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APRIL-JUNE, 2007



BOMBAY NATURAL HISTORY SOCIETY

Endangered Sarus Crane

Sarus Crane (*Grus antigone*)



Photo. A.I.Siddiqui, NPCIL

The name Sarus comes from a Sanskrit word meaning courtship; witnessing the dance of these magnificent birds is an unforgettable experience.

Standing upto 2 meters tall the Sarus Crane is the world's tallest flying bird. This is a large grey bird with long bare red legs, and naked red head and upper neck.

The current range of the Sarus Crane includes the plains of northern, northwestern, and western India and the western half of Nepal's Terai Lowlands.

Throughout their range Sarus Cranes utilize a wide variety of landscapes, depending on food availability, cropping patterns, and other seasonal factors. Their optimal habitat includes a combination of small seasonal marshes, floodplains, high altitude wetlands, human-altered ponds, fallow and cultivated lands, and rice paddies.

Both the male and the female keep guard over the nest and have been observed violently attacking dogs and cattle who encroach in its area. Females usually lay two eggs and incubation (by both sexes) lasts 31-34 days.

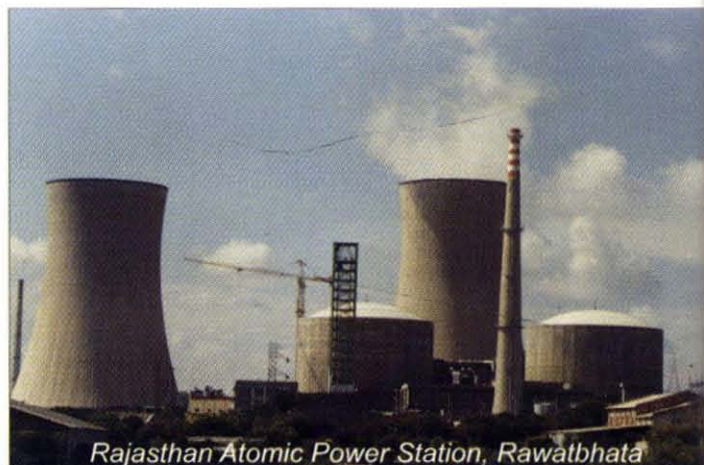
Like other cranes the Sarus is also omnivorous, i.e. it feeds on aquatic plants such as tubers of sedges, invertebrates, grains, small vertebrates, and insects.

The future of the Sarus Crane is closely tied to the quality of small wetlands in India that experience heavy human use, such as high rates of sewage inflow, extensive

agricultural runoff, high levels of pesticide residues, and intensification of agricultural systems. In India, mortality due to collision with electrical wires is a significant threat and cranes have died due to pesticide poisoning. Sarus Crane can also be spotted in and around Exclusion Zone's of Rajasthan Atomic Power Station, Rawatbhata and Narora Atomic Power Station in Uttar Pradesh.

The Environment Stewardship Programme (ESP) of NPCIL, a voluntary programme, envisages scientific study of bio-diversity, particularly avi-fauna, in the Exclusion Zones (EZs) and the environs of its seven nuclear power stations. EZ is a 1.6km radius area around the center of nuclear plant. While only a fraction of this area is used for the plant structures, remaining is used for green-beltting. Large number of bird species have made EZs their homes. The programme also includes training of local volunteers, public awareness campaigns to sensitize members of public on environment, improving habitat, particularly of avi-fauna, etc.

NPCIL as a responsible corporate citizen believes that these efforts will help in promoting habitat conservation and awareness on the importance of a healthy environment to make the world a better living-place.



Rajasthan Atomic Power Station, Rawatbhata



Nuclear Power Corporation of India Limited

(A Government of India Enterprise)

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April-June, 2007



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Ajay Desai



The author shares the excitement of his search for a mysterious species, the Kthing Vor, of which no description, except that it looked like no other known mammal, was available. He set out, with his team, to explore remote regions, armed with just a few sets of horns obtained from a market. After talking to people, visiting markets and combing forests, the mystery of the Kthing Vor was solved.

12. Close Encounters

Usham Singh



The author describes his close encounters with the radio-collared Leopards, whose ecology he was studying, in the forest of Gir. With his narrative, he tries to dispel the fears surrounding these animals, which only very rarely attack humans. Leopards are being pushed to their limits, resulting in conflict with man, a delicate issue that needs to be handled wisely.

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Suresh Kumar



The unexpected sighting of the Black Musk Deer, during a survey on the Arunachal Macaque, in Tawang in Arunachal Pradesh, left the author and his companions euphoric. Albeit, a tinge of sadness remained, as they wondered if the threatened animal had any chances at all.

26. The Last Melody

Varad B. Giri



They knew about global warming long before humans did. They are indicative of the health of an ecosystem, and yet, not much is known about them. The chorus of frogs and toads is fast fading, and if we do not act immediately, very soon they will be reduced to mere photographs. Approach the author to find out how you can help document them and do your bit to help save our ecosystem.

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Conservation hypocrisy!

Recently I read two interesting articles “Living with Lions” and “A Brewing Backlash against *Lobos*” in the magazine *Wildlife Conservation* (April 2007). The first article talks about how the Maasai of Kenya and Tanzania have lived with Lions and other wildlife for hundreds of years, nurturing some of the most spectacular wildlife congregations anywhere in the world. A young Leela Hazzah – carnivore conservationist and a recipient of the Wildlife Conservation Society/Panthera Kaplan Award – went to the Maasailand to study how the Maasai survive in the Lion and Leopard inhabited areas. The second article is about the return of the Grey Wolf to its former home in some states of the USA, from where it was extirpated by the ‘civilized man’ and the backlash by livestock owners, hunters and politicians.

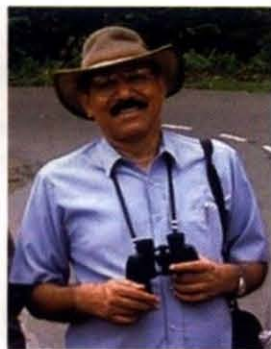
Like the Indians, the Maasai revere their cattle. According to a Maasai myth, God bestows cows to his favoured ones, and losing cattle is like losing a child. The Maasai have coexisted with wildlife for hundreds of years in the Maasailand – southern Kenya and northern Tanzania – cruelly divided by British colonists into two countries. It is true that the Maasai kill Lions as a ritual to signal their passage into manhood, and/or in retaliation for killing their livestock, but with about 200,000 Lions in Africa some decades ago, such killing did not have much impact on the lion populations. For me, killing a Lion with spears by a restless group of young Maasai is more a ‘sport’ than a dollar-loaded ‘great white hunter’ shooting a sleeping Lion from a safe distance, guarded by professional sharpshooters in case his aim fails. Despite the fact that not more than 25,000 to 30,000 Lions survive in the whole of Africa, they are still shot for ‘sport’ and, of course, on hefty payment, much like the despicable Tiger

hunting that used to take place in India four decades ago.

The Grey Wolf of the USA, made famous as *Lobo* by popular novels and stories, was once widely distributed. Like in most ancient cultures, the Grey Wolf was revered by the native Americans for its cunningness and hunting abilities. Once the white settlers came, the Grey Wolf was mercilessly persecuted, till it became almost extinct in the early part of the 20th century, except in remote Alaska.

The US Fish and Wildlife Service, under the Western Wolf Recovery Plan, worked for more than 25 years to bring back *Canis lupus* to the famous Yellowstone National Park and the Rockies, from where this predator was exterminated by ranchers and colonizers. Now about 1,200 individuals, in at least 60 packs, roam their former domain. In mid-west America, another 3,000 Grey Wolves roam the pine forests. There are between 7,500 and 10,000 Grey Wolves in Alaska, and more in neighbouring Canada.

