

# Hornbill



July-September, 1999

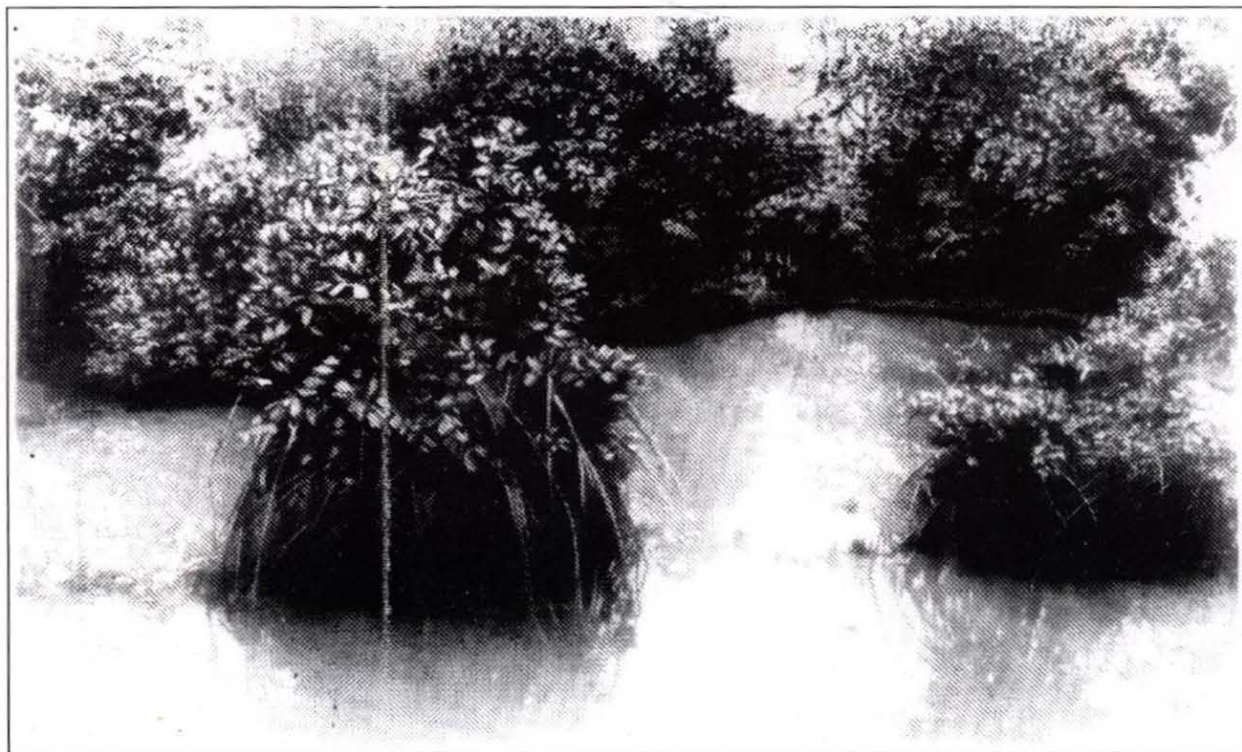
*about nature and us*



**BOMBAY NATURAL HISTORY SOCIETY**



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### Layout

V. Gopi Naidu

### Editorial Assistant

Vibhuti Dedhia

### Cover

Red Panda

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## 4. **Amidst Wildlife in Sikkim**

— *Usha Ganguli-Lachungpa*

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For more information on the Society and its activities, write to the Honorary Secretary, Bombay Natural History Society, Dr. Salim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai 400 023. Tel.: 282 1811 Fax: (91-22) 283 7615 Email: bnhs@bom4.net.in

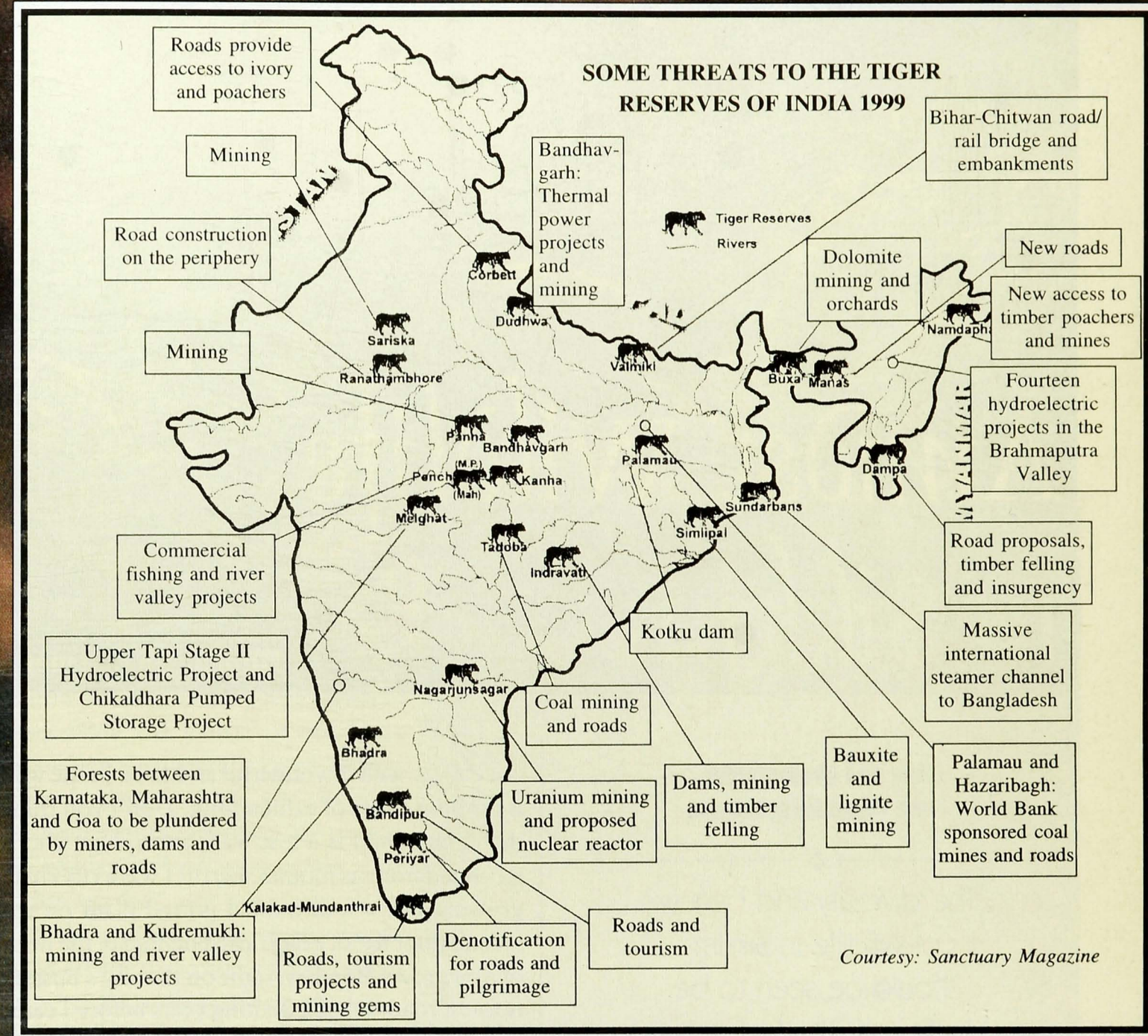
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## The Beleaguered Tiger

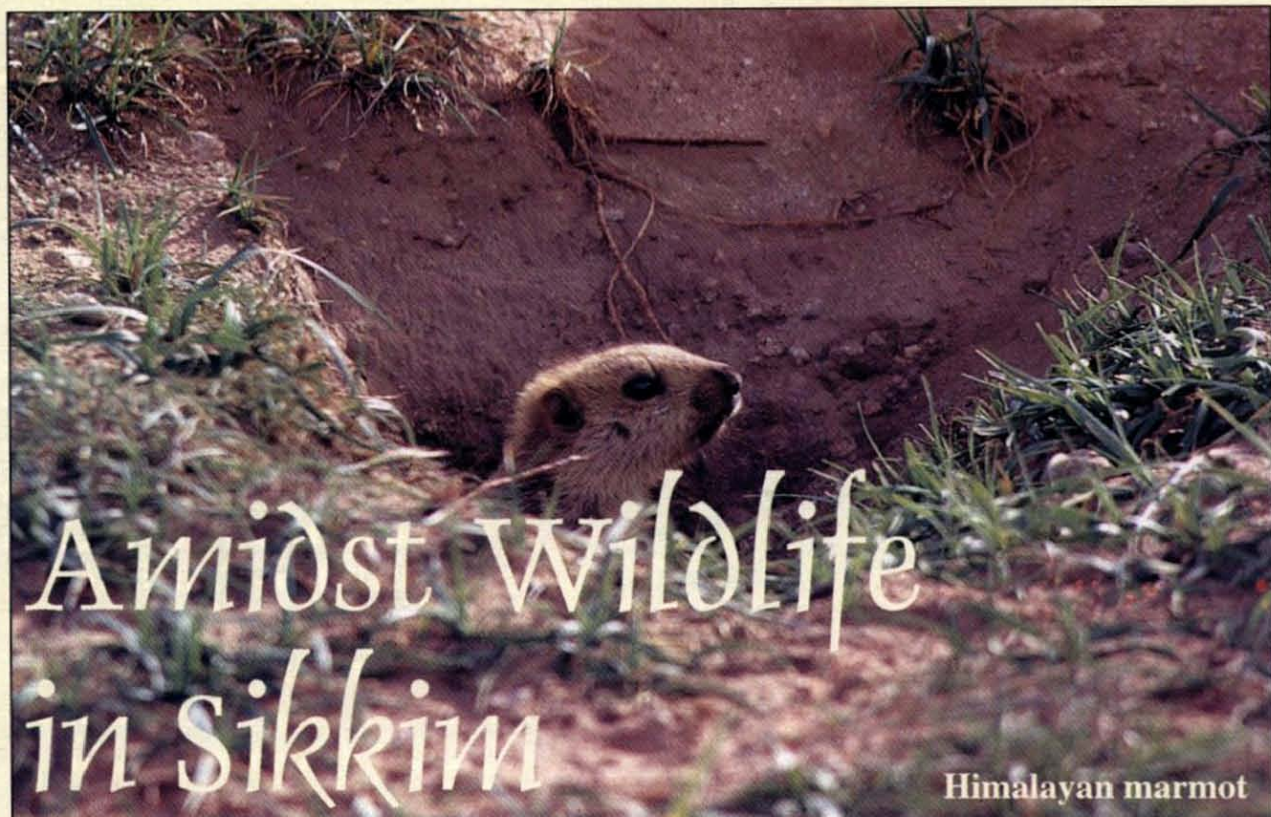
The tiger faces several perils, and a persistent and severe strain are the developmental projects that hem its habitat. Sanctuary Magazine recently listed the projects that are potential disasters to tiger habitats. Developmental projects are even more dangerous than the poacher for they destroy the living environment of the tiger. Hard decisions have to be taken on which is more valuable, the tiger, which is on the road to extinction or the creation of wealth, an activity which can be conducted equally well elsewhere.

J.C. DANIEL



Courtesy: Sanctuary Magazine





**Text and photographs:  
Usha Ganguli-Lachungpa**

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The diversity and beauty of wildlife in Sikkim should be seen to be believed. The high lofty mountains, the cold and desolate Chho Lhamo plateau, the peaceful Chhulung La valley all support a variety of wildlife. Surprises never cease in this little green gem called Sikkim.

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Usha Ganguli-Lachungpa is a Senior Research Officer (Wildlife) at the Forests, Environment and Wildlife Department, Sikkim. She has been a scientist of the BNHS and is working dedicatedly for wildlife for a number of years.

