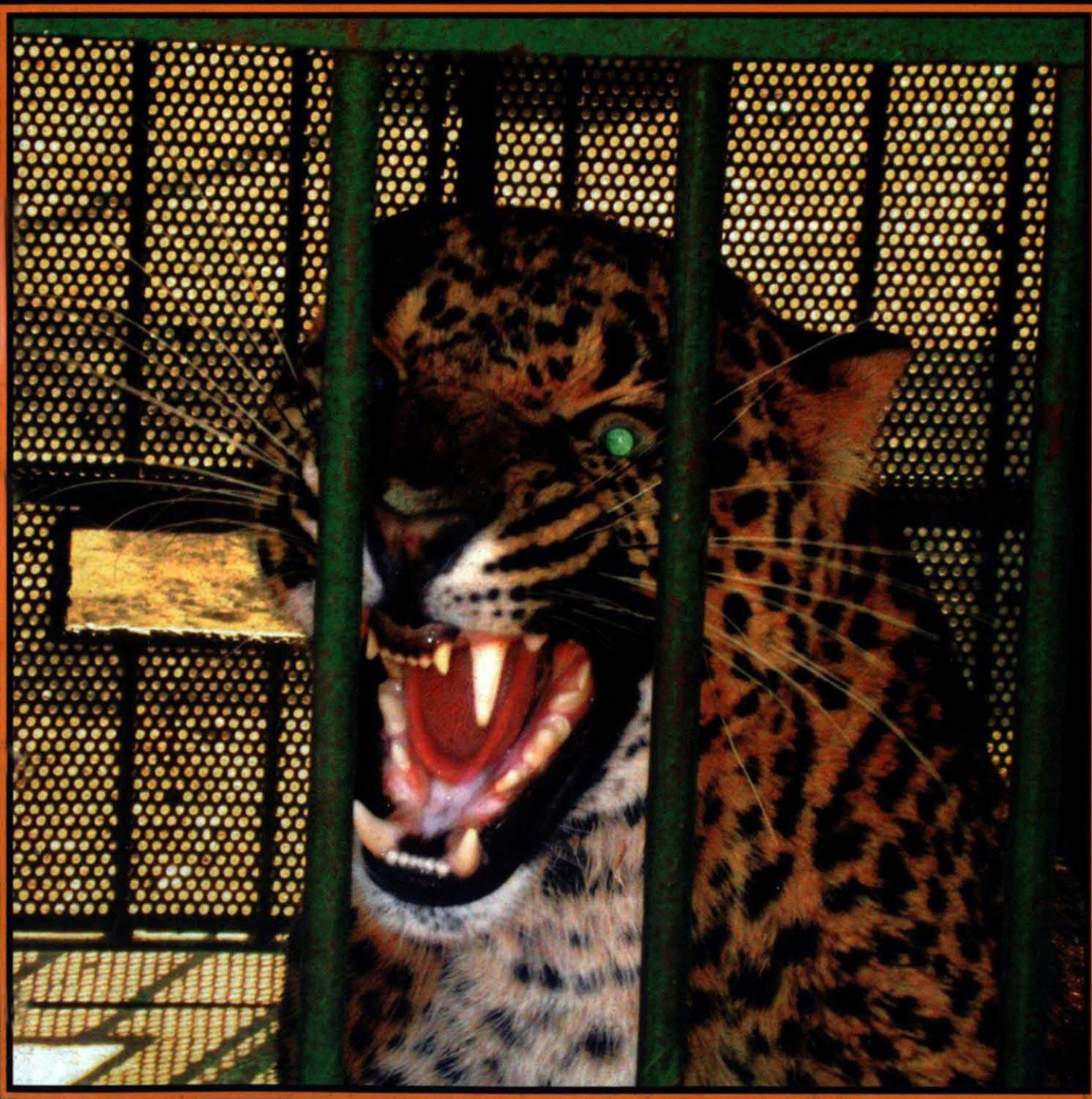


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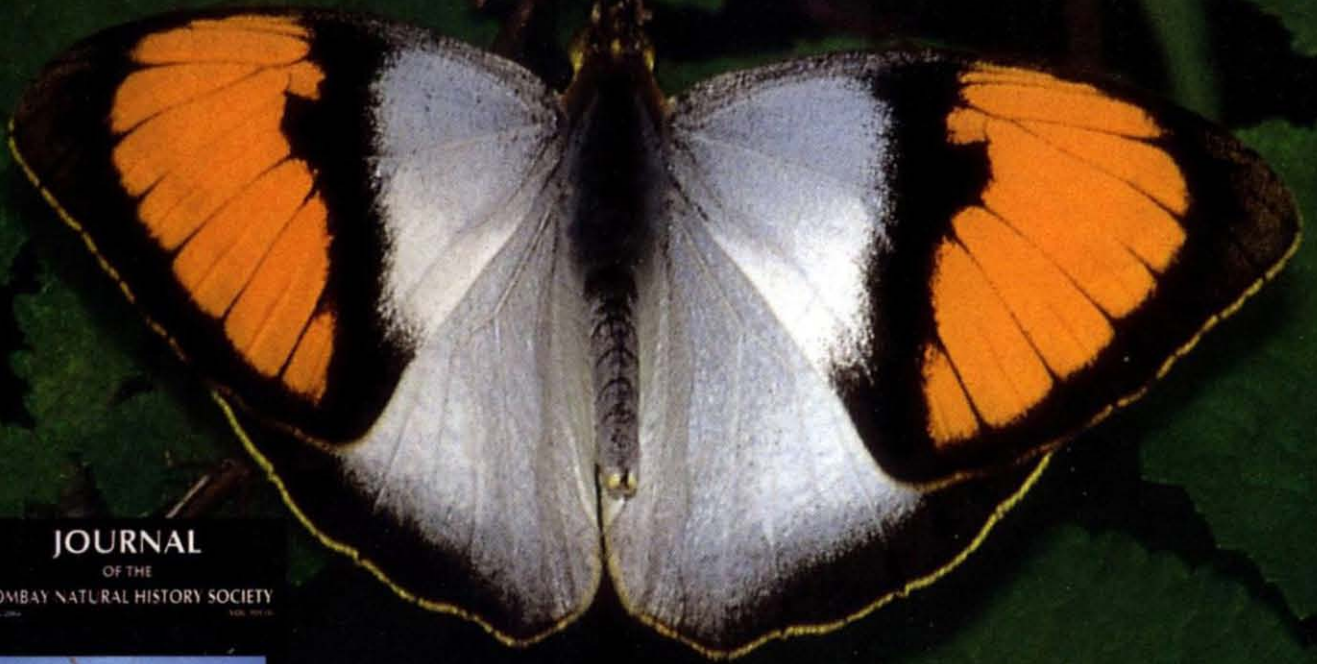
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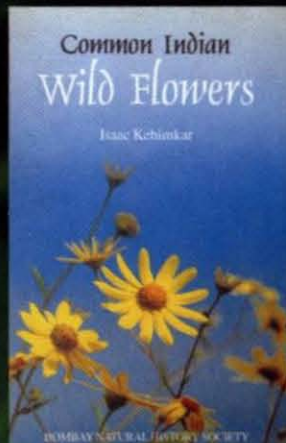
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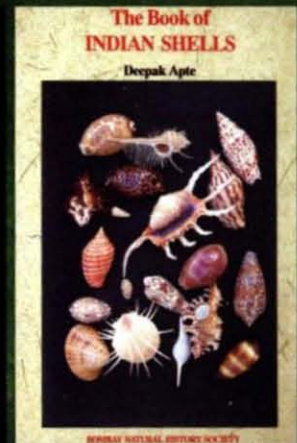
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2



The Book of Indian  
Reptiles  
and  
Amphibians  
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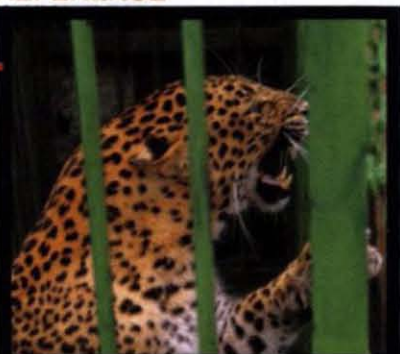
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### 4. What do we do with the leopards?

*Vidya Athreya*

A definitive solution to the human-leopard conflict still evades us. But before the final verdict is passed, it must be ensured that neither of the two is wronged.



### 16. From wooing to weaning

The story of the red-wattled lapwing

*Lt. Gen. Baljit Singh (Retd.)*

A complete story of the red-wattled lapwing from wooing to weaning will definitely interest you. So, what are you waiting for, read on.



### 26. Point Calimere, an endangered Ramsar Wader Refuge

*J.C. Daniel*

Waders need a special habitat, shallow waters and tides rhythmically flushing acres of mudflats. Point Calimere is one such area in India.



### 40. There's life under those rocks!

*Varad B. Giri*

Have you ever peeped under rocks? Our author did, and unveiled some amazing stories hidden out there for you.



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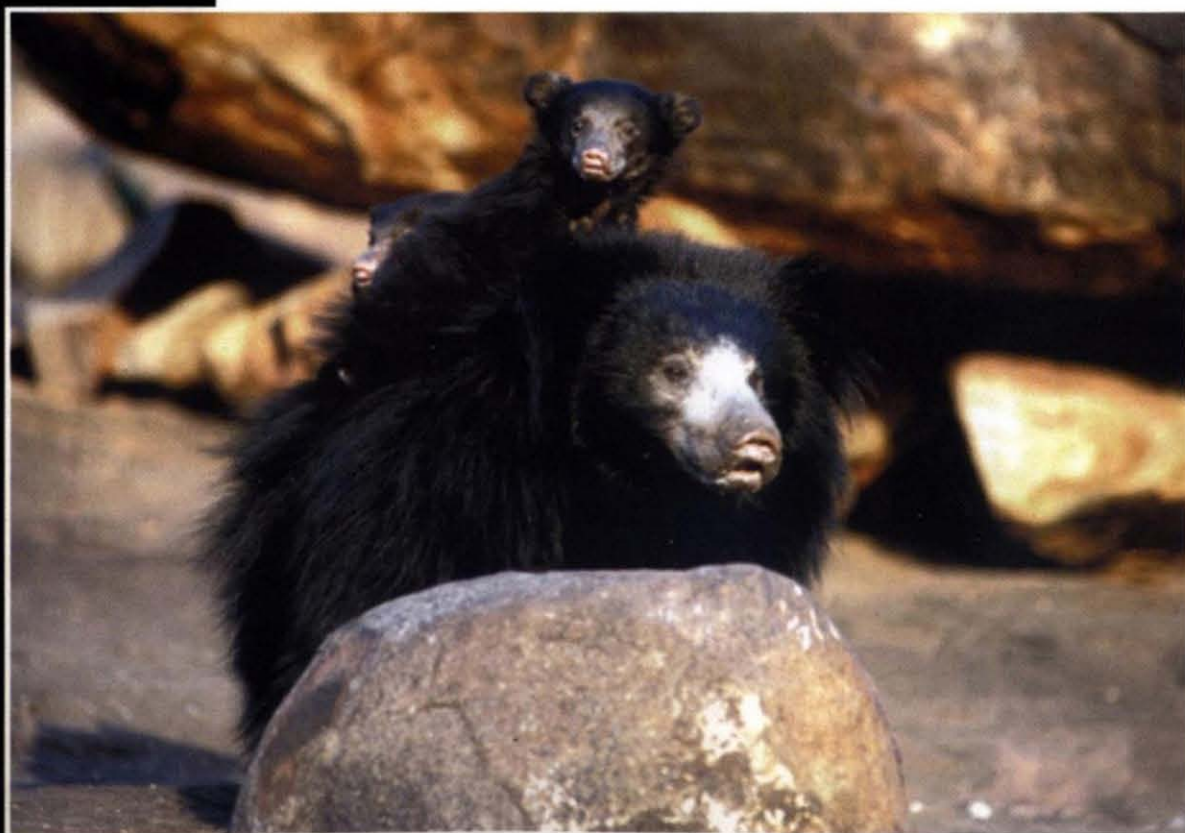
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VIEW POINT