Politicians, farmers, ranchers and hunters are clamouring to start an open hunting season for wolves. If this happens, the Grey Wolf will come in the category of vermins, much like the Coyote, Prairie Dogs, rats and crows! In the Idaho State of this ‘great civilized country’, is a group called the Idaho Anti-Wolf Coalition, whose aim is to eliminate all wolves from the State – even those individuals that have never harmed livestock. If this Coalition gathers 48,000 signatures, which it will, the way the anti-wolf campaign is spreading and the way most Americans treat large predators, Idaho will go back to the 19th century when wolves were shot on sight. Some other States are also delisting the Grey Wolf from the U.S. Endangered Special Act so it can be legally shot by landowners and hunters, anywhere and everywhere, even on



state-owned land. The hatred for the Grey Wolf is so high, that in 2004 someone spread poison baits across thousands of square kilometers to kill them. This unknown eco-terrorist has become a folk hero for many Americans, while others rightly condemn this heinous perpetrator. The government has put a reward of \$25,000 to know the name of this criminal, but according to the article in the *Wildlife Conservation*, no one has claimed the award till now. Another person has posted step-by-step instructions on a web page encouraging people to kill wolves by baiting them.

There are, however, millions of Americans who want the Grey Wolf and other wildlife to flourish in their beautiful country. The United States of America has some of the most well-protected National Parks and wilderness areas, and millions of Americans defend wildlife. Aldo Leopold was the founder of the conservation philosophy. His book *A SAND COUNTRY ALMANAC* is a must for anyone interested in wildlife conservation. Rachel Carson's book *THE SILENT SPRING* laid the foundation for banning of DDT and other lethal chemicals which were killing wildlife. This great country has produced tireless wildlife campaigners such as George Schaller, and dedicated conservation NGOs, working all over the world to save natural areas.

In India and other countries, large predators are under constant onslaught due to their livestock depredation. Even in the land of *ahimsa* – Ladakh, Buddhist shepherds kill the Grey Wolf and sometimes the Snow Leopard in retaliation, but they do not demand a hunting season. Benign tolerance of wildlife by Buddhist has to be seen to be believed. It is not uncommon to see a pair of the Black-necked Crane raising its family just 500 m from a Buddhist settlement, or a herd of Tibetan Wild Ass sharing the meagre grass with domestic Yaks.

In the USA, 'sport' hunting is a popular multi-billion dollar business. Many hunting

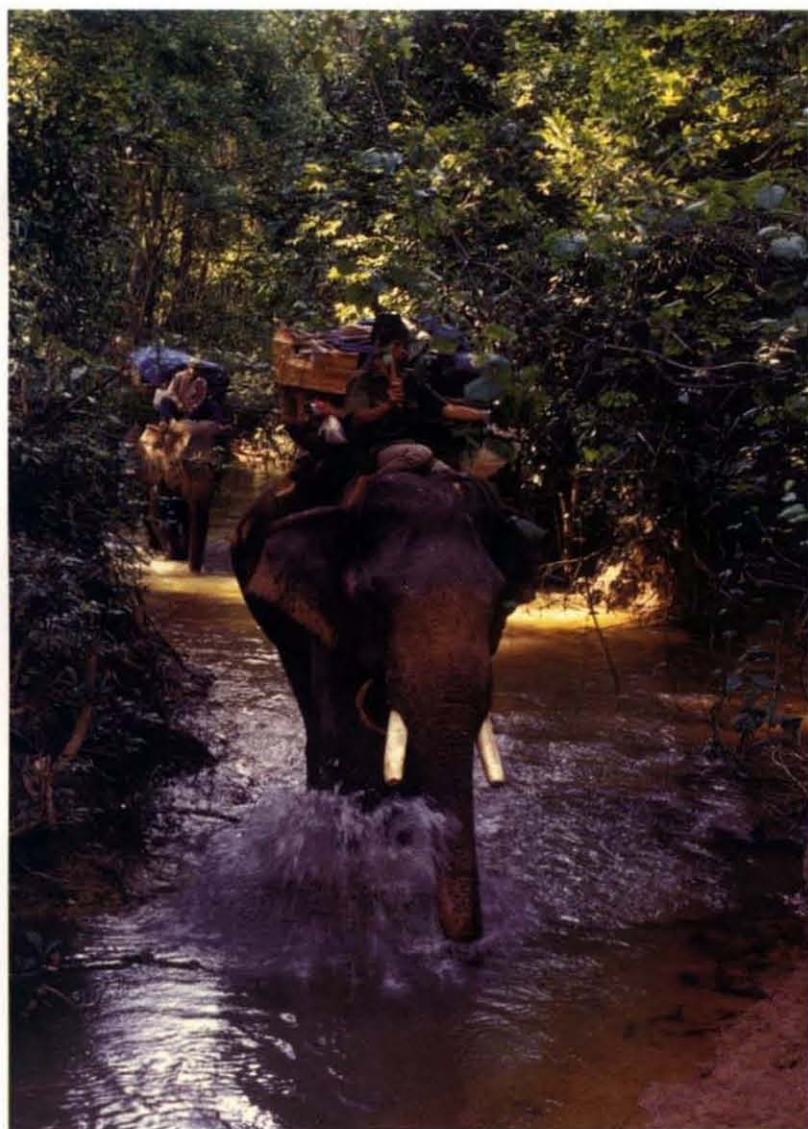
companies, supported by local politicians, want the Grey Wolf to be eliminated (again) on the plea that they are killing the Moose, the main target of these 'sport hunters'. Imagine a similar request coming from Indian politicians or farmers for killing Tigers or Leopards – there will be a howl of protest from our foreign wildlife 'experts', admonishing Indians to learn to live with Tigers. Perhaps the US government will send carnivore experts to 'teach' Indians to be more tolerant towards wildlife! Perhaps some 'experts' will come from Europe on a similar mission. The World Bank will fund a multi-million dollar eco-development project in the tigerland, so that Indians and Nepalese can learn to co-exist with the Tiger and the Leopard. I wish this co-existence philosophy is also applied to the developed countries, where almost all large predators have been exterminated.

Millions of livestock die in the USA due to bad weather or disease, but no cattle rancher ever went out of business. Livestock killing by Grey Wolf or Grizzly Bear is a very small percentage for the cause of death of livestock, perhaps less than 0.1 percent. Even then, Defenders of Wildlife, a highly active NGO, has paid about \$700,000 over the years for livestock losses. This apart from the compensation paid by the US Fish and Wildlife Service. But the hysteria against the Grey Wolf continues in this great land, colonized by the 'civilized white man' 500 years ago. Along with the killing of more than 100 million natives, 800 million Bisons and billions of Passenger Pigeons, millions of Grey Wolves were also exterminated in the process of colonization. Comparing this to the tolerant Maasai, or the Indians, who have co-existed with wildlife for hundreds of years, I do not know whom to call more civilized. As Aldo Leopold said "Conservation is a state of harmony between men and land". Many people, many cultures, and many countries still have to learn this simple philosophy.

Asad R. Rahmani

Search for the mysterious Kthing Vor

Text and Photographs: Ajay Desai



Elephants carrying stores cross a stream, during the survey

My mandate went something like this, “blah, blah...Elephant, blah, blah...Tiger and you also need to keep an eye open for ‘*Pseudonovibos spiralis*’ and everything else that is mentioned in the Red Data Book.” Great, I said to myself, at least as far as the Red Data Book is concerned. But what on earth was a *Pseudonovibos spiralis*, that is if it was on Earth, to start with? Was it a new virus or a bird, maybe it was some lost scientist? I asked the inevitable question and was given the inevitable answer, “We don’t know, but it is supposed to be some new species of mammal, and we only know it from a few sets of horns that were obtained from the market in Vietnam and Cambodia.” The existence of a new species had been claimed on the basis of these horns! With the discovery of several new species of mammals in the IndoChina region, everyone was on the lookout for a new species – that was the order of the day. Now I too had a chance to get on the bandwagon, so I eagerly asked if it was a bovid or deer and did they have any photos? I should have expected the ‘No’ and the inevitable, “Don’t worry. You need to look for an animal that does not look like any known mammal from this region.” It really can’t get easier than that, I told myself, and cursed myself for having spent my childhood reading about animals in different regions; if not for that childhood folly, I could have come out of the survey with a plethora of new species ranging from domestic goats to Elephants.

