Hornbill

1997 (3) Sept.

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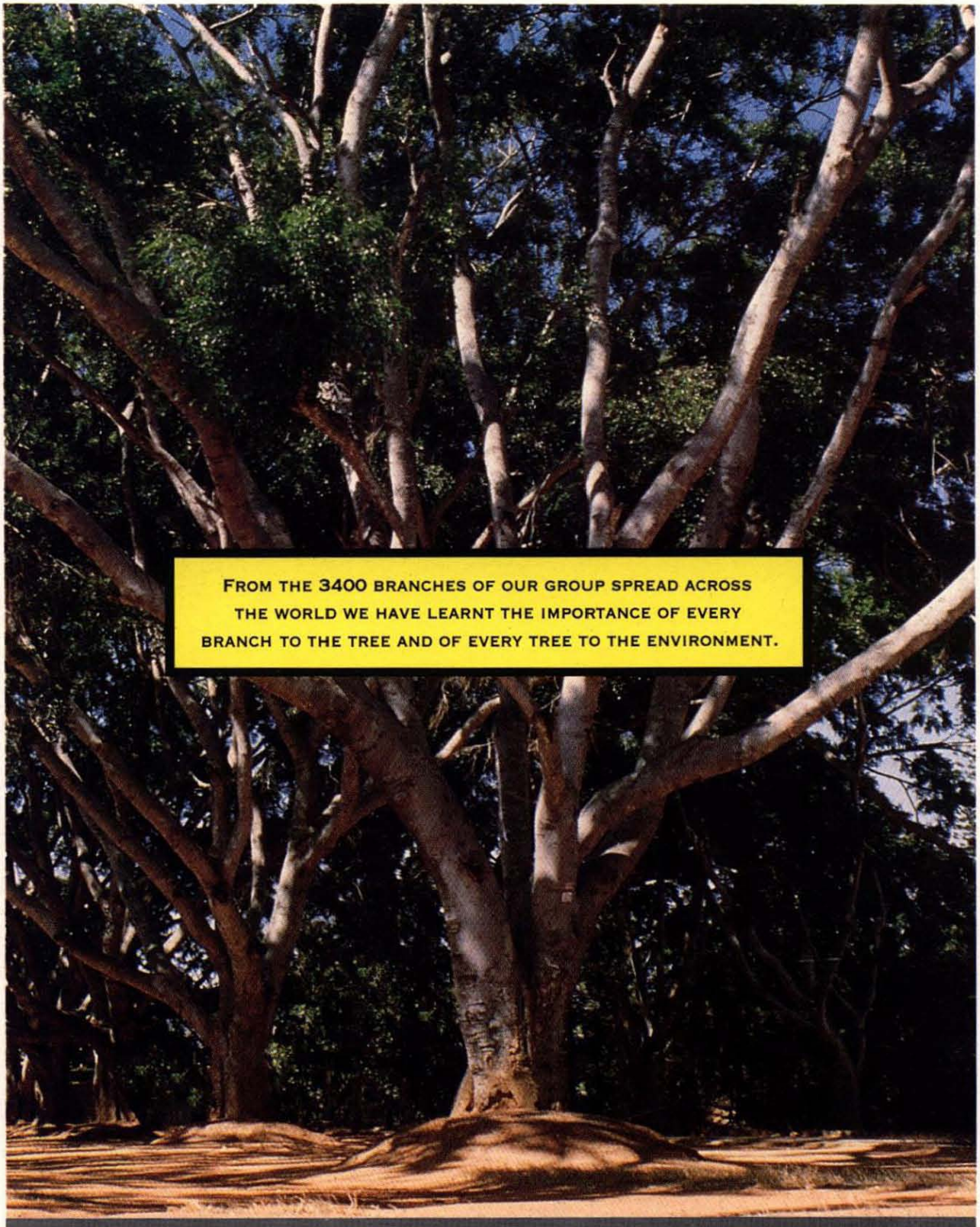

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HORNBILL
1997 (3)

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VIEW POINT

At a recent meeting of the Indian Board for wildlife chaired by the Prime Minister, conservationists repeatedly emphasised special protection for India's protected areas coinsisting of approximately 4.5% of the landmass, overlooking the fact that unless the other 95.5% of land is looked after there is no chance of saving the 4.5% of P.A.s. The odds in the survival ratio of PAs against human needs are thus loaded 95.5 : 4.5. The crux of India's conservation problems is that the demands on natural resources for human needs and the needs of domestic livestock are so great that little is left for any other forms of life. India, though having hardly one-fortieth of the world's land surface, supports more than one-half of the world's water buffalo and more than one-seventh of its cattle and goats. The effect of the constantly increasing pressure of these domestics on the land (particularly grasslands and forests) has been disastrous. Land urgently in need of rehabilitation because of wind and water erosion, salinity, and alkalinity now exceeds 100 million hectares. The Chambal Valley, with 4 million hectares ruined by erosion ravines, demonstrates what can happen elsewhere. Another continuing pressure on land resources is urbanization. Our urban population is the fourth largest in the world, and it will continue to grow, while agriculture on impoverished land, fragmented by inheritence distribution among members of a family, fails to support the increasing rural population. At the same time, agricultural land is taken up to meet the demands of urbanization. Approximately 1.5 million hectares of arable land have been lost in this manner since 1950. These losses are borne by the forest and grassland habitat of India's wildlife. Another important factor is water conservation. India still uses only one-tenth of the rainfall that it receives. Floods wreak havoc each year, but India still lacks an effective policy of flood control and water conservation. Groundwater reserves, which were once 10 times as great as the annual rainfall, have been so overused that in many areas the water-table has fallen far below economically retrievable levels. An equally major consideration is energy. Firewood remains the main source of energy for cooking in India, particularly in villages. Urban India alone uses more than 20 million tons of firewood, worth over 5000 million rupees, more than was spent on afforestation between 1950 and 1980. Satellite data indicate that India is losing 1.3 million hectares of forests a year.

These figures relate to conditions over a decade ago and the situation has not improved.

The major source of forest degradation is timber removal for commercial use or as firewood. Protected forest areas are unlikely to be saved unless alternate arrangement such as fuelwood forests are raised. **Fuelwood forests must be a part of Panchayat functions.**

Water Conservation requires legal protection of our remaining wetlands so that they are not diverted for other uses. **There should be a blanket Central legislation to protect wetlands, from the size of village ponds to Ramsar sites such as Chilka and Keoladeo Ghana.** Water Resources will be the main source of conflict in the coming century unless timely efforts are made for their conservation.

J.C. DANIEL

SUNJOY MONGA

DEVRAJ AGARWAL

If bears had horns

Text and Photographs: T.R.K. Yoganand

You might wonder whether I have gone mad to have such a wish. But then, you need to read this sad story of my trials in trapping two sloth bears, only to have them slip off their radio-collars within a few days of collaring. It was hard consoling myself on that tragedy, as over 300 trap-nights of effort, 800 field-hours of my time and 150 man-days labour of my field assistants went into this trapping. It couldn't have been worse!

I started my field work in February 1996 to study the ecology and behaviour of sloth bears by radio tagging and tracking them. This study, the first of its kind in India, is being carried out in Panna National Park, Madhya Pradesh. Panna NP, a 542 sq.km reserve, supports mainly open dry deciduous forest, which is considered to be an optimum sloth bear habitat. About half the Park comprises two flat plateaux — Talgaon and Hinota — at different levels, bordered by steep escarpments that form a step-like terrain. This

Our first prize succumbs to an anaesthetic dart - he succeeded in shaking off the collar

terrain makes the area friendly for radio-tracking. The region has ample signs of bear activity and also has an array of habitats with varying levels of human disturbance — from some relatively undisturbed parts to areas of high human disturbance. To study the impact of these disturbances on different aspects of the ecology of bears, we selected this part of the Park as our intensive study site.

My initial jobs in the field focused on surveying the various habitat types, understanding bear movements, testing different baits and selecting an intensive study site. Soon after I started, Dr. Clifford G. Rice, the U.S. collaborator of the project and the person who initiated the project and made sure that it materialised, arrived in Panna. He had come prepared to train me in trapping and immobilising sloth bears during his one month stay. We started our trapping exercise and were looking forward to the arrival of Dr. A.J.T. Johnsingh, the Indian supervisor of this project at Panna, to learn from his vast field experience.

We had planned three methods for trapping bears; barrel (culvert) traps, spring-activated foot snares and darting free-ranging bears from elephant back. After choosing a site based on bear signs (tracks, scats and diggings), we set our traps near dens, water-holes and along frequently used trails. Our day began well before sunrise, with checking the traps for any success or visits from the bears. After that, some time was spent in setting new traps or moving the old ones to better locations. Then we headed back to our camp and did some target practice, tracking exercise or discussed our methods, usually keeping ourselves

A radio-collared bear walking away after recovery

occupied throughout. In the late afternoons, we would start again on the round-trip putting out fresh bait (molasses, sorghum, honey, *mahua* flowers, rotting fruit, fresh wild fruit, and jaggery) till dinner time. We seldom had time left before we went to bed to watch the clear sky with hundreds of stars sparkling like jewels and an occasional cotton-white cloud trying to overshadow them.

