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# Contents

## The Moyar Wildlife Sanctuary

Conservation should be the mantra of every individual today and the first step should be identification of specific regions as wildlife protected areas.

**Ranjit Manakadan** discusses this and much more, read on ...

4



## A Day in an African Reserve

**A.J.T. Johnsingh** spent a day in the Hluhluwe-Umfolozi Reserve in Africa. He shares his experiences at the Reserve and his concerns of the ecological imbalance that humans have inflicted.

10



## Bison in the Backyard

Destruction of its natural habitat has pushed the Gaur closer to humans in Kodaikanal town. **Pippa Mukherjee** narrates the problems this has created for the locals and offers a solution, read on...

17



## OTHERS ...

About Books .....	22
A Rendezvous with Nature's Potter .....	26
Nature Watch .....	31
Readers' Space .....	36
Conservation Notes .....	38
News Briefs .....	45

## Environment Protection and Development

For the majority of politicians, bureaucrats and other decision-makers, green issues are the biggest hurdle for development. Some economists and politicians have suggested scraping the very existence of the Ministry of Environment and Forests. The ongoing debate on environment versus development in the public mind is currently tilted 'dangerously' in favour of development, as if environment protection is the biggest impediment for the economic development of India. Let us see if this debate has any teeth.

Less than 4.5% of our country is under the wildlife protected area (PA) systems. Actually, even this statistic is misleading as it includes large landscape PAs, such as the Little Rann, Greater Rann, Bustard Sanctuary, Changthang Reserve, Desert National Park, marine reserves, and other such areas where hundreds of thousands of people live. This percentage also includes sanctuaries where millions of people live in and around them and/or use the sanctuaries' resources. If we calculate the actual area left exclusively for wildlife, i.e., with no or very little human presence, it will be less than 1% of our land surface. The remaining area is open for economic and human development. Even if we include eco-sensitive zones around PAs, where only extractive and polluting industries are not allowed, the percentage cannot be large. Can such a small percentage of no-go area become an impediment for the economic development of the country?

Almost 90% of the development issues, such as roads, pipelines, irrigation canals, etc. passing through protected areas (PAs) are cleared by the Standing Committee of the National Board for Wildlife some on conditions that are never followed. Major issues like mining inside or near PAs, construction of large dams on fragile ecosystems, development of polluting industries, over-extraction of water from rivers (e.g., Chambal) are opposed by members of the Committee like me, but many are over-ruled by the MoEF and ultimately passed. The Chief Wildlife Wardens of states are under tremendous pressure of their political bosses, who act like agents of developers. Most forget that their job is the welfare of wildlife and PAs, and not for pleading the case of miners or dam builders.



Similarly, the Committee looking for forest clearances under the Forest (Conservation) Act also passes most cases, which is why thousands of square kilometres of forest are cleared every year for development purpose. Only in few cases, when permissions to clear large pristine forests are sought or forest dwellers protest, is a feeble attempt made to stop the project, but not for long. Political pressures, fake EIAs, fake stakeholders meetings, police force, divide-and-rule policy, chicanery, bribery, etc. make sure that the miners get what they want.

We conservationists and environmentalists are also to be blamed for not making environment a mainstream issue. We have to explain to the people that environmental protection is an integral part of development and welfare. This can happen if people benefit, either directly or indirectly, from the presence of PAs/forests/grasslands/wetlands in their area. In most cases, locals are kept out so how can one expect them to support conservation actions. Even the tourism potential of our PAs has not been exploited suitably for providing employment and developing local stakeholders. It is simple: unless people see a direct benefit of a PA they will not be interested in defending it. I was not surprised to learn that a few years ago, tourist operators in Kanha protested when a tigress was taken away to be reintroduced in Panna (while the tourism lobby in Panna welcomed the tigress). In both cases, people were protecting their own interests from tiger tourism\*. Two years ago, while discussing the issue of introduction of Cheetahs in Shahgarh Bulge of Jaisalmer, we were surprised to get an over-whelming support of the strong tourism industry of Jaisalmer. Most did not know the ecological role of the grasslands and the importance of bringing back the Cheetah in India, what interested them was the high tourism potential of the Cheetah. It should be noted that in the aborted Cheetah Project tourism was never a major aim, at least in the beginning. What I wish to emphasize is that unless people see some personal benefit to protect wildlife and nature, they will not support it. Unfortunately, industries give jobs and pristine forests do not. We have to change this through policies, action, education, and involvement of people.

One report that has not been fully incorporated in our policies and programmes is *The Economics of Environment and Biodiversity (TEEB)*, authored by Pavan Sukhdev. I think it should be read by all conservationists and economists. While I cannot go into the details of this report, in a nutshell, the report proves that protection of environment makes economic sense, as good environment gives us ecosystem services worth trillions of dollars a year, and economic development and human welfare cannot be separated from good environment.

I hope decision-makers, politicians, and economists will read the TEEB or other reports on ecosystem services of nature. Will they say Development versus Environment, or Development and Environment after this?

Asad R. Rahmani

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\*When I say wildlife tourism, I mean responsible tourism that benefits nature, wildlife, and local communities

# The Moyar Wildlife Sanctuary

Text: Ranjit Manakadan

**M**oyar Wildlife Sanctuary – never heard of such a sanctuary? Well, cannot blame you as it does not really exist! I have coined the name in the hope that it will get declared one soon and with this more apt name than Sajalkuttai Wildlife Sanctuary, the name proposed by the Forest Department. The proposal to declare the area as a sanctuary has been in hibernation with the Forest Department for quite a few years now. Strange, why it has not been declared one till now when so many less deserving and minuscule areas have been given wildlife sanctuary status? Whatever the reasons, this is one place that definitely deserves a sanctuary status – read on.

The Eastern Ghats of peninsular India, a range of disjointed hills stretching from Orissa in the north to Tamil Nadu in the south, terminates at its southern end in the Moyar valley, facing the Western Ghats. This is something I had read while rummaging through literature on the Eastern Ghats, which got me a bit curious to see the meeting point of these two mountain ranges. Well, I got to visit the place out of the blue! The reason to go there was to meet a former colleague of mine, S. Swaminathan. I was working on the final report of a project and needed to sit with him for further data analyses and discussions. S. Swaminathan, on the ending of the BNHS-US Fish and Wildlife Service (USFWS) project investigating a case of dispersal and colonisation of elephants in the border areas of Tamil Nadu and Andhra Pradesh, had joined the AREAS (Asian Rhino and Elephant Action Strategy) programme project of WWF-India, and like the saying goes, if the mountain will not go to Muhammed, then Muhammed has to go to the mountain, and so on July 15, 2008, I proceeded to Tengumarahada!

Picked up by Swamy at Satyamangalam, we proceeded to Tengumarahada by jeep. The journey turned interesting after we crossed Bhavanisagar dam and passed through a valley with thorn forest at the entrance to the Moyar valley. On the way, we sighted small herds of Blackbuck, the Moyar valley being the only other site besides the Point Calimere Wildlife Sanctuary where sizeable populations of the Blackbuck occur in the wild in Tamil Nadu. Chital were more plentiful, and birds, including the occasional peafowl, were sighted along the dusty and bumpy road. The thorn forest soon gave way to short-statured deciduous forest, with the taller trees largely confined to the water courses, including some grand specimens of *Terminalia arjuna*. As we neared Tengumarahada, the scenery was breathtaking with the imposing Western Ghats standing tall and facing its 'smaller brother', the Eastern Ghats across the Moyar valley. As we drove, Swamy pointed to the estate of the Chief Minister of Tamil Nadu, Dr. J. Jayalalithaa at one edge of the cliff of the Western Ghats, the tall row of trees being the identification point. What a grand view of the plains she would have had from there, I thought.

Tengumarahada, the site of a field station of WWF-India, is one among half a dozen villages spread out in the otherwise unspoilt wilderness of the Moyar valley with hills bordering it. In spite of its remoteness, there are cable TV, mobile phone facilities, and four tea shops-cum-restaurants. A unique feature of this village is that there are hardly any teenagers around, as most stay in school or college hostels in the nearby towns. Many homes have only the elderly, as even the parents of the kids had migrated to the



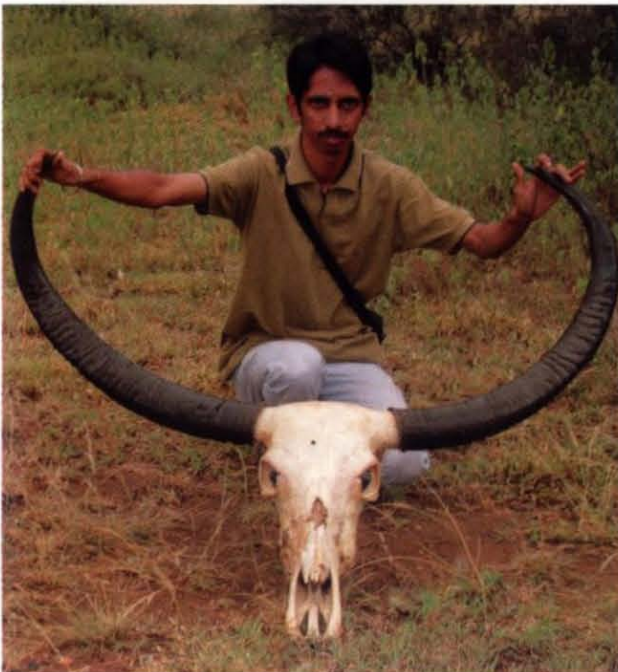
Elephants are largely 'seasonal migrants' to the Moyar valley descending from the Nilgiris during November to roam the plains and surrounding areas, and returning by March

## Moyar Wildlife Sanctuary



PRANJIT MANAKADAN

A view of the Moyar river



PRANJIT MANAKADAN

Skull of feral buffalo with a bullet hole

towns for the sake of their children's schooling or for jobs. It is only during summer holidays and festivals that the village comes alive. The locals, largely a mixture of Tamils and Kannadigas, speak Tamil in a pleasing, soft and comical sing-song fashion, which was music to my ears. Another plus point was that the dogs don't growl at strangers even in the dead of the night!

Tengumarahada is an enclave in a fertile patch of valley amidst the serene wilderness. Do people have a right to live right inside the last refuges left for wildlife? If this village had not existed, this site would have been a dense, riparian forest of lush greenery with elephant and otter families happily frolicking in the waters of the Moyar, and crocodiles basking on its banks. In fact, the village areas form a major barrier for elephant movement from the hills to the valley. I was told that the land is Government land on a 99 years lease (run as a farming cooperative). As many people are migrants from nearby towns and have taken (illegal) sub-leases from the original Badaga community owners, it would be great if the Government on the expiry of the lease tenure would instead 'lease the land' to the wildlife of the area to whom it originally belonged.



A bull feral buffalo in the Moyar Valley

Besides Swamy, there was a researcher K. Vijayakumar and a field assistant, Selvam. Being an avid fish fancier, I soon got talking about the fish fauna in the waters of the area and especially on the mighty mahseer. Asked about the species of mahseer in the waters, he replied that there were two species, and besides other characteristics, said that smaller (Orange-fin Mahseer *Tor kbudree moyarensis*) would die quickly after capture while the much larger (Hump-backed Mahseer *Tor mussullah*) would linger on for a longer time – a point to note for fish taxonomists! The mahseer is only found in the silt-free upper reaches of the Moyar. He said that in the olden days, mahseer was so abundant that one could look out for a reddish mass in the waters and shoot at it with a gun as a ‘fishing technique’! Most of the populations were disseminated by the Special Task Police Force (that had been formed to nab the infamous bandit Veerappan) by using bombs to fish in the sheltered pools. Though this is not practiced now, the threat to the fish fauna still continues due to the regular camping of police battalions undergoing training under the Special Task Police Force. During such camps, there is a heavy

demand for fish, which is met through fishing in the Moyar. There is a need to shift these training camps elsewhere or there should be a strict ban on fish in the menu of the battalions.