That was all I learned about this enigmatic species before I left on the survey the very next day after landing in Cambodia. If day one in Cambodia was enigmatic, day two was energy sapping, both physical and mental. The next evening I found myself in a remote village 'Pu Sra' in eastern Cambodia, after a flight and a long jeep ride over non-existent roads. The village chief had arranged for a house for our stay for the night. He also helped us with finding guides, elephants (for carrying our rations) and security guards armed with automatic weapons for which we had to buy ammunition from the market (this was still a dangerous country, having come through nearly four decades of war). After dinner I was introduced to one of the guides – Shaun who claimed that he had been a guide to an American officer during the early part of the Vietnam War. He knew a few words of English, but not enough to discuss wildlife, so Lic Vuthy, my Cambodian counterpart on the survey, helped with the translations and also added information that he had gathered earlier during his own surveys.

It was here, after dinner, in the dim light of a lamp, in a tiny Cambodian village, that I started learning more about the mysterious '*Pseudonovibos spiralis*'. We were in the Monduliri Province (eastern Cambodia) and it was from this province that a specimen of the horn had been obtained by an Italian researcher in the recent past. Other than this, the only other specimens of the horns (two sets I believe) were from a market in Vietnam; these too were assumed to have come from Cambodia. Locals called it 'Kthing Vor' and that came from the fact that the animal supposedly resembled a Gaur, which in the local language is called '*Kthing*' and its horns were spiral like a Liana,



The crude and uncomfortable Russian/Chinese jeeps – the only transport available in the mid '90s – were used only to get to the first village from where the survey started, after that it was on foot. Break downs were a problem on roads that were more like drainage channels, but the driver was always up to the task of fixing the jeep

which is locally called '*Vor*'. So basically it meant 'a Gaur with spiral horns'! But no, it was not a Gaur with deformed horns, but an animal much smaller than a Gaur, but with a similar robust build and colour (black as in a bull Gaur). Shaun said that he had seen it only once and that too when he was a kid; given that he was probably past his fifties, that was a long time ago. His father had shot the animal and brought it to the village. Everyone had gathered to see it and share the meat. No one had seen an animal like this before and all agreed it was the 'Kthing Vor'.

Shaun described the animal as best as he could. He said the animal was black and was smaller than a Sambar, and it had curved annulated horns. Vuthy had given me some earlier descriptions that he had heard from other sources, which claimed that the horns were 'spiral' as the name suggested. "Curved or spiral?" I asked. Shaun too had heard that they were spiral, but what he had seen were curved. We finally decided that it could



Frontlets (horns/antlers and front of skull) of the Serow (the one with black horns) and the Giant Muntjac, a recently discovered species

have been a young animal or that the sexes had different horns. This seemed very plausible, given that the 'Kouprey', the other interesting animal that we were looking for on this survey, too had different horn shapes for males and females. But Shaun also said that it had long black hair. This



The couple holding the odd shaped horns that were similar to, but considerably smaller than, the sets of horns originally obtained by scientists from Cambodia and Vietnam. On the table are horns of the Serow and the Banteng

was a difference, as Gaur did not have long hair. We were definitely not talking about a Gaur.

It is here that things started to get quite fuzzy as myths and rural beliefs started to merge with the description. Seaun, like many others whom we spoke to later, said that the 'Kthing Vor' fed on snakes and hence its horns were supposed to be a sure cure for snake bites! More like a Western manual from the '60s which says that the only cure for a killer whale attack is reincarnation (by the way, killer whales do not attack humans – they find them very distasteful, I suppose). The horns were in great demand due to their purported use in snake bites, and also for the numerous other cures for ailments ranging from loose motions to brain tumors (I suppose). Rarity too added to their value and mysticism. Apart from that, it was supposed to be a very tough animal and a difficult one to kill. The last part certainly was true, given that no one had seen one recently, it sure would be difficult to kill, especially if it did

not exist!

With that brief but interesting introduction, the search began. Our interviews with the villagers in Sen Monorum town (Capital City of Monduliri Province) were a reiteration of what we had heard so far, certainly the '...eats snakes' and medicinal use part. All information was second-hand and no one claimed to have seen one live or dead. The only thing that really stood out was the information that it occurred in Monduliri or just north in the Konek area. One afternoon we got lucky. After a long tiring walk in the hot sun, searching houses and shops for wildlife products, we walked into the veranda of a house to rest for a while. We started to talk to the old couple who lived there and told them what we were doing, and decided to ask them about wildlife, even though they did not appear to be people interested in collecting or selling wildlife products. Their house was bereft of wildlife trophies unlike most houses in Sen Monorum that proudly exhibited a

host of trophies (mostly frontlets or mounted horns) and skins, and people also kept other products like teeth and claws for their own use or for sale. To our surprise, the man said that he had indeed bought a pair of Kthing Vor horns when he originally lived in Konek. And promptly his wife went in and brought out an old tin box which contained two small horns – one spiral and the other curved, both had annulations on them. I looked at the pair and was unsure what they were. These certainly did not belong to any known species that lived here but we had seen so many fake horns made from everything ranging from buffalo horns to wood that we were skeptical. The curved one was a fake, while the spiral one looked okay, but we had no way of ascertaining anything. The spiral one, too, gave some indications that it may not be original, but it was really well made, and was worn-out with use and age, making it doubly difficult for us to ascertain its origin. We just photographed them and gathered whatever additional information the man had to give, which was very limited, given that he was just a small business man who knew nothing about wildlife.

Konek was an interesting area because all people claimed that this area was still rich in wildlife and most of the wildlife products that we saw in Monduliri town originated from Konek. But survey of this area appeared to be impossible, though it was near Sen Monorum and we would have loved to go there. It was still largely under the control of the Khmer Rouge and it was very dangerous. The military Governor of the district said that we could go there only if we were accompanied by 20 soldiers; we neither had the funds to hire that many nor the time it would take for him to arrange that trip (he needed a week

for that). To say the least, the fact that we knew that the Khmer Rouge scared the Vietnamese soldiers by killing any captured soldiers by burying three men close together with only their heads above the ground and then building a fire in-between and cooking rice with a pot placed on their heads, was an added incentive to avoid the area.

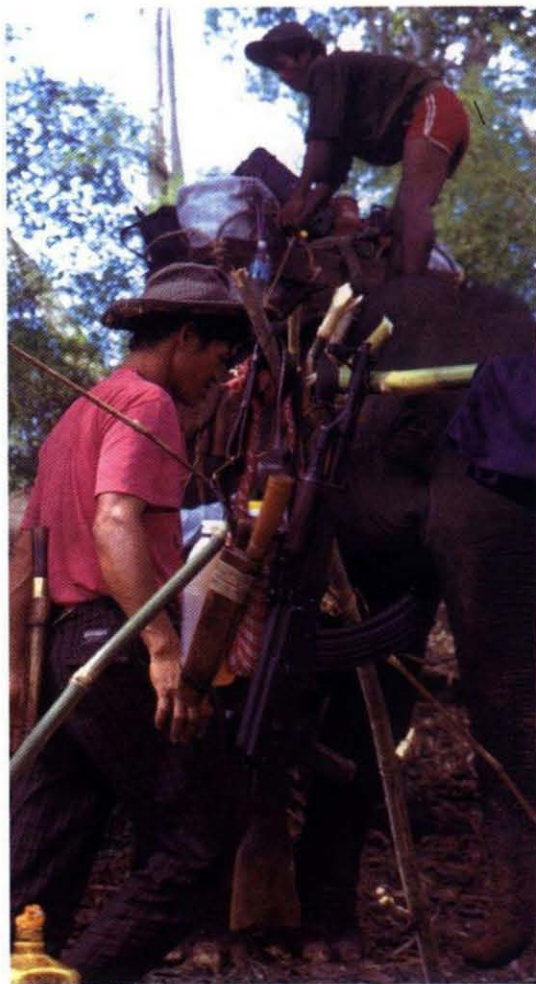
Encouraged by the information, we set off on the next leg of our survey, which was in Ratnakiri Province (north of Mondulkiri Province). The idea was to survey the southern parts of this province, where we had the Lompat Wildlife Sanctuary – another important source of wildlife products. It was also connected to the Konek area in the south. We were, however, disappointed to learn that we could not survey most of the areas that we wished to, due to security reasons, as several incidents of killing and looting had taken place prior to our arrival. We decided to survey further north, but here too we ran into trouble and were able to cover only limited areas. What was interesting, though, was the fact that

most people to the north of Ratnakiri town did not know of the 'Kthing Vor' and the few who claimed to know it were faking. One claimed that you needed a special gun and bullets to kill it.

