# HORNBILL

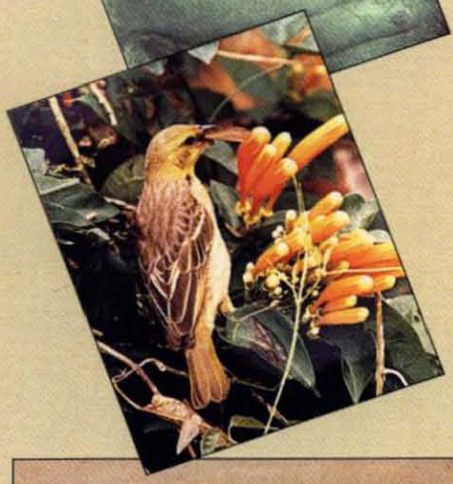
1996 No. 3

BOMBAY NATURAL HISTORY SOCIETY

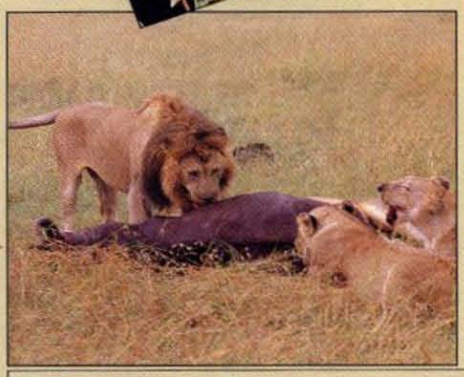
# Contents











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1996 (3)



**Cover**
*Lichen and bamboo shoot*
(Nature Photo Contest entry)
Snehal Patel

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# One Face of Conservation

IN this issue Dr. Johnsingh writes of the pleasures of tracking wildlife, an art which as other grass roots level expertise, is gradually becoming extinct as surely as endangered species of Indian wildlife. No effort is being made to conserve the knowledge of the ecology and behaviour of wildlife which exists with the people who either used to make a living out of them or used their knowledge to live safely in a hostile environment. I refer to the trappers and trackers whose fund of knowledge will disappear with those who practised the art. The names of the masters of the art spring to mind. Ramji Sahni, the inimitable trapper of ducks whose opinion on species and plumage even Sálim Ali deferred to; the incomparable Ali Hussain whose knowledge of waders and where to trap them was matchless. One cannot resist relating his ability to tell you from examining the droppings in a roosting area the species which he would trap that night or his ability to tell you, in the dark of the night, the name of the species (scientific name no less) by touch before he triumphantly brought it out of this basket; Chenna, the master tracker of elephants, anxious and therefore annoyed with his scientists because they insisted on moving by a compass bearing which would lead them right smack into a musth elephant whose musth discharge he could smell on the grass that the party was moving through.

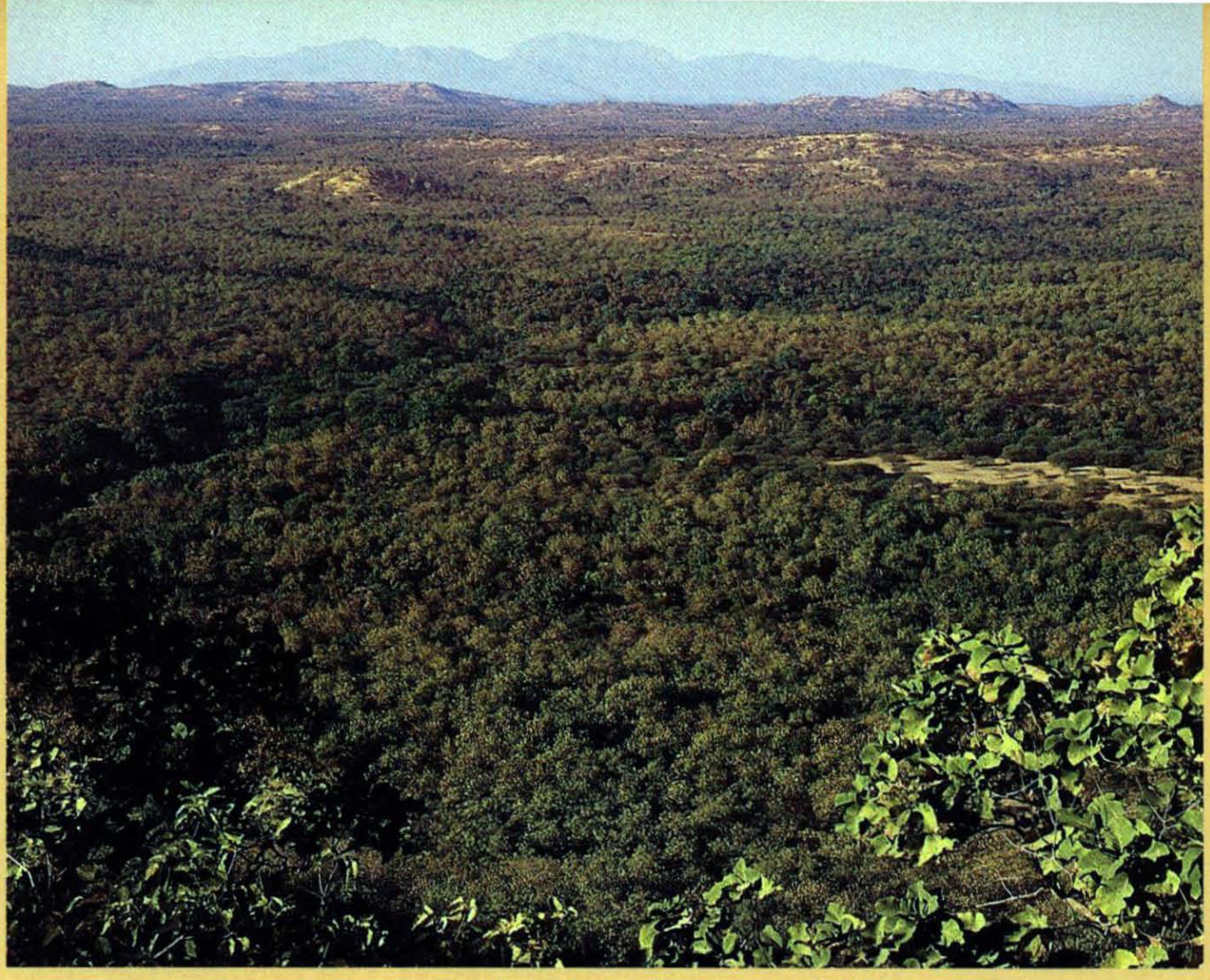
All of us who had worked in the field would have benefited from the expertise of a Ramji or an Ali Hussain or a Chenna and all would swear that his was the maestro. Yet we forget them and their expertise and often selfless courage which saw us through moments of danger. It is time that we conserved this knowledge and repaid our debt. Dr. Johnsingh suggests a way to conserve this knowledge and its keepers for posterity.

J.C. DANIEL

# Close Encounters of the Feline Kind

Text & Photos:
A. J. T. Johnsingh

The intense stare of a lioness through a dense mat of grass, its low growl and lashing of the tail to warn the visitor not to take any further liberties with its pride, lingers in the memory of anyone who has had such a fortunate encounter.



This panorama — Gir seen from Vasador hillock — is the last remaining habitat of the Asiatic lion

ONE of the fast disappearing learned capabilities of the people living in and around jungles is their ability to track and locate wild animals. The decline in the number of people with this skill is largely because jungle inhabitants are gradually being weaned away from their traditional way of living by the conservation community. This is vital to reduce the mounting pressures on the protected areas, which are like islands in a sea of humanity. When the jungle-based livelihood steadily reduces, traditionally acquired jungle crafts also disappear.

While the laudable efforts of the conservation community mitigate the pressures on the forests, sadly they also pave the way for the vanishing of a skill which is based on physical fitness, the ability to see, hear, smell and logically interpret the signs seen in the jungle. One protected area in India where this skill is still being fostered by tracking wild lions is Gir in the state of Gujarat, the last bastion of the Asiatic lion. This tradition is at least one hundred years old and it was probably promoted by the former Nawab of Junagadh to facilitate the hunting of lions.

I participated in tracking lions on the morning of 19th December, 1995, with the assistance of Dhanabhai and Ibrahim, two of the many trackers employed by the Forest Department. Both had worked on the projects of the Wildlife Institute of India in Gir for nearly six years. We have found both Dhanabhai and Ibrahim hard working, trustworthy and fearless. Dhanabhai has even gone to the extent of evincing his loyalty and courage by fighting a male lion in May 1990 to save the life of an officer

Livestock grazing in the denuded peripheral area falls easy prey to the lions

whom he had accompanied while censusing lions. The officer had approached a mating pair to photograph them, without heeding the repeated warnings given by Dhanabhai. He had not realized that mating lions could be aggressive, and approaching them on foot could be dangerous. The officer's folly, sadly, caused Dhanabhai to spend several weeks in hospital. He was lucky that the mauling lion ran away when he rained powerful punches on its face. All he had to protect himself was the traditional stick or small axe.

When we set out of Sasan, the tourism headquarters in western Gir, the brightly shining crescent of the moon was above the eastern.sky which had an orange glow, indicating that the sun was rising. The stars were numerous but pale in the aura of the approaching light. News of earlier sightings helps one to decide where and how to set about tracking lions. In this case, the sighting of a group of three adult females and six nine months old cubs by the trackers the previous day helped us to decide the area in which to look for them. The lions were seen near Raidi, an abandoned *ness* (cattle camp of the *Maldharis,* a local pastoral community), about eight kilometres northeast of Sasan.

It is much easier to locate the lions when they are on the move, which is during the cool hours of the day, as their prey animals, such as deer and peafowl, unfailingly give an alarm and warn the jungle folk of the presence of a large predator. Therefore, to reach early, we covered the distance to Raidi in a vehicle.

On reaching Raidi, we adopted the strategy of walking along the road to locate pugmarks and find out the direction in which the lions had gone.

Soon we discovered that the lions had not walked along the road the previous night, and therefore we had to track them from the place where they had been seen the previous day. This necessitated walking through the forest, which gave me a splendid opportunity to observe the excellent habitat quality of Gir. The tree vegetation was dominated by *ber* (*Zizyphus mauritiana*) which was fruiting abundantly. The ground, under many trees, was quite literally matted with the yellow and red ripe fruits. *Ber* is an important part of the diet of wild ungulates in Gir in winter. In summer, the fallen leaves of the *ber* bushes provide their protein requirements. The grass, which had dried and was golden yellow in colour, was a metre tall in most places. *Apluda mutica,* a nutritious fodder grass, dominated the grass community. Weeds like *Lantana* and *Eupatorium,* which are common in most other protected areas in the country, are very rare here.

One surprising aspect of the trail was that the trackers were not at all silent. They chattered, joked, and occasionally loudly called out *drruu-drruu-drruu.* This is the call they make when they approach lions with a bait, usually a buffalo calf. A noisy approach is safer as it alerts the lions and they make their presence known with a soft growl and lashing of the tail. Resting in the dry undergrowth, the lions can be exceedingly well camouflaged, and a sudden, very close approach to those at fresh kills or with cubs can be dangerous.