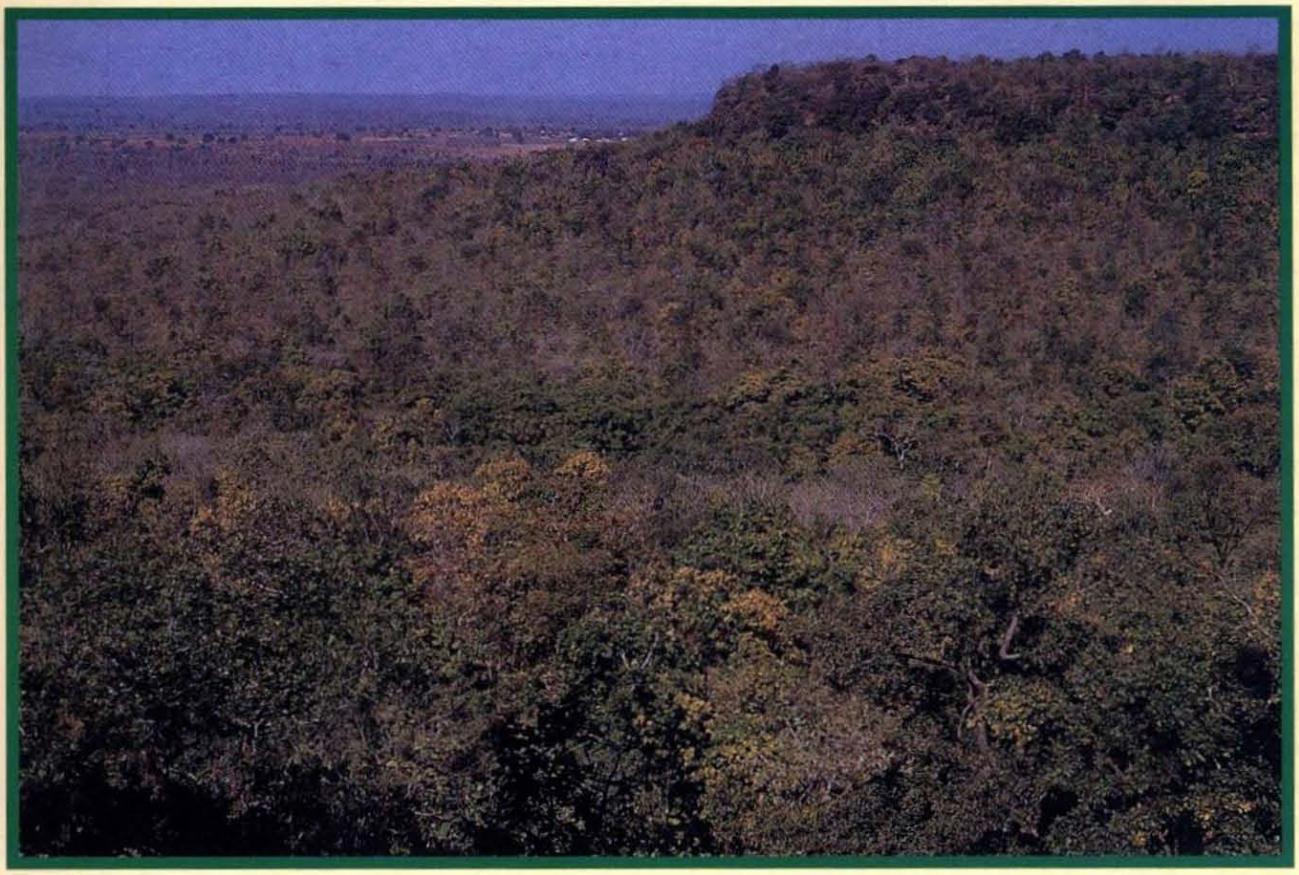
We slogged at this routine for a fortnight and had run about 175 trap-nights (one trap set up for one night is called a trap-night), without any success. Only once had a bear come anywhere near (15 m) the trap. Just a few days were left before Dr. Johnsingh and Dr. Rice were to leave and we were beset with frustration. Leave alone a trapping, we had not even sighted a bear. We decided to try our luck, by riding on elephant back prepared to dart any bear we could find. Early next day, our elephants waded through the tall grass, effortlessly breaking the branches that came in the way. We tramped many a mile around the areas where people had sighted bears recently. However, we had no results that day and realised that it was no good pinning our faith on little more than sheer luck. We clambered up the elephants on the second day with diminishing hope.

Two elephants, one of them carrying Dr. Johnsingh and my field assistant, the other with Dr. Rice and myself atop, separated and took different directions to increase the probability of a sighting. We planned to converge at a water-hole at an appointed time. Our elephant arrived there first, and we waited for the other. A while later, the other elephant came hurrying towards us and Dr. Johnsingh whispered 'Bhalu!' He said that he had glimpsed a bear moving through the grass, which ran away on sensing them. We tried to find it, but could not, even after an hour and a half of searching. Dr. Johnsingh left Panna the same day and we tried our luck riding elephants for the next few days too, but in vain. Realising that darting free-ranging bears from elephant back would not be time-effective, we thought we could use our elephant-riding experience when we would have to study the collared bears in subsequent years.

Then came the day when Dr. Rice also had to leave. Although we had done dry runs before, we decided that I should practise the whole exercise of immobilisation on something real. A young buffalo, kept for baiting tigers, was appointed the guinea pig. Before leaving, Dr. Rice pepped me up, saying that bears would certainly visit my traps and I would be able to handle them alone.

Our days with Dr. Rice had been really hectic. We slaved with the single objective of maximising our trapping effort. Panna has some scenic spots along the cliffs, where the upper plateau ends abruptly, dropping to the next one about 10 metres below, from where one can have a panoramic view of the lower plateau. Our walk along the cliffs looking for bear signs was always punctuated with brief stops to relish the panorama. Dr. Rice had retained his rock-climbing skills and sure-footedly strolled about the cliffs, climbing up and down to check for any resting bear, much to our amazement. This project was, he said, 'a never say die' pursuit for him, since he had been waiting for it for the last thirteen years. I felt really sad that we did not succeed in trapping a bear while he was there, but I was certain that we would be able to trap one when he came next time.

Three days later, the Director of the Park Mr. P.K. Chowdhry, I.F.S., kindly presented me with a wonderful opportunity of tranquillising and releasing a leopard that was caught in a leg-hold trap, possibly set by a poacher. I did this operation with great success, which gave me the



The dry deciduous forest of Panna National Park — a panoramic view from a cliff

confidence to handle the bears later. I completed another fifteen days of trapping, amounting to a total of 300 trap-nights till then, tried all kinds of bait in all combinations and heeded everybody's suggestions, but without any success.

On 23rd March, I went about my routine of checking the traps, without any hope as usual, but found a huge bear trapped in a snare that I had set recently. I couldn't believe my eyes! I went down ectasy lane for quite a while before realising that I should use my binoculars and make sure that the bear was snared properly. It was sitting upright on its rump, its back to me. I had seen bears sitting like this only in films on grizzlies and polar bears (the origin of my inspiration to work on bears). A dream had come alive for me!

The bear, which was a prime adult male (about 150 kg), was trying hard to escape from the hold of the snare. Without letting the bear notice me I sneaked towards it downwind, crawling and hiding myself in the dense shrubbery. I darted it with a "tele-inject" pistol from a distance of about 10 m, using five ml Telazol, a dissociative anaesthetic. The bear went down the sixth minute after the first dart (I had to deliver two darts). Controlling my excitement, I went close to him. My field assistants, the simple village men, could not believe that anyone could immobilise a bear — the fiercest animal they had ever seen. They even refused to come near the bear till I had tied its legs together with a piece of cloth. I fixed the radio collar, and weighed and measured the bear in an hour's time.

It was midday and was quite hot. As a precaution against hyperthermia, I wet the bear with water and provided shade with a shed made

of lush green leaves. After two hours, he slowly recovered from the effect of the drug. He lifted his body up and sniffed at the water that I had kept nearby in a bucket for him to drink. He approached the bucket at great speed, stumbled on it, spilled the water and then sat on the wet ground, still appearing woozy.

He was squatting facing west, as if enjoying the setting sun. The horizon appeared painted with orange, the bear a silhouette against it, as I saw through my camera. I have always wondered whether bears enjoy the panoramic view of the jungles of Panna, as I had seen evidence of their presence along the edges of the cliff and on jutting ledges, overlooking the forest of the plateau below. I was there until well after dark, having kept the receiver tuned to the frequency of the radio collar transmitter. However, I was exhausted by then. A little later I heard the rustle of another bear climbing up the cliff on the trail towards my side. Intending to come early the next day to see the collared bear, I left for camp.

The next morning I tracked the signals coming from the base of the cliff close to the trapping site, where there is a large cave. I thought the bear might be resting inside. To make sure that he was in good condition, I lured him out of the cave. He came out and started walking towards a nullah. I was so excited to see my first radio-collared bear walking unhurt, I dreamt of the splendid information I was going to get from following him for the next four years, but failed to notice whether he had the collar on or not.

I moved from there to check the other traps I had set. I came back in the evening and found the signal coming from the same place. I thought that the bear was still resting there and therefore was not willing to disturb it. When I got the resting pulse (the transmitters have an activity sensor that changes the pulse rate if the animal moves) from the same place the next morning, I wondered whether the bear could have dropped the collar. I went down the cliff listening to the signal. It was coming from a cave. I thought it could well be on the bear and that he was probably resting inside. I was not willing to disturb him and end up getting mauled; having seen the incredible strength and aggressive nature of the bear and its mauled victims at Panna, any sensible man would avoid this! However, when the signals came from the same place again that night, the time one expects them to move around, I decided that I had better check out the cave the next morning to know for sure.

I had examined several other caves earlier and all were deep and dark, just fit for the bears to live in — obviously not the best places for us to explore! I collected a few more people besides my assistants, and with ropes and torch lights, mustered up the courage to walk towards the cave. I had a tough time persuading my assistants to follow me to the cave. The signal was getting stronger and stronger as I approached the cave. My heart beat louder and louder and my mouth turned dry. There was great disappointment, mixed with relief, when I found the collar lying on the ground at the entrance of the cave. It looked as if the bear had slipped the collar off without much difficulty. A few scratches on it showed that the bear had used its claws to pull the collar over its head.

The collar appeared tight when I put it around the neck of the bear. But there are several problems to tackle while attaching collars on bears. Bears have relatively longer and larger necks, which are sometimes only slightly slimmer than their heads. The presence of shaggy hair also gives a false idea of the size of the body parts. Unfortunately, unlike most other animals, the bears can use their long-clawed forelimbs to remove the collar from the neck. Being a large male, this bear's neck was quite stocky and only

slightly smaller than its head. So, leaving room for a hand to slide under the collar while fixing it on the bear probably meant making it bigger than the head. I remember having read somewhere that people working with polar bears face a similar problem. They were not able to fit collars on adult males because their necks were larger than their heads and the collars would slip off easily. Somehow, I controlled my disappointment and took it as a challenge to learn from this failure.

I wouldn't have been disheartened if it had not happened for the second time too. After another ten days of unsuccessful trapping, on 4th April, I found my second bear captured in a snare set about 40 days earlier by Dr. Rice and myself on a trail leading to a spring. It was a sub-adult female (about 80 kg), far more aggressive than I had ever imagined. I put her down with a three ml dose of Ketamine hydrochloride + Xylazine hydrochloride mixture and collared her. I feared putting on the collar too tight as she was a sub-adult. I needed to leave some space for her to grow till I could handle her again next year. Unfortunately, the bear had revived before I could slide the collar over and check if it was snug. However, I just hoped that she would not be able to remove the collar.

This one had an unexpectedly sudden and explosive recovery, unike the male's gradual one. She got up, grunted and charged at me, as I was still giving finishing touches to the collaring operation. I dashed for my life up the stony slopes and away, through the thorny *Zizyphus oenoplia* climbers hanging all over. She then went back down the trail to the nullah. I followed her and climbed a *Ficus* tree on the slope for a good view from above. I watched her for the next one hour. After drinking from a pool in the Imeliya Nullah, she lay down on her back, among the rocks, looking relieved. On calming down, she started assiduously trying to remove the collar. She put the claws on her forepaws between the collar (near the transmitter casing) and the neck, and tried to pull it off. The collar would not yield to her efforts, so she turned around and tried to put the collar between two rocks around an edge and pull herself away from it. Anxiety gripped me and I started lamenting that she also might remove the collar. But my field assistants were pretty confident that she would not succeed.