The major wildlife of the area are the Asian Elephant, Tiger, Leopard (including occasionally black individuals), Sloth Bear, Striped Hyena, Indian Wolf, Slender Loris, Gaur, Porcupine, Sambar, Spotted Deer, Blackbuck, Common Indian Otter, Hedgehog, and Muggler Crocodile. Of these, the Gaur and the Sambar are not actually found in the valley, but are found on the slopes of the Eastern and Western Ghat hills bordering the valley. Among the birds, ‘lifers’ for me were Blue-bearded Bee-eater *Nyctornis athertoni* and Jerdon’s Leafbird *Chloropsis jerdoni*. The Elephants, numbering 200–300, are mainly ‘seasonal migrants’ descending from the Nilgiris during November to roam the plains and surrounding areas, and returning by March. At other times, only a few ‘stray’ bulls and family herds frequent the area. Elephants fitted with radio-collars by the BNHS in Mudumalai Wildlife Sanctuary had been tracked to descend the hills and enter the



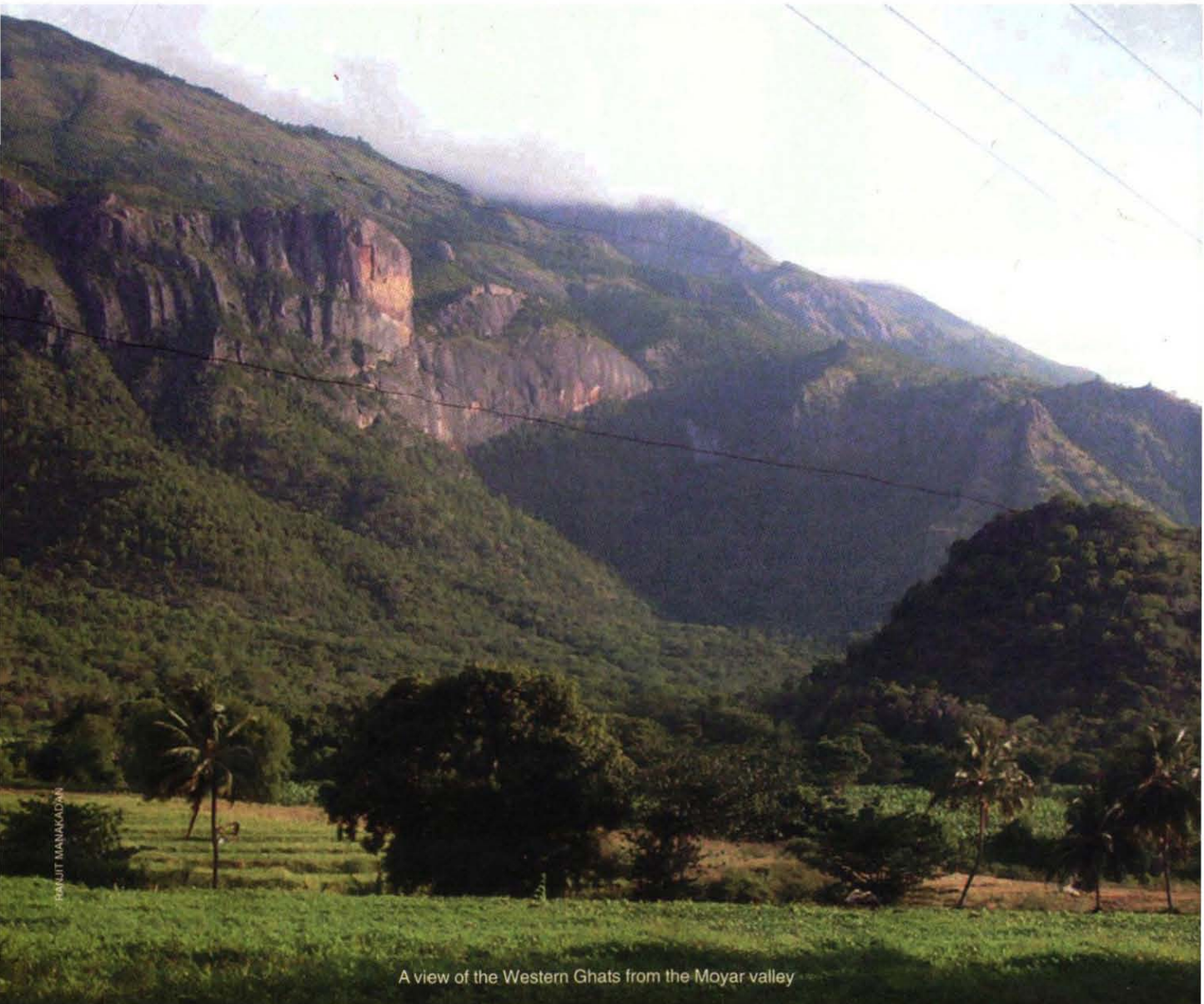
## Moyar Wildlife Sanctuary

Moyar valley, and then proceed further into the forests of Mettupalayam, Coimbatore, and other adjoining forests.

A bit of pleasant news from Selvam was that the forest cover in the area has improved considerably after cattle penning was banned about 15 years ago. Earlier the grass and tree cover were scarce, and disturbances were heavy. Selvam said that the hills facing us were bare then and there were no Gaur or Sambar to be seen. He knew of only one tiger in the area then, but now there are about half a dozen – with more prey, more the number of tigers. Another indirect ‘saviour’ for the area was Veerappan. In efforts to nab him, the Special Task Police Force carried out a door to door campaign to seize all the guns (legal and illegal) held by the locals. Till then, seeing a deer or other wildlife was a rarity, now one can spot them just outside the village, including large mugger crocodiles in the river. How great if such things get replicated in other areas! As for some bad news, the Moyar

river stretch has in recent times become a picnic site for drunken men, who come from nearby towns on weekends. Village women have to bear the ugly sight of pot-bellied men frolicking in the waters of the Moyar during weekends. If only we had the Nile Crocodile in these waters! ‘Fish Fry’ has become the favourite accompaniment for booze. The fish is supplied by local fishermen, as a result of which fish prices have gone up considerably. Dynamite is also illegally used, which causes widespread fish kills, during which otters and muggers also end up as casualties.

Another problem is livestock grazing. Though cattle penning by outsiders has been banned, livestock of the locals are allowed to graze in the forest. WWF-India had a conservation oriented project funded by the USFWS in the Moyar area from 2000 to 2004. A major initiative, besides erecting of elephant-proof electric power fences and providing alternative livelihood sources for people to reduce



their dependence on forest produce, was the removal of scrub cattle. A few thousand cattle were removed through this scheme, but the cattle seemed to have come back with a vengeance. What is strange is that the cattle now consist largely of large bullocks and not the usual cow herds (for milk) with only a few bulls seen in Indian villages. I suspect that the cattle belong to outsiders (or enterprising villagers) and are grazed here till they are sent to slaughterhouses in Kerala or Bengaluru. Hence, this is now more like a meat industry being carried out. The results on the landscape are apparent – the vegetation around a radius of about five kilometres around villages is highly degraded. I feel this will be a new conservation issue in India as farming is being increasingly carried out with the help of tractors (since labour is costlier) hence, bullocks are of no use. There will probably be a reversal of this trend after a few decades once the majority of abandoned bullocks are finally gone, but till then, the forests will be at risk.

The Moyar area is one of the few areas that I have visited where animal sightings are frequent and the animals are on the whole unafraid. Reports indicate that poaching is rare in the interior areas and is carried out mainly in the border areas near the Bhavanisagar dam. Few villages in the area, bad roads, remoteness and 'one way traffic' (with a Forest Department check-post at the entrance) are plus points, with only two Government buses plying during the day to the area. These are lessons that the Forest Department officials can learn to avoid costly mistakes in the future. Laying new roads, permitting more traffic (especially private transport) and settlements, new exit points, and the forest and its wildlife will disappear with time. According to reports, there are plans to lay a road into the Moyar valley (via Tengumarahada) from the Nilgiris along an existing forest road and a railway link between Mettupalayam and Chamarajanagar cutting across the Moyar valley and the hills of the Eastern Ghats. Both these projects – which fortunately have been stalled due to a stay order put up by 'The Niligiri Wildlife and Environment Association' – will lead to destruction of the forest and its wildlife. The railway tract will result in gory photos of elephant herds run over by trains in newspapers and the road will give easy access for plunder of the forests. Let us hope that these projects do not see the light of day, and one way of achieving this would be to declare the area as a sanctuary as soon as possible.

The vanishing White-rumped Vulture *Gyps bengalensis* is also reported in the area, said to number around a hundred. One disturbing case I heard was of a team based in the Nilgiris, who would come occasionally (till recently) to shoot the feral buffaloes for the sake of the vultures to 'increase

their population'. During a field trip, I came across the skeletons of two animals with a bullet hole each through their skulls. Around a hundred buffaloes were killed till WWF-India took up the issue with concerned officials. Vijaykumar estimates their current population at around 500 animals, and his studies revealed that buffaloes are the main prey for tigers of the Moyar valley. The buffaloes are said to be the 'leftovers' after a foot and mouth disease outbreak killed off almost all the Toda buffaloes (of the Nilgiris) that used to graze here seasonally in the past. They look different from the local buffaloes with their long slender upcurved horns, but are not as massive and tall as the wild buffaloes of Assam. However, they are aggressive and attacks on humans with even deaths have been reported. Let us hope that after a few generations, Tamil Nadu will have a wild strain of buffaloes, and one need not go all the way to Assam to see wild Indian buffaloes.

During my two weeks stay, a leopard attack on a man outside the village was reported. This was not the case of a man-eater, but a provoked attack as the leopard was with her cub. A few years back, there had been a man-eater in this area, which even had the audacity to enter the village to pick up humans. Around seven persons were killed till the animal was captured and sent to the Chennai zoo. There are no reports of tigers as man-eaters in this area – in fact, the people are more afraid of leopards than tigers! The other animals that can pose dangers for people are the feral buffaloes and the Sloth Bear. The mighty Gaur is in fact a timid creature.

Moyar valley is important as it maintains the contiguity between the Eastern and Western Ghats. The entire corridor is crucial for the genetic flow, dispersal of free ranging animals and is extensively used by elephants during their seasonal movements. Hence, protecting this corridor is of vital importance. The Moyar Valley is definitely a place that deserves sanctuary status, and most aptly by the name Moyar Wildlife Sanctuary, and I do hope this article helps achieve this. ■

**Note:** Soon after the article was submitted, the area was declared as the Sathyamangalam Wildlife Sanctuary (525 sq. km), and there are now plans to declare it as a tiger reserve.

Ranjit Manakadan has been working with the BNHS since the early 1980s. He has worked and was in-charge of a number of research projects (Great Indian Bustard, Point Calimere Ecology, Grassland Ecology, ENVIS, Sriharikota Faunal Biodiversity, Plant-Animal Inter-relationships in Sriharikota Island, Slender Loris, Spot-billed Pelican, Pulicat Waterbirds, and Asian Elephant) of the Society. He is presently an Assistant Director at the Society.



# A Day in an African Reserve

Text and Photographs: A.J.T. Johnsingh





Southern African Aloe *Aloe marlothii* which grows in rocky and open places with orange flowers



*Strelitzia nicolai*, a banana-like plant with a woody stem

**T**he large male White Rhino was resting, with his legs folded, on his belly and sternum. The *Acacia* tree under which he rested provided scanty shade and yet he appeared to be comfortable with his world. His tail seemed very small when compared to his immense size. His large right ear flapped occasionally, indicating that he was either troubled by some flies or that he was trying to keep himself cool by flapping his ears. We stopped our vehicle at the edge of the road and watched. The mid-July weather on that noon in the Reserve was pleasantly warm, as patches of light rain clouds blocked the view of the sea-blue sky. The terrain around the *Acacia* tree was undulating with low hills, with patches of *Acacia* woodland and knee-high golden grass in unburnt areas, and with shallow valleys. To me, it looked more like the landscape of eastern Gir. Several vehicles going along the game road, hardly 60 m from the Rhino, stopped and people either peeped through the window or opened the top of the vehicle and looked around to have a clear view of the animal and the landscape. The noteworthy aspect of this tourism was that the people were

exceedingly silent and only whispers went around when they wanted to convey a message to their colleagues. The Rhino continued to rest and flap the ear unbothered by the attention showered on him.

While attending the fourth International Wildlife Management Congress (2012), held in Durban, South Africa, from July 9–12, 2012, I had an opportunity to make a day visit to the 960 sq. km Hluhluwe-Umfolozi (H-U) Reserve, 280 km from Durban. I was driven to the Reserve by Shomen and Jayanthi Mukherjee, former students of Wildlife Institute of India who were doing their post-doctoral work in Durban. We were also accompanied by Satish Kumar, a faculty from Aligarh Muslim University, who had made a presentation in the Congress on the denning behaviour of the Indian Wolf. We left from Durban for the Reserve at around 4:00 a.m., at which time the darkness of the early morning and the incessant downpour restricted our visibility for the first 100 km, preventing us from looking at the landscape. Only while returning in the afternoon could we see the picturesque undulating lush green landscape dominated by sugarcane

fields, neatly planted rows of hybrids of *Eucalyptus grandis* and *E. europhylla* on either side of the road, and small settlements with clumps of trees. The two species of plants that attracted my attention were *Strelitzia nicolai* (banana-like plant with woody stem), which grew profusely in moist areas, and *Aloe marlothii* (single-stemmed Southern African Aloe, which grows in rocky and open places), with very attractive orange flowers.

Hluhluwe-Umfolozi Reserve is the largest protected area in the KwaZulu-Natal Province in South Africa. It is an amalgamation of the two reserves, Hluhluwe and Umfolozi. Both these reserves were established in 1895 in the decade when the Zulu kingdom was conquered by the British. The habitat in Hluhluwe is more hilly with a predominance of savannah woodland. Umfolozi is carved out of two large valleys of the Black and White Umfolozi river and it is a thinly forested grassland landscape. Amalgamation of the two reserves took place in 1989, nearly 100 years after their first notification, by a corridor (30 sq. km), which is less rugged and more open. Around the period when the reserves were established, European farmers were



An adult Nyala male (left) and female Nyala (right) found in Hluhluwe-Umfolozi Reserve

settling in Zululand. They acquired land cheaply around Hluhluwe and Umfolozi, and when they raised livestock there was heavy mortality as a result of the disease called *nagana*, which is transmitted by the Tsetse fly. This resulted in a programme to eradicate all game animals as it was perceived that once the game animals are killed the Tsetse fly would be devoid of nourishment and would die. Conservationists could not fight against this massacre (reportedly 100,000 animals were killed), and eventually with the introduction and application of DDT, which killed off the offending fly, this unscientific and deplorable method of disease control came to an end.