I was also amazed at the ability of the trackers to see signs on the sun-baked earth — broken or bent grass, crushed dry teak leaves, upturned stones and even fresh scats in the dense leaf-litter. All these cues indicated the direction in which the lions had gone. The tracks of the lions went over a ridge towards the revenue lands where the village Suratgarh is situated. My trackers informed me that the Raidi pride gets close to 75% of its prey — buffaloes and cattle — from the villages, as the forest periphery in which it hunts is scarce in wild ungulates. I observed it to be true, as during our 12 km search that morning, through all sorts of vegetation and across varied terrain, we had encountered only a group of three nilgai. We had, however, seen about 60 buffaloes and cattle, in three herds, accompanied by graziers.

Another vital strategy during tracking was seeking information from the cattle graziers on the whereabouts of the lions. All the three graziers told us that they had not heard the roar of the lions the previous evening. Although we failed to see any fresh signs of lions, we saw fresh tracks of leopard and hyena in several places. Besides the lion, the high density of leopard and hyena is another significant conservation value of Gir. Though it was late December, which is around peak winter, by about 11 am it became exceedingly hot. As lions usually seek shade at such times, it becomes difficult to locate them, and therefore we abandoned the search.

Around 3 pm, I was informed that a group of three adult females and two cubs were seen by a group of tourists crossing the road in the morning on their way to Raidi. We drove up to the point where the lions had been seen and, thereafter, followed the trail on foot. The early afternoon was much hotter than the forenoon and the dust, which had probably been wet in the morning, flew from the bushes as we walked through the forest now. Numerous peafowl feeding on the *ber* fruit flew helter-skelter as we surprised them. Soon the tracks led us to Thapli *nallah,* which had water oozing from many places in the *nallah* bed, dense vegetation and abundant ungulate signs. As light started fading in the forest, we called it a day.

Early next morning, we got the message that three cattle had been killed by lions near Chhataria, five km west of Sasan. The sun had risen over the hills when we began tracking. The trackers were not sure whether the cattle had been killed by the Raidi or Devalia group which had three adult females and three eight months old cubs. The kills had been made on a hill slope, and the valley, the likely place where the lions could have retired after having gorged on the kills, was overgrown with the thorny

*Acacia nilotica,* and dense, tall grass.

Had the lions remained silent, we would have missed seeing them. As we went about 20 m close to a lioness, which was resting in the grass, it raised its head, growled and lashed its tail vigorously on the ground. When we stopped advancing, she remained still and silent and watched us intently. Only the black of her eyes, her mouth and the tip of the tail were distinguishable from the wheat-brown dry grass around. There was a large cub sleeping nearby, and the rest of the pride could not be seen. Both the lions had distended bellies, which indicated that they had eaten as much as they could. As we watched, the lioness went to sleep. With such a full belly and the increasing warmth of the day, there was very little chance that they would move out of cover during the day. Therefore, we returned to Sasan.

In Sasan I was told about a *sambar* kill, made by a solitary prime adult male in Chhodia *nadi*, five km. east of Sasan, four days ago. Mohammed, the tracker, relocated the kill with great ease. The lion had killed the sambar in the river bed, had eviscerated it at a spot very close by, and had then dragged it into a tangle of creepers and climbers in the dense and cool riverain forest. Fresh tracks of a leopard were all around the lion tracks.

After a four year study on the lions using radio telemetry, Dr. Ravi Chellam and I had concluded that a significant portion of the diet of the seemingly slow adult male lions comes from livestock. Therefore, we had recommended that the programme to settle the *Maldharis* and their buffaloes outside Gir should be carried out in a phased manner, over a period of 10-20 years, so that the new generation of male lions would develop the ability to hunt wild ungulates and switch their diet gradually. We had, however, given the recommendation with the nagging question whether the adult male lions would ever be able to lead a life without depending on livestock. The scene at Chhodia suggested the possibility that they could.

What would be the use of this tracking programme? Several benefits come to mind. This exercise gives the wildlife staff an excellent opportunity to know the area thoroughly. Walking through the bushes, looking for the lions, may be the best way of patrolling and preventing illegal activities like snaring which is rampant in many protected areas throughout the country. The tracking programme gives the staff good exercise. It keeps them physically fit and makes them proficient in jungle craft, which is vital for wildlife personnel. This programme, therefore, needs to be extended to the entire Gir forest, so that all the staff may benefit from it. If observations made during tracking, like the one seen in Chhodia, are carefully recorded, our knowledge of this critically endangered animal, so vital for planning animal conservation measures, will improve dramatically.

Tracking can also help generate revenue for conservation in Gir. Several wildlife enthusiasts will be willing to pay a generous fee to be able to have the first-hand experience of tracking lions in the traditional way. Without any disturbance to the habitat and the lions, a minimum of one hundred trips can be permitted in a year. A major portion of the revenue generated can be added to the Gir Welfare Fund, which was established with the noble purpose of providing social support to the poorly-paid staff.

One of the most tangible benefits of this tracking programme is the ability of the Forest Department to show lions to visitors, who are very keen to see this magnificent felid in its natural setting. The intense stare of a lioness through a dense mat of grass, its low growl and lashing of the tail to warn the visitor not to take any further liberties with its pride, will linger in the memory of persons who have had the fortune of an encounter of the kind, for years to come. Such visitors are likely to become the friends of the lion and other wildlife, and champions of conservation.❑

*Dr. A.J.T. Johnsingh, Joint Director, Wildlife Institute of India, Dehradun, is an expert wildlifer. He has been associated with the BNHS for many years.*

## GREENING OF THE ARMY

Your *Hornbill* 1994, No. 3, exclusively covering the Army's involvement in conservation and greening was superb. Our sincere appreciation to the contributing writers. My special compliments to Pervez Cama who, though neither a scientist nor an army officer, has contributed a very touching article. In fact, you should bring out such Army issues more often, for information and enlightenment.

This issue has a special significance in as much as I came across the confessions of wild animal trafficker who confessed to an appalling and deadly international trade: the wholesale massacre of wildlife, the systematic and final annihilation of our fauna, leading inexorably to a world without animals. His business was one of the biggest in Southeast Asia, employing more than a hundred trappers and an equal number of beaters with his agents in four continents. He was probably closer to the fauna of Asian and African jungles than anyone alive, having caught many rare species at the risk of his life and formed a transit zoo in Laos.

Then came the day when he underwent a change of heart and turned conservationist. That day he took all his panthers, gibbons, bears and other animals back to the forest and set them free. With them went his entire fortune, for he had a virtual monopoly in the trade of gibbons, serow, clouded leopard, the dove monkey and other rare species. He was none other than Domalain.

Darayus C. Balsara,
Bombay.

* * * * *

## BORIVLI PARK BLUES

I am an avid wildlife enthusiast, interested in birdlife, conservation and trekking. I have been going to the Sanjay Gandhi National Park for the last many years and have seen how the Park is being exploited by vested interests, the foremost being the slumlords who have been encroaching on this land.

We, as concerned Mumbaikars, should really do something to save this park, which is priceless for its vivid flora and fauna — mammals like the leopard, *chital, sambar*, barking deer, toddy cat, civet, hares, birds like the grey hornbill, blossomheaded parakeets, paradise flycatchers, barbets, drongos and a lot of insects. It also encompasses the Kanheri Caves, a priceless structure in itself. Steps should be taken to protect the caves and the forest. I suggest the following:

1. First and foremost, a fence or a concrete wall should be built around the periphery and watch towers with armed forest guards should be provided to prevent smuggling of timber, bamboo and illicit liquor, for which the bootleggers move within the Park .

2. Tribal hamlets should be moved out of the Park, as also the many ashrams which have come up in recent times. These ashrams are the meeting places for so-called sadhus who are drug addicts.

3. Picnickers should not be allowed beyond the mini-train or lion safari area as they spoil the park by playing loud music, drums, shouting and also littering the area with non-biodegradable polythene packets, *pan masala* packets and other garbage.

Efforts should be made to drive away domestic cattle from the forest area, as these cattle graze on the flora meant for the herbivorous animals which have thus gone on a decline, forcing the carnivorous animals to venture out of the forest looking for easy prey.

The balance of herbivorous and carnivorous animals should be maintained so as to create a chain for the healthy existence of the forest. This forest is the lifeline of our otherwise polluted city. I know this is not an easy task but if concerned Mumbaikars wake up and come together on a common platform and work out a solution this problem may well be ameliorated.

Sanal R. Nair,
Mumbai.

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## SAVING THEIR SKINS

I am sending a newspaper cutting of the Oriya daily ***The Samaj*** regarding slaughter of twentyfive leopards in the

following hill tracts: Daspalla Reserve Forest — 4 leopard skins, Phulbani Reserve Forest 2, Cuttack Reserve Forest 1, Baramba Reserve Forest 1, Baliguda Reserve Forest 5, Baramba-Kanjiapal Forest 1, Raira Khol Reserve Forest 1, Kothagarh Reserve Forest 2, and Boudh Reserve Forest 3.

The alleged brokers whose photographs have been published were nabbed by the DFO, Athgarh (Dist. Cuttack) Mr. Sanjib Kumar Chadda, who by his ingenious skill, cunning, courage and sense of duty, booked them on 28th April, 1996 at Bhubaneswar.

The market value of the twentyfive leopard skins is about Rs. Ten lakhs. The names of the brokers are Jaharuddin Khan, Shamsuddin Khan, and Ehshan Saha.

These brokers have admitted that they are in this shady business for several years. They have already sold twentyfive such leopard skins previously.

As enumerated during the Tiger census of 1995, there were 271 tigers in Orissa. The poachers have confessed to having shot nearly fifty tigers during this period. Eventually such heinous acts will lead to the total annihilation of the tiger population in Orissa.

My intention is to try and get publicity for such reports so as to arouse public censure. Members should rise to the occasion and move the Forest Department to reward the DFO and his staff for doing their duty so sincerely, not only for the State but also for the Animal Kingdom.

Pradyumna Kumar Das,
Mumbai.

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## SIBES IN BHARATPUR

After missing two consecutive seasons, the return of the four Siberian cranes to the Keoladeo National Park, Bharatpur, in February this year was highly welcome news for conservationists. In view of the most critical situation ever faced by the sibes, the event was highly significant. It attracted the most dedicated ornithologists and at least a dozen scientists from within and outside the country. As some distinguished bird-specialists associated with the BNHS like Dr. A.R. Rahmani were present on the occasion, I expected a special report on the Siberians in the January-March 1996 issue of the *Hornbill,* but I was only to draw a blank after turning over the pages of the quarterly. Would you kindly, therefore, take note while publishing the next issue of the *Hornbill* with an update of the current known population of the bird dealing *inter alia* with the many questions surrounding viability of the western flock of *Grus leucogeranus?*

Incidentally, I would also like to take this opportunity to protest against the bureaucratic attitude of some higher officials of the MOE & F, whose limited and belated permission to put PTT on the cranes beleaguered their safeguard during the 6000 km long return flight. Who knows what happens to the bird after it takes wing from a protected land into the distant unknown?

Mashkoor Hasan
Jabalpur.

