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Short-toed Snake-eagle *Circaetus gallicus*  
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## Calls of the Silent Valley

Experience the beauty of the mist laden Silent Valley, its dark nights and dense forests. Rama Bhave unfolds some mysteries of this must visit destination.



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## Palni Plants

Palni like any other place has its share of exotics and indigenous flora. Pippa Mukherjee unfolds the floral diversity of Palni.

## Seasonal Rhythms of Forest Plants

Patterns, or rhythms, or ecological balance, a forest displays all, but do we stop to look ...? Rashida Atthar found time to observe the rhythms of the forest in India's busiest city.



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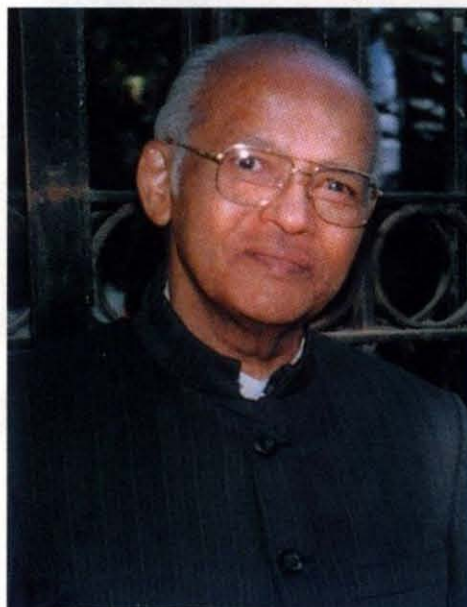
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## Losing Mentors

Losing a mentor is painful but losing two mentors in one month is doubly stressful. This is what happened to all of us in BNHS when in one month we lost Mr. B.G. Deshmukh, President, of BNHS after a brief illness on August 7, and within 20 days we lost Mr. J.C. Daniel on August 23, who was suffering from cancer. Incidentally, his cancer was diagnosed at the time when Mr. Deshmukh was being cremated. Both were doyens in their own fields and both were famous for commitment to the causes that were dear to them.

Mr. Deshmukh was well-known and deeply respected for his honesty, sincerity, commitment, and unbiased approach to various causes to which he was attached during his service and after his retirement as Cabinet Secretary to the Government of India. In the Indian Administrative Service (IAS), he reached the highest post to which an IAS officer can aspire.

I had the privilege to work under Mr. Deshmukh since I joined as Director of BNHS in May 1997. Initially I was a little afraid of him but within a few meetings he made me relaxed and after that it was very smooth sailing. He was very soft spoken, but firm. I found that for everything he had set a target and would see that we all collectively achieved it. He was a great believer in bringing people together. During the Executive Committee meetings of the BNHS, which he would chair, he was sometimes the first to arrive, even when he shifted to Pune. He would come fully aware of the subjects that were going to be discussed in the meeting, but even then he would ask me to brief him. He would advise me to be prepared for the likely questions that would be asked, and documents that would be required. As any director would know, board meetings are quite stressful, but with Mr. Deshmukh in the chair, most of our meetings would go through



Mr. B.G. Deshmukh



Mr. J.C. Daniel

smoothly. Even during the period when we had some difficult EC members, he knew how to tackle all without ruffling feathers. Even when we had strong difference of opinion amongst EC members on a subject, everyone would leave it to Mr. Deshmukh to take the final decision. Such was our respect for this great personality.

My association with Mr. Daniel goes back more than 40 years when as a student I used to write to him on conservation issues. He was very prompt in replying even for something quite mundane that a gawky B.Sc. may ask. After corresponding with him for more than a decade, I first met him in 1980 when I joined BNHS. He was my boss for 12 years till I left in 1992 to join the Centre of Wildlife Sciences at AMU. We had some difference of opinion, but my respect for him as a person never diminished. When I rejoined BNHS as Director in 1997, he became my mentor and supporter again. During my second stint in BNHS I came to know Mr. Daniel more. We all know him as a great conservationist and mentor for two generations of wildlife field biologists in India, but not many people would know that he was a very kind-hearted gentleman and a very loving family man. He was deeply attached to his son Jay and daughter Susan, and four granddaughters whom he adored like any doting grandfather. Many times while commuting to office together, he would talk about them, particularly about their studies. Despite his advancing age, he maintained his body, and

once while going to attend a formal function in coat and tie, he told me that his marriage suit still fits him (while mischievously looking at my awkward paunch). He had a great sense of humour.

One of the traits that I totally share with Mr. Daniel is rationality and scientific temper. He was beyond all religiosity and superstition. He told me that he would like to be cremated, as it is more environment friendly.\*

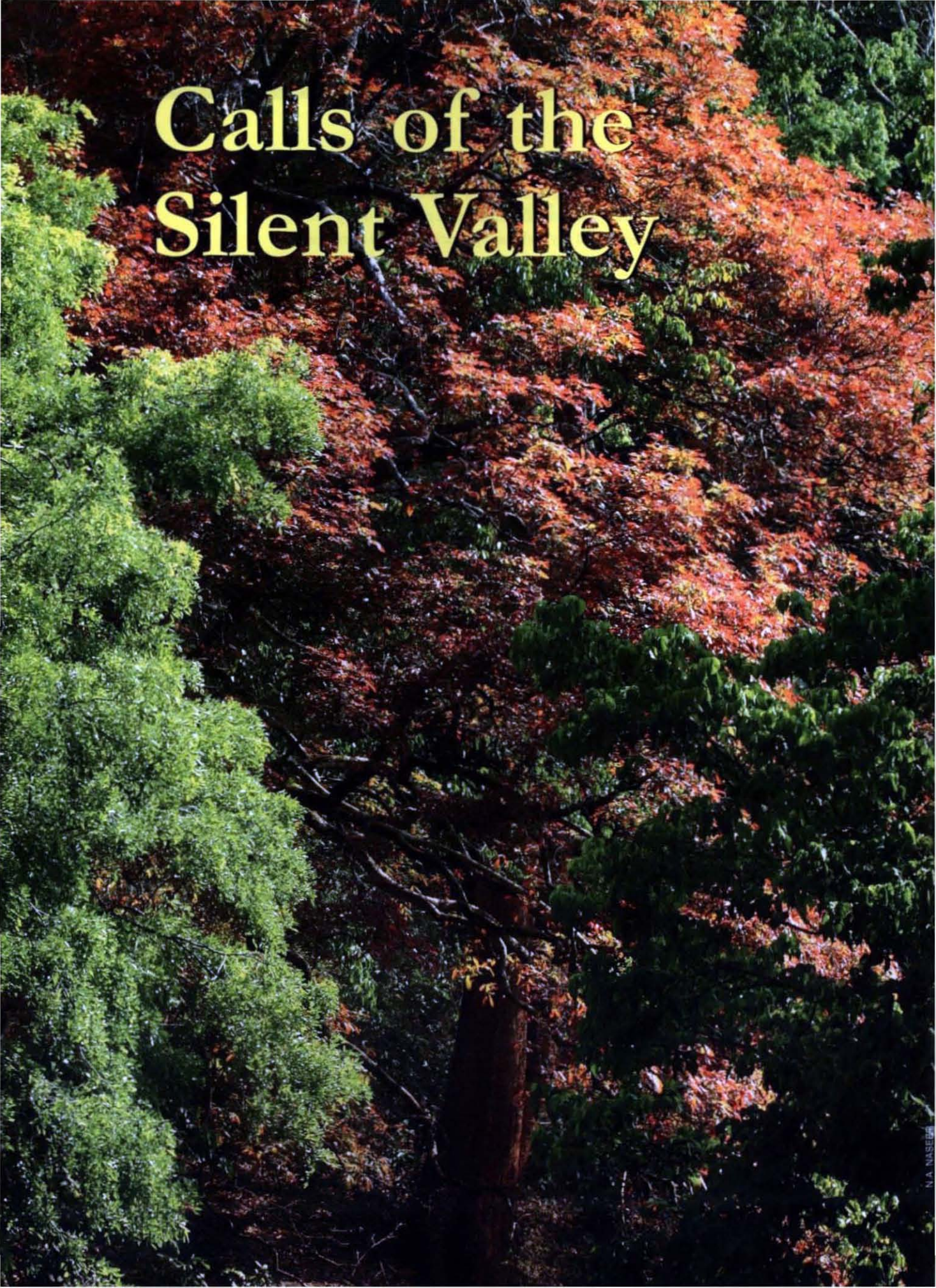
Mr. Daniel was totally committed to BNHS. When he became a little weak due to advancing age (no one knew that he was suffering from cancer till 15 days before his death), we would request him to take it easy, but he would reply "What will I do if I do not come to BNHS?" He devoted his life to the Society that he joined as a young man in 1950 at the age of 23. Although he worked with many great men in BNHS during his 61 years association, his idol was Dr. Salim Ali. After I joined BNHS in 1980, I had the privilege to see both of them working together in the 1980s. After Dr. Salim Ali's death in 1987, Mr. Daniel continued his work.

To carry forward the legacy of Mr. Daniel and Mr. Deshmukh, is what we have to do. I think the best way to pay our respects to these two giants of BNHS is to work with renewed vigour for the conservation movement of India.

Asad R. Rahmani

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*\*His wishes were fulfilled by his family and he was cremated on August 24.*



# Calls of the Silent Valley

Text: Rama Bhave

**D**ark nights, dense forests, torrential rains, and quiet mist laden green valleys, echoing calls of Lion-tailed Macaques, and a bed of blood sucking leeches it is all here, in God's very own country, Kerala. He chose this land to unfold the mysteries of nature. Every mortal who has treaded the forest path of the Silent Valley National Park has experienced this, and has surely felt humbled by the power of nature.

Besides the North-east, the Silent Valley in Kerala is probably India's only surviving tropical rainforest. A visit here is worth every second, paisa and effort spent; the experiences collected here are incomparable to any other forest in India.

'Rain forests' are called so because of the high amount of rainfall they receive every year. The climate of a rainforest is very hot and humid so the animals and plants seen here are adapted to this climate. The vegetation in a rainforest is evergreen; every tree, plant or shrub

wears its green colour all the year around. The trees here are tall, they grow to about 30 meters and more, and the density of growth is substantial; in fact there is great deal of 'pushing and shoving' to grab a bit of land here and a tad sunshine there. Smaller shrubs and creepers climb up larger trees to get their bit of share in nature's bounty. One can see innumerable symbiotic, epiphytic and parasitic relationships here. The abundance of canopy compost created by the decay of fallen leaves, wood, and animal waste provides moisture and nutrients for further growth. Every source of support to get to the prized raw material for life is exploited.

The Silent Valley National Park came into focus when the Kerala State Electricity Board decided to implement the Silent Valley Hydro-Electric Project (SVHEP) centered on a dam across the Kunthipuzha river flowing through the heart of the forest. The resulting reservoir would have flooded the virgin rainforest if the environmentalists had not opposed the Project.



Rama Bhave likes to travel and finds photography, and writing about her travels an engaging experience.



The handsome Blue Mormon flashes its pale blue colour in flight

N.A. NASEER

## Mukkali and Bhavani

We crossed over from Coimbatore to Palakkad, the border district of Kerala, and reached our base camp at Mukkali, on the banks of Bhavani river. We were lucky to have amongst us Dr. S.D. Mahajan, an acclaimed taxonomist, and our enthusiastic and resourceful guides Mr. Shouri Sulakhe and Mrs. Jayanthi Krishnan from In Search Outdoors.

After a filling South Indian lunch of *rassam bhaat* I returned to my room, here I was served another 'delicacy' ... my first Southern Birdwing *Troides minos*, the largest Indian butterfly (the female being larger than the male) flew past in front of the balcony. The dazzling golden yellow hind wings against the black fore wings were unmistakable. I had come all the way south to see this Birdwing. But was this the largest Indian butterfly? It did not appear that large, the others that flew past such as the Blue Mormon *Papilio polymnestor* and Great Orange Tip *Hebomoia glaucippe* looked much broader and larger.

During our evening trail we came across a dead specimen of the Southern Birdwing. This we could examine closely and all our doubts were laid to rest. The fore wings were certainly longer than any other butterfly found here, but not broader. Hence, in flight it did not look as big as the others. We saw it again on *Syzygium* flowers, sipping nectar. Through the lens of a binocular the golden yellow appeared more appealing. Its slow wavered flight made it easy to spot.

Another lifer for me was sighting of the large, white, black-spotted Malabar Tree Nymph *Idea malabarica* that flies still slower; one can hardly see it flap its wings! It glides and sails down like a feather in the breeze. Some butterflies are known to use poisonous chemicals from their food plants for their own benefit. They not only digest the 'plant poisons' during the caterpillar stage, but also store them in their bodies to become distasteful in the caterpillar, pupal and adult stage. The unhurried manner of these butterflies could be attributed to their distastefulness.

Dr. Mahajan was a treasure house of knowledge and experience. He showed us the most inconspicuous plants in the overgrowth, and drew our attention to the different ferns and spices like wild Turmeric *Curcuma aromatica*, wild Elaichi, Nag Kesar *Mesua ferrea* and ground orchids. Dr. Parag Mahajan, his son, drew our attention to interesting facts – a decomposing log on the ground was almost reduced to dust ... returning to the soil from whence it sprung. He explained how saprophytic fungi and bacteria (organisms that live on dead organic matter) contribute to the process of degeneration. Each living organism, however insignificant, has a role to play in the ecosystem.

Further, he pointed out a profusely growing weed – Common Floss Flower *Chromolaena odorata*. This destructive exotic weed spreads aggressively and is a serious threat to native plants. It thrives well in any conditions. Although we uprooted a few plants, the flowering ones that we saw were sure to spread far and wide.



Larvae of Geometer moths appear to 'measure the earth' as they move in a looping fashion



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In the plantation area, the coffee shrubs were blooming on every slope with beautiful white flowers, while pepper creepers crept on the tree trunks. Here we had the opportunity to sight some Pompadour Green-pigeon *Treron pompadora*, Vernal Hanging-parrots *Loriculus vernalis* and Plum-headed Parakeets *Pistacula cyanocephala*. A Black-rumped Flameback *Dinopium benghalense* hammering on a broad tree trunk had begun its day's work, while the Heart-spotted Woodpecker *Hemicircus canente* paid us a cursory visit. We lingered longer to appreciate displays of a Forest Calotes and a Brahminy Skink.