Fortunately, even during this period, the White or Square-lipped Rhino (primarily a grazer) survived and now the Reserve has a population of nearly 1,000 rhinos (White Rhinos in northern Africa are critically endangered). Periodically, when the population of rhinos goes beyond a certain limit, a prescribed number are translocated to other reserves. Depending upon requests, some are donated to zoos. There is also a population of the much more elusive and endangered Black or Hooked-lipped Rhino (largely a

browser) in the Reserve. By the beginning of the 20th century, it was thought that because of over-hunting, the lions were extinct in the Reserve. Gradually, however, lions from nearby areas immigrated to the Reserve and now there is a population of nearly fifty that helps in controlling prey numbers. The genetic vigour of the lions is maintained by periodic reintroduction. Leopards and cheetahs also help in controlling prey numbers. Reintroduction of the African Wild Dog – which has drastically declined all over Africa as a result of conflict with expanding human population, habitat fragmentation, and disease contracted from domestic dogs – has not met with much success. Presently, this Reserve, although a malarial area, is the most popular conservation and tourism showpiece in KwaZulu-Natal province. The reserve is totally fenced, devoid of human settlements, and has a 250 sq. km wilderness area where no development is allowed and to which the only access is on foot. The wilderness area was set aside in the 1950s on the initiative of former Game Ranger and well-known conservationist, Ian Player. On April 30, 1995, the then

President Nelson Mandela visited the Reserve to celebrate its centenary.

Our visit was brief, yet we saw a remarkable number and diversity of large mammal species. Even near the Nyalazi gate, we saw two White Rhinos. There are five species of rhinos in the world – White and Black rhinos in Africa, Indian, Javan, and Sumatran rhinos in Asia. Rhinos are primitive looking mammals surviving from the Miocene era (23–5 million years ago). All the rhino species are currently threatened by poaching for their horn, which is used in traditional medicine in Asia. Interestingly, the horn is made of thickly matted hair that grows from the skull without a skeletal support.

One noteworthy aspect of the management in the Reserve is the wise use of the cool season burning to create conditions of spring (as one Range Officer remarked) for the ungulates. Burning is done on a rotational basis; an area burnt this year may not be burnt for the next two to three years. The most common animal we saw in the burnt areas where the tender grass was sprouting was the Impala, one of the graceful antelopes of Africa that fortunately occurs in thousands in many



Warthog – the name comes from four large wart-like protrusions on the head that serve as fat reserves



A herd of elephants spotted near Nyalazi gate

countries. It is the preferred prey of all the large mammalian predators: Lion, Leopard, Cheetah, Hyena, and African Wild Dog. In an unburnt patch, with an abundance of tall and soft grass turning golden yellow, there was a large herd of buffaloes feeding dispersed in the grassland. Along the road, in several places, the strong smell of rhino, buffalo, and elephant permeated the air.

Around midday, we reached Mpila camp (there are six lodges and three

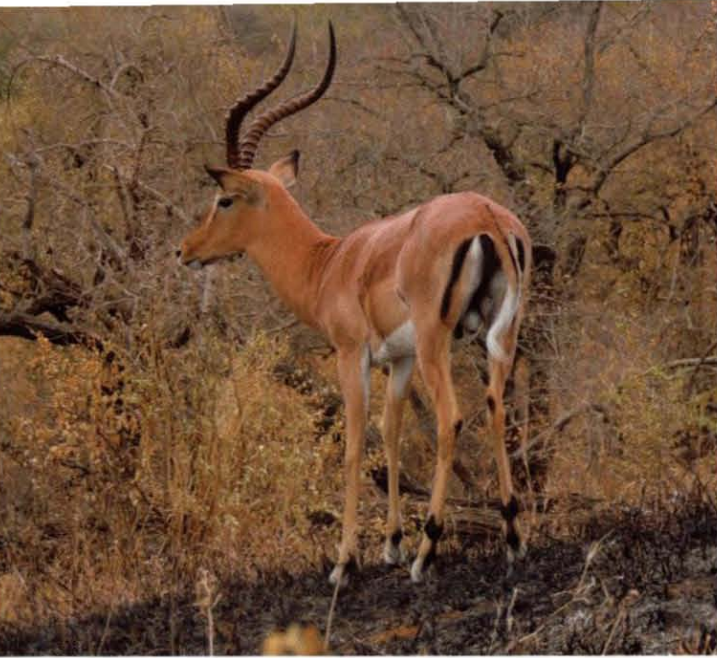
camp in the Reserve) atop a hillock and wandered around the camp. The view from the camp was magnificent. As we parked our car, we noticed a group of Vervet Monkeys stealing food from the open windows of a car. While we were following a group of Crested Guinea Fowls and trying to take their picture, a lion roared in the valley below and my thoughts went to Gir protected area where I have walked on numerous occasions and have listened to lions in

rapt silence. A group of baboons was walking along the ridge beyond the valley where the lion was roaring. It appeared that they were not bothered by the roar of the lion.

The Mpila camp is protected by an electric fence to keep away elephants. The staff in the camp said that all other animals including Lion and Hyena walk through the camp at night. There were many Warthogs, which belong to the pig family, feeding on the grass around the



A view of Umfolozi river within the Reserve



Impala, the most elegant and abundant antelope of Africa



Plains Zebra is one of the most attractive wild herbivores of Africa

neatly maintained chalets. The name comes from the four large wart-like protrusions on the head of the Warthog that serve as fat reserves, and are used for defence when males fight. I was lucky to see some Nyalas, the South African Spiral-horned Antelope. The females had rusty brown coats. Only the males have the horns, but both males and females have a white chevron between their eyes, which is much more conspicuous in the males. Adult males look even more magnificent with a prominent crest of hair running from the back of the head to the end of the tail. Another line of hair runs along the midline of the chest and belly. As we came out of the camp, we drove into a group of Common or Plains Zebra, one of the most attractive mammals of Africa, which was not shy of our vehicle. Although threatened by habitat loss and hunting, the Common Zebra is more abundant than the other two – Grevy's and Mountain zebras – which are critically endangered.

As the afternoon advanced, we drove back to the entrance. On the way, a herd of Blue Wildebeest was seen coming to the Umfolozi river to drink. A pair of male zebras was observed at a distance in burnt grassland fighting – chasing, kicking, and biting – which raised lots of dust. While

driving inside the Reserve in our small vehicle, we were keen to see elephants, but were rather afraid to meet a large bull on the road face to face. We did not realise that we were ordained to get a magnificent view of the elephants. In the past, they had been killed off from the Reserve, but there is now a population of four hundred, which has grown from the reintroduced stock. As we drove past the Nyalazi gate and came on the road (R 618), we saw a group of four elephants, with a bull, peacefully feeding on the left side of the road unmindful of the traffic. We stopped, quickly took some pictures, and drove off to Durban.

As I travelled, I reflected on the news that till mid-July 2012 that year nearly 300 rhinos were poached in South Africa, which has about 20,000 rhinos. It was feared that at this rate the number of rhinos poached would exceed the number poached in 2011, which was 448 (the number of rhinos poached in 2010 was 333). This rise in the poaching incidents of all species was attributed to the recent arrival of a large Chinese population in Africa. Related to rhino poaching, the dedicated South African Government had made 176 arrests till July 2012, and they were making efforts at the national and international level to significantly control

this heinous activity. I hoped against hope that the determination of the South African Government would eventually win over this evil. ■

**Postscript:** Poaching is on the rise in Africa. In January 2013, in Kenya, an entire family of eleven elephants were machine gunned from air. Poachers came in a helicopter and took away the ivory. The black market trade in ivory and rhino horn is reported to be eight billion dollars a year and this growth in poaching is attributed to the spike in the economic growth in Asia. The Vietnamese believe that rhino horn can cure cancer. One kilogram of rhino horn powder is now worth 65,000 US dollars. One pound of ivory is worth a thousand US dollars. It is feared that this unethical war on wildlife may severely affect the economy of many African nations as they directly depend on wildlife tourism and trophy hunting for their revenue.



A.J.T. Johnsingh is the first Indian to do a study on a free-ranging large mammal, the Dhole. He represents the National Wildlife Board and National Tiger Conservation Authority. He works for

Nature Conservation Foundation, Mysore and WWF-India.

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Less than 30 Indian Bustards are left in the wild in Kutch, out of the 300-odd that still exist in India. Despite being listed as **critically endangered** by IUCN, not much attention is given to protect the Indian Bustard and its habitat.

The Corbett Foundation, an NGO established and supported by Infinity Resorts, is fighting hard to save the natural habitat of these majestic birds in Kutch, Gujarat.

Lend your support to "Save the Indian Bustards Campaign" of The Corbett Foundation and urge the Gujarat Government to protect and conserve their habitat by signing an online petition of The Corbett Foundation

[www.change.org/petitions/save-the-indian-bustard-campaign](http://www.change.org/petitions/save-the-indian-bustard-campaign)

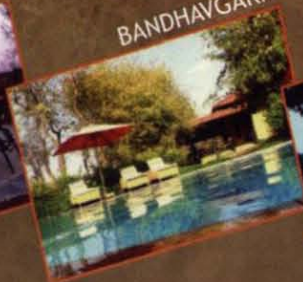


[www.corbettfoundation.org](http://www.corbettfoundation.org)

KANHA



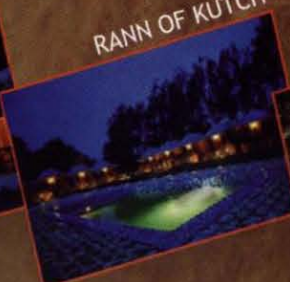
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# Bison in the Backyard



Text and Photographs: **Pippa Mukherjee**

**T**he Indian Bison or Gaur *Bos gaurus* is a very large animal. An alpha bull can weigh up to 900 to 1,000 kg and is jet black, almost hairless, with white stockings; the females are almost as large but brown, deepening to dark brown as they age, but still having the white stockings. The calves when born are light golden brown for a short time. Each animal can eat a large amount of grassland plants, with some leaves and tree bark in addition. They tend to spend the night digesting the food by regurgitating it from one of their four stomach pouches in small balls and chewing the fibrous material to digest all the nourishment that keeps them alive; this is called 'chewing the cud'. Normally, these shy creatures inhabit grassland ecosystems during the day where there is plenty of grazing and retire to forests for the night. But with human pressures, and land being converted to agriculture, their normal food plants are destroyed and they have to move to areas that will give them the sustenance that they require.

## Bison in the Backyard



A huge Bison relishing garden plants in the backyard of a Kodaikanal household

For such huge animals, they are remarkably agile and a large male can jump over a six to eight feet fence from a standing position, and at a canter can clear a much higher boundary. In their natural habitat, Bison are timid animals and often when I have been hiking and have met a herd of 15 or more, it only takes the word 'shoo' for them to go scurrying into the forest.

In the town of Kodaikanal in the Palni Hills, a north-eastern offshoot of the Western Ghats, which because of its position is hit by two monsoons, the incoming Southwest and the returning Northeast, the problem of Bison has become acute. The animals have gradually moved into the town where they can find gardens with plants that they enjoy eating and perhaps to protect their young from the few predators in the forests that find them easy prey.

I have lived in Kodaikanal since 1984, and during those early years Bison were very rare anywhere near the town, but

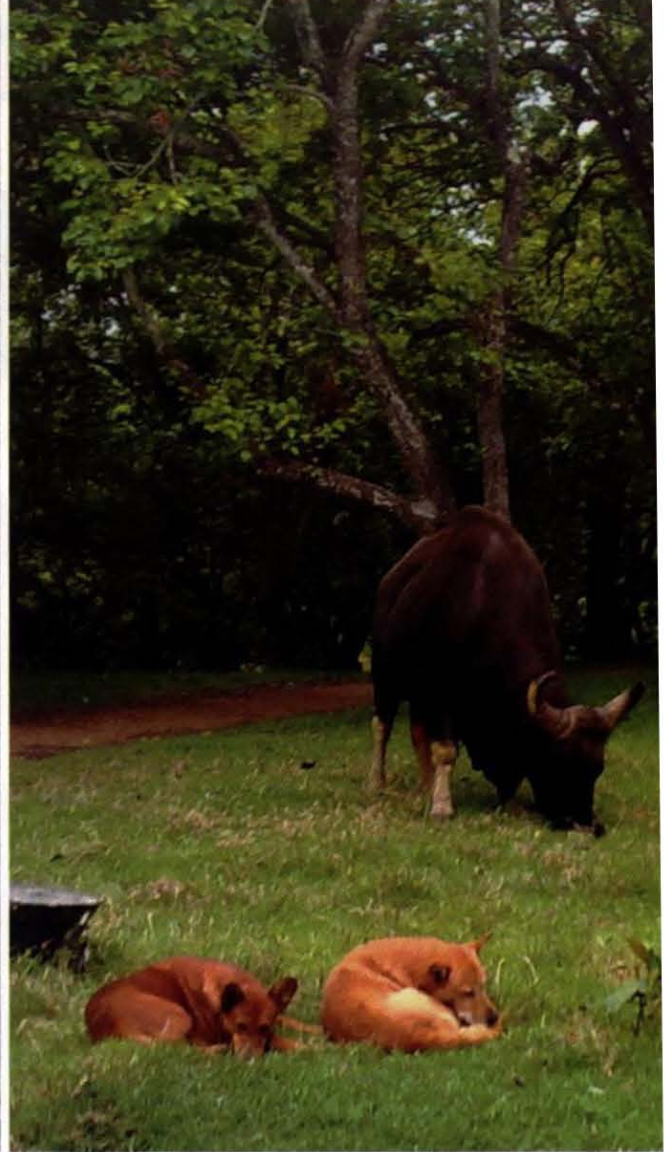
were shot illegally in the forests for their meat. An entire village could survive on the meat of one animal for nearly a week and so it was a useful source of protein. A Bison was not, at that time, considered a cow so killing it was really not a problem for Hindus. Also, since the town is largely populated by Christians converted by American missionaries who had been coming up the mountain to avoid the summer heat since the mid 1800s, there was no issue against eating gaur meat among the majority of the inhabitants. This is also the case with the Muslims.