This issue contains some information on an international memorandum of understanding on Siberian cranes.

— Editors

* * * * *

## BOUQUETS

I received both *Hornbill* 1996, No. 1 and the Journal for the first time as I am a new member. *Hornbill* was brilliant but the *Journal* did have a high-brow aura about it. Perhaps that is only to be expected, but can't you please give a few easy articles for lay persons like me who have just picked up this interest and are looking for lucid information. Also, one would like the BNHS to go beyond Mumbai and shake hands with enthusiasts all over the country. I would like to get associated with its activities but I don't have easy access to that since I live in Delhi and I am still a student at the university.

Sanjeev K. Chaturvedi,
Delhi.

As you will appreciate, the *Journal* is a purely scientific, technical publication, though you may find the Miscellaneous Notes section interesting. The *Hornbill* is sent free of cost to members and we hope you will continue to find it interesting.

— Editors.

**THE END OF A TRAIL.**
By Divyabhanusinh Chavda. pp. xxii + 248 with many coloured and black and white photographs & line drawings. New Delhi, 1995. Banyan Books. Price Rs. 750/-

In India the study of wildlife has a singular blessing, the dedicated motivated and talented amateur. Traditionally the amateur has contributed a sizeable share to our knowledge of the country's wildlife. In Divyabhanusinh, a hotelier by profession, and a committed conservationist by inclination, the Indian cheetah, the little known and enigmatic species of the Indian plains has found a remarkably talented chronicler of its history.

In the eleven chapters of this meticulously researched book, the author leads us on the trail of the cheetah from its origin, its involvement with man and its final extinction in the remote forests of the Surguja district of Madhya Pradesh. Widely distributed in the past in the plains of the African and Indian continents, the cheetah occupied a somewhat narrow environmental niche as a fleetfooted hunter, built for a sudden, incomparably high burst of speed which brought it hunting success and finally spelt its doom on the plains of India.

After a brief review of the differences between the leopard and the cheetah which are often confused in their identification, the author turns to his main theme, the association of the cheetah with man as a hunting partner. In the remote past the Egyptians in the time of the Pharoahs had tamed them or at least the Pharoahs had received them as gifts. Whether the cheetah had been trained for hunting at that point of time in India is not known. We did not have a comparable civilisation with written and visual records. However, the capture and training of the cheetah is probably an ancient art in India as tribals such as the Cheetahwala Pardhis are probably the remnants of our ancient past, who have with commendable stubbornness kept out of the changing mainstream of Indian life. Though coursing with cheetahs was in practise with the Hindu kings before the advent of the Mohammedans, it was under the Moghuls that it flourished and attained its zenith.

In chapters 3 and 4, Divyabhanusinh gives a well researched review of the status of the cheetah as a hunting tool of the kings of India, particularly the Imperial Moghuls, based on the memoirs they wrote and the miniature paintings they had caused to be executed to record the life of their times.

What emerges is the history of the life of the cheetah, its habits, distribution and abundance in the 16th and 17th centuries. At the peak of the Moghul presence in India, the Emperor Akbar had a menagerie of a thousand cheetahs and is believed to have had 9000 cheetahs during his lifetime. The large number taken into captivity, says the author, was perhaps one of the main causes of the decline of the cheetah. There was a constant and heavy drain from the wild of a species which apparently refused to breed in captivity. It must be noted that the cheetah has now been successfully bred in captivity and could have been bred in captivity in the past, as available literature indicates that the techniques were known. It was, however, easier to capture them from the wild and train them to course the antelope.

The Moghuls, says the author, "turned the coursing with cheetahs into a peerless spectacle". The Emperor Jehangir, for instance, coursing with cheetahs caught 426 antelope in a period of 12 days in the Palam area of Delhi, where jet planes take off now on national and international flights! An elaborate organisation had been developed to keep the Empire supplied with Cheetahs and the Empire's demands took a heavy toll on the wild population, a toll which was continued by the Maharajas and other potentates with the eclipse of the Moghul Empire. The decline was further accelerated not only by suitable habitats going under the plough, but also by the senseless slaughter by the British, who now appeared on the scene. It is difficult to comprehend how the killing of a harmless and beautiful predator can be considered sport. Surely there was something savage and murderous in the psyche of the British of those days who could

write with pleasure of the slaughter of six cheetahs at a time! By the turn of the present century, the cheetah was on its last legs and after Independence coursing with the cheetah, which was now dependent on animals imported from Africa, disappeared with the Maharajas. It is a pity that the species, which was a part of a sport of kings, was finally extinguished by a Raja in the remote forests of the Surguja District of Madhya Pradesh.

A chapter is devoted to the now defunct art of capture, training and hunting with cheetahs. As in the domestication of any wild animal, the training of the cheetah ultimately amounts to the breaking of its spirit, the so called wildness of the animal. In the case of the cheetah also, it is through coercion, starvation and a tenous attachment to its keeper, and finally reactions which are a conditioned reflex. Yet, with all its training, the cheetah remains remote and withdrawn — a robot ruled by its keeper — that looks through you into the far distance. If you are of a sentimental nature, the cheetah's faraway look is an expression of its yearning for freedom. A more prosaic explanation would be that the cheetah habitually looks out for its prey in the far distance and ignores nearby distraction!

The final chapters consider the cheetah in Africa and Asia and the present status of the species in Asia, where a few animals still probably exist in Iran and the possibilities of reintroduction into India. To me, personally, having seen the remote forests of Surguja district where the cheetah was last sighted by reliable people, there is a flickering hope that the cheetah is still extant in India and deserves a determined search.

This excellently produced book is the last word on the cheetah and the author and the publishers are to be congratulated.❑

J.C. DANIEL

## NEW ARRIVALS at the BNHS LIBRARY

1. S. Dwivedi & R. Mehrotra: *Bombay: The Cities within* — I.B.H. Bombay, 1995; 335 pp.
2. Ethel Mannin: *Jungle Journey* — Jarrolds Publications: London, c.a. 1950; 256 pp.
3. M.S. Swaminathan & S. Jana (eds). *Biodiversity: implications for global food security.* — Macmillan India, Bombay, 1992; 326 pp.
4. M.M. Rai: *Principles of soil science*, 3rd edn. Macmillan India, Bombay, 1995; 305 pp.
5. L.K. Jha & P.K. Sen Sharma (eds.): *Forest entomology* — Ashish Publ. House, New Delhi, 1994; 387 pp.
6. George C. William: *Sex and evolution* — Princeton Univ. Press: New Jersey, 1975; 200 pp.
7. John A. Endler: *Natural Selection in the Wild* — Princeton Univ. Press, New Jersey, 1986; 336 pp.
8. John A. Endler: *Geographic variation speciation clines* — Princeton Univ. Press, New Jersey, 1977; 246 pp.
9. Hans Winkler & A. David: *Woodpeckers: a guide to the wood...* — Pica Press, E. Sussex, 1995; 406 pp.
10. David Tilman: *Resource competition & community structure* — Princeton Univ. Press, New Jersey, 1982; 296 pp.
11. Penelope Revelle & Charles Revelle: *The global environment securing a sustainable future* — Jones & Bartlett: London, 1992; 480 pp.
12. S.S. Negi: *Forestry research in tropical Asia Pacific* — M.D. Publ., New Delhi, 1995; 228 pp.
13. Shripad N. Agashe: *Palaeobotany: Plants of the past, their evolution, Paleoenvironment and application* —Oxford & IBH: New Delhi, 1995; 359 pp.
14. Zoological Survey of India: *The Red Data book of Indian Animals* Vol. 1-Vertebrates — ZSI: Calcutta, 1994: 534 pp.
15. Subhash Chandra Datta: *Plant Physiology* — Wiley Eastern Ltd., New Delhi, 1994; 618 pp.

# Seashore Lore

## 23. Mermaids With Moustaches

Beefsea

**"I never saw a purple cow,**
**I never hope to see one;**
**But I can tell you, anyhow,**
**I'd rather see than be one."**
*Adapted from Gelett Burgess.*

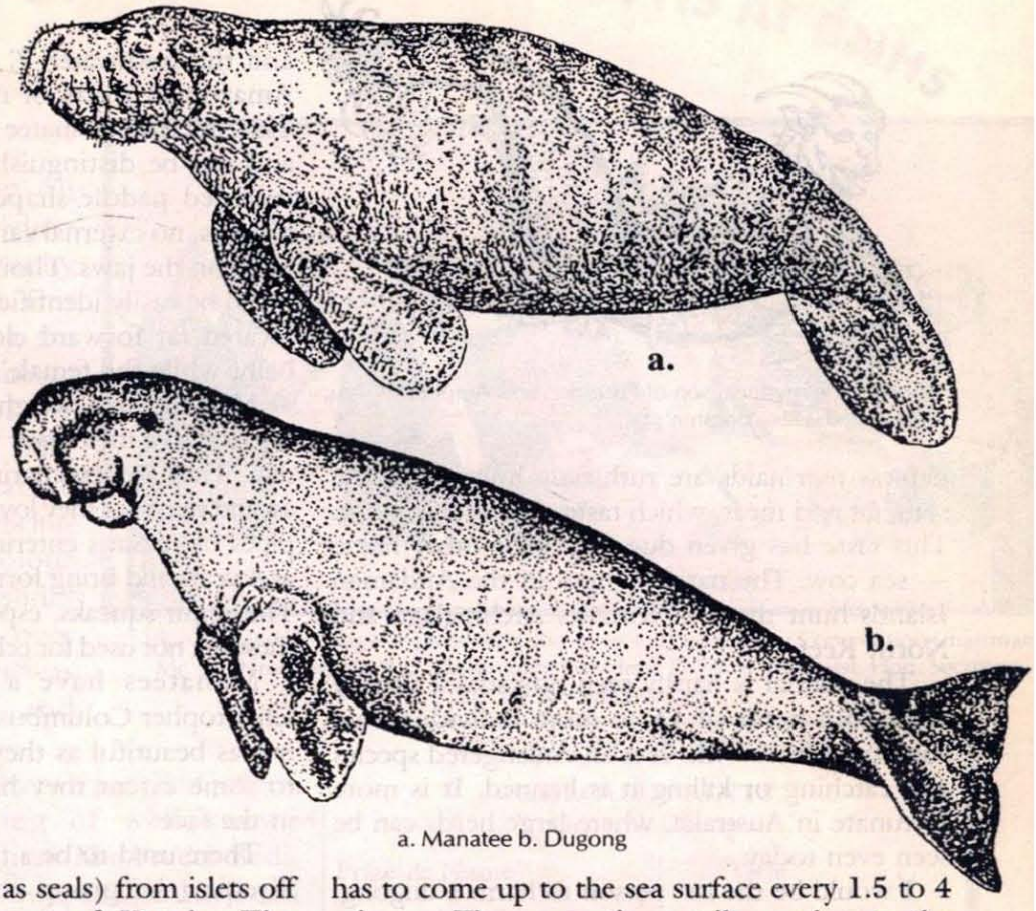
My dreams had finally come true; I was face to face with a mermaid — or, more accurately — the creature that has given rise to the legend of mermaids. And what a climbdown it was! From my boyhood I had been hearing tales of extremely beautiful maidens with long, streaming hair and voluptuous bosoms, human down to the waist, but with the lower half of the body covered with scales and ending in a fish-like tail.

