twining, broad-leaved species with many-flowered cymes. Flowers 3–4 cm long. It grows in partly cleared, open, semi evergreen forests at c. 300–700 m. It can be easily distinguished from all other species by the much elongated sepals. It is sparsely distributed in its area of distribution, and is on the verge of extinction.

Fl.: August–September.

Jaini Ceropogia

Ceropogia jainii

A tuberous, erect, narrow-leaved single-flowered herb, 10–20 cm tall. Leaves are linear lance-shaped, 2–5 cm long. Flowers occur singly in leaf axils, and are 2–2.5 cm long. It grows in rock crevices on lateritic plateaux at c. 1,200–1,400 m. The tubers are edible and mostly eaten by cattle herders.

Fl. & Fr.: August–September.

Ralegaon Ceropogia

Ceropogia mahabalei

A tuberous, erect, narrow-leaved herb, with one to two flowers. Leaves are c. 10 cm long and 5 mm wide. Flowers are 5.5–10 cm long. Upper part of the flower is light green and flower tube is yellowish brown. It grows at c. 750–1,000 m, on the steep slopes of Ralegaon and Kasara hills. It is extremely rare.

Fl.: September,
Fr.: November–December.

Ceropogia species have attracted much attention from botanists, horticulturists, gardeners and enthusiasts by their uniqueness and curious shapes. Some African species are commercially available and grown as ornamentals. They can be propagated by seed and cuttings, but Indian Ceropogia are very difficult to maintain in garden conditions as they are very specific to their habitat, and do not survive outside the habitat.

Many species of Ceropogia are extremely rare and threatened. The major threat is habitat destruction due to rapid urbanization and development projects in the Western Ghats. The population of some Ceropogias is rapidly decreasing due to excessive collection of its tubers by the locals. Some Ceropogia species are of economic importance. ■

We acknowledge Dr. Sharad Kamble for comments on the first draft and Dr. Swapna Prabhu for providing her expert comments. We thank Mr. Isaac Kehimkar and Vibhuti Dedhia for guidance while drafting this article.



Mandar Sawant is an Engineering student. A macro photographer and wildlifer, he is interested in travelling.



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Pradnyavant Mane is presently working with the Mumbai Police. He is an avid birdwatcher and loves wild flowers.

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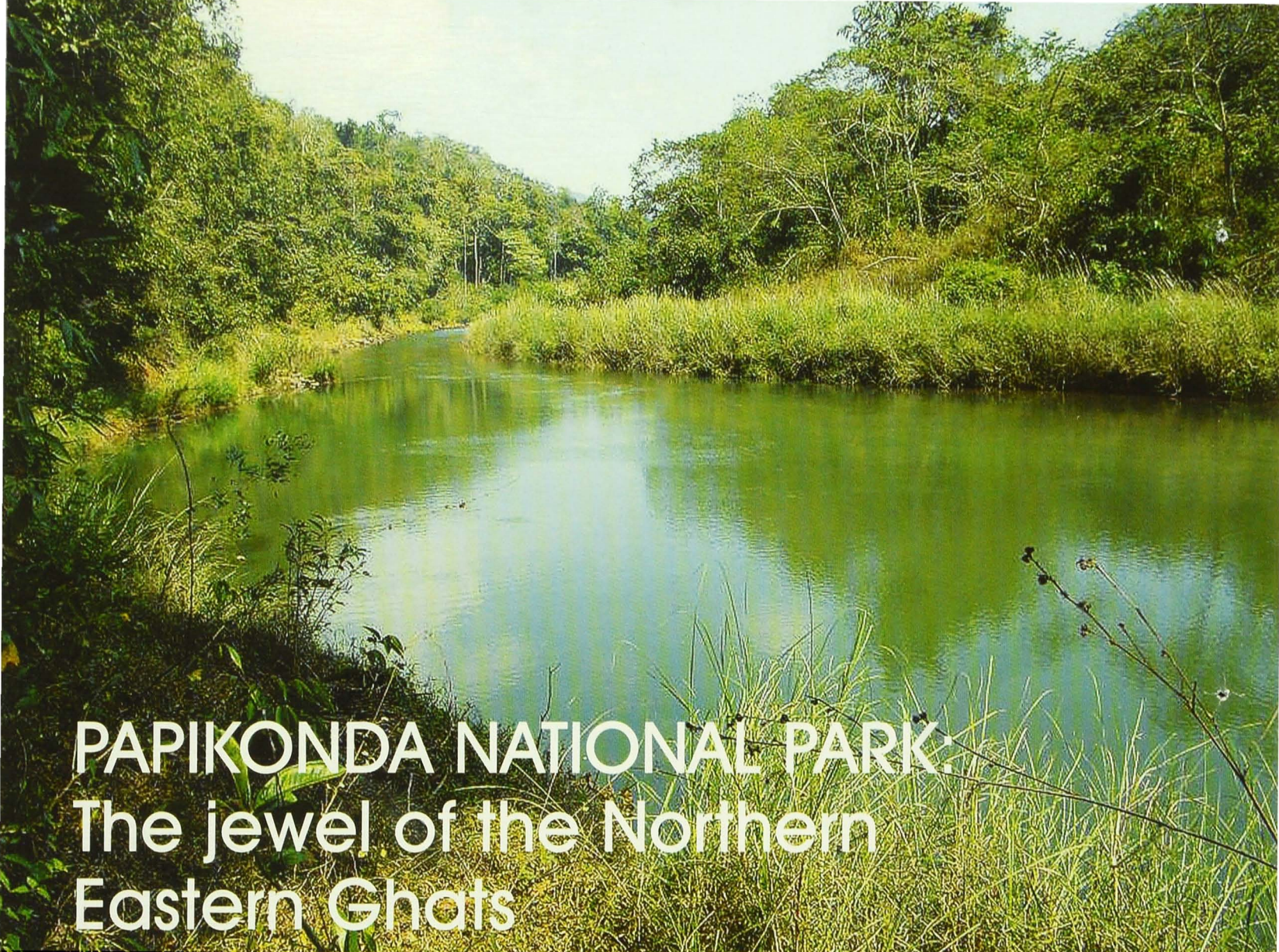
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PAPIKONDA NATIONAL PARK