# Bare Back Rider


J.C. DANIEL



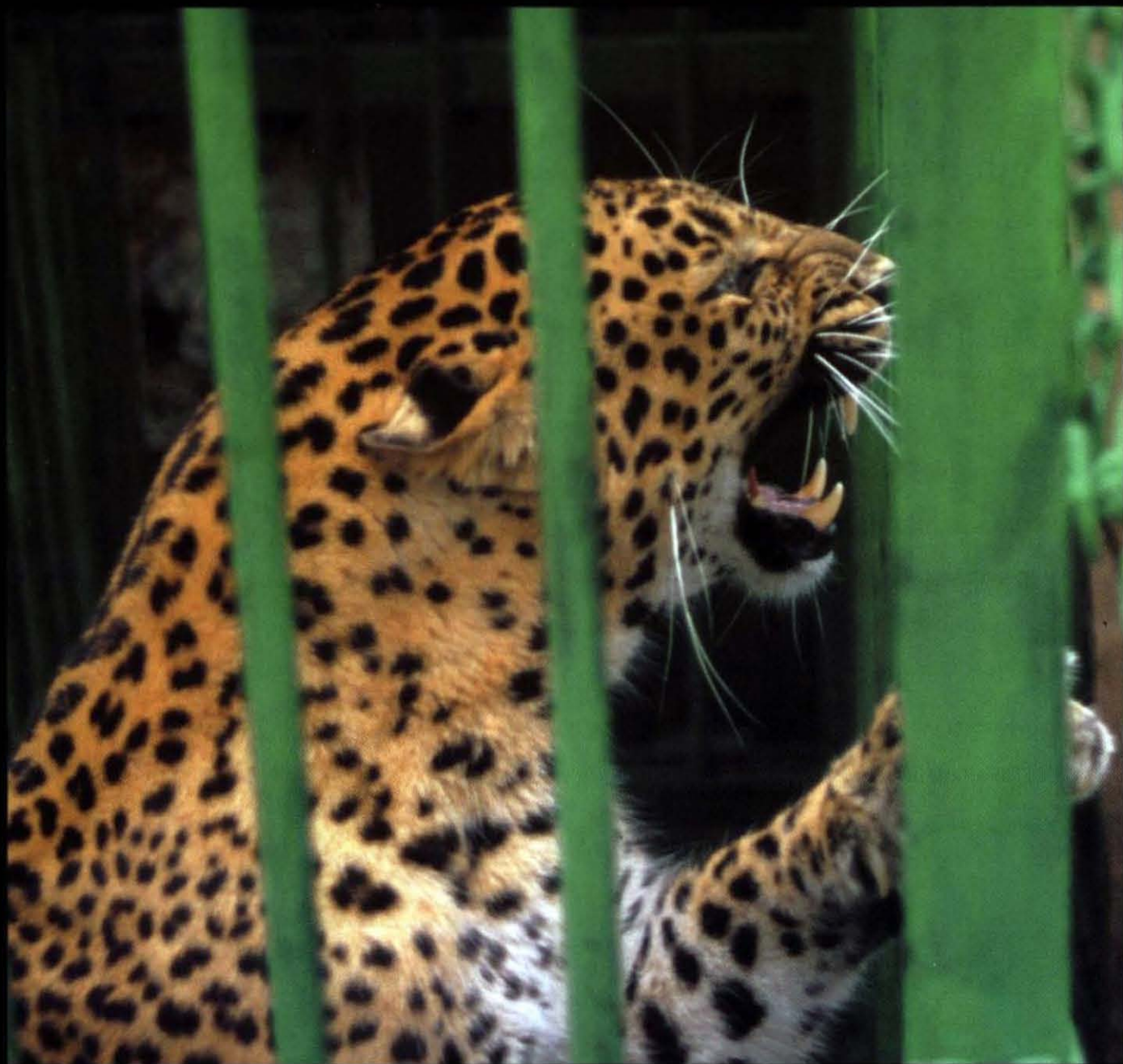
**A sloth bear** slouching along is an amusing sight when seen at a distance, or from the safety of a vehicle, or the back of an elephant, but being short sighted and hard of hearing, the sloth bear, especially a female with cubs, when taken unawares attacks furiously in self defence.

The sloth bear is, unfortunately, one of the species constantly in conflict with man. For instance, 735 people were attacked in Madhya Pradesh between 1989-94 by sloth bears in accidental encounters, with nearly 50 per cent mortality for those attacked. Conflicts arise from common interests. Both man and bear search for honey, and both have a notorious weakness for *Mohwa*, man to ferment the flowers for a potent liquor, the bear avidly eats the flowers. The *Mohwa* tree in flower poses a danger to both man and bear.

Peculiar to the Subcontinent, the sloth bear used to be one of the country's most ill-used wildlife. The cubs stolen from the mother's den were one of the stock in trade of India's itinerant entertainers. The most sensitive part of the bear is its nose and a ring through the nose was the basic control point of a "dancing bear".

Bears have to be treated with abundant caution and unless we know more about their habits, encounters between villagers and bears could be tragic for both, particularly to the bear for its survival in a dwindling habitat continually overrun by people. 





# What do we do with the Leopards?

**Text and Photographs: VIDYA ATHREYA**

Vidya Athreya is a wildlife biologist. She is presently studying the man-leopard conflict in Junnar.

The monsoon showers in the Junnar taluka in Maharashtra provide a spectacular display of nature's beauty and power as the rough winds whip up the soil and the clouds sweep past the wide Sahyadri valley, towards the crestline of the Western Ghats. The rain that falls over the crest of the Ghats finds its way down to the valleys between the Bhimashankar Wildlife Sanctuary and the Malshej Ghat, through the myriad streams and canals that crisscross the landscape. As I walk through, enjoying the fragrance of the rain drenched soil, it never ceases to surprise me that this is an area where leopards have attacked 49 people in the last three years, and where around 100 leopards were trapped.

The reason I cannot reconcile to the presence of the leopard in this area is because it is a region which predominantly consists of human habitation and farmland – crops of sugarcane, onion, grapes; plantations, villages, schools, markets, but no forests. The only natural forest land is the small strip about 15 km wide along the crest of the Western Ghats from the Bhimashankar Wildlife Sanctuary that lies at the southwest corner to the Malshej Ghats, which form the northwest boundary of the Junnar Forest Division.

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**Presence of the leopard in an area which predominantly consists of human habitation and farmlands is indeed surprising**





**A cave on a barren hill where leopard pugmarks were found**

The leopard - human conflict is not near the forests, but down in the valleys right up to the Shirur taluka, which with its dry soil, probably acts as a barrier to the movement of leopards.

The region's vegetation has changed immensely since the construction of many dams in the early 1970s. Now lush crops clothe what was a dry area. Sugarcane is the most important crop, especially in the valley of Narayangaon, which also has been the leopard - human conflict hotspot in the last three years. From 5 attacks on humans in the Narayangaon Range between 1995 and 2001, it suddenly increased to 16 in 2002, and this area is the most distant from the forests.

In order to make any sense of the drastic increase in conflict levels in this region, we (Vidya Athreya, Sanjay Thakur, Sujoy Chaudhuri and Dr. Aniruddha Belsare) with support from Ecollage, Pune and the Wildlife Protection Society of India, New Delhi (WPSI) with permission of the Maharashtra State Forest Department undertook a year long study on this issue. The study relies on ecological, sociological and topological information obtained from each of the sites where livestock and humans have been



**The leopard-human conflict is not near the forests, but down in the valleys**



attacked, as well as where leopards have been trapped, over the last three years. This information is then complemented with the GIS tool to obtain a better understanding of the conflict in relation to the landscape features. However, it is also very important that telemetric studies be carried out, especially on the fringes of human habitation, to better understand the biology of this beautiful species.

In recent times, leopards are increasingly being implicated as the major cause of conflict between wild carnivores and people throughout India. This is possibly because of their greater adaptability to survive and reproduce even in landscapes highly modified by humans. From Nepal, through the tea estates of northern West Bengal, Himachal Pradesh, Garhwal hills, through Gujarat, Maharashtra and Karnataka, there are instances of leopards turning into problem animals for humans. Interestingly, leopard - human conflict in our country is an issue only in pockets close to some protected areas and not others. This in itself suggests that there are factors unique to the particular place regarding the conflict, and it is imperative that we understand the nature of the conflict in each of the conflict sites.



The increasing attacks on humans and livestock led to intensive trapping efforts for leopards by the Junnar Forest Department

To deal with the increasing attacks on humans and livestock by leopards, the Junnar Forest Department increased their trapping efforts manifold and did what is usually done the country over — trapping and translocation of the animals from conflict areas. Initially, the trapped leopards were left in nearby forested areas, but because that is likely to have aggravated the problem, the animals are now left in far-off wildlife sanctuaries in the state — Melghat, Yawal and Radhanagari. As part of our project, the animals meant for translocation have been marked with transponder chips (see box) which would allow us to monitor the animals, in case of recapture at their new site of release, in a low cost and unobtrusive fashion.

This strategy of trapping and translocation, however, does not find favour with most of the scientists who have researched wild cat behaviour and ecology. Leopards, like other wild felids, have very strong homing instincts and are known to travel up to 100 km to return to their site of capture. Thus, simply trapping a leopard and leaving it in the nearest forest may not be worth the time and money invested in the operation,

## Tracking the released leopards

In order to keep a track of the leopards caught in Junnar and released in far-off protected areas in Maharashtra, life long identification chips (a passive transponder) were inserted into the animals. A total of 22 leopards (19 from Junnar Forest Division and 3 from Nagar) were marked with similar chips the size of a long grain of rice. These are used throughout the west for pets and captive animals. Even Indian zoos, like the Rajiv Gandhi Zoological Park, Pune, have begun marking their animals in this fashion. The sterile chip contains an unique code, such as 00-063B3F95. A syringe places the chip subcutaneously and can be read by a pocket-sized reader from above the skin. Its easy use, low cost (each chip costs about Rs. 300) and life long function is of enormous help to the leopard, as well as the people managing them. In fact, its use can also spill over to beyond the life of the leopard. In the USA, a hunter was convicted based on the chip present in the pelt of the wolf found with him.

It is important that the make of the chip and the place of insertion are standardized for a given species. The chip that is currently being used is TROVAN ID 100 and has been recommended for use by the Captive Specialist Breeding Group. We decided to insert the chip at the base of the tail (where the tail meets the body), since it was found on occasion that if a caged leopard is distracted from the front, a person with a reader could obtain the reading from behind without the animal being held immobile in a squeeze cage or being tranquilised, causing no distress. So far, three animals of the 19 translocated from Junnar have been re-trapped at their site of release and their place of origin could be confirmed because of the chip.

More importantly, it gives us a basis to confidently state that leopards translocated to far off areas from conflict areas do come into conflict at the site of release and that a debate is required to modify the policy that dictates translocation as the main option for dealing with problem leopards. ■



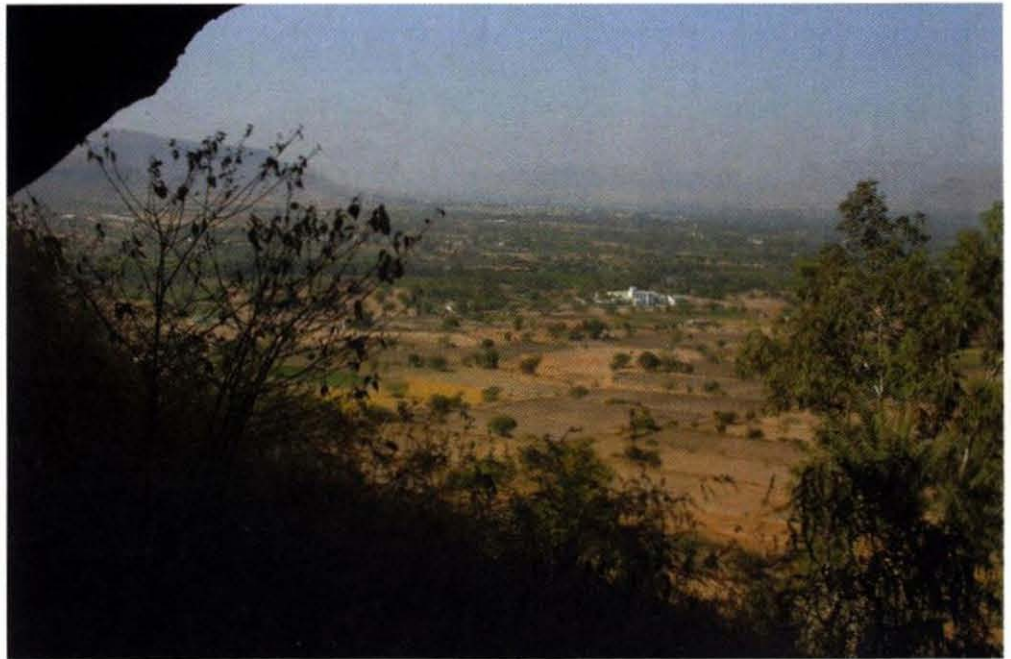
Identification chips were inserted into the captured leopards before releasing them



as they are likely to come right back. Which again brings us to the issue that any such large carnivore capable of inflicting injuries to people should be radio-collared on release. This will allow for a fool-proof method of monitoring the individual and to ascertain if the translocation has been a success, or if they are creating problems at their sites of release.

There is also another issue, which is of great importance, and has a strong relation to the conservation of our tigers, and other rare and threatened fauna at the sites of release. Leopards from a human dominated landscape, like Junnar, are likely to feed heavily on domestic animals. For example, a study on leopard diet


that live in his territory. We are likely to be creating havoc in the natural functioning of resident leopard populations at the sites of release. Worse still, the translocated animal might take to the fringes, since that is the only habitat he or she knows, leading to attacks on cattle, and human conflict in an area which never had it. This has been validated by our study which found that an animal re-trapped at the site of release in northern Maharashtra, after human casualties had taken place, contained the transponder chip. This indicates that the strategy of trapping and translocating is likely to result only in a shift in the focus of conflict from one area to another.



**A child was killed at the bottom of the hill by a leopard**

from scats carried out by Advait Edgaonkar and Ravi Chellam in the Sanjay Gandhi National Park (SGNP) found that despite the presence of natural prey species, dogs were the most common prey of the SGNP leopards. Therefore, while translocating leopards from places like Junnar, where they are exposed to pathogens from livestock and dogs, we are making our already endangered tigers and other native wildlife species, that inhabit our prime wildlife sanctuaries, more susceptible to diseases brought in from outside.

Finally, what of the resident population of leopards at the site of translocation? Territorial felids like leopards are not altruistic and do not reduce their territories in order to accommodate newcomers. There are likely to be fights and deaths. The death of a male territory holder usually implies infanticide of the cubs

If we are indeed shifting the problem and introducing it to areas which never reported conflict, it is time we provide the Forest Department with other options of dealing with an animal as dangerous as the leopard, when it takes to living among humans. We have to remember that it is not a benign creature we are dealing with, but one which can pick up a child from the doorstep of its house and leave no trace, with a species that is intelligent enough to elude a trap set for it, with a species that can survive quite well with a prey base of mainly domestic animals. It is very important for the conservation of the leopard that the majority of people in our country think of it as a beautiful wild cat that needs to be conserved, and not a pest that prowls in their villages and needs to be eliminated. 