Teachers at the Kodaikanal International School would sometimes find a little parcel of Bison meat outside their doors which was a welcome change to the rather tough meat supplied by the vendors in the town. This situation continued through the 1980s with the knowledge of some of the Forest Department, who quietly pretended that the practice did not exist. It is strange that the Indian Wildlife Protection Act

does not allow the killing of any animal in the country bar a crow, so technically the act of shooting a Bison was a heinous crime.

In the 1990s, the practice had virtually stopped and a great deal of construction was taking place in and around the township of Kodaikanal, with a lot of illegal buildings, and this practice continues to this day. Also, land was being cleared at an alarming rate for agricultural purposes and the planting of vegetables, which are the main crops in the hills. The changes in land use destroyed much of the Bison habitat. Even with the work that the Forest Department and the Palni Hills Conservation Council took up to protect the forests and grasslands, it was not and has not been enough to protect the natural fauna, both predator and prey. The only predators left in the area now are a few packs of Wild Dog, some Leopards, and the occasional Tiger.

Thus, in the early 2000s, Bison started coming into the town on a regular basis,



Bison, irrespective of the surroundings graze all over Kodaikanal – in backyards, home gardens, and schools

and perhaps the most telling incident was when two walked into the town bus stand causing amazement, consternation, and fear. I am not sure how they managed to get the two animals out of the bus stand without a stampede, but apparently no one was hurt that day. Now there are Bison everywhere, and a few months back while I was travelling by bus from my house to the town at 6:30 a.m., the bus stopped suddenly as it approached the main town road, blocked by 12 large Bison wandering along the road! In 2012, the situation was so difficult that the Bison had even been seen climbing up the steps to the Middle School library of the International School. The problem is exacerbated by the inability to prevent them from getting into the gardens and

compounds as fences do not deter them. They either jump over them or push their way through. At the school, the watchmen are so frightened that they try to chase them away, which make them aggressive and even more difficult to handle.

The other night while visiting a friend on one of the school campuses, I came out of her front door to bump into a huge Bison quietly chewing the cud on her small lawn. Luckily, since I had to walk right past, the Bison was more interested in food than me and just kept chewing. In the last few months, Bison have been seen all over the town, and to date, three people have been chased and one man quite severely injured by a young male that rammed

him in the chest. The problems with Bison are increasing and a fatal accident is just waiting to happen. Students in the school trying to return home at night often cannot get to their houses as there are too many Bisons in their gardens. And of course, gardeners are giving up on planting as Bison trample or eat anything that is tasty in the flower beds. This is not a problem confined to the Palnis. Recently, a man from Coonoor in the Nilgiris was killed on a misty morning as he went on his morning walk and walked unknowingly into a herd of rather irate Gaur. In Kodaikanal, the problem is not only with Bison, but also Wild Boar, which breeds prolifically around my garden and dig up anything they can get at.

## Bison in the Backyard



Indian Bison are remarkably agile animals



These animals when on the roads can be a nuisance

How can this situation be managed? The Forest Department's only suggestion is to tranquilise the animals and move them to a forest area away from the town, but how does one lift a 1,000 kg Bison onto a lorry without a crane? A major

fear is that the Bison will start to interbreed with domestic animals and exacerbate the problem. Many of the young males are deprived of fertile females by dominant males and thus, are unable to mate with their own kind. The

other fear is that of rinderpest, an infectious and dangerous cattle disease that may reappear (it has now been declared globally eradicated) and spread into the forests.

Having lived in this country for over 40 years, I am amazed that the Indian Government still does not allow culling, which is common in many other countries. In Africa, the buffalo in several areas are culled once a year and the meat is processed to provide an excellent source of protein to the villagers. In England, the Deer problem is solved by culling members of the herd that are least needed, usually the additional young males, and the meat is used in the markets, a popular addition to diets. In France, Wild Boar, which have become a nuisance in many parts of the country are culled, and provide meat for the gourmet.

I can understand that the government is terrified that by allowing culling it will open the door to mass removal of wildlife, but with care and supervision by only those with legal gun licenses it should be possible to deal with the problem in a safe, useful, and efficient manner. Of course, in a country like India, with so much wonderful flora and fauna, the last thing that one should risk is the removal forever of an animal or plant, but emotions should not prevail over conservation. ■



Environmentalist Pippa Mukherjee has been studying the fauna and flora of Kodaikanal since 1984.

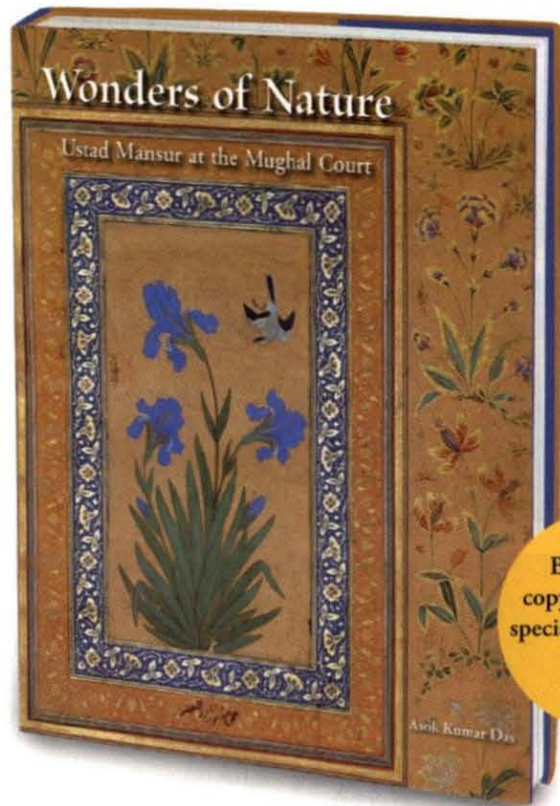
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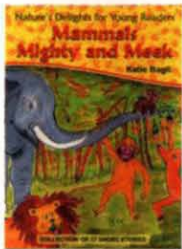
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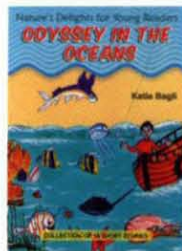
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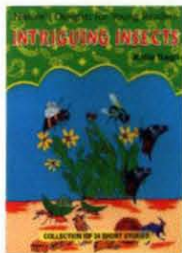
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### **Intriguing Insects, 2012**

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Size: 23.5 x 16.5 cm

Pages: 115

Price: Rs. 199/-

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Reviewed by: Atul Sathe

Nature education plays a vital role in successful conservation. If the love for nature is inculcated in children at a young age, the chances are that they will grow up into concerned citizens who believe in sustainable development. Four new books by Katie Bagli, namely *BIRDS OF DIFFERENT FEATHERS*, *MAMMALS MIGHTY AND MEEK*, *ODYSSEY IN THE OCEANS* and *INTRIGUING INSECTS*, written in a lucid manner with drawings and sketches, fulfill this criterion.

*BIRDS OF DIFFERENT FEATHERS* has stories depicting their behaviour, habits, and habitat. Interesting bird facts, such as male jacanas taking care of the young even as the female is busy courting other males, Pied Crested Cuckoo flying from eastern Africa to India before the rains, the marvel of flamingos arriving in Mumbai every winter, and the ways of the wise old Barn Owl have been nicely covered. The story of the critically endangered Gyps vulture species in India,

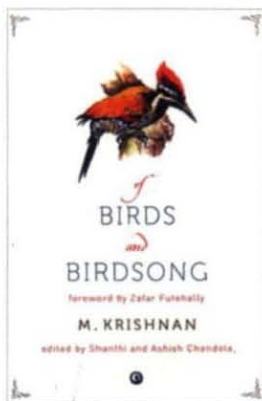
threatened by the veterinary pain-killer diclofenac, sends across the conservation message. Wonderful sights, such as flocks of migratory Rosy Starlings have been portrayed. The book talks about the symbiosis that goes on in the natural world, such as lapwings picking up tidbits from the jaws of crocodiles and in the process cleaning the latter's teeth!

*MAMMALS MIGHTY AND MEEK* depicts the fascinating world of mammals, with facts and catchy chapter titles such as 'Monkey Business', 'Tales about Tails' and 'Ghost in the Mountains'. The touching yet inspiring story of a trapped Bonnet Macaque will surely create love for nature conservation among youngsters. Some chapters explain the need to understand traditions correctly. For instance, it is more important to conserve habitats of species that are considered sacred than to give them food. The book covers a spectrum of wild animals such as Tiger, Asiatic Lion, One-horned Rhinoceros, Asiatic Wild Ass, Sloth Bear, and Asiatic Elephant. It also takes a peek into the world of marine mammals, such as dolphins and whales. However, the sketches in the book could have been better and more realistic. The poem at the beginning has not turned out well.

*ODYSSEY IN THE OCEANS* takes one to the blue depths of the mysterious underwater world. It talks about marine species such as fiddler crabs, mudskippers, octopuses, sea horses, salmon, oysters, clams, sharks, and squids. The dialogue between the mother Coconut Crab and its baby from Andaman highlights unknown facts about such creatures from far off places. The scuba diving session of a boy throws light on the lesser known world of beautiful corals. The book gives interesting information on lesser known and often feared species such as Portuguese Man-of-War and jellyfish. Olive Ridley Turtle, a species well-known for its nesting sites along the coast of India, is presented in a separate chapter. The book ends with a message that the ocean is the cradle of life and humans should not destroy it by pollution and over fishing.

*INTRIGUING INSECTS* will be a kid's introduction to the world of creepy crawlies, often hated, but very useful and fascinating. It covers our tiny friends such as ants, flies, dragonflies, termites, grasshoppers, bees, wasps, butterflies and moths, all of which have their roles in nature. This publication also has catchy chapter titles such as 'A Midsummer's Night', 'The Great Wall of Chintiya', and 'Bag of Tricks'. The story 'A Rock Concert' describes the experiences of a kid who is not allowed to attend a rock concert, but has to go out with his grandma for a walk in the park. In the end, the kid starts enjoying the music from the insect chorus! This book is sure to invoke in the readers a love for insects, which provide us with invaluable products such as honey, and are also responsible for pollination.

Thus, one can expect a few hours of relaxed and fun-filled reading experience with these books, whether a child or a parent, while at the same time kindling a love for nature. 🍃



**Of Birds and Birdsong**  
by M. Krishnan  
(edited by Shanthi and  
Ashish Chandola), 2012  
Published by:  
Aleph Book Company,  
New Delhi  
Size: 23 x 15 cm  
Pages: 328  
Price: Rs. 595/-  
Hardback

Reviewed by: Asad R. Rahmani

A book reviewer is supposed to be objective and neutral in his/her assessment, but how can one be objective when one reviews a book of one's lifetime hero. This is the dilemma I faced when the two editors and the publisher asked me to review *OF BIRDS AND BIRDSONG* by Mr. M. Krishnan. I have been an admirer of Krishnan since I started reading newspapers. His series *Country Notebook* in the newspaper *The Statesman* had the greatest influence on me in my younger days. I became interested in natural history even before I saw any book on nature. Growing up in large bungalows on the outskirts of small towns in the 1950s and 1960s of Uttar Pradesh, with large gardens, sprawling groves, pastures, and agricultural fields nearby, gave me firsthand experience of observing insects, snakes, lizards, birds, and even small mammals. Krishnan's articles every fortnight on common species brought a joy that I still nostalgically cherish.

Krishnan was a prolific writer on various subjects, including Tamil literature, but this book is a compilation of his articles on birds. He was a hawk-eyed observer of details of common flora and fauna, which he described in simple language, peppered with appropriate words, which many would not have heard of. He was a skilled photographer and amateur artist,

but his articles did not always need to include sketches or images as his descriptions were so well-crafted that a reader could visualise what the author wanted to convey. His words would create an image of the scene that would linger even when the exact description had been forgotten.

I saw this book on many display racks of book stores, particularly at airports where many books and other items vie for attention; but this book stands out with its elegant cover. The cost is reasonable, and the design, editing, and printing are also of quality. Besides the publishers, credit should also be given to Shanthi and Ashish Chandola, well-known wildlife filmmakers, photographers and writers. They have done a service to Indian ornithology by compiling this anthology of Krishnan's bird articles published in various magazines and newspapers. I wish someone would compile all his articles, particularly his 46 years uninterrupted column in *The Statesman*.

I recommend it as compulsory reading for all young field biologists and naturalists of the Indian subcontinent, and abroad, who now tend to spend less time in the field and more on 'computer-modelling' their small amount of statistical data gathered in a few days of field work. These elaborate and fancy statistical results do not make ecological sense and have little value even if published in peer-reviewed high impact journals. There is still no substitute to spending long hours in the field and painstakingly taking observational data. I tell you, it is more fun to be with nature. I hope our new generation of field biologists will develop incisive and keen observational skills that the grand old Krishnan had.