I followed her closely for the next few days. She moved around normally and I was getting regular locations of her. But after eight days, I found that the collar had yielded to her constant attempts to throw it off. I recovered the collar from a tunnel-like cave about 20 m long, leading from the base of a cliff to the upper plateau, which is a usual resting site of this bear and a frequently used subway for several other bears. After another misadventurous cave-entering drama, I found that she had slipped off the collar with the help of her claws. This was a disaster for me, I closed all my traps for the next few days. I became anxiety-ridden and it took sometime before I could recover from this situation.

Field work is trying, tedious and problematic most of the time. But the overall experience is enjoyable and the results always rewarding. All said and done, though, I wish bears had horns, which would make it difficult for them to slip off the collar. Don't you also wish the same?

Post Script: A few months after writing this article a radio collared subadult male bear dispersed outside the Park and was lost.Another adult male broke its collar during mating and dropped it within a few days. I collared another sow during April this year. And I am now waiting for my next chance to collar a bear.

T.R.K. Yoganand is working at the Wildlife Institute of India, Dehradun. Before taking up this study on sloth bears he worked on birds of the Andaman Islands and small carnivores of the Nilgiri Hills.

Death traps for Fish

We would like to draw readers' attention to *Barhi*, a fishing device in which the flow of water is obstructed and the fishes swimming along the current are automatically captured on a platform placed across the water passage. This fishing technique is adopted from October to April when the depth of lotic water comes down to 1m-2m.

To erect a *barhi*, 1.25-2 m long bamboo poles are fixed in the waterbody across the water current. The distance from the two poles is 1-1.5 m and the number of poles is proportional to the width of the waterbody. Bamboo screens of mesh size 1-2.5 cm x 5-6 cm are fitted along the poles, limiting the flow of water. In midstream, water is allowed to pass through a small 1-1.5 m wide passage. Just attached to this passage, a mat of 1m-1.25 m x 1.5-2 m size, made up of bamboo ribbons, is fitted downstream. The mat has railings of bamboo sticks on three sides. This device helps raise the upstream water level, which facilitates its rapid flow through the passage. Fishes swimming along the current pass through, jump to the platform and get captured. Small fishes of 5 cm size are also captured, posing threat to fish fauna.

Some fishermen resort to an even more obnoxious practice of applying an insecticide (aldrin) at a distance 5-6 km upstream from the *Barhi*. This helps them get a good catch. This heinous killing pollutes the waterbodies, toxifies the human and bovine population, and the habitat.

Though the erection of *barhi* nets was declared illegal by the Department of Fisheries, Government of Bihar in 1991, the device is still used by the fishing community in Saharsa district of North Bihar.

Anand Mohan Verma,
Samastipur.
Vidyanath Jha,
Darbhanga.

Fruit Salad for a panther!

Some time ago, in the JBNHS I read an article about panthers eating watermelons, authored by Shrimant Digveerendrasinhji of Vansda. This is one hundred percent true. When I visited village Bhanskatri of Dangs in 1972, a farmer had planted watermelons on the bank of River Purna. I asked him which animals destroy the crop and he said sometimes it is sambhar, spotted deer, barking deer, wild boar and rabbits, but the real culprits are panthers that come at night and eat up the watermelons.

It has also been observed that a starving panther will even eat snakes and frogs!

Dr. Kersi Bilimoria,
Bilimora.

Monsoon Magic

I enjoyed reading the *Hornbill* 1997(1) and the article on Indian Wild Flowers — Monsoon Magic — by Isaac Kehimkar. I have enclosed reprints of my work in Trinidad, West Indies

which might interest you. I have been running a field project in Tamil Nadu (India) for the last one year and am investigating the ecology of bats and primates.

G. Agoramoorthy,
Taiwan.

Birdwatchers: Flock together

The pleasure that is derived by most of us from watching birds is a good enough reason to indulge our hobby. However, our jottings on field trips keep accumulating and are generally not used in any further analysis or study. How many among us use our data to write up papers for scientific publications? How many of us have data beyond a quickly scribbled "Redvented Bulbul - nesting!?" Such notes will never be sufficient for a scientific paper. Yet our joy of birdwatching could be extended if we contributed abbreviated notes to an organisation for compilation and analysis. If these data which are collected by *amateur* birdwatchers throughout India were to be compiled regularly over a period of time, they would provide useful information at one source.

The Birdwatchers' Society of Andhra Pradesh (BASP) publishes a column called *Birding Notes* in its monthly bulletin, *Pitta*, which contains such data from Andhra Pradesh. Members' notes are printed in a *telegraphic* format, retaining only the outstanding aspects of their observations on migratory birds arrival and departure dates, local migration, heronries, and roosts. Information is printed on *State / District/ Site / Species.* State and District are arranged alphabetically, species systematically under each district, with sites following species. Abbreviations used in the text are appended. Contributor's initials appear at the end of each published record and a footnote contains the full credits.

Initially, notes will be published from Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. Depending on your response, the scope of this project will be extended to cover all the Indian States. Participants will have to send the following information for each observation:

- State, District, Place, Coordinates (if possible) from where observation is reported.
- Date of observation or period e.g. 1.vii.97
- English and scientific name of bird species and other pertinent species (plants, insect, etc.).
- Qualifying statements for observations such as 'breeding', "Nest (N) was seen," "Bird carrying fecal-sac/food/nesting material."
- Other pertinent information e.g. flowering/ fruiting, sudden filling up of waterbodies.
- Name, address, phone number of observer.
- A type-written/computer printout is preferable.

What could be the outcome of such an exercise? In India, we still do not have enough basic information about the varied tapestry of our bird life. All effort will be made to scrutinize records before publication with the assistance of honorary referees and the cooperation of the observer. Information regarding distribution, breeding period, migratory habits, feeding habits, etc., which information is still quite incomplete for India, will begin to accumulate every month, from which studies and interpretation will be made with ease. The data can be made available to researchers on request for a nominal charge. An annual publication could be brought out with analysis of the past year's data, along with addresses of the participants and other interesting and related information.

Contributors will receive a free copy of the first *Pitta* containing their notes. Thereafter, even though they send notes (which are published), they will have to become a member of the BSAP to receive further copies of *Pitta*. Only *members* of the BSAP will receive free copies of *Pitta*. Members of the BASP receive the following publications in a year - 2 issues of *Mayura* (newsletter) and 12 issues of *Pitta* (bulletin). For membership details please write to the address below.

Do send in your observations promptly and regularly, and help to make this effort a success!

Aasheesh Pittie
Birdwatchers' Society of Andhra Pradesh,
P.O. Box 45, Banjara Hills,
Hyderabad-500 034.❑

Miscellanea

THE Journal of the Bombay Natural History Society has a unique feature, the "Miscellaneous Notes" section, wherein members publish notes on the unusual in natural history. We propose to publish a selection in each issue of the *Hornbill* under the heading "Miscellanea".

TAILLESS IN DEESA

IT HAS always been a matter of surprise to me, why so many geckos (the small house lizards) lose their tails, and the following incident, which I recently observed may possibly account for it. Two Geckos were seen, for some hours, cautiously climbing about and eyeing one another suspiciously, uttering occasionally a low noise. After many manoeuvres they approached and a desperate conflict ensued. The one seized his antagonist by the tail, whilst the other fixed on to the hind foot of his adversary, but after some valiant struggles they parted and I observed in the jaws of one the tail of his enemy. The tail was still wriggling but it was quickly swallowed in spite of this.

I may add that the geckos here are much larger than those in Poona and Bombay, and make a much lower and deeper noise.

W.A. LIGHT
Deesa, March, 1896.

RED ANTS AS SMELLING SALTS

LOOKING through a back number of the journal, I see EHA records the jungle people in the Canara District eating red ants! (Vol. IV, p. 153).

The Tamil coolies here use them as *Smelling Salts!* I don't know whether the practice is common in India; anyhow it may be worth noting. The ***modus operandi*** is to go up to a nest in a bush, seize it with both hands, rub ants and nest together violently between the palms and then take a few good long sniffs of the strong ammonia-like fumes which rise from the mass of crushed and bruised insects.

I am told this instantly relieves severe cold in the head if the sufferer has no objection to a few dozen of the more active ants burying their mandibles in various parts of his person while he is sniffing at the remains of their community.

ISAAC KEHIMKAR

A live dose of smelling salts

I should object to this myself, so I cannot speak with authority as to the efficacy of the remedy.

A.L. BUTLER
Cocoawatte, Ceylon, December, 1895.

CURIOUS ACCIDENT TO A LEOPARD CAT

THIS morning, some of my Nepalese coolies, when going to work, found in a tea field a full-grown male leopard cat (*Felis bengalensis*) and a full-grown jack hare lying dead not far from each other. The leopard cat had evidently surprised the hare by springing on it, but in doing so had come in contact with the sharp pruned tip of a tea bush branch, which entered under the right armpit and penetrated at a slant into the left cavity of the chest, causing its death. This must have occurred in the small hours of this morning, as, when I saw the cat — about 8 a.m. — blood was still flowing from the wound. Such an accident is new to me and I should think was very unusual.

NORMAN F. T. TROUP
Kausanie P.O., Almora, N.-W.P., 12th April, 1896.

LIVE FROGS IN A SNAKE

A FEW days ago a large rat-snake (*Zamenis mucosus*), about 6 ft. long, was killed in my compound. I saw it just after it had been killed, and seeing that it had had a feed, I cut it open to see what it had been eating. On opening it I found a large frog about 4 or 5 inches long in its stomach, which at first appeared to be dead, but after about two minutes in the air it began to move, and in about ten minutes it was sufficiently recovered to hop away. Meanwhile the snake had been lying on the ground and a second smaller frog crawled out and hopped away, apparently none the worse for its temporary living interment. The frogs were taken from the body of the snake about two feet behind the head, so I fancy they must have been some little time inside the snake.

H.J. KELSALL, Capt., R.A.
Rangoon, September, 1899.

SPEED OF THE NILGAI

I HAVE always heard that the Nilgai was a comparatively fast animal, but am now inclined to doubt it. I put my greyhounds onto a fine bull Nilgai on one occasion, and we coursed it for some miles over a rough country. The hounds caught it up in the first 100 yards, but were not sufficiently powerful to pull it down. As soon as we got it out on to land where one could ride, I had no difficulty in catching it up, and after the first three miles the beast was so exhausted that I was able to trot alongside of it and touch it up on the flanks with my hunting crop. It was repeatedly brought to bay, and charged the hounds. This leads me to think that the Nilgai is not as fleet of foot as we have believed.

W.A. LIGHT
Deesa, March, 1896.❑

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for financial support for the publication of *Hornbill*

Indian Wildflowers

By mid-monsoon some more plants begin to flower, adding colour to the green scenery

Text and Photographs: Isaac Kehimkar

11 COMMON BALSAM or SNAPWEED *Impatiens balsamina*
Hindi: Gulmehndi

This erect, succulent annual herb brightens roadsides and jungle paths with pinkish purple flowers in the latter half of the monsoon. This gregarious herb is seen throughout the well wooded parts of India. Flower extract possesses antibiotic activity against bacteria and fungus. Seeds are edible and their oil can be used for cooking and burning lamps.