# Where to from here?

**PETER JACKSON**


Peter Jackson was the Chairman of the IUCN Cat Specialist Group



MOHIT PANDYA

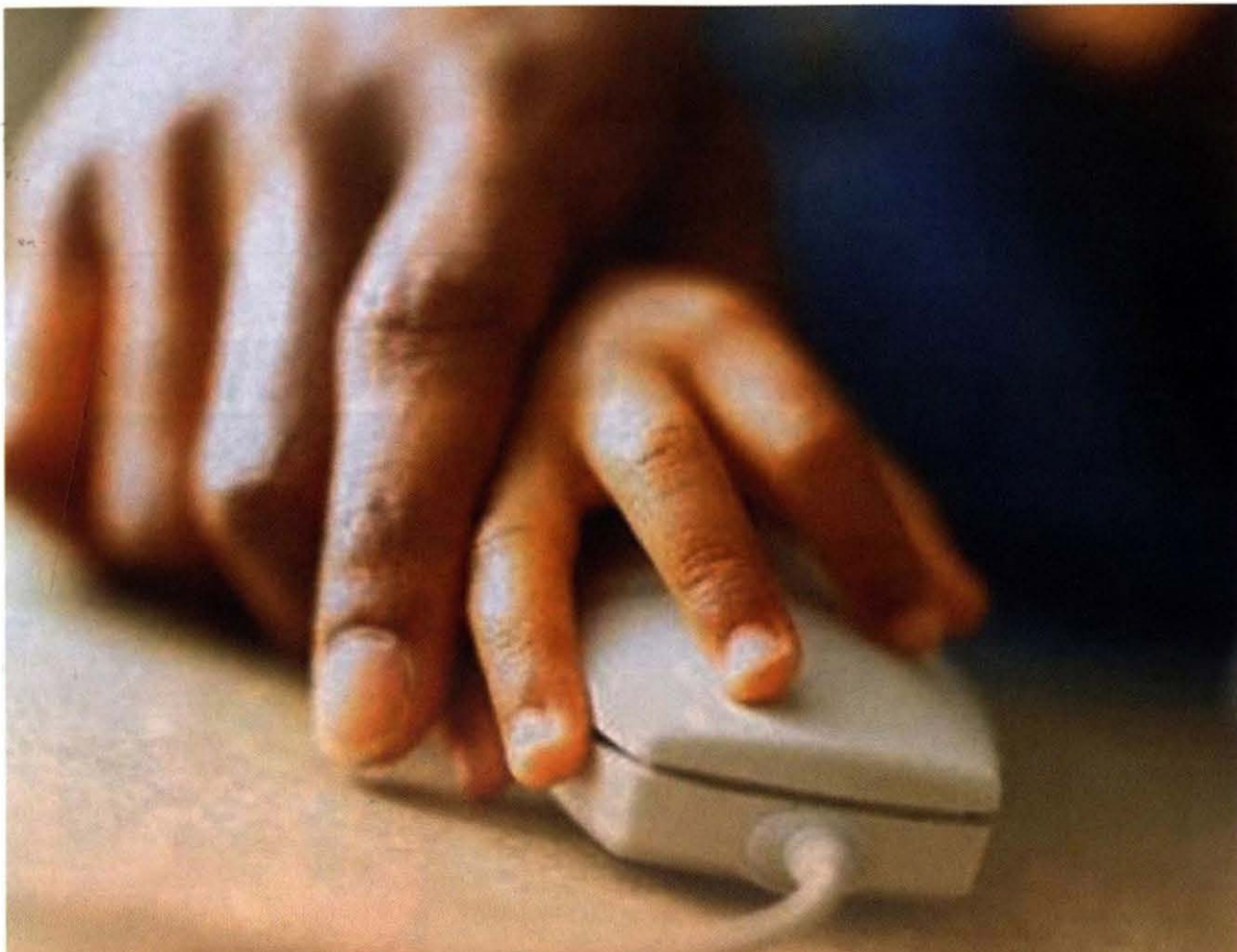
**Raising funds for leopards** is strangely difficult. Funders are interested in tigers, lions and elephants, but other species get insufficient attention. In fact, a situation such as Borivli (Mumbai) and other parts of India is an important issue in leopard conservation. I have been following the discussion in the *Nathistory India* list. A few years ago I tried very hard to get funding for Jamal A. Khan's Gir leopard study, but had no success although he needed only a small contribution, the main funding coming from the government. I particularly suggested to Jamal that he look into the effect of the dumping of problem leopards in the Gir by the Gujarat Forest Department. It is clear that it is socially disrupting, no good for conservation, and doesn't solve the problem.

What then to do with problem leopards? Zoos don't want them as they usually have as many leopards as they want, and they are expensive to maintain. The situation is incredibly complicated and involves so many stake-holders with varied interests and views. I think identified problem leopards, particularly those which have attacked people, have to be eliminated. Of course, poachers and illegal traders are doing well, and are something of a limit on the leopard population. But human settlements in or near leopard habitat are bound to experience trouble — the inevitable stray and feral dogs are an attractive feast for leopards, which then come into contact with people.

Vidya Athreya has carried out an excellent study in Junnar on translocation, but whether it will have more than a local impact is doubtful. 

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# Reaching out to people



**Dioramas** put up during Indian festivals often depict social themes from cricket to politics that need to be highlighted. The recently ended Ganapati festival served the cause of BNHS this year. Vishwas Shinde, a member of our staff, aptly highlighted the news of the season – human-leopard conflict in his diorama. He put up placards suggesting the do's and don'ts when staying in leopard territory. The presence of this theme in an area where the problem of human-leopard conflict was most acute helped Vishwas convey his message to a greater number of people in such a short span. ■

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**Back to the Raj?** 

On a visit to Kolkata in November 2003, I went to see the most acclaimed *Ficus benghalensis* in India, in the Botanical Garden at Howrah. Several surprises awaited us. Our vehicle was stopped at the main entrance and we were told that only “foreigners” could enter the Garden in motor vehicles. When we protested, the watchman explained that this was the rule. Feeling rather like Gandhiji being thrown off the white man’s train in our own country, we footed the short distance to the tree - another surprise - all we saw was a sorry remnant of its past glory. The spread of the canopy was recorded by K.C. Sahni in his BOOK OF INDIAN TREES, BNHS, as a circular walk of 400 metres, but this is now a fenced area with no central trunk at all. What happened to the tree? The signboard stating the age of the tree as 200 years appears to be 200 years old itself. The Botanical Garden, under the tender care of the Botanical Survey of India, looks more like a secondary mixed forest, with exotic and indigenous species alike growing unconfined.

As we took in this transformation, two parties of “gora” visitors drove past us. It seemed a good idea to ban the entry of all visitors, Indian or foreign, and all motor vehicles likewise, till the Garden is restored to its former state. And I would really like to know, what happened to the tree?

*Vibha Kaul  
Mumbai*

**‘David and Goliath’** 

We have a red champak tree in our compound, which is often frequented by a couple of fantail-flycatchers and sometimes crows. One afternoon, I heard some short, sharp bird calls, distinct from the usual long musical

notes. Intrigued, I looked out of the window and saw a crow perched on a branch of the champak tree, looking back and forth, as a spirited fantail-flycatcher was flying by uttering war cries. It was trying to oust the crow that was protesting feebly, but not fighting the little bird. After a minute or so, this drama had attracted another crow that perched itself on a mast tree nearby.

Soon two fantail-flycatchers flew in and perched on the champak tree. A red-vented bulbul also made its appearance and perched on the nearby mast tree, in an obvious show of strength. These new arrivals, however, were silent spectators to the drama, till the oppressed crow, obviously exasperated with the belligerent behaviour of the fantail-flycatcher finally flew away, and so did his avian audience. Having proved its point, the little fantail-flycatcher also flew off to other pastures. This drama lasted for a couple of minutes.

I presume that it’s rare for a crow to be forced out of a place it frequents by such a tiny bird. The red-vented bulbul is known to be an aggressive and quarrelsome bird. But, the little prancing fantail-flycatcher also had similar traits I did not know.

*Neelima Bhawe  
Mumbai*

**Battles over Nature** 

In the book BATTLES OVER NATURE reviewed by Divyabhanusinh in the Jul.-Sep. 2003, *Hornbill*, Ramachandra Guha talks of the axiomatic belief of

American conservationists for big continuous wilderness. One must not mix up cultural bias, and real conservation issues that are based on facts. There is a dangerous belief that is making the rounds, and is even being propounded by eminent conservationists and ecologists, who should know better, that a network of smaller protected areas is as good as single large protected areas. Unfortunately, this just isn’t true. Smaller protected areas will inevitably lead to local extinction of sensitive species that are not mobile enough and need larger areas for holding viable populations. The problem can be mitigated to some extent by providing corridors, but corridors are at best a compromise and are not even possible in many cases. There is no getting round large protected areas and the larger the better. This does not mean that one must not have smaller protected areas. One tries to protect whatever is remaining.

Human intervention in the sense of extraction or harvesting of produce is generally harmful, except in special cases of habitats that are created and maintained by human intervention, such as Vedanthangal, Ranganthitoo and Bharatpur, and where human intervention is proven to be necessary and useful. It would be naive to forget that human populations and pressures have resulted in the precarious position with respect to conservation that the world finds itself in. Where unavoidable, human intervention needs to be carefully managed to mitigate its negative impacts. Participatory management with involvement of local communities and through local institutions is a welcome approach for managing impact of human intervention.

*Jayant Kulkarni  
Pune*



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# From Wooing to Weaning

## The story of the Red-wattled Lapwing

**Text and Photographs:  
Lt. Gen. Baljit Singh (Retd.)**

**B**ordering a road in Le Corbusier's Chandigarh, there is a strip of land 20 m broad and 1.5 km long. Four rows of trees create three magnificent avenues on this land. The broadest avenue, also farthest from the road, is flanked exclusively by silver oaks planted in plumb-line perfection, their boles straight as a lance, reaching out to the sky. For comparative solitude, feel of the earth and the joy of quiet contemplation, this is the avenue to take.

While walking here, I heard the persistent, clamorous chittering of nestlings in the tree canopy above, while a pair of red-wattled lapwings with a solitary chick on the ground made a picture of perfect repose. For the first time it struck me that the young of arboreal avians are a class apart from their terrestrial peers. Take feeding, for instance. Arboreal nestlings behave uncommonly greedy, noisy, and demanding, and compete ferociously with siblings. They keep their parents slaving round the clock to transport food into their ever-gaping gullets. The young of terrestrial birds on the other hand, move about delicately, each chick prising a morsel from the earth, picking a worm or snapping up an insect. In moments of threat to life, chicks on a tree look clumsy and timid, easily visible smudges on a branch, despite their

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Lt. Gen. Baljit Singh is a keen naturalist and was a member of the Society's Advisory Committee



best efforts at concealment. The red-wattled lapwing chick in contrast is a master Houdini. He will freeze on his fragile stilt-legs and so retract his body that it would pass for a fuzzy golf ball teed for a drive on the fairway. On a further signal from its parent, the chick may fold its legs like a jack knife and drape its body over them. Shift your eyes from the spot for a twinkle, and nine times out of ten you won't be able to relocate the chick!

At this moment in my thoughts, the pair of red-wattled lapwings erupted into a loud, piercing alarm. Two mahogany-brown, semi-clad youths vaulted the boundary wall in a trice and homed straight on to the lone chick, but hesitated because of my shouts of irrepressible rage. The duo were tribals from Bihar, who are among the most ruthless trappers and hunters, and I realised the potential threat to the city's bird life. The vulnerable period for the birds is from sunrise to about 8 a.m., after which the poachers start drifting to work. So I decided to extend my walk to cover this period of time and in the process I adopted eight pairs of red-wattled lapwing. For about 2 hours every morning I observed them, using binoculars, through wooing, nesting, brooding, and rearing, on to weaning from April to September 2001. Not quite as deliberately, but nevertheless fairly diligently, I "adopted" another seven pairs of red-wattled lapwing in the Chandigarh Rose Garden. And the fragments of knowledge I gathered make a composite story of one aspect of the field biology of this bird that may interest the amateur bird watcher.

### Wooing

The most intense period is from mid March to end April. The bird, intent upon winning a mate, suddenly takes wing, lifting effortlessly above the tree canopy and uttering a full-throated "Did you do it, pity to do it; Dick, did you do it?" Though more commonly accepted as the alarm call, it obviously doubles as an ecstatic wooing song. Both birds remain airborne for about a minute at a time. The next moment, they alight softly on the ground and the wooer engages his would-be mate in an earnest monologue. It is impossible to syllabise his clipped, lovelorn utterances, but they are distinctly audible as a soft prattle. And there are moments when the intensity of this wooing-talk peaks, that the smooth plumage of the

crown, nape and neck becomes slightly but distinctly ruffled, and the bird quivers with emotion. Mornings and evenings are frequently punctuated by the wooing song and so are moonlit nights.

### The Nest

That they would, if there were choice, use clay pebbles or chipped stones exclusively as nest material needs no recounting. But how much of it? The professionals, from Jerdon down Hume, Oates and Whistler to Sálím Ali, give it the go by. However, it did catch the fancy of an amateur: the Rt Hon'ble Malcolm Macdonald, the British High Commissioner in Delhi in the 1960s. He examined two nests, one on the roof of his residence a day after it was abandoned, and found that "the finished work contained nearly 800 little flints and pebbles" and the second "687 broken chips of cement painstakingly collected from a refuse dump". My own first experience of a red-wattled lapwing nest was in 1985 on the Army Golf course in Bhatinda (Punjab). The nest had 276 pebbles only, but they were fairly large and ample for its four eggs, which were successfully incubated. Presently, all the nests in Chandigarh are shallow depressions chiefly of compressed grass with bits of dried twigs or plain scrapes on dry, open ground.