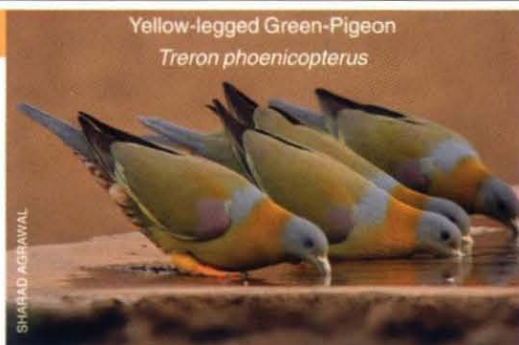
I totally agree with the blurb of the book that says, "M. Krishnan's prose is studded with evocative descriptions of nature, literary allusions, stylistic flourishes, humour, and most rewardingly, precise observations and original insights into over a thousand species of birds in a variety of habitats. This is a work that will delight bird lovers of every stripe." 📖

## ABOUT THE POSTER

Green-Pigeons come under the genus *Treron* of the pigeon family Columbidae, and are characterised by their dominant green coloration. They are arboreal and well-camouflaged by tree foliage, and large numbers can go surprisingly unnoticed if they remain still. They largely feed on fruits, and large flocks can be seen feeding on fig trees, such as Banyan and Peepal in India. Most of the species of green-pigeons display sexual dimorphism, with the male being generally more colourful than the female.

The Yellow-legged Green-Pigeon *Treron phoenicopterus* is a widely distributed green-pigeon species of India, ranging from the Himalayan foothills from Pakistan (Punjab) to Assam, Bangladesh, and through the Peninsula up to Sri Lanka.

The sexes are more or less alike in this species, the female somewhat duller. The species is readily distinguished from all other Indian green-pigeons by its yellow legs. The yellow collar, lilac shoulder-patch and the chestnut barred vent are other pointers. It has a pleasant, musical, mellow, whistle-like call. The Yellow-legged Green-Pigeon is the state bird of Maharashtra.



Yellow-legged Green-Pigeon  
*Treron phoenicopterus*

SHARAD AGRAWAL



Yellow-legged Green-Pigeon  
*Treron phoenicopterus*



# A Rendezvous with Nature's Potter



Sumukh S. Deodhar, an orthodontist by profession and a fun-loving outdoors photographer, is extremely passionate about his work and hobby.

Text and Photographs: **Sumukh S. Deodhar**

**D**espite the poor rains in Mumbai this year, the forest at Sanjay Gandhi National Park (SGNP) had regained its beautiful green colour. The place was teeming with butterflies, dragonflies, bees, wasps, and other insect species. I had been to Shilonda in SGNP on several occasions, each an insightful trip, and this trip was no different than the rest. The protagonist this time was a Potter Wasp! About 250 m from the entry point to the Shilonda trail, I saw a Potter Wasp in the middle of a mud track preparing a mud ball by mixing mud and its saliva.



As soon as the mud ball was ready, it flew off to a branch of a *Morinda* tree (Bartondi) just beside the edge of the trail. I followed it to its nest, which by then was already half done.



The wasp used her antennae and first pair of legs to shape the mud ball and create a portion of the pot. Once it exhausted all the material, it was time to get some more.



She made several such sorties. Each mud ball was carefully pressed into the desired shape and contour.



Finally, the most intricate part of the construction, the mouth of the pot, began. The quality of the mud seemed to be different. During most part of this process, she had her head inside the pot, making her vulnerable to attack.



She flew off one last time as she needed another mud ball to give the finishing touch to the nest; an incredible achievement for one so small in size. I was left wondering how this tiny wasp could build such a piece of art that nobody had taught her. This skill was encrypted in her genes. All this toil and effort to secure the safety of her offspring!



There was no rest for her in the last two hours taken to complete the nest. As the nest was built, she gently inserted her abdomen into its still wet mouth, stayed there for about a minute and then flew away.

I waited for about fifteen minutes for her to return, but she did not show up. She must have returned later on to place a paralysed caterpillar inside the nest for the single wasp larva before sealing it with a mud ball. As a rule, the adult wasp lays a single egg in the empty cell before provisioning it. Unlike the larvae, adult Potter Wasps feed on floral nectar. ■

We are grateful to  
**Mr. Angus Hutton**

a member of the BNHS since 1945

for a generous donation of 200 books from his personal collection to the BNHS library.

Angus Hutton a British naturalist, born in India, started as a “creeper” (apprentice) on Karamalai Estate under the legendary C.R.T. Congreve, in the year 1945. He became a member of BNHS on November 29, 1945, after meeting Dr. Sálím Ali on one of his birding surveys. When C.R.T. Congreve retired to the UK, Angus joined High Wavy Mountains as an assistant with Tea Estates India Ltd., (a company owned by Brooke Bond) and worked on their wildest and most isolated properties – a naturalist’s paradise! During his stay there, he discovered a new genus of venomous snake that was eventually named after him – *Tropidolaemus huttoni* – and also a



new genus of fruit bat – named after his old friend and mentor Dr. Sálím Ali – *Latidens salimalii* – and also collected the second known specimen of the skink – *Dasia subcaeruleum* Boulenger, 1891. He discovered a new species of Papuan Weevil *Gymnopholus huttoni* Hutton’s Papuan Weevil in New Guinea. He discovered and photographed the life history of many species of rare New Guinea butterflies and moths. He has over 100 papers published on various environmental subjects in scientific journals and magazines around the world.

“The earth has music for those who listen”, as said by George Santayana, is true about him.

Some of the interesting books donated by Mr. Hutton are:

- 📖 *Denizens of the Jungles (Large and Very Rare)* by R.A. Sterndale (1888)
- 📖 *Horn Measurements and Weights of Big Game* by Rowland Ward (1892)
- 📖 *Curiosities of Natural History* by F. Buckland (1900)
- 📖 *Ornithological Oddities* by F. Finn (1907)
- 📖 *Poisonous Snakes and how to recognize them* by Maj. F. Wall (1907)
- 📖 *Instructions for Collectors (Reptiles etc.)* by British Museum (1916)
- 📖 *With a Camera in Tiger Land* by F.W. Champion (1934)
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## ● Editors' Choice



“Nature’s first green is gold,  
Her hardest hue to hold.  
Her early leaf’s a flower;  
But only so an hour.  
Then leaf subsides to leaf.  
So Eden sank to grief,  
So dawn goes down to day.  
Nothing gold can stay.”

— Robert Frost

# The fascinating world of a little hunter

Text: Gobind Sagar Bhardwaj and Subharanjan Sen



Mountain Weasel *Mustela altaica* with its prey



Ladak Pika *Ochotona ladacensis* nibbling on the leaves of a herb

*It is all about survival – eat or be eaten is what we read, hear, and are also taught. “To succeed at the evolutionary game, organisms must eat but not be eaten.” We all run a race everyday, as individuals and as a species, we lose some and win some, but do we want to be the only species to reach the finish line?*

## Nature Watch

The low rattling sound of clicking cameras in continuous shutter mode was loud enough to beckon a Ladak Pika *Ochotona ladacensis* that was nonchalantly engrossed in gnawing leaves of the herb *Rosularia alpestre*, least bothered by the zooming vehicles on a road leading to Khardung La, the world's highest motorable pass. In curiosity, it curtailed its nibbling, and with some leaves still jutting out from its snout, this small rodent tried to trace the clicking sound of snapping shutters of our cameras. We were in our vehicle with our faces behind the lenses and camera bodies. To have a better view, our little friend came further towards us on a boulder and started looking at us and our equipment with inquisitive eyes. Belonging to Family Ochotonidae of Order Lagomorpha, which includes the Hares and Rabbits, Pikas (or Mouse Hares) are herbivorous, small, tailless mammals with small limbs and rounded ears; they generally inhabit rocky crevices above the tree line.

At an elevation of 4,275 m hardly 200 m from the barrier of Police Check Post at South Pullu, we were on our way from Leh to Khardung La, conducting a bird survey in the Trans-Himalayan region of Ladakh. Just after a few minutes drive from South Pullu, adjacent to an abandoned grazer camping site, which was in ruins and strewn with boulders, we stopped our vehicle to look at a Robin Accentor *Prunella rubeculoides*, a high altitude bird, that had descended down the hill and was perching on a boulder on the roadside. Our driver Udai Singh Rawat, who was driving our official Sumo jeep, slowly applied the brakes and without a jerk the vehicle stopped along the side of the busy road. Intermittently, some army trucks were passing with their drivers and soldiers giving us a strange, inquisitive look. Perhaps our cameras with long telephoto lenses attracted them.

It was a clear, fully saturated sunny sky with the cold breeze slightly shaking



SUBHARAJAN SEN

SUBHARAJAN SEN

SUBHARAJAN SEN



## Nature Watch

our lenses placed on the windows of the vehicle over bean bags. Our eyes were searching for the bird among the boulders and we spotted a Pika instead that was busy foraging ground vegetation, unaware of our presence. This new subject was equally appealing to us and we got engrossed in 'shooting' it, forgetting the Robin Accentor. Suddenly, shrieking calls of a small rodent coming from the other side down the hill from the boulders of old bunkers breached our concentration and drew our attention towards it. Perhaps a Pika might have been caught by a raptor, maybe a Kestrel or a Golden Eagle. The moment this thought flashed in our minds, our eyes instantaneously started scouring the area and soon zeroed upon a moving object that arrested our attention in no time. We could hardly recognise the moving object with our naked eyes. A small animal was scampering from one boulder to another carrying an animal almost equal its size. Thinking it might be a small Mongoose carrying a Pika, we aimed our lenses towards the animal that was now scurrying towards us. Through the eye piece we could see it as it came into the camera frame for a fraction of a second and vanished, a time interval sufficient for us to click the camera and freeze the subject in the frame. It was a Mountain Weasel carrying a Pika. Belonging to Family Mustelidae of Order Carnivora, the Mountain Weasel *Mustela altaica* inhabits higher elevations of rocky Tundras with boulders, and generally prefers to live in rock fissures or crevices. They generally prey upon small rodents, like pikas and voles. Occasionally they also feed upon lizards and insects. Thus, they have a vital ecological role in controlling the populations of rodents.

Amazed by the speed and agility of this small predator carrying its large prey, we continued clicking every inch of that natural history moment to document it for the rest of the world. In a few seconds, the weasel vanished from our sight, taking shelter behind some rock to enjoy its meal.



SUBHARAJAN SEN



GOBIND SAGAR BHARDWAJ



GOBIND SAGAR BHARDWAJ

Though this 'once in a lifetime' sighting lasted only for a few seconds, it was so thrilling that it surpassed all our previous sightings in the wild, including those of the Tigers, the most talked about animal in the world. In short, we were completely fascinated by this animal and its small world.

The game was over, but our thoughts continued. 'Seeing is believing', and sighting this small animal made us believe that every bit of nature has its own contribution to our environment. Their ecological value, aesthetic value, and their contribution to the environment is incomparable and should not be judged by any standards.

Though listed in Appendix III of the Convention on International Trade in Endangered Species of Flora and Fauna and in Part I of Schedule II of the Wildlife Protection Act, 1972, the status of this Mountain Weasel *Mustela altaica* is still uncertain. There is an urgent need to do a status survey and monitoring.

Unprecedented infrastructure development including road construction, unregulated tourism along with local anthropogenic pressures of grazing and fuel wood collection are leading to habitat change, which is a

possible threat to this small carnivore. The price of our negligence cannot be paid by this wonderful creature, which has all the right to thrive in its own niche and enjoy its due share in the open treasure of Mother Nature. ■



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Subharanjan Sen is a Professor at Department of Protected Area Network, WL Management and Conservation Education, Wildlife Institute of India.

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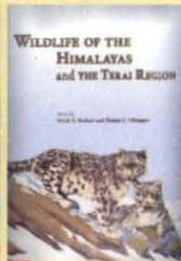
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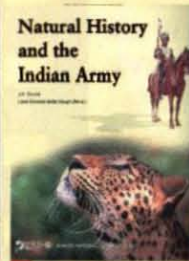
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# A Rare Encounter ...



Text: **Nirmal Kulkarni and Namdeo Gaonkar**

Photographs: **Nirmal Kulkarni**



Nirmal Kulkarni is a committed field herpetologist and spends most of his time documenting the herpetofauna of the northern Western Ghats in the states of Goa, Karnataka, and Maharashtra. He is also a member of the Goa State Wildlife Advisory Board.



Namdeo Gaonkar is a field naturalist. He specializes in butterflies, medicinal plants, and field-based conservation. He is especially good at tracking and spotting lesser known fauna.

It was a beautiful Saturday morning on June 20, 2009, when we had set out to survey the herpetofauna of Chorla Ghats (part of the Mhadei bioregion in the states of Goa, Karnataka, and Maharashtra). The vegetation surrounding this area is typical of a mixed moist deciduous forest ecosystem of the northern Western Ghats. Our survey was part of a biodiversity monitoring project of the Mhadei bioregion, undertaken by the Mhadei Bachao Abhiyaan, Goa. We have been conducting studies on the herpetofauna of this region since 2004.