We, later, decided to go down to Lompat town, which is on the outskirts of the Sanctuary and under government control. We saw a number of trophies and animal products here and also learned that wildlife was still present south of the village in Lompat Sanctuary and further down in Konek. However, most people here did not know of the 'Kthing Vor', nor had they heard of it.

Then we met an ex-policeman who said that during the Khmer Rouge period he was put in a remote village, where a local hunter had killed one and brought it to the village. He said that he had seen the animal and gave the same description about the animal that most others had – the annulated horns, black colour and the snake eating business. He had a bit of horn, but then that was reduced to just a small chip and nothing could really be determined from that. However, our hopes did get a lift, as we had met a second person who actually claimed to have seen one. This too, however, was a fairly old record from the '70s.

We were having dinner in the local Governor's house and were quite dejected, when things suddenly started to look up. While we were discussing general wildlife with the Governor, the talk gradually moved to 'Kthing Vor' and the fact that no one really seemed to have any information on one. At



We shifted camp almost every day, surveying areas along the route and camping at a convenient spot in the evening




Markets in villages and small towns were an important source of information

this, one of the guards said that he had seen one and had a small piece of hoof which he used for various ailments. Cutting off all talk on snake eating and magical properties I asked him when and where? He casually told us that it was more than a decade back that he had seen one dead (shot), in a village north of where we were. He said everyone in the village had come and eaten the animal in a common feast and that all parts (horns, hooves and some hair) had been sold. He showed the small worn down bit of hoof that he had bought. As he was able to give us information on the village and the names of the hunters, we felt really



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elated and decided that we would drive out the next morning to locate the people.

Morning found us driving in a bouncy and rattling Russian jeep down a muddy road (that wasn't exactly there) in search of a village that was nowhere on the map. Find it we did, and to our utter surprise not only did we find the village, but also the hunter! He actually lived in the first house we stopped to ask at. Now my hopes were really soaring. He took his time to tell us the story (of the hunt), he had gone to hunt with his brother and that they had gone much further than they normally did (possibly having already shot everything within their normal range) and had decided to sit on a tree which overlooked an animal trail. After a long wait they heard an animal walking down the path and waited for it to show up on the path that was visible from the tree. After a short while the animal came into view and



The hunter who, along with his brother, shot the 'Kthing Vor'

the brothers were surprised! They had never seen anything like that before. It was mostly black, with long hair on its neck and red eyes! The red eye bit was worrying me a little, but then he went on to tell us about how they felt and reacted. His brother wanted to try and catch the animal by jumping on it, as the path came very close to the tree. But he did not want to try that as he said the animal looked frightening with its red eyes. They then decided to shoot it, which they did and carried it back to the village, and as no one had seen such an animal before, they discussed about it and finally came to the conclusion that it was a 'Kthing Vor'. When asked if he had anything left of the animal, skin, skull, horns..., he said they had sold everything, but he did remember the name and village of the person who bought the frontlet; these details he gave us.

Once again we rushed into our vehicle, drove off in search of another



Crossing rivers was always a tricky task – though not deep, the waters were swift, with slippery rocks adding to problems

village bumping along another non-existent road. Hopes remained high as we were actually getting to meet the people concerned, getting one step closer to the animal or what remained of it. We had to rush as the sun was already on its way down. We had to get to the end of this trail soon, as we had a long way to get back and it was not exactly safe to drive around late, given the uncertain security situation in the countryside. We managed to reach the next village while it was still bright, although faint traces of pink and red were beginning to show in the sky, and as luck would have it, we found the village and were directed to a fairly well developed farm. Here we met the man who had bought the frontlet, the man who could finally show us the frontlet that would allow us to figure out what the 'Kthing Vor' really was. We told him why we were here and asked him if he had bought the frontlet and the usual question about what the animal looked like when he saw it in the village. And then we went on to ask him if he still possessed the frontlet and his reply in the affirmative really sent our hopes soaring. Unable to contain myself, I asked him if we could see the frontlet. Here things started looking down, he said it was in his house in Phnom Penh and we could see it if we went there.

With the excitement of actually seeing the frontlet immediately having been squashed, I started thinking more carefully and started putting together the pieces of information I had. An animal smaller than a Sambar, black in colour, long hair on the neck, hairy tail, curved horn with annulations, red eyes ... My brain began to work on the stack of images stored in my head, trying to fit these characters into something that I had seen in the wild or in pictures. Soon

enough it came up with something and I drew a rough outline of the animal on my note book while the others continued chatting with him. When finished, I showed the sketch to him, and he promptly recognized the animal, and I went on to add details and larger images of the horns and tail and the neck, all of which fitted the animal he had seen. It was a Serow! A not too well known animal in that part of Cambodia, as it is largely confined to a few river valleys with steep slopes. No such sites existed near the village where it was shot, but there were some potential sites and any Serow moving between them would pass close to the spot where this one was shot. Now that all hopes of finding a frontlet with some skin

peoples imagination. It was a very good learning experience for the team I had taken with me, as they were the ones who would be responsible for conservation in Cambodia in future.

Thus ended our search for more evidence of 'Kthing Vor'; my report states that we could not look for signs (tracks, dung etc.) of 'Kthing Vor' during the field survey, simply because we did not know what these looked like. We certainly would have noticed if something was really different but then it was not expected to be different given that it was similar to Sambar. That apart, we could not do much with the horns that we got, other than mention that we did find a similar looking horn on the survey. I did



An old lady with her grand-children in one of the more remote villages. People basically practice subsistence agriculture with elements of the hunter-gatherer strategy thrown in. Survival is all that matters and all that there is to look forward to

of 'Kthing Vor' had disappeared, I looked back and realized that it had actually been an interesting and useful trip – the excitement was there, we had gathered a lot of information on hunting and mammals in that region, and we had also learned how 'Kthing Vor' and other similar stories get started and become all too real in

finally get to see the photos of the horns when I got back to Phnom Penh, as they had managed to get a copy of the original paper describing the horns and the suggestion that it was a new species of bovid (named *Pseudonovibos spiralis*). Eventually there were suggestions that the species did not really exist and that the horns were



Some of the species commonly seen in these areas are the Burmese Hare – a young one (Left), and the Butterfly Lizard – a colourful ground dwelling lizard that lives in burrows and forages on the ground (Right)

likely to be those of some other animal (antelope) brought into Vietnam and Cambodia for trade. Others continue arguing that it is indeed a valid species.

In a strange and far off place that has not been well studied, there is always room for finding something new – what is new and what is not will always be debated, till taxonomists settle the issue for us through samples collected by people like us who are forever wandering to see what lies beyond the next hill. In some cases it is not the destination but the journey that is important and this was one fascinating and interesting journey that I took.

The painful lesson for me in the 'Kthing Vor' hunt was the general

apathy in the field of systematics and taxonomy. Does taxonomy languish because biologists think it is not intellectually challenging enough? Is it thought of as archaic as compared to working with microarrays and running gels in a molecular biology laboratory? Unfortunately, I think I am right. After all, someone had to find and name the numerous model laboratory organisms like the fruit fly (*Drosophila melanogaster*), the baker's yeast (*Saccharomyces cerevisiae*), the zebra fish (*Danio rerio*) or the round worm (*Caenorhabditis elegans*) – all of

which are already well known or are rising stars in the field of genetics. We need to update our species inventory through proper taxonomic surveys, and especially target the tiny and neglected species which remain unknown and unnamed. We are doing conservation a great disservice by not emphasizing the importance of taxonomic studies and surveys, and by excessively focusing our efforts and money on a few charismatic species and their conservation, while the rest of biodiversity lies ignored. ■

Ajay Desai has been associated with the FWS funded Asian Elephant Project of the Society since 1983. At present he is a consultant to the Asian Elephant Project of the BNHS and is the Co-Chairman of the Asian Elephant Group of the IUCN specialists.