12 ORIENTAL SESAME *Sesamum orientale*
Hindi: Til

Bell-like rose-purple or rarely white flowers adorn this erect hairy annual from August to October. Widely seen along the roadsides and forest paths. Its cultivated variety is an important oil seed crop. Decoction of leaves makes a good hair wash.

13 DEVIL'S CLAW *Martynia annua*
Hindi: Hathajori

Native of Mexico and naturalised in India, this plant is often seen on roadsides and rubbish dumps. Flowers of this branched hairy annual are seen from August to October. Queer looking clawed fruits give its common English name. The juice of the leaves is used as gargle for sore throat.

14 KARVI *Carvia callosa*
Hindi: Maruadana

A gregarious shrub that grows along the slopes of the Western Ghats (upto north Karnataka) and Central India (Pachmarhi). Mass flowers every seven years from August to November. Kurunji, its southern relative, flowers every 12 years. Flowering of Karvi brings exceptionally high yield of dark amber honey. The leaves are poisonous to mammals.

15 COSTUS *Costus speciosus*
Hindi: Kebu

Grows throughout the warm moist regions of India. This succulent herb has its leaves growing spirally around the stem. Large white flowers on dense terminal spikes stand out in contrast against the bright red bracts. Flowers from August to September. The bitter rhizomes have astringent, cooling, laxative, deworming, expectorant and restorative properties.

16 GLORY LILY *Gloriosa superba*
Hindi: Karihari

This annual climber with tendrils at the leaf-tips is unmistakable. Its large flaming orange-yellow flowers become conspicuous from July to September throughout well wooded parts of India. Bulbs have restorative properties and are used for deworming and inducing labour pains. Alkaloid extract is used in treating gout and rheumatism. Large doses are poisonous. Over-collection of bulbs for alkaloid extraction has endangered this plant.

Monsoon Magic

COMMON BALSAM

KARVI

ORIENTAL SESAME

COSTUS

DEVIL'S CLAW

GLORY LILY

B.F. CHHAPGAR

The dark streak on the snout of the airliner goby *Acentrogobius diadema* must have inspired BOAC to decorate their airplanes with a similar band on the cockpit.

B.F. CHHAPGAR

The Morse-code goby *Istigobius ornatus* gets its name from the series of dots and dashes on its body. This and the airliner goby are found in Mumbai.

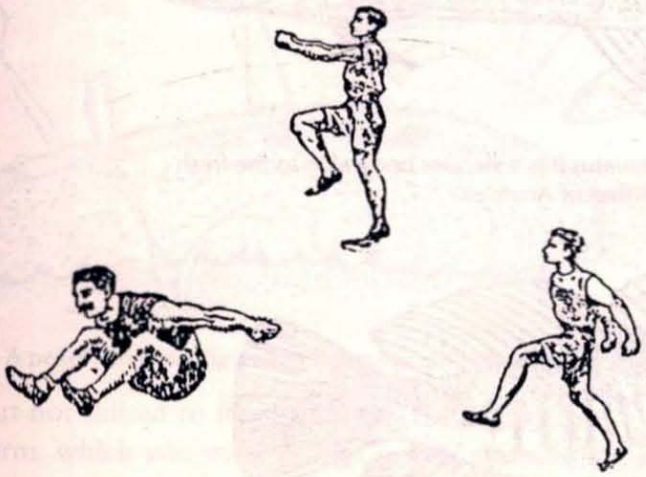
Flamingoes at Mumbai coast

Photo: Gopal Bodhe
Film: Kodak (35 mm) E 100 SW
The inbuilt 81 filter layer on the film cut down the hazy blue cast which would have affected image clarity.
Exposure: 500 **/f 5.6**
Camera: Nikon 801 S
Lens: 70 - 210 F4 Nikon

SEASHORE LORE

27. Aquatic Olympics

Hop-step-and-jump Champions of the Sea



"Where is the power that made your pride?
Brother, it ebbs from my flank and side."
Rudyard Kipling

Beefsea

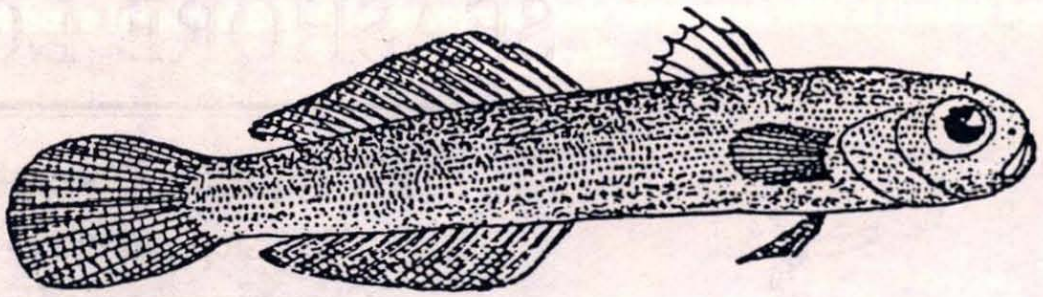
Go to any mud-flat or mangrove swamp on the seashore, and you will notice some fishes with a very unfish-like character. Fishes are supposed to live in water, but these ones happily bask in the sun, completely out of water, eyes vigilantly looking at you and heads slightly raised from the mud. The slightest move on your part and they are off and away, hop-step-and-jumping into the water. These fish are popularly known as mudskippers.

Mudskippers are part of a heterogeneous assemblage of sea-bottom fishes also comprising gobies, blennies, eleotrids and a few others. Apart from their bulging eyes being situated on top of the head, with well developed lower eyelids, mudskippers have their ventral fins completely fused to form a cup, and may have an elongated second dorsal fin (as in *Boleophthalmus*), or only united at their bases and with short second dorsal fin (in *Periophthalmus*). The well-muscled limblike pectoral (shoulder) fins are used to crawl up outside water and hop about. The fish can also rear itself up on its tail and take off in 30 cm high jumps, changing its direction at each hop. The cuplike ventral fins act like a sucker, enabling the fish to hold tight on land.

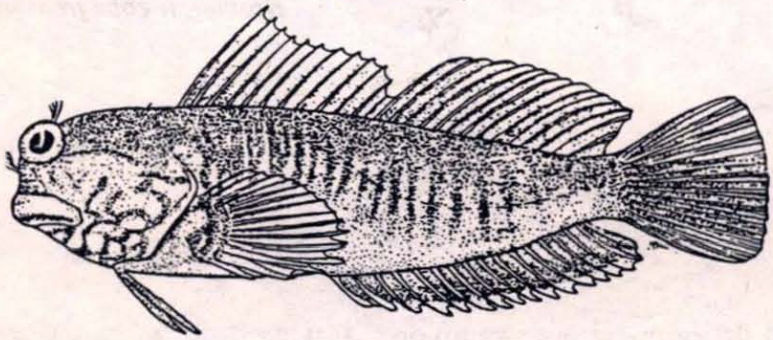
In the nineteenth century, it was believed that mudskippers breathed by means of the tail. Old science textbooks often depict them basking with their body out of the water but with the tail dipping into the water. We now know that this is a fallacy. When a mudskipper ventures ashore, it carries a mouthful of air and water in its puffed-out jowls, and a dense network of blood vessels absorb the oxygen from it. Mudskippers are sold alive in fish markets, being kept in pots holding a little water, in which they seem to be quite comfortable.

Gobies are more colourful cousins of mudskippers, also having united ventral fins, but while mudskippers have only one row of teeth in the lower jaw, gobies have two or more rows.

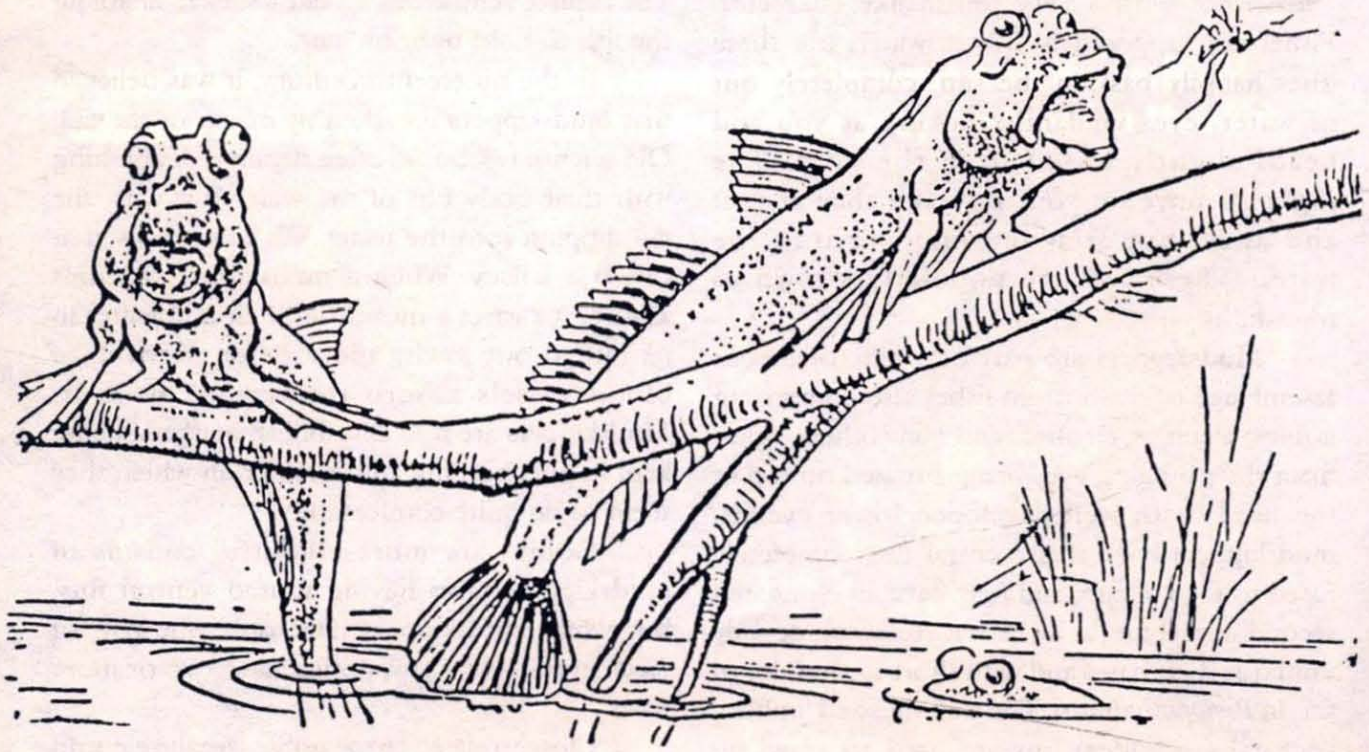
Closely related to the gobies are the eleotrid fishes. They have their ventral fins close together



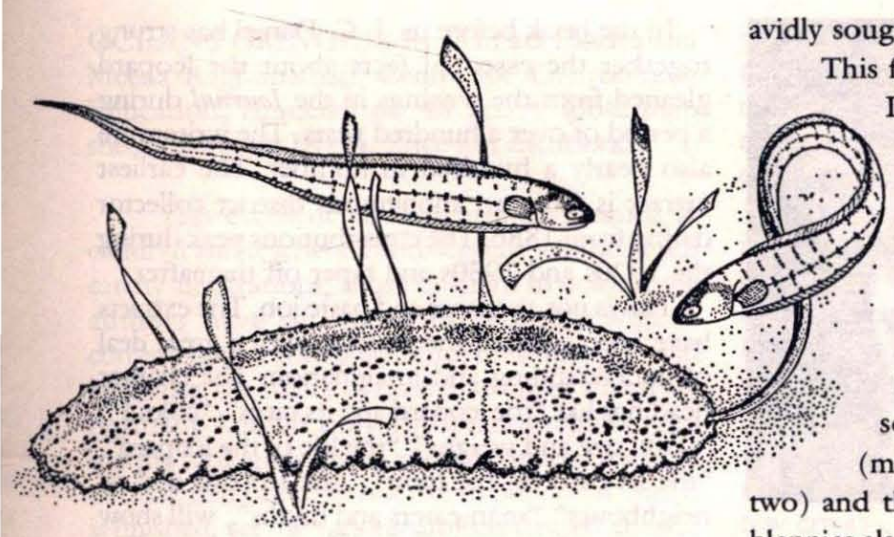
The marine pencil-fish *Parioglossus taeniatus* has a slender body akin to the fresh water pencil fishes of America.