Away from the main road we proceeded on foot into the dense foliage. The forest was dense and the trees taller than those in the plantation area. Unlike the carpet of dry leaf litter found in deciduous forests, the ground here was moist covered with leaf humus, making the path slippery at places. This natural compost is obviously of great value in increasing the fertility of the soil and its capacity to retain moisture.

### LTM's and Leeches

A little further into the jungle our guide, Hussain pointed to a Lion-tailed Macaque (LTMs) in the high branches of the trees. These are arboreal animals. Their favourite food is the round yellow spiky fruit of the *Kulinia* tree. Entire troops 'cruised' the tree tops in search of these fruits. LTMs have a striking appearance with a mass of white mane bordering their dark black face. The person who first saw and named them must have seen the animal's tail end first, hence the name. Else wouldn't the Lion-faced macaque be more logical? We saw the macaques on practically every trail; possibly their favourite tree must have not produced fruit in adequate quantities forcing them to move and search larger territories. Another ancestor of man, Nilgiri Langurs *Trachypithecus johnii* kept

Lion-tailed Macaques inhabit the dense lonelier forests

swinging across branches in groups and peering at us through thick foliage.

While the LTMs occupy the upper reaches of the canopy, leeches rule the ground. Most leeches are hematophagous as they are predominantly blood suckers that feed on blood from vertebrate and invertebrate animals. Once attached firmly, they release an anaesthetic to prevent the host from feeling it. Leeches use a combination of mucus and suction to stay attached and secrete an anti-clotting enzyme, into the host's blood stream.

We applied plenty of salt on our legs, and rolled up our pants! One needs to be watchful, as one cannot feel Leeches. They are difficult to get rid of, while you are engaged in pulling one off, five are busy climbing up the other foot. Stop to look at or photograph a plant and that's an invitation! Among screams, shrieks, jumps and jolts we reached a rivulet. Many of us entered the water eagerly to get rid of them only to be told that they are equally active in water. The water washed off the salt making us more vulnerable. Nevertheless, all of us managed to preserve our sanity until we boarded the bus. Enthralled, fascinated, some still shocked, and others

keeping a nervous eye on any that may have come inside the bus, we headed back.

### Rains at Mukkali

During an earlier evening trail, we had experienced some light showers, but little did we know then that this was only a traylor, the movie was to follow soon. After getting excited over a huge Hawk Moth *Clanis phalaris* on a door we proceeded to the terrace to spend the night. I snuggled

into a sleeping bag and quickly slipped into deep slumber. Sometime around midnight my eyes opened to nature's drama in full swing. A clap of deafening thunder, followed by sharp lightning and a heavy downpour! Most of the group was sitting up wide eyed in their beds, awakened by this sudden fury ... A Mumbaikar (inhabitant of Mumbai), I was used to heavy rains, but this was something bizarre. And amidst this dense jungle it seemed surreal, almost eerie. The continuous lightning was as if someone was holding a torch in your eyes – enough to take away the slightest of sleep from ones' eyes.

The next day during breakfast we enjoyed the company of the Malabar Giant Squirrel *Ratufa indica*. A charming large furry squirrel, it is very alluring with a handsome rust coloured coat and a bushy tail. The rust-coloured sheen that we have come to appreciate in the Sahyadris is traded for a dark bluish-black in this southern cousin. It is completely arboreal and rarely comes to the ground. Its need for water is fulfilled by eating juicy fruits and drinking water collected in tree holes. This squirrel builds multiple nests on adjoining trees. This serves to dodge predators and transfer its young from one nest to another while a

snake or bird may be inspecting a third.

The Asian Fairy Blue Bird *Irena puella malayensis* is the most glamorous living thing in this forest. We halted the bus to catch a sight of this mesmerizing bird! The male has a marvellous bright blue back extending to its tail and a red eye dotting a black head. The bird was perched on a branch for long. We were so taken in by the Fairy Blue bird that we almost lost sight of a White-bellied Black Woodpecker *Dryocopus javensis* perched nearby, which is a far rare sighting!

### ... a watch tower at Serendri

Serendri professed to be very scenic and most beautiful of the forested area is located near the Kerala-Tamil Nadu border. Through an impenetrable forest that closes up on you, and trees that try to shake hands through bus windows, we reached the inspection bungalow and the watch tower. Looking down from the 30 m watch tower is an experience beyond words. From this height one can appreciate the rainforest canopy and the blue hills that rise and fall with the Pucchapara peak marking the horizon. A 360° view of the mist laden hills,

covered with thick foliage, a cool westerly wind and light showers is delightful. Down below the Kuntipuzha river snaked through the dense overgrowth. To tired city minds this serene calmness is healing, to say the least.

In the west was unfolding another spectacle. As the great orb set on the horizon it lent a golden lining to the mist in the valleys. The reddish-golden mist rising from the valleys seemed like flames touching the sky. No photographs could capture the beauty of this sunset. We stood there, quiet, absorbing the beauty around us.

Our last day was the most happening and glamorous of the lot! On our way down to the Kuntipuzha river we sighted two plump Mountain Imperial Pigeons *Ducula badia* sitting high on a branch. Much of the leaf litter was cleared to allow leech free access to the river. The river with a narrow bed and a hanging bridge over it makes for a scenic location.

As if to bring an apt completion to the camp, a green vine snake laid waiting for us on a sunlight branch of a low shrub. Shouri wasted no time in luring it with a cap and getting hold of it. Threatening by rising up erect and showing us the black scales underneath



A variety of herpetofauna like the Brahminy Skink add to the diversity of the Silent Valley



N.A. NASEER

Heart-spotted Woodpecker is frequently seen with mixed hunting parties of insectivorous birds

the yellow ones, it tried to do away with the unexpected visitors. Holding it deftly Shouri showed us the fangs buried deep in its pink mouth. The venom of this snake is not potent enough to harm humans. Back home, it has a lustrous parrot green body as against the yellow we saw here. We left it to its sunny branch

and headed for home.

On our way back, the residents of the valley came to say good bye. The LTMs first, a young one came down on a closer branch and kept looking at us for a long while. A slight peek of the Malabar Trogon *Harpactes fasciatus* for the alert ones. The Malabar Giant Squirrel

ensured that it put on its best suit to bid us adieu! Out in the open we got a classic view of its red and blue coat dazzling in the morning sunlight!

For all the endangered species that thrive in it and its unique fascinating ecosystem it is imperative that this forest be preserved and protected. 🦋

We are grateful to

**RISHAD NAOROJI**

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to support the publication of *Hornbill*



# Palni Plants

Text and Photographs: **Pippa Mukherjee**



Pippa Mukherjee was on the BNHS committee for 4 years and is a founder member of the Palni Hills Conservation Council. She taught IB Environmental Science at the Kodaikanal International School for many years.

**A**lthough English, I am married to a Bengali and my first seventeen years in India, from 1968, were spent in Mumbai where my husband worked. It was here that I had my first lessons on the flora and fauna of India from Professor Bole, a well-known botanist, Humayun Abdulali, taxonomist and ornithologist, and Dr. Sálím Ali, along with many other experts in various fields.

Every Sunday we drove with Humayun, my children and I, and often others to the then 'Borivli National Park' and spent the entire morning bird watching, looking at the vegetation and learning about anything and everything in the natural world. Humayun Abdulali was my Guru and to my mind was one of the finest naturalists in the country. I am very privileged to have known him, been his friend and been guided by him.

He taught me so much of what I know today, and although he was an ornithologist by leaning his knowledge on natural history was extensive, and my children and myself absorbed much of his wisdom. A feisty character with a wonderful sense of humour, his ability to teach by osmosis was quite amazing. Professor Bole and others often joined us with groups from the BNHS, and I am proud to have had such a wonderful grounding in Natural History.



White daisy flowers of the *Montanoa bipinnatifida* never fail to draw attention of the visitors in the Palnis

Since 1984, I have lived and taught in Kodaikanal and my particular interest is in the flora of the area, which has increased steadily over the period up to the present day. But one of the things that dismayed me most, when I first arrived was the lack of information on the local endemic and exotic plants of the Palni Hills and Western Ghats. Apart from P.F. Fyson's *FLORA OF THE NILGIRI AND PULNEY HILLS*, published in 1915, and Father K.M. Matthew's *THE EXOTIC FLORA OF KODAIKANAL AND PALNI HILLS* (1969), plus a couple of other more obscure volumes, we had to wait until 1989 for *WEALTH OF INDIA* and until 1999 for Father K.M. Matthew's incredible five volumes on the *FLORA OF THE PALNI HILLS*.

Of course the problem with all the material mentioned above is that none of it was written for the layperson or an interested novice to take into the field, which has left a great many gaps for visitors to the area and also for residents. In frustration, I decided that the time had come to work on a simple non-scientific handbook that would hopefully help others; it is certainly teaching me a great deal.

Since the mid 1800s, exotic plants have been introduced into the Western Ghats. Many came with the American, Australian and British settlers as they tried to recreate home

at the top of a mountain, retreating from the heat of the plains. Plants such as hollyhocks, dahlias, and other garden exotics soon burgeoned in gardens. Well before the beginning of the 19<sup>th</sup> century, the Jesuits decided to build a college near the town of Kodaikanal at Shembaganur, as a training centre for initiates. They brought with them many Himalayan species, which still stand in the gardens of the then Shembaganur College, now called the Anglade Institute and also around Kodai lake. Other plants filtered in over the years some of which have become invasive species and pests, enveloping the natural flora of the area and spreading to engulf grasslands and shola patches.

Some of the most invasive species are *Eucalyptus globulus* and *grandis*, *Pinus patula*, and *Acacia* species, specifically *decurrens*, *melanoxylon* and *mearnsii* (*Acacia* species make up 25 species alone).

*Eucalyptus globulus* was brought to Kodai in the mid 1800s with the idea of using the wood for timber, which was not feasible because of the oil content in the tree. However, it is now used as a cottage industry and the leaves are distilled to prepare eucalyptus oil. The leaves and young branches are lopped thus making the trees a very strange shape, with a

bare trunk and bushy top. In the hill regions, Eucalyptus is now banned because of its ability to drain moisture from the soil, which is needed by indigenous species, and also, because the oil content in the leaves does not allow for decomposition. There are other species of Eucalyptus planted in the Palnis and Western Ghats many of which are non-invasive and make attractive garden plants, some with spectacular blossoms.

The pine species were originally introduced for the timber that was used for planking and other household use. No more plantations are continuing in the Palnis, and as far as I know also at other hill stations of the Western Ghats.

Any monoculture (one type of tree in plantation) is generally an environmental disaster as it does not allow the growth of endemic plants beneath it. And, their only value is in sheltering larger fauna species, such as the bison (gaur) *Bos gaurus*.

Acacia species are perhaps the most dangerous introduced species and their spread in the Western Ghats and Palnis has produced many problems, the worst being their ability to spread rapidly, and invade pristine and vital grasslands. Acacias were used regularly until the end of the 1980s for the viscose and tanning industries.

Of the smaller, but dangerously invasive plants *Lantana camara* from tropical America, and introduced to India in the 1850s, is undoubtedly one of the worst. All areas of the Palnis

and Western Ghats both hill and plains regions are covered with this prickly and 'awful' plant, its only virtue being the fact that the blossoms are loved by insects. Along with *Lantana* is the ubiquitous Eupatorium or *Ageratina adenophora*, a small shrub or large herb that was introduced, also from tropical America in the 1940s, and has spread like wildfire suffocating endemic and grassland species. Its only value being its pesticidal properties, which I use to advantage in my garden by soaking the plant along with *Lantana* and some other species in cow's urine.

Another plant that causes a great deal of annoyance to gardeners and farmers alike is Spanish needles or *Bidens pilosa*, a small herb with yellow flowers and hundreds of tiny needle-like seed capsules that catch onto clothing. Often I have had to spend hours pulling out the nasty things from trousers and jackets as they have hooked tips.

Perhaps my worst nightmare is the beautiful but deadly Morning Glory or *Ipomea indica*, which is hated throughout the tropical world for its incredibly fast growth and spread. I spend more time in the garden trying to remove this species than any other plant, which twines up trees in a matter of months and can race all over the garden if one is not careful. Cows love the plant, but since much of the Palnis and other hill stations are vertical that proves impractical for the animals to graze on.



*Dahlia imperialis* is a Mexican import with large mauve blossoms



Commercially exploited once Eucalyptus is now banned in hill regions

I could list endlessly exotic introduced species that are invasive such as *Ulex europaeus* or European gorse and *Cytisus scoparius* or Broome with its pretty yellow flowers that tends to take over large swathes of the Western Ghats, particularly in the Nilgiris.

The first exotic plants that one sees when driving up to Kodaikanal are usually those large flowered and attractive Mexican imports with their eye catching blossoms. These are the tree dahlia *Dahlia imperialis*, with huge mauve flowers reminiscent of the garden dahlia, the tree daisy *Montanoa bipinnatifida* with lovely white daisy flowers. Another, from Costa Rica is a member of the potato family with large mauve flowers and very prickly stems (*Solanum wendlandii*).

These three species dot the Ghat road in the mid to upper hills but do not damage the environment by spreading, as the seeds rarely germinate, although *S. wendlandii* takes easily from cuttings. Then another superb climber from Brazil (*Pyrostegia venusta*), with brilliant orange red blossoms, covers rooves and fences again in the upper Palnis. The fact that these species are exotic is a sad indictment on the local vegetation, although much history is encapsulated through these introduced species, and were for me species that gave the Palnis flavour when I first arrived and knew little.

However, the point of this article is to share some of the indigenous and endemic species that are so beautiful and unusual and that I have come to know and love in the Palnis and other Western Ghats hill stations.

But before that, raspberry or *Rubus* species should be mentioned as although indigenous it, like other species, is a pest and as a friend once said, "Some say that 'nativeness' excuses *Rubus* from being classified as pestilential. If nativeness was enough we would all need to adjust our negativity towards the likes of bandicoot rats, not to mention the common house crow and a whole host of other native organisms that become pathogenic when human activity alter or degrade natural ecosystems." This is exactly what has happened to the raspberry.