An interesting sight caught our attention and we stopped in our tracks to observe a drama in the wild. A Bronzeback Tree Snake *Dendrelaphis* sp. was approaching the foam nest of a Malabar Gliding Frog *Rhacophorus malabaricus* on a branch of a Jamun tree *Syzygium cumini*. The tired female frog was resting beside the foam nest on a leaf of the tree. The snake approached the unaware frog stealthily, caught it from the middle, and coiled its body around the legs of the amphibian. Once its prey was firmly secured, the snake proceeded to swallow the frog, head first. This entire episode occurred in about 70 minutes, after which the snake moved to another tree.

We felt sorry for the frog, but life is about survival in nature. Encounters like this are rare bonuses that one gets to see during field work. ■

## Food for Thought!

It was around noon on May 29, 2009, I was busy reading notes as I had my exams, when I heard some distracting calls from the garden in front of my hostel in College of Veterinary Science, Guwahati. My 'wilder instinct' pushed me to abandon my notes and check out the sound. I rushed to the garden to investigate, and was shocked at what I saw! An Indian Bull Frog *Hoplobatrachus tigerinus* was dragging a full grown male House Sparrow *Passer domesticus* below a marigold plant and attempting to eat it!



ARINDAM KISHORE PACHONI

A number of House Sparrows nest in my hostel compound and I have observed them feeding and taking dust baths regularly in the garden. They are quite careless at such times, and in this case, even allowed a hungry frog to catch an easy prey. I felt bad for both, the prey and predator: the Sparrow was fighting for its life and the frog appeared famished, as its abdomen appeared shrunken. It had probably just emerged from hibernation.

The predator and prey wrestled for almost half an hour giving me an opportunity to record this fight for survival. The frog finally abandoned its prey as it was too big to be swallowed, but the bird was seriously injured; its left wing and leg were badly mauled. The frog had thrashed the bird violently against the ground as it does to large insects before swallowing them. I took the bird to my room hoping that it would survive but it died within an hour, leaving me with an unforgettable memory of the struggle for survival.

Arindam Kishore Pachoni  
Guwahati, Assam

## A chance meeting with the Trumpeter Finch

The sighting of Trumpeter Finch *Bucanetes githagineus* is rare in India; it breeds in Afghanistan, and West and North Pakistan from the foothills to 3,000 m. Its wintering range in India is Rajasthan, straggling to Gujarat and Haryana. Its call is similar to the sound of a trumpet, hence the name Trumpeter Finch.

My son and I got an opportunity of spotting this rare bird for the first time in 2008, around a small stream, while I was photographing some birds; I was unaware of its rarity at that time. I referred to books and the internet to learn more about the Trumpeter Finch. Since then, I have been regularly visiting places with a similar habitat every season in Kachchh (October to March), hoping to spot it.

During 400 visits to such spots from 2008 to 2012, I was fortunate to see this



JAYSUKH PAREKH

bird about 15–20 times in four years and observed many things in detail. The finch always arrived at a water body in a flock. The flock flew around the spot once or twice, and if the birds noticed any human or other disturbances or threats, they would fly away in the direction of arrival. Otherwise, they would land and come to drink, taking a step at a time to reach the water, with one member patrolling while the rest continued to drink. Their flight

pattern was zigzag like a wagtail's but with fewer curves. From December, its plumage changes to a noticeable pink in all the parts, mainly the tail, chest, and back.

The arrival of digital cameras has made documentation of facts easy. Today the internet provides abundant information on avifauna. Hence, more and more people are becoming aware about birding. On a popular website – Oriental Bird Images – about 1,275 members have uploaded more than 70,000 photographs of 2,822 species, but there are only 45 photographs of the Trumpeter Finch. This indicates the rarity of its sighting in India, and I am glad that I got an opportunity to see this bird.

Jaysukh Parekh  
Bhuj, Gujarat

## Record of the Firethroat in India

On March 11, 2012, I was on an early morning birding trip with Kanad Baidya, Mr. Abhishek Das, and Dr. Kshounish Shankar Ray, to Shanpukur village near Habra, North 24 Parganas in West Bengal. Our birding guide, Mridul Kanti Kar, who I believe has one of the finest eyes in the 'business', sighted a small bird moving around the dense thickets of *vasaka* (*Justicia adhatoda*), beside a waterbody. The bird was initially mistaken for a redstart or a robin species, as it was in non-breeding plumage and we were seeing it for the first time at this place. After consulting a field guide, we found it matched the most with a male non-breeding Firethroat *Luscinia pectardens*. It indeed was a non-breeding Firethroat male, confirmed by the white colour spectrum on its tail. This could be the first photographic record of the species from West Bengal, and possibly from India.

This highly active bird was very difficult to photograph, as it kept moving inside the scrub close to the ground in search of food all the time. It was secretive, and hardly came to the open, or for that matter, in proper light for photography. The bird was observed many times by us since that day. During the day, it fed on insects on the ground and perched on low branches of shrubs, or in the courtyard of a nearby house. It kept to a pattern most of the time, in terms of where to sit, look for food, where to rest, and to move and hide on the close approach of people, revealing it to be very territorial. When at rest, it produced a variety of low pitched, melodious calls intermittently sounding like *Teettui... Tee... Tee... Teettui... Tee... Tee*, or *Tee... Tee... Tee... Tetu... Tetu... Tetu*



and *Tui...Tui...tachak...tachak...tee*. At night, it roosted on a branch of the same bush within one-two feet above the ground.

On March 23, 2013, it was interesting to find that the bird had started moulting and slowly getting its breeding plumage: a couple of feathers on its breast had already turned red. On April 1, 2013, the bird was near attaining its breeding plumage, which I would say was 90%. A bright orange-red patch was already spreading across its breast with the dark black border, the plumage character that gives it its name Firethroat. It was spectacularly beautiful, and this sighting also revealed that there is a great deal to be known about this little-known migrant bird to our country. It was sighted that day for the last time, and most probably, it had left on its long journey back to its breeding ground in China.

Shantanu Prasad  
Kolkata, West Bengal

**Editors' Note:** The Firethroat *Luscinia pectardens* is a species of the Muscicapidae family resident in temperate forests in the Sichuan province of southwest China. It winters primarily in Bangladesh, Bhutan, India, Nepal, Tibet, and Myanmar. There are few records of the species in India, and the species is listed as a vagrant in Ali & Ripley's *HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN*. BirdLife.org states: "This species is very poorly known with no recent record from the wintering grounds, and the only recent breeding records all originating from just one site. It has probably declined within its range and is suspected to have a moderately small population. Therefore, it is currently considered Near Threatened. Further information is necessary to improve this assessment of its status."

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# Neglected Habitats: Coastal Plateau

Text and Photographs: **Swapna Prabhu**

**T**he concept of biodiversity and conservation biology matured during the mid 20th century. Since then, a variety of habitats have been identified and brought under formal protection through global, national, or regional conservation strategies based on their structural complexity, high endemism, and levels of threats. In India, conservation efforts are largely forest-centric in order to cover maximum diversity in minimal areas. This is the reason why in spite of a well-defined network of wildlife sanctuaries, national parks and biosphere reserves in India, some critical habitats lack due attention and protection. For example, India's shoreline has rocky outcrops, coral beds, mudflats, sandy shores, seagrass, rocky shores, and several such neglected habitats, which are ignored and little understood even today, and are facing various levels of threats due to the lack of adequate protection strategies. Some such neglected habitats of the Konkan region of Maharashtra will be discussed through a series of articles in *Hornbill*, starting with this one.

Konkan, as it is popularly known, is a rugged segment of the western coastline of Maharashtra, resting between the Sahyadris (Western Ghats mountain range) and the Arabian Sea. The region exhibits peculiar physiographic setup with varied undulating terrain along its entire stretch. The area

ranges in elevation from sea level to above 1,425 m and is characterised by various landforms having gently undulating low plateaus and cliffs in the west, to steep slopes, ridges, and high hills towards the eastern portion. The most remarkable of all these variations of landforms are the lateritic (rocky) plateaus, which cover the largest land surface in the central and southern Konkan (Ratnagiri and Sindhudurg districts), and are locally known as *sadas*.

## What do we know so far of rocky outcrops or *sadas*?

Rocky outcrops are generally defined as portions of exposed bedrock protruding above the soil level, due to geological activities. The term includes landforms ranging from cliffs, isolated hills, inselbergs, and rocky platforms of diverse nature. It is a recognised habitat category under IUCN's habitat classification. In India, open rocky areas in the form of naturally exposed plateaus, monoliths, kopjes, and cliffs are major components of the landscape. Large monolithic inselbergs and kopjes are common in southern India. Cliffs are the dominant outcrop type in the mountainous regions. The rocky plateaus or *sadas* in the Konkan region and the southern parts of the Northern Western Ghats have basalt as their base rock, capped with laterite.



The seasonal transformation of these habitats is drastic and splendid with a huge turnover of life forms throughout the year

### Habitat diversity

Rocky outcrops are known to be rich in their microhabitat diversity. A combination of factors such as the absence or presence and thickness of the soil layer, surface characteristics, and duration of water availability give rise to these microhabitats. The short-lived rock pools, puddles formed in shallow depressions, streams, rock surfaces with or without a thin film of soil and water, crevices and furrows between two rock surfaces, cliffs and pockets of woody vegetation wherever thick soil layer is available, are some of the distinct features. The species composition of these microhabitats remains more or less constant and specific, which adds to the overall biodiversity of the region. The classification of the microhabitats is based on papers published by Dr. Aparna Watve during 2003 to 2013.

### Exposed rocks

The exposed rock surfaces look completely lifeless during the dry season. However, variously coloured patches of lichen and cyanobacteria which become more distinct during the rainy season form the pioneering communities of this habitat.



Luxuriant growth of lichens on rock surfaces

### Seasonal Rock Pools

Rock pools are formed by accumulation of rain water in shallow depressions or concavities within the rocks, and hence are ephemeral. These have small amounts of soil accumulated at the bottom which supports fewer species, mostly growing with high abundance. The species growing within the rock pools are mainly *Rotala malampuzhensis* and *Eriocaulon* spp. The species growing in the damp soils surrounding these rock pools are common with those near deep pools and ponds, such as *Geissaspis tenella*, *Smithea* spp., and *Eriocaulon* spp.

### Rock crevices and cavities

A thin layer of soil accumulated in small cavities and crevices within rocks provides suitable substratum for establishment of some species. Cavities are usually seen occupied by lower plants such as colonies of blue green algae and mosses, and some flowering plants such as *Lindernia ciliata*, *Murdannia pauciflora*, *M. semiteres*, *Mollugo pentaphylla*, *Neanotis lancifolia*, and *Pulicaria nighthiana*, *Begonia* species are found on rocks in more moist places near water bodies.



Rock crevices

The crevices are colonised by *Eriocaulon* spp., *Geissaspis tenella*, *Impatiens* spp., *Lepidagathis* spp., *Neanotis lancifolia*, *Senecio* spp., *Smithea* spp., and many grasses and sedges.

The larger crevices have prostrate forms of scandents and climbers, such as *Cayratia trifolia*, *Gymnema sylvestre*, *Ipomoea coptica*, and *Tylophora indica*.



Seasonal rock pools



Deep pools

## Deep pools

Deep pools are formed by accumulation of rain water in the larger depressions, which also have more soil accumulated at the bottom. These pools retain water for some time after the monsoon. Their vegetation is mostly similar to shallow rock pools described earlier. Thus, almost all species found in rock pools are also seen in deep pools. However, during the dry season, unlike that of rock pools, the floor is populated by *Polygonum plebeium*, *Heliotropium supinum*, *Coldenia procumbens*, *Euphorbia* sp., and others. During the rainy season, high abundance of *Cleome chelidonii* was observed along these pools, which is a common weed of paddy fields in this area. The aquatic pteridophyte *Marsilia quadrifolia* was recorded from here.



Many ephemerals crowd along the course of drainage channels

## Drainage channels

*Sadas* are characterised by a number of seasonal streams running across them. On the gently sloping outcrops drainage channels of very little depth run down the slope. The sides of such channels are occupied by *Cryptocoryne* spp., *Dipcadi concanense*, *Crinum* spp. and *Murdannia nudiflora*. Like in deep pools, *Cleome chelidonii* was also seen midstream along these channels. Sedges are also abundant along these streams.



Ponds with *Nymphaoides* spp.

## Ponds

These retain water almost till the end of winter and are inhabited by hydrophytes such as *Nymphaoides* spp. Species of *Ludwigia*, *Crinum*, and several sedges line the periphery.



**Soil-filled depressions**

The depressions on the plateaus are more or less evenly filled with deep soil. These microhabitats contribute significantly to the overall diversity of plateaus, as there are several guilds of species occurring in these depressions.

During the dry period, the vegetation is represented by a few perennials such as species of *Lepidagathis*, *Phyllanthus* spp., and annuals such as *Blumea lacera*.

During the rainy season, these areas have tall herbaceous vegetation. Cryptogams are represented by several species of fungi and carpets of liverworts. The gregarious populations of *Campyrorhiza indica*, *Dipcadi concanense*, and *Habenaria* spp. are seen during early and mid September on many of the selected sites. The other flowering species such as *Drosera indica*, *Impatiens* spp., *Neuracanthus sphaerostachyus*, *Polygala elongata*, *Rhaphicarpa longiflora*, and several species of grasses and sedges are common, in most sites of this microhabitat.