The jewel of the Northern Eastern Ghats

Text and Photographs: **Vikram Aditya**

The Eastern Ghats consist of a series of discontinuous forested low to mid elevation hills running roughly parallel to India's east coast. They stretch for a distance of about 1,750 km, from northern Odisha, through Andhra Pradesh towards Chennai, continue westwards, passing through northern Tamil Nadu, southern Karnataka and again into Tamil Nadu, to terminate at the edge of the Moyar Valley, facing the Western Ghats. Environmentally speaking, the Eastern Ghats are a poor cousin of the Western Ghats, being less heavily forested and – unlike the Western Ghats – disjointed in many sections due to a number of large rivers flowing across, most notable of which are the 1,465 km Godavari and the 1,400 km Krishna. These rivers divide the Eastern Ghats into a number of distinct hill regions, endowing each section with its own unique characteristics. The overall importance of these hill regions and the Eastern Ghats for the last remaining tracts of forests and as a refuge for wildlife of the eastern region of the Indian Peninsula has been increasingly recognized in recent years.

One such hill forest region in the northern Eastern Ghats is represented by Papikonda National Park (1,012 sq. km), situated in the East and West Godavari districts of Andhra Pradesh. Papikonda NP, notified in 2008, is divided into two nearly equal northern and southern halves by the Godavari flowing across it. The elevation ranges from 20 m at the level of the Godavari, to 850 m inside the Park, and to 1,690 m at the summit of Jindhagada Peak to the north of the Park. Jindhagada Peak also happens to be the highest point in the Eastern Ghats. This elevation gradient, combined with relatively high precipitation levels, allows Papikonda to support a variety of forest types. The major forest type is moist deciduous, covering most of the mid-elevation regions to the north of the Godavari. However, there are significant patches of semi-evergreen, dry deciduous and scrub forests spread across the Park.



Northern Plains Grey Langur is the only species of langur in Papikonda National Park



Barking Deer comes out to graze in the outskirts of forest or in open clearings

The original Telugu name for this hill range was *Papati Kondalu*, which would translate to Bisectioned Hills, probably coined due to the well-marked partition of the hills by the Godavari. There is also a suggestion that the range looks like the parting of a woman's hairline! Maredumilli, my base for the next two years of my PhD fieldwork in Papikonda NP on landscape change and its effects on mammal diversity patterns, is a quaint and picturesque village set in a valley 10 km outside the Park's northern boundary. The rolling hills covered with moist deciduous forests that surround Maredumilli are a treat to the eyes, beckoning a growing number of tourists in recent years. The majority of the tourists visit the waterfalls located around Maredumilli and come to picnic in the coffee plantations abutting the village, which were raised by the Forest Department during the past few decades. However, the forests are witnessing a great deal of disturbance. Teak plantations have been raised since the 1980s and over the years are slowly taking over the natural forest. Even reserve forests outside the Park boundaries are being cleared and converted into teak and other plantations. Coffee plantations were established in the 1990s and are now a tourist attraction in Maredumilli and the

neighbouring villages. On the brighter side, human pressure is relatively low in Papikonda because of its remoteness from the towns in the plains. Being based in Maredumilli has allowed me relatively easy access to the northern sections of the Park. However, crossing the Godavari to access the southern sections of Papikonda has proved to be quite a challenge, as there are no bridges anywhere close and the only other means of crossing are the occasional boats.

My interest in this part of the Eastern Ghats began much before my PhD at ATREE (Ashoka Trust for Research in Ecology and the Environment), during my work with WWF-India from 2006 to 2010 while I was based in Andhra Pradesh. Around this time, I got many opportunities to visit Papikonda, which was then a wildlife sanctuary covering 560 sq. km, as part of nature camps and wildlife exploratory studies. Motivated by the natural beauty, I resolved to study the biodiversity of Papikonda further and got the perfect opportunity when I joined ATREE in 2011. I realized that landscape change was occurring very rapidly in the northern Eastern Ghats, and decided to study the linkage between this landscape change and its potential impacts on mammals, their diversity patterns and distribution across different habitats of the region.