One of the most famous species in the Palnis is the Kurinji *Strobilanthes kunthiana* a shrub that can grow up to two to three metres and produces flowers every twelve years, the last flowering was in 2006. The year before full flowering a few mauve sweet scented blossoms appear, but when entire hillsides erupt it is a sight to be seen, although sadly with increasing land cleared for agriculture there is less and less land able to sustain the plant. I have planted many cuttings in my garden and they are all doing well, and I have friends who





The feathery stamens of *Cyanotis arachnoidea* resemble a spider's web



*Cytisus scoparius* forms dense stands crowding out native species

are also playing their part in protecting this wonderful species. The honey that is produced from this species is so famous for its medicinal properties that *vaidyas* come from all over the south to collect the honey which is dark brown and delicious. At lower altitudes, there are many other species of *Strobilantbes* with shorter flowering cycles, but *S. kuntbiana* to my mind is the most spectacular and covers grassland areas across Western Ghats.

Some of my favourite indigenous flowering plants of the Palnis, apart from Kurinji, are the Handkerchief or Dhobi plant *Mussaenda hirsutissima*, with its white bracts and tiny orange blossoms that really look like handkerchiefs hanging on a shrub. The Rock Primula *Henckelia humboldtiana* with their flat rosettes of leaves and tiny primula flowers growing on rock faces and banks. The Giant Lobelia *Lobelia leschenaultiana*, with its tall pyramids of purple flowers, which the sunbirds and insects love but will only grow in places that it designates. I know this as I have tried many times to establish this species in specific places in my garden with no success. The exquisite Mountain or Easter lily *Lilium neilgherrense* appears less and less often on the mountain slopes and is a species that desperately needs protection.

The endemic rose *Rosa leschenaultiana* with fragrant single white blossoms that seem to shine and draw attention to themselves, but are also becoming less common. Although the tiny Indian Pennywort *Centella asiatica* is also a favourite as it carpets the ground with its tiny heart-shaped leaves, which are used by many locals to increase memory, and the wild jasmine *Jasminium brevilibum* hanging from shola trees in festoons and pouring scent into the area. Of course, I cannot forget the beautiful and varied *Impatiens* of which there are many endemic species, which are also sadly in the decline.

And then there are so many trees that are ornamental such as the *Rhododendron nilagiricum*, which we often see when hiking in the mountains with its lovely clusters of red blossoms, and *Michelia nilagrica* with cream flowers that are so fragrant that one knows the tree is near well before one sees it.

In my garden I have some lovely species, but too many to mention in this article, but I have tried to cover all of these plus many more in my book, although I have been careful not to describe too many very rare species to protect them.

I myself collect endemic orchids, ferns and *Impatiens* (balsams) and am happy to show people around my garden if they visit the Palnis. ❀

# Seasonal Rhythms of Forest Plants

Text and Photographs: **Rashida Atthar**



Rashida Atthar is a Social Scientist, deeply interested in nature studies and education.

**F**orests provide an ideal locale for those with a passion for nature a fascinating choice of getting immersed in its rhythms. One can observe and experience nature in its true colours and hues even in a bustling city like Mumbai. I started studying a small area on the BNHS land of the Conservation Education Centre, consisting of 33 acres, in the south-west part of Sanjay Gandhi National Park when late Mr. J.C. Daniel, Vice President, BNHS, began a

programme Introduction to Conservation Education (ICE) in the last quarter of 2006. My interest, regular visits to the forest and Distant Learning courses on Botany – a short one in 2000 and a year long in 2008/09 – conducted by the BNHS, helped my observations. Through this article I wish to share some of the natural seasonal changes, and phenomena of the species in my study area. My broad hypothesis is that if left to itself, nature has its own biodynamic rhythms and maintains its biodiversity.



The forest in Mumbai is of southern moist mixed deciduous type. In deciduous forests, majority of the canopy trees shed their leaves in winter. Trees like *Bombax ceiba* (Red Silk Cotton tree), *Bridelia retusa* (Asan), *Anogeissus latifolia* (Dhawda), and other species shed their leaves at varying duration. Summer sees some plants flowering and fruiting, while monsoon transforms the forest with its very first showers. Herbs and wild flowers of various hues and colours sprout and fade away only to be replaced by more fascinating ones. The forest comes alive, the streams provide rich aquatic life, and the forest is in its true full colours.

In order to study the plant life in a scientific manner, we followed the well-known method of establishing permanent quadrates of 20 m x 20 m.

After proper training of identification of plants, interested BNHS members were assigned the job of monitoring the plant life of different quadrates.

The quadrate that I observed regularly has good plant diversity. Trees from 16 families and 22 species, shrubs from 5 families and 6 species, climbers from 8 families and 11 species, and herbs from 7 families and 9 species are found here. Besides, the quadrate has *Dendrocalamus strictus* species from Poaceae family, *Adiantum* sp. (maiden hair ferns) and mosses.

An ecosystem consists of biotic and abiotic factors. Biotic factors consist of all living organisms in an area, while abiotic factors are the physical environment of an area, i.e., factors like wind, rain, concentration of oxygen and other gases, sunlight, temperature, fire,

precipitation, rocks and soil. Plants establish themselves as per the biodynamic rhythms, wherein each species attains a certain maximum growth and then stabilises. The complex interactions among themselves as well as with various visiting birds, bees, butterflies, animals, and tiny organisms of the community make it a very complex system. Let us see the action in more detail seasonally!

#### Winter Rhythms of the forest

The winter makes its appearance between November and February in Mumbai; it brings along very interesting changes in the forest. The sky is now visible through the canopy as deciduous trees shed their leaves, covering the forest floor with leaves. The blooming *Bombax ceiba* and *Cochlospermum religiosum*



*Smilax zeylanica* is a perennial climbing shrub with a woody stem



*Morinda pubescens* flowers and fruits abundantly during summer



The dry and leafless forest comes alive with the arrival of monsoon

– Red and Yellow Silk Cotton trees are highlights of this season, the ground is strewn with the yellow flowers of Yellow Silk Cotton. The herbs which are characterised by short and soft stems, like *Eranthemum roseum* and *Haplantbodes tentaculatus* stand confidently below tree trunks. *Eranthemum roseum* (one of the ayurvedic herb used for Dasamuli preparation) with their beautiful blues changing to red, and white flowers of *Haplantbodes tentaculatus* with purple streaks lend more colour to the winter chill. Sweet fragrance is added by the flowers of the scandent evergreen shrub *Carissa carandas* (Karvanda). Tangles of the all pervading climbers like *Combretum ovalifolium*, with winged fruits and tiny flowers, and *Smilax zeylanica*, with spherical fruits, can be seen on branches of trees. Green oval fruits of *Garuga pinnata* (Kakad) and the globose greenish clustered fruits of *Mitragyna parviflora* (Kalam) add to the delight of nature lovers. Sweet music is added to the air by the chirping birds seen on conspicuous red winter flowers mostly pollinated by birds. Tailor birds, cuckoos, orioles enjoying the nectar of *Erythrina variegata* (Indian Coral tree) add to the winter rhythms in the forest.

The foliage colours of the forest in winter like bronze, copper, orange, pinks and its combinations, yellow, reds and purples are a delight to witness. We wonder why and how does this occur? We are familiar with the fact that the green pigment in plant cells – chlorophylls – absorb energy from sunlight. The primary function of pigments in plants is Photosynthesis, the most important process of life on earth, in which the green pigment Chlorophyll along with several red and yellow pigments help to capture as much light energy as possible. The light that is absorbed is used by the plant to power chemical reactions, while the reflected wavelengths of light determine the colour of the pigment that appears to

the eye. It is the combination of the other pigments present that give the leaves these spectacular colours!

### Summer Rhythms of the forest

Summer in Mumbai between March and early June transforms the forest canopy into barren branches with thick leaf litter on the ground. Some evergreen trees like *Morinda pubescens* Bartondi or Soccer Ball tree, so called due to the aggregate fruits with sections like those on a football, are with the white fragrant flowers. The tree is used to dye cotton, silk and wool in shades of reds and purples. In summer, the Red Silk Cotton tree seeds are ready for dispersal, the fruits open and the seeds wrapped with cotton travel with wind, and can be seen all through the forest floor. The peculiar feature in this patch is also the tangle of various climbers that has developed

around scandent shrubs and trees. Climbers are plants that require support of other trees and shrubs to grow, and some have tendrils to hold the support. This tangle of so many climbers at one spot is unusual because such climbers are more characteristic of evergreen and semi-evergreen forests. Climbers like *Cansjera rheedii*, *Cissampelos pareira*, *Cissus repanda*, *Cryptolepis dubia*, *Dioscorea bulbifera* (Air potato), *Getonia floribunda* (Ukshi), and *Tinosporia glabra* are in one place along the scandent shrub of *Carissa carandas* lending an arch at this spot. Amidst all this activity the forest is also preparing for the grand finale of its show in the monsoon.

### Monsoon Rhythms of the forest

The first showers of monsoon in June begins to transform the forest ground. The streams and ponds begin

to teem with aquatic life. Plant life begins to appear almost immediately after the first showers, and some ephemerals last for just 2-3 days! The 'stars' of the season are *Chlorophytum borivilianum* (safed musli), a tuberous herb of family Asparagaceae, to a lesser extent *Chlorophytum tuberosum* (edible tuberosum), *Pancreatium parvum* (forest spider lily), yellow flowered and slender leaved *Curculigo orchioides* (kali musli or yellow ground star), which remains almost till the end of monsoons. *Ledebouria revoluta* is one of the most elegant herbs with viridian green and purple coloured flowers. The beautiful *Curcuma pseudomontana* (Hill turmeric) is not adorned only with green and maroon bracts and yellow flowered spikes, but also designer patterns made on their leaf by insects which work on them when they were tender and rolled up.



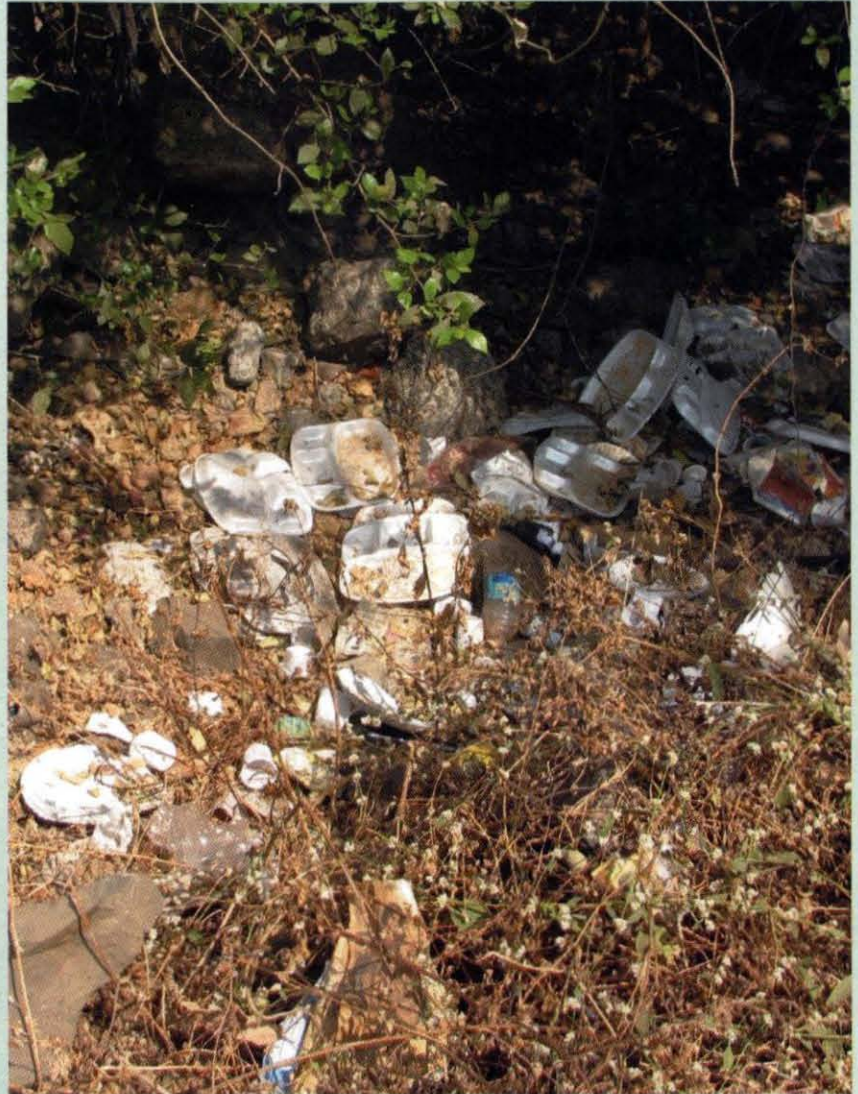
Karvi *Strobilanthes callosus* has a long vegetative phase and flowers every seven years

Karvi *Strobilanthes callosus* is abundant in the SGNP. Members of this family (Acanthaceae) have a peculiar characteristic, the plant has a long vegetative phase followed by extensive flowering. The period of the vegetative phase varies with the species; the karvi in SGNP flowers every seven years. The mass flowering of karvi in SGNP last occurred in 2008, when entire area was turned into a beautiful purple.

The bamboos, *Dendrocalamus strictus*, (Poaceae family) are present in high culms in one corner of this quadrat. Its flowering cycle varies from 25 to 45 years. It is wind pollinated and there is sporadic flowering for 2 to 3 years. Although this is a climax community the forest is always dynamic.

Leafy buds of *Amorphophallus commutatus* (Shevla) open up into unusually lobed leaves. The corm and flowers of the Shevla are consumed by people of the state. The waxy-leaved climber *Cryptolepis dubia* with creamy white flowers attracts grasshoppers. *Leea asiatica* shrub is surrounded by bees and butterflies attracted by its flowers and nectar. *Breynia retusa*, is all strewn with fruits. One can be convinced of its name 'the cup and saucer', as they are popularly called, since the fruit comes on top of the persistent calyx of the flower. Overarching on them are the deep red new leaves of *Schleichera oleosa* (Kusum) tree, which add hues to the wet atmosphere.