The Greeks and Romans called them sirens or nereids, and they (the sirens, that is) sang so enchantingly that any sailor hearing them was bound in a bewitching spell, jumped into the sea to embrace them and drowned. Ulysses had to plug his sailors' ears with wax to prevent them from hearing the sirens' songs, and he tied himself to the mast so as not to jump into the sea to his doom.

And what did I actually see? A sausage-shaped body some 3 metres long and weighing may be half a ton, with thick greyish-brown wrinkled skin, small beady eyes and a horizontal notched tail. Between the short flippers springing from the shoulders, rounded at the ends and without any nails, were two tiny, 3 cm long teats the length of one's thumb, indicating that it was a female. The mouth, to say the least, was not kissable. The upper lip was in the form of a horseshoe-shaped muzzle, divided into two swollen pads which bore stiff, quill-like bristles.

How could any person compare this to a beautiful mermaid? The female is said to suckle her young one while clasping it with a flipper to her bosom just like a woman cradling her baby in her arms. Probably a love-sick sailor, in a slow sailing ship out on a long voyage lasting many months, saw one in the dim moonlight and let his imagination run riot. I can sympathise with him as I too have had this experience. We were out on an oceanographic ship. There were no woman scientists or crew on board, and it was a month before we touched port in Africa. To complete customs formalities, two women customs officials came on board. A scientist lolling on the deck saw them and excitedly ran down to inform all of us in our cabin. In a trice, almost all the scientists (including me) went up to have a closer look. And remember, this was only a month away from the company of women!

The dugong (*Halicore dugong* or *Dugong dogon*) — for that is the animal I am talking about — is a large mammal 2.5 to 3.5 metres, distantly related to elephants, found in the seas close to




a. Manatee b. Dugong

the shore from East Africa and Madagascar, up the Red Sea, India, Sri Lanka, Bangladesh, Myanmar, Malaysia and Indonesia to North and West Australia and the Great Barrier Reef. Northwards, it extends to Formosa, Japan, Philippines and eastward to New Guinea and some of the islands in southeastern Micronesia in the Pacific Ocean.

In India, it is found in the Gulf of Kutch, Gulf of Mannar and the Andaman Islands. In fact, in the Little Andaman group there is a place called Dugong Creek. Jerdon, in 1894, wrote that they were reported (but mistakenly as seals) from islets off the South Malabar coast of Kerala. The Mesolithic peoples of the area now called Gandhi Sagar in Rajasthan, about ten thousand years ago, painted dugongs on the walls of their cave dwellings. Today this place is more than 200 km from the sea, but it should be remembered that Saurashtra was then not attached to Gujarat, and much of Rajasthan was then covered by sea; even the valleys of rivers Indus and Luni were then marine.

Dugong comes from the Malay word "duyong". Dugongs are completely vegetarian and consume sea grasses (such as *Zostera, Thalassia, Thalasodendron, Syringodium, Halophila, Halodule, Euhalus* and *Cymodocea*). The plants are grasped between the pads of the muzzle and crushed between horny plates in the jaws, finally being ground by the five pairs of upper cheek teeth and five lower molar teeth. The males have a pair of long, down-pointing tusks (incisor teeth) some 23 cm long; these are absent in females.

Being a mammal, the dugong breathes air and has to come up to the sea surface every 1.5 to 4 minutes. The crescentic nostrils are close to the muzzle, right on top; they can be closed by hinged valves when the dugong dives under water. There are no hind limbs. A pair mates for life and the single young (rarely twins) is in the mother's womb for 13 to 14 months. The baby is about a metre long at birth, weighs some 20 kg and suckles for a year and a half; the milk is very thick, like condensed milk.

The dugong is a most inoffensive animal. When threatened, it will swim away at a speed of 18 to 20 km per hour, but soon tires. The male's tusks are not used against an enemy; they probably help it to root out its food. Dugongs can live up to 20 years, but rarely attain this age. They are not eaten in Gujarat. The predominantly Muslim population there call it "soover machchhi" (pig fish), and pig's flesh is forbidden in their religion. They also call it "bai manas" (a woman) or "loolee" (a crippled woman). But they use its oil for applying on their wooden boats for preventing wood-borers. In South India, these

Triton — the mythical son of Poseidon and Amphitrite — is represented with a dolphin's tail

hapless mermaids are ruthlessly hunted for the skin, fat and meat, which tastes like veal or pork. This taste has given dugongs their other name — sea cow. The native Onges of the Andaman Islands hunt them in Ritchies Archipelago and North Reef.

The animal is hardly seen nowadays, usually alone, but herds of 15 or more individuals are sometimes met with. It is an endangered species and catching or killing it is banned. It is more fortunate in Australia, where large herds can be seen even today.

I would be the last person to harm a dugong, but I was witness to a bizarre incident many years ago. It makes a poignant story. The venue was an agricultural fair, and the host state serendipitously managed to catch a live dugong just a few weeks before its inauguration. To house this *piece de resistance*, they constructed a huge pool — almost a miniature swimming pool, and put the animal it it. A VVIP, being told that the dugong's mammae are like a woman's breasts, wanted to satisfy his curiosity. Now a VVIP's request is tantamount to an order, so the officials wanted to please him. But the dugong would not oblige by turning on its back. They prodded it with poles, and the animal decided that enough was enough. She swam at full speed, rammed her head against the concrete walls of the pools and died. And that was the sorry end of the sea cow!

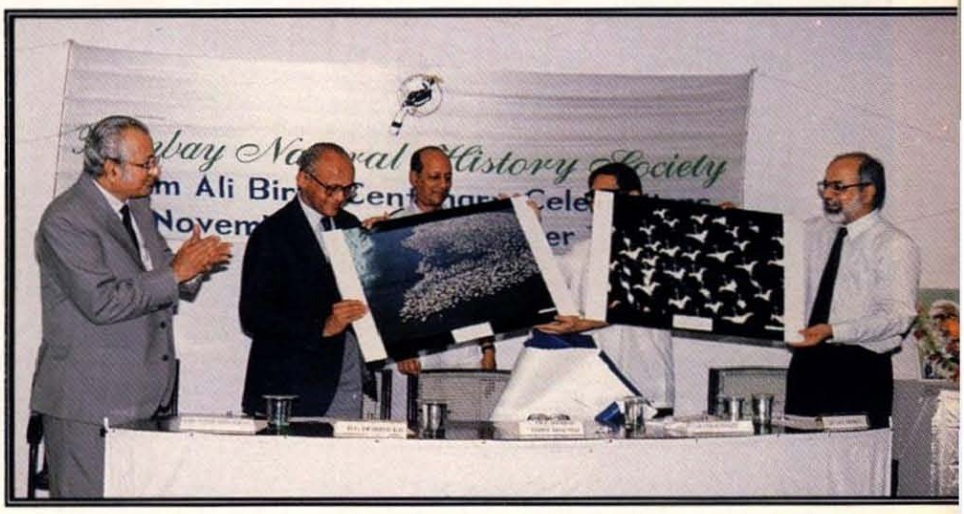
Cousins to the dugong are the manatees. There are three species, the American manatee (*Trichechus latirostris*), found in Florida, U.S.A., off the Caribbean Islands, Mexico and northern Brazil, the West African manatee (*T. senegalensis*), and the freshwater *T. inunguis* found in some Amazonian rivers of northern South America. The American manatee is 2.5 to 3.25 metres long, and can be distinguished from dugongs by its rounded paddle-shaped tail, flat nails on the flippers, no external ear-holes and up to 20 cheek teeth on the jaws. Though the male has no tusks, it can be easily identified as its genital opening is located far forward close to the middle of the belly, while the female's is near the anus.

Manatees may weigh 900 kg and feed on up to one-tenth of their body weight of sea grasses every day. They are less marine than dugongs and may ascend rivers, as they love to drink fresh water from pipes or streams entering the creeks. They breed at 4 years and bring forth a calf every 2 to 3 years. They emit squeaks, especially when alarmed, but these are not used for echo-location as by dolphins.

Manatees have a bristled muzzle, and Christopher Columbus remarked that they were not as beautiful as they were painted, although to some extent they have a human appearance in the face.

There used to be a third representative of the Sirenia (the group comprising dugongs and manatees) but, alas! it is no more. Human rapacity put paid to it. This was Steller's sea cow (*Hydrodamalis gigas*), named after the German botanist Georg Wilhelm Steller, who took part in Vitus Bering's second Kamchatkan Expedition of 1741. His ship, *St. Peter*, took shelter in the then uncharted Bering Island. Steller saw huge creatures, looking as if the head and tail were stuck on to a bulbous body. The Steller's sea cow, unlike dugongs or manatees, did not dive. It floated in and out with the tide, feeding on plants torn off rocks. Steller did not know that there were only about 1500 of them, restricted to Bering Island and the nearby Copper Island. He noted that its fat tasted like the oil of sweet almonds, and the meat like beef or veal. The ship's crew started butchering them as provision for their return voyage, and seal and fox hunters continued the slaughter, and by 1754 all the sea cows at Copper Island had been exterminated — soon to be followed by the herds of Bering Island. The last Steller's sea cow died in 1768.❑

# EXHIBITION OF NATURE PHOTOGRAPHS AT BNHS



Vice Admiral V. Bhagwat presenting souvenirs to Photography Competition Chairman Mr. A. Shirodkar, Mr. B.G. Deshmukh, President, Dr. A.M. Bhagwat, Hon. Secretary Dr. Jay Samant, Director.

AS part of the Sálim Ali Birth Centenary celebrations, a nature photography competition was arranged. This was aimed at highlighting the need to protect and conserve the natural heritage of the Indian subcontinent. The response from nature photographers was overwhelming. In all over 517 colour prints and 409 colour slides were received from all over India. A special section was reserved for school and college students.

The judging was done by two panels of judges, the technical consisting of well known commercial photographers Ms Preeti Bedi, Mr. Ian Pereira and Mr. Swapan Mukherji and the naturalist panel consisting of Mr. S. P. Godrej, Vice Admiral M. P. Awati (Retd.), Mr. Ratnakar Sohoni,Commercial Art Director and Mr. A. K. Nigam, Conservator of Forests,Western Region Maharashtra. 16 prizes, ranging from Rs 2500 to Rs 1000 were presented by the Chief Guest Vice Admiral Vishnu Bhagwat, who inaugurated the Exhibition. The Competition was sponsored by the Indian Hotels Co. Ltd. and Mr. Ajit Kerkar was the Guest of Honour at the inauguration and prize distribution ceremony. This Competition and Exhibition was chaired by Mr. Adhik Shirodkar, who besides being a Member of Parliament and Senior Advocate, is also an ardent bird photographer.