ATREE's emphasis on interdisciplinary approaches to conservation challenged my preconceived notions and helped me to gain a better understanding of the linkages between local communities and changes that were happening across the landscape. My PhD guide, Dr. T. Ganesh, doctoral committee members, and the faculty at ATREE gave me complete freedom and support to pursue my interests. Dr. Ganesh, particularly, helped me immensely to design my research. I was also lucky to have during my surveys the assistance of Mr. V. Prasad and Mr. Babu Rao, capable field assistants, whose knowledge of the topography of Papikonda and bike riding skills on the rough, rocky trails have been of immense help.

During the course of our studies, we discovered that Papikonda had not two, as we presumed initially, but evidently three species of primates. As Papikonda straddles both north and south banks of the Godavari, it is one of the few forests where the two common species of peninsular Indian macaques, Rhesus Macaque *Macaca mulatta* and Bonnet Macaque *Macaca radiata*, and one species of peninsular Indian langur, Northern Plains Grey Langur *Semnopithecus entellus* which are normally separated by the Godavari river, all coexist. The Rhesus Macaque



Coffee plantations near Maredumilli village in the buffer of Papikonda National Park

is sympatric (occupying the same area) with the Northern Plains Grey Langur, which is found mainly to the north of the Godavari. The Bonnet Macaque is mainly restricted to the south of the Godavari, and is sympatric with the Northern Plains Grey Langur. The macaques inhabit human habitations, coffee plantations and forests close to villages and towns, and 'loiter' along the roadsides, where passersby throw them fruits and other food. The langurs, on the other hand, are more forest dwelling, frequenting the upper storeys of trees, and hence, do not have much direct competition for food resources with the macaques.

Likewise, Papikonda is also home to the Grey Junglefowl *Gallus sonneratii*, which is largely distributed to the north of the Godavari, and the Red Junglefowl *Gallus gallus* of southern India. Some of the other notable mammals are the elusive Tiger *Panthera tigris*, which is extremely rare locally, the Leopard *Panthera pardus*, Sloth Bear *Melursus ursinus*, Wild Dog *Cuon alpinus*, Smooth-coated Otter *Lutrogale perspicillata*, Leopard Cat *Prionailurus bengalensis*,

Sambhar *Rusa unicolor*, Chital *Axis axis*, and Nilgai *Boselaphus tragocamelus*. The hills of Papikonda are particularly known to support large populations of Gaur *Bos gaurus*, as heavily advertised by the numerous hoardings set up by the Forest Department in and around Maredumilli. A narrow gorge through which the Godavari flows in Papikonda is referred to as Bison Gorge. Two other species of mammals that have widespread distribution in Papikonda are the Barking Deer *Muntiacus muntjak* and the Wild Boar *Sus scrofa*.

Papikonda and the forests of the northern Eastern Ghats are better known for their avian diversity. Surveys and studies in the 1960s, '70s and '80s by B.M. Beehler, Krishna Raju and others, primarily associated with the BNHS, recorded interesting species across the northern Eastern Ghats, such as Abbott's Babbler *Malacocincla abbotti*, Indian Blue Robin *Larvivora brunnea* and Little Spiderhunter *Arachnotrothera longirostra*. Some studies have also been conducted recently on the floristic composition and forest flora of the Araku hills to the north of

Papikonda, and Niyamgiri and other hills of the northern Eastern Ghats in Odisha. However, the biodiversity of Papikonda is largely unknown, as very few studies have been conducted here, mainly due to the naxalite presence and other security concerns. Nevertheless, the records of rare species, such as the Indian Golden Gecko *Calodactylodes aureus*, which inhabits rocky outcrops and boulders in moist habitats throughout Papikonda and was rediscovered here in 2008, and the recent rediscovery from the Vizag hills of the critically endangered Jeypore Ground Gecko *Geckoella jeyporensis*, a forest lizard that is restricted to the northern Eastern Ghats, has much enthused researchers and conservationists to explore the biodiversity wealth of this fascinating and underexplored landscape. Additionally, the law and order conditions are much better now, and Papikonda is relatively safe for researchers.

Papikonda is also known locally for the rich culture and traditions of the indigenous Konda Reddi and Koya Dora tribes. The former inhabit the hills, hence the name Konda (hill) Reddi, while the latter make their homes in the foothills and plains. Both these tribal groups were hunter-gatherers who also practiced shifting cultivation (locally called *podu*) in the hills and plains for their sustenance. They have an intimate knowledge of the forest and of its diverse flora and fauna. However, in recent decades, they have taken to settled agriculture on the hill slopes and forest lands allotted to them during the 1990s. Following the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, they are now cultivating crops such as *Korra* (Foxtail Millet), *Sama* (Little Millet), *Ragi* (Sorghum), *Alasanda* (Cowpea), and *Minumu* (Black Gram). The lands they inhabit are now protected as a Scheduled Area and are managed

as one of 13 tribal dominated areas by the Integrated Tribal Development Agency (ITDA) of the Government of Andhra Pradesh. Many of them also depend on part-time employment provided by the ITDA and other government agencies under the National Rural Employment Guarantee Scheme. The indigenous people of this region are strongly rooted in their traditional way of life that is inseparably interwoven with the forests of Papikonda, despite the sea change brought about by modernization.