*To* be wild is wonderful and to be in the wild is nothing short of exhilarating. Don't you think that a city child is a lost waif, an orphan who is separated from its mother, Earth? I was a city child, growing like a well-trained potted plant on the second floor flat of a high-rise building in the heart of downtown Bombay, right on the city's busiest, noisiest road. It took 25 long years before I came to the wonderful wild world of Sikkim — probably the one place on planet Earth where in such a small area there is such an explosion of biodiversity. From hot tropical conditions in the south to the arctic-tundra type in the north, Sikkim has it all. This is what makes it so special. No wonder it finds itself on the tourist map of India today.

Now I am in my element, and despite minor obstacles, with a wonderful job, not too 'important' (to lesser mortals), that gives me the unique opportunity of travelling to the heart of the unimaginably beautiful wilderness areas of Sikkim. But why go far from home? Right here in Gangtok, we watch with bated breath the three tiny weasels (or are they ermine?) rushing around our kitchen in the wooded surroundings of the



Forest Colony. Our kitchen roof, commandeered by a pair of blue whistling thrushes which raise up to three successive broods of chicks every year. A pair of greenbacked *chichinkoteys* nest in the quiet confines of our bedroom, while a silvery grey mole burrows its blind way in our backyard. Early mornings are full of wild excited bird calls including that of our child Minla, as she watches her namesakes, a pair each of redtailed minlas and bluewinged minlas, from her own window, while baby Yuhina is peeved because the yellownaped yuhina on the cherry tree outside is just a dull brown bird. A small family of orangebellied squirrels regularly use their aerial pathway of closely planted *dhupi* trees nearby and leave their signatures on the *iskush* or squash (vegetables) in our garden.

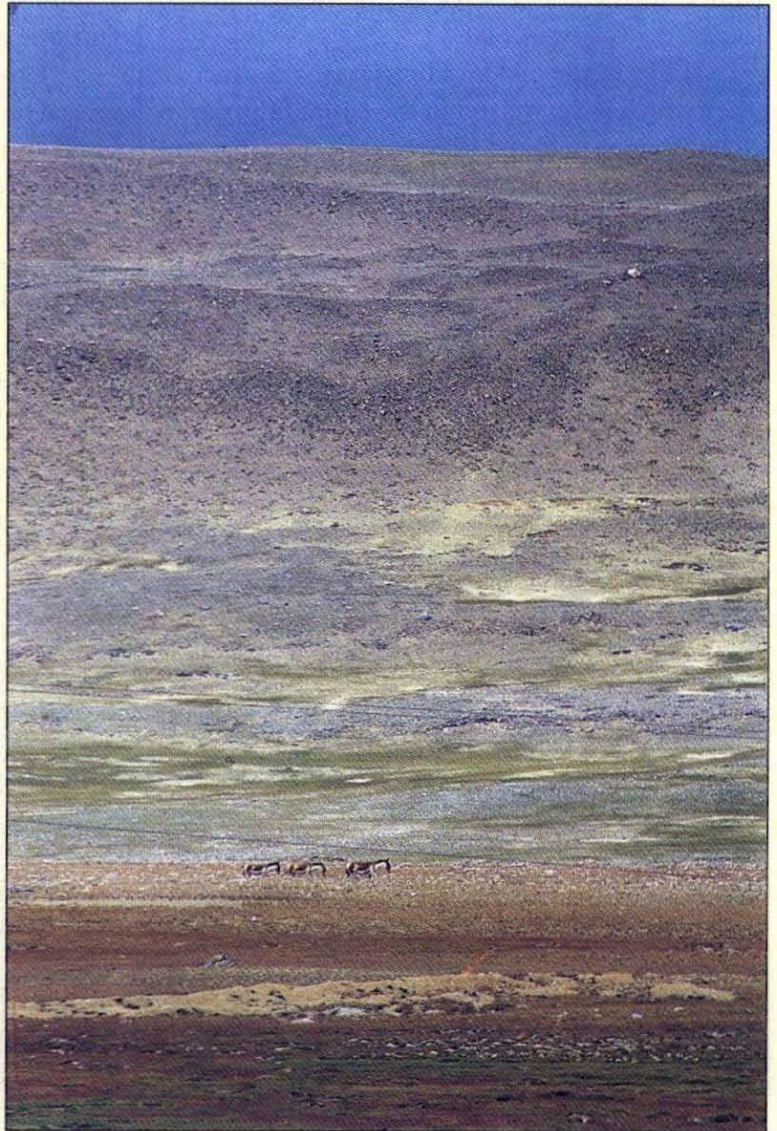
Evenings are fraught with stories of how the big, black cobra slithered away from the stairs; of the viper encountered during the berry picking episode last Sunday. Or the tiny harmless snakes that often fall prey to the resident whistling thrushes. The nights are dark, but not silent; along with the staccato calls of the jungle owlet are the melodious, flutey calls of the scops owl calling *whooooo whoooooo*.

Outside Gangtok, my favourite place for wildlife is the extreme north of Sikkim with the wild, open, often desolate cold-desert landscape, home to large animals like the blue sheep or bharal, nayan or great Tibetan sheep, and kiang or Tibetan wild ass.

The idyllic time spent in far off Lhonak Valley where I sat patiently for hours watching *chipis* or Himalayan marmots scampering around me nibbling the bright yellow *Potentilla* flowers. A pair of horned larks feeding their chick right out on the open ground where I could bend over and photograph it. Scores of snow finches

that swooped down and vanished as they sat motionless until a careless movement startled them into a whirring cloud. The Brandt's mountain finches which were close enough to touch, but always just out of reach. The fearless little Hume's round choughs literally feeding out of my hands. The ever wary mouse-hares popping in and out of boulder strewn moraines and river-banks, are all unforgettable experiences.

Never will I forget the heart-stopping time when the yak I was riding decided that the only way to go was by a sudden jump down a sheer vertical drop of 4 m, into the torrential waters of



The few kiang seen in the Chho Lhamo plateau are remnants of a once large population



the Naku Chu; regardless of an unsuspecting me on its back desperately clutching my diary in one hand and binoculars in the other.

Right at the base of Chorten Nyima La on the banks of an ethereally beautiful lake were four solitary avocets with their sleek black-and-white bodies and elegant blue legs. Where did these water-birds come from? The valley of the Five Lakes or 'Tso Nga' is the home of some red-shanks and brahminy ducks with 10 big chicks. We came upon them after we crossed a pass which had fresh wolf pug marks, while a flock of Tibetan snowcock or *khongmo* flew overhead and landed in the rocky scree of the nearby glacial lake.

I live in the Sikkim Himalayas, a distinctive place which is the wettest in the entire Himalayan chain. Being sheltered between the Singalila and Chola ranges, we receive the entire inflow of the southwest monsoon from the Bay of Bengal, which in turn is trapped by the main Himalayan axis running across the north and precipitating as rain. In a wet place like this, could you dream of a desert?

Across the high lofty mountains, actually on the back of the main Himalayas, in the extreme

north of Sikkim we have an almost 1000 sq. km of the trans-Himalayas, half of which is pure desert — a cold desert at 5000 m. The very word conjures up images of a desolate, empty, windswept open space, deserted of life, but the Chho Lhamo plateau is a proposed wildlife sanctuary. Unbelievable, but true.

Some lucky few have actually been to this place, mostly on pilgrimage to the glacial lakes which form the source of Sikkim's lifeline, the River Teesta. Some have merely heard about the holy Gurudongmar and Chho Lhamo (Tso Lhamu) lakes, pilgrim destinations of devout Buddhists. Hardly anyone has heard about its fantastic and rare wildlife.

I have been lucky to have visited this area several times for surveys and censuses of migratory birds and various other animals. Chho Lhamo Plateau is a photographer's delight, with aquamarine lakes surrounded by snowy peaks and steppe meadows. Where else in Sikkim can you find the kiang galloping across the cold plains, the perfectly camouflaged woolly hares appearing and disappearing across the moon-like landscape or the giant Lammergeier vulture lifting off from a deserted camp as you arrive? Of mammals themselves, there are around 15 — from the extremely rare and endangered kiang thundering majestically in small groups across the open landscape, to the tiny voles scampering for cover when you chance upon their underground colonies. The few kiang we see today are only a remnant of a bigger population of bygone days when the area was not occupied by our armed forces.

There are several wild herbivorous animals here. The nayan are cousins to the Argali sheep of the Western Himalayas. These huge wild sheep live in small herds which feed on the



The cold desolate landscape of Sikkim is the home of the great Tibetan sheep



sparse grasses, but I was once exceptionally lucky to see a gathering of 94 of them grazing peacefully in the Chhulung La valley. This was a most unusual scientific record. The rams or males have huge curving horns that are carried majestically upright, even though they weigh over 40 kg. It is said that the horns grow in such a manner that after a certain size, the ram is unable to reach the short grasses and eventually starves to death. This belief may come from the fact that one sometimes finds dead rams in these areas. The blue sheep, on the other hand, are much smaller, live in much larger herds and have shorter horns. They are not really blue but have a thick grey-brown coat which at this altitude and at a distance could seem blue. But the commonest and oft-sighted animals are the Himalayan marmots and the woolly hares. The marmots remind one of the prairie dogs of America. They sit up on their hindlegs and look bold, but in fact are quick to bolt down their holes when approached. The woolly hare on the other hand prefers a fast run followed by a sudden stop, which makes it practically disappear into the stony landscape. If you settle down quietly, you can see them all reappear and behave normally, that is, forage around nibbling at flower heads of *Potentilla* and grass seeds, chasing one another, the marmots emitting clear whistles that carry far.

There is a large vole colony on the banks of Gyam Tsona, a big lake at the base of Kongra La. This lake is the only one where a maximum of over 200 ducks have been seen disporting and preening themselves in readiness for the long journey back home to their breeding grounds in — Siberia? Chho Lhamu has yet another unique record. The world's rarest crane, the blacknecked crane *Grus nigricollis* has been sighted here during its breeding season. The

local nomadic tribes call these *tung tung* (as they are also called in Ladakh). Perhaps the birds are nostalgic about the good old days when they could safely nest here and hatch their young ones without fear. Should they try again?

Other than man, there are wild predators that keep the herbivore population under control. They belong to the cat and dog family. The biggest as well as the rarest cat here is the beautiful and shy snow leopard with its baby-blue-grey eyes and plush fur. The most stealthy is the lynx, a sort of tailless cat with tufted ears. The Tibetan wolf or chanco preys also on domestic livestock in absence of sufficient wild prey. Its smaller relative the red fox prefers voles and mouse-hares as also young larks and finches.

The plants and animals of Chho Lhamo have but a brief season of sunshine. This unique wonderland does not occur anywhere else on Mother Earth. As Indians especially from Sikkim we should all be aware of this most precious jewel we possess and be able to safeguard it for eternity. Once lost it will be lost forever.

On a trip to Choillung Valley we were rewarded with the unique sighting of 94 nayan grazing peacefully, undisturbed by our presence.



A lone chick of the horned lark awaiting the arrival of its parents





A slight sound sends the woolly hare scampering into the stony landscape

This was a most unusual congregation, as so far no one has reported more than 15 of these magnificent wild sheep at one sighting! You could compare them with the bighorn sheep of America, and ours are bigger!

Green Lake is another wonderful area. We came across the pug marks of a snow leopard and blue sheep at one place. What a story must have been enacted here! As we returned via the Zemu Valley, we fought our way through the dense *Polygonum* undergrowth, expecting a Himalayan black bear at every turn. There was enough bear-



Kar-sha — the delicious high altitude mushrooms

sign but luckily no bear! Somebody found a single plant called *Panax pseudo-ginseng*, which led to a good amount of speculation regarding what happened to the other plants. One single Tawny Coster butterfly sailed over the flowers. At this altitude a species from the plains! Another definitely new record for Sikkim.