More than 200 nature photographs were on display and a slide show of prize winning slides was held every evening.The centrespread and cover of this issue of *Hornbill* carry two of the entries in the colour prints section of the Nature Photography Contest. ❑

## LIST OF PRIZE WINNERS

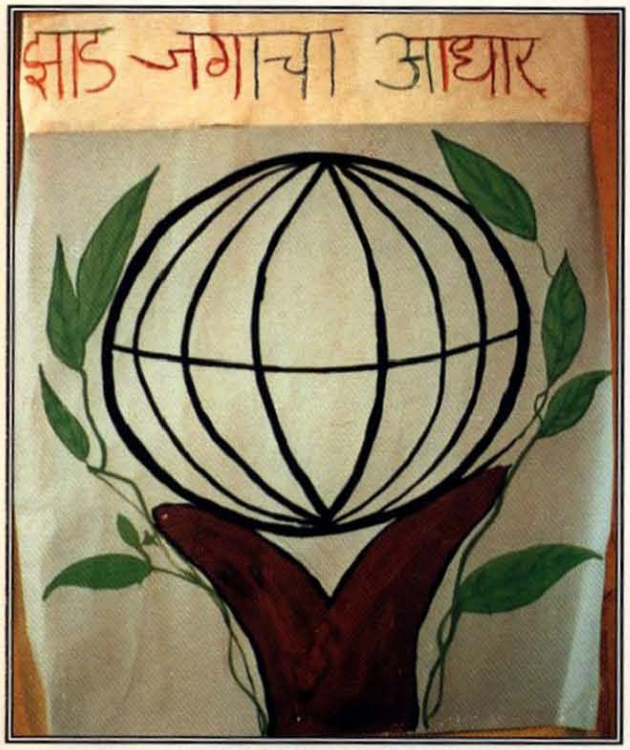
### COLOUR PRINTS
**General Group**

| Prize & Name | | Title |
|---|---|---|
| Ist | Mr. Girish Thakur | Tiger in water |
| IInd | Mr. Dev Das | Honey Sucker |
| | **College Student** | |
| Ist | Mr. D. Balchandar | In search of honey |
| IInd | Mr. K. S. Rajasekar | Tiger |
| | **School Students** | |
| Ist | Master Rahul Raikwar | Relaxing Tiger |
| IInd | Master Gaurav V. Parikh | Try and try till |

### COLOUR SLIDES
**General Group**

| Prize & Name | | Title |
|---|---|---|
| Ist | Mr. Biswarup Raha | Changing colours |
| IInd | Mr. Krishnaji Rao Y. | Nilgiri Tahr with young |
| | **College Student** | |
| Ist | Ms. Dipani Sutaria | Grace |
| IInd | Ms. Dipani Sutaria | Eight legged Mystery |
| | **School Student** | |
| Ist | Master Rahul Raikwar | In search of peace |
| IInd | Master Rahul Raikwar | Loving pair |

# CEP News — Experimenting with Education




*Trees — the basis of the biosphere.*
A poster drawn by a participant of CEP

So what has been happening in the Conservation Education Project? It has been a year since we last wrote to you about it. The year was a busy one for the CEP.

Environment Education Programmes are on in our target villages and schools in Gudalur, Bharatpur and Mumbai. We have so far conducted 123 programmes for villagers, 82 programmes for school children, 5 for teachers and 3 for foresters.

**Media** We have communicated our messages with slide shows, film shows, poster exhibitions, nature games, demonstrations of improved chullahs, biogas plants, nature trails, video shows, songs, quizzes, competitions, slogans, painting, participatory rural appraisals, street plays, group discussions and rallies.

As a result of our programmes, one youth group in the village Walethottam in Mudumalai Wildlife Sanctuary is keen to start an environmental club. A similar nature action group in Nellakottaai village has also been formed.

**Educational Resource Development** Resources catering to specific target groups and languages and issues like firewood collection, importance of trees, pesticides use, flora and fauna of the Sanjay Gandhi National Park, have been developed. These are in various forms like posters, slide sets, flash cards, etc.

*A journey through Moyar* will take you across the wilderness of Mudumalai Wildlife Sanctuary, covering the elephants, tribals and radio telemetry, while *Wings of Change* will tell you about the world famous Keoladeo National Park, its people and its Aves. These two video films on our project areas have been produced by us. The third one *Beginning for Survival* is a visual poem on the need for a better environment consciousness among the corporate sector, the urban elite or the masses.

**Environment Games** Environment games for school children have been developed. Some can be carried away and played anywhere while others are permanent fixtures. Some of the games have been designed for use in the Discovery Room of the Conservation Education Centre.

The Conservation Education Centre (CEC) is an 825 sq.m. citadel resembling a Greek acropolis. The Centre has an organic design, no sharp corners, green open spaces and it merges with the surrounding landscape beautifully.

There is an auditorium with seating capacity for 100 students, a display room, and discovery room. The Discovery Room will be filled with interactive displays which will impart knowledge in a subtle way. There will be take-away material, projects for students and teachers, a gift shop, cafe and much more.

**Volunteers** The CEP plans to build up a strong corps of volunteers who are willing to impart knowledge to young minds. Volunteers can give their time, talent and skill to help us achieve our goals. We have already held one volunteer training programme on the conduction of Nature Trails.

Anne Schere, University of California, visited India and worked with us for four months. She developed games, word scrambles and other activities for school children. Ms. Prabha Ravi, a student of M.Sc. Life Sciences, Bombay University, wrote up several projects for children. Many BNHS members have helped too.

**Visits to CEP** In the past one year Ms. Chris Skinner, Education Adviser, Pulborough Brooks Reserve, RSPB, visited us in March 1995, Kevin Roberts, Rye-House Marsh Manager, paid us a visit in July 1995 and held a four-day workshop in Site Management Planning, Volunteer Services, Evaluation and Assessment Techniques. David Elcome, our technical adviser and Head of Education, RSPB, visits us periodically to appraise the work on the project.

**Human Resource Development** Staff training programmes were organised in the field of low cost educational material, communication through puppets, publication procedures, script writing for puppet shows, street theatre, photography, sericulture, vermicomposting, orchard farming and other aspects for development work in villages.

Field staff also attended courses in Environment Education for Children, conducted by CEE, Ahmedabad. Research papers were presented at NGO meets held in Rajasthan, Ooty (Tamilnadu) and in Delhi on various aspects based on the findings of our baseline survey and field programmes.

Our field teams have created excellent rapport with the villagers in their field areas. who in turn are very co-operative. They are receptive to our field programmes, whether on awareness of the wildlife in their area or issue-based programmes on man-wildlife conflict. They have come forward to try out the improved varieties of stoves and chullahs.

The forest personnel in our field areas have developed a renewed interest in the people who live around the protected areas. They have established a level of communication with these villagers which was not found earlier.

**NGO Networking** The Malayaga Makkal Mandram, an NGO involved in social and development issues in the Nilgiris, co-ordinates with our Gudalur Field Station in spreading green messages across the project area, while in Bharatpur the Keoladeo Research Foundation actively co-ordinates with CEP to bring about ecological awareness among our target audiences.

The Committed Community Development Trust, a Mumbai-based NGO which runs non-formal schools and creches for the tribals living in SGNP has involved itself in designing an environmental curriculum with our help. Besides these NGOs, there are a number of others who periodically meet and interact with the field teams in all the three areas. School teachers and local enthusiasts too take a keen interest in our education activities.

The Conservation Education Project has woken up the proverbial sleeping giants. These giants expect a deluge of educational resource materials, for use in schools and homes or inside national parks and sanctuaries. There are a lot of 'wants' in the area of educational resource material and any item produced is like a drop in the ocean. For us in the CEP it is a constant challenge and we endeavour to produce innovative and exciting materials. Education is an integral aspect of conservation which is for the people, of the people and by the people. This has to be communicated to every villager, tribal and non-tribal. It is not a competition between the haves and the have nots, but a race to extinction that all those who have not understood the significance of education seem to promote. CEP is here to stay for a long time to come.❑

**— Lima Rosalind, Project Officer.**

# ENVIS Centre at BNHS

The Government of India, Ministry of Environment and Forests, has awarded Bombay Natural History Society a grant to set up an ENVIS Centre on Avian Ecology and Inland Wetlands at Hornbill House.

ENVIS (Environmental Information Systems) is an all India level Centre and will collect and disseminate information relating to the environment.

The long term objectives of the Centre are to build up a repository and dissemination centre in Environmental Sciences, to gear up to the

Mr. N.R. Krishnan inaugurating the ENVIS Centre at BNHS.

modern technologies of information acquisition, processing, storage and retrieval and dissemination of environmental information to users, and to support and promote research development and innovation in environmental information technology.

The ENVIS Centre at BNHS was inaugurated by Mr. N. R. Krishnan, Secretary, Ministry of Environment and Forests, Government of India, on 18th June, 1996.❑

# Sálim Ali's Book of Indian Birds

Capt. J. N. P. Nishad, Minister of Environment & Forests, released the book at Delhi. Seen here with Mr. B.G. Deshmukh, President BNHS, Mr. S.C. Dey, Additional IG, Forests and Mr. D.S. Chavda, Vice President, BNHS.

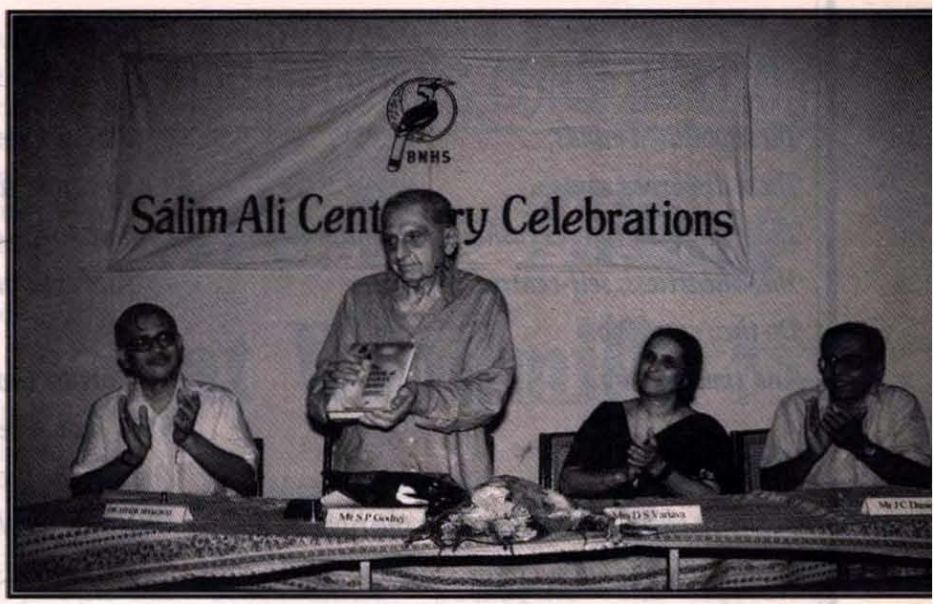
On *Vanamahotsav* day, the 12th revised edition of Dr. Sálim Ali's *Book of Indian Birds* was released. The Minister of State for Environment and Forests, Captain JNP Nishad released the book at a function held at New Delhi, and simultaneously in Mumbai, Mr S.P. Godrej released the book at the BNHS. In Hyderabad, the book was released by the Governor of Andhra Pradesh, Mr. Krishna Kant and in Trivandrum, the State Minister of Forests, Mr. P.K. Kurup released the book.