However, a number of threats now confront the biodiversity and the homeland of the tribals of Papikonda and the northern Eastern Ghats. A large number of dams and impoundments have been constructed over the past few decades across the northern Eastern Ghats, particularly in Andhra Pradesh and Odisha. Several other dam and irrigation projects, such as the massive Indira Sagar Multipurpose Project (or Polavaram project) that is under construction on the Godavari river right next to Papikonda NP, are underway. Bauxite mining in the mineral-rich northern Eastern Ghats and coal mining in the lower reaches of the Godavari, close to the Ghats, is taking a heavy toll on the forests and natural habitats of the hills, while expansion of road network and deforestation is a ubiquitous and persistent problem. Further research into the ecology and biodiversity of this long neglected region and creation of awareness would contribute enormously towards its conservation and sustainable development in the future, and my organization (and I) hopes to contribute to this through our work. ■



Vikram Aditya is currently a PhD student at ATREE working on landscape change and its effects on mammal diversity patterns in the northern Eastern Ghats.



Turmeric sp.

Joining the Dots

Text and Photographs: Nimesh Ved and Swati Chaliha

Twice on the first day, the dilemma posed to us was whether we should take the tar road that snaked along the path, albeit a little further from where we had figured out the boundary lay, or cut our way through the wild growth. In both cases, after deliberation, we decided that the easier path was not the one best taken, and cut through the forest.

We were walking the boundary of a Community Conserved Area (CCA) in Mokokchung district, Nagaland. CCAs are natural or modified ecosystems having significant biodiversity, ecological services, and cultural values. They are voluntarily conserved by local communities, through customary laws or by other effective means.



The edible figs of *Ficus auriculata* are relished locally



Seeds of *Entada* sp. are used to clean hair and scalp

People of two villages, Ungma and Longsa, have come together to conserve an approximately one kilometre area on either side of the river that forms the boundary between their lands. Dikhu, the river which forms this 14 km long, meandering boundary, lends its name to the CCA, the Dikhu Green Zone (DGZ). Nagaland Empowerment of People through Economic Development (NEPED) and Foundation for Ecological Security (FES) have joined hands to learn from and support the initiative. In the spirit of working together, it was essential that there be a mutual agreement on the boundary that was to be demarcated, which would assist the people to effectively manage the resources of the forests. In Nagaland, assigning natural features as boundaries has been a customary practice and cadastral maps do not exist. Having boundaries for CCAs could be pertinent in the wake of current development and conservation paradigm. Ashish Kothari in his 'Community Conserved Areas: Towards Ecological and Livelihood Security' enlists facilitating mapping of CCAs to establish boundaries (where relevant) as one of the ways forward for CCAs.

Hence, we shared our plans at a meeting where the village councils of Ungma and Longsa were present, along with the Committee. DGZ Management Committee is a body that oversees the

functioning of Dikhu Green Zone. Its members belong to Ungma and Longsa and are answerable to village councils of these villages. The Nagaland Village and Area Councils Act, 1978, empowers village councils, autonomous local bodies for village administration to function as per their customary practices and usages. Questions set the tone of the meeting, which ranged from whether it was possible to amend the boundary at a later stage, to if selected patches could be excluded at the current juncture. In the end, we all agreed that two of us walk the perimeter with a GPS and record the 'waypoints' and 'tracks', i.e., dots and lines, in the company of two guides from the villages, and that we would consult the Committee on and off.

We were to begin from a location that bears historical significance, the bridge over Dikhu. Anungla Aier and Tiatoshi Jamir write of this in their RE-INTERPRETING THE MYTH OF LONGTEROK: *As tradition says that after living in*

Chungliyimti for many generations, they crossed the river Tzula (Dikhu) by making a cane suspension bridge over it. After they crossed to the other side of the river, the suspension bridge was cut down to prevent others from crossing over. This significance has led to a suspension bridge being built at that very location in recent years.

As we walked along the perimeter of the proposed CCA, we indulged in 'barter' with our guides, while we shared our meagre awareness on conservation, we pestered them to talk of their interactions with nature in and around the villages! Some of these interactions left us baffled in no small measure, such as: the two villages, Ungma and Longsa, home to the same tribe, had different names for some species!

One day, we saw a tree with a portion of its bark sliced off, approximately 15 to 20 inches at shoulder height, and pointed it out. This was a path frequented by hunters; slicing helped them move in the dark with the guidance of the resulting pale patch on the tree.

Hunting and keeping wildlife as pets are socially and culturally accepted practices in the region. P.D. Stracey in his paper 'A Note on Nagaland' wrote almost half a century ago: A couple of years ago a family of five tigers which were unlucky enough to stray to the vicinity of Mokokchung, were eliminated in a well organized hunt, but their carcasses were stretched out on bamboo frames and allowed to rot at the entrance of the village of Ungma.



Dikhu river during the dry season



Dikhu landscape with jhum cultivation in foreground

On another day, guides pointed to two plants not far from each other. Rhizomes of the first (Korü: *Curcilio* sp.) are used as a laxative, while the other (Sheo yongi: *Entada* sp.) has a large pod and its seeds are used to clean hair and scalp (though with the availability of 'modern' alternatives its popularity has taken a beating). We also came across mammal signs; Barking Deer (Sheets: *Muntiacus muntjak*) and Wild Dog (Shrung: *Cuon alpinus*), besides others. While the Barking Deer appeared to have rubbed their teeth and horns on a tree trunk, the hair in the Wild Dog scat pointed to its having consumed a Wild Boar (Pongzö: *Sus scrofa*).