It has surely been an exhilarating and enriching experience observing the forest and the quadrat in particular. The essential cycles of water, nitrogen and carbon are in synch here to enable the ecosystem to function. Sharing this experience on nature walks and activities with various groups, school and college students and being witness to their delight and joy in feeling the textures of leaves or squealing in joy at the shape of unusual flowers and fruits; the hope of seeing a snake or even a leopard, and

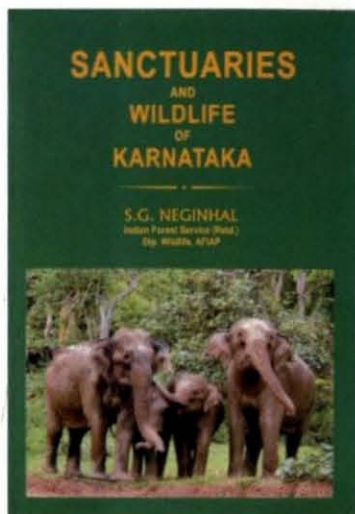


Litter is a common sight along the path to the Elephant Gate at SGNP

the desire to revisit the forest to discover and learn more about this wealth of our city brings immense joy.

But there is always a concern that follows these observations and interactions. When one travels back and forth from the forest one can see that this cycle and ecosystem is under threat by construction activities, chopping of trees, dumping ground for the shooting waste of the film city nearby, and pollution. Being a researcher in sustainable development, I consider that creating awareness about the same amongst all the people around the forest is the need of the hour. In particular,

the frequent cutting of trees needs to be stopped to save the forest. In the world, different agencies have interpreted 'Sustainable development' according to their own needs. But the Brundtland report 'Our common future' has been regarded widely for giving a holistic perspective to the sustainable development approach. The definition was 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. United Nations has declared 2011 as the International Year of the Forest. Let's strive to maintain the thriving forest in our city. ♣



**SANCTUARIES AND WILDLIFE OF KARNATAKA**

by S.G. Neginhal, 2009.  
 Published by: Author.  
 Size: 21 x 14.5 cm.  
 Pp. xviii + 230.  
 Price: Rs. 595/-.  
 Paperback.

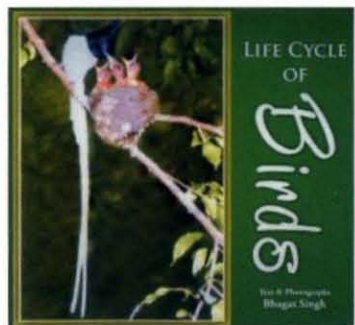
Reviewed by: **Asad R. Rahmani**

I always lament that Forest Officers who spend their entire career in the forest and wild areas get to know wild animals like no one else, but they neither keep notes, nor do they publish their findings in peer-reviewed journals, or write books from their vast experience. Well, there are always exceptions. One fine example is Mr. S.G. Neginhal, IFS (Retd.), of the Karnataka Forest Service. I know him since the mid 1980s, and remember his encouraging words, his passion and vast knowledge.

Mr. Neginhal has been a fighter all his life — fighting to save the wildlife of his state. In the early 1970s, which I consider the golden era of wildlife protection, thanks to Mrs. Indira Gandhi, the Karnataka Forest Department was instrumental in establishing 8-10 sanctuaries, due to Neginhal's ground work. When you visit Bhadra, Brahmagiri, Nagarhole, Sharavathi, Mookambika, Dandeli and Melkote, thank officers like Mr. Neginhal who provided the basic information with strong recommendations to the Government. Even after his retirement in the late 1990s, he has been quite active. He has written four books, including this one.

This 248 page book has 242 photographs and two maps. Karnataka has 29 national parks and sanctuaries, each one described in detail with pictures of major species found therein. Like all wildlife books in India, there is a profusion of pictures of mega-fauna such as tiger, leopard, bison, elephant, but some 'minor' species are also illustrated, for example, Striped-necked Mongoose (p. 60) and Gliding Lizard (p. 106); my favourites are that of the Large Egret (wrongly identified as Intermediate Egret, p. 183) by B. Srinivasa and Black-shouldered Kite (p. 214) by Neginhal. Mr. Neginhal is a good writer and photographer.

Anyone who wants to learn about the protected areas of Karnataka and the rich wildlife of this important state should purchase this book. It will also be useful for wildlife tour operators. I wish we had Neginhals in every state of India to document the flora and fauna, and also to fight for their survival. 📖



**LIFE CYCLE OF BIRDS**

by Bhagat Singh.  
 Published by Unicorn Books,  
 New Delhi, India.  
 Size: 23 x 23.0 cm, 196 pp.  
 Price: Rs. 1,200/-.  
 Hardbound.

Reviewed by: **J.C. Daniel**


This somewhat unwieldy publication on birds has some excellent photographs. The presentation could have been on the whole much more imaginative. In the nesting sequences, the subsidiary photos are not captioned. The text accompanying the photographs is what brings the book down. The deplorable spelling errors in the text and in the Latin names of species, which incidentally should have been printed in italics and the measurements in metric, are instances of careless editing. The scientific names given in Roman type is a basic indication of ignorance of editing biological literature. Good material, badly presented. 📖

We are grateful to  
**SETH PURSHOTAMDAS THAKURDAS & DIVALIBA CHARITABLE TRUST**  
 for a generous donation to the  
*Pratap Saraiya Hornbill Fund*  
 to support the publication of *Hornbill*

## Death Trap !

In the northern part of West Bengal, railway tracks pass through wildlife sanctuaries e.g., Mahananda Wildlife Sanctuary (WLS), Chapramari WLS, Jaldapara WLS, Buxa Tiger Reserve, and Eastern Dooars Elephant Reserve, one of the most important reserves of India and also an Elephant corridor. Till 2001, the tracks were meter gauged, but are

now converted into broad gauge by the railways. As per the Elephant census 2005, 300-350 elephants resided in this part of West Bengal. Elephant deaths due to train accidents are frequent and common in this area. From 1974 to July 2008, 39 elephants died of rail accidents. On September 22, 2010, seven elephants died in a single accident at

Moraghat near Redbank Tea garden. Recently, on June 25, 2011, another heart rending incident occurred where two elephants were wounded on the rail tracks near Dyna. One of the two elephants succumbed to injuries during treatment and the other is still under medical supervision. 

Tarun Karmarkar



TARUN KARMARKAR

## The Saga of the Prickly Pear

This refers to the article by A.J.T. Johnsingh (*Hornbill*, January-March, 2011), which discusses the spread of 'unpalatable plant species' in India's forests. Here, I would like to give more interesting information on prickly pears (*Opuntia* spp.), and especially regarding their eradication through biological control.

Prickly pears are native to southern North America, Central America, northern South America and the Caribbean, and numbers around 200 species. They are cactus with flattened stems and spines, bearing yellow, orange or red flowers. The purplish-red fruit is edible, but requires dexterous removal of the small external spines, and also care to not swallow the central spine embedded in the fruit. The species was

introduced (intentionally or accidentally) into Africa, Europe, and southern Asia from the 18<sup>th</sup> century onwards. Some species became invasive species and were subject to the first really effective biological control exercises in history.

According to literature, a prickly pear species (*Opuntia vulgaris*) was transported to Australia by the British during the establishment of the first settlement in the continent in 1788. At that time,



Spain and Portugal had a world-wide monopoly on the important cochineal dye industry (sourcing it from their colonies in the New World), and the British Government was keen to set up its own source of supply within its dominion. The red dye derived from cochineal insects (Mexican red-scale insects that feed on Cacti) that fed on *Opuntia* species, was important to the western world's textile industry; it also was the dye used to colour the British soldiers' coats red. However, this species did not develop into a major problem as *O. stricta*, a later entrant into Australia. By the 1920s, vast tracts of rural eastern Australia were devastated *O. stricta* and attempts by farmers to eradicate it met with little success, and many people were forced off their lands. In 1925, the Commonwealth Prickly Pear Board, realizing the enormity of the problem, introduced the Cactus Moth *Cactoblastis cactorum*, a native of South America, into Australia. The caterpillar of this moth lives and feeds communally inside the host plant, thereby decimating it. By 1933, most of the land was cleared of the pest, and Australian farmers were

so relieved and grateful to the moth that a memorial was built for it at Dalby in Queensland in its honour.

As for the introduction of prickly pears into India, information obtained from the WEALTH OF INDIA mentions that 7 or 8 species were introduced, of which three became naturalized. (namely, *O. dillenii*, *O. vulgaris* and *O. elatior*) and some soon became noxious weeds. *O. dillenii* was present in southern India by the mid 18<sup>th</sup> century, suspected to be a case of accidental introduction by early European travellers, who carried it in ships to be used as a vegetable to prevent scurvy. The species spread fast and was used as/for hedges, fodder, manure, production of alcohol and medicine, which aided its spread. *O. vulgaris* (largely found in northern India) was introduced by the East India Company to start the cochineal insects based dye industry, but was not commercially successful. In India, it was not the Cactus Moth, but the two species of introduced cochineal insects, namely, *Dactylopius indicus* and *D. tomentosus* that dealt the lethal blow to prickly pears.

The Cactus Moth by its widespread

and quick eradication of *O. stricta* in Australia became one of the most spectacular weed biological control agents in history. However, as with most of man's interventions on nature, the moth has now become an invasive species that threatens native and endemic prickly pears and cacti species in the southern U.S., and the cactus industry and desert ecosystems of southwest U.S. and Mexico. In spite of the possibility of biological control being a double-edged sword, I hope that 'safe' pests are urgently introduced in India to control two of the most invasive plant species in our country, *Lantana camara* (in forests) and *Eichhornia crassipes* (in wetlands). These two species have devastated our wilderness, severely impacting the native flora. It is time that the Ministry of Environment and Forests treat both of these as special cases for biological control – their physical eradication over large areas is near impossible, laborious and expensive. As for another invasive, *Prosopis chilensis* (= *juliflora*), this species is now an important fuel-wood species, and thus lessens the pressures on our forests. ✍

Ranjit Manakadan

## ABOUT THE POSTER



RIAN CHANDRA KAGWADE

## MUDSKIPPER

Mudskippers are completely amphibious fish that can use their pectoral fins to walk on land. Being amphibious, they are uniquely adapted to intertidal habitats, unlike most fish in such habitats which survive the retreat of the tide by hiding in burrows.

Mudskippers are remarkable and often considerably abundant components of these transitional ecosystems, and are susceptible to the impact of human action both in the sea and, even more drastically, on land.

They are quite active when out of water, feeding and interacting with one another, for example to defend their territories. Large mudskippers will try and eat small fish along with their usual diet.

To know more interesting facts about Mudskippers, do read the feature "Mysterious Mudskippers" published on Pp. 30-32 in April-June 2011, *Hornbill*.

# Mudskipper



## Mr. B.G. Deshmukh, IAS (Retd.)

March 26, 1929 – August 7, 2011

Mr. Bhalchandra G. Deshmukh, President, Bombay Natural History Society (BNHS), was associated with the BNHS for more than 15 years and was its guiding light in multiple ways; he was a great supporter of conservation.

A true-blue Puneite, Mr. B.G. Deshmukh was born in his ancestral *wada* off Laxmi Road. He was an alumnus of Fergusson College and a student of Economics and Political Science.

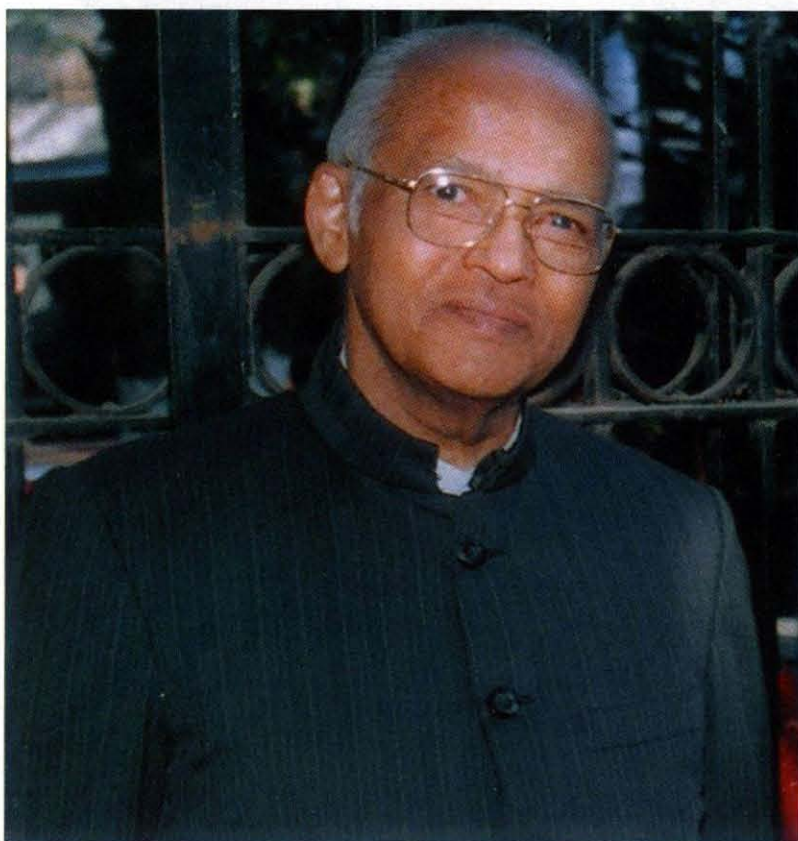
Mr. Deshmukh joined the Indian Administrative Service in 1951. During his illustrious career, he held various important posts, including Chief Secretary,

Maharashtra, Chairman of the Governing Board of the International Labour Organisation, Secretary of the Union Labour and Rehabilitation Department, Additional Secretary, Union Ministry of Home Affairs, Municipal Commissioner of Bombay, Secretary to the Chief Minister of Maharashtra and Cabinet Secretary. He was also the Principal Secretary to three former Prime Ministers – Rajiv Gandhi, V.P. Singh and Chandra Shekhar.