And for pheasants I would go to Kyongnosla Alpine Sanctuary in east Sikkim or to Dzongri, the entrance of Khangchendzonga National Park in west Sikkim. Can you imagine running up to a flock of our State bird, the blood pheasant or *chilimey* to scare them

off, only to have them reassemble a few metres away? Or to flush a foursome of male monal pheasants which burst out of the rhododendron foliage and sailed down the valley in different directions, their metallic plumage glinting in the snowy sunshine?

And does anybody really look at butterflies? Like the spectacular Golden Birdwings, the Bhutan Glories, the Kaiser-e-Hind, the little Silverstreaks, the Grass Jewels, the Chestnut Tigers... Has anyone noticed the wondrous pitcher plant-like *Aristolochia* with its funny smelling, often bizarre flowers? Or the Moon Moth with its pale opalescent wings and long fluttering 'tails', or the giant Atlas Moth? And the scores of metallic beetles, the grass-green rat snake, the delicious high altitude mushrooms locally called *kar-sha*.

One could just go on and on about this little green gem called Sikkim. But one has to come home. And so I did. To a fantastic flock of the rarely seen bright black-and-yellow spotted billed grosbeaks cracking cherry seeds in our front yard with their giant grey-blue beaks. Surprises never cease! ♡



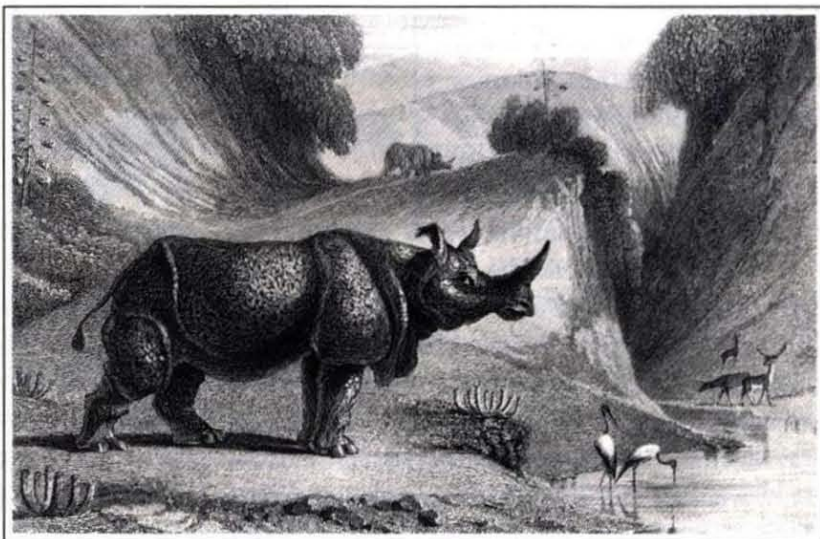
# The Rhinoceros of Kotdwara

Kees Rookmaaker

STARTING out from the town of Hardwar, you cross the bridge over the River Ganges and drive over a jungle road for about 50 km to reach Kotdwara. It is at the edge of Garhwal in Uttar Pradesh, where the foothills of the Himalayas start to rise slowly. William Daniell (born in 1769) had made a rather grand tour on the Ganges together with his uncle Thomas Daniell from Calcutta to here. Both were to become famous artists, especially of aquatints of Indian scenery, after their return to England. They had to linger for a few days in Kotdwara waiting for permission to proceed to Srinagar. Wandering about in the surroundings with their sketchbooks, on April 20, 1789, they suddenly saw a rhinoceros. William tells about the event in the *Oriental Annual* published in 1835:

*"The elephant is found in the lower regions of the mountains, and so is the rhinoceros, though less frequently. Of the latter animal we were fortunate enough to obtain a view, which is by no means a usual thing, as it is not gregarious like the elephant, and therefore much more rarely met with. We had turned the angle of a hill that abutted upon a narrow stream, when, on the opposite side of the rivulet, we saw a fine male rhinoceros; it was standing near the edge of the water with its head slightly bent, as if it had been just slaking its thirst in the cooling stream. It stood, apparently with great composure,*

*about two hundred yards above us, in an open vista of the wood. Mr. Daniell, under the protection of a lofty intervening bank, was able to approach sufficiently near it to make a perfect sketch of it; after which, upon a gun being fired, it deliberately walked off into the jungle. It did not appear in the least intimidated at the sight of our party, which remained at some distance, nor at all excited by the discharge of the gun."*



William Daniell's sketch, as well as the etching made from it for the book of 1835, is shown here. It bears a remarkable witness of this unexpected encounter. Within the last four hundred years, this is the most western record of the rhinoceros, the only one west of the Nepal border, and unique to be corroborated by a drawing. The animal in the picture is clearly an example of the great Indian rhinoceros, *Rhinoceros unicornis*. ♡



**BIRDS OF THE INDIAN SUBCONTINENT**  
by Richard Grimmett, Carol Inskipp and  
Tim Inskipp (1998). pp. 888 + 153 plates.  
(24.5 x 16.5 cm) Oxford University Press,  
Delhi. Price: Rs. 2,250/-.

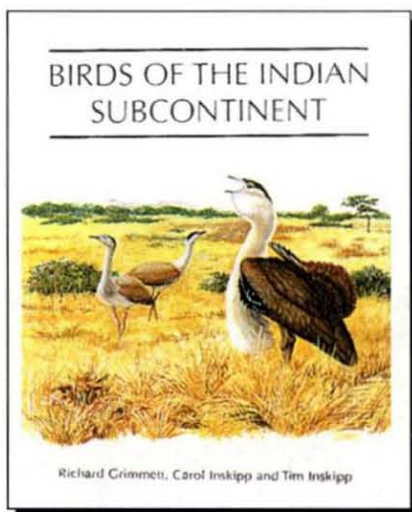
.....Reviewed by Ranjit Manakadan

To judge a book, it is useful to be able to compare it with other similar books. Fortunately, I had two fairly good books to compare from, i.e. Ali and Ripley's *HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN* and *A PICTORIAL GUIDE TO THE BIRDS OF THE INDIAN SUBCONTINENT*. It is without doubt that most who have their hands on the 'press-fresh' *BIRDS OF THE INDIAN SUBCONTINENT (BIS)* would be doing just that! Since the plates of the *Pictorial Guide* have been adopted in the second edition of the *Handbook* (i.e., Volumes 1-10 and the compact 1987 version), henceforth, by *Handbook*, I refer to the second edition of this publication.

The BIS is the first book covering the whole of the Indian subcontinent to have adopted the DNA technique of classifying birds, proposed by Sibley, Alquist and Monroe. Though this method of classification is not without faults, there is a general realisation that the DNA technique (with further refinements) will be the basis of future bird taxonomy. Recent changes in scientific names after reconsideration of taxonomic status and new bird records have been incorporated into the book. Due to these reasons, and also because of the recent attempt to standardise the English names of birds of the world, quite a few of the common names mentioned are not those found in the *Handbook*. One may not agree with the new names, but that is another issue. Thankfully and thoughtfully, the authors have given the alternate common and

scientific names, so one is able to easily and quickly identify the species.

As for production quality, it's a relief that the authors have brightened up the purdah-like blackness of its cover with a jacket of an excellent drawing by Carl D'Silva, of a displaying great Indian bustard cock in the vicinity of two coy hens. However, D'Silva has chosen the bustards of Karera (Shivpuri district, Madhya Pradesh, India), where they are now extinct, as the model for the painting. Adult cock bustards of Karera have a white supercilium (which is also present in the very similar Australian bustard), unlike other bustards in India, where there is no supercilium in adult and sub-adult cocks.\*



The plates of the BIS, drawn by twelve different artists, are definitely good. From a very fine photograph of an Indian pitta in my hand, I realised that the BIS portrays a much better likeness of the bird, with the black mask through the eye more in proportion and the tone of the body coloration more true than the *Handbook*. But then, the BIS drawing is not perfect — the orange wash of the underparts should have been darker; and the body of the bird appears too

short. Two of the raptor experts in the Society were of the opinion that the plates on raptors in the BIS are without any doubt better than those of the *Handbook* or *Pictorial Guide*, and one of them added, the best he had ever seen. However, I found some of the plates 'without sunshine' and dull, as if the birds were painted in the shade. Some look sleepy, and one is shown yawning! (Plate 2, bird 5a). Compare the lively plates of the swans, geese and ducks (Plates 7-11) with some of the dull plates on Phasianidae (Plates 1-3), owls (Plate 28) and cormorants (Plate 77). I think this is partly due to use of a drab, dotted background instead of a clean and aesthetically contrasting canvas. The models for the terns (Plates 55-57) appear to have



been manhandled or drenched in water! A white background for these predominantly white birds should have been avoided. Blue of the skies would have looked more natural. In some cases, the *Handbook* drawings are better, e.g., pied crested cuckoo (pied cuckoo), crow-pheasant (greater coucal), purple sunbird and the large pied wagtail (pied wagtail). The *Handbook* drawings of these birds are more representative of birds seen in the field, which can look quite different from museum specimens.

The text of the species account is to the point — after all it is meant to be an identification guide. It does not have the magic of the classic Ali and Ripley's *Handbook*, which retired old birders could laze around with during the afternoons (before or after siesta!), savouring it not only for the information, but in awe and appreciation of the beauty of the written word. The *HANDBOOK* is probably one of the few bird books which are a pleasure to read (as much as a good novel), in spite of being an ornithological treatise. The writeup for the plates, which mentions the status, distribution, habitat of a bird species, and identifying characteristics (with emphasis on differentiating it from closely related species) is commendable.

Many with whom I discussed the BIS cite the main drawback of the book as the distribution maps. The maps are too small and faint, and it is no exaggeration to say that to see some of the legend markers in the map, one must use a good magnifying glass. In contrast to the general faintness of the maps, deep black colouring has been used to show the range of breeding residents, which 'smears' some of the maps where the distribution range is extensive. In attempting to

be precise about the distribution of the species, some *faux pas* have been made. In some species (some of which are generalists and strong fliers), the distribution of the species has been excluded from a small area (within a wide area of similar geographical zone). One finds it hard to accept this without a pinch of salt, since the distributional range of the majority of Indian species has not been mapped. Some of the distribution maps are incorrect. Among others, in the case of the greater flamingo (p. 567), the Great Vedaranyam Swamp (GVS), one of their major wintering strongholds in south India, is cited as its 'former distribution'. The lesser flamingo (p. 567-568), which is recorded each winter in the GVS in much smaller numbers, is classified under 'individual records'. The spot-billed pelican (p. 571), another common winter visitor (200-300 birds) to the Swamp, has been overlooked. Many publications have resulted from the Bombay Natural History Society's studies in the GVS, and omission of these records is too glaring.

Except for the distribution maps, the quality of the printing and the paper is excellent. The authors have termed the book an identification (not field?) guide on the jacket, which is appropriate, as it is too bulky and heavy to be carried to the field. In the final analysis, an excellent book has been scarred because of faulty distribution maps. I suggest a new edition be brought out, either without the maps (an easier alternative) or with redrawn maps. It is hoped that the publication of this book will herald the arrival of new bird books of better quality, in terms of print, information and presentation. 🐦

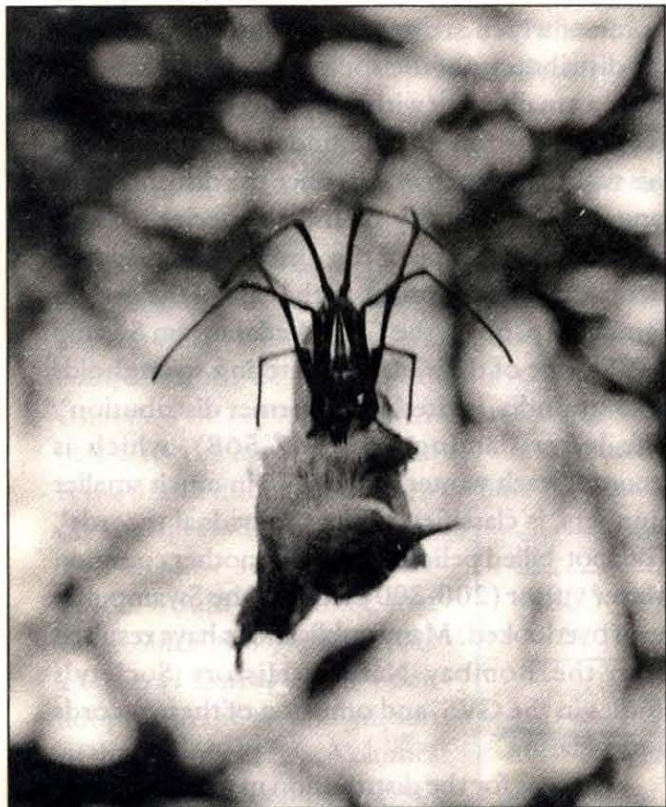
\* From observations based on a project of the Bombay Natural History Society in the 1980s.