One segment of the boundary was the National Highway No. 155, and it made walking high on ease, but low on excitement. Walking along, we came across a road-kill; a Copper-headed Trinket Snake (*Coelognathus radiata*) lay dead on the road amidst Khasi Pine plantations (*Pinus khasya kesiya*). Plantations of pine appeared and reappeared as we walked.

On a cloudy morning with a slight drizzle, amidst the bamboo growth we saw the White-browed Piculet (Tombokrang: *Sasia ochracea*). A sparrow-sized bird, bearing white eyebrows, perched at a height of over a metre and at a distance of approximately eight metres, it looked at us for a good 10 minutes before deciding it had had enough of us. Anwaruddin Choudhury,

in his BIRDS OF NAGALAND, refers to it as an "uncommon resident". No sooner had we made our notes and put the field-guides back (we confirmed all mammal and bird species with the help of field-guides), when our guides pointed to a burrow of the Lesser Bandicoot Rat (Por: *Bandicota bengalensis*). This species, the guides said, was a delicacy that only men could consume!

We walked up and down, slow and fast, our eyes soaking in a mosaic of young and old jhum (shifting cultivation) fallows, rice terraces, and plantations, amongst others. Pine plantations lent their softness to the landscape, while the neatly laid firewood stock (fresh from the jhum fields) brought forth the locals' dependency on the land. The clouds cooperated by remaining hidden and enabling the GPS to 'talk' to the satellites.

After the walk, we overlaid the data generated on a Google Earth image and organized meetings in both villages. We were keen not only to get the boundaries ratified by the village councils and committee members, but also to rectify possible errors. This was more fun than we had imagined! In Ungma, for example, the difficult terrain had us skip a patch of good forest, and the question

now was how to rectify the gap. There was unanimity on the issue and we sat down to identify the contours that would form the rectified boundary. Not all issues were resolved as quickly. There were questions on the presence of structures, like a tea-garden and a restaurant falling within the boundary. For some of these, the print-outs of Google Earth images were not enough; we had to show them visuals online!

After joining the dots and lines, and making revisions as deemed pertinent from the discussions, the boundary of the Dikhu Green Zone was ready. Enthusiasm and curiosity amongst the people we interacted with during the week was infectious. We had our share of confusion too, but as we walked together during the exercise, we realized that this was an exercise fresh for all, and by virtue of our socio-geographic differences, we had looked at the issues from varied perspectives. But then, this is how life too is never perfect, but ever interesting if we allow it to be! A couple of days later, as we pondered over the week, we realized we could not have agreed more with John Muir when he says *In every walk with nature, one receives far more than he seeks.* ■



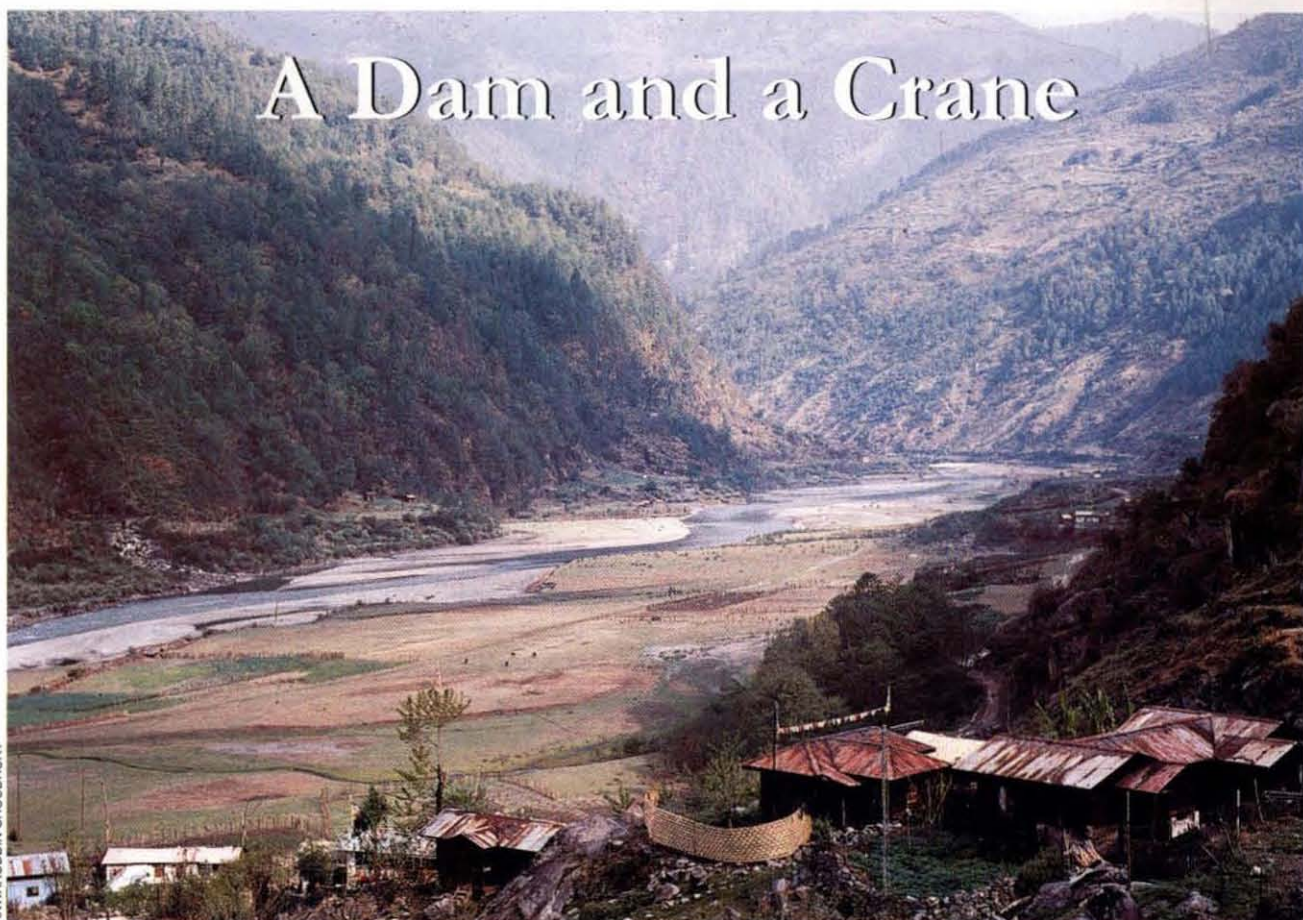
Nimesh Ved loves history, reading, long walks and exploring wildlife.