Mr. B.G. Deshmukh had penned several books, including *A CABINET SECRETARY THINKS ALOUD*, *A CABINET SECRETARY LOOKS BACK* and *POONA TO PRIME MINISTER'S OFFICE*. He also painted fascinating portraits of political leaders like Giani Zail Singh, Rajiv Gandhi, V.P. Singh and Chandra Shekhar.

Since retirement he was associated with several other NGOs, besides the BNHS, that benefited phenomenally from his ability to sense problems far in advance of their arrival and to suggest measures to tackle them. He had a remarkable vision to see a project through thick and thin, leave no stone unturned to realize the change that was conceived. His goodwill with the top officers from Delhi and in Mumbai helped projects move through difficult times.

With the demise of Mr. B.G. Deshmukh, an era draws to a close. His stalwart figure had become iconic for the various NGOs and social service organizations that he was associated with. In his death, nature conservation and BNHS have lost one of their greatest supporters.



## Mr. J.C. Daniel

July 9, 1927 – August 23, 2011

Mr. Jivanayakam Cyril Daniel, Vice President, Bombay Natural History Society (BNHS), was a veteran conservationist. He became associated with the BNHS as a researcher in the 1950s. Subsequently, he held several posts at the BNHS, including Curator, Honorary Secretary, Executive Editor of *JBNHS*, Research Guide to M.Sc. and Ph.D. students and head of various Subcommittees. He was the Founder Editor of *Hornbill*. He was the mentor at BNHS in many ways and a pioneering figure in various conservation initiatives in the country.

Mr. J.C. Daniel received several awards during his lifetime, including the Peter Scott Award for Conservation Merit (1988), Award of Kerala Agricultural University (1989), Indira Gandhi Paryavaran Puraskar (1997), Sanctuary – ABN Amro Lifetime Service to Conservation Award (2000), and the Distinguished Service Award from Society for Conservation Biology (2007). He also held several important positions in various institutions, including Member of the Steering Committee and Regional Representative (Western Region) – Indian Board for Wildlife; Member – Governing Council – Wildlife Institute of India; Vice-Chairman – Species Survival Commission; Chairman – Asian Elephant Specialist Group; Member – Executive Committee – World Congress of Herpetology; and Member – Punjab Ecology.

He had worked on various projects involving oriental vertebrates, species and habitat conservation and natural history publications. His research work spans several species, such as Indian Wild Buffalo, Asian

Elephant, Blackbuck, Tiger, Nilgiri Tahr, Saltwater Crocodile and Golden Gecko. He had authored and edited various books for BNHS, such as *THE BOOK OF INDIAN REPTILES AND AMPHIBIANS*, *CASSANDRA OF CONSERVATION*, *PETRONIA*, *A CENTURY OF NATURAL HISTORY*, *THE LEOPARD IN INDIA* and *A WEEK WITH ELEPHANTS*. His latest book *BIRDS OF THE INDIAN SUBCONTINENT – A FIELD GUIDE* was recently released. He had written dozens of research papers in various journals. He had also initiated various pioneering activities, such as recording and documenting of old trees in the Mumbai region, with the help of nature lovers and BNHS members.

BNHS has lost a mentor, a naturalist, conservationist and a great writer.



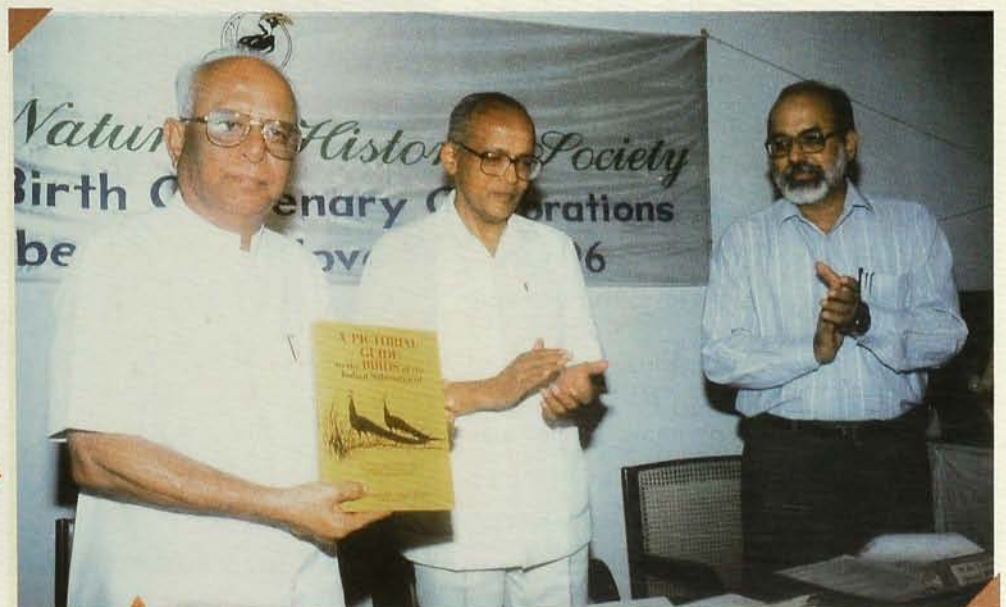
# Memories



Encouraging young talent ... Annual  
General Body Meeting,  
Hornbill House



1994 ... Collaboration with the  
Indian Army ... Gen. Bipin C.  
Joshi, PVSM, AVSM, ADC, Chief  
of Army Staff, Hornbill House



1995 ... Release of PICTORIAL GUIDE TO  
THE BIRDS OF THE INDIAN SUBCONTINENT ...  
Mr. R.T. Kadam, Mayor, Mumbai, and  
Dr. Jay Samant, Director, BNHS,  
Hornbill House



◀ 1996... Dr. P.C. Alexander, Governor of Maharashtra, Mrs. Alexander and Mrs. D.S. Variava at the Natural History Collections, Hornbill House



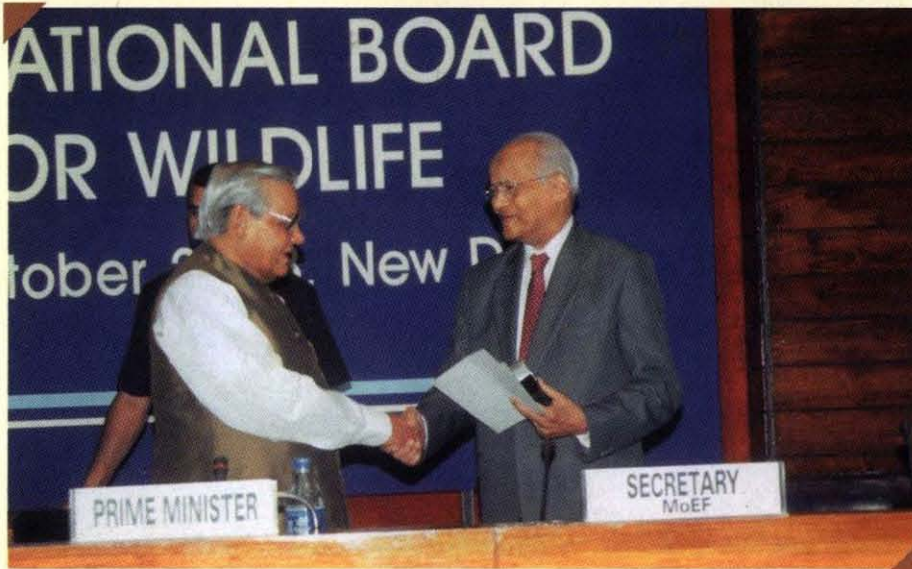
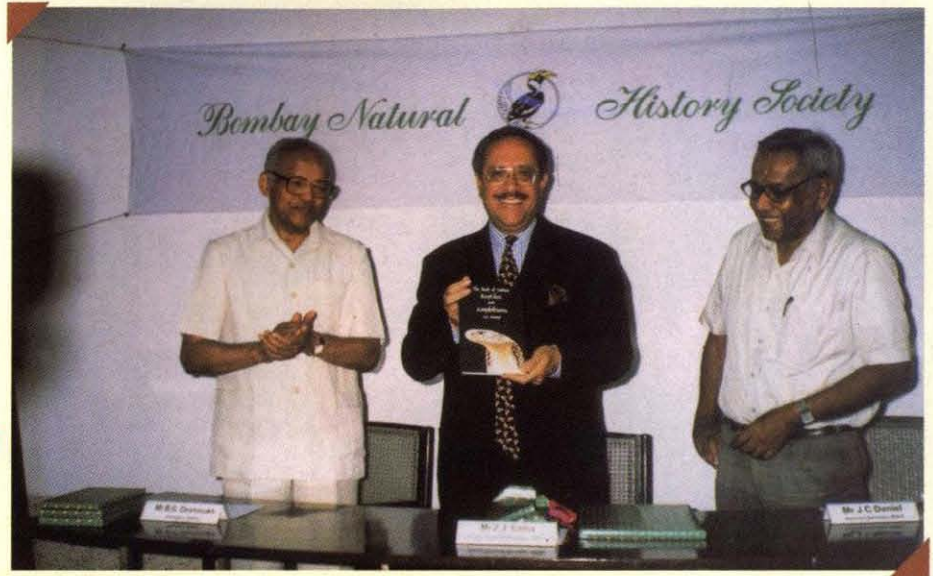
1998 ... Mr. Suresh Prabhu, Minister of Environment and Forests, Hornbill House ▶



◀ 2002 ... Felicitating Aureus Members' ... BNHS AGM, Hornbill House



2002 ... Release of the book OF  
REPTILES AND AMPHIBIANS' ...  
Mr. Z. Cama, CEO, HSBC,  
Hornbill House



2003 ... Rajiv Gandhi Conservation  
Award (Institution Category) ...  
Shri Atal Bihari Vajpayee at the  
Meeting of the National Board  
for Wildlife, Delhi



2008 ... Release of POTENTIAL AND  
EXISTING RAMSAR SITES IN INDIA ...  
Shri Mohd. Hamid Ansari,  
Vice President, India and  
Dr. A.R. Rahmani, Director, Delhi

# ANNIVERSARY HIGHLIGHTS



◀ 2008 ... Celebrating 125 years of the BNHS ... Shri Vilasrao Deshmukh, Hon. Chief Minister of Maharashtra at the Y.B. Chavan Auditorium, Mumbai

2008 ... Celebrating 125 years of the BNHS ... the extended family at the Chhatrapati Shivaji Vastu Sangrahalaya, Mumbai ▶



◀ 2009 ... Release of LIVING JEWELS FROM THE INDIAN JUNGLE ... Mrs. Usha Thorat, Deputy Governor, Reserve Bank of India at the Chhatrapati Shivaji Vastu Sangrahalaya, Mumbai



# The Urban Hornbills



RAJAT BHARGAVA

Indian Grey Hornbill — Female

Text: **Raju Kasambe**

**H**ornbills are an interesting group of birds among all avifauna. They have a casque surmounted over their bill that looks like a horn, thus the name 'Hornbill'; and also are probably known as 'Rhinoceros' birds, as they were known in ancient Rome.

India is home to nine species of hornbills; the Great Hornbill *Buceros bicornis* being the largest in size and the Malabar Grey Hornbill *Ocyceros griseus* the smallest. The Indian Grey Hornbill is a widespread species found across India, except in the southern Western Ghats, and in the drier north-western parts of India. It is probably the only hornbill species that can be seen and successfully breeds in cities like Mumbai, Delhi, Chandigarh, Nagpur and Bengaluru.

My fascination for hornbills began after reading stories about their breeding behaviour, which I found very interesting; during the breeding period, the female seals herself inside a tree cavity ...! My curiosity to learn more about this bird pushed me further and I decided to study the Indian Grey Hornbill *Ocyceros birostris* for my Ph.D.

I located six nests in Nagpur city, which I observed regularly for three years. Hornbills forage actively early in the mornings and in the evenings. They have binocular vision, although unlike most birds with this type of vision the bill intrudes on their visual field. But it also allows them to see their own bill tip and aids in precision handling of food objects with their bill. Another unusual fact that I noticed was that hornbills use the eyes alternately to look at an object and concentrate on it!

## Courtship

Indian Grey Hornbills are quite choosy in selecting cavities for nesting. After a thorough inspection of the available cavities, the selected cavity is cleaned and its entrance enlarged. The female enters the cavity frequently and stays inside for long durations.



Raju Kasambe, an ornithologist, is working as Project Manager, IBA Programme with the BNHS.

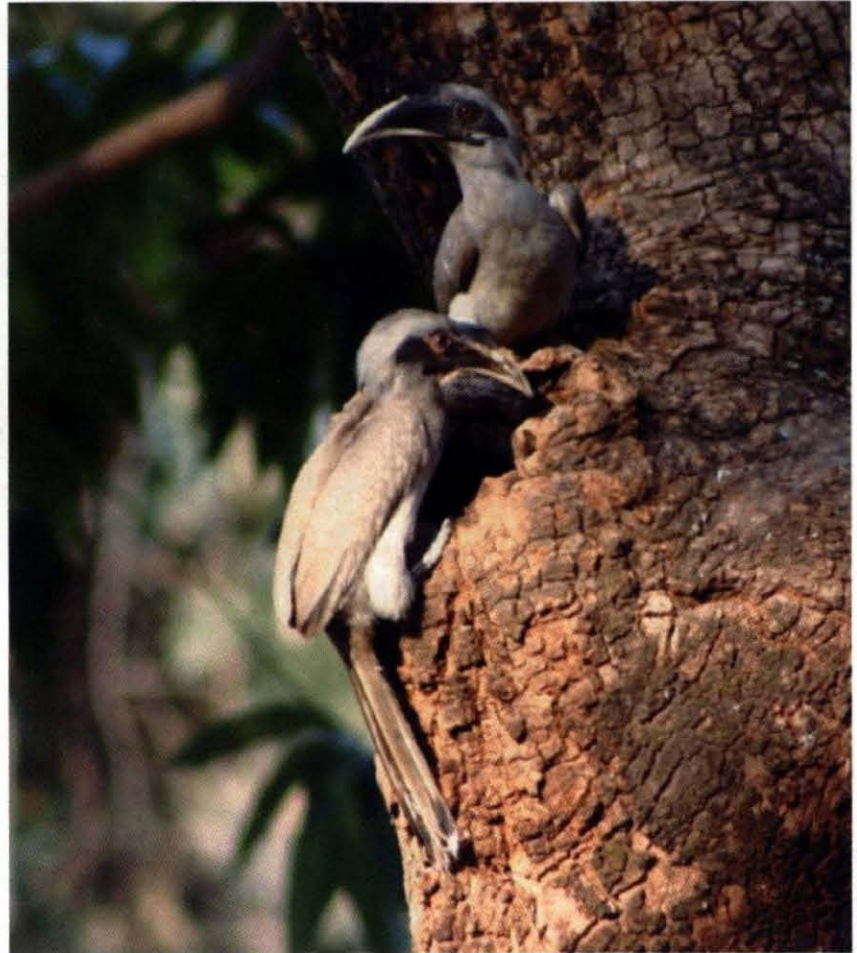
The courtship behaviour in these hornbills is plentiful. During courtship, the male offers a variety of fruits, garden lizards, and even small pieces of bark to the female. The bark pieces offered are crushed by her. Sometimes they just pass these items back and forth to each other for long durations. The male gradually increases the amount of courtship feeding and starts mating with the female. After a point the female stops foraging for herself and becomes sedentary, and stays in the nest cavity. Finally she seals herself inside with the help of mud pellets provided by the male. In some hornbill species, the female even uses her excreta to seal the nest entrance.