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Close Encounters

Text and Photographs: Usham Singh



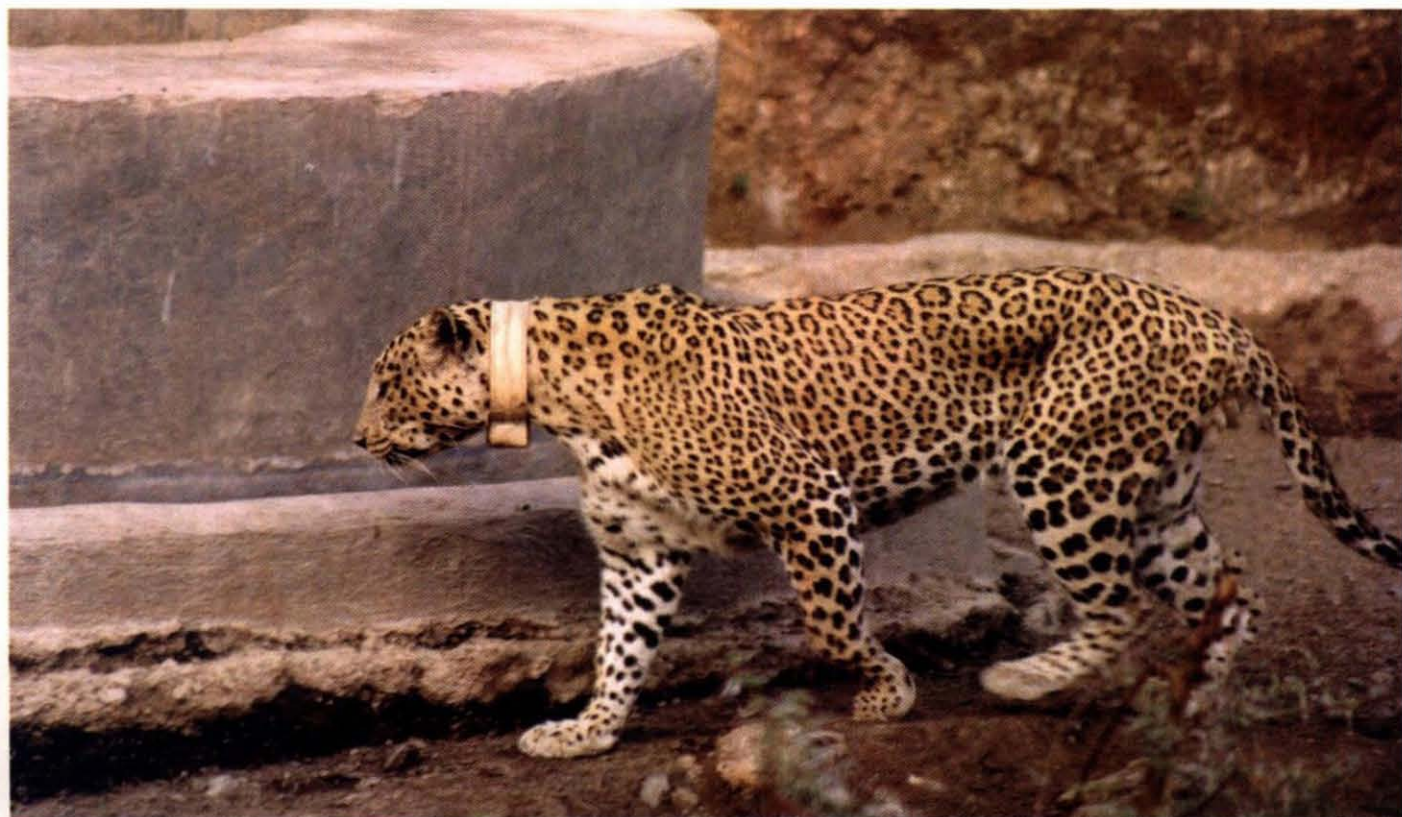


M4 and another male leopard at the Nanava waterpoint

When I first came to Gir National Park and Wildlife Sanctuary in January 2002, for my M.Sc. dissertation, it never occurred to me that I would get an opportunity to work on the ecology of the Leopard (*Panthera pardus*) in such a magnificent area, for another three years. Initially there was fear of being attacked by a Lion or a Leopard and the thought of how I would defend myself. But later, as days passed, and I learnt more about the behaviour of these big cats, I would travel alone inside the Park.

The DST-AMU-GFD Leopard Ecology Project began in 2002 in the protected area of Gir under the supervision of Dr. Jamal A. Khan and Mr. Bharat J. Pathak, Department of Wildlife Sciences, Aligarh Muslim University, Aligarh. Leopards are known to be solitary, shy and elusive, retreating in human presence. The existence of Lions, the more dominant of the two big cats, has enhanced this behaviour of the Leopards in Gir. This was probably why of around 50 Leopard sightings I had during 2002, none were close encounters.

My close encounters with Leopards began in 2003, after we radio-collared four males inside Gir. They all showed different behaviour, mainly because they were of different ages and the territorial nature. Of the twelve close encounters I had the first was with M2, the second radio-collared male, considered to be the boldest of all four. During the end of March 2003, just ten days after radio collaring, this male was in mating at Pareyvia. I tracked him as I was trying to generate data on mating period, mating interval and number of days in mating. It was summer and so the habitat was quite open. My field assistants, Dost Mohammed and Suresh, and I were soon spotted by the mating Leopards, who retreated on sighting us. After about half an hour, leaving my assistants to rest, I tried to relocate the animals. The H-antennae, as usual, because of the bouncing effect in undulating terrain



▲
M4 approaching the
Nanava waterpoint

and hilly areas, made locating the animal quite difficult. I moved on not aware of the Leopard in one of the rivulets, under the dense *Carissa carandas* cover. I don't know when he had spotted me, but I spotted him when he was just 5 m away. Instead of retreating, he bent his body down to the ground, looked at me, snarled, coiled his tail and hit it on the ground scattering the dried leaf litter. I sensed danger in this behaviour and immediately stood up and started to move back, my eyes looking into his. For every step that I took backward, he took a step forward. After a while, thankfully, my assistants appeared and gave me a call; the Leopard looked at them and then retreated.

My next close encounter with the big cat was at Nanava waterpoint, on April 7, 2003, where I photographed two male leopards together. At around 5:30 p.m., I tracked M4, at Nanava waterpoint. My assistant Taj Mohammed and I had constructed a hide, since Taj Mohammed was sure that animal would come to drink water. Precisely at

6:00 p.m., M4 came out to the riverine area and stared in our direction; "had he seen us", I thought? "No, it's the other male Leopard approaching the waterpoint from our end." I expected a territorial fight; but instead the two Leopards greeted one another and started drinking water together. After they had finished, M4 started walking towards us, to move into the forest, following the trail just beside the hide. When he was about 5 m away, I clicked photographs, but just then the camera started to auto rewind, and M4 immediately sensed the sound. Thinking us to be prey, he began to move towards us in hunting posture. When he came as close as 2 m and saw us, he stared at us and quickly retreated; climbing a small hillock, he disappeared.

I was tracking M3 on June 2, 2003, at Sai Ki Timbi. He was resting in the dense cover of *Carissa carandas*, when I heard alarm calls of Chital and Indian Peafowl about 100 m away. Generating information on overlapping home ranges was one of the objectives of my study, so I immediately



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The team that tranquilised M3 at Mindholivala

moved to locate the animal. I looked in the direction the Chitals were looking, but could not spot anything. Just then two Indian Peafowls gave loud alarm calls and flew towards me. I saw Leopard pugmarks and continued to move towards the rivulet and climbed a small hillock. At that instant, I saw a huge male Leopard, on my left, walking unhurriedly towards me. I stood still and avoided any movement. When he came as close as 20 m, he saw a solitary Chital and, thankfully, decided to stalk it. I moved back and returned with two assistants and 'stalked' him for more than half an hour.

Another of my close encounters was with a non-collared animal at Kankai Naka on May 4, 2003. I found a Chital kill in the morning, on one of the roads passing through the forest and constructed a hide opposite the carcass. A Leopard arrived at the kill at around 6:00 p.m., and fed on it for about 30 minutes before slowly dragging and dropping it when a vehicle passed, across the road towards the hide. The vegetation was quite open, except the hide. He was almost 2 m from the hide, when he caught a glimpse of my shirt; he looked at it for a while and then retreated.