Swati Chaliha works on governance of natural resources and loves food and dancing.

A Dam and a Crane

ANWARUDDIN CHOUDHURY



Zemithang Valley

Text: Neha Sinha

Stately and colourful, the Black-necked Crane is found in areas as remote as they are beautiful. The enigmatic Black-necked Crane has only two wintering sites in India: Sangti and Zemithang valley, both in Arunachal Pradesh. A Vulnerable species according to the latest statistics determined by International Union for Conservation of Nature (IUCN), it is found in only three countries: India, Bhutan and China, favouring cold and high-altitude habitats. This beautiful crane is revered by the Buddhist community, including the Monpa Buddhists in Arunachal Pradesh. There are only about ten wintering sites of the Black-necked Crane globally. And now, these cranes are under threat from a dam project, which has received clearance on the

basis of a faulty Environment Impact Assessment (EIA).

Zemithang valley has been identified as an Important Bird Area as it is the wintering site of the Black-necked Crane. And this site is now under major threat! The proposed 780 MW Nyamjang Chhu dam, which will be made on the Nyamjang Chhu river, will have a barrage right at the wintering site of the Black-necked Crane. Despite vociferous opposition from local communities – especially the Monpa Buddhists – the project has received environmental clearance.

It is certain that the Zemithang wintering site of the Black-necked Crane will be severely impacted by the dam. This area is already extremely small – the actual wintering stretch between Brokenthang and Zemithang is just 3 km. Cranes are extremely territorial

in their behaviour and choose both wintering and breeding sites carefully. The barrage/dam will change the river flow patterns and submerge the area significantly, creating a new structure in the area used by the Black-necked Cranes. Other than the barrage, the tunnel is also likely to impact this area significantly, changing the riparian habitat that the cranes require. Several lakh truck-loads of mud will be physically removed from the dam site during the time of construction. Besides, subsequent desiltation will also disturb the area.

One immediate question to ask is: where will the cranes go if the project indeed gets constructed?

The dam will have a tunnel, which will channelize the water away from the main river, and take it over a steep slope, into a power-generating set-up. To create this main (head-race) tunnel, nine

small tunnels have to be built. The entire operation is likely to make a significant negative impact. Apart from loss of the main wintering site of the cranes, siltation, noise, and road construction will alter other wildlife habitats also, including those of bird species like Beautiful Nuthatch and Mishmi Wren-babbler that are hosted by the IBA.

Developers do not even want to acknowledge the presence of the Black-necked Cranes, despite the fact that WWF-India runs a project site in the area for the cranes. The most outstanding issue with the Environment Impact Assessment (EIA) for the project is that it does not even mention the presence of Black-necked Cranes! Even the state government of Arunachal Pradesh appears reluctant to admit to the presence of the birds, as per a river basin report being scrutinized by the Ministry of Environment, Forest and Climate Change.

The river basin – ‘Perspective Plan for Development of Tawang River Basin’ – makes the following points in favour of conservation of the cranes. *“Protection of wintering habitat of Black-necked Crane by suggesting the following measures:* Considering the conservation importance of the species, the experts were unanimous to protect the habitat of the species. Appropriate e-flow of the Nyamjang Chhu river should be



PEMA WANG

WWF-India has been working with communities for the protection of Black-necked Crane in Ladakh and Arunachal Pradesh

determined considering the protection of the habitat of the Black-necked Crane (BNC). In addition, the project proponents should strictly follow and adopt other mitigation measures as suggested to minimize the impact of noise pollution (drilling, blasting and tunnelling), water pollution, regulation of vehicle movements, and impacts from labour force.” (p. 76).