### 'Imprisoned' Hornbills

It is difficult to fathom the happenings of the nest cavity once the cavity is sealed and the female incarcerated. In some countries, scientists install small video cameras and record the happenings inside the nest cavity. In the absence of a camera, the heap of midden below the nest tells the story unfolding inside the nest cavity! The midden heap also has feathers moulted by the female during her incarceration period, which lasts for 65 to 70 days in case of the Indian Grey Hornbill. During her period of incarceration the female lays one to two, at times three eggs, and incubates them until they hatch.

Once the eggs hatch, and the nestlings are around a month old, the female breaks open the nest plaster and emerges. Frail and clumsy after the incarceration she takes a few days to 'recuperate' and resume her activities, including flying. The male takes care of her and feeds her, till she regains her strength. Thereafter, both share the responsibility of feeding the nestlings till they fledge.

This is the most crucial period of a hornbill's life cycle, as it decides the breeding success. An open entrance is an invitation for predators; also on many occasions the nestlings fall off from the open cavity, probably in a hurry to get



A Indian Grey Hornbill pair inspecting a cavity for nesting

food from the parents. The entrance is resealed by the nestlings in about 2-3 days. If they survive this period then their survival is ensured. They remain incarcerated, till they are ready to fledge, which is in about a month. The chicks fledge one at a time; when the first nestling is ready it breaks the plaster to the cavity and comes out, followed by the second in a few days.

The hornbill family remains together as a group moving from one fruiting tree to another in the wee hours and the parents continue feeding the fledglings. The fledglings often indulge in erratic flight, mock fighting, curious about any moving object, crushing rotten tree branches, tossing and juggling leaves.

### Prudent Hornbills

Being incarcerated does give an added security to the hornbill chicks, but the

leftovers and excreta could have been a bane for their survivability. Nature finds a way to survive. In case of the hornbills, the incarcerated female ejects her excreta from the cavity by pumping it out from the small cavity entrance. The problem begins when the eggs hatch; the nestlings are not trained to defecate from the small cavity entrance! The solution ... the male brings small dry bark pieces, which the female places on the nest floor. The excreta get adsorbed onto the bark pieces, which are thrown out by the female, thus maintaining a sanitized nest!

### Hornbills as Athletes

Indian Grey Hornbills hold each other's bills strongly and indulge in short bouts of tug-of-war. This play behaviour is called bill-grappling. They repeat this action often as they move for foraging. During courtship the male and female



ADITYA JOSHI

Bill grappling during courtship is gentle and short



(L-R) Figs of Peepal and Banyan are keystone species in the diet of Indian Grey Hornbill



(L-R) Jamun and Khimi fruits are also eaten by the Indian Grey Hornbills

also indulge in bill-grappling, but it is gentle, short, almost like kissing, and is never fierce. When two young males indulge in bill-grappling, it is intense almost like a fight. They tug each other hard, and if one bird falls off from its perch the weight of the falling male brings down the other, bill-locked, both swirling downwards, unlocking the bills just before touching the ground. Sometimes, a bird in flight hits its bill against the bill of a perched bird. This may either end in bills clashing, or if the second bird wishes to avoid a clash it flies away. The play continues for a while mostly during mornings after foraging or in the evenings before retiring to roost. In some species of hornbills, two males clash mid-air casque-to-casque producing a loud sound, this is described as casque-butting.

**Diet-conscious Hornbills**

The most important food of Indian Grey hornbills is figs of *Ficus* trees, namely Banyan *Ficus benghalensis*, Peepal *Ficus religiosa* and Cluster Fig *Ficus racemosa*. The hornbills are mainly

RAJU KASAMBE



RAJU KASAMBE

All set to commence aerial jousting

frugivorous during the non-breeding season; but during the breeding season they become omnivorous to fulfill the requirement of calcium and proteins of the growing nestlings.

During my childhood days, I had heard that the banyan, peepal and cluster fig trees were the favourite abode of the Hindu trinity – Brahma, Vishnu, and Mahesh. In my study area, these three trees supported more than 25 species of birds and animals for food, nesting, and/or roosting. The trees are safe due to religious beliefs, but it took three years of intensive research on hornbills to understand a fact imbedded on my mind as a child!

### Hornbill visits my house

During my study I had never touched a wild hornbill, I got this opportunity much later; my birder friends rescued a hornbill fledgling and brought it to my house. It was my guest for three days. I learnt a lot more about hornbills in those



RAJU KASAMBE

Bark pieces with adsorbed excreta are thrown out from the nest cavity

three days. The fledgling roosted in a bike tire, which was hanging in the gallery of my house. It regurgitated, and not excreted, as I believed, larger seeds of fruits like Jamun *Syzygium cumini* offered to it. It kept quiet most of the time and called only in the early morning. It appeared to me as an 'intelligent sage'

always meditating, and my arrival disturbing it!

When we released the fledgling, it called to its parents till they arrived and fed it, and guided it away for roosting. The joy of seeing a 'lost' hornbill fledgling rejoining its parents was a moment that I cherish even today! ♣

## Life finds a way!



Text and Photograph: **Vishwajeet Naik**

I enjoy observing birds; this and other reasons prompted me to set-up artificial nests on trees in my garden. I have around 150 boxes of wood, plastic (5 litre oil cans), and tin boxes in the garden which are often occupied by the Common Myna, Jungle Myna, Brahminy Myna, owlets, magpie robins, parakeets and pigeons. The birds have a secure home to stay and breed in, and I can enjoy their presence even when pressed with worldly matters. That is what I call 'killing two birds with one stone'!

One day while photographing the resident birds in my garden I noticed a Grey Hornbill collecting a lump of mud in its beak from the garden. The bird flew to a box, set on a Peepal tree, and gave it to another bird inside the box that plastered the mud to the hole in the box. The hornbills continued doing this until only a small slit remained open. The hornbills had occupied an artificial nest to breed! This was in the first week of April.

The male continued to bring mud, green leaves, tree barks and also fruit berries for his mate entrapped in the 'box'. On the morning of May 10<sup>th</sup>, I noticed that the mud-lining of the

box was open. I feared that threat of predation from snakes or cats had forced the hornbills to abandon the nest, but was pleasantly surprised, when I saw both the parents bringing food for the chicks inside the nest. The parents would come in every 15 to 20 minutes to feed the chicks, over their audible squeaking.

These avian beauties require old and tall trees with hollows to build their nests. Had urbanization forced these hornbills to use an artificial nest as 'home'? If not, then why had they chosen to nest in an artificial metal box?

We know that life finds a way, and how ...!! 🐦

## FACT FILE

- Size: 0.6 m.
- Brownish grey bird with a long graduated tail.
- Black and white curved bill surmounted by a casque; in female the casque is smaller.
- Eggs: 2-3, dull, glossless white.
- Nesting: March to June.
- Food: berries, wild figs of banyan and peepal, leaves, grasshoppers, beetles, lizards, flowers.
- Call: a loud cackling *k-k-k-kae*



Vishwajeet Naik is an artist, bird photographer, and a nature enthusiast.



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**Union Bank**  
of India

# Ahmedabad's Vanishing Vultures!!!



White-rumped Vulture *Gyps bengalensis*

Text and Photographs: Aditya Roy

**V**ultures are nature's most efficient scavengers. These masters of the sky occupy a crucial ecological niche that helps to maintain a healthy environment. Vultures have a robust digestive system, which allows them to digest disease causing bacteria found in rotting meat.

Gujarat state has a considerable population of White-rumped and Long-billed vultures. Ahmedabad city alone has a population of around 150 White-rumped Vultures. It is important that this population is regularly monitored and actions are taken to safeguard it.

The most abundant vulture species that thrived in South Asia belonged to genus *Gyps*. However, in the last twenty years their numbers have been declining at an alarming rate – three species, namely White-rumped, Long-billed and Slender-billed vultures have declined to numbers where they are now listed as Critically Endangered species by IUCN. As per a study by the Peregrine Fund (in Pakistan), the major cause of decline in South Asian Vulture population is a veterinary painkiller drug Diclofenac Sodium. The active residues of this drug present in animal carcasses cause severe renal failure, uric acid accumulation and finally death in vultures.

In Ahmedabad, a group of Volunteers regularly monitor and rescue injured vultures.

While working for vulture conservation at the grass roots level in Ahmedabad and its surrounding areas, we observed that besides diclofenac, there were other causes that were taking a huge toll of vultures. Our work is supported for the last three years by Jivdaya Charitable Trust an NGO that works for animal welfare. The Trust provides medical facility for treating injured and stray animals.

## Habitat destruction

A major reason for the declining White-rumped Vulture population in Ahmedabad is cutting of huge trees; vultures use huge trees to nest and roost. A fast growing mega city, there is intense construction activity across Ahmedabad. The areas where vultures nest and breed are under severe pressure from the builder lobby, as they are among the high-priced areas of Ahmedabad. No action has been initiated by either the Forest Department or municipality of Ahmedabad as big money is involved. There have been no legal steps to safeguard the habitat of a critically endangered species! Whenever there is an incident of tree cutting both the Forest Department and Municipality blame each other, but nothing is done to prevent the cutting of the next tree.



Aditya Roy is currently working as a research fellow to monitor use of veterinary painkillers in areas where vultures still exist. He is involved in wildlife conservation and photography, especially of birds



Green faecal matter was stuck to the feathers of a vulture rescued from IIM-Ahmedabad



Mortality due to dehydration is significant and cannot be ignored

### Kite Festival

Kite flying festival is one of the most widely celebrated festivals in Gujarat, and especially in Ahmedabad and its surrounding areas around mid-January. Traditionally thick cotton thread strings were used to fly the kites, later these were coated with glass powder and gelatin to make them sharp, as cutting and collecting kites almost all through the day became a sport. These strings are sharp enough to cut fingers and necks of people! Lately, the cotton strings have been replaced by the stronger nylon ones. Enthusiastic individuals begin flying kites a week before the actual festival, injuring thousands of birds every year.

The Jivdaya Charitable Trust, Ahmedabad, alone rescued 3,000 birds injured by kite strings in January 2011; majority of these injured birds were pigeons. We rescued 40 different species of injured birds, including White-rumped Vultures, Egyptian Vultures, Peregrine Falcon, Sarus Cranes, Painted Storks, and eagles. Every year around ten White-rumped Vultures get injured due to kite strings and many die before they can be attended to. This is one of the major reasons of the fatalities of White-rumped Vultures in and around Ahmedabad.

### Dehydration

During summer we get dehydrated fledglings of White-rumped Vultures. On days when the temperature is more than 40° C we invariably get calls informing about fallen vulture chick and 99% are related to dehydration. These fledglings when rescued are weak and unable to fly; some have minor injuries as they fall down c. 12-15 m from their nests. These birds are given intravenous fluids and vitamins, and most recover within a week. But those that go unseen and are not rescued in time die. We do not know the reason for dehydration in these birds, but the numbers are important in terms of vulture mortalities in and around Ahmedabad. As our network of volunteers has increased we now get dehydrated birds from Kadi, and Viramgam, which are 40-50 km from Ahmedabad.

### Poisoning

Diclofenac is not the only 'poison' killing vultures. Farmers use poisons to kill blue bulls and wild pigs as they cause heavy destruction to agriculture. Vultures feeding on poisoned carcass become victims of the poison too. One of the most potent poisons used is Forate, an Organophosphate. A few years ago there was an incident in Daslan village (40 km from Ahmedabad) where five White-rumped Vultures died after eating a Wild Pig carcass poisoned with Forate. In February 2011, we rescued a White-rumped Vulture from IIM-Ahmedabad that had green faecal matter stuck to its feathers, an indicator of some poisoning.

### Regular Vulture Monitoring

To safeguard the vulture population of Ahmedabad city and its surrounding areas we regularly count the number of nests and chicks, monitor feeding sites, and locate new nesting, roosting and drinking sites. The major nesting colonies in the city are in the IIM-A (Indian Institute of Management, Ahmedabad) campus and its surrounding green area, Shahibaug Cantonment and its surroundings, and Sabarmati area. We have a group of enthusiastic locals in each area who




Kite flying is not just another sport of man it is another reason for vulture mortality



provide regular feedbacks. They also inform us of sick or injured birds. We have identified locals both in and outside Ahmedabad interested in conserving vultures. For example, a school teacher in Kadi, located 40 km from Ahmedabad, keeps watch on a White-rumped colony and informs us if there is any injured or sick bird. This year we rescued three vultures from Kadi. At present, we regularly watch various White-rumped colonies in a 50-60 km radius from Ahmedabad. We have built a group of passionate individuals under the guidance of Mr. Kartik Shastri who has been doing this work since last 10 years. Even if a call for vulture rescue is received at midnight these volunteers attend to it.

We regularly approach scientists and veterinarians working for vulture conservation or wildlife conservation across India for guidance. All the dead vultures bodies collected are properly stored in a refrigerator and sent for post mortem to the BNHS-Vulture Care Breeding Centre, Pinjore, or Sálím Ali Centre for Ornithology and Natural History, Coimbatore.