Due to the thick soil layer, this microhabitat provides an opportunity to plants with deep rootstock, bulbiferous and rhizomatous plants to grow, which survive the dry season through their underground rootstock. *Curcuma* spp., *Chlorophytum* spp., *Gloriosa superba*, *Kaempferia scaposa*, *Typhonium roxburghii*, and *Crinum latifolium* occupy spaces between isolated rocks and soil-filled depressions.



Soil-filled depression with Pink-striped Trumpet Lily *Crinum latifolium*



Thickets on deep soil

**Thickets on deep soil**

The coastal rocky outcrops are typically seen dotted with thickets of woody plant species supported by deep soil in the depressions. These thickets are composed of species like those of the moist deciduous forest or scrub vegetation of adjacent areas, comprising of stunted individuals of *Bridelia hamiltonia*, *B. retusa*, *Breynia retusa*, *Garuga pinnata*, *Hymenodictyon obovatum*, *Ixora brachiata*, *Lannea coromandelica*, *Memecylon umbellatum*, *Morinda pubescens*, *Securinega leucopyrus*, *Strychnos nux-vomica*, *Terminalia* spp., and *Grewia* spp. Scandent species dominate this vegetation, which includes *Argyrea* sp., *Cayratia trifolia*, *Dioscoria* spp., *Capparis moonii*, *Carissa congesta*, *Cissus repanda*, *Ziziphus* spp., and *Smilax ovalifolia*. The vegetation along cliffs is very similar.

The herbaceous species recorded from the edges of these thickets are distinct from those on the actual rocky habitats. *Arisaema* spp., *Ceropegia attenuata*, *Pimpinella tomentosa*, *Protasparagus racemosus*, *Tacca leontopetaloides*, ferns like *Adiantum* sp., *Asplenium* sp., and *Lygodium* sp. are species commonly seen on edges of these thickets.



Ephemeral flush vegetation make the landscapes spectacular for a short period

**Ephemeral flush vegetation (EFV)**

EFV is a highly seasonal plant community on the rocky plateaus. An important precondition for the development of EFV is the continuous supply of seepage water during the rainy season. On the coastal rocky outcrops, it is dominated mainly by *Utricularia* spp. and *Eriocaulon* spp. In addition, species like *Drosera indica*, *Trithuria konkanensis*, and other ephemerals form this community.

## Conservation Notes

Very recently, the rocky outcrops of Maharashtra have started gaining the attention of the scientific community as special habitats. They are characterised by seasonality, appearing totally barren during the dry season and followed by drastic changes in physiognomy over a period of four months during the rainy season. Lack or scarcity of woody species make rocky plateaus appear barren or 'wastelands' for eight long months covering winter and summer. There is a visible dynamism on plateaus during the rainy season as it experiences a sudden outbreak of vegetation and then gregarious flowering of different species at different times. The first few showers transform the entire area. The new carpet of green takes on a cover of changing hues — from green to white to pink, purple, and yellow as flowers of different species blossom gregariously at different times. Kaas plateau of Satara district is a popular example of such dynamism of vegetation cover on the crest of Western Ghats, which attracts thousands of tourists every year. However, Konkan is comparatively less known for this reason. The monsoon also invites a lot of faunal activities back to life, especially insects, amphibians and reptiles.

The extreme microclimatic conditions are one of the several reasons which make these plateaus special habitats. Both rock and air temperature, and humidity, fluctuate widely throughout the year as well as in a day's time. During the monsoon, the area remains partially or totally flooded. Thus, the microclimatic conditions on these plateaus are distinct from the surrounding habitats. Consequently, the communities that dwell on coastal rock outcrops across the world have learned to deal with a wide array of adverse environmental conditions, such as very high and low temperatures, fluctuating humidity, flooding, drought, harsh wind, salinity, and lack of nutrients. As a result, these communities are known to harbour habitat specialist plants that can cope with these extremes and flourish. The plants include ephemerals, which complete their life cycle as quickly as within four favourable months, or geophytes that survive the dry period through their underground parts, such as bulbs and rhizomes. Many of these species show certain adaptive strategies like carnivory, desiccation tolerance, succulence (high water content), etc.

In spite of these adversities, rocky plateaus harbour high biodiversity, which corresponds to their microhabitat diversity. A combination of factors such as absence or presence or thickness of the soil layer, duration of water availability, and surface characteristics give rise to these microhabitats. The short-lived rock pools, puddles formed in shallow depressions, streams, rock surfaces with or without a thin film of soil and water, crevices and furrows in between two rock surfaces, cliffs and pockets of woody vegetation

wherever a thick soil layer is available, are some of the distinct features. Different forms of life that occupy and thrive in different microhabitats at different times in a year remain invariable and add to the overall biodiversity of the region. There is another special characteristic that adds to the biological uniqueness of these plateaus — their high endemism. The biological richness is underscored with high number of plant and animal taxa whose occurrence is confined to these habitats.

### Conservation issues

Recently, most of these coastal rock outcrops are experiencing heavy pressures and disturbances such as their rapid conversion for settlements, paddy fields, orchards, quarries, grazing lands, windmill farms, and industrialisation. Lack of awareness about their role as special habitat and consequent absence of baseline understanding regarding their ecology are the main hindrances in bringing them under a formal framework of protection. The ownership patterns further underscore the difficulties as the majority of these lands are privately owned. Some of the most severe threats can be listed as follows:



Sadas are important grazing grounds for livestock

### Grazing and tourism

Grazing is the most common threat to the plateaus of Ratnagiri and Sindhudurg, as these serve as grazing grounds for livestock of this region. The other threat is from tourism. The Ambolgad Plateau is popular for its sea-facing steep cliffs and scenic beauty, and many tourists visit it regularly, especially during the monsoon. These result in 'trampling' of the soil by cattle, humans, and vehicles, and litter dumping is severe and causes a lot of damage to the fragile communities. The disturbance encourages entry of invasive species from surrounding scrub areas, which may cause damage to the habitat specialists of plateaus.

**Agriculture**

The plateaus with a thick top soil layer are extensively utilised for paddy cultivation. The area under such patches varies depending on the availability of suitable land, ranging from small islands of fields to the entire plateau. The weeds associated with the paddy fields are another serious threat to plateau vegetation. For instance, *Cleome chelidonii* which is a common weed of paddy is seen invading plateau vegetation, especially occupying the seasonal pools and streams, which may suppress the growth of specialist species of these habitats.

**Mango orchards**

The alphonso mango of Ratnagiri and Sindhudurg districts is highly prized for its taste, and is a major export of the region. Large tracts of rocky plateaus are being brought under mango orchards very rapidly. The stone is blasted to dig a pit and filled with soil for planting the sapling. This method is destructive and destroys the biota of that area.

**Quarrying**

Quarrying has had the largest impact on the entire Konkan region. These quarries operate on different scales depending on private or commercial use. The deep layers of laterite in Konkan are quarried for cutting out bricks, locally known as *jambhyache chire*, for local construction of houses, or are transported to nearby cities. Quarrying is rampant and a major cause of destruction of lateritic plateaus of the Konkan.

**Windmills**

The rocky plateaus near Girye, Vijaydurg are partially taken up by windmills. These do not form a major threat to the plateaus as the area covered by them in Konkan is small.



Laterite quarries dot the plateaus all over the Konkan

However, looking at their coverage on the plateaus on the Western Ghats, they are likely to be a major threat in the future. Windmills do not directly affect the plateau habitats, but the ancillary developmental activities, such as construction of roads and buildings, and trampling may cause destruction.

**Settlements**

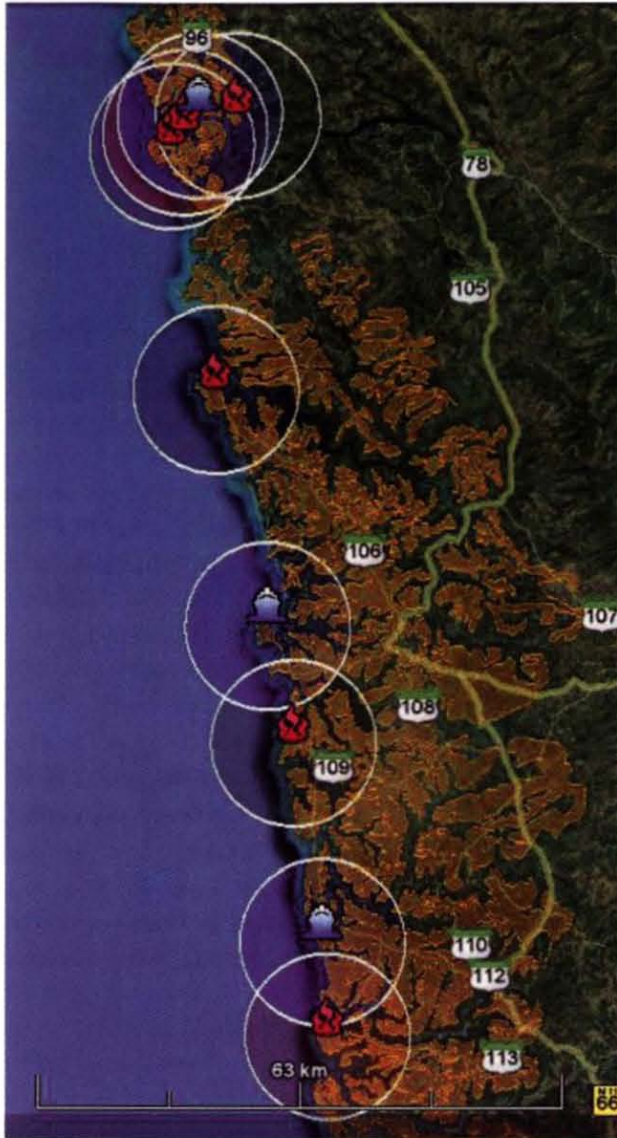
Rapid increase in urbanisation, industrialisation, and related developments in the Konkan region is resulting in an influx of people to this area from nearby areas and other states in search of job opportunities. This is resulting in new settlements mainly on the rocky plateaus causing permanent destruction to the habitat. Construction of roads also have caused fragmentation.

**Mega Power projects**

The Maharashtra government's determination to industrialise the Konkan region will have a deep impact on its rich biodiversity. A stretch of about 200 km of this coast



Windmills at Vijaydurg



The existing and proposed industries along the Konkan region is the largest threat for coastal plateaus

is dotted with more than 15 existing and proposed mega industries. These include gas and coal-based power plants with a total capacity of almost 21,000 MW. Another 15 coal-fired plants, with a total capacity of 25 MW, are reportedly planned along the Konkan.

Besides this, the mining projects in Mandangad, Dapoli, and Dodamarg talukas in Konkan involve a total of about 1000 ha land area. There are also smaller mining leases.

These developments will largely affect the coastal plateaus. In the absence of forests, the lands are wrongly considered as barren and treated as wastelands, which have resulted in easy and quick granting of permissions for several projects, without serious EIA biodiversity evaluations.

These pressures are shattering this deep-set ecological

routine. There is a general lack of awareness about the importance of these plateaus and even less knowledge about the need for conserving their ecology, which makes it very hard to extend a formal framework of protection for them.

### A step forward

The Bombay Natural History Society (BNHS) has recently undertaken an in-depth study of the plant and animal communities on the coastal rocky plateaus of the Konkan, documenting the various above discussed impacts and disturbances to build an effective conservation framework for this ecosystem. Based on the present knowledge, the following steps could be taken to work towards the conservation of these lesser known unique habitats:

**Research:** More extensive and intensive studies need to be conducted to document the floral and faunal diversity of these habitats. Long term species monitoring projects should be conducted to study population trends of endemic and threatened species and their ecological status. Long-term habitat monitoring should be carried out at a landscape level to study the impact of anthropogenic activities and climate change on species.

**Advocacy:** Various target groups including local communities, scientists, and policy makers should be educated about the importance of these habitats to reduce those pressures on habitats that may exist merely due to lack of awareness. Formation of small habitat monitoring groups to involve representatives of different target groups in actual conservation programmes could be another initiative.

**Conservation:** Banning or limiting activities that cause tremendous destruction, such as mining, tourism, constructions, industrial use, burning or blasting on plateaus is a vital step to protect them. Organic and inorganic pollution is another serious threat to the plateau communities. Plastic and urban waste dumping on plateaus should be strictly prohibited. Encouraging community ownership of such ecologically sensitive areas and bringing them under mutually beneficial protection regimes could be another initiative.

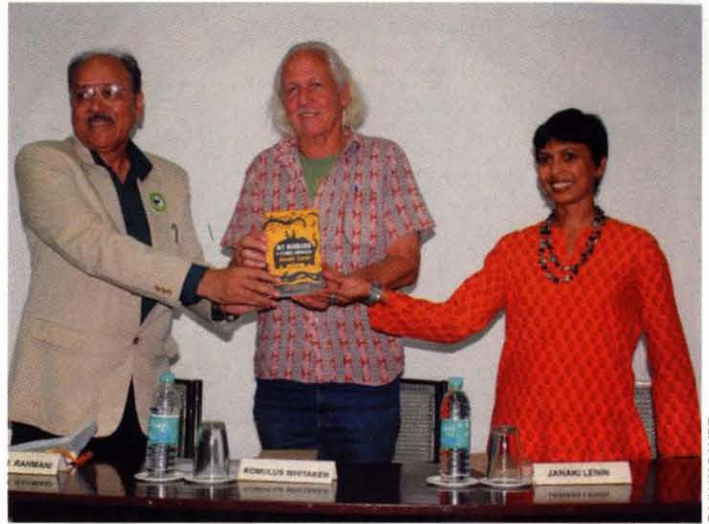
With serious and effective implementation of these recommendations, we can hope to carry forward this heritage into the future, or it will be lost forever. ■



Swapna Prabhu is formally trained in the Taxonomy of Angiosperms during her Masters degree, and in Plant Ecology during her doctoral research. Currently she works as a Plant Taxonomist and Ecologist at the BNHS, Mumbai, and is involved in plant research and education activities oriented towards conservation.