Blennies have a squat body and a brush-like tentacle over the eye

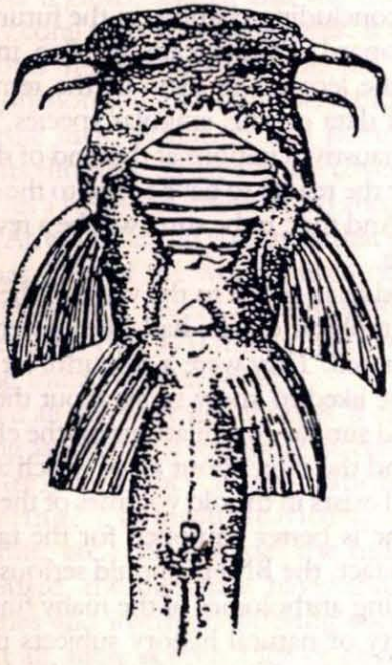


Mudskippers love to bask in the sun outside water, on mud flats or the stilt roots of mangroves



A pearl-fish entering a sea-cucumber tail first

but not united to form a sucker. An interesting form, which you will not find in fish markets is the tiny (25 mm) but very pretty marine pencil



Some catfishes also hold fast in swift flowing streams by adhesive pads on the chest.

fish (*Parioglossus taeniatus*), which is so called because its long, slim, colourful body is akin to the freshwater pencil fishes of South America so avidly sought by aquarium hobbyists.

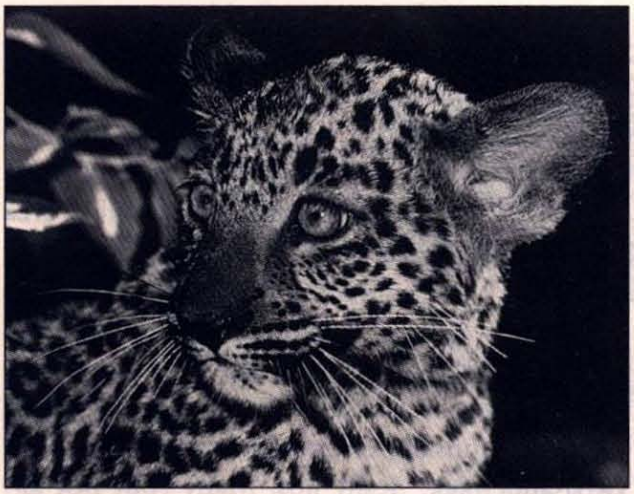
This fish was not even known to occur in India until 1962, its native haunt being Aldabra, but it used to be very common at Cuffe Parade (in Mumbai), until most of this area was reclaimed.

Blennies are also related to most of the above mentioned fishes, but differ in having a shorter, more squat body, with a long dorsal fin (mudskippers, gobies and eleotrids have two) and thick, fleshy lips. Many (but not all) blennies also have a short tentacle with brushlike filaments above each eye.

Of interest to us is the sabre-toothed blenny, also known as false cleaner (*Aspidontus tractus*). It mimics the cleaner fish so well that fishes with parasites or festering wounds allow it to approach, thinking that it will rid them of the parasites. The wily blenny, instead, takes a bite and swims away. (See Doctors At Sea, *Hornbill* 1993, No. 2)

We finally come to the pearl-fish (*Carapus*). These are frail, transparent, elongated fishes without scales or ventral fins and with a tapering body looking like a paper knife. Some of them live in an oyster's mantle cavity. Sometimes the oyster, in protest, closes its shell valves and entombs the pearl-fish inside a coating of mother-of-pearl, hence the fish's name. But the majority of these fishes live inside the bodies of sea-cucumbers, entering the host, tail first, from the sea-cucumber's vent and living among its intestines. A strange preference indeed!

We regret the omission of the photocredit in *Hornbill* 1997 (2), p. 18, which should have read: R.D. Padte and B.F. Chhapgar.



SUNJOY MONGA/Porpoise Photostock

THE LEOPARD IN INDIA - A NATURAL HISTORY by J.C. Daniel (1996) Nataraj Publishers, Dehra Dun pp. 228 (Price not stated)

Few things bring greater joy to naturalists, more particularly armchair naturalists, than leafing through very old volumes of the *Journal of the Bombay Natural History Society.*

The *Journal* of those days had a different flavour and was distinguished by articles and notes written by a now-extinct breed of hunter-writers who wielded the rifle and the pen with almost equal dexterity. The enchanting narration is, on occasion, likely to mask the perspicacity of their observation of wildlife. The truth is that many of these shikaris, in the course of their main pursuit, had gained a formidable knowledge of the habits and the temperamental oddities of their quarry, so much so that very few of the more benevolent naturalists who followed them into the jungle with nothing more than binoculars and cameras have succeeded in adding much substance to what the shikari naturalists had told us about some of the large mammals.

This is nowhere more exemplified than in the case of the leopard which, for some strange reason, has not enthused the field naturalists to the extent the tiger and the lion have. For most of the information on the leopard we have to fall back on the writings of hunter-sportsmen of distant decades.

In the book before us, J. C. Daniel has strung together the essential facts about the leopard gleaned from the writings in the *Journal* during a period of over a hundred years. The writers are also nearly a hundred in number. The earliest extract is from an anonymous district collector dating from 1886. The contributions peak during the 1920s and 1930s and taper off thereafter.

This is not a scissors and paste job. The extracts have been collated theme-wise with a great deal of understanding and imagination. The chapter headings like "the leopard and its races". "colour", "skull, size and weight", "the life of the leopard", "the leopard on the hunt", "the leopard and its neighbours", "man-eaters and myths", will show the care taken in the compilation. More than these, the extracts are woven together by Daniel's own interspersed terse and pointed comments which give the whole work an admirable unity. Altogether, the book reads like the work of a single author, the differences in style notwithstanding.

In the concluding chapter on the future of the Indian leopard, Daniel calls for "an intensive study of the leopard in view of the remarkable absence of data on this singular species."

The exhaustive citations at the end of the book will enable the reader to have access to the original writings. And that, to be sure, will be a rewarding experience.

It would have added to the value of the book if brief biographical details had been given of the authors quoted. They were a colourful lot and we would have liked to know more about them.

We need similar compilations on the elephant, the lion and the tiger about all of which a wealth of material exists in the old volumes of the *Journal* and no one is better equipped for the task than Daniel. In fact, the BNHS should seriously think of publishing anthologies of the many fine pieces on a variety of natural history subjects that had appeared in the *Journal* during the last one hundred years. A beginning was made under the stewardship of Daniel himself with the publication of *A Century of Natural History* (1983). But much more remains to be done.❑

B. Vijayaraghavan

OCEANS OMNIBUS By Mamata Pandya and Meena Raghunathan. Centre for Environment Education, Ahmedabad, 48 pp. + loose map sheets. 24 cm x 18 cm. Price not mentioned.

This excellent book is primarily aimed at children and teachers. Profusely embellished with catchy illustrations, most of them in colour, the authors have succeeded exceedingly well in conveying to a young audience in simple yet vivid language, the basics of marine sciences which are normally known only to oceanographers and marine biologists. As an adult, I found it the kind of book that one does not like to put down until it is finished, yet the various subjects treated therein are in small bites, so that even youngsters will be able to absorb a particular subject before they get bored.

The book covers practically every aspect of the oceans that one wished to know. Starting with oceans in general, it goes on to our own Indian Ocean, its regions, shores and the life therein, especially coral reefs and mangroves. It then goes on to cover human activities on the seas, like fishing, offshore oil and minerals, shipping and India's role in it, pollution and oceanography. Despite its slimness, all aspects are covered in fair detail, with a wealth of information and data with figures. (An example: did you know that the Indian Ocean has 20% of the world's total ocean area, i.e. it stretches over 74,000,000 square kilometers? Or that 170 million people in India live along India's coastal belt?)

As if all this were not enough, it also guides the young aspirant to a sea-going career on where to acquire proficiency in navigation, marine engineering, communications, fishery, aquaculture, etc.; this includes the Indian Navy, Coast Guard, the merchant navy, and also lists universities and institutes offering such studies. To cap it all, there is even a list of novels on the sea, including such classics as Robinson Crusoe, Treasure Island and Moby Dick.

Three illustrated maps, each of 35 cm x 28 cm, and titled *Our Coastal Heritage, In Our Waters* and *Oceans Under Threat*, plus a folder-poster of the same size *atolls ahoy* are neatly tucked into the inner back pocket to enable us to picture vividly the historic coastal monuments, the fish and marine creatures, pollutants and sea shells respectively, along with brief descriptions. The last one can also be used to play the game of Ludo.

The production of this book is excellent, yet some errors, both typographical and technical, have crept in. could detect 32 typographical/ spelling/grammatical mistakes, and a list of those has been sent to CEE. Of the technical mistakes, only the most prominent are given below, because of space constraints. But in pointing out these flaws, I feel like a nit-picking spoilsport, as the many plus points of the book far outweigh these few errors.

Pg: 6 – 360/00 – should be 35 0/00.
9: Indian ocean – should be Indian Ocean.
11: ... demands on these areas also grows – should be grow
13: seperate – should be separate
16: compressed air a regular – insert comma between "air" and "a".
17: The algae helps the polyp – should be help.
8: ... a very rich marine habit – should be habitat.
22: ... the trees own fallen leaves – should be trees'.
23: mangrove species – should be mangrove species.
27: (box): raw material paper manufacture – insert "for" between "material" and "paper".
27: effectes the aquatic life – should be affects.
31: Indian also has a fine navy – should be India.
31: Lets take a look – should be let,s
34: facilities... is not – should be are not.
35: dysentry – should be dysentery.
36: persistant – should be persistent.
36: tonnes of oil is – should be are.
37: Tonnes contaminates – should be contaminate.