Several factors are responsible for the decline of vultures in and around Ahmedabad. As a group of vulture lovers we are trying our best to rescue and treat the vultures with the best medical facilities that we can provide. Regular monitoring and rescue work has stabilized the population of White-rumped Vultures to around 250 in Ahmedabad district. Our objective is to release the rescued birds back into the wild, but birds with amputated wings or legs are sent to Junagadh or the Pinjore Captive Breeding centres. Some of the birds sent to these breeding centers have been breeding successfully. We are trying to establish a separate centre, especially for sick and injured birds. We hope to get some help for this from the forest department and other NGOs working for bird conservation. 

## Uran: A Paradise Lost



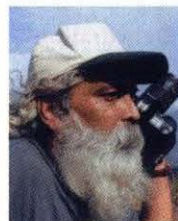
White-eared Bulbul *Pycnonotus leucotis*

Text and Photographs: **Gangadharan Menon**

It is said that if a tree is cut, the whole universe is disturbed. Imagine the magnitude of this disturbance if mountains after mountains are flattened, and the debris is used to fill wetlands after wetlands teeming with birdlife. That is precisely what has happened in Mumbai's own backyard, in an exotic expanse of wetland called Uran.

In a matter of weeks, an array of mountains between Panvel and Uran has made way for monstrous container yards. The voracious insatiable appetite of the gigantic earth-moving equipment continues to gnaw at the insides of the mountains. And dumpers stand in endless queues, waiting to transport the carcass, and dump it into the home of over a 100 species of wetland birds. Yes, I realized you can kill two wetland birds with one stone. Flatten the mountains and use it to destroy their habitat; one single sweep of wanton destruction!

The official reason given for this ecological mayhem is that Uran is now an SEZ. It's wonderful to call Uran an SEZ, but only if SEZ means Special Ecological Zone instead of Special Economic Zone. But tragically, economy has always taken precedence over ecology, especially in the policies of greedy politicians.



Gangadharan Menon made a documentary on Silent Valley, referring to the impending disaster of a hydel project coming up there, which played a small part in Silent Valley being declared a national park in 1981.



The rich biodiversity of Uran may soon disappear due to man's undying thirst for land

Billy Arjan Singh, the late conservationist who fought tooth and nail for the protection of tigers for decades, once said, 'If tigers could vote, they wouldn't have been on the verge of extinction.' How I wished the homeless birds of Uran could speak for themselves, and sue us for snatching away the food and shelter that Mother Nature had so generously provided for them.

A little while ago, as the tide rose steadily, thousands of flamingos that come to the mangroves between Sewri and Mahul used to take off into the skies forming gigantic pink clouds, and land in the inviting wetlands of Uran. Imagine the trauma they must have gone through when they looked down from the skies and discovered to their dismay that what was once their homeland had now been conquered by the greed of man.

It is believed that the mangroves that once protected the entire coastal length of Mumbai, as well as its marshy backwaters, are now under serious threat, particularly the areas not yet notified as protected forests. Rich in bird and marine life, these fragile forests were once an extension of the land forests, connected to each other by sea grass. By filling these marshlands where the sea grass grows, under the pretext that these were not 'forests', we have cut off the umbilical cord that existed between the forests and rendering these bio-rich mangroves into islands of solitude, fighting their lone battle for survival. There is a tiny bit of this exotic wetland that still remains intact. With a handful of migratory birds foraging for food, blissfully unaware of the happenings around them.

But the dumpers in the distance, filled with what was once a mountain, is a grim reminder that this too will disappear in




The mountains and wetlands in Uran are disappearing at a fast rate

a matter of days. Leaving no trace whatsoever of what was once a paradise for birds. Now, lost forever!

A minute's silence was observed during a Mumbai Bird Race held in January 2010, to mourn the death of Uran.

Was it a one-off mourning? Or was it the sad precursor of many mournings to come, preceding every Bird Race? And more importantly, will the 'Rat Race' of the politicians win against the Bird Race of nature lovers? Only time will tell!

Looking at the young birdwatchers, which formed a large section of the audience, I asked myself, what are we going to pass on to our next generation, from whom we have borrowed this fragile earth? Habitats where the miracles of nature surprise you every living moment, or a vast wasteland of memories turned brown?

As an ancient Chinese saying goes, 'It's only when the last tree is cut, the last river poisoned, and the last wild animal killed, that man will realize that he can't eat money.' 

# Kaas – The Canvas of nature



GANESH H. SHANKAR

Text: **Miriam Abraham**

Inputs (conservation actions): **Vishal Prasad**



Miriam Abraham is currently working as the Conservation Officer at BNHS.

**L**ike the 'Valley of Flowers' in Uttarakhand, the State of Maharashtra can brag of its own 'Plateau of Flowers' in Kaas, which is an outstandingly beautiful plateau splashed with a hue of colours. Kaas is a vast lateritic plateau at 1,200 m above msl in the Sahyadri range of the northern Western Ghats in Satara district. It is geographically placed at 17° 42'-17° 45' N and 73° 47'-73° 56' E. Kaas is a hotspot of biodiversity due to its unique ecosystem and high degree of endemism. It contains important natural habitats that sustain biological diversity of outstanding universal value.

Most species seen here need abundant water for survival and therefore depend on the monsoon. Just after the first monsoon showers the plants break out of their dormancy and the dry grass plateau turns green, and soon spreads out a beautiful carpet of flowers. The rocky laterite plateau holds water without much of it seeping down, a boon for these water dependent ephemerals. The plateau receives an average annual rainfall of 2,000-2,500 mm.

More than 300 species of wild flowers bloom to paint the 1,792 ha of Kaas into an assortment of colours. Most of the herbaceous plants here are ephemerals and are seen only from mid-July to mid-October. Kaas plateau is an outstanding

example of significant ecological and biological processes in terrestrial and fresh water ecosystems, and the association of plants and animals. This diversity is an attribute of the lateritic soil, abundant rainfall, wind, bright sunshine and high dew point of this area. As this area is predominantly laterite (insoluble deposits of iron and aluminium oxides), soil cover is very shallow; growth of big trees is therefore curbed. The lack of minerals in the soil is balanced by the presence of insectivorous species, like *Utricularia* and *Drosera*. The major colours seen here are purples of *Utricularia purpurascens* (Bladderworts) and *Pogostemon deccanensis* (Catkins), white of *Eriocaulon* sp. (Ball flower), pinks of *Impatiens* sp. (Balsams), and yellows of *Smithia hirsuta* (Mickey Mouse) and *Senecio grahamii* (Groundsel). This beautiful expanse changes its hues with every passing day, depending on the dominant flowers of that period.

Many species of wild flowers seen here are endemic like *Aponogeton satarensis* (Waytura), *Dipcadi maharashtrense*, *Murdannia lanuginosa*, *Iphigenia* sp., *Rotala ritchiei*, and *Smithia agharkarii*; and rare like *Drosera indica*, *Drosera burmanni*, *Ceropegia jainii*, *Ceropegia media*, and *Ceropegia vincifolia* to the Western Ghats, several are endangered too. Around 11 species of Ground orchids of *Habenaria*, 7-8 species of *Impatiens* (Balsams), 5-6 species of *Utricularia* (Bladderworts) and 5 species of Karvi are found here. Another interesting plant is *Rhambhicarpa longiflora* (Trumpet flower), a root parasite on grasses! But, Kaas is not all flora and no fauna. Butterflies, amphibians, reptiles, birds and mammals of Kaas form an important part of this delicate niche. Sloth bear, Gaur, Leopard, Barking Deer, Mouse deer and Civets are commonly seen here. The herpetofauna diversity is also very high here, e.g. pit vipers, shieldtails, caecilians and frogs. The rich faunal diversity is due to the

contiguity to the forests of the Western Ghats, unique climate, altitude, terrain and other supporting factors.

In recent years, increasing tourism is affecting all life at Kaas. Roadkills are common as Kaas is a picturesque and ideal get-away from the hustle and bustle of city life. The tourists drink, party, cook (the plateau is covered with dry grass during the dry months, and fires are not rare during this period), and litter the entire area.

There are seven villages on this plateau; the locals here have until now lived oblivious of the rich beauty that surrounds them. They considered this as another natural phenomenon, like mushrooms springing up after rains. But when tourists started arriving in large numbers during the season, especially in the last couple of years, the ecological balance was disturbed. Scores of vehicles and uncouth tourists leave the magic land a junkyard by the end of the season. It takes another 8-10 months to undo the damage, only

to be disturbed with more vigour as the popularity of the place increases.

Aparna Watve, a researcher who studied rocky plateau habitats of the northern Western Ghats and Konkan areas demanded the protection of the area much before the tourists went this far. But nobody gave an ear to her anxiety about protecting this landscape. What she predicted then is now a reality! It is time something is done about these rampant tourism activities, as this ecosystem is sensitive to disturbances and there are highly endemic species of plants and animals here. Wildlife activists Vishal Prasad and Abhay Singh of the Biodiversity Conservation and Research Society, and a few others have taken up the issue and are working towards conserving this plateau.

UNESCO plans to declare Kaas a World Nature Heritage Site of the Western Ghats because of its rich biodiversity. However, till date no serious steps have been taken to protect the flora and fauna of this place.



Peacock Royal *Tajuria cippus* – a lycaenid butterfly seen at Kaas

GANESH H. SHANKAR



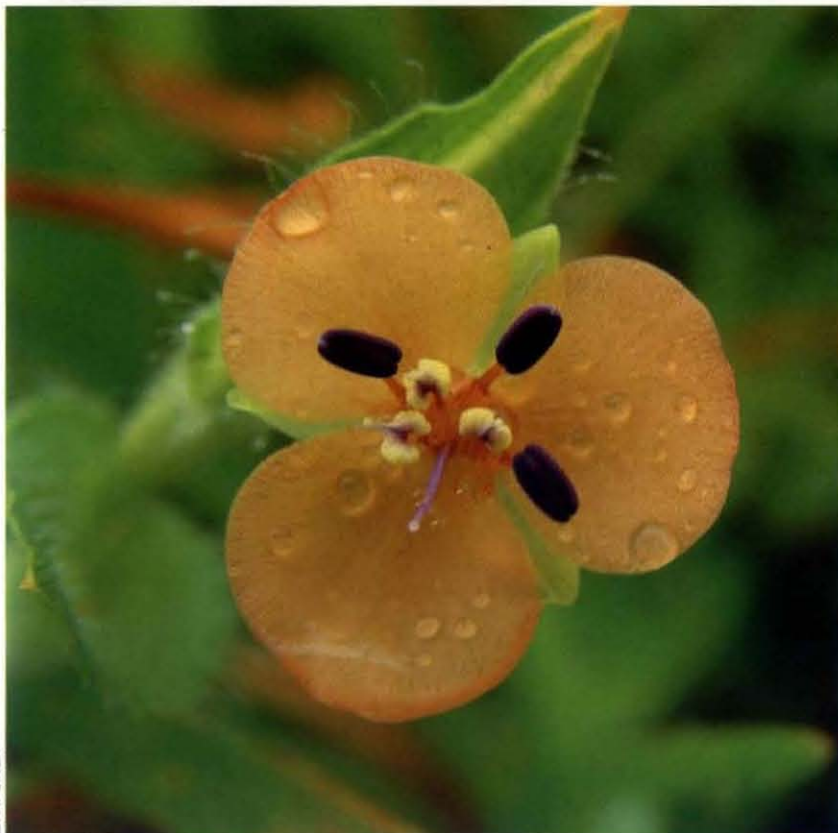
MIRULUM ABROHMAN

Kaas is just another picnic spot for most of the tourists

**Why does Kaas need immediate protection?**

Most species here will lose their natural habitat, to the numerous windmills that are being constructed in the vicinity of Kaas. Unplanned developments in the region are posing a serious threat to their survival. Procrastination will ensure that this delicate plateau becomes an ecologically depleted piece of land, like table-land at Panchagani.

1. Tourism is one of the biggest dangers to the flora and fauna of Kaas. Every year more than a lakh visit to see the beautiful landscapes and vivid wild flowers, which begin from mid-July and last till October. During this time, massive and unorganized parking of thousands of vehicles on both sides creates air and sound pollution. Some, especially families, believe that Kaas plateau is a picnic spot. They walk on the bed of flowers for fun and to photograph. They



ABHAY SINGH

*Murdannia lanuginosa*, a Western Ghats endemic is categorised as regionally endangered, owing to its restricted habitat and low population status

litter and leave the cleaning for others, and why not as tomorrow they will be headed for another clean place!

2. Another major threat to the biodiversity of Kaas plateau is from invasives. Biotic invasion is considered one of the major drivers for biodiversity loss, and it is increasing because of tourism. Invasive species can dominate natural systems by displacing native fauna and flora, including rare species, and so alter ecosystem structures and functions. There is a risk of increase in genetic 'contamination', driving the native species to extinction. The increasing number of vehicles and tourists coming from distant places pose a threat of seed dispersal through tyres, shoes, clothes, etc. Plants like *Eupatorium*, *Lantana* and *Parthenium* are growing all along the way to Kaas. These species tend to grow very fast and destroy the native species. Growth of invasive species is a big threat to this sensitive and unique ecosystem.
3. Every year thousands of roadkills of many endangered and endemic fauna occur due to increase in number of vehicles on Kaas Bannoli to Satara road due to rampant tourism.
4. Forest fires set by people during the dry season cause a serious threat to the fauna and the dormant seeds, which are eagerly waiting for the monsoon. This area, therefore, needs year round protection.
5. Poor database on the biodiversity: Its laterite soil is very rich in minerals and gives shelter not only to many endemic plants, but also to several fishes, amphibians, reptiles, and mammals. There is still lot of research to be done.
6. Biggest cause of concern is that many of the wild flowers here are endangered and endemic. Interestingly, there are around 400 medicinal plants



ABHAY SINGH

*Ceropegia vincifolia* – an endemic of the Western Ghats is known to temporarily trap its pollinator for propagation



VISHAL PRASAD

Lichen, an association of fungus and algae, are indicators of a pollution free environment



## HOW CAN WE PROTECT KAAS?

- Shift the paradigm of visitors and locals towards conservation by organizing awareness campaigns about its unique natural heritage.
- Set-up a base to educate locals on conservation of Kaas and its nearby area.
- Organize free workshops for tourists to educate them about the importance of wild flowers.
- Introduce check posts at entry and exit points of the plateau. Ensure that every visitor in the vehicle and on foot is educated about its conservation and give instructions and protocols for the welfare of this unique habitat.
- Place dustbins, wherever necessary, to keep the plateau free from litter.
- Place boards with messages and visual information at strategic locations on the plateau with information on conserving its endangered and unique flora and fauna.
- Develop a team of volunteers who can guard the plateau 24x7, especially during the flowering season.
- Set-up mobile washrooms and restrooms for visitors to ensure the plateau is kept clean.
- Provide drinking water as this will reduce use of plastic water bottles brought by visitors.
- Ban consumption of liquor and smoking on the plateau.
- Ban use of plastics and any other material that can pollute the environment.
- Declare the area as a no honking zone as it disturbs the wild animals.
- Promote conservation of Kaas through the media.
- Make a few pathways on the plateau to ensure that the endemic wild flowers are not walked-on by visitors. Such pathways will help access of the plateau in an organized manner without damaging its flora.