Dr. Sálim Ali last revised and enlarged the *Book of Indian Birds* in 1979.This 11th edition illustrated 296 species and being a bestseller was reprinted five times. It was thereafter decided that the *Book* should be enlarged to cover the common and interesting birds of all biogeographic zones in India to make it a useful field guide for the Subcontinent. This revised and enlarged edition of the book commemorates the centenary of

Dr. Sálim Ali and his seminal contribution to the popularisation of the study of birds in India, which began with the publication of the first edition in 1941.

The centenary edition of the book describes 538 species. The descriptions have been compiled from Dr. Sálim Ali's writings to maintain the same style and format, by Mr. J.C. Daniel, Ex-Director, BNHS.

The new illustrations have been specially prepared by Mr. Carl D'Silva, except for one plate on the mynas which was prepared by Dr. Sálim Ali's favourite bird illustrator Mr. J.P. Irani. Each of the species illustrated in the plates has been provided with brief captions giving status, whether resident or migratory, size and form, key identification characters, habitat and distribution. New colour photographs are included. The key section *How to recognize birds in the field* has been revised to include the additional 242 birds described. This is followed by the 64 captioned plates and detailed descriptions. The *Book* ends with Dr. Sálim Ali's notes on nesting, migration, and bird watching.❑




Mr. S.P. Godrej releasing the *Book*, with Dr. A.M. Bhagwat, Hon. Secretary, Mrs. D. S. Variava, Vice President, and Mr. J.C. Daniel, Chairman, Publications Subcommittee

## WINNERS ALL

The National Painting Contest was one of the most popular and successful activities organized by BNHS during the Sálim Ali Centenary Year. The response was overwhelming, and we have been hard put to find space in *Hornbill* for all the beautiful paintings done by the young enthusiasts who took part in this Contest all over the country.

We can, perhaps, make up to a small extent, by giving here a photograph of the prize winners of the contest, which was taken after the Prize distribution ceremony on 5th June, 1996, the day the paintings were exhibited at Hornbill House.❑

# As Time Goes by

*These polluted minds,*
*These disturbed souls,*
*These haunted figures rushing from pillar to post,*
*These heartless, self-centred creatures,*
*Do they care? No.*
*And time goes by.*

*There was a time*
*When they could have chosen the right path*
*And stopped killing those striped beauties*
*Who have now joined the dodos.*
*Do they care? No.*
*And time just goes by.*

*For an ounce of musk they kill a deer,*
*For two tusks an elephant,*
*For a horn a rhino.*
*Is it worth it? Just for us to earn a living?*
*There is one less for every ounce of musk,*
*Every pair of tusks, and a horn.*
*This one less leads to extinction*
*And we know that it isn't fair.*
*But do we care? No.*
*And time just goes by.*

*We throw plastic bags into water,*
*Drain chemicals right in,*
*But do we remember*
*That there are those who cannot survive*
*Elsewhere than in water?*
*Do we know that plastic bags choke the turtle?*
*Of course we do.*
*But do we care? No.*
*And time goes by.*

*We torture those monkeys*
*Who should be swinging from the branch of a tree*
*Amidst the forest.*
*Those big black bears have not been born*
*To entertain us.*
*How about us entertaining them*
*For a change,*
*Jumping through rings of fire*
*And charging at pieces of red cloth.*
*We know we won't have to.*
*So do we care? No.*
*And time as usual drifts away.*

*By this I mean me and you.*
*Start recycling paper and using paper bags.*
*Remember we can watch the Russian Circus*
*(It's without animals)*
*Stop watching performing animals*
*For you know where they ought to be.*
*Stop! Stop now!*
*For time is going by.*

**Rachael Rukmini Israel**
**(Age 12 years)**

# PUBLIC OPINION & CONSERVATION !

# Are We *Tilting* at Windmills ?

The long struggle of the Narmada Bachao Andolan is a classic example of an informed and highly motivated public opinion, which has enabled environmentalists to effectively pursue a controversial project. This has now resulted in the Sardar Sarovar project's activities being drastically curtailed, till such time as the entire controversy is resolved to everybody's satisfaction.

One of the most effective results of this sustained campaign was the withdrawal of World Bank support to the mega project. The protracted struggle also led to a conflict of interests amongst the states concerned (Gujarat, Maharashtra and M.P.). This has worked to the advantage of the environmentalists. Moreover, the intervention of the Supreme Court indicates that the matter needs serious consideration.

What started out as a hopeless agitation has now snowballed into a major environmental issue.

The sustained campaign by environmentalists against mega hydel projects has not only resulted in such projects being scaled down or being given up entirely, like the Silent Valley Project in Kerala and Arun Hydro electric Project in Nepal, but has also influenced major funding institutions, like the World Bank and the International Finance Corporation. Pressure from environmentalists has forced governments and corporate bodies to cater to the ever increasing demand for electricity from non-conventional sources.

Rapidly industrializing societies can no longer ignore environmental consequences. Corporate bodies are gradually becoming environment friendly as market forces coerce them to adopt green practices.

"Green companies are going to call the shots in the 21st Century", opines Associated Chambers of Commerce and Industry (Assocham) Secretary-General V. Raghuraman. International environmental pressures on Indian industry have already affected the export of textiles, leather goods, tea, coffee and other food products. Similarly, public opinion has put pressure on the packaging industry. Environmental strictures are forcing strict ecolabelling, packaging and recycling requirements, which are now included in the North American Free Trade Agreement (NAFTA), all because of a strong eco-conscious consumers' lobby in these countries.

Industrialised countries have become highly sensitive to such opinion and are taking ISO-14000 certification for environmental standards very seriously. Most of these countries have environmental regulations on the agenda of their respective Ministries of Industries. These regulations become effective only when there is proper co-ordination between trade and environment officials at the national level.

The prospects of Nuclear power worldwide looked bright twenty years ago, in spite of the fact that even during that period, nuclear energy was not being perceived as a safe and viable solution. But there was no denying the simple fact that 100 gm of Uranium could produce as much energy as a tonne of oil. As a result, today 431 atomic reactors in 44 countries provide 5% of world's energy needs, while 55 others are being built in France, Russia, China, India and several other Asian countries.

Even so, the nuclear industry now seems to have passed its heyday. Since the accidents at Three Mile Island, U.S.A. in 1979 and at Chernobyl in the Ukraine in 1986, public opinion has proved powerful enough in Germany to bring its nuclear programme to a halt. A similar

situation prevails in the U.S.A., where the 110th nuclear power station is now unlikely ever to see the light of day. In their fight against nuclear power, environmentalists have recently had the support of certain financial experts, who have revised their profitability calculations.

In the automobile sector also, the introduction initially of PUC control norms, followed by catalytic converters and lead free petrol, besides the popularisation of compressed natural gas fueled engines and battery driven cars, is the direct result of public awareness and concern over the increasing pollution levels in urban centres, where almost 30 - 40% of the air pollution is contributed by vehicular emissions, especially privately owned cars.

This public concern is reflected in the use of ecofriendly products such as jute fibre in auto components like door panels, dashboard, car rooftops and front boards. The idea developed by a German firm has now been transferred to a Calcutta based company. The increasing use of vegetable dyes in the textile industry has been brought about by the pressure of public opinion in Western countries, where eco-sensitive consumers have come to realise the harm done by synthetic chemicals to the environment. Hence the generation of an ecofriendly opinion in one part of the world has resulted in an ecofriendly act in another. The impact of this opinion has been accelerated by the commercial interests involved. The successful promotion of ecofarms is another manifestation of public opinion in favour of environment friendly activities.

Ecofriendly technologies have also received a boost, especially with the recent emphasis on "Cleaner Technology". Realising the environmental implications of obsolete technologies, the Ministry of Environment & Forests has started advocating cleaner technologies, so as to avoid further environmental stress. The term "Cleaner Technology" eludes precise definition but may be defined at the most stringent level as " no waste technology" or more practically "low waste technology". The overall effort is aimed at greening the supply chain of major industries and multinationals.

A report put out by the Confederation of Indian Industry highlights the emphasis that is now being placed on environment friendly trade. The report also states that India is one of the world's four largest growing markets for environmental goods and services. Informed and concerned public opinion on environmental issues has now resulted in the Supreme Court of India allotting one day (Friday) in the week as a Green Day. The day is specially devoted to addressing environment related litigations.

A recent campaign run by 'Toxics Link' against the import of toxic waste and incinerators into the country has been a successful one from the start, though much needs to be done to follow up on the recent Delhi High Court order which bans the import of toxic wastes into the country. The introduction of Vermiculture is also helping to solve the problem of waste management, especially organic waste.

Environmental conflicts and public awareness of them have forced communities to look at alternatives to the present system and ways to curb wasteful and destructive consumption patterns. The suggestion of 'Green Tariffs', an environment tax, is one such proposal, which if introduced and implemented seriously could possibly enable sustained economic and environmental development. Introduction of Environmental audits by many corporate bodies is an indication of heightened environmental awareness, both at the government and corporate levels. Finally it should be realised that Public opinion takes time to become effective. But all this can be brought about by sustaining the pressure, through public debates and exposures in the press.

Even the MOE&F was nonexistent till about a decade ago, but for the understanding of such issues that the Prime Minister of the day had, thanks to some good spade work done over the years by environmentalists like Dr. Salim Ali. Hence, it is important for environmentalists to address these issues directly to public personalities and key government officials, who can influence the decision making process to the satisfaction of conservationists. If controversial issues are left

to solve themselves, the damage will have been done, hence it is necessary that strong bureaucratic and political support should be built up, which is possible only with public opinion, however weak it may appear to be.

The launching of Project Tiger in the early seventies was the result of this very strategy by conservationists, who were able to identify the open minded personalities amongst politicians and bureaucrats, who helped the project to get a timely start and enthusiastic implementation. However, the drawback of such campaigns is that the enthusiasm and understanding are limited to a few persons and only as long as they are on the scene is the campaign carried out sincerely. Hence it is necessary that awareness is spread to a wider audience for sustained action.

Though at first glance, environmentalists might appear to be modern day Don Quixotes, they are making their presence felt inspite of heavy odds and cynical attitudes.

**How does a Layman Remedy the Environment?**

The most potent weapon, which few of us realise, is writing letters to the approriate authorities and newspapers, bringing to their notice any act which endangers the environment.