I constructed a hide near the Bawal Wala Chowk waterpoint on June 14, 2003 to document information on the rate of drinking of water by Leopards. At 6:30 p.m., a male Leopard arrived at the waterpoint. After drinking water for about 30 minutes, he moved away and rested on the road for 10 minutes. He came to the waterpoint again, and rested there, just 10 m from me, until my assistants started the vehicle and the noise of the vehicle prompted him to move away.

On February 2, 2003, I was tracking the first radio collared female Leopard. The objective was to learn more about the kill she usually dragged inside the field. When I first saw her, she was resting along the foot trails inside the sugarcane field with her two cubs. She charged at me almost immediately, but soon fled into the field when she realised we were four. Another similar encounter with her was on July 7, 2004, when she and her two sub-adult cubs (second litter) were feeding on a dog. The area had a dense *Butea monosperma* patch adjoining the sugarcane field. One of the sub-adult cubs ran towards us; my assistant, Suresh and I had to flee to the open grassland area. Fortunately, the Leopards moved back into the sugarcane field, and later united by calling to one another.

While I backed out in some cases, the Leopard retreated in others. Humans fear this big cat and often see it as a man-eater. But Leopards attack humans only occasionally. Leopards disperse from the protected areas into villages at the outskirts of such areas; man-animal conflict in such circumstances are unavoidable – a major cause for concern for the conservation of this species. A delicate issue like this should be given high priority, so that others like me continue to have happy memories of close encounters with this big cat. ■



Usham Singh has worked on the Ecology and Management of Leopards in Gir National Park and Wildlife Sanctuary for three years, and has now enrolled for a PhD.

Dark Wraith of the High Himalaya



SURESH KUMAR / MANOJ V. NAIR

The little known Black Musk Deer is now threatened with extinction

Text: Suresh Kumar and Manoj V. Nair

Himalaya is amongst the biologically rich regions on our planet, and home to a variety of large mammals. One of them, an extremely secretive and shy ruminant is the Black Musk Deer. To spot this animal in the wild, even in places like Kedarnath Wildlife Sanctuary in western Himalaya – probably one of the best places in India, one requires

great luck to sight Musk Deer. Thus, when we embarked on a survey to map the distribution of the recently discovered Arunachal Macaque in the high altitudes of Tawang in Arunachal Pradesh, the mammal we least expected to encounter was the Black Musk Deer. Why fantasize about the dark wraith of the high Himalaya, when even expert hunters of the local tribes sighted it

rarely? But fate had something else in store for us.

At 4:05 a.m., on June 22, 2005, near Nuranang Bridge, Tawang district, our gypsy grudgingly moved on the snow spattered mountain road; the sparkling Nuranang stream meandering down deep into the valley to our left. We were driving from the Sela Pass (4,200 m above msl) to the small town of Jang (2,500 m above msl). It had been a hard day's fieldwork in the cold, mossy, oak-rhododendron forests, higher up near BJ Gompa. There was little of interest *sans* the omnipresent call of the Brown-flanked Bush-Warbler (*Cettia fortipes*), an occasional sisterhood of foraging White-throated Laughingthrushes (*Garrulax albogularis*), and the bright blushes of alpine flowers all along the roadside. As we descended, small patches of Bamboo *Thamanocalamus spathiflorus*, Rhododendron and stunted Fir *Abies densa* began to appear. We were nearing the end of the alpine meadow zone, when we noticed a goat-like animal standing stock-still, in the middle of the road, about 150 m away. Further beyond, we saw some Yaks grazing. We approached slowly, peering through the misty windscreen of the jeep. It was not a goat? Could it be a Goral? The next moment, the brakes were slammed and the vehicle silenced. Standing tall and gazing fixedly at us, the ungulate held its long hare-like ears in a wide 'V'. The binoculars were out, and just one good look through them, and we froze in our seats "... unmistakable – a Musk Deer!" The deer had sensed our

Musk Deer are not true deer; they are unique in that they have a musk gland that is absent in deer, in addition to other differences. It is because of this musk gland that Musk Deer are persecuted throughout their range. Musk Deer occur throughout the forested, mountainous parts of Asia and parts of eastern Russia. Poaching for musk and habitat disturbances has shrunk much of the area of distribution and exterminated the species from many parts of its range. There are at least four and, according to some scientists, possibly six or more species of Musk Deer. In India, two species of Musk Deer are known, namely the widely distributed Himalayan Musk Deer *Moschus chrysogaster* and the Black Musk Deer *Moschus fuscus* found only in the eastern Himalaya. Another species, the Forest Musk Deer *Moschus berezovskii* is also thought to occur in parts of Arunachal Pradesh.

Black Musk Deer

presence; it moved a few steps, and then stopped. Thankfully it did not bolt. It slowly lowered its head and sniffed at something on the road. We seized this opportunity to get out of the jeep and inch towards the Deer. Crouching low on our knees, cameras poised for that one prized shot, we edged forward. We were less than 50 m away and ready to 'shoot', when the Deer, in one fluid motion, bounded down the slope parallel to the road and disappeared amidst dense shrubbery, its path revealed by swaying bushes. We rushed behind it; a while later it stopped and looked at us. We captured this moment on our camera. After a few seconds, which seemed like ages, it crossed the road, leapt up onto the far side, and scampered up the slope to disappear in a fir-covered ridge.

Back at the camp, we carefully reviewed the footage – the lack of white markings, especially the absence of white stocking-legs that are diagnostic of the Himalayan Musk Deer, suggested that this was a different species. The coffee brown pelage with pale orange-yellow spots on the back and the blackish-brown head and legs clinched its identity. Also, its gait looked different from that of the Himalayan Musk Deer we had seen in Shokhkharakh in Kedarnath. This then was, undoubtedly, the little known and rarely seen Black Musk Deer. How had this beautiful animal escaped the ruthless hunting in this region? The thought that we were now among the handful field biologists to have sighted and photographed this deer in the wild was euphoric. This excitement, however, was short-lived, since the immediate future of this animal is uncertain. We wondered if it would live to see another summer.

Having completed our survey, we drove back a few days later. When we approached the spot of the sighting,



Meat of Musk Deer — though threatened, Musk Deer are regularly hunted for meat



Canines of male Musk Deer — kept as trophies and used as toothpicks by locals

Much of the musk trade in India today appears to occur in Arunachal Pradesh, as the population of the species has decreased considerably. In Arunachal Pradesh, even though a large extent of Musk Deer habitat is left intact, much of it is not protected. Hunting is part of the culture of the tribals inhabiting the state, and the Musk Deer are extensively poached. Even Buddhist tribes like the Monpas' of Tawang, who do not hunt animals, principally take to hunting Musk Deer, as and when the opportunity arises. Local hunters are now reported to be taking up longer hunting expeditions lasting more than a month, and in inhospitable and difficult terrain, mainly along the India-China border, in search of the Musk Deer that was earlier known to be common. Such is the trade that the species has been extirpated from many parts of the state. The population of the Black Musk Deer is certainly threatened with extinction.



The *Abies densa* Fir forest with a dense under-storey of Bamboo is the main habitat of the Black Musk Deer in Arunachal Pradesh

every detail of the landscape etched finely into our memory, we noticed that everything was in place – the Nuranag still flowed quietly, among the shrubbery the Bush-Warbler sang his year's last song, and of course, the Laughing-thrushes were there, but there was no trace of the Black Musk Deer. Wistfully, we looked back one last time at the fir-laden slopes, but this time the dark wraith of the high Himalaya preferred to remain invisible. ■



Suresh Kumar has studied pheasants and mammals in the Himalaya; he is presently studying the Olive Ridley migration and movement, using satellite telemetry.

Manoj V. Nair (Left), IFS, is an avid natural history photographer and writer and is presently serving with the Orissa State Forest Department.