VISHAL PRASAD

Roadkills are a common sight at Kaas as the numbers of speeding vehicles have increased tremendously

on this plateau, out of which more than 33 are endangered. This plateau is a Gene Bank for researchers. If these species are not conserved, they will be extinct in the next 3-5 years.

## UNESCO Team's visit to Kaas

In October 2010, the UNESCO team visited Kaas to examine its species richness. According to IUCN's technical evaluators – Dr. Brian Furrer and Dr. Veldy Straham, this place is very rich in biodiversity and must be protected. Also, this place belongs to the local villagers and without their support it is difficult to make any conservation programme successful. Once UNESCO declares Kaas a World Heritage Site, it will immediately start getting funds and technical support for conservation. This will also help Kaas get international audience to contribute towards its conservation. In India, out of 39 places, 4 places in Maharashtra, i.e., Kaas Plateau, Koyana Wildlife Sanctuary, Chandoli National Park and Radhanagri Wildlife Sanctuary are scheduled to get a World Heritage Status.

In order to protect Kaas and its unique herbaceous ephemerals, the surrounding forests and its associated fauna, it needs to be declared as an ecologically sensitive zone.

Maharashtra Government has thought of making a resort and boating club and also increasing the number of windmill projects in Kaas. If this plan materializes there will be enormous loss of biodiversity in Kaas and its surrounding regions.

A thought keeps haunting me after my recent visits to Kaas. Until Kaas became popular its biodiversity was safe and thriving. Popularity came at a cost ... And I wonder if one should first educate tourists or should one first promote a place for tourism? But then as man is insensitive to nature and its belongings, nothing will survive! ■

## IBCN Goa – Field visits and seminar

A series of field visits and seminars were organized by the Indian Bird Conservation Network (IBCN), a network of organizations and NGOs across India working jointly for bird conservation, in Goa. Dr. Raju Kasambe, Project Manager, Important Bird Area (IBA) Programme, BNHS, and Mr. Ian Barber (Royal Society for the Protection of Birds, UK) visited Caramboli Lake (IBA), Bhagwan Mahavir Wildlife Sanctuary, Molle National Park (IBA), Mhadei Wildlife Sanctuary and Bondla Wildlife Sanctuary with IBCN members on July 7-8, 2011, with enthusiastic birders. On July 9, 2011, a meeting of the IBCN members of Goa was organised by Mr. Parag Rangnekar, IBCN State Coordinator, during which various issues regarding conservation of birds and wildlife in Goa were discussed and the future course of action planned. ■



IBCN is the ideal platform for organizations working for bird conservation

## Van Mahotsav celebrated with gusto



Van Mahotsav aimed to make Mumbai a greener city

BNHS efforts to spread awareness on conservation and to make urban areas more greener continued unabated this monsoon. Under the guidance of Dr. Ashok Kothari, Hon. Sec., *Van Mahotsav* was celebrated in association with

the National Society of the Friends of the Trees on July 17, 2011. This successful initiative was undertaken under the expert guidance of veteran botanist Dr. M.R. Almeida, Mr. Ajit Joshi, General Secretary, National Society of the Friends of the Trees, and Mr. Ram Nivas Rathod, AGM-Horticulture, Godrej & Boyce Gardens.

Hundreds of saplings of native tree species such as Indian Laburnum, *Sita Ashok*, Silk Cotton, *Deshi Badam*, *Jambhul*, *Kanchan*, Buddha's Coconut and Queen's Flower were distributed for free at Santacruz (Mumbai). The focus was on native trees as these are suitable to the local environment and also provide food and shelter to myriad birds and insects. Mature saplings of 1.2 to 1.8 m height were distributed to ensure better survival rate along with 500 kg of vermiculture compost was made available for sale at Rs. 10 per kg. Support from volunteers from Ruia College made the event a runaway success. ■

## Tree planting activity at SNDT

On August 6, 2011, BNHS in association with the Rotary Club of Bombay Seacoast and National Society of the Friends of the Trees organized a tree planting exercise in SNDT Women's University Campus at Juhu in Mumbai. Prof. Dr. Vasudha Kamath, Vice Chancellor, SNDT Women's University was the chief guest, while Dr. T.J. Mathew, In-charge, Juhu Campus, was the guest of honour. Species planted included mature saplings of Buddha's Coconut, *Gulabi (Tabebuia rosea)*, *Sita Ashok*, *Tamhan* and Indian Laburnum. Students and nature lovers participated through *shramadaan*. ■



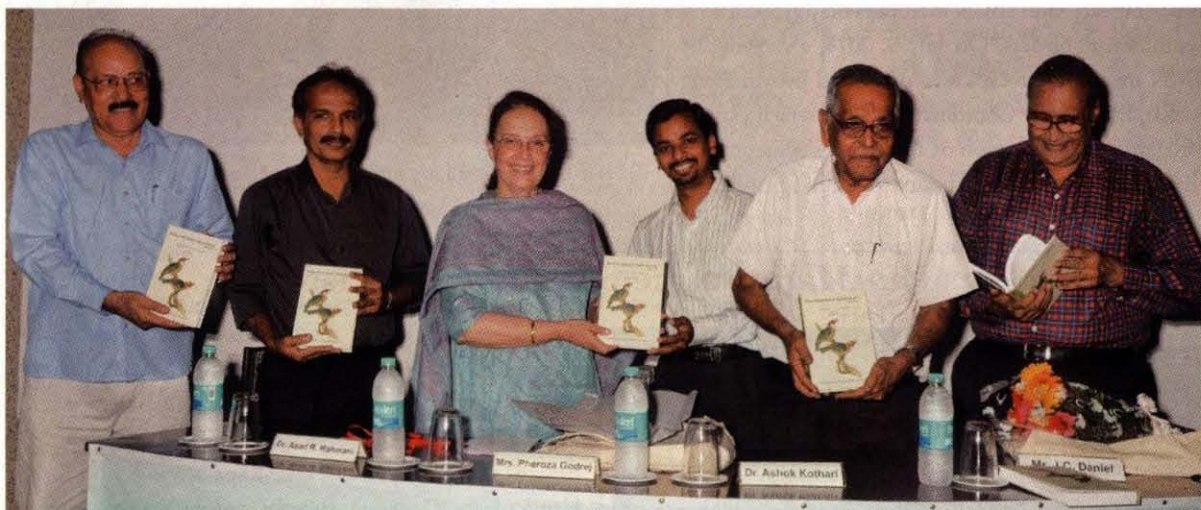
Tree planting – a step towards developing a Green Mumbai



## Book launch: BIRDS OF THE INDIAN SUBCONTINENT – A FIELD GUIDE

BNHS launched the revised edition of its earlier field guide *A PICTORIAL GUIDE TO THE BIRDS OF THE INDIAN SUBCONTINENT* by Sálim Ali and S. Dillon Ripley, on July 30, 2011. Mrs. Pheroza Godrej, President, National Society of the Friends of the Trees, released the book at a grand function held at the BNHS auditorium, packed with bird lovers and the media. The attractive and revised *BIRDS OF THE INDIAN SUBCONTINENT – A FIELD GUIDE* is authored by Ranjit

Manakadan, J.C. Daniel and Nikhil Bhopale. Their insights span three generations of avian expertise at BNHS. The book offers a lot more information, illustrations and other features, as compared to the earlier book, at an affordable price of Rs. 550/-. The book's salient features are both old and new common names of birds, illustrations of 1,251 species, notes on another 100 tentative species, and a map of the Subcontinent. ■



(L-R): Dr. Asad R. Rahmani, Director, Dr. Ranjit Manakadan, Mrs. Pheroza Godrej, President, National Society of the Friends of the Trees, Mr. Nikhil Bhopale, Mr. J.C. Daniel, and Dr. Ashok Kothari, Hon. Sec. at the launch of the book

## Forest Trail in memory of Late Mr. J.C. Daniel

BNHS organized a forest trail on September 4, 2011, at BNHS-CEC, Mumbai, in the memory of Late Mr. J.C. Daniel, Vice President, BNHS. In spite of heavy rains, nearly 70 people participated. The trail was inaugurated by Mr. Sunil Limaye, Director, Sanjay Gandhi National Park. Before commencing the trail, Dr. Ashok Kothari, Hon. Secretary, BNHS; Rotarian Mr. Amar Bajaj, President, Rotary Club; Dr. Mehul Bhatt, Chairman, Cultural Committee of Indian Medical Association and Dr. V. Shubhalaxmi, General Manager, BNHS-CEC, addressed the audience. The participants walked up to Sálim Ali Point in two groups. Kaustubh Bhagat, Education Officer, BNHS-CEC, led the trail and educated the participants about the different facets of nature.

Glory Lily, Wild Turmeric and *Costus*, *Neuracanthus* were seen in full bloom. Among butterflies the most conspicuous were Common Leopard, Psyche, Great Orange Tip, Common Tiger and Grass Yellow. At Sálim Ali Point there



Participants heading for the Forest Trail at BNHS-CEC

was a carpet of flowers of *Costus* plants. Karvi plants were in abundance on both sides of the hilly trail. Among bird calls, the prominent ones were those of Drongo and Coppersmith Barbet. ■

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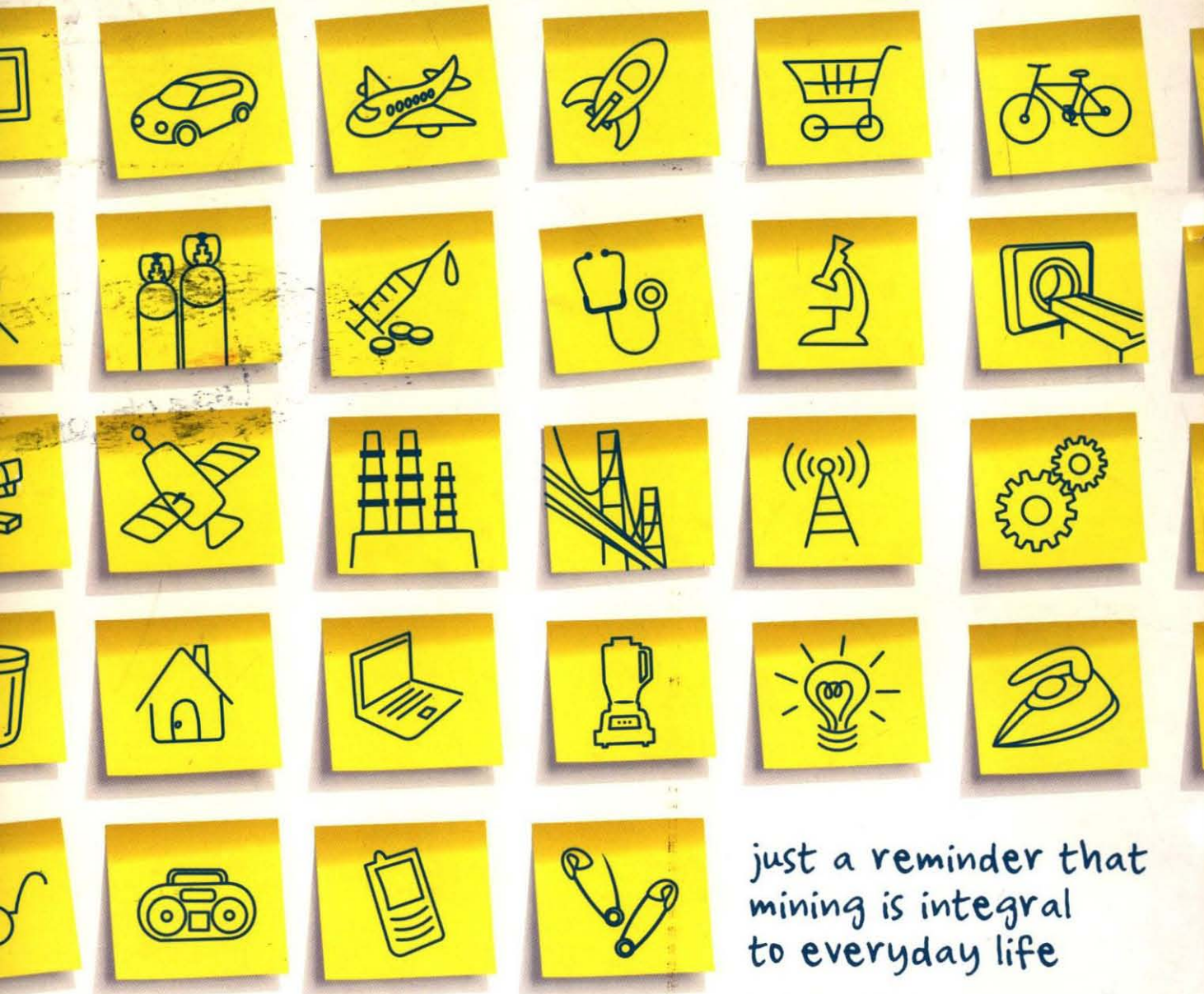
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