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# Miscellanea—*from JBNHS*

## A Bird-catching Spider



In October, 1998, during a nature camp to the Tadoba Andhari National Park, Sanjay Shegaonkar witnessed a giant wood spider trapping and feeding on a plain wren warbler.

When Madame Merian mentioned in her "Insects of Surinam" the existence of a bird-catching spider in the Settlement, her account, though believed at the time, was discredited shortly afterwards, and her statement set down as untrustworthy and exaggerated. No spider, it was believed, either caught or preyed on birds, and experiments were tried with the arachnid in question (*Mygale avicularia*) by Langdrof, MaeLeay and others to test the truth of her assertion and, resulting in failure, the whole account was rather summarily set down as a fabrication, pure and simple. Later on, however, M. Moreau de Jonnes, who spent many years of an observant life in Martinique, and was consequently well qualified to speak on the habits of these huge spiders, bears out Madame Merian's account, and distinctly states that "it climbs on

the branches of trees to surprise the *Colibris* (humming birds) and the *Certhica flaveola*." M. Palisot de Beauvais also asserts that *M. blondii* is known to kill and devour birds and Percival in his account of Ceylon says the same of *M. fasciata*. That spiders of the genus *Mygale* do catch and eat birds is, I think, now pretty well acknowledged, and the following account given to me by a lady, in whom I can repose the utmost confidence, will serve as another case in point to establish this fact:-

A few years ago a pair of martins built their nest in the verandah of this lady's house on the Shevaroy Hills, and as she took a lively interest in animate nature, she allowed the birds to remain undisturbed, and watched with keen interest the process of building and incubation. On coming out one morning, she was surprised to find the parent bird missing from the nest, and on looking about the verandah her eyes fell on a huge spider with the bird in its clutches. Summoning her husband to her assistance she bade him to despatch it, but the bird and the spider were so mixed up that this was no easy matter. On examining the bird it was found that only the skin was left, the breast and other portions having been completely eaten up. The spider had evidently caught the bird at night (its usual hunting hours), and had carried it along the rafters, a distance 2½ yards to the entrance of its abode and there eaten it. The spider in question, from the description given of it, must have been *M. fasciata*, a species known on the Shevaroy. ♡

A. W. Morris  
Vol. 4, 1889

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## Shrikes' Larders

Last year in January, when out riding early in the morning, I saw a grey shrike (*Lanius lahtora*) fly into a babul tree with some thing in its beak. On going over to investigate, the bird flew out and perched in a neighbouring bush. He had nothing in his bill when he flew out. On searching about, I found his larder in the tree; it was about twelve feet



from the ground. In it were four or five locusts neatly impaled on thorns. What I had seen him fly in with was evidently one of these which he managed to impale in the short time while I was approaching the tree, or perhaps had dropped when I frightened him away; but if so I did not see any sign of it on the ground. The larder could be easily seen from the ground and could have been at once found by a crow alighting in the tree which was a small one.

While I was examining the larder, the shrike sat in a neighbouring bush and as I rode away I saw it fly back again into the tree. Unfortunately, I had no opportunity of visiting the place again for some time, but when I did there was no sign of the larder.

I remember to have seen a larder some years ago in a small babul bush, but I have forgotten the details, but I remember the owner was not visible. ☞

J.R.J. Tyrrell, Capt., I.M.  
Sirdarpur, 16th April, 1910

## Battle between Bees and Wasps

I saw in the *Pioneer* a few days ago an account of a battle of butterflies, which occurred in Japan, and as I the other day witnessed a battle between some large wasps and the large jungle bees, I thought it might interest you. Close to my bungalow there is a ravine, in which there is a small forest. A swarm of large bees evidently intended to settle here, and they were buzzing around, when first one, and then a few more, and at last a large number of these wasps appeared on the scene, and then commenced the battle. The noise of the combatants was very loud, and the bees were desperately angry, and although I was but a silent spectator, attacked me, causing me to retire. I crawled up, however, after a while and watched the proceedings. A wasp would suddenly come across a bee, or *vice versa*, and after gyrating round one another for a second or two, they closed and came tumbling down to the ground; then, as it evidently happened as far I personally saw, the wasp was the victor, and clutching his victim in his arms, he flew away with him, and on my telling the story to some of the hillmen, they said that

the wasps ate the bees. The battle started about 9 a.m. and lasted till sunset. Next morning both had disappeared. Perhaps there are members of your Society who may have witnessed similar occurrences, and it would be very interesting to hear about them. ☞

H. W. Hewett  
Almorah, Kumaon, 13th October, 1889

## Voracity of vultures in the Gir forest

In December last whilst travelling in the Gir with Mr. Boyd, Superintendent of Police, we came across a buffalo freshly killed by lions near a buffalo camp; as it was half moon we decided to sit up and watch the lions feed. As the surrounding trees were full of vultures the forest guards suggested our waiting till it was fairly dark, otherwise the vultures would leave nothing for the lions. Two men were left to guard the kill and they had to exert utmost vigilance to prevent it from being devoured as a result several vultures were killed. When driven off they did not fly away but ran into the thick underbrush; after dusk we sat up in machans. When we were comfortably seated and all vultures driven out of the neighboring trees, the men went away. Soon after they had gone hundreds of vultures ran out of the underbrush and in a few minutes the kill was a seething mass of birds. We whistled up to the men who came and pulled the birds off by their wings and necks, and clubbed them right and left, killing several of them in the melee; the birds made no attempt to fly away, but merely ran into the jungle. This continued until 11 o'clock when the men were tired and our patience worn out. We abandoned the kill which was finished off in a few minutes.

I have sat over hundreds of kills but have never known vultures to descend after dusk; the forest men of the Gir, however, inform me that vultures here feed at night and kills must be very carefully screened if one wishes to sit up. ☞

E. Brooke Fox.  
Junagadh, 12th May, 1913.



# Indian Wildflowers

Text and Photographs: Isaac Kehimkar

*Parasitic plants obtain nourishment from other plants by piercing the tissues of the host with specialised organs. Some are total parasites, and lack the chlorophyll necessary to manufacture food for themselves by photosynthesis. Their leaves are small and scale-like, and they are totally dependent on the host. Partial parasites contain chlorophyll for photosynthesis and also feed on the host with the help of suckers that penetrate the host plant.*

## 59. COMMON DODDER

*Cuscuta reflexa*

**Hindi:** *Amar bel*

Disliked by gardeners, this slender twiner is an aggressive parasite that extensively holds on to bushes and hedges in dense interlacing masses. It is seen in cities, as well as forests from coast to hills throughout India. Flowers that appear from October to January are very small and often overlooked. Seeds are used in traditional medicine.

## 60. COMMON SOPUBIA

*Sopubia delphinifolia*

An erect annual, it grows up to a metre tall.

Seen during the monsoon among grasses along the coasts and plains, and on hills up to 1600 m throughout India. Flowers varying from pale pink to pinkish-purple are seen from August to January. Known to be a parasite on jowar and other plants occurring in cultivated fields. Juice of the plant used in traditional medicine.

## 61. PURPLE WITCH

*Striga gesnerioides*

**Hindi:** *Missi*

This 30 cm tall, slender, reddish purple root parasite is common under trees and around shrubs from the arid northwest to the southern peninsula. Scale-like reddish purple leaves also serve as floral bracts. More abundant on hills. Known to be a root parasite on Spurges (*Euphorbia* spp.) and infest tobacco in South Africa. Flowers (6 mm across) are seen from August to January.

## 62. FOREST GHOST FLOWER

*Aeginetia indica*

This 25 cm tall, slender, gregarious root parasite is seen on the shaded forest floor during monsoon. Flowers are red, purple or even white. This typical all-flower leafless plant parasitizes the roots of other neighbouring plants. The plant occurs throughout India, except in arid regions. Known to be a root parasite of sugarcane, upland rice, corn and other crops. Flowers are seen in August.

## 63. FOX'S RADISH

*Cistanche tubulosa*

**Hindi:** *Lonki-ka-mula*

This all-flower bearing fleshy root parasite is very common in the arid regions of Punjab, Rajasthan and Gujarat. It grows up to a metre and affects *Salvadora persica* and sometimes *Calotropis procera*. It is used in traditional medicine. Flowers are seen from October to March.

## 64. LONG-LEAVED MISTLETOE

*Dendrophthoe falcata*

**Hindi:** *Banda*

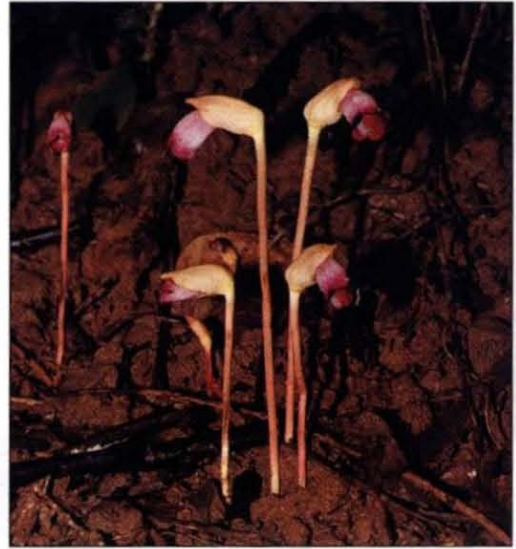
Leathery, long leaves with red midrib, that do not resemble the host tree, make it easier to identify this plant. Common from the coast, up to 1500 m on the hills, on a wide variety of host trees. Butterflies like Jezebel, Gaudy Baron, White Royal and Peacock Royal lay eggs on this plant. Sunbirds and flowerpeckers pollinate flowers. Sticky seeds are dispersed by birds. Flowers from October to February.