Why pebbles for the floor and rim of the nest? The nesting period experiences some pre-monsoon thunder storms and squalls accompanied by a downpour, creating puddles and keeping the soil soggy for a few days. The pebble nest ensures instant percolation of rainwater and insulation against damp from the soil, thus maintaining equable incubation temperature. An amateur's fancy?

### Eggs

Of the eight nests that were under my special watch-and-ward, under clear observation through binoculars, I found four eggs in each nest. In one case only I say with reasonable assurance that the four eggs were laid over seven days. Altogether, over several years, I have seen nearly twenty nests. In some, there were three eggs. It is relevant to quote here from *THE NESTS AND EGGS OF INDIAN BIRDS* by Hume, "Generally four though some say up to six (I confess that I "*bae me douts*")... on 11<sup>th</sup> May Mr. Porcelli succeeded in sending me a complete clutch of four eggs... about a fortnight



**Incubation begins only after the last egg has been laid, and can last up to 30 days**

afterwards Mr. Porcelli sent me a second sitting of the same number; and in June he sent me a third batch of three, with the following note: "on this occasion the first egg was laid on 9<sup>th</sup> June, the second on 13<sup>th</sup> and the third on 18<sup>th</sup> June. All eleven eggs are the produce of one pair"..."

In the instant case I found two nests destroyed, one by a predator and the other by a mechanical shrub-cutter. In both cases, the birds re-laid four eggs seven to ten days after the event. In May 2002, in a nest of three eggs, two had hatched. After a week both chicks were preyed upon. Three weeks or so later, in a new scrape just over a metre from the previous one, four eggs were laid by the same pair. All hatched and the chicks survived to adulthood.

Aesthetically, the most pleasing is the endless variety in shades of light brown and pale green of the egg-shell, splattered with countless bold spots, streaks and blotches in chocolate brown and black. The effect is so disruptive to the vision that you may be within inches, yet not spot the egg.

The arrangement of the eggs inside the nest is also highly intriguing. All eggs are broad at one end and pointed at the other. I found them arranged compactly like spokes with the broad ends always pointed outwards. Could this arrangement enable the chicks to exit the nest in four different directions so that they do not entangle with each other and have no conflict on their way out? Would the field scientists please elucidate?

### **Incubation and Hatching**

Having laid the first egg, one bird (the female?) remains in the vicinity of the nest, but does not sit over it. Incubation begins only after the last egg is laid, so that all eggs are hatched within 24 hours. The length of the incubation period itself is variable from 17 to 21 days governed by the ambient temperature. When temperature persists below the average, the incubation can last up to 30 days.

In the eight nests under my vigil, I found only two addled eggs. But some addled eggs may have been picked up by predators on the vacation of the nest, before I arrived on the scene. It intrigued me to find no evidence of hatched egg-shells in or around any nest. On July 2, 2002 at about 6.45 a.m. my enquiry was resolved when I saw one parent bird lift the incubated egg-shell in its beak, fly off and land some 20 feet away and consume it, while the other parent assumed watch over the new hatchlings.

The colours and patterns of the down of a chick for the first two days are much the same as of the egg. Even the size is almost the same. If a chick freezes inside the nest, it is easily mistaken for an unhatched egg. Despite all the evolutionary deception impulses and the constant vigil by parents, predators do take a heavy toll in the first 48 hours; the most vulnerable appear to be the first few hours of the first dawn after birth, as is generally so with most creatures. There was just one brood of four, which reached adulthood; two pairs had two

survivors each and the balance five, one each. The higher survival rate was where the birds had nested inside "high-security" areas! The brood of four that survived was inside a three hectare walled compound, which houses the Museum of Natural History. The two broods of two each were again inside similar walled compounds. The remaining five pairs with a single chick each were hatched and reared on open spaces but with ample tree cover. Of the seven breeding pairs in the Rose Garden (an open space with clumps of trees) only two pairs had broods of two chicks each while the rest had one survivor each.

There remains a fascinating mystery concerning the nesting-incubation-hatching by the red-wattled lapwing. An odd pair, now and then, choose to build a nest on the roof of a building away from water, in preference to abundant natural habitat close by. Why? Evolution has neither equipped the parent to regurgitate food nor carry it to the chicks, nor has it armed the chicks to glide from a height to the ground safely. Yet it happens. Hume quotes a communication from a friend about this bird "eggs laid on the top of my flat-roofed, two-storeyed house and hatched their young there and the second day had the young down in the garden. How they carried them down the 40 ft from the parapet of the roof to the ground I could not ascertain". This was in 1890. Close to our times in the 1960s, when Malcolm Macdonald observed one nesting pair on the roof daily and one day found neither chicks nor parents, it is likely that they all had descended to Mother Earth to live happily thereafter.

### Plumage as Indicator of Growth

The chick is born olive brown above with tiny dark speckles, a bold black eye stripe and white below. At four weeks, grey appears on the throat and gradually descends to the breast. The first suggestion of white is also now noticeable on the sides of the neck. The crown becomes dense olive brown with tiny black specks and looks like a neat skullcap. There is a dark fringe in the region of the primaries. The beak remains greyish and the legs olive grey. At six weeks, tail feathers emerge as untidy black stubble. Throat and breast begin to blacken, dull grey begins to descend from the nape towards mantle. Sides of the neck become prominent whitish, crown becomes brownish grey. At eight weeks, the beak becomes light flesh coloured with grey still

dominant. Dark grey begins to descend from nape to mantle. The patch of dull black on throat and breast grows larger, spreading outwards and downwards. No change to grey of legs, and upper parts remain dull olive-brown. The tail grows like a black broom tight at the rump and untidy and scattered at the tip. Black shows up on the edges of the primaries. At twelve weeks, the chick becomes three quarters of adult size, has the gait of an adult, beak and region of wattles become dirty flesh pink. The tip of the beak looks distinct grey and the legs now get a yellow tinge. Crown, nape, throat and breast become uniform dull black, lower parts clean white and upper parts sandy brown with tiny dark spots.

Tentative vocalization and first flight come together at about 14 weeks. Even so there is no red ring around the eyes yet, nor are the wattles discernibly red. The beak, however, is fairly pinkish red and the tip dull black.

### Home Territory

Generally restricted to a 50 m radius and seldom shifted unless there is threat to survival; in one case shifted by about one km and in another right across a busy four-lane city road. The latter must have been done by night when traffic ceases, for I witnessed their brave attempts by day when one parent would fly across the road but the other, chaperoning the flightless chick, realised the impossible situation and refused to risk the chick's life. Separation between two families when they happen to be on common territory is 20 to 30 m. There is never an attempt to encroach, intermingle or create feuds. Red-wattled lapwings are given to peaceful coexistence. Chicks search for food almost all day long, mostly prising out grubs and worms from soft ground. Of every ten minute span in the mornings, six minutes are spent digging for food, two minutes in swift movement from spot to spot and two minutes on preening (this becomes more frequent as the wing feathers grow fully) or in frozen-still mode because of an alarm by the parents. Mostly, the chick and parents remain in a family cluster of about 20 m radius.

### Family Bond and Weaning

Where there is one chick, the family bond is the strongest. I have seen them together up to six months, when the chick is almost adult size, but can be singled

## RED-WATTLED LAPWING

out because the body is slimmer, and the black plumage which descends from the nape has not quite reached the mantle; the separation is marked by dark spots over white. I suspect the trio do not separate till the next mating season. But where there were four chicks, one fine morning in the thirteenth week the parents were nowhere to be seen. The four chicks looked deserted, remained close knit, no more than a metre apart, and on a sort of high-alert. The following day, they too had left the area for pastures new. As the birds return to the same nesting site year after year, I believe they probably pair for life. And if that be not so, then the female is certainly nest-site specific, so long as there is no human intervention inimical to her urges.

### Congregations

In human sociology we believe two is company and three a crowd (except the French who romanticise even the *menage-a-trois*)! But in birds, what constitutes a flock? Most texts allude that red-wattled lapwings usually keep in pairs, and sometimes in flocks. Grimmett and Inskipp alone state that they are seen in flocks up to

eleven birds. Well, in October 2001, I have on three occasions counted 21, 26 and 37 birds in the flock in the Chandigarh Rose Garden once the rose plants were pruned down to almost ground level. Maybe these birds look for safety in numbers in such circumstances.

### "Finally: a folk tale"

I remember a bedtime story about the red-wattled lapwing from my childhood on my grandfather's farm in pre-independence Punjab. The vulnerable old peasant who was my equerry said that the red-wattled lapwing sleeps by night on its back, extending its long legs upwards to support the weary sky. He promised to show it to me on a full moon night. That was around 1943. Now in October 2001, I chanced upon Jerdon's Birds of India Vol. II, 1868 which records "In the south of India it (red-wattled lapwing) is recorded to sleep on its back with its legs upwards. The proverb, "Titihri se aasmaan tham jayega?" which can be translated as "Can the peewit support the heavens?" is applied to a man who undertakes a task far above his strength. So here is oral history for you, preserved for 135 years at the very least. ●

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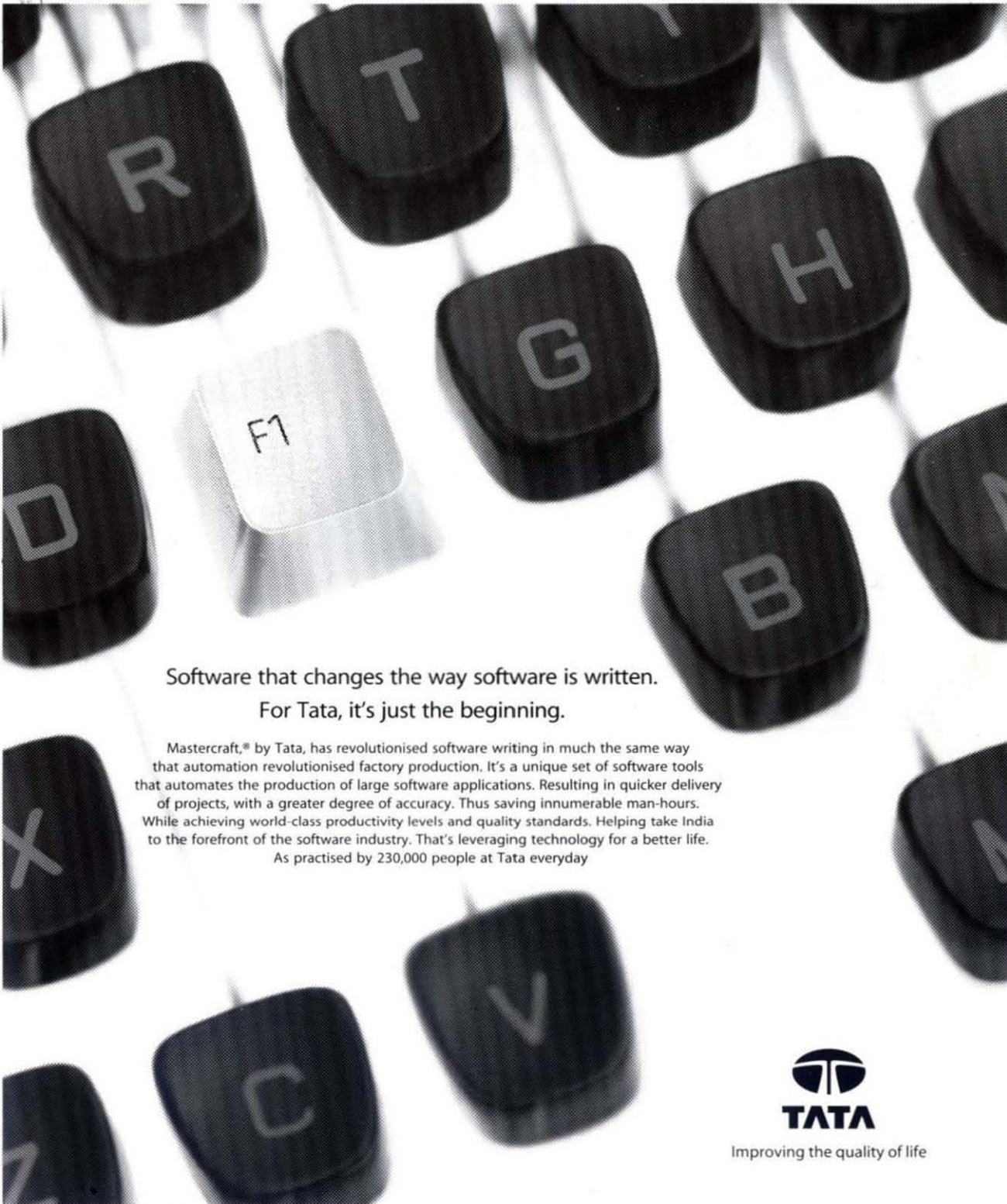
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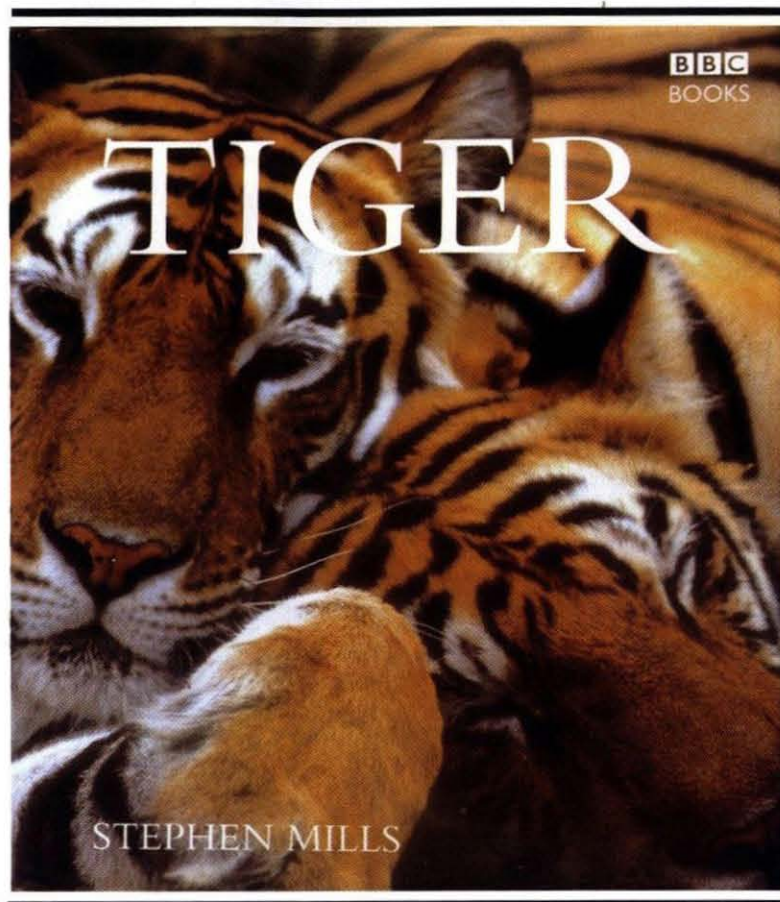
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**TIGER**

by Stephen Mills

BBC Books, London. 168 pp. (28 x 25 cm) Price £20.