The Vasant J. Sheth Memorial Foundation deserves a pat on the back for sponsoring the production of this book. They can rest assured that their money has been very well spent. May they continue to encourage such books in future!❑

B.F. Chhapgar

Sunabeda Wildlife Sanctuary

A potential haven for the Cheetah

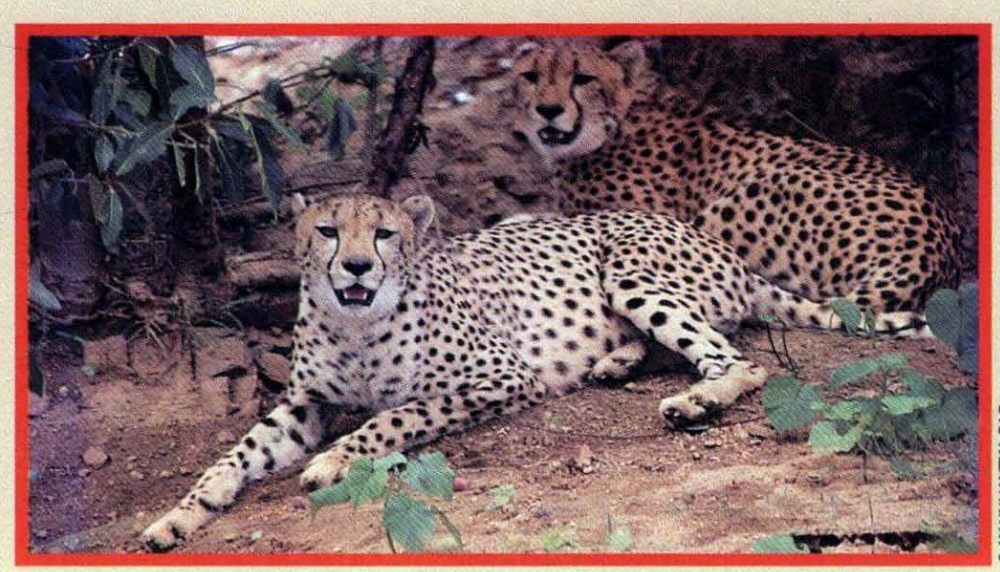
P. C. Kotwal

The Sunabeda Sanctuary is situated in the Nuapada district of Orissa, adjoining Madhya Pradesh. It was notified in 1986 and is being managed by a separate wildlife division since 1990, headed by a Deputy Conservator of Forests. Spread over an area of 600 sq. km, the sanctuary represents biogeographic classification 6A of Rodgers and Panwar and possesses northern tropical dry deciduous forests. The average annual rainfall is 1032 mm (June to Sept) and temperature ranges from 8°C in winter to a blistering 47°C in summer. The altitude ranges from 358 m to 1000 m, with magnificent valleys and enormous plateaux. The better habitats with fertile soil and water sources have been occupied by human habitation. The central upland portion of the sanctuary held swamp deer about 40 years ago, but due to hunting and habitat encroachment by man, this endangered species had become locally extinct. There are earlier reports of occurrence of the wild buffalo. Indian gazelle (*chinkara*) also occurred in the area in plenty in the past. Crocodiles have also been reported in the Jonk river, and there is news of their occurrence at present but this needs confirmation. Species like the otter also need to be looked for. There are several riparian gallery forests where species like the giant squirrel and the flying squirrel might be expected. These species are not reported from the sanctuary, which has not been fully explored for animal and plant species.

The Sunabeda Wildlife Sanctuary harbours a great diversity of wildlife habitats with vast plateaux and canyon-like valleys with 11 waterfalls, and has a variety of wild animals and plants like *sal*, teak and other species. Although at present the population of wild animals is poor, the area has great potential. The sanctuary, if it receives appropriate attention, has the potential to beat well established National Parks like Kanha.

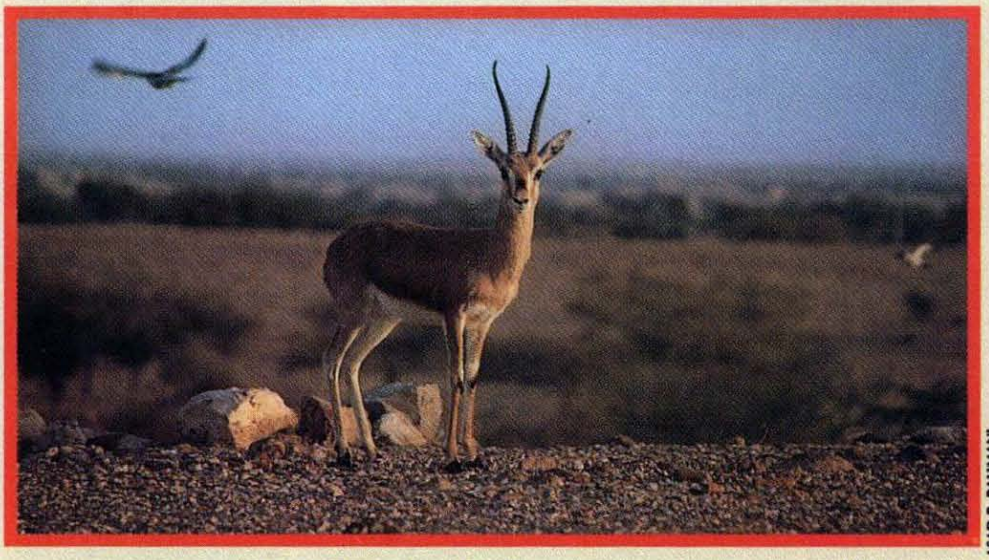
There are a number of water-holes and riparian areas in the sanctuary which need to be properly mapped and documented. The sanctuary forms the catchment area of the Jonk river, over which a dam has been constructed to facilitate irrigation, rehabilitating 35 families in Maragura village within the sanctuary. The Indra nullah lies on the south and Son river on the west. The 11 perennial waterfalls have big pools up and downstream of the nullahs. Some of these are Gau dhas, Benia dhas, Khraral dhas,

Kawal dhas (dhas = water-fall). There are 12 ponds, out of which two (Raital and Jalsi) are very old. Besides, there are a number of perennial springs. The sanctuary can even boast of a hot water spring called Chandra Sil on Manikgarh hill. The streams form excellent riparian areas, with old trees of *Syzigium cumini* and *Terminalia arjuna* providing a canopy on both the banks. These are the ideal habitat for animals like the giant squirrel and flying squirrel which are yet to be reported from the area. Some of the riparian areas are Jabnala, Jalmari, Kholi Jharan, Penda Jhala, Jada Jharan, Hilarchuan Nala and Khojaran Nala.



E. HANUMANTHA RAO

For the cheetah's sake, Sunabeda deserves our urgent attention

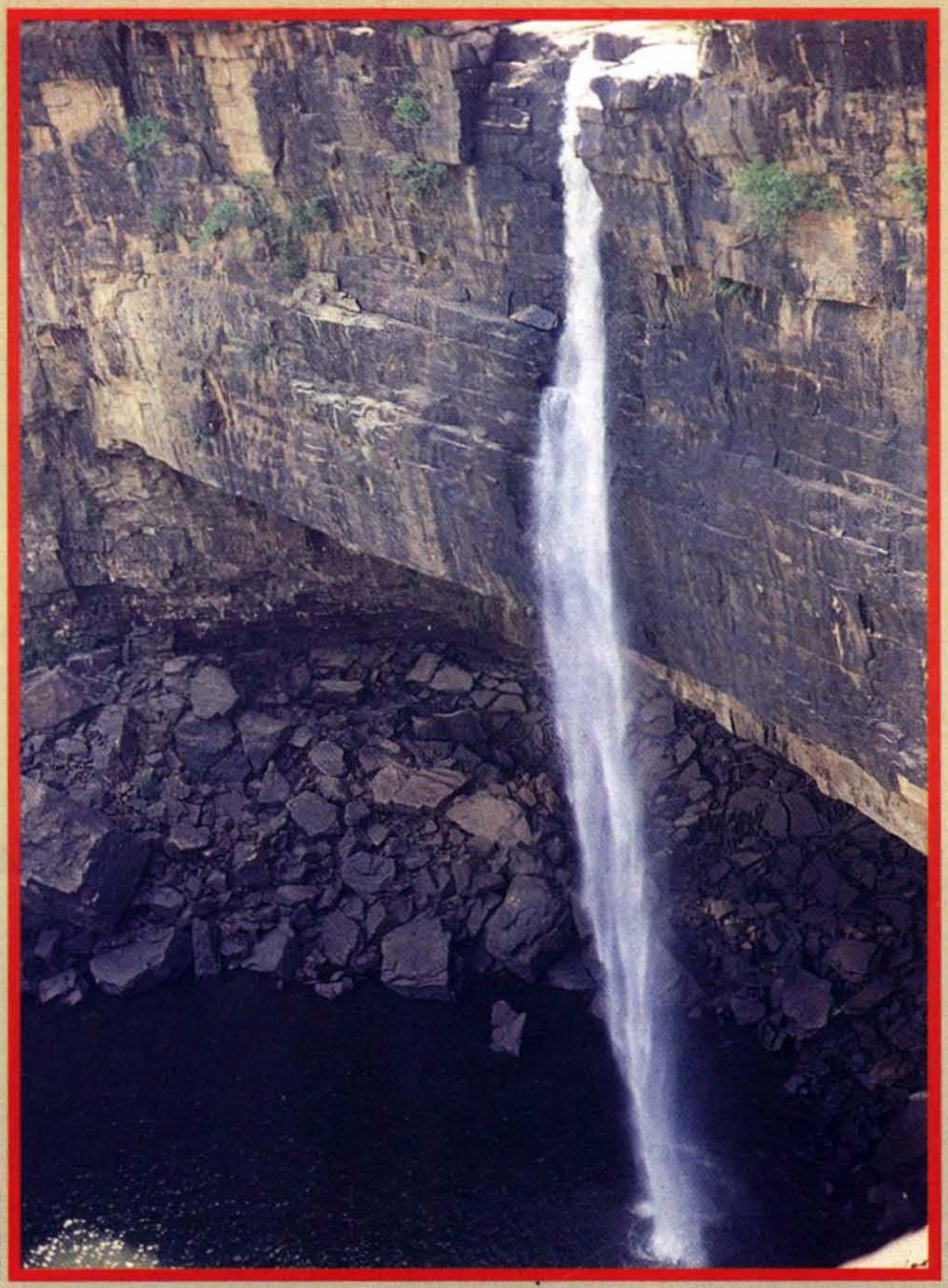


ASAD R. RAHMANI

Blackbuck could be introduced into the Sanctuary, along with more chinkara

Animals — The sanctuary has typical central Indian wild animals and the populations are assessed to be tiger (10), leopard (26), *gaur* (26), sloth bear (30), *chital* (100), *sambar* (100), barking deer (600), *langur* (500), rhesus monkey (200), wild pig (500) and blue bull (35). It is regrettable that the swamp deer and wild buffalo populations have been wiped out. There is a need to restore habitats for them.