## 'My Husband and Other Animals' released

An interesting book on stories and anecdotes of living on the edge of the forest in southern India was released at Hornbill House, BNHS, on January 23, 2013, by Dr. Asad R. Rahmani, Director, BNHS. The book, written by Janaki Lenin, wife of the renowned reptile expert Romulus Whitaker, has an interesting title – MY HUSBAND AND OTHER ANIMALS. The book takes the reader on an eventful trip to a small country house nestled in a valley surrounded by fields on one side, and forested hills on the other. The author has beautifully expressed her initial shock and amazement when faced with the option of living in close company of myriad creatures, along with her 'daredevil' husband. The star cast in this real life story is complete with frogs, toads, scorpions, lizards, snakes, various species of birds, insects, porcupines, jackals, wild boar, and of course the Leopard that had developed a habit of visiting their backyard often! ■



(L-R): Dr. Asad R. Rahmani, Director, BNHS, Romulus Whitaker, renowned reptile expert, and Ms. Janaki Lenin at the book release

## Book on Himalaya launched

A premium quality large format book titled HIMALAYA – MOUNTAINS OF LIFE was launched in BNHS on January 31, 2013, by Ms. Pheroza Godrej. The book, co-authored by Prof. Kamal Bawa from University of Massachusetts and Sandesh Kadur, award winning wildlife photographer and film maker, beautifully unravels the bio-cultural richness of the eastern Himalaya. The book has a foreword by George Schaller, a celebrated researcher of the tiger in Central India and Peter Raven, a veteran botanist. It takes the reader on a journey from Kali Gandaki Gorge to Siang Gorge demonstrating the beauty of the mountains through breathtaking imagery and words. It also highlights the need to conserve this biodiversity-rich zone for posterity. The author duo mesmerised the audience with their illustrated



(L-R): Ms. Pheroza Godrej, Prof. Kamal Bawa, and Sandesh Kadur at the launch of the book

presentation on the biodiversity, people, and global change taking place in the eastern Himalaya.

Dr. Asad R. Rahmani and Ms. Pheroza Godrej emphasised the

need to study and preserve our remaining wilderness areas through scientific management. The book launch proved to be an enchanting evening for members and nature lovers. ■

## Management Training for BNHS Staff



BNHS PHOTO LIBRARY

BNHS participants at the CEC Management Training Workshop

public relations. BNHS, in association with Fulbright Alumni Engagement Innovation Fund (AEIF), has been conducting such workshops across India, since the past few months. In February 2013, one such three-day workshop was organised for the staff at BNHS-CEC, Mumbai. The faculty consisted of Dr. V. Shubhalaxmi, Isaac Kehimkar, Kaustubh Bhagat, Namrata Suryavanshi, Sweta Chatterjee, and Raju Arumugham. The workshop helped the participants relate to various issues concerning BNHS such as internal and external challenges, role of volunteers, grant writing, brand value, and role of social media. This workshop will be followed

by a mentoring phase and a follow-up workshop in August 2013. ■

**N**GOs, particularly those working in nature conservation, often feel the need for good personnel to manage functions such as fund raising, marketing, and

## BNHS-CEC, Mumbai, humming with activity

**B**NHS-CEC, Mumbai has been a hub of the Society's education activities with a host of people of all age groups and walks of life attending them. For the second consecutive year, CEC organised 'An Evening in Forest', a unique way to usher in the new year in tranquility without loud music and alcohol. Forty-three nature lovers gathered amidst the thick forest at CEC for a dusk walk in the jungle, treasure hunt, quizzing, star gazing, dinner under the stars, and with a resolve to conserve nature in the new year.

On January 13, 2013, another popular event 'Brunch with Birds' was organised. Mr. Sunjoy Monga, gave a talk on urban birds and adaptation. Dr. Ketki Marthak conducted a nature trail and bird call identification. Other activities in the event included bird architecture, Important Bird Areas, bird migration, bird quiz, and making bird nests. CEC, in collaboration with Environment Committee and Rotary Club, had organized a Poster Competition for school students on February 02, 2013, which is observed as World Wetlands Day. It marks the adoption of the Convention on Wetlands on February 02, 1971, in the Iranian city of Ramsar. Every year, the day is used as a platform for raising public awareness about wetlands and their benefits. Sixty students from V to IX standards from 15 schools in and around Mumbai participated in the competition. ■



BNHS PHOTO LIBRARY

Participants of CEC's 'Dusk Walk' on New Year's Eve



BNHS PHOTO LIBRARY

CEC's 'Brunch with Birds - Nature Trail'

## Marine Life Exhibition



DEEPAK APTE



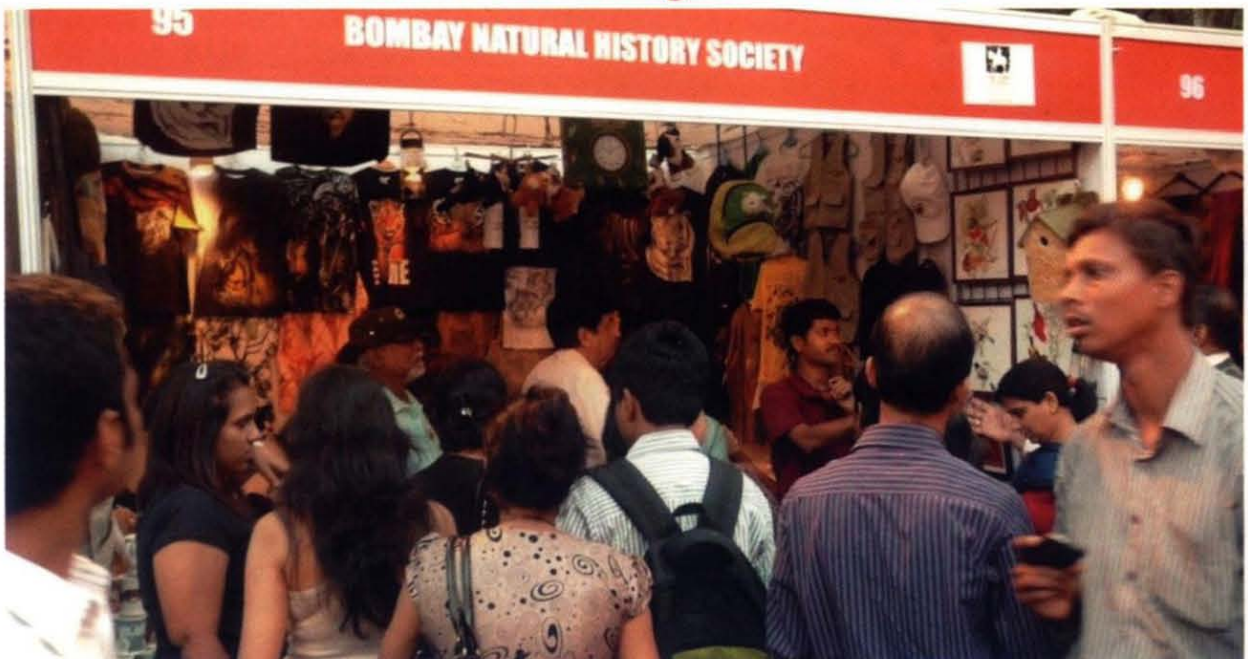
DEEPAK APTE

Some of the images exhibited at Thane Kala Bhavan, Kapurbawdi

India has a long coastline, which is rich in biodiversity. Indian coastal zones have a variety of habitats such as lagoons, sand dunes, rocky shores, cliffs, mudflats, coral reefs, sea grass, and mangroves. It is thus important, especially in this period of extreme development pressures, that India's biodiverse coast is not forgotten. BNHS organised a three-day photo exhibition at Thane Kala Bhavan, Kapurbawdi from February 22–24, 2013, depicting the marine life of India. Educating and attracting the youth to marine biodiversity and its conservation was the main objective of this exhibition. It

included 50 exhibits consisting of rare underwater photos by Mr. Deepak Apte, spanning a range of Indian marine biodiversity, from marine mammals to corals, fishes to crabs, and shells to starfishes. The exhibition located centrally in Thane attracted huge crowds, particularly youngsters on the weekend, and was widely covered by the media. It was an opportunity for *Thanekars* to get a glimpse of our diverse marine life. BNHS plans to organise such exhibitions in all the coastal districts of Maharashtra, and subsequently in other coastal states of the country. ■

## BNHS at the Kalaghoda Festival



BNHS PHOTO LIBRARY

The Kalaghoda Art Fest is celebrated as a mark of respect to the art heritage of Mumbai. This year it was held from February 02–10.

The BNHS stall with eco-friendly products and publications was the most visited during the 2013 Fest.

The proceeds generated during participation in such events are utilised for the conservation activities of the Society.

## Flamingo Festival attracts thousands



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Bird enthusiasts at Flamingo Festival



BNHS PHOTO LIBRARY

A visual feast for birdwatchers

The Sewri-Mahul area of Mumbai draws around 10-15,000 flamingos every year and is a major attraction for Mumbaikars. BNHS once again organised its popular Flamingo Festival – a nature education and outreach event of the Society – on March 09 this year in an endeavour to convey the importance of birds and wetlands. Regardless of the scorching March sun and dusty roads, thousands of bird lovers of all age groups, including the corporate world, government departments, NGOs, schools and colleges, thronged the Sewri Jetty from about 11:00 a.m. onwards till sunset. Besides flamingos, the visitors had a wonderful time viewing herons, egrets, ibises, gulls, terns, plovers, and sandpipers through binoculars and spotting scopes, under the guidance of BNHS bird experts. Activities such as face painting and ‘span your wings’ were a big hit among kids and adults. The icing on the cake was the arrival of veteran actor Ms. Waheeda Rehman, who honoured her pledge to be present at the Festival. ■



BNHS PHOTO LIBRARY

Veteran actor Ms. Waheeda Rehman with the BNHS Director, Dr. Asad R. Rahmani during the Flamingo Festival

## BNHS Director receives Lifetime Achievement Award

The Kirloskar and Vasundhara Club have been organising the Kirloskar Vasundhara International Film Festival (KVIFF) since 2006. Spread over eight days, this festival focuses on protecting wildlife for future generations. During the festival, national and international films on environment, wildlife, and energy are screened followed by discussions on the subject with experts, policy makers, and society at large.

*Kirloskar Vasundhara* is a movement to enhance awareness about environmental issues, cultivate the desired attitudes and promote behaviour conducive to conservation of the environment, and influence policies in a democratic way. KVIFF strives to make people concerned about Mother Vasundhara (i.e. Earth) and fosters the need to preserve our timeless natural heritage.

This year, our Director Dr. Asad R. Rahmani was awarded the Kirloskar Vasundhara Lifetime Achievement Award on



BNHS PHOTO LIBRARY

Dr. Asad R. Rahmani, Director, BNHS felicitated with Kirloskar Vasundhara Lifetime Achievement Award

January 27, 2013, at a function in Pune. The award consisted of a *Shreefal*, Citation, and Memento. ■



# Ultimate Wildlife Experience at Kenya



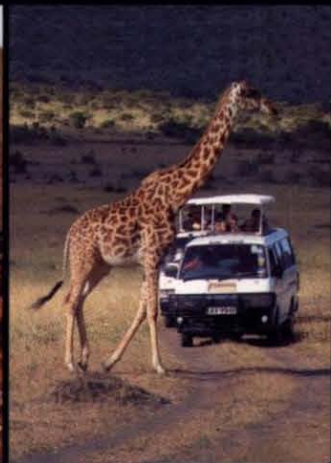
After twelve successful camps, the BNHS once again, brings you the African Safari to Kenya. With sightings of around 150 species of birds and 30 species of mammals, Kenya is a paradise for nature lovers.

Places to Visit: Samburu Game Reserve, Lake Naivasha, Lake Nakuru and Masai Mara

Dates: 10th-19th August 2013



For details on this and other wildlife camps:  
Visit [www.bnhs.org](http://www.bnhs.org), call at 022-22821811  
or e-mail at [bnhs.programmes@gmail.com](mailto:bnhs.programmes@gmail.com)



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Nature is elemental to the Baldota Group. Since beginning our journey as an iron ore mining company in 1962, we have diversified and transformed our activities to encompass the five basic elements of nature.



All Baldota Group Companies operate with the philosophy of adding more to these elements than what they take. Be it adhering to stringent air pollution norms, responsible mining practices, ensuring optimised water usage or encouraging energy conservation.

For us, the fifth element, Soul is an intrinsic force that resides within us. We constantly strive to enrich the soul of every individual that we touch by spearheading initiatives focused on women empowerment, education, healthcare, water & sanitation, infrastructure enhancement and livelihood opportunities.

We believe that the power of nature can be sustained and amplified to empower the lives of our generation and the generations to come; and we are determined to make it happen.

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