Reviewed by Asad R. Rahmani

When this book landed on my table with a request to review it, I thought “Oh no, not another coffee table book on tiger.” However, when I opened the pages of this fabulously produced book, I was struck by the excellent pictures, the layout and easy to read text. No doubt, keeping the high standard of BBC production, this book has an editorial director, project editor, copy editor, art director, designer, picture researcher, cartographer and production controller. So, what was the role of the author and photographer, Stephen Mills? This becomes clear when you read the

text and admire the pictures, both perfect to the last detail. Besides writing about his own field experience, Stephen has done extensive literature research and met *tigerwallas* to bring out the latest information on this majestic animal.

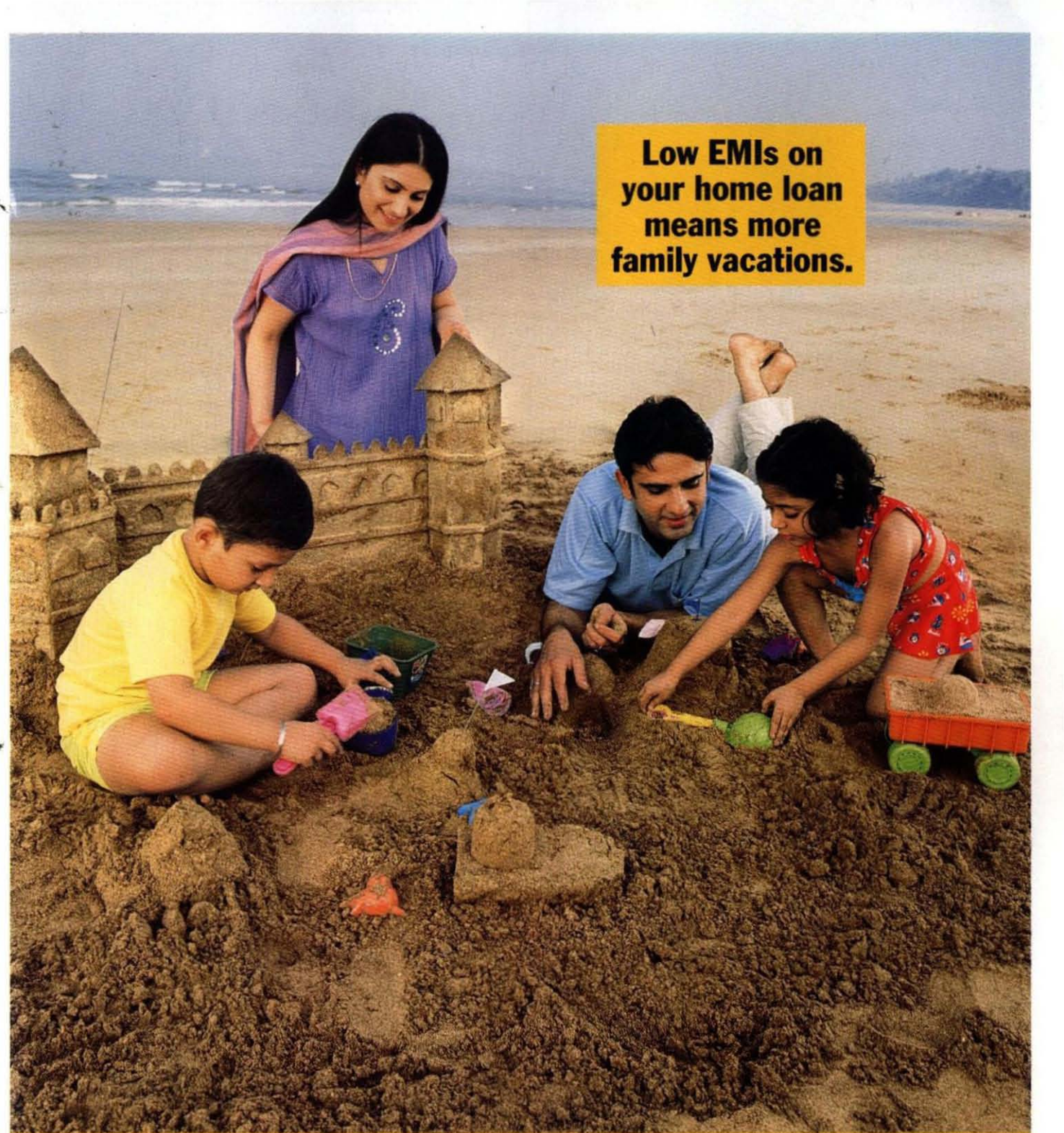
Stephen is a prolific film-maker and has made 35 films for TV, especially for BBC. He is the former Chairman of the International Association of Wildlife Film-makers. No wonder the pictures are so good! I particularly liked the picture of a relaxed tiger, looking perhaps at the perky treepie or an agitated langur for disturbing its slumber

(p. 82). Another admirable, but a little gory picture is that of a young tiger, with a piece of skin peeled off, apparently during a fight with an adult male (p. 69).

The terrible days of sport hunting of tigers are fortunately over (except in USA, where those notorious caged hunts still take place). Watching and photographing tigers has become extremely popular amongst tourists. Among the ‘tiger countries’, India and Nepal are the best places to see wild tigers. Mills has added a chapter “Tiger Watching: How and Where to Find Tigers”. The top ten protected areas in India are Bandhavgarh, Bandipur, Corbett, Dudhwa, Kanha, Kaziranga, Mudumalai, Nagarhole, Panna and Ranthambore (not in order of priority).

The actual price of this book is £ 20, but in India, it is available at £ 10. Even at this reduced rate, it is not easily affordable by the general public, but who told you that tiger watching is done by the general public? Don’t you know that *tigerwallas* are glamorous people, belonging to page 3, much like their animal. This is rather unfortunate for the tiger and much of India’s neglected wildlife. Unless the general public supports the tiger and wildlife conservation, the tiger and the various books written on it would remain within the upper crust of our society. And in a democracy, do such people count? 🐅





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# Point Calimere, an Endangered Ramsar Wader Refuge

J.C. DANIEL

J.C. Daniel is the former Honorary Secretary and Director of the BNHS. He has authored a number of books on natural history



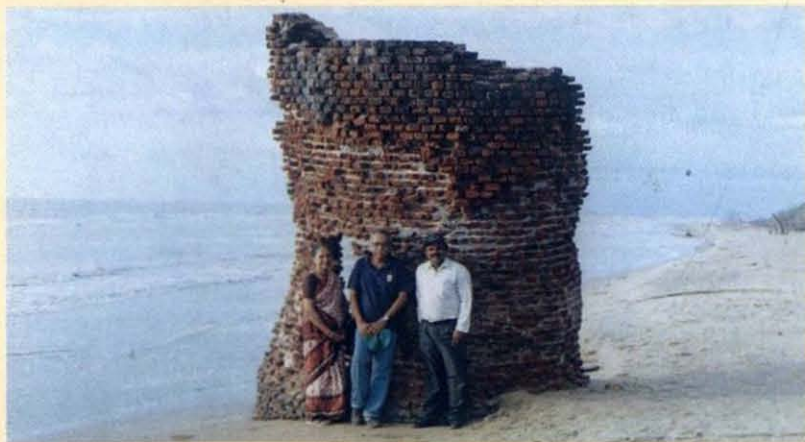
BHARAT RUGHANI

Waders come in many sizes, from the gigantic storks to the diminutive little stint. Each has its own niche — while the storks wade and stalk in the shallow waters of ponds and marshes, the heron stands dreaming in splendid isolation, occasionally spearing a fish, as an afterthought. The stints and other miniatures of the wading clan are wave dancers and dance with the waves of the shallow seas, moving in and out with the waves and picking up their food in the brief moment between sweeping waves. It is these small migrant waders that visit us in large numbers to spend their winter months with us after breeding in the north in the summer abundance of Siberia and the Arctic. They need special conditions, shallow waters and tides rhythmically flushing acres of mudflats. Such an area is Point Calimere in Tamil Nadu. A

remarkable wader refuge, Point Calimere is situated on a remote little promontory on the Coromandel Coast of Tamil Nadu. It was known to the ancient Romans as *Calligicum*, as Ptolemy mentions in his *Geography* written in the 2<sup>nd</sup> century AD. Perhaps it was a point of reference to mariners, as at that time there was considerable trade between south

India and Roman Egypt. The Chola Kings of Tamil Nadu had erected a light house on it to guide ships. The remnants of the light house are still to be seen on the seashore after more than a thousand years, having weathered thousands of storms and cyclones.

What makes Point Calimere an ideal wader refuge is the Great



S. BALACHANDRAN

This is all that remains of the light house erected by the Chola Kings more than a thousand years ago

Vedaranyam Swamp of approximately 32,000 ha area, with a mangrove forest at one end and screened off from the Palk Strait on its south by a long sand bar which is breached at intervals by inlets. The tidal flow over the marshes and mudflats makes them ideal feeding grounds for the enormous gathering of waders, both large and small, which flock there during the winter months.

The BNHS association with Point Calimere dates back to 1962, when Sálím Ali visited it at the invitation of the Govt. of Tamil Nadu to consider its suitability as a waterfowl refuge. The International Council of Bird Preservation (ICBP), which is presently BirdLife International, was anxious to identify wintering migratory wader refuges and funded his travel. He visited the Sanctuary in November and wrote "Bird life was not particularly abundant in the scrub jungle though of considerable variety. But the mudflats and shallow lagoons were (at the time of my visit) alive with wading birds – sandpipers,

plovers etc., in addition to the large flocks (thousands) of flamingos (*P. ruber*) for whom they are reported to be regular feeding grounds in winter. In a trial catch with the help of a local professional fowler, using rows of upright *Borassus* palm fibre nooses strung out more or less at random along the mudflats, over 120 birds were taken within a few hours, including species such as *Philomachus pugnax*, *Charadrius mongolus*, *C. alexandrinus*, *Tringa totanus*, *Tringa stagnatilis*, *Tringa glareola*, *Calidris minutus*, two roseate terns (*Sterna dougalli*) and a single rednecked phalarope (*Phalaropus lobatus*) and others.

According to a recently retired lighthouse keeper of Point Calimere lighthouse for 25 years, large numbers of birds (land as well as aquatic) are regularly observed every year between late August and early November flying over Point Calimere 'in a steady stream' in a southward direction across Palk Strait and towards Sri Lanka. It would be



YOGENDRA M. SHAH

interesting to investigate this report in greater detail. Large numbers of the Indian pitta (*Pitta brachyura*) are also reliably reported to pass through Point Calimere on their way south to Sri Lanka for a fortnight or so in every October. In view of our utter ignorance regarding the local migrations of this conspicuous species the place would seem to provide a wonderful opportunity for intercepting and ringing these birds in adequate quantity."



SHARAD MURDESHWAR

**Above: Large numbers of Indian pitta pass through Pt. Calimere on their way to Sri Lanka**

**Below: This redshank when recaptured will provide fascinating data for further studies**



**A persistent and ecologically destructive danger at Pt. Calimere is the inroads being made by the commercial salt works**

Fortuitously enough one of the marsh sandpipers ringed by Sálím Ali at Pt. Calimere on November 12, 1962 was recovered on May 4, 1964 near Kupino in Novosiliensk region of the former Soviet Union, approximately 4,930 km north of Point Calimere.

The BNHS association with the Sanctuary was and continues to be related to migratory birds both local and extralimital. The study of bird migration has been one of the Society's major activities since 1959, and bird banding or ringing programmes at Pt. Calimere started in 1969 continued up to 2003, with breaks dictated by the availability of funds. Over 4,00,000 birds have been marked with the Society's bird rings. Each ring of aluminum alloy loosely fitted to the tarsus bears the

inscription inform Bom. Nat. Hist. Soc. and has a size series indicator related to the size of the bird and a running number. As our bird migration study expert Dr. Balachandran writes in his report: "The bird migration study through bird banding carried out intensively between 1980 and 1992 had generated enormous amount of data on the migratory patterns and flyways, seasonal movement, biometrics, moult, population dynamics, longevity and weight changes. The study helped to obtain comprehensive information on breeding ranges, migration routes, important staging areas and non-breeding sites. The recoveries of waders and anatids obtained during 1980 - 1992 show that most of the migratory waterfowl are from

north and central Siberia but some populations from north-east and east Siberia also winter in India."