# *Parasitic Plants*



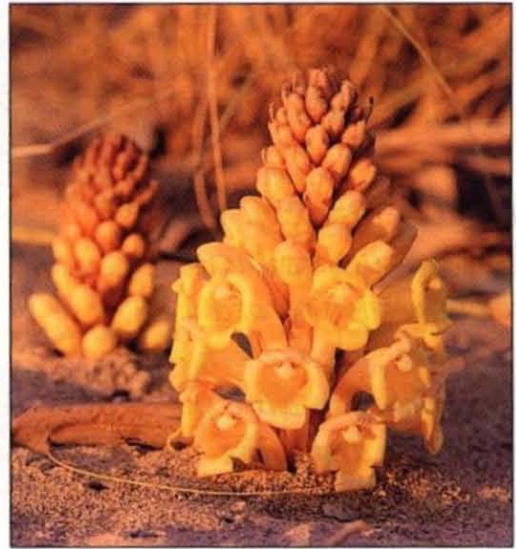
COMMON DODDER



FOREST GHOST FLOWER



COMMON SOPUBIA



FOX'S RADISH



PURPLE WITCH

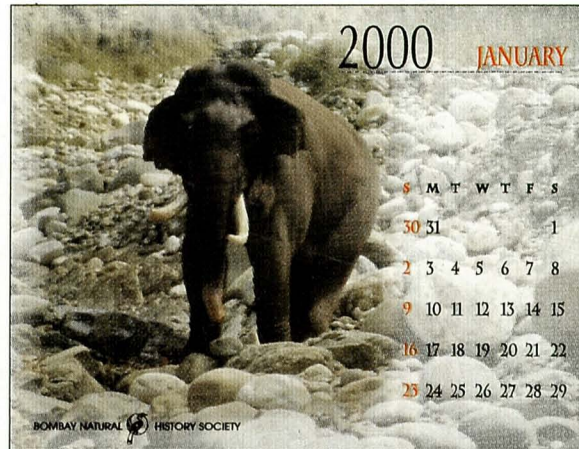


LONG-LEAVED MISTLETOE



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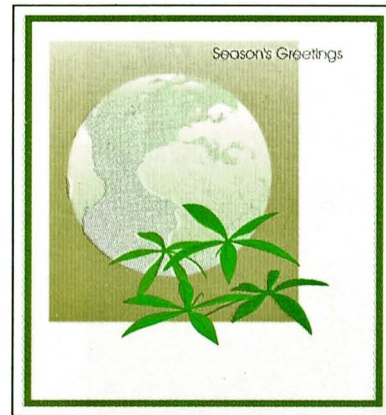


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SUN	MON	TUE	WED	THUR	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

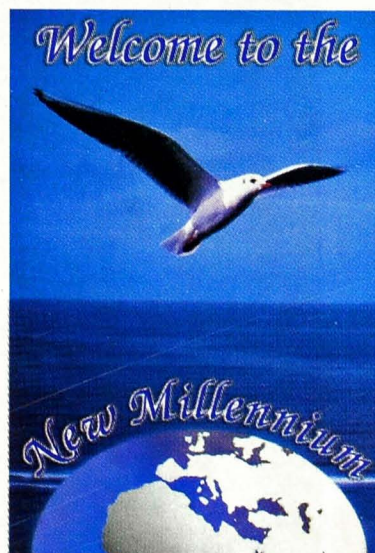
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## Joyous Millennium

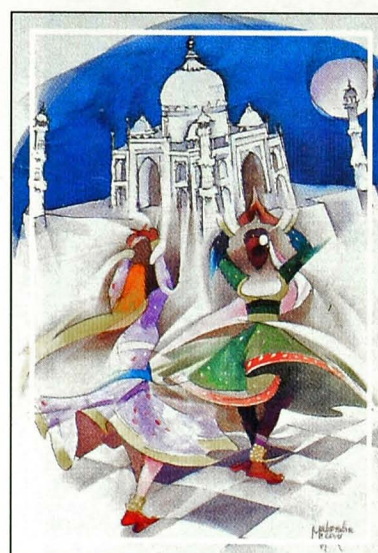
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# Harmony in Nature

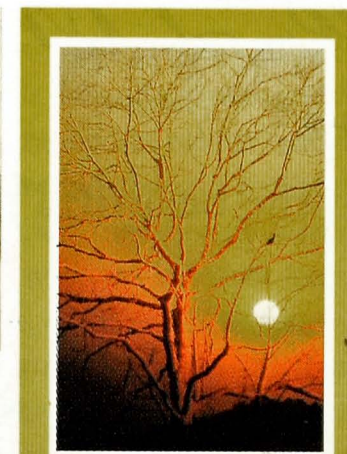


9908 Pride of GIR



9909 Pheasants

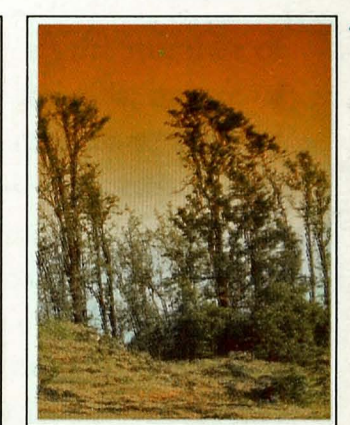
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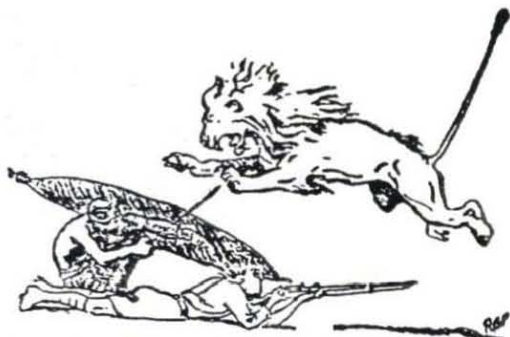




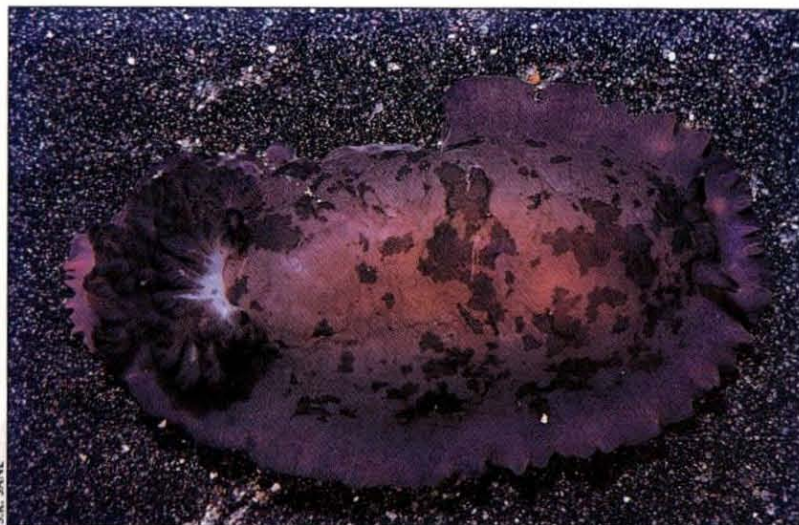
# Seashore Love

Beefsea

## 34. The bold and the beautiful



&



A large colourful dorid sea slug with its gill on the left



Compared to the usually gaudily coloured dorids, this one has a rather sombre colouration

*Red darkness of the heart of roses,  
Blue brilliant from dead starless skies,  
And gold that lies behind the eyes,  
Lustreless purple, hooded green,  
The myriad hues that lie between ...*

*Rupert Brooke*

*Best* known among the snails without shells are the sea-slugs or nudibranchs. Unlike the lopsided snails, their body is bilaterally symmetrical. Named because of their resemblance to the land slugs, they are only remotely related to the latter which, along with the land snails, breathe air by the modified lining of their mantle cavity acting as a lung. And, unlike the drab, hideous, slimy land slugs, nudibranchs (meaning 'naked gills') are brightly and even garishly coloured, rivalling in the beauty of their hues the prettiest butterflies and birds.



Unfortunately, the gorgeous colours disappear when the animals die and are preserved, so they have to be photographed in colour before preservation. This also proved the bane of museum curators, but the problem was ingeniously solved by two glass-blowers who were also keen naturalists. In the 1850s, Leopard Blaschka of Dresden and, later, his son Rudolf travelled to various places sketching marine invertebrates and then making glass models to be displayed in museums all over the world. This hobby was continued by Herman Mueller for the American Museum of Natural History, which has glass reproductions of nudibranchs.

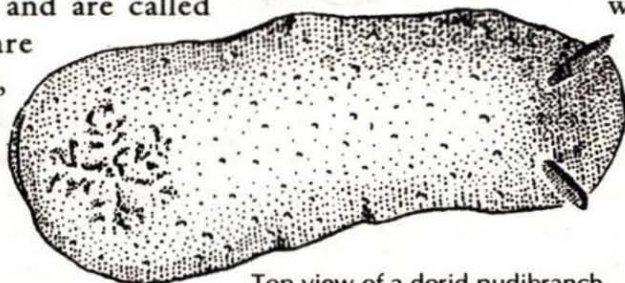
Among several kinds of nudibranchs, the best known are the dorid and aeolid sea-slugs. The dorids have a flattened disc-like or oval body; the upper portion, called notum, may be smooth or warty and has a projecting rim. The pair of stout tentacles bear ridges and are called rhinophores; they are organs of smell and can, in some dorids, be withdrawn into sheaths. Sea-slugs do not have internal gills. In dorids, the anus is situated in the midline towards the rear on the back, and is encircled by a cluster of feathery so-called 'gills'. These are very sensitive to touch and can be withdrawn rapidly into a cavity whose aperture, when closed, looks like a pinhole.

Sea-slugs are hermaphrodites, i.e. each animal has both the sexes. The eggs are laid counterclockwise in a spiral ribbon (when seen from above), this shape arising as the nudibranch slowly rotates on its foot while spawning. As the young develop inside the eggs, they can be seen to have a spirally coiled shell. The shell disappears after birth.

This group of dorid sea-slugs comprises several genera, all ending with the suffix -doris, such as *Anisodoris*, *Archidoris*, *Chromodoris*, *Doris*, *Goniodoris*, *Glossodoris*, *Lamellidoris*, *Onchidoris*, etc.

These can be distinguished from the number of pinnae (feathery portions) of the gills, nature of the back (smooth or warty), presence or absence of hooks or spines on the lips and penis. Thus, among the dorids in which the rhinophores and gills can be completely retracted within a pit and the penis is armed: *Glossodoris* (= *Chromodoris*) has a smooth, brightly coloured back, narrow projecting edge of notum (back), unipectinate gills and armed lips. *Doris* has a very warty back. *Cadlina* is smooth or slightly warty, with 5 to 12 bi- or tripinnate gills. *Rostanga*'s body is covered with papillae, has unipinnate gills and lips armed with hooks. *Archidoris* has a tuberculated back and smooth lips. *Jorunna* has a granular back, tripinnate gills, unarmed lips and male antrum (penis) bearing a stylet.

Among dorids in which there are no pits for the gills: *Onchidoris* (= *Lamellidoris*) has a warty back and unarmed penis. In *Goniodoris*, the mantle edge is very reduced, rhinophores not retractile and penis armed with hooks. *Okenia* (= *Idalia*) is similar but the mantle edge bears a row of tentacle-like projections. In *Notodoris*, the



Top view of a dorid nudibranch.  
The gill (left) is partly retracted

mantle edge around the back is absent or much reduced, and the rhinophores lack sheaths but can be withdrawn into a pit. *Polycera*, also with reduced mantle edge, has a frontal sail carrying some projections, similar projections along the gills, and a spiny penis. In the closely related *Triopha*, the edge of the back bears knotty projections. *Adalaria* has a tuberculated back and unarmed penis.

It may be wondered how such inoffensive looking, brightly coloured sea-slugs can survive in the sea. After all, they cannot swim away and hide, have an armoured shell with spines, or fight back with claws. Nor does their colour match their surroundings. Dorid nudibranchs have evolved an unusual strategy for survival. They are highly selective about their diet, feeding on sponges,



ectoprocts (Bryozoa) and sea-squirts (tunicates). But each kind will feed only on one particular food item. Thus *Rostangia* (which is red) feeds only on red sponges, the yellow *Archidoris* on the yellow sponge *Halichondria*. *Glossodoris*, *Peltodoris* and *Jorunna* are also sponge feeders, and coat the eaten pieces copiously with slime to protect the throat from the sponge's needle-like spicules. *Acanthodoris*, *Goniodoris*, *Onchidoris*, *Corambe*, *Polycera* and *Adalaria* feed on sea-squirts or moss-animals (Bryozoa), making a hole in the victim's body and sucking out the contents.