The MOE&F has set up six regional offices, which monitor all such activities in their areas of jurisdiction. In addition, a scheme called 'Paryavaran Vahini' has been introduced by the Ministry recently, whereby members of the public can approach the officer concerned and bring such issues in their area to the notice of the respective regional offices.❑

*Compiled by S. Asad Akhtar, Conservation Officer, BNHS.*

PREPUBLICATION DISCOUNT

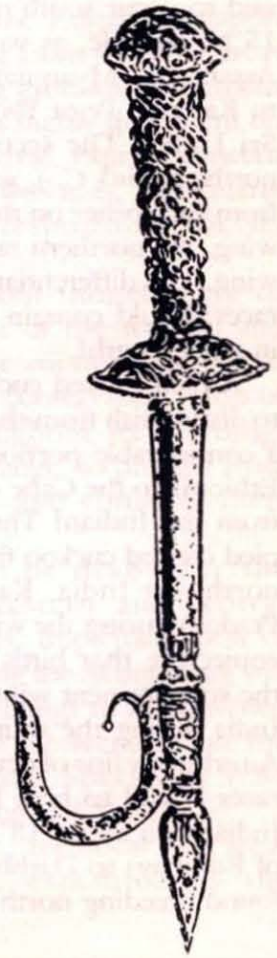
# SÁLIM ALI'S INDIA

The long awaited, **Sálim Ali's India** will be released during the first week of November 1996. This hard bound cloth-covered volume, 9 1/2" x12 1/2" in size, will be printed on imported art paper (172 pages) and will contain fine reproductions of 52 antique colour plates. Most of the lithographs are over a century old and they are selected from old classics like **Oriental Field Sports** (1808), **Oriental Memoirs** (1812), **Scenery, Costumes and Architecture chiefly on the Western Side of India** (1826), **A Century of Birds from Himalaya Mountains** (1832), **Birds of Asia** (John Gould, 1850-1873), **Game Birds of India, Burma and Ceylon** (1879-1881) & **Journal of the Bombay Natural History Society**. The plates include Himalayan and hill birds, birds of the plains, shikar scenes and old landscapes. The volume also contains interesting articles and real life episodes by eminent writers like Dr Sálim Ali, Jerdon, James Forbes, Captain Basil Hall, S M Edwards, Douglas Dewar, Thomas Williamson, Sir J Emerson Tennet, Major Henry Shakespear, Ernest Young, Jeevanji Jamshedji Modi, J C Daniel & Humayun Abdulali.

Gleanings from the old volumes of the JBNHS like the records on the hunting leopard (Cheetah) of Kathiawad, man-eating tigers on Saugar Island in the 18th Century, tigress' milk as a medicine, a brave woman and a cowardly tiger are among the other interesting articles. **Price Rs. 1200/-**

**Special Prepublication** offer for those who are already members by 15th August 1996 will be Rs 720/-, provided their order with amount reaches BNHS by 15th October 1996. There are a limited number of copies, members are advised to take advantage of this special prepublication offer.

This prestigious Project is co-ordinated by Dr Ashok Kothari, Chairman, Library Sub-Committee and Dr B F Chhapgar, member of the Executive Committee.



# The Mystery of the Pied Crested Cuckoo

(*Reprinted from* Hornbill *July-September 1977*)

At the commencement of the southwest monsoon, when birdwatchers come across a pied crested cuckoo *Clamator jacobinus,* its identification presents a dilemma, whether the bird seen is a resident or a migrant from Africa, visiting India for breeding purposes. An enquiry, therefore, of the African origin of the pied crested cuckoo is desirable.

ISAAC KEHIMKAR

Harbinger of the southwest monsoon

Two races of this cuckoo concern us in India — the resident race *C. j. jacobinus* of south and southeast India, said to occur south of about 15°N. latitude, as well as in Assam and Myanmar, south to Karenni, Pegu Yomas and Sri Lanka. The second race is the migratory northern bird *C. j. serratus.* They are separated from each other on the basis of the length of the wing, the northern race having a slightly longer wing. This differentiation is so very fine that both races should contain individuals which overlap in wing length!

A pied crested cuckoo, absolutely impossible to distinguish from the Indian bird, is found over a considerable portion of Africa — east Africa, Ethiopia to the Cape — and is a race inseparable from the Indian! The absence of the northern pied crested cuckoo from Afghanistan, Pakistan, northwest India, Kashmir, Punjab and Uttar Pradesh during the winter months has led to the conjecture that birds breeding in the north of the subcontinent winter in Africa, but return to India during the southwest monsoon to breed. An arbitrary line of demarcation of the two Indian races is said to be a line drawn on the map of India from about 18°N. latitude (i.e. just south of Bombay) to Darbhanga in north Bihar. Birds found breeding north of this line are considered to be those of the northern race *serratus,* and the breeding birds south of it are assigned to *jacobinus.*

It is possible that the pied crested cuckoo breeding in north India winters in tropical Africa, either migrating overland through Baluchistan and Arabia or riding the monsoon drift in the Arabian Sea, which runs east-west in winter, and west-east in summer between India and Africa. The specimen of the migratory race obtained by Dr. Sálim Ali on 17th November, 1939 at Bandipur, Karnataka, far south of its normal breeding range, could have been an example of the bird preparing to move out of India with the east-west monsoon drift. There is also an African race which breeds at least in Ethiopia from March to mid June, laying a blue egg as does the "inferred" migratory bird in India.

The question, however, that looms large before birdwatchers in India is: What happens to the large numbers of pied crested cuckoo that come to breed in the north and central India during the southwest monsoon? Outside the breeding season they disappear from the breeding grounds. How these large numbers of this conspicuous bird remain unnoticed by birdwatchers in winter is inexplicable. Do they really go to Africa to return to India for breeding during the following southwest monsoon? Dr. Sálim Ali in his review of Herbert Friedmann's book *The Parasitic Cuckoos of Africa* suggests a method to find an answer to this query thus: "Considering the large numbers of pied crested cuckoos which arrive to breed in north and central India during the southwest monsoon season every year, it is deplorable that so little is known of their

movements. Whether the influx is merely from western Asiatic countries, or in fact from Africa, as has been suggested, can only be ascertained by the ringing method. In spite of obvious difficulties in the way of trapping adequate numbers of adult pied crested cuckoos for the purpose, or of finding a reasonable quantity of their nestlings, it is nevertheless a line of field work which holds important possibilities and one that can be earnestly commended to those with the necessary opportunities".

This would indeed be a rewarding enquiry for the BNHS.❑

**J.S. Serrao**

## The Peregrine Falcon in Mumbai

The peregrine falcon (*Falco peregrinus japonensis* is seen every year in Mumbai during the winter. It is not known whether this species utilises the tall buildings as a regular winter haunt or makes a brief halt prior to flying back to its breeding grounds in Russia. This falcon was sighted on 3rd March, 1996, its roost located on the 17th floor window-ledge of a highrise building in Colaba. A weekly check was kept on the bird. Sighting was also confirmed on many holidays. As the roosting site faced east, it was only seen after 1pm, when there was shade on the roost. An attempt was made to find out how long this peregrine would stay in the city. It was last seen on 13th April, 1996. Thereafter, despite careful scanning of the surrounding skies and neighbouring buildings, it could not be located.

The falcon seemed happy to catch the smaller pipistrelle bats abundantly available during the evenings. We observed with the naked eye the peregrine's sometimes unsuccessful attempt to catch a pipistrelle. The pipistrelles seem to be fairly easy prey and the only sign of the peregrine having caught one was a sudden jink in its flight. This was verified twice during the evenings when the falcon was observed to have caught a pipistrelle in its talons immediately after jinking. Feeding was observed between 6:30 and 7 PM, while soaring as well as at the roost.It is also worth mentioning sightings of the laggar falcon, sparrowhawks, and very recently, the shahin over two days on the OCS communication tower in Hutatma Chowk by Rishad Naoroji and Dr. Ravi Sankaran. ❑

**Kiran Srivastava**

## SOS for Siberian Cranes

A memorandum of understanding concerning conservation of the Siberian crane was signed between India, Iran, Pakistan, the Russian Federation and authorities of Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan.

The Memorandum expresses that the signatories, being aware that the Siberian crane, *Grus leucogeranus,* has been reduced to the brink of extinction, that it has the longest migration route of all cranes, ranging from breeding areas in Arctic Asia to wintering grounds in southern Asia, and that the species is highly dependent on shallow wetlands for survival, express concern that hunting and loss of wetlands, particularly in southern Asia are responsible for its decline.

Action would be taken immediately to prevent the disappearance of the western and central populations. These countries agreed to co-operate to improve the conservation status of the Siberian crane throughout its breeding, migrating and wintering range, to provide strict protection and identify and conserve their wetlands habitats.

An Action Plan will be drawn for the conservation of the western and central populations of the species. Implementation of the Memorandum, including the Action Plan, will be assessed annually at meetings to be convened by the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979).

Exchange of scientific, technical and legal information would be expedited by the signatories.❑

**Kenya's wildlife offers an opportunity to study complex ecological relationships of tropical biodiversity.**

# An African Safari

**Text: Gool Pavri**
**Photos: Sudheer Agashe**

THE African savanna is a place of great beauty and the image of a dream! It is a land so vibrantly bursting with natural life and the vitality of the wild.

It is hard to think of a tropical country other than Kenya which has such a wide variety of tropical habitats. Here we can truly study tropical ecology, for it is teeming with interesting animals, plants and birds. This tremendous biodiversity makes for a complexity of ecological relationships, which is hard to match elsewhere. Tropical habitats in Kenya are ideal for studying how ecosystems work.

We made a trip to Kenya, to fulfill our dream of the mystery that is Africa. Kenyan Airways flew us to Nairobi, which stands at 1800 m above msl. It is an attractive modern city, with all kinds of facilities for visitors. The day after our arrival we drove out in our Combi to meet the African wild. An hour's drive brought us on the escarpment of the Great Rift Valley. We would travel into this valley for the next several days, on our Safari.

Masai Mara National Reserve gave us our first view of the wild. It begins with grazing wildebeests, topees and the frisky Thomson's gazelles. Many zebras, impalas and a scattering of giraffes met us on our long drive. Tall savanna grass, thorn trees (acacia) and gigantic cacti are spread across vast stretches of land, as far as the eye can see. Then from nowhere, there suddenly appeared Fig Tree Lodge consisting of thatched *rondavels* cottages, creating the impression of living in an African village, set amongst the tropical bushes and acacia trees.

We went out on game drives every morning and evening. Peter, our driver-cum-guide, had to do some groundwork and we endured it with patience, before we encountered our first sight of a lion, sitting camouflaged by the tall grass. Nearby slept the lioness, completely oblivious of the visitors in the Combis. The Lion King got up, and taking a leisurely walk around our Combi, went and sat beside his Sleeping Beauty, giving all of us an opportunity to click our cameras.

Prides of lion frequent the Masai Mara plains. Indeed, it would be unusual to spend an evening drive without seeing herds of elephant and giraffes, hyenas, and the jackal. At night, when you finally bed down in your camp, with only the canvas walls of your tent between you and the African night, you savour the sounds of the bush — the cough of a lion, prowling somewhere on the periphery of the Lodge or the chilling laugh of a scavenging hyena.

The Great Rift Valley encompasses a number of fascinating lakes. We visited Lake Nukaru, where we would get a chance to watch millions of flamingoes — "tossing their heads in spritely dance" like Wordsworth's daffodils.

We watched a host of Kenyan birds, on the shores of Lake Naivasha at eventide. The wet areas had common sandpipers, pintail ducks, curlews, grey plovers, yellow-billed storks and the green African ibises. On the vast green grounds of the club where we stayed, we found crown cranes strutting around and the *tauraco* taking a short flight from tree to tree. There were superb starlings hopping on the green turf and the trees were full of flocks of yellow weaver birds. In the morning, the blue jays greeted us, while the secretary bird majestically paraded the grounds. Out of the small window of my room, I spied a beautiful paradise flycatcher with its long graceful tail curling out of the branch of a tree.