The report also points out: “Subsequently the Power department of Government of Arunachal Pradesh expressed its reservation about the location of wintering habitat of BNC shown during the aforesaid site visit. Since the developers joined the study only for one season, i.e., pre monsoon period, the team did not get

an opportunity to observe the Black-necked Crane wintering habitat directly or to camera trap it as winter season was already over by the time.” (p. 732). This is a major anomaly on the part of the state government. BNHS has requested for a detailed study to determine impact of the proposed dam on Black-necked cranes in the area and their conservation needs.

BNHS has recommended to the MoEFCC that the environment clearance be suspended. We have pointed out the fact that the EIA of the project does not mention the existence of the Black-necked Crane, which is misrepresentation of facts and goes against Section 8 (vi) of EIA notification 2006.

The people of the affected area, mostly Monpa Buddhists, are opposing



PANKAJ CHANDAN

In the Sangti Valley in winter, the harvested paddy fields attract small populations of Black-necked Crane. They are protected by the local communities

the project on the grounds that it will inundate their sacred site, and will alter existing livelihoods. The locals have organized themselves into the 'Save Mon Region Federation' and have approached the National Green Tribunal, opposing the Nyamjang Chhu dam.

India is a signatory of the Convention on Migratory Species and has international commitments to protect species. A Black-necked Crane conservation workshop, attended by the then Environment Minister Jairam Ramesh, WWF, and BNHS was held in April 2011 in New

Delhi. One of the recommendations of the workshop was to create a Species Recovery Plan. Instead of such a plan, we seem to be systematically destroying Black-necked Crane habitat!

Can we keep our commitments to the Cranes? ■

This Berlin Wall needs to Fall



This May, heart-breaking pictures emerged from Assam. The pictures were of an elephant herd trying to physically break down a strange new barrier – a wall constructed by Numaligarh Refinery in the middle of an elephant corridor in the Kaziranga landscape. The wall was constructed for a golf course. With their passage blocked, the elephant herd tried to break down

the wall, pushing it with their heads. Repeatedly the bewildered pachyderms tried, and they failed against the concrete wall. In the process, a young calf was injured and later died, it is reported. Significantly, the concrete wall was erected in the No Development Zone of Kaziranga, in violation of guidelines. The National Green Tribunal has stayed construction of any walls in the area.

As people made the wall, people will take it down. One wonders, though, how the elephants look at our behaviour, and how they will deal with their silent but collective trauma. ■



Neha Sinha is Policy and Advocacy Officer with the BNHS. She works on securing sites with a special emphasis on Important Bird Areas.

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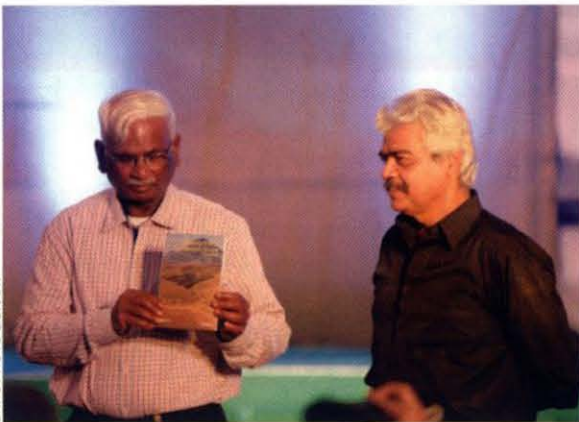


ICE Awards – 2015



The ICE (In-house Communication Excellence) Awards were instituted in 2009 by the Shailaja Nair Foundation to promote the print medium as an important means of communication. *Hornbill* was declared the 1st Runner Up under the category 'Best Magazine among Government/other Organizations' for Ice Awards 2015 held at the MCA, Bandra-Kurla Complex, Mumbai, on June 6, 2015, at a glittering ceremony attended by several dignitaries. Dr. Chandraprakash Dwivedi, a well-known Indian film director and script writer, headed the 12-member jury this year. Dr. Vithal Kamat, Chairman of Asia's first Ecotel hotel, The Orchid, was the Chief Guest for the evening. ■

'Walking the Western Ghats' released



WALKING THE WESTERN GHATS by Dr A.J.T. Johnsingh was released on July 5, 2015, at the Chancery Pavilion, Bengaluru. A joint publication of BNHS-India and Oxford University Press, the book was released by Mr. Ajay A. Desai, Co-Chair of Asian Elephant Specialist Group, during a three-day 'Asia's Premier Nature and Wildlife Photography Festival'. ■

Seed Bank Project inaugurated at CEC Delhi



The Seed Bank Project, which is mentored by Mr. Krishen, will be one of the major activities of CEC-Delhi in the coming months

The Delhi Seed Bank Project is an initiative of the BNHS-CEC, Delhi to conserve and protect the indigenous trees of Delhi. Mr. Pradeep Krishen – a noted environmentalist, who initiated this innovative project to create awareness about the denuding forest cover of Delhi, inaugurated it on World Environment Day by releasing a video film.