Now, animals which stay at one place and cannot run away must have some means of protecting themselves from enemies. Sponges and

moss-animals do this by making poisons in their bodies which deter their enemies from eating them. But dorids are adapted so that they are not affected by these

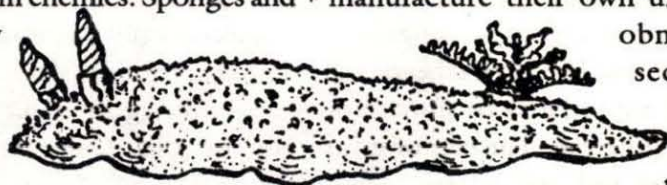
poisons. Not only that, they can store this poison in their body, or modify the chemistry of their prey's poison to make a similar poison. This is the reason why a sea-slug will feed only on one, or closely related, prey species.

The sea-slug's chemical warfare weapons can be compared to those of butterflies. The female butterfly will lay its eggs only on a particular kind of plant. After it hatches, the caterpillar will suck the poisonous sap of the host plant. Not only is it immune to the plant's poison, but it stores that poison in its body. The poison continues to remain in the adult butterfly which emerges from the caterpillar and pupa, and serves to keep birds from attacking it because it is bitter in taste. The reason why butterflies and nudibranchs both are brightly coloured is to warn potential predators about their foul taste — an example of warning coloration. Man is only now learning about the chemical factory of the nudibranchs' prey and extracting potent medicinal drugs, such as the anti-cancer halichondrin (from a sponge) and bryostatin (from the bryozoan *Bugula*).

Like most snails, sea-slugs lay eggs from which free-swimming larvae (young) with coiled shells emerge. These swim in the sea for a month. In the vastness of the ocean, the larva has to find out the exact kind of sponge, moss-animal or sea-squirt which will serve as food for the adult that will ultimately emerge from it. It is like finding a needle in a haystack. Yet, aided by some kind of chemical cue, it searches for the ideal food-item and, once it finds it, settles down, gets rid of the shell and grows into a dorid.

While some sea-slugs modify the chemical poisons which they obtain from their prey in order to make them even more poisonous, others manufacture their own unique poisons. Such

obnoxious poisons are secreted by what are called repugnatorial glands situated along the edge of the mantle in many dorids. Only 2% of the slime from a



Side view of a dorid nudibranch shows the fully extended flower-like gill (right)

sea-slug introduced into a tank containing different kinds of fishes and crustaceans killed almost all of them within one half to five hours; only a crab and another sea-slug survived.

The dorid nudibranch *Sclerodoris* has a sweet fragrance. It is not derived from its diet, but is manufactured by the sea-slug. It can be extracted from the body and actually smells like flowers.

Over a hundred years ago, the noted marine biologist W.A. Herdman theorised that gaudily coloured animals flaunt these colours to warn their enemies that they are foul to taste. To test this, he and a colleague had a meal of live nudibranchs. The sea-slug did not harm them; the dish turned out to be tasty, with an oyster flavour! The sea-slug's poison may not have been distasteful to them, but it definitely keeps its natural predators at bay. 🐌

In 'Masquerade' (*Hornbill* 1999, No. 2), Mr. S.A. Hussain's name was inadvertently not included among the BNHS visitors to Sentinel Island





## The Tree

Let us pause for the taking of inventory,  
 To measure the debt we owe the tree.  
 For the searching root that knits the soil,  
 The cooling shade for those who toil,  
 The air we breathe, nature's greatest gift,  
 And the leaf that heralds each season's shift.

Forget not the fruit that feeds man and beast,  
 The branch that burns to prepare the feast.  
 That sturdy frame that builds the home,  
 And the paper on which you read this poem,  
 The tree gives all and asks no prize,  
 Even making the axe that ends its life.

Anonymous

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MUMBAI

## Editor's Choice

LOOK, MALCOLM, I KNOW YOU'RE  
 THE ONLY OTHER GIANT PANDA FOR MILES,  
 BUT I SIMPLY DON'T FANCY YOU, O.K.!



© 1999 Earth Mirth  
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# The Young Naturalist

Compiled by  
V. Shubhalaxmi and Vibhuti Dedhia

## ...Did You Know



Over 25% of our medicines are derived from plants.

An area surrounded by trees is cooler as they bring down the temperature of a place by about 10° C by losing water through transpiration. On a summer day, a tree with dense canopy loses about 340-350 litres of water through transpiration.



A typical 12 metre tree produces 5 kg of food (carbohydrate) everyday.

One full grown tree can neutralize the carbon dioxide output of one human being per day by photosynthesis.



The oxygen produced from a green area of 30-40 sq. m is the daily requirement of a single individual.

Trees bring down the noise level by about 6 to 8 dB/100 by absorbing the noise.



A densely forested area of 2.5 acres can 'extract' about 4 tons of dust per year from the atmosphere.

A good tree cover is capable of removing up to 0.16 tons of sulphur dioxide per acre per year, along with other air pollutants.



If one hectare of land is left without green cover, 24 kg of the fertile top soil is taken away by the wind and water every year.



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Answer these simple questions:

- The simplest form of aviation sport is
  - Canoeing
  - Bungee jumping
  - Para gliding
- Rappelling is a sport where one
  - Ascends
  - Swims
  - Descends
- Best time to ski in India is
  - May
  - August
  - December
- The mountain ranges of Maharashtra are the
  - Himalayas
  - Sahyadris
  - Nilgiris

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to all correct entries.

\*Inclusive of meals and overnight stay; not including arrangements to reach the appointed destination.

Send your answers to:

Editors, Hornbill,  
C/o Bombay Natural History Society





# Know the Grasshopper

As the name suggests they are known for their tremendous leaping power and are mostly found hopping among grasses. They are also seen beneath the soil, in burrows and in caves.

They are among the musicians of the insect world. No insect, including the grasshopper, has a true voice.

Most nocturnal grasshoppers indulge in 'singing' by rubbing their powerful hindlegs to the leathery forewings. It is mostly a signal by a male to a female grasshopper. The call of one grasshopper is different from that produced by another grasshopper.

If 'singing' is essential for breeding so is 'hearing'. But the grasshoppers do not have external ears like mammals. Instead they have a membrane called the tympanum which registers sound waves. The tympanum is situated at the base of the abdomen or on their forelegs.

They protect themselves from predators by **Camouflage:** They resemble leaves, twigs, stones or tree bark in their habitat.

**Bright colours:** The painted grasshopper, which is boldly marked yellow and blue, warns its predators of its bad taste. These grasshoppers contain poison that they have sucked from the plants on which they feed.

**Structural camouflage:** Some are adapted to conceal themselves among the green foliage e.g. The hooded grasshopper has a flat hood over the back which makes it look like a leaf.

**Life cycle:** Grasshoppers undergo incomplete metamorphosis, i.e., the young are look alikes of their parents, but lack wings, and are called nymphs. The eggs are laid on leaves, in stems and in soil.

**Grasshoppers** are found all over the world except in cold regions. They are both herbivores and carnivores, active by day or night. Read more about this common insect ...

**Locust** – a notorious giant grasshopper feared by all. When in their gregarious phase locusts are capable of destroying every green patch that comes their way, thus bringing famine and disaster wherever they go. Locusts have been recorded to fly at over 17 km/h. A flying swarm can cover the sun and darken skies like an eclipse.

**Painted grasshopper**



**Hooded grasshopper**





**Intoxicated beauties**



**T**HIS refers to the *Hornbill* 1999(2) 'Moths attracted by tobacco smoke' by E.H. Aitken in *Miscellanea*. I am a member of the BNHS, studying the flora and fauna of Amravati and Yavatmal districts of Vidarbha. On July 4, 1999, I was trying to photograph some butterflies when I saw more than 100 butterflies flocking at a certain spot in a nullah in the Malkhed Game Reserve. I photographed

the same, and found that the spot had been used by country-liquor distillers a few days ago and smelt strongly of alcohol. The nearby stones looked bleached and unnaturally white.

To this I would like to add that when a drunken man was lying asleep on the outskirts of my town, the same butterflies flocked upon his body.

*Raju Kasambe  
Amravati, Maharashtra*

**Eds:** Readers are invited to send in similar observations.

**How does one milk snails?**

**I**N 'Purple Pomp' (*Hornbill*, 1999(1)), Beefsea writes: The Mixtec Indians of Central America... milk the snails instead

of killing them to obtain the dye. How does one 'milk' snails?

*Jumana Paghdiwalla  
Dahod.*

**Beefsea replies:** The snails can be 'milked' by pressing on the operculum of a live animal. A small quantity of the white fluid will then be discharged.

**Tracking the rhinoceros?  
Share your experiences**

**T**HERE are five species of rhinoceros which inhabit countries of Africa and Asia. In general, these are critically endangered in large parts of their range. I am in the process of reviewing the historical as well as current distribution and status of the rhinoceros all over the world. There are many possible sources of information, like published reports, specimens preserved in museums or private collections, and photographs in archives. However, there must be many tourists and local residents in the various countries who have seen or photographed rhinos during their travels into the more inaccessible parts of the globe. Any information of rhino sightings or shootings will be welcome, especially reports outside the normal tourist circuits or from dates before 1960. If at all possible, I would like to know when and where the animal was seen (as exactly as possible) and if any photographs would be available. All replies will be treated confidentially and, if requested, will be kept anonymous in any resulting publications. Please direct all replies to Dr Kees Rookmaaker P.O. Box 124, North Riding, South Africa. Fax: + 27 11 454 0559, email: [maaker@mweb.co.za](mailto:maaker@mweb.co.za).  
*Kees Rookmaaker  
South Africa*



## The three R's for a better tomorrow

I AM a new member of the BNHS. In December, I received my first *Hornbill* magazine. I was very pleased with all the articles, especially the article on Corbett National Park was amazing. I was delighted to read the *Hornbill*.

Conservation of natural resources is a major problem today. We (members) must follow some rules to help solve it to some extent.

After using plastic bags we throw them around. However, one plastic bag degrades in about one million years, whereas one paper bag takes one month, and it contributes to only 4% of the total waste generated. One coke-can takes an eternity to degrade, and thousands of cans are dumped as waste.

Can we imagine the amount undegradable wastes that we are dumping daily? The waste being generated will finally be much ahead in the race than the whole of mankind. To prevent this, we should start today. Carry jute or cloth bags, reuse i.e. use both sides of paper and recycle paper.

The only way to prevent this senseless dumping is to observe the three R's - Reduce, Reuse and Recycle. To build a clean, green and better tomorrow, we have to start today.

Nilesh Bhanage  
Dombivli, Maharashtra

## Living lights

I AM writing about a rather puzzling experience. In September 1998, at about 9.45 pm, we reached the seashore of Tiruvanmiyur (in Chennai). We spent a good deal of time at the shore so we couldn't see the waves. Two men then came up to us and one of them opened his palm; we saw some fluorescent dots which emitted light — something like radium in watches, only brighter. They said that the shore was full of these objects! And what we saw was one of the most amazing sights I've ever seen! The night was dark, the part where the waves hit the shore was littered with small glittering, fluorescent particles! With each wave,

more of them were desposited on the sands. What a beautiful sight! My interest in all living things prompted me to collect some of these mysterious objects. They appeared lifeless until I put some water on them. Some of them started moving! They looked and felt grainy. I crushed one of them and was left with a powdery residue, which still emitted light. I concluded that I had seen bioluminescence. The next night they were fewer, and after that none were seen. Were they organisms or some chemicals from the nearby nuclear plant, perhaps?