Apart from movement data, banding provides other fascinating data as for instance, age. Two waders, red shanks (*Tringa totanus*), were recaptured and released at Point Calimere, one after 13 years (1987 - 2000) and the other after 20 years (1981-2001). Another instance is of a non-migrant, a large golden-backed woodpecker (*Chrysocolaptes lucidus*) ringed at the Parambikulam Wildlife Sanctuary, Kerala in May 1983 and recaptured in the same patch of forest in November 1999 after more than 16 years. Another intriguing factor is the unexpected species captured way out of their normal range, like the broad-tailed grassbird

of the Western Ghats and the pied thrush of the Himalayas both probably migrating to Sri Lanka. Pt. Calimere also hosts in good seasons the occasional spoonbilled sandpiper.

I first visited the Sanctuary in 1967, primarily to census the second important wildlife of the Sanctuary, the blackbuck. I spent 4 days in May censusing the blackbuck and obtained an approximate figure of 750 animals. Presently the estimates are considerably higher, but then census figures of wild animals are somewhat dependent on the optimism of the concerned official. A more systematic census done by Natarajan, one of the Society's Research Scientists in 1989 during the Society's study of the ecology of the Sanctuary gives a figure of 490. Whatever the figure, the blackbuck is not in immediate danger. During a recent visit to the Sanctuary, I noticed that the exotic *Prosopis* is gradually taking over the grasslands and could possibly be the ultimate danger to the open grazing lands of the blackbuck.


A more persistent and ecologically destructive danger is the inroads being made by the commercial salt works established in 1963. They have now greatly increased the height of the bunds of their reservoirs, making them useless for the waders. Unless corrective measures are taken, the Sanctuary which has been identified as a Ramsar site would lose its value as a wader refuge. Another cause for serious concern is the dwindling numbers of waders such as the little stint, as compared to earlier years. Balachandran is of the opinion that there may be problems in the breeding grounds as well. It is



DINESH PAGARIA

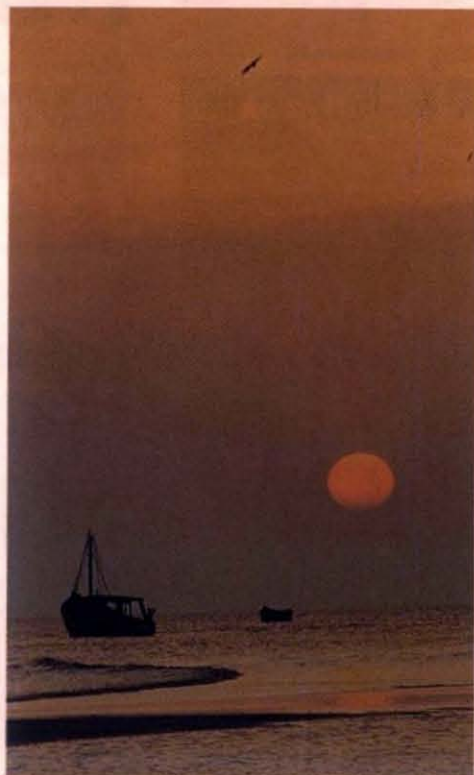
therefore necessary to establish a Migration Study Centre to monitor the status of migrant species visiting the country. The Fishing Harbour which has been established is another cause for concern, particularly as the migrant labour use the pristine beach as a latrine.

Pt. Calimere is remote. The nearest airport is at Tiruchirapali (Trichi), the nearest railhead is Nagapattinam —

sixty kilometres away — and connected by a single lane road and frequent buses. Accommodation can be had at the Forest Rest House through the Wildlife Warden headquartered at Nagapattinam. You have to make your own arrangements for food. There are two small tea stalls in the village and if you are used to idli dosa, you can survive. Best time November to February. 

**Above: Flamingos, local migrants to the Sanctuary. Point Calimere, today needs a study centre to monitor the status of the migrant species both local and extralimital**

**Below: The fishing harbour is another cause for concern for this Ramsar site**



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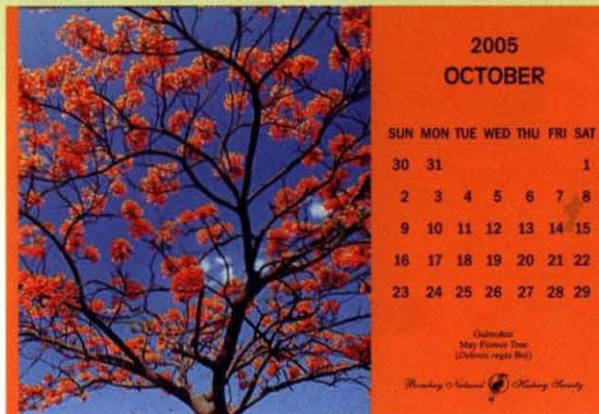
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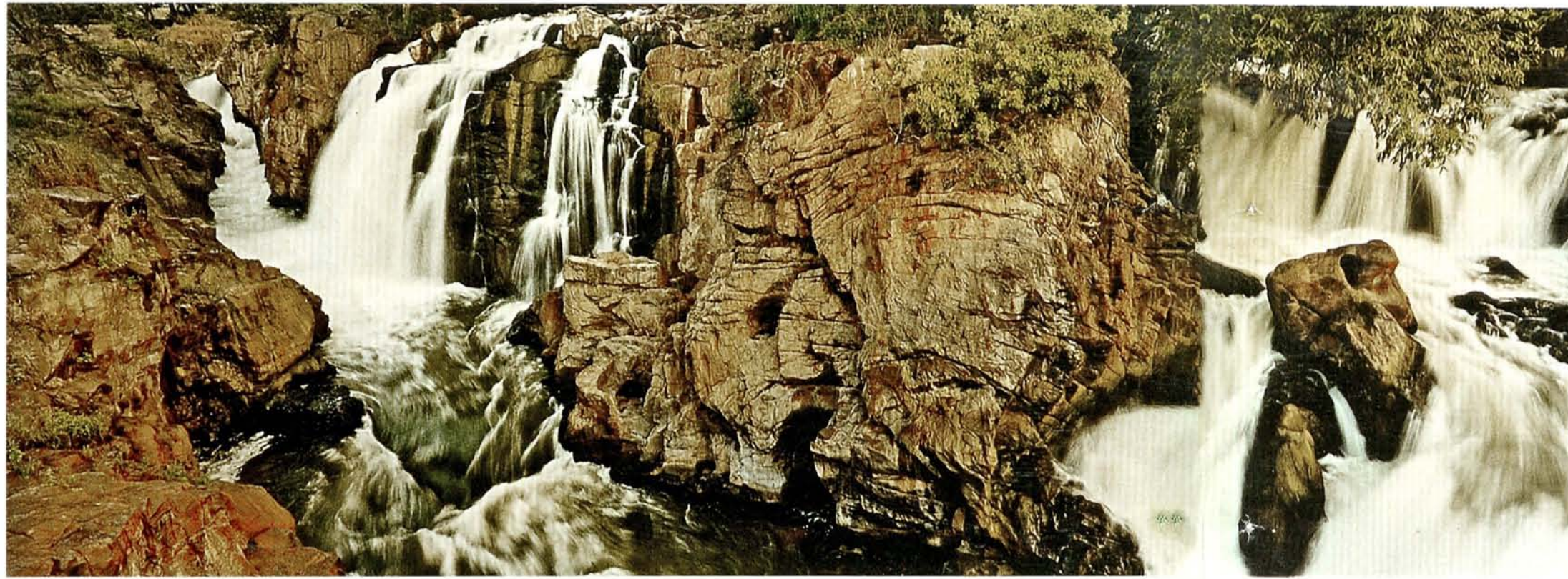
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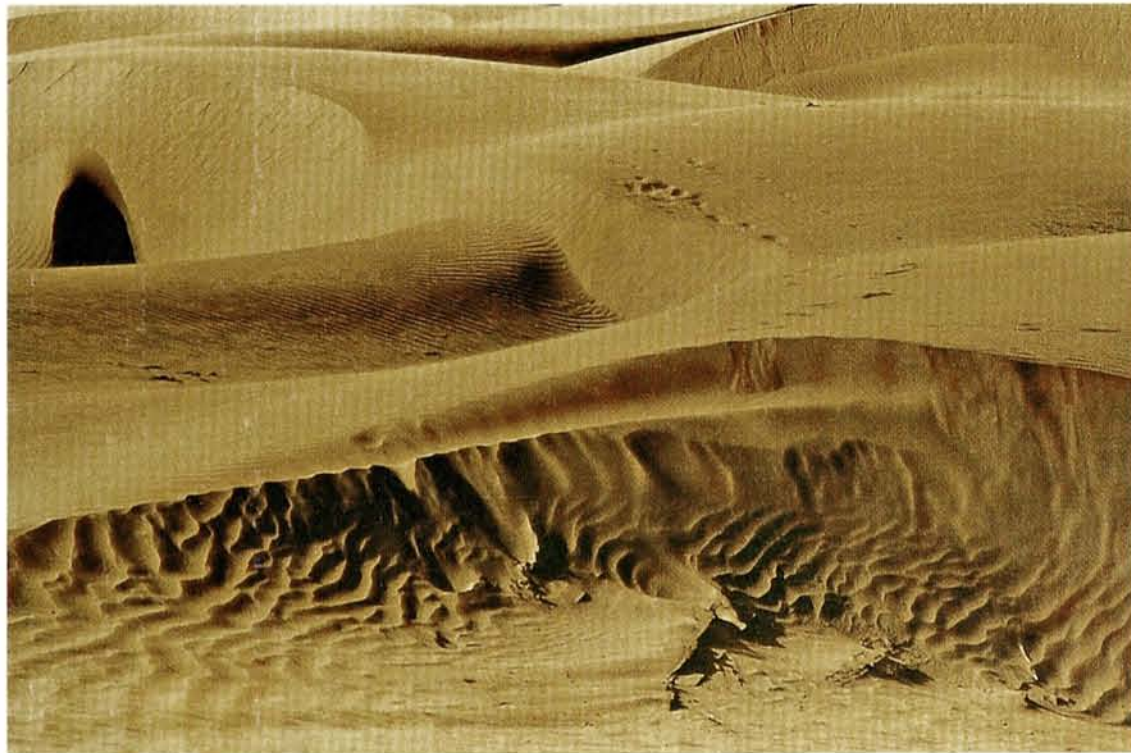