Wild buffalo movement Corridor — Sunabeda WLS is reported to have had a population of wild buffaloes about 70 years ago. At present wild buffaloes occur in Udanti WLS in Madhya Pradesh. The border to border gap between the two sanctuaries is about 20 km through Patdhara forest block. Wild buffaloes are reported to move through these forests to Udanti WLS. It would really be worthwhile to have a field survey of Patdhara forests between Sunabeda and Udanti WLS by



P.C. KOTWAL

Eleven perennial waterfalls add their charm to the sylvan forest habitat

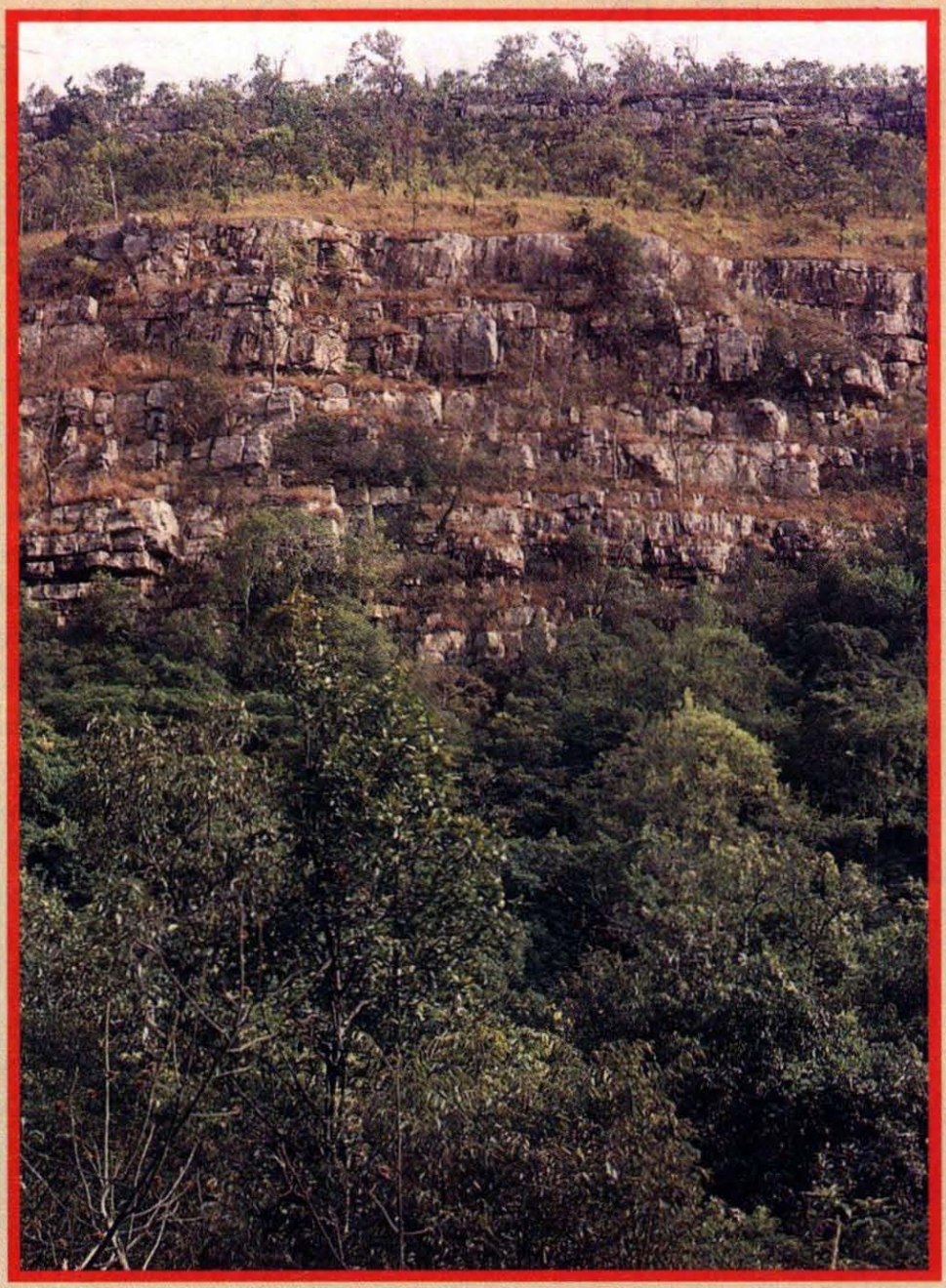
wildlife officers of both the sanctuaries, to assess the present position of the forest. The buffer areas of both the sanctuaries could be extended upto the state borders, incorporating parts of Patdhara forest block, so that some legal status is accorded to these forests connecting the two sanctuaries, for their better conservation.

Extension of Core area — There is a possibility of increasing the core area of Sunabeda WLS southwards across the Indra nullah. This move would add very good forests of about 300 sq. km without human habitation. The existing boundary of the sanctuary on the southern side, with Indra nullah, is not an ecological boundary. The forests across the nullah are similar and wildlife populations also exist there. It is, therefore, imperative to extend the present boundary upto the hills, which will also form the ecological boundary.

Villages and encroachment — At present 34 villages inside the sanctuary harbour a human population of 4500. But there are a number of encroachments inside the sanctuary. There are 41 encroached villages with a human population of 7000, making a total of 75 hamlets with a population of 11,500. The villagers have to walk 20-30 km to obtain essential commodities and are dependent on traditional agriculture. They

have no option but to depend on the forests and wildlife resources of the sanctuary. They should be resettled outside the sanctuary. Then the plain upland in the sanctuary will have an area of about 500 sq. km with fertile soil and with several permanent water-holes, which may be fit for re-introduction of swamp deer and buffalo and even for the re-introduction of the Asiatic cheetah in India, along with some of its prey animals like the blackbuck, *chinkara* and the *chital*.

Forest Fires — The tribals burn the forests during February to March every year to facilitate the collection of *mahua*. There are no fire lines in the WLS but the roads (138 km) act as fire lines. Fire lines and watchtowers with wireless facilities must be established.



P.C. KOTWAL

The riparian areas have a continuous canopy of *jamun* and *arjuna* trees

The sanctuary also needs protection from poaching, wood cutting, bamboo cutting and the illicit collection of forest produce.

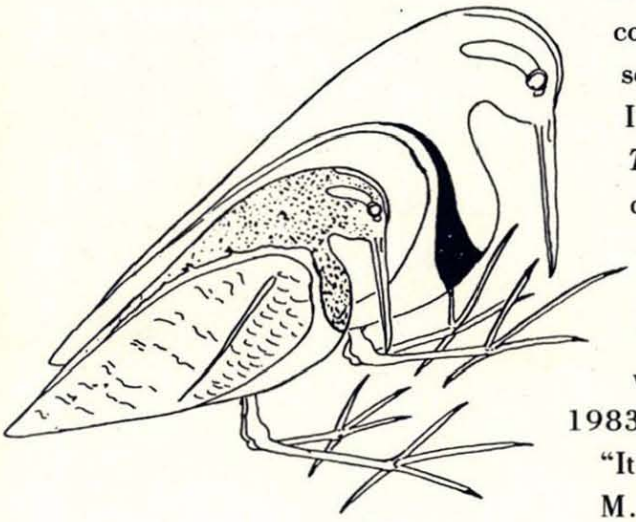
Sunabeda is a potential haven for blackbuck and *chinkara*, *chital* and its predator, the Asiatic cheetah. For the reintroduction of this one last species, the sanctuary deserves all the urgent attention it can be given.

P.C. Kotwal is an Associate Professor at the Indian Institute of Forest Management, Bhopal, and is an expert wildlifer

Painted Snipe

The female of the species is more deadly than the male!

Almost sixteen years ago, on 3rd December 1981 to be exact, a pair of courting birds in the grass in the fallow land adjacent to my house caught my eye. It was late in the evening. They didn't seem to mind my watching them from the window. The house having no boundary wall around it, and being one of the very few scattered ones in an enormous area of paddy fields, the birds could move in and out of my territory freely. I hadn't seen the species before. Excitement was high as I strained to record the plumage and other features. *The Book of Indian Birds* by Sálim Ali (11th edition) came to my rescue. It was indeed a pair of painted snipe. I counted myself lucky, the event was a rare opportunity right at my doorstep for close, continued observation. And I remember vividly what Dr. S. Dillon Ripley told me in December 1983 at the BNHS Centenary meet at Mumbai: "It is good for you". Encouraged by V.S. Velayuthan, M.N.M. Sethu, and the late Chinnapapu of Tiruchirapalli, I continued, and it was thrilling to watch the birds. Mr. Humayun Abdulali, besides providing me with copies of literature on the bird, also guided me to other sources of published accounts.



Sixteen years later....

It was just after four in the evening on 7th June, 1997. "Wow! That is a painted snipe", I whispered to myself when I saw a female bird down in the ground just below my window. There was a male, too, moving gingerly in the grass by the sagging typhas, twenty minutes later. For four years no brood had been raised in the area, although birds visited the ground between 1989 and 1993.

I kept a careful record of my observations between 1981 and 1988, only eleven nests had been established with only 13.15% hatching success. Against this background, the visit of this breeding pair was a happy event and was to engage me in many hours of keen observation. There were anxious moments with sheep, cows and buffaloes trampling about and the local urchins on out-of-school days trying to fish by

paddling in the meagre supply of water that was being dammed and baled out from one enclosure to another. I composed myself, with my heart pounding and head urging me to chase them out.

Though a widely distributed bird from Africa south of Sahara, to Australia through the far east, painted snipe is rarely seen because it is crepuscular and inhabits grass-covered marshy habitats. It occurs as two sub-species, *Rostratula benghalensis benghalensis* and *R.b. australis*. Ours is the former. For India, the Asian Midwinter waterfowl census reported a maximum number of 1135 between 1987 and 1993, with a low of 67 birds for 1987, the number fluctuating violently in the several states covered by the census. As Professor Neelakantan stated "In fact it is a bird I haven't come across in the wild". BNHS has many skins, while Madras Christian College, Tambaram, has one mounted skin in its Zoology Department.

In as much as it is a rarely seen bird, the status of the painted snipe is not known for certain. On 8th and 10th October, 1996, it rained after dusk at Tuticorin. Subsequently, we heard painted snipe calling at 6 pm on the 9th, early in the morning and afternoon on 11th, and at about 6.30 pm on the 12th from areas not suitable for breeding at all. Their absence from the same areas in the following days justified my belief that they were on their way to another place. They appeared to have followed the rain.