Uday Varma  
Chennai, Tamil Nadu

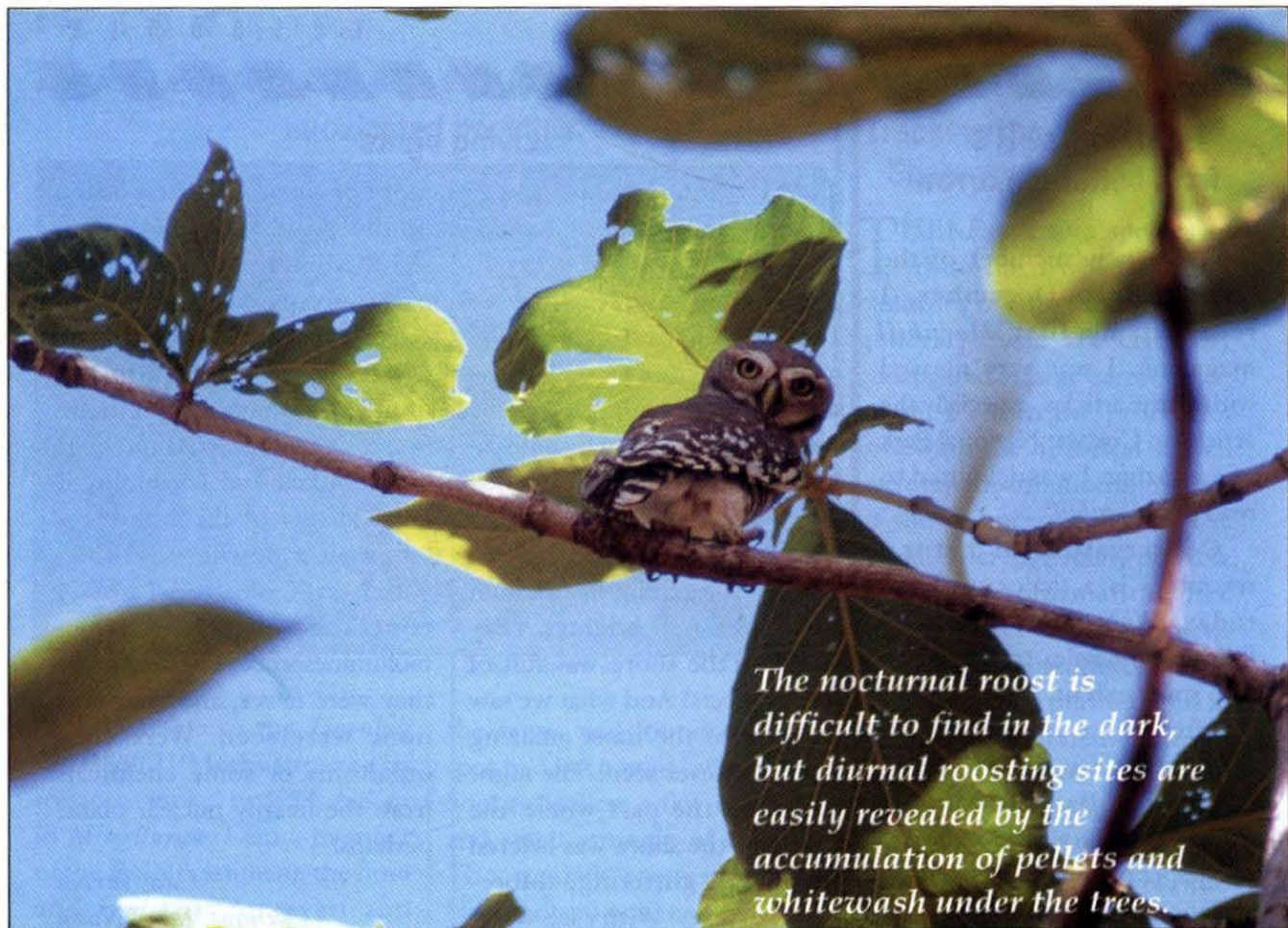
**Beefsea replies:** There are many marine organisms which produce light and shine in the dark. Important among these are the protozoon *Noctiluca*, the crustacean *Cypris* and comb jellies (Ctenophora). *Noctiluca* is microscopic, comb-jellies are soft and will get squashed if handled with force. Since they were gritty, they were probably *Cypris*. Incidentally, during World War II, Japanese soldiers kept dried *Cypris* with them, and when the use of an electric torch near enemy positions was risky, they would moisten the powder and read messages in the brief glow emitted. For more information, read 'Living Lights' in an earlier issue of *Hornbill*.

## Raptor Power

THE cover photograph of the *Hornbill* 1998(4) featuring the mountain hawk-eagle was simply stunning. I also liked the article by Mr. Rishad Naoraji on his interesting experiences at the Corbett National Park. I am a great fan of *Miscellanea*, and of course, of the *Hornbill* itself. Hoping against hope that the Indian wilderness will somehow be ours to keep.

Nandita Muni  
Bhavnagar, Gujarat





FARAH ISHTIAQ

*The nocturnal roost is difficult to find in the dark, but diurnal roosting sites are easily revealed by the accumulation of pellets and whitewash under the trees.*

# The Forest Spotted Owlet

## *Athene blewitti* — An Update

Farah Ishtiaq

*In* the 1880s, seven specimens of the forest owlet or forest spotted owlet *Athene blewitti*, one of the least described, endemic birds of India, were collected, five specimens from Maharashtra, one from Madhya Pradesh and one from Orissa. Unfortunately, none of them is available in India; they can be seen only at the British Museum of Natural History. Many efforts were made by the Bombay Natural History Society in the past to find this 'mystery bird' from sites where it was collected earlier, but these attempts proved to be unsuccessful. The owlet was considered extinct for

113 years, until it was rediscovered two years ago by Ben King, Pamela Rasmussen and David Abbot (see *Hornbill* 1998, No. 1).

No information was available on the status, distribution, vocalisation, food habits and breeding season of this elusive bird. Hence, a status survey was initiated by the BNHS in June 1998, with financial and technical assistance from the Smithsonian Institution, USA. Pamela Rasmussen accompanied our team for 15 days, and led us to the exact location where it was sighted for the first time in November 1997.

With no more to go by than scanty records and meagre data, we started the survey from Maharashtra. Among the major sites we covered



were Shahada, Taloda (both in Nandurbar district), Shirpur (Dhule district) and Chopra (Jalgaon district). All these villages touch the Satpura mountains, which bear dry deciduous forest dominated by teak *Tectona grandis*. Of the specimens collected in the 1880s, one was from Shahada, while four were collected from Taloda, so we decided to explore these sites intensively.

During the first 15 days of the survey, the call of the forest owl was recorded. I played back this call in the forest, hoping to elicit a response from other forest owlets. The call is like a 'song', not frequently heard in owlets, but sweet and mellow, somewhat like the koel *Eudynamis scolopacea*. The koel, however, has a high pitched call, while the forest owl's 'song' is a soft toned *uwuw...uwuwuw*.

I surveyed most of the areas in Maharashtra which touched the deciduous forests of Satpura. In October 1998, I concentrated on the Akrani range (Shahada), and was able to make interesting observations on the behavioural aspects of this bird. By June 1999, I had identified seven pairs of forest owlets at two different sites in Maharashtra, of which four were found in Shahada, and three in Taloda.

The forest owl dwells in tropical dry deciduous forest zones, dominated by teak *Tectona grandis* and other species such as *Boswellia serrata*, *Lagerstroemia parvifolia*, *Dalbergia latifolia* and *Anogeissus latifolia*, interspersed with many shrubs and grass species. I found owlets feeding in open areas with low ground cover where prey visibility is high on the ground. The owlets hunted from early morning till noon, spent the afternoon roosting and resumed feeding in the evening. The diurnal roosting sites were fixed

for some pairs, and were easily spotted as there was an accumulation of pellets and whitewash under these trees. But I could get no idea at all of their nocturnal roosts, as it was very difficult to follow them in the dark.

Most of the sight records are restricted to an elevation zone of 400-500 m. The recorded call was played back at higher altitudes, but I did not get any response, which more or less confirmed their absence.

The forest spotted owl has been confused many times with the spotted owl *Athene brama*, the most widely distributed and common owl species in India. This is due to the similarity in size and spots on the body. But the call of the forest owl differs greatly from that of the spotted owl. The forest owl has four different kinds of vocalisation, some types of calls being made more frequently by one sex than the other. The spotted owl has no 'song' call comparable to the forest owl, except for the screech call. The screech call of the spotted owl starts with a *Chirrrur...chirrrur* and ends with *cheevak....cheevak* while the forest owl's screech is *Chirr..chirr*. I feel that the screech of the spotted owl is its usual, frequently heard call, made before and after it goes roosting, while that of the forest owl is a threat call against predators like the shikra and eagles entering its territory.



Spotted owl, the common owl species of India has often been confused with the forest spotted owl



During the survey, we saw spotted owlets in the entire survey area but, like the forest owl, not at higher elevations. Two pairs of spotted owlets were located in the habitat of the forest owl, indicating that the two species share resources in similar habitats owing to their diurnal and nocturnal behaviour.

Habitat alteration is the major threat to the forest owl. All forest owl sites are located in reserve forest and most of the feeding sites are within teak plantations. Many trees are being cut in these plantations, and the sites being cultivated by tribals, who have encroached upon large chunks of forest land, and are taking it over, despite the fact that the soil is not suitable for cultivation. After two or three years, the top soil gets washed away, leaving boulders and pebbles in the field. At this stage, these people shift to other sites and deforest a new patch for agriculture, resulting in the fragmentation of the habitat, which could be a major cause of decline in owl numbers.

Preliminary information on the behaviour and ecology of the forest owl is now available from the data collected in the survey. Unfortunately, lack of funds abruptly ended this study, but I still hope to be able to do a survey in November this year, to search for other possible sites described in the past and expected in the future. 🐦

## Vulture Red Alert

Less than 5% of the total population of vultures observed in KNP in 1996, were reported sick... By July 1999, the entire population was reported sick. At this given rate if urgent and immediate steps are not taken the entire population will soon be wiped out.

**Text and Photographs: Vibhu Prakash**

*The* vulture situation in the Keoladeo National Park (KNP) has become truly alarming. In a drive of 60 km one can see only 5-10 vultures, and at least two to three cattle carcass in the Park and its surrounding areas. In the Park and its environs one saw vultures at only two regular perch sites — one within the Park in a kadam (*Mitragyna parvifolia*) grove in block 'G', and the other at Barah village about 20 km southeast of the Park. This year, till March apart from

the two regular sites, two more regular perch sites were seen in the Park. One on a kadam tree in the 'K' block and one on a jamun (*Sizygium cumini*) tree in the 'F' block.

The entire population of vultures seen in the Park and its environs appear to be sick or unhealthy. Typical symptoms are seen in sick or unhealthy birds in the Park. The birds sit with their neck limp and hanging down, and are mostly seen sleeping. In a normal resting posture, a vulture sits upright with its neck pulled in between





its folded wings. At times they wake up with a start when the beak hits a branch. They do fly off for food in this condition, but soon return to the same position. They remain in this condition for about 15-20 days becoming progressively inactive; unable to perch they usually fall off the tree and die. The birds look healthy otherwise with good amount of pectoral muscle. The saliva is seen drooling out when they are lying on the ground, but not when they are perched. An experienced veterinary surgeon, Dr. G.S. Yadav, ex. Govt. of Rajasthan, who examined the vultures confirmed that the birds were indeed sick.

A small percentage of sick birds, less than 5% of the total population, were observed in 1996. More than 20% of the population appeared to be sick in December, 1998, 50% by March-April, 1999, by mid June 80%, and in July, 1999, the entire population appeared sick. At this rate the entire population of vultures will be wiped off in a matter of months.

A population crash, and total breeding failure in the white-backed vulture has been recorded. An entirely unhealthy population of vultures is a real cause for worry. Some urgent and immediate steps need to be taken to save this species.

■ A maximum possible number of vultures from different



### The total population of Vultures seen perched in KNP and its Environs and the number appeared unhealthy

Month	No. of Vulture	No. with Limp neck	No. of WBV	No. of LBV
December 98	159	35	153	6
January 99	161	40	156	5
February 99	137	43	133	4
March 99	99	47	90	9
April 99	69	40	55	14
May 99	57	45	53	4
June 99	34	29	30	4
July 99	17	16	15	2

WBV - Whitebacked Vulture; LBV - Longbilled Vulture.