We then drove out of the Rift Valley and due north to Somburu. Along the way, we crossed over the Equator at the small township of Nanyaki which stands on the Equator, at an altitude of 1950 m above msl, making it quite cool.

**Crowned cranes** strut along on the grassy land surrounding the Club

Somburu has the distinctive flora and fauna of the dry plains. It is a semi-arid, stony, bush country, surrounded by hillocks, but the presence of the perennial waters of the river Evaso Ng'iro changes this barren land into a perfect habitat for predators like the lion, cheetah and the leopard.

We stayed at the Somburu Lodge which offers thatched cottage rooms, with excellent facilities for lounging and dining. The coffee shop was an overhanging rotunda which overlooked the River Evaso Ng'iro flowing by. At the lodge, many starlings crossed our path, while the red and yellow African hornbills would fling themselves against our window-panes, trying to gain entry into the bedrooms. At night the baboons would come down from the trees and fight, making a raucous and frightening din. The experience was truly one of living in a jungle.

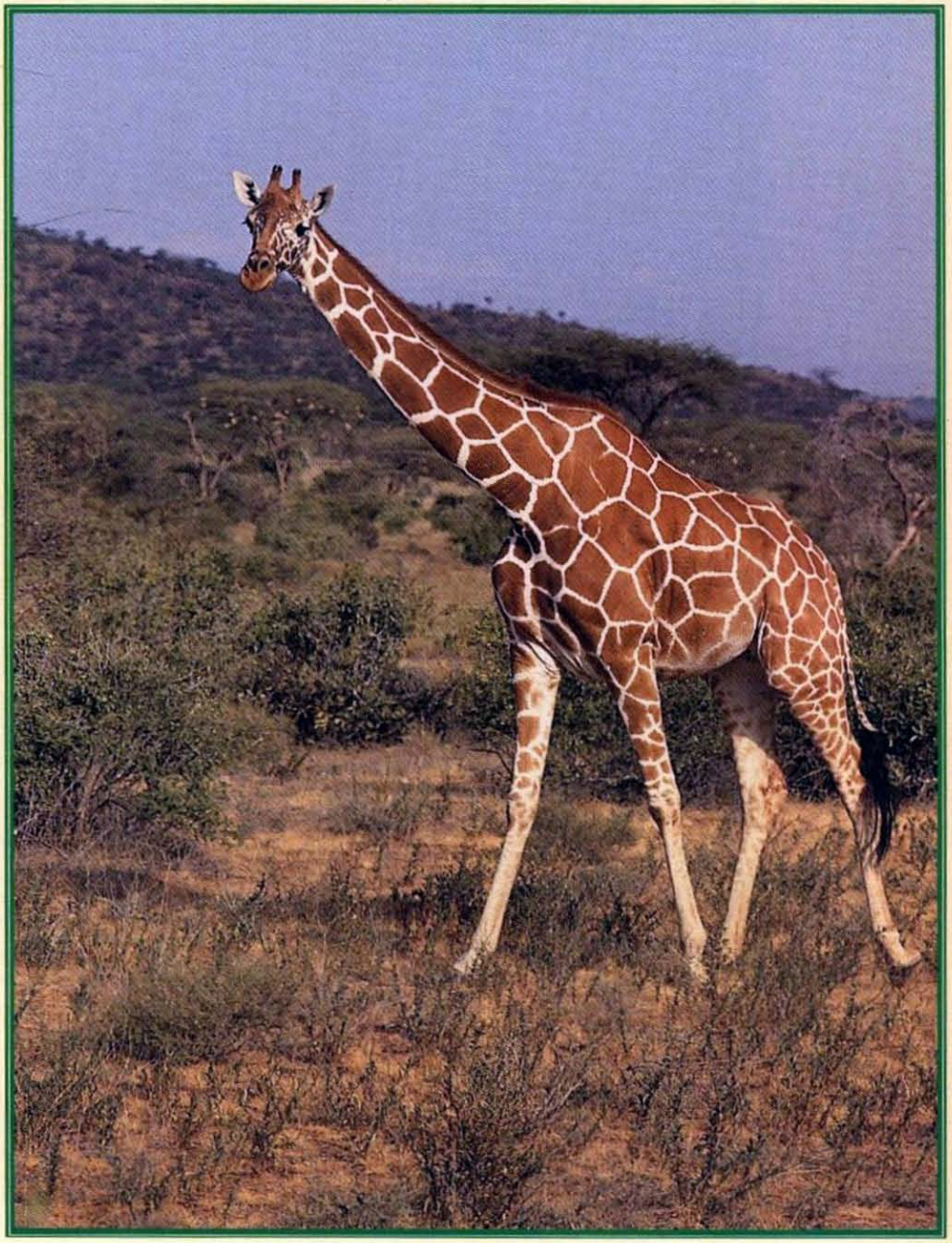
On our game drives into Somburu National Reserve, we encountered a lioness that looked exactly like Elsa of the movie 'Born Free'. Could it be one of her progeny, we wondered, as the Somburu Reserve is dedicated to Elsa who was released here in this wilderness. We also saw zebras, reticulated giraffes, herds of tuskers, oryx, topees, and to top it all, on our last evening out, we spied a leopard sitting amongst tall grass. Soon many Combis zoomed down on him, but he apparently did not care for the attention. He gave what looked to us like a magnificent bow and walked back into the thick high bush.

I wish we could have had a longer stay at Somburu, but time was pressing and we had to move South again to see the forested slopes of

Aberdare National Park and visit Tree Tops, Kenya's oldest and most famous lodge. It has earned an international reputation, for it was here that Princess Elizabeth, on a visit to Kenya, learnt of the death of her father, King George II and became Queen Elizabeth II of England. Here, through the huge glass windows of the observation areas overlooking the two water-holes, guests are treated to occasional sightings of wild buffaloes, hyenas and the water-buck.

Late that night, the cabin crew knocked at our door, and whispered that a tusker had arrived at the watering-hole. We went to the observation area and were confronted by a trumpeting elephant trying to make his presence known. It was fascinating to sit there in the cool darkness, watching the magnificent animal.

Our last stop on the circuit was to view Mt. Kenya, from the famous Mt. Kenya Safari Club. Mt. Kenya stands on the Equator, yet remains snowcapped throughout the year with night temperatures falling to minus 7°C.



Some neck — the giraffe is an unique species of African fauna

Next to the Club, over a hundred acres of land belong to the William Holden Foundation. He has established here a college for training students in the love and care of wildlife. The land also houses an animal hospital, where all sick animals are taken care of, taught rehabilitation and survival techniques, and eventually reintroduced in the wild. Today, Bill Holden is no more, but his former partner and the actress Stephanie Powers manage this Foundation.

Then sadly, it was a downhill drive all the way to Nairobi and the end of a wonderful ten days experience — an experience that is a must for all naturalists and photographers — for Africa remains a part of the heritage of all mankind. ❑

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## A CORAL FROM MUMBAI

B.F. CHHAPGAR

Diminutive cousins of the sea-anemones, corals grow in tropical seas where warm, clear, undiluted, shallow water forms a suitable environment, as in the Gulf of Kutch, Gulf of Mannar on the coast, Lakshadweep and the Andaman and Nicobar Islands.

Unlike sea-anemones which are solitary and have soft tissue, the coral's polyps (individual animals) live together in a colony and secrete a skeleton of calcium carbonate which they extract from the sea water. While the skeleton in most corals is white, in a few, such as the precious red coral used in jewellery, organpipe coral, black coral and the blue coral it is coloured.

Live corals catch their food by injecting venom from their stinging cells into the prey. Reef-building corals have, inside their bodies, tiny one-celled algae called zooxanthellae which utilise the waste products of the coral to manufacture their food and grow. As the zooxanthellae can do this only in the presence of adequate sunlight, reef-building corals grow only in shallow seas.

Though Mumbai's coast is muddy and polluted, corals do grow here. This picture shows a coral from Mumbai which could not be identified. Can any reader help?


## ACKNOWLEDGEMENTS

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*for financial support for the publication of Hornbill.*

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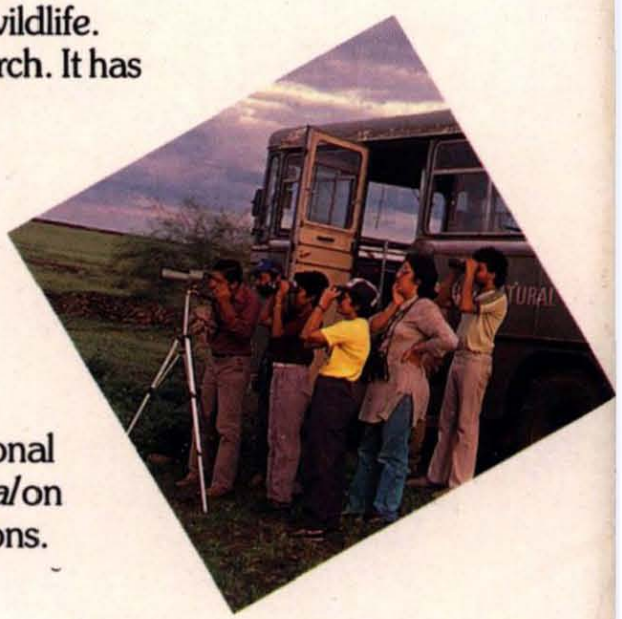
Support Conservation

Today, the BNHS is Asia's premier conservation organisation, with members in over thirty countries and an international reputation as an authority on Indian wildlife. The Society's work is not restricted to wildlife research. It has published a series of books on natural history. The Environmental Impact Assessment Cell undertakes EIA studies. BNHS runs a nature education programme, propagating conservation through film shows, lectures and nature camps.



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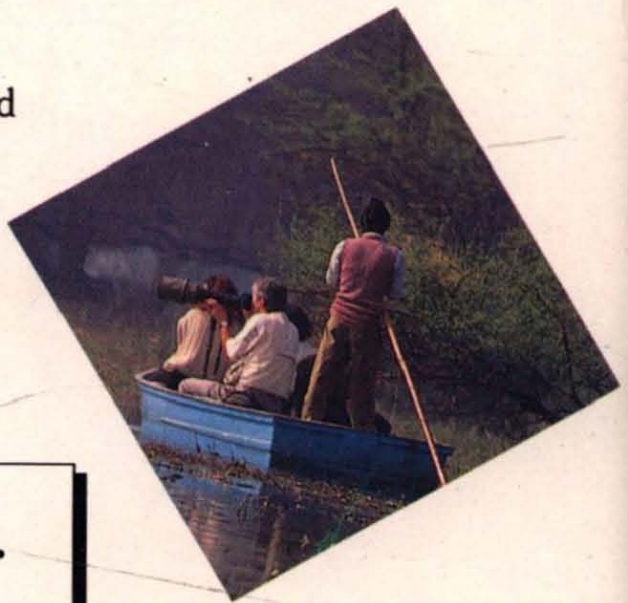

**India's natural heritage is endangered.**

**Help to protect it.**