Seed and sapling collection walks were held in Sanjay Van on June 7 and in Asola Bhatti Wildlife Sanctuary on June 21, as part of the Evening Summer Trail of BNHS-CEC, Delhi. These walks helped to collect seeds and raise awareness about the native trees of Delhi. The seeds and saplings were later distributed at plantation programmes conducted with Effective Corporate Measures – on June 28 and New Delhi Nature Society on July 5, wherein a total of 100 trees were planted. Additionally, during Vrikshotsava, conducted on July 25 in association with AADI (Action for Ability Development and Inclusion), information and saplings of native trees were disseminated to the visitors. ■

'Land of Tiger' – A Photography Exhibition



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On the occasion of World Environment Day, BNHS held a photography exhibition by Sanjay Karkare, Assistant Director at Tiger Cell Unit of BNHS, Nagpur, depicting the biodiversity and conservation issues of Tadoba-Andhari, Pench, Melghat, Navegaon-Nagzira and Bor Tiger Reserves, at Hornbill House from June 3–5, 2015. The Tadoba Bamboo Craft Exhibition was organized on this occasion to display bamboo handicrafts made by local craftsmen, trained by BNHS under its Satpuda Landscape Tiger Programme (SLTP). The exhibition was inaugurated by Mr. Homi Khusrookhan, President, BNHS. The bamboo handicrafts, designed under the SLTP, are available for sale at the BNHS. ■

CEC Mumbai celebrates the monsoon season

CEC Mumbai has been humming with activity in celebration of the monsoon season, with visitors of all age groups. On July 26th, 72 doctors from the Goregaon Medical Association participated in audio-visual sessions and nature trails. On July 27, 75 range officers from the southern states of India attended a training programme. On two occasions, Standard Chartered Bank employees worked hands-on in the Butterfly Garden at CEC, which has been adopted by the Bank. On August 8–9, 460 employees of the bank engaged in activities like trash clean-up, nature trail clean-up and demarcation, bund building, natural fencing, pond desilting, alien species removal and planting seeds for saplings, as part of the CEC-Employee Engagement initiative.

The CEC team made presentations and conducted nature education games for children and parents at Kidzania Theme Park in Mumbai. Several family groups and students, including the

underprivileged, from schools and colleges visited CEC-Mumbai for indoor and outdoor activities.

The 2015–16 batch of Basic Course in Ornithology (BCO) was launched after revising the course content. ■



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Engaging young minds in field activities teaches them the value of sustainable living

Exhibitions under UNEP theme



BNHS Central Marketing Department celebrated World Environment Day by organizing exhibitions at various places in Mumbai to promote ecofriendly products marketed by the BNHS. Pamphlets based on the UNEP environment theme for 2015 – Seven Billion Dreams, One Planet, Consume with Care – which included green tips such as ‘living sustainably is about doing more and better with less’ were distributed to all the visitors. ■

No farewells at the BNHS



Dr. Asad R. Rahmani retired as Director of BNHS on July 31, 2015, after a long and successful stint of almost two decades. He will, however, remain associated with the BNHS as Senior Scientific Adviser. As a token of love and respect, the staff organized a birthday party, and not a farewell as is customary, for the outgoing Director. The hall was festooned with balloons and an elaborate entertainment plan was executed to make the evening special. After the cutting of the birthday cake, an array of customized gifts, created by the staff members, were presented to Dr. Rahmani. The function ended with a brief address from several senior office bearers, including recitation of a Sanskrit hymn dedicated to Dr. Rahmani, as the day coincided with Guru Purnima. Mr. Homi Khusrookhan, President, BNHS, announced that Dr. Deepak Apte would be the new director of BNHS. ■

Workshop on role of media in wildlife conservation



Shri Pandurang Pole (Centre), Collector, Latur district, inaugurated the one-day workshop organised by BNHS and Latur Zilla Marathi Patrakar Sangh to highlight the role of media in conserving the wildlife of the Deccan Plateau

A one-day workshop titled “Role of media in conservation of wildlife on the Deccan Plateau of Maharashtra – a neglected ecosystem” was organized by BNHS on May 24, in association with the office of the Divisional Forest Officer, Osmanabad, and Latur Zilla Marathi Patrakar Sangh, in Sakhara, Latur district. This is one more milestone in the ongoing nature education and advocacy campaigns of BNHS. Highlighting the need for such workshops, Shri Ashok Chinchole, President, Latur Zilla Marathi Patrakar Sangh, talked about the importance of communication between scientists and reporters to spread awareness about nature and biodiversity, and the need to link local and global issues. Mr. Sujit Narwade, Project Scientist, BNHS, emphasized the need for more background research before reporting conservation issues. More than 120 reporters and news editors, representing the drought prone Marathwada region of Maharashtra, attending the workshop deliberated on a number of important conservation issues.

The workshop was inaugurated by Shri Pandurang Pole, Collector, Latur district, by sprinkling water on potted grass saplings. In his concluding remarks, Mr. Kakasaheb Dole, Additional Superintendent of Police, Latur, urged everyone to begin the task of conservation oneself. ■

Published on September 04, 2015, by Dr. A.M. Bhagwat for
Bombay Natural History Society, Hornbill House,
Dr. Sálím Ali Chowk, Shaheed Bhagat Singh Road,
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