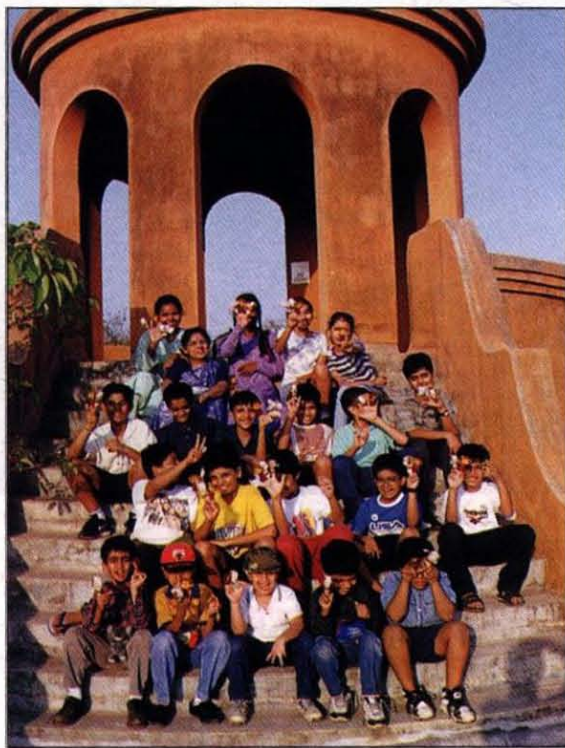
areas should be captured and kept under the observation of veterinary doctors and biologists.

■ The cause of death should be identified with the help of veterinary doctors, toxico-

logists, pathologists including virologists, and vulture specialists.

■ Steps should be taken to initiate a captive breeding programme to save the vulture from extinction. ♡





### Green Saviours of Tomorrow

The Bombay Natural History Society conducted a five day wildlife orientation summer camp from 20-24 April, 1999, for students at the Conservation Education Centre, Goregaon. This unique camp was specially designed to explore the wilderness of the Borivli National Park, and also to understand the various threats to the Park. The aim of this camp was to develop values, attitudes, commitments and skills needed to protect and improve the

environment. In an attempt to bring our younger friends closer to this 'Green Lung', a number of interesting programmes were arranged. 20 students participated in this camp.

Nature trails, a visit to the Borivli National Park, a snake show, star gazing, puppet-making, clay modeling, pond dipping, nature study, paper making, poster making, slogan and poem writing, making plaster casts of pug marks, wildlife quizzes, skits, slide shows, film shows and games were the highlights of the camp, among other activities.

The children were fascinated by the rich biodiversity of the Park which they experienced during nature trails and birdwatching sessions. The group was fortunate enough to sight a leopard twice in a day. A visit to the National Park and interactions with the forest officials proved to be fruitful, as this motivated the students to celebrate Earth day by removing plastic bags from the recreational area. They liked the star gazing session which opened doors to a completely different world — that of planets. The students were thrilled by a live demonstration on snakes which gave them in depth information, on reptiles. The orientation activities organized helped to get the students closer to nature, and to realise the urgency required to save it. Furthermore, they were able to overcome phobias against insects and reptiles. A participation certificate was awarded to each student at end of the camp.

### Students selected for Ecology Course

Two students from Gokuldham High School, Mumbai, Nupur Chatterjee and Manu Sharma, have been selected to participate in the Cathay Pacific International Lapalala wilderness experience. They will join over 40 other youngsters from South Korea, Manila, Taiwan, Malaysia, Indonesia, Thailand,

Vietnam and South Africa, in a one-week, all-expenses paid ecology course at the Lapalala Wilderness School in Transvaal, South Africa. Gokuldham High School had won the Cathay Pacific environment competition held in April, 1999, at the Bombay Natural History Society's Conservation Education Centre.



## Return of the Arribada

Over 200,000 olive ridley turtles nested in February-March, 1999, on the beaches of the Gahirmatha Sanctuary. This was very good news for conservationists, since for the past two years no nesting had been recorded during the season. Mass mating took place, but enormous numbers of females were caught in trawling nets off the coast and a mind boggling 14,000 dead turtles were washed up on the shore in 1998 alone. Researchers believe that this year's nesting success was the result of optimal breeding conditions which were not available in the previous two years on the nesting beaches, which were flooded with sea water much of the time. A large number of dead turtles were still washed up this year, indicating that protective measures must improve, especially a check on trawling.

This is despite an outcry by wildlife researchers, conservationists and local NGOs, who provided subsidised Turtle Excluder Devices (TEDs) to the trawlers, organised patrolling of nesting beaches and pressurising the State Government to ban mechanised fishing in areas of high turtle concentration.

Moreover, the nesting would have been jeopardised if the missile testing range on



SHIVAJI MAULIK / INDIA TODAY

A monument of skulls?

Wheeler's Island had test fired long range missiles during this period. BNHS Director, A.R. Rahmani, wrote to Dr. Abdul Kalam, Scientific Adviser to the Defence Ministry, bringing the facts to his attention. Dr. Kalam has assured the BNHS, that his organisation share our concern and that "DRDO is equally committed in preserving the activities of the turtles in this coastal belt". Agni - II blasted off in April this year, ensuring that the turtle nesting would not be endangered.

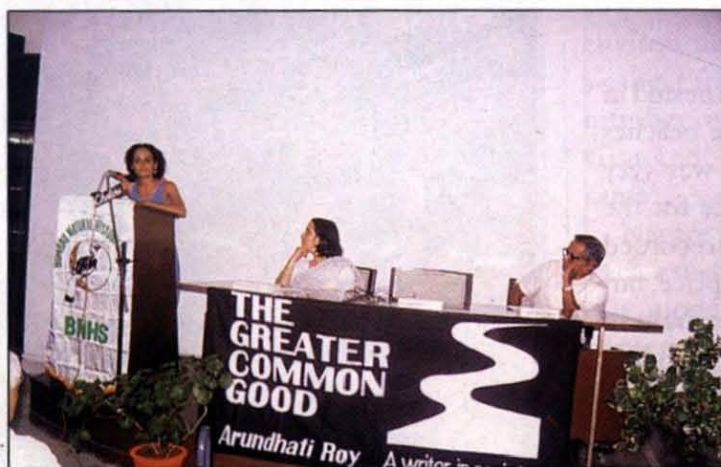
## BNHS Detectives

Scientists in the Bird Hazard Research Cell of BNHS have developed electrophoretic techniques to identify feather keratin from individual bird species. A reference collection of common birds exists, and new species are constantly being added. Regular reports are sent to the Airports Authority of India and the Indian Air Force on identification of feather specimens from air-strikes.

In March, 1999, the Andhra Pradesh Forest Department sought our help to identify birds slaughtered for the infamous 'Legislator's

lunch' widely reported in the press. The birds identified by comparing the feathers with the BNHS collection were, the coot, little cormorant, common teal, lesser whistling teal, pintail and spotbill duck. They had been poached at Kolleru Lake, an important wetland site for wintering wildfowl. Hopefully, this may help in bringing the culprits to book. In fact, one hotelier from Andhra Pradesh sent his man scrambling to Hornbill House to buy a copy of Sálím Ali's BOOK OF INDIAN BIRDS, so that next time he keeps away from the wild flock!





Mrs. D.S. Variava, Vice President and Mr. J.C. Daniel, Hon. Secretary listen as Arundhati Roy reads from her latest book

## Arundhati Roy and the Narmada Valley

Arundhati Roy, the 1997 Booker prize winning author of "The God of Small Things", was in the city to give readings from her latest essay — a literary genre of writing she has revived with distinction — titled "The Greater Common Good", based on the more than a decade old Narmada Bachao Andolan movement.

Asked if she felt guilty about the stupendous commercial success of her first book, while at the Bombay Natural History Society to read from her new essay, Arundhati Roy said "I don't feel guilty because of the commercial success, that's a crude way of putting it! But I feel guilty and I'll tell you, for the last two years I've been paying huge amounts of income tax and that is what I do feel guilty about. That my money is going to be used to make bombs, nuclear weapons, build dams, drive people out of their homes... you see, these people are fighting with their backs to the wall, they have nowhere to turn. The truth is that this is a very difficult war to fight because of the numbers involved, I don't have Medha Patkar's skills, I'm not an activist..."

By writing 'The Greater Common Good' she has tried to influence people to be there when things are happening, lest they have to pay to see a monument of what she called 20th century foolishness. ☹

## Towards a Clean and Green Mumbai

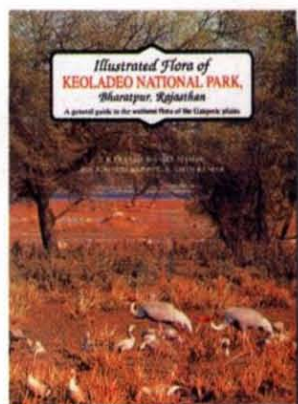
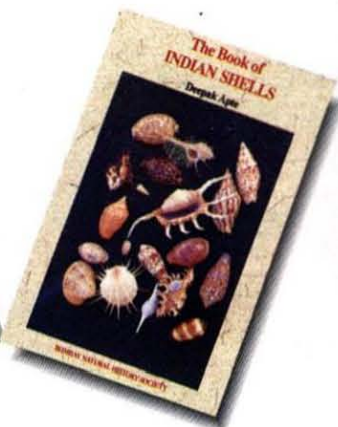
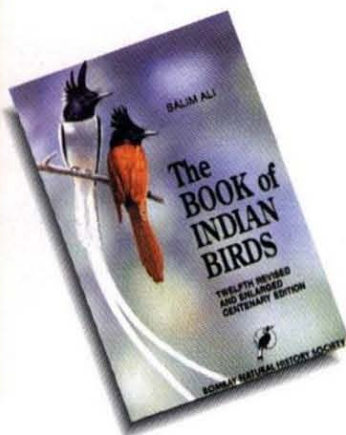
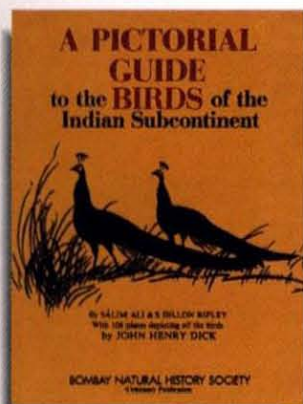
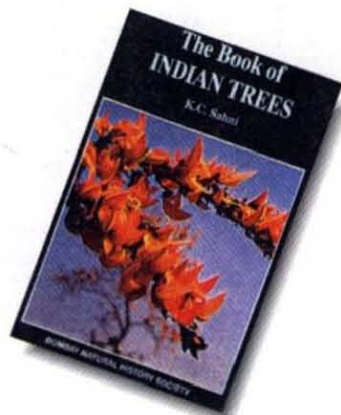
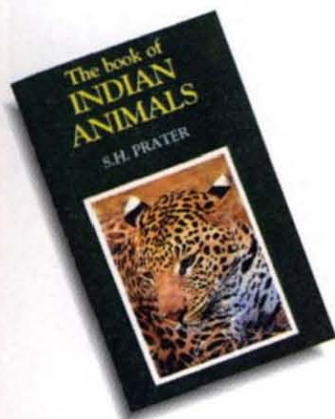


Onlookers admire a visual display at Mumbai CST

The Bombay Natural History Society celebrated World Environment Day this year by trying to create environmental awareness among different sections of the people of Mumbai. Exhibitions on the state of the environment and the role of citizens were held at the two prominent railway stations in Mumbai, Churchgate and the Chhatrapati Shivaji Terminus (CST). The exhibition highlighted issues related to air and water pollution, conservation, garbage management and encroachment upon the Sanjay Gandhi National Park, Borivli. The event was sponsored by the State Bank of India. ☹



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