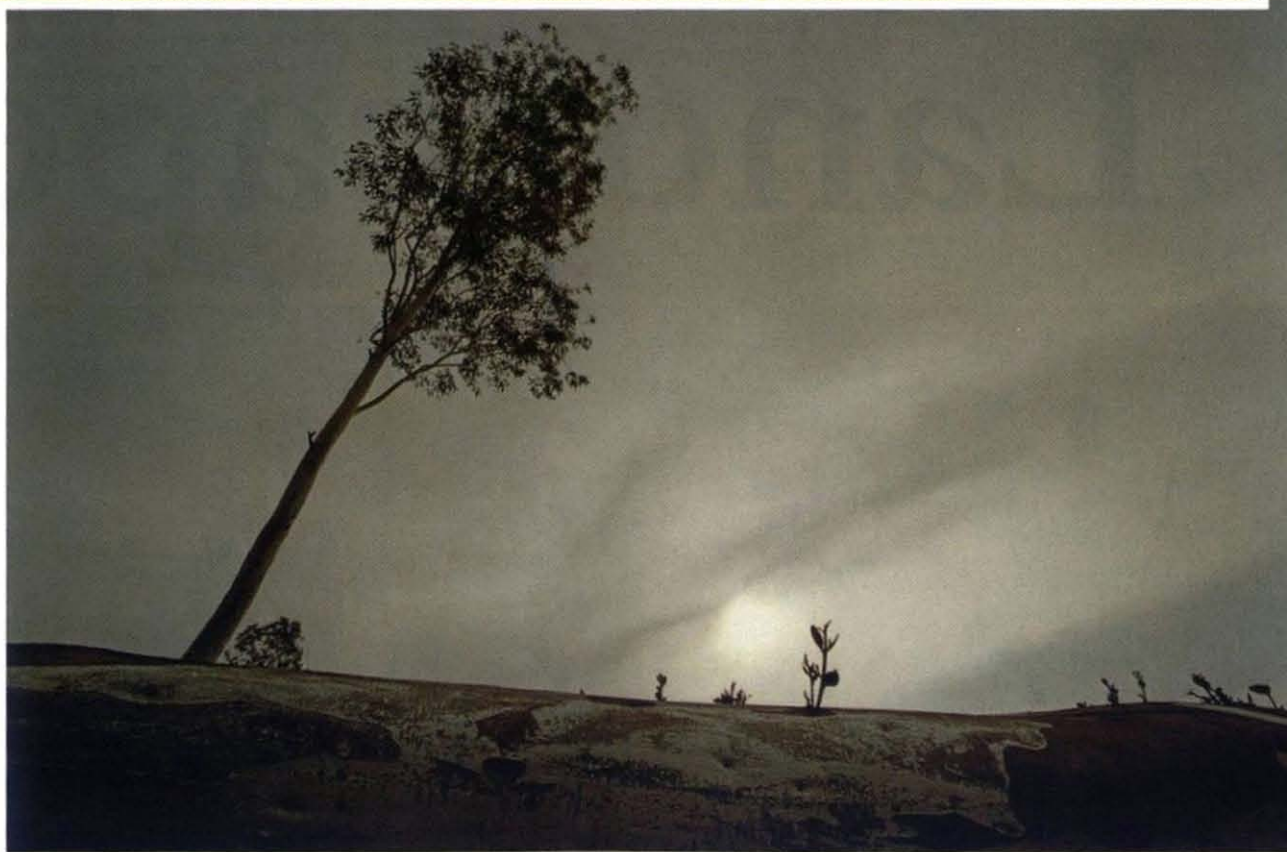


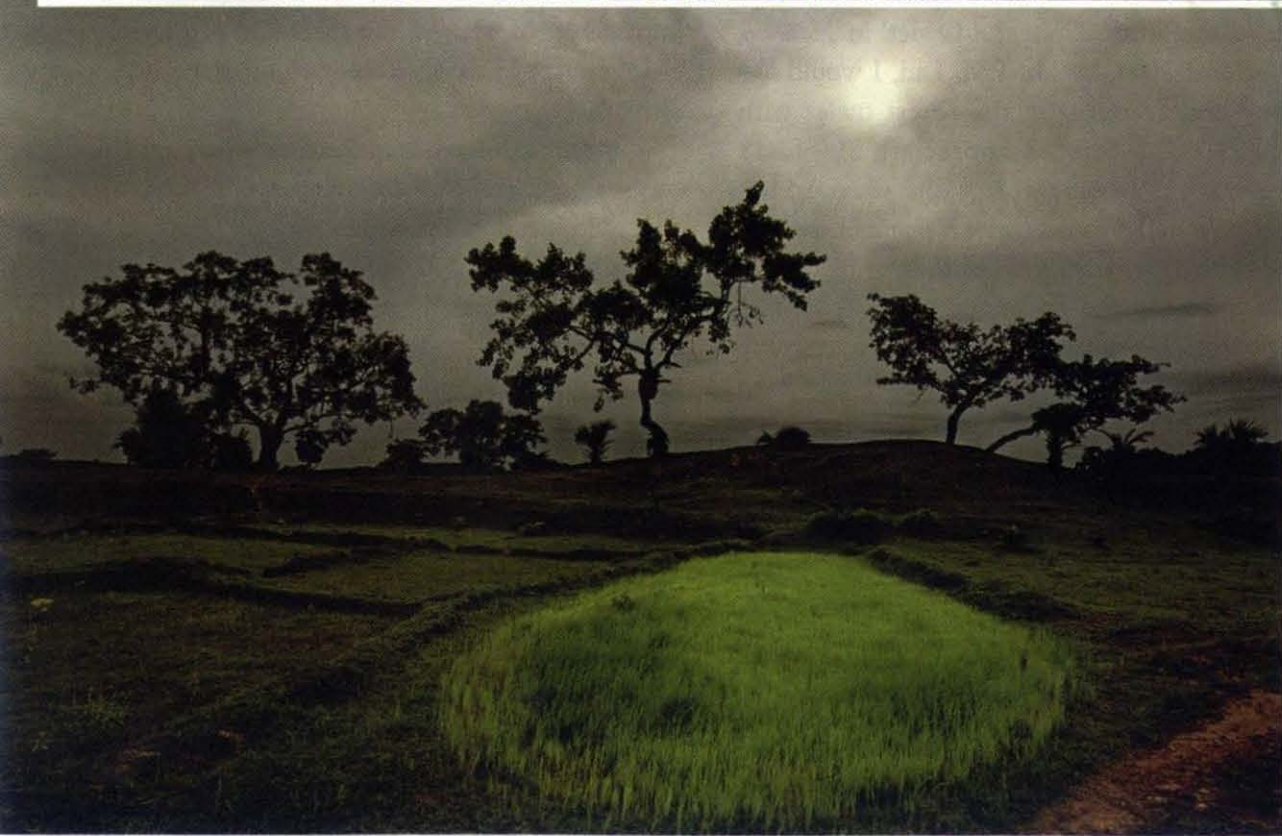
## SOUMITRA DATTA

A Civil Engineer by profession Soumitra Dutta is a dedicated landscape photographer. He enjoys the challenge of captivating the moment blended with the aesthetics and technicalities of a very high order. His work has been published in India and South East Asia's leading photographic Journals.

# Landscapes







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# Looks can be deceptive!

**Text and Photographs: GIRISH JATHAR**

Girish Jathar is a research fellow at the BNHS and has studied the forest owlet in Toranmal Reserve Forest.



**Looks can be deceptive: This bird was photographed on two different occasions on the same day**

Further to the article 'Spot the Owlet' in *Hornbill*, April – June, 2004, by Mr. P.M. Lad, I would like to share my observations on the forest owlet with readers of *Hornbill*. First, I appreciate Mr. Lad's painstaking work of photographing this elusive bird. My experience with the forest owlet has taught me that it is indeed difficult to take good photos of this bird.

While studying the forest owlet in Toranmal Reserve Forest, I genuinely tried to identify the individuals by their external appearance, but nothing worked. I sketched facial and breast markings of a few owlets, in detail, but these did not help, as the plumage changes over a certain period of time. The theory which Mr. Lad proposes in his article is not feasible for identifying individual forest owlets.

Moulting and periodic changes in plumage are natural phenomena, which affect the external appearance of birds. The colour of the forest owlet looks darker at the beginning of the breeding season and gradually fades, so that the photographs taken in the beginning of the breeding season in fresh plumage look entirely different from those taken at the end of the season.

Also, males of this species are generally paler, possess very few markings on their breast and belly, and look similar, making individual identification almost


impossible. Moreover, the markings of juvenile birds change every 15 days, so recognizing individuals is very difficult.

At times, I have seen the owlets preen themselves so vigorously that they lose feathers. In such cases, the vital identification characters may also be lost, leading to misidentification of individuals.

During winter, the owlets fluff their feathers like all birds, to keep warm. The dark barring on the belly then looks more scattered, which in the normal state is never seen. The owl sits in such a condition for hours together, making identification of such individuals a difficult task.

Technical difficulties like the angle of the photograph, light conditions in the field and the position of the bird on the perch are some of the factors which need to be considered while taking the photograph. This will more or less affect the identification of the individual owl.

**What is the solution?** Most owls are territorial and remain faithful to their territory. The forest owlet is also territorial and utilizes the same site for years. So we might assume that the bird seen in a particular area or territory is a particular individual.

The ideal method for identifying individual birds, according to me, is still colour banding. 

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# Hidden World

**Text and Photograph: KEDAR BHIDE**

Kedar Bhide is a member of the BNHS and a nature enthusiast

**DRACO!** Evokes an image of some giant pre-historic dragon, does it not? But for this age and time it is only the generic name for a group of flying lizards which have a large membrane of skin on either side of the body, supported by elongated extensions of the ribs. In India, we have two species of flying lizards, the Blanford's flying lizard *Draco blanfordi* and Western Ghats flying lizard *Draco dussumieri*.

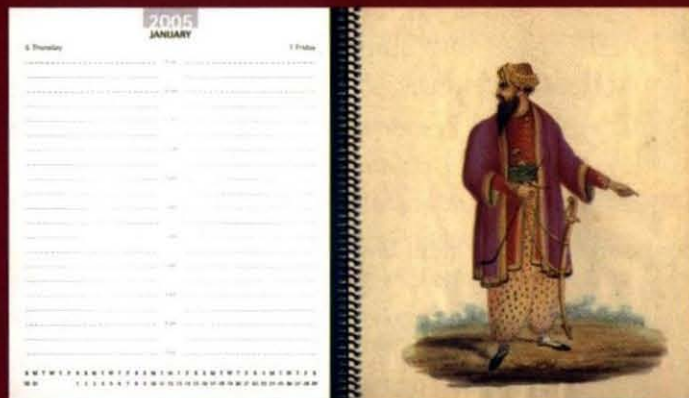
While on a trail at Dandeli Wildlife Sanctuary in North Karnataka we spotted a lizard gliding nearby. It had taken six pairs of trained eyes, 20 minutes to spot the most cryptically coloured reptile from the Western Ghats, *Draco dussumieri* on a tree trunk just a metre away. Commonly known as the Western Ghats flying lizard, it can be seen gliding from tree to tree in search of ants during the day. The male has a yellow gular pouch, the exact function of which is still unknown. Its mottled colouration gives it the most effective camouflage, necessary for its survival.

The Western Ghats flying lizard is found in evergreen and moist deciduous forests of the Western Ghats. Entirely arboreal, it seldom comes to the ground. The reducing forest cover, due to cutting of trees and other industrial activities has led to loss of the lizards' habitat and is a major threat to its future. 



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**Top: The disturbed centipede uncoiled to reveal small eggs gathered into a ball**

**Bottom: Only a fortunate few have witnessed a scorpion moult in the wild**

**Text and Photographs: VARAD B. GIRI**

Varad B. Giri is Research Assistant in the Herpetology Section (Collections Department) of the BNHS.

# There's life under those **ROCKS!**



**'Saab look at this!'** called Shankar Desai, my local field assistant. He was pointing at something under the rock just overturned by him, when I reached there. It was a big centipede, which looked like a small 'ball', as it was coiled around something.


While looking for herpetofauna one needs to take a peep under decaying logs, loose bark of trees and rocks, which are home for some, and a refuge during the day for others. A search like this may appear like 'ransacking' a house to some. But fret not, as great care is taken during such surveys to cause minimal disturbance and harm to the frogs, toads, lizards, snakes and larger tarantulas that take refuge under rocks, and also centipedes and scorpions that make their brood chambers under them.

Coming back to the small 'ball'. When I bent down to touch the centipede, I did not know that the most memorable event of the trip (we were documenting the herpetofauna of a forest near Koyna) was just about to unfold. The disturbed centipede slowly uncoiled to reveal several small, yellow eggs gathered in the form of a ball. As the protective coil of the centipede opened, a few eggs rolled out. The waiting small black ants didn't miss a moment of this golden opportunity and started robbing the eggs. The invasion was, however, soon foiled by the alert



centipede. It assaulted the ants and secured the eggs. But before putting them safely back where they belonged, the centipede made sure that all the dirt on the eggs was cleaned. It then coiled into a ball again. We replaced the rock carefully and moved on in anticipation of another such memorable event.

Moulting of scorpions and centipedes is a lengthy process, making them vulnerable to a predator's attack. I had seen moulted skins of scorpions, but never witnessed moulting. I was in Yawal Wildlife Sanctuary, as part of the team of the Conservation Department of the BNHS, documenting the flora and fauna of the Sanctuary. One morning, Rushikesh Chavan spotted two scorpions under a rock, one of which was whitish and

lying on its back. It was only on close observation that we realised that there was only one and not two scorpions, and it was moulting! For me, this was a rare sighting. The moulting scorpion was absolutely still and lying on its back. The old skin was open at the cephalothorax. The entire body, except the tail, had emerged from the opening. I wanted to move on once I had taken the pictures, but Kishore Rithe insisted that we wait for some more time. I am glad we did, for we were soon among the fortunate few who witnessed a scorpion moulting in the wild. We waited patiently for some time to see the entire process. Soon, thereafter, the scorpion flipped on its legs, with some difficulty and later moved on, and so did we. 



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Yellow-billed Blue Magpie  
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# Mining v/s Environment: The Battle Continues

Compiled by DEEPAK APTE

The BNHS recorded its strong objection to the proposed Uranium Mining Project at Peddagattu and Lambapur in Andhra Pradesh mooted by the Uranium Corporation of India Ltd. (UCIL) to mine ore in the vicinity of the Nagarjuna Sagar Tiger Reserve. The proposed mining sites are located less than 4 km from the boundary of the Rajiv Gandhi Sanctuary and less than 1 km from the Nagarjuna Sagar Dam, a vital source of drinking water for millions in Hyderabad.

say they intend to treat in an effluent treatment plant. According to the EIA document, uranium ore is *not* leachable, or is insignificantly leachable and will not have any impact on ground water. We identify this as a major claim that needs to be re-examined by competent scientists. The “insignificant” leaching of highly radioactive ore can have a significant impact on the already contaminated ground water, more so because the surface and ground water flow (general drainage) is towards the Nagarjuna Sagar Reservoir.

**Ecology:** A significant human population depends on the Yellapur RF as a biomass resource. But the EIA document says there will be “no displacement”. Another inaccurate claim? Even if no houses are demolished, the locals will be forced to shift as they can no longer access fuel wood and fodder, and this cannot be overlooked. In search for alternatives, they may put pressure on nearby tiger habitats. Even a cursory reading of the ecological studies carried out by UCIL reveals incomplete data, with no mention of the rich biodiversity of the area, which includes several Schedule I, II and III species in the proposed project site.

**Blasting:** The project documents states that the disturbed local fauna will recolonise the area even in a better way due to the generated forest cover in lieu of the existing denuded tract of land. Ironically, the document earlier mentions that the forest in the proposed mining area is degraded, and scrub or thorn forest. One wonders how the project authorities can claim that the forest will regenerate to become better!



DEEPAK APTE

**The local protest against the proposed mining project was clearly visible during all the public hearings**

**Project overview:** The 468 acre Lambapur ore deposit is spread over a hilltop. This site is proposed to be mined by the conventional opencast method. The Peddagattu deposits will be mined by the underground mining method. The Plateau at the Peddagattu and the Lambapur mining sites are part of the Yellapur Reserve Forests (RF). The forest land required for this project is 1104.64 acres, but clearly the potential damage and harm will extend far beyond this limit.

The Environmental Impact Assessment (EIA) document that the BNHS examined was silent on several crucial issues, some of which are listed below.

**Uranium waste:** The mine-discharge waters may have trace elements of radon, which project authorities

## UPDATE

National Wildlife Advisory Board had permitted the UCIL to do prospective mining, however, the Andhra Pradesh State Pollution Control Board has rejected the proposal of the processing plant on grounds of health and environmental hazards.

**Drainage:** A number of streams flow from the plateau where the proposed mining site is located. These are to be diverted because of the quarrying. EIA documents mention that the re-establishment of directional flow will be maintained and is described in “Chapter 6”. However, Chapter 6 has no mention of preservation of natural flow of these streams, which are important feeder streams to the Nagarjuna Sagar Reservoir. It stands to reason that mining these streams will end up contaminating them.