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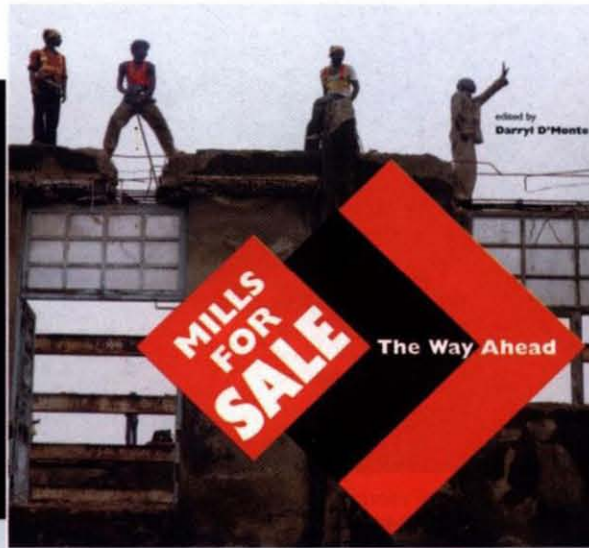
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Is the Gir Lion going the Sariska Way?

The *Hornbill* January-March 2007 Editorial highlighted a pathetic story indeed – the extinction of *Baiji*, the Yangtze River Dolphin (also called White-flag Dolphin *Lipotes vexillifer*).

Unlike the cute, friendly, speedy and intelligent marine dolphins, their fresh water counterparts are the ugly ducklings of the Dolphin tribe, with their Pinocchio-like snouts. Sadly, our own *Susu* (the Gangetic Dolphin, *Platanista gangetica*) and *Bouto* (the Amazon River Dolphin *Inia geoffrensis*) are fast following the footsteps of *Baiji*.

I have briefly covered the world's fresh water dolphins in my book *MARINE LIFE IN INDIA*. Unfortunately, these defenceless animals have been given all kinds of bad reputation. The *Bouto* is held responsible for any unmarried maiden getting pregnant, and in the baby's birth certificate the father's name is given as *Bouto*! The locals also believe that it is impossible to keep a *Bouto* captive, as it would grow legs and walk away or sprout wings and fly away. When the University of Florida expedition collected its first *Boutos* in Colombia, the local military commander stationed sentries around the Dolphins' holding pens to prevent their escape by these methods. All these dolphins are aquatic, so few people have heard of them, and still fewer have seen them alive. As they say, out of sight, out of mind.

Which brings me to the decrease in numbers of another animal, this time terrestrial – the Asiatic Lion – now confined to a tiny area in Gir, as compared to its vast domain two centuries ago. Dr. Ashok Kothari and I, in our book *SALIM ALI'S INDIA*, have given a map of India, giving the places where the Lion once roamed, and the



year of its disappearance from each location (page 73).

It may be called the king of the jungle, but it is no match for the stronger and wlier Tiger. These two animals cannot co-exist in the wild, as the Tiger always wins the competition. While the Tiger prefers thick jungle, the Lion is found in scrub (bushy) forest. Encroached by ever-increasing human population, with their burgeoning cattle herds, the Lion now ekes out a precarious existence. Almost every week we read about one of them found dead – either poached, poisoned or drowned in a step-well.

After detailed surveys, forestry and wildlife scientists have identified alternate areas in Madhya Pradesh and elsewhere, suitable for translocating Lions, and where Tigers do not exist. But in a short-sighted 'dog-in-the manger' policy decision, Gujarat's politicians have sabotaged the idea, claiming the Lion as their property and refusing to hand over a few Lions, while the Central government looks on helplessly. If, God forbid, an epidemic or natural calamity wipes out the Lions from Gir, there would be no back-up population elsewhere to sustain it, and the blame for the extinction of the Asiatic Lion will rest squarely on Gujarat's politicians.

What surprises me is the complete disinterest of the *Tigerwallas*, who raise

a howl of protest even if a single tiger's whiskers are singed. The tiger is a magnificent, powerful and handsome beast; hence its popularity has over-exposed it. The consequence is that it faces enemies from two fronts – the poacher who makes easy money from the sale of its hide, teeth, bones and body organs, and at the other end, the "conservationist" for whom it is a handy tool to climb the populist publicity bandwagon and make quick money from the government and corporates.

Both the Tiger and the Lion are equally threatened (in fact, the Lion more so), so it is strange that, while the Tiger gets the 'lion's share' of publicity, the Lion is neglected.

Dr. B.F. Chhapgar,
Mumbai



Conservation of Sharks

While conservation and protection of the large land animals capture headlines, large scale killings of species, like the shark, a key species in Sunderbans, in the Bay of Bengal, has virtually gone unnoticed. Although thousands of them, of all age and sizes, are killed daily, authorities have virtually turned a blind eye to the act. Besides other countries, these sharks are being smuggled to several states in India – Tamil Nadu, Andhra Pradesh and Karnataka – where they are very popular.

There are many illegal stockyards in Kakdwip, South 24-Parganas, in the Sunderbans, where these fish are bought and processed, right under the nose of the government authorities and fisheries department. The fishing trawlers carry the heavier and stronger fishing nets, which are incidentally

banned, during April, May and June, for catching sharks.

April is a comparatively lean period, and yet, two truckloads of the fish are sent daily in April, while during May and June, the daily procurement could be anywhere between three to four truckloads. Each truck transports about nine tons of the fish. But the numbers may vary, depending on the size of the catch. The fish are then salt-dried and processed, and then packed and sent to the buyers. Star hotels are the most important buyers of the fish, where they are used in preparing several delicacies, and their fins are used, allegedly, in preparing aphrodisiacs.

Those who actually catch the sharks rarely know their significance, while the people who employ them are fully aware of the crime, but are least bothered. While this illegal activity goes on unhindered, there has been no effort on the part of the authorities to stop it.

Meanwhile, the shark population in the Bay of Bengal is fast dwindling. There is an urgent need, as with the large land animals, to come forward to protect and conserve sharks.

Arunayan Sharma
West Bengal



Let's look for alternatives

A recent TV programme of a very popular channel revealed certain hidden, unknown, brutal and sad facts regarding the manufacture of paint brushes, which left us totally betrayed and grieving!

The programme described, in detail, how a mongoose is trapped alive, suffocated, killed, and its fur carefully sheared, and later used for the manufacture of paint brushes.

Most of us were ready to give up painting, if that was how paint brushes were being made. We were

wondering if there was no other alternative, when our science teacher, Mrs. Biji Tushar, discussed this when teaching us a lesson on 'Natural Resources and their Conservation'. As an alternative, she suggested using our own hair. We decided to try it out, and the results were beautiful brushes, which gave satisfactory results.

Pooja R. Singh,
for the Students of VIII D,
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DO NOT HURT ANIMALS



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Dugong at Gulf of Kachchh

The animal had recently got entangled in a fishing net and had drowned. The mesh marks were visible and some of the strands had made deep cuts at the armpits and at the base of the caudal flukes. This is the third Dugong I have reported (two dead specimens and one alive).

Hanuman Dandi sand bar is north of the Poshitra peninsula and

separated by a shallow strait. The highly endangered gentle marine mammal gets caught in fishing nets strung out in shallow water. A further threat to its survival is the proposal to declare the Poshitra winterland a 'Special Economic Zone (SEZ)'.

Lavkumar Khacher
Gujarat



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ABOUT THE POSTER

The Indian Fox is a common fox of the Indian plains. It rarely enters the forest, preferring fringe areas, cultivation, rocky hills and broken country. The animal lives in a burrow dug by itself, where it sleeps by day, coming out only at dusk to seek its food. It feeds mainly on insects, reptiles, small mammals, melons. By eating rats and land crabs, it does great service to farmers. Its main defences against enemies are speed and its dexterity.



An increase in wildlife tourism is pressurizing not only the animals within the National Parks but also those around it. It is natural for animals to venture outside protected areas; they do not recognize man-made boundaries. As the youth relinquish farming and allied activities, and seek employment in the local tourism industry, unattended farm land is either sold for money or used to make dwellings. The increase in rural development around tourist friendly protected areas leaves little space for animals and birds, which inhabit grazing fields and idle spaces at the fringe. This mother and pup pair is a part of a family of four foxes living in one such fringe. But how long will it be before they find part of their home within the compound of a posh hotel and are forced to move out?