Snipe is a misnomer. Affecting the same kind of habitat as the common snipe (family Charadriidae) and its congenerics, the painted snipe also belongs to the same Order Charadriiformes, but a separate family Rostratulidae. During the early decades of this century, the bird accounted for a small percentage of the sportsman's bag, though it is not a good

R.S. SURESH

A male painted snipe tentatively approaches the nest.

table bird. In sportsman's parlance, it is a "painter".

A bird extraordinary, the female of the species is more conspicuous than the male in both size and plumage. However, the sex ratio is lopsided, the male being more numerous than the female, suggesting the possibility of the female sex being polyandrous. The number of male partners a female has for a season is not known for certain. At Tiruchirapalli, I estimated 1.09:1. It was apparent that the population may, at times, have more females than males which would partly account, I think, for its violent fluctuations.

The female makes the courtship call, advertising her presence, and readiness to breed. (Unlike the Australian subspecies which has "four complete loops" for the trachea, in the Old World species it is only "half a loop"). On the evening of 7th June, 1997, I did not hear her call. At twenty minutes past four, the pair trekked over the grassy open ground to reach an Ipomea patch, covering a distance of about 30 metres. They had made a nest there by the edge of an Ipomea clump. The clutch of four eggs was completed on 9th June, one egg each day. So the pair must have been there a few days prior to 6th June for the clutch to have been initiated on that day, allowing for the time required for nest-site selection and nest-building. They had been silent, arriving at the mating territory in a pair which had formed some where away, one could not know where. The pre-coitus courtship activities are interesting to watch. The female performs several body and wing movements to convey to the partner her physiological and mental state. After a prolonged mutual stimulation, she leads him along a preferred path that ends in copulation, a brief affair lasting 5.9 seconds. Both freeze into an ecstatic posture for a few seconds before they walk off, simulating feeding. The only concern of the female

M. VENKATASWAMAPPA

Father snipe incubates a clutch of eggs while the female moves on to pastures new

seems to be to get the eggs fertilized and to stimulate the male sufficiently to get him to incubate the eggs to the end. Further stimulant to care for the chick must be from the chicks themselves, as the female painter normally leaves the partner after laying the last egg, to find another compliant male which would sit on the next clutch she is to produce, and so on.

In shape the eggs vary from pointed ovate to moderately pyriform, and the shell coloration of buff and black so perfectly matches the muddy nestbed and the dappled shade within the nest that a jungle crow could not detect the eggs despite its assiduous search. Three eggs from Tiruchirapalli in the BNHS collection are buff and black with lighter edges to the black. Those of June 1997 were of the same colours.

An indefatigable incubator, the male caretaker sits tight on the eggs, the duration increasing progressively. As a pugnacious defender he is capable of warding off the mighty cows and buffaloes with his wing-spread display and cobra-like hiss. I have been a witness to an encounter between an incubating painter and a shepherdess. As she walked close to the nest the bird spread its wings threateningly at the nest within two feet of her. But she just walked on, threatening the bird with the stick in her hand! On quite a few occasions I could have easily caught the male by hand, by stooping close to the sitting bird.

Photographing the painter, I realised, is an urgent ornithological need. An incubating painter had not been photographed in India till 24 June, 1997, as far as I know. It should be apparent to animal lovers that an excellent animal photographer has not only to be adept in handling cameras but also conversant with the moods and modes of the subject and must have enormous patience. With the last virtue aplenty , I tried my best to find one who could be entrusted to do the job. Mr. Sridhar of Navabharath Enterprises, Bangalore, who is the publisher of the *Newsletter for Bird Watchers* being edited by Mr. Zafar Futehally, came to mind. I scribbled off a letter. And it did the trick. R.S. Suresh, an engineer and Venkataswamappa, a mechanic — each armed with his equipment — arrived at my house by 7:30 am on 23rd June.

A preliminary survey of the area was made and the modus operandi decided upon. Although a ready-to-be-erected ornithological "hide" was at hand, the nature of the soil didn't permit its use in the normal way. Bamboo poles and sticks were collected and a make-shift hide was made, the periphery covered with branches of the nearby Ipomea. Entering the hide from the rear, the two cameramen exposed quite a few rolls of film on 24th June. After another day's photographing, the hide was dismantled on the 26th.

I should relate here an event that hindered our work. At about 8 pm on 24th June, while strolling on the open terrace, I espied silhouettes of a couple of persons going around the hide in a suspicious manner.

Suspecting foul play, I rushed down and before I could enter the area, the figures climbed on to bicycles and were gone — search for them was of no avail. Walking through the squelching mud I found signs of attempts to steal the aluminium rods and the canvas: the canvas was flying in the wind and the rods were disengaged. Who were they and why would they have meddled with the hide? Or, were they anxious that the photographing must be stopped somehow, and if so — why? perhaps the mystery cannot be solved at all. One thing became clear: there are those who encourage good work and those who discourage it for reasons best known to themselves. "People seem to be the same everywhere" we ruefully concluded.

H. Daniel Wesley, a member of BNHS, is keenly interested in natural history. He teaches Zoology at Tiruchirapally.

FREEDOM GROVES

The Bombay Natural History Society (BNHS) has succeeded in inspiring corporate, social and political circles to plant groves of fifty indigenous trees in protected areas to mark the Golden Jubilee of India's Independence. In Mumbai, BNHS invited citizens to plant trees at its Conservation Education Centre, Goregaon on 14th August 1997. Members were invited to plant a tree to mark a special occasion in their lives or in memory of their dear ones, and also to sponsor a tree for Rs. 2000/- which would be utilised towards the maintenance of the tree until it is established. The drive is continuing. Please contact the Public Relations Officer, BNHS at ☎ 282 1811 for more details.❑

DDT THREATENS LESSER FISH-EAGLE IN CORBETT

A BNHS study, as part of an Indo-US co-operative project funded by the US Fish and Wildlife Service and sponsored by the Ministry of Environment, Government of India on the birds of prey has revealed that the Lesser-Fish Eagle *Ichthyophaga humilis* pairs of the Corbett National Park in Uttar Pradesh are unable to breed successfully. This is mainly due to breaking of the eggs because of eggshell thinning and those young which do hatch dying within a week. This observation was made by Mr. Rishad Naoroji, a BNHS researcher, during the monitoring of several eagle nests from 1991-96. Mr. Naoroji is an expert on the birds of prey and presently working on a book based on his research on these magnificent birds.

The Lesser fish eagle is slightly larger than the city-dwelling Pariah Kite. Predominantly a fish eater as its name suggests, it catches fish that come near the water surface by swooping down from the air. It occurs all along the Himalayan riverine system.

Eggshell fragments were collected from the nests for analysis. The analysis has detected contamination of the egg shell by several organochlorine compounds. The contamination ratio provides vital clues to the local contamination pattern in and around Corbett National Park, which is one of the strongholds of the eagles.

Among the contamination ratio, DDT constituted 36%. Besides other organo-chemicals, dieldrin was detected in small quantity; even that is alarming as this pesticide is highly toxic to birds of prey which like humans, are at the top of the food-chain. This pesticide has been implicated in the population decline of raptors in Europe and North America. The contaminants could have passed on only through the prey base which, for this eagle, is solely fish. The presence of these contaminants in the local riverine food web is therefore a plausible cause of the eagles to fail in breeding successfully. The eagle is fully dependent on the Himalayan riverine system for food and such contamination indicates threat to all life forms including humans.

A agricultural supply shops and farmers cultivating the surrounding hills indicated that pesticides are used on a large scale. Several of these being highly toxic have been banned worldwide including India and the manufacturers too have stopped production long ago. But how they are still available in the shops is baffling.❑

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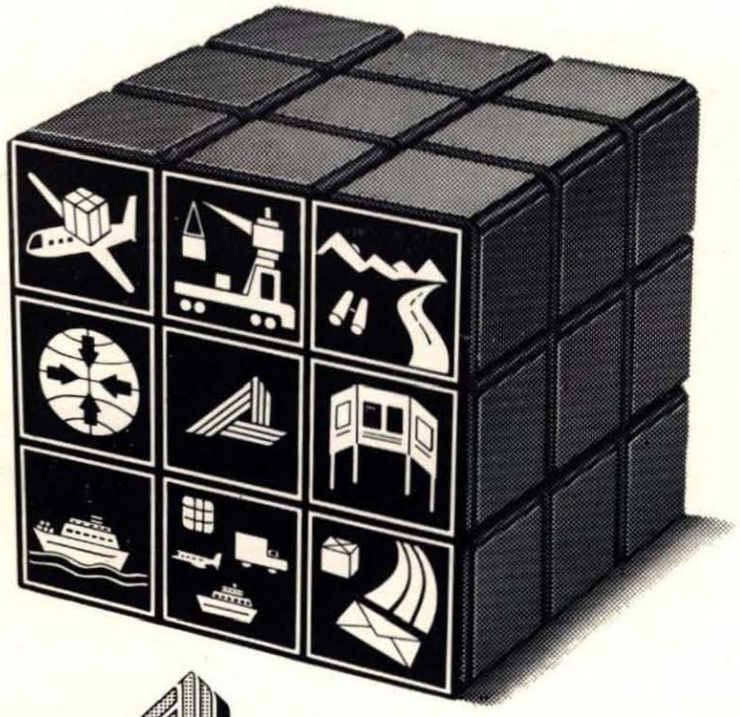

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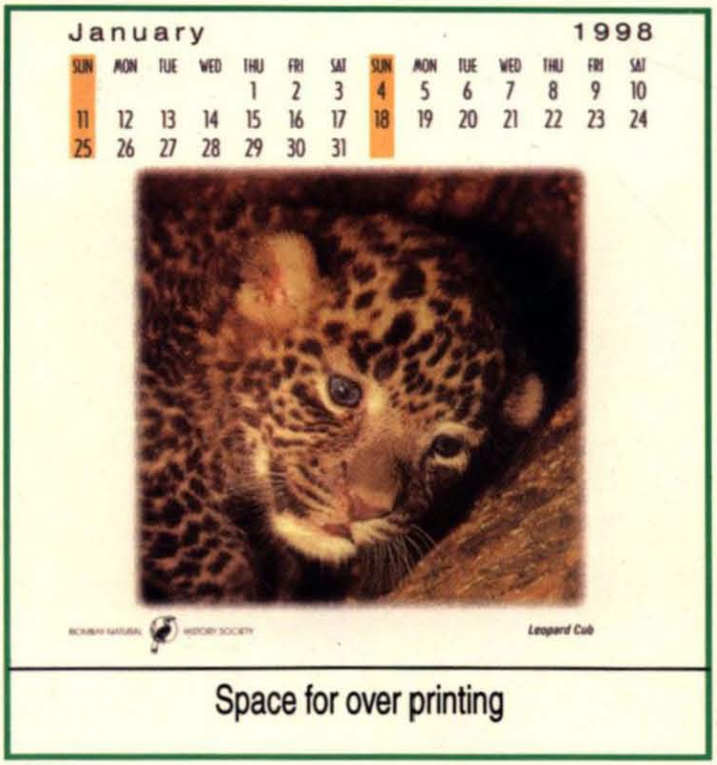

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