Further, the Report clearly mentions “The proposed core zone of mining site, being at highest elevation in the study area allows substantial quantity of precipitated water to flow down as run off to the nullahs leading to Nagarjuna Sagar. In the operational period the run off is expected to carry substantial amounts of solids from mining core zone.”

**Vegetation:** The EIA claims that the forest is degraded and identifies it as scrub, thorn and dry deciduous. But these are distinct forest types according to the international nomenclature on habitats. They harbour some special species of plants and animals that can survive nowhere else.

**Socio-economic issues:** The sample size selected for socio-economic studies is grossly inadequate. A survey was conducted within a 10 km radius of the project site, which includes 19 villages with a population of 97,000. Defying all logic, they chose to select *only two* respondents randomly from each village i.e. 0.0395%, which is grossly inadequate.

**Map:** The map of the sanctuary as shown in the EIA report is inaccurate. It marks out only the core area of the sanctuary. UCIL officials thus claim that the project site is 30 km from the sanctuary core! What they omit to mention is that the real notified boundary of the sanctuary is less than 4 km from the mine site, making it impossible for them to obtain clearance if the Supreme Court’s past directions on such matters are to be obeyed.

**Soil contamination:** The project proponents confirm that soil contamination will take place “to some extent” (limits not known). The supposedly present adequate measures for soil contamination found no mention among the mitigation measures in Chapter 6 of the report.

**Revegetation/Plantation:** The report mentions development of a green belt, besides compensatory

**The proposed mining site is just 1 km from the backwaters of the Nagarjuna Sagar Dam, a vital drinking water source**



DEEPAK APTE

afforestation. According to the report, this will ‘compensate’ for the loss of vegetation due to the destruction wrought by the mines. It is also supposed to help control the spread of mine dust and reduce noise pollution. However, most of the plants mentioned in the list are slow growing species and before they are capable of performing this task the project will be over. Besides, no amount of afforestation can compensate for the loss of native, indigenous forests.

**Transport:** The ore is proposed to be transported from the mining site (Lambapur) to the processing site (Mallapuram), a distance of 17 km. The EIA is silent on the potential dispersal of ore dust on account of wind and spillage in transport.

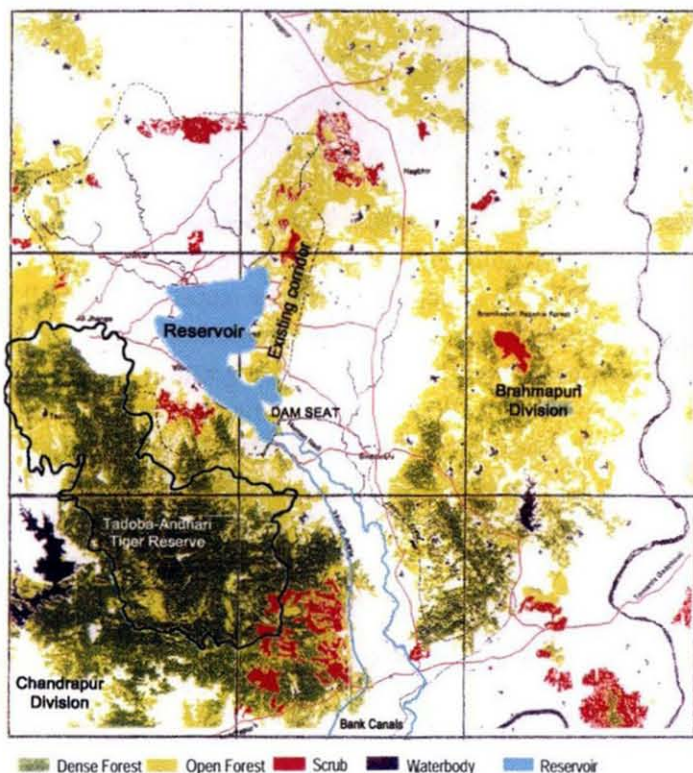
**Water requirement for the project:** The daily requirement of water for the project is 2,250 Mm<sup>3</sup> (cubic Metric metres) per day. This is to be drawn from the Akkapalli Reservoir and the Puttamgandi Lift Irrigation Project. The Irrigation Department suggests that such large water usage will have no impact on the other users. However, during our site visit we saw that the left bank canal of the Nagarjuna Sagar dam was running dry because of insufficient water. No water is available for agriculture after November, and thus only a single crop can be cultivated. The area is officially classified as a drought prone area. How, despite such acute water shortages, the withdrawal of water will not have a significant impact on other water users, we fail to understand. 🌳

**RECOMMENDATIONS**

- A fresh EIA needs to be conducted with emphasis on ecology and biodiversity.
- The EIA also should deal more seriously with the probable health hazards.

# The Human Dam of Vidarbha — Ecological and Sociological Viability

Compiled by DEEPAK APTE



**The resultant reservoir of the Human project will cut off the only wildlife corridor between the Chandrapur and Brahmapuri Division**

The proposed Human Dam (pronounced hooman) is a major irrigation project slated for construction across Human — a tributary of the Andhari River, in the Wainganga-Godavari basin, near the Sirkada village in Sindewahi tehsil of Maharashtra.

The Irrigation Department of Maharashtra received administrative approval for the project in 1983. The proposed project seeks to divert 132 Mm<sup>3</sup> of water to the Maharashtra State Electric Board's Chandrapur Thermal Power Station, which amounts to 75% of its dependable yield. Subsequently, it was decided to divert this water to the Andhari River Project by way of a proposed Right Bank Canal of the Human project. The project also involves diversion of 2906.26 hectares of forest land and therefore needs both forest and environmental clearances from the MoEF.

The Forest Advisory Committee of the MoEF suggested reducing the submergence of the forest area.

The project authorities agreed to a reduction of the dam wall by one metre. For this the MoEF gave site clearance to the Irrigation Department to enable it to conduct the required surveys and investigation.

Some of our findings on the ecological and sociological impact of the Human Project are given below.

**Submergence of the narrowest wildlife corridor:** The 15 villages under full submergence lie in and around the narrowest corridor connecting the Chandrapur and Brahmapuri Forest Divisions. The area adjoining the submergence zone on the west bank is Reserved Forest, which falls in Chandrapur Division. This area is contiguous with the Tadoba-Andhari Project Tiger to the west.

**Legal aspects and violations: (a) Construction of the colony and sub-bund:** As part of the Human project, a housing colony was partially constructed at Nawargaon in the early 1980s and work on a sub-bund for the project was completed prior to 1985. How was

|                                    |   |
|------------------------------------|---|
| Total submergence area             | : 6173 ha   |
| Revenue land                       | : 528 ha  |
| Private land                       | : 4109 ha   |
| Forest land                        | : 1535.85 ha  |
| Villages under full submergence    | : 15  |
| Villages under partial submergence | : 24  |
| Populated affected                 | : 14,600  |
| Right bank canal (RBC)             | : 84.10 km  |
| Left bank canal (LBC)              | : 50.70 km  |
| Project cost                       | : Rs. 423 crore   |
| Total felling of trees             | : 1,50,791  |
| Catchment area                     | : 1,03,300 ha of which 37% is forest area.  |
| Forest type                        | : Southern Tropical Dry Mixed Deciduous forest  |
| Proximity of protected areas       | : Tadoba National Park is 4.25 km and Andhari Sanctuary is 3.2 km from submergence area |

this work undertaken in the absence of central government clearances?

**(b) Public hearing:** The public hearing for the Human project was reportedly held on November 26, 1999 at the Collector's office. However, since the EIA report was only prepared in December 2001, one wonders on what basis the public hearing was conducted (two years before the EIA report was prepared). As per the Environment (Protection) Act, the EIA must be prepared prior to the public hearing. This renders the hearing invalid.

**Existing Environmental Impact Assessment and Critique**

The EIA report produced by the project authorities has serious shortcomings and flaws.

- The report fails to mention the proximity of the proposed project to the Tadoba-Andhari Tiger Reserve and thus ignores its impact on the tiger.
- The National Wildlife Action Plan and the letter issued by MoEF in 2002, state that areas within 10 km of PAs and wildlife corridors should be declared Eco-Sensitive under the Environment Protection Act. The construction of a large project would violate this official government policy.
- No studies were conducted on the impact of the dam on riverine flora and fauna.
- That no rare and endangered species of flora and fauna are found in the area is patently incorrect and is contradicted in the report itself, which acknowledges that the project site is home to the tiger, leopard, gaur, chital and other species. 🌳



DEEPAK APTE

**Tiger pugmarks at the site indicate the presence of large cats in this area**

**RECOMMENDATIONS**

It is the considered opinion of the BNHS that the Human Dam Project must not be allowed to proceed in its present form, on account of the adverse environmental impact it would have on the region's forests, wildlife and biodiversity. We recognize, however, that the requirements of the local population must be met in a sustainable and socially just manner. We propose the following alternative development options for the proposed catchment, submergence and command areas of the Human Project, which may eliminate the need for such a destructive project and deliver benefits at a fraction of the planned cost of the Human Dam, *without* the attendant ecological damage.

- Existing village tanks and ponds should be desilted to increase their storage capacity.
- Farmers should be provided economic assistance and technical know how to reduce distribution losses.
- Existing lift and minor irrigation projects should be utilized to their fullest capacity.
- Dredging and desilting operations, and catchment area treatment should be undertaken to prevent siltation of existing reservoirs.
- A district-wide drive should be undertaken to identify sites for small check dams and water conservation structures. Such measures will provide employment, even as they enhance the water table and the water and food security of the region.

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## CEC spreads its wings

**The Government** of National Capital Territory (NCT) of Delhi invited BNHS to set up a Conservation Education Centre (CEC) at the Asola Bhatti Wildlife Sanctuary near Tughlakabad in Delhi. Dr. Asad R. Rahmani, Director, BNHS and Mr. A.K. Sinha, Conservator of Forests signed the MoU on June 18, 2004 at the Sanctuary. Mr. Rajkumar Chauhan, Environment and Forest Minister and Mrs. Naini Jayseelan, Secretary, Environment and Forest, Government of NCT of Delhi were present at the occasion. The signing of the MoU was followed by planting of saplings by students from various schools in Delhi. A group of students presented a skit "Why Conserve Nature".

The CEC at Asola Bhatti Wildlife Sanctuary will develop and implement various conservation education programmes for children and adults. The Centre will have an interactive display (exhibition) area, auditorium, bird observation hides and self-guided nature trail. The Government of NCT of Delhi has provided the basic infrastructure and financial assistance for three years to make the Centre operational. A team of educators from the BNHS will be based at the Sanctuary. Mr. P.P. Singh, a BNHS member from Delhi, has volunteered to provide BNHS with a residential flat near Tughlakabad to facilitate the project activities in Delhi. ♣

## Eco-battalions march on

**Lt. Gen. J.J. Singh** GOC-in-C Western Command, the largest defence command in the world, visited Hornbill House on July 9, 2004 under the Green Governance Programme (GGP) initiative of the BNHS, to discuss the role of the Indian Army for protection and conservation of wildlife and its habitats.

The BNHS-GGP believes that our planet's food and water security depends on the protection and wise use of our resources and biodiversity. India is the sixth richest nation of the world on the biodiversity scale. Protecting water sources and soils directly improves the quality of human life. Environmental protection thus amounts to patriotism in action. Lt. Gen. J.J. Singh addressed the gathering on the importance and role of the Indian Army in protecting wildlife. He briefed the gathering on the role of the eco-battalions of the Army that execute ecological tasks, like use of renewable resources among others. In his presentation, Lt. Gen. Singh showed how the Army geared up for a mammoth effort in restoring the Harike Lake, which was threatened by the invading water hyacinth. He agreed to the need for working closely with the BNHS to prevent ecological damage and to implement long term conservation action.

Col. Prakash Tiwari, Director, Environment (Policy) also made a presentation on the restoration and wildlife protection work carried out by the Army. He also gave an insight into the future plans of the Army for conserving the environment. The session concluded with an interactive session between the Chair and the audience, especially from the media. ♣



**Lt. Gen. J.J. Singh briefed the audience on the role of the eco-battalions of the Army**

## Governor assures action



Lt. Governor Ram Kapse assured that he would take action on all the issues brought to his attention

**His Excellency** Lt. Governor Ram Kapse, Andaman and Nicobar Islands, visited the BNHS on July 26, 2004. Dr. Asad R. Rahmani Director, BNHS gave an introduction to the BNHS, followed by a presentation by Mr. Pankaj Sekhsaria from Kalpavriksh, on some key conservation issues of the Andaman and Nicobar Islands. He explained the uniqueness of the islands and its tribes, besides

highlighting issues like the Andaman Trunk Road, Commercial Forestry, sand mining, and tourism.

Lt. Governor Ram Kapse assured that he would initiate measures to mitigate all the issues highlighted by the speakers and the audience.

A discussion that followed with the media and the audience was chaired by Mrs. Dilnavaz Variava, Vice President, BNHS. ♣

## BirdLife International Award for the BNHS Director

**Over the years** the Society has developed closer links with the Royal Society for the Protection of Birds (RSPB) and BirdLife International. BirdLife International having identified BNHS as Partner Designate, the Important Bird Areas (IBA) programme was initiated and Indian Bird Conservation Network (IBCN) was established. Having successfully led the BNHS as a BirdLife Partner Designate, Dr. Asad Rahmani, Director, BNHS was awarded the BirdLife International Award for bird conservation initiatives in India through the IBCN and BNHS, and he was also elected member of the Global Council of the BirdLife International. This will certainly give BNHS an important platform to address international conservation concerns. ♣



(2nd from right): Dr. Asad R. Rahmani was awarded the BirdLife International Award for his bird conservation initiatives in India





## OUR MISSION

Conservation of nature, primarily biological diversity, through action based on research, education and public awareness

For details visit <[www.bnhs.org](http://www.bnhs.org)>  
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**Mr. TARZAN**