THE LAST MELODY

TEXT: VARAD B. GIRI

There is an intricate association of biotic and abiotic factors in the ecosystem; trouble to one means trouble to the entire ecosystem. Amphibians – frogs, toads, salamanders, newts and caecilians – are rapidly and mysteriously declining from areas where they were once common. One look at their wide-ranging abilities can tell that a single factor is unlikely to be the cause of their decline. Amphibians are exposed to a wide array of environmental factors due to the dual mode of their life cycle – an aquatic larval or tadpole stage and terrestrial adult stage. They vary in form and behaviour, and are found in a wide variety of ecosystems.

A recent assessment by IUCN indicated that nearly 57% of the amphibians in India are threatened; though the percentages may vary, the global picture is equally bleak. Despite this, in the recent past many new species of amphibians have been discovered in India.

Today, global warming and its effects are the talk of the town. The whole world seems to have finally awakened to the call made by a few denizens of this planet. Amphibians had begun warning us of this impending truth long before we humans began noticing it. We probably have one last chance to repair the damage! Every action will count. So let's get together and look for these beautiful amphibians and collect and collate data on them. The season to observe them is here; all we need now is a torch and some enthusiastic individuals.



Varad B. Giri is Scientist 'A' at the Herpetology Section of the Bombay Natural History Society. To learn more, write to the author at varadgiri@gmail.com



Wrinkled Frog
Nyctibatrachus sp.
(Photo Varad Giri)

The frogs of this genus are endemic to the Western Ghats. They are seen near or in hill streams. The vocal sacs in males are lateral, and their call is like that of birds.



Gliding Frog
***Rhacophorus* sp.**

(Photo Ishan Agarwal)

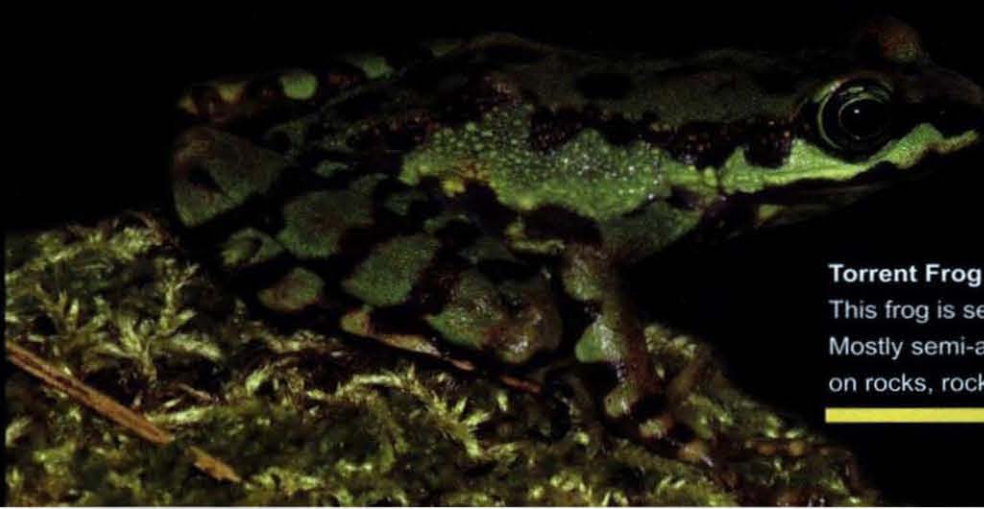
These arboreal frogs can be seen at an altitude of 1250 m in Eaglenest Wildlife Sanctuary in Arunachal Pradesh.

They sit on leaves of small bushes above rain water puddles and call.

Philautus luteolus

(Photo Rohit Naniwadekar and Kudremukh Wildlife Division)

A bush frog species, recently described from the forests of Western Ghats of Karnataka. This arboreal species prefers bushes.



Torrent Frog *Amolops* sp. (Photo Sachin Rai)

This frog is seen in some parts of north-east India. Mostly semi-arboreal, it is seen in evergreen forests on rocks, rock walls and on mud banks.

Bicoloured Frog *Clinotarsus curtipes*

(Photo Sameer Kehimkar)

It is seen in large numbers along streams in the forests of southern Western Ghats. This is a beautifully coloured species with a reddish iris.



Spadefoot toad *Megophrys* sp.

(Photo Sachin Rai)

A semi-arboreal forest species, it is found in the hills of north-east India. It can be seen calling from the bushes near streams.



Malabar Tree Toad *Pedostibes tuberculosus*

(Photo Sameer Kehimkar)

This is an arboreal toad that can be seen in the forests of the southern and middle Western Ghats. During the day, it usually stays on the ground, and at night, it can be seen on trees and bushes.





Ornate Microhylid
Microhyla ornata (Photo Sachin Rai)
This is one of the smallest of Indian frogs (25 mm long). A terrestrial species, it is found throughout India. Mostly seen calling from vegetation near temporary rain water pools.

Bush Frog *Philautus* sp. (Photo Hemant Ogale)
It is commonly seen in bushes in the Western Ghats of Maharashtra, Goa and parts of northern Karnataka. It has a large vocal sac, and hence loud calls.



Malabar Gliding Frog
Rhacophorus malabaricus (Photo Hemant Ogale)
This tree frog is seen in the evergreen and moist deciduous forests of southern and middle Western Ghats. This is a breeding pair and eggs are laid in foam nests, mostly above pools.

A Guide to the SNAKES of Maharashtra, Goa & Karnataka

by Neelimkumar Khaire, 2006.

Indian Herpetological Society, 'VSANT', Pune.

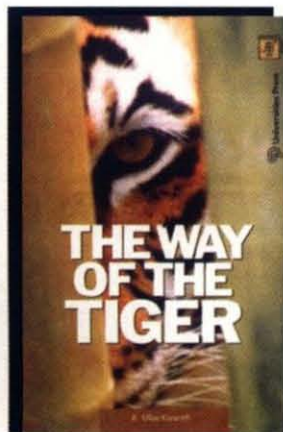
Pages 129. Price: Rs. 200/-.

(Size: 20 x 11.6 cm). Paperback.

Reviewed by J.C. Daniel

This is an excellent guide book to the snakes of Maharashtra and adjoining states, with beautiful illustrations, which have a clarity that makes positive identification easy. Mr. Khaire

with his long experience in the management of snakes in captivity, has indeed produced a useful, educative book. The photographs and general get up are superb. 🐍



The Way of the Tiger:

Natural History and Conservation of the Endangered Big Cat

by K. Ullas Karanth, 2006.

Universities Press, Hyderabad. Pages 125.

Price Rs. 175/- (Size: 21 x 13.5 cm). Paperback.

Reviewed by Asad R. Rahmani

This is a quickie and a low-priced version of Ullas Karanth's highly acclaimed book of the same name. This version is primarily targeted at Asian readers, who presumably cannot afford his coffee table book with glossy pictures, which was targeted more for foreign countries. It is a well written book, with simple sentences, and avoiding scientific jargon. Ullas is becoming a popular science

writer, and with his vast field experience, nothing but the best can be expected on a subject on which he holds authority. I had reviewed his earlier book (*JBNHS 102(1): 89*), hence I have not much to add. I want to congratulate the writer and the Universities Press for publishing a low-priced book. I am sure such books will stimulate more individuals to work for the protection of our natural world, and not just the Tiger. 🐅

The Illustrated Sálím Ali: The Fall of a Sparrow

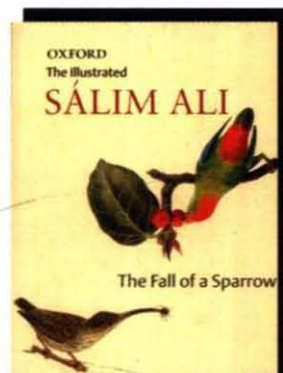
Oxford University Press, New Delhi. Pages 128.

Price: Rs. 225/- (Size: 25.4 x 18.7 cm). Paperback.

Reviewed by J.C. Daniel

There are many ways of living happily in this world and some are peculiarly individualistic. Sálím Ali found one, peculiarly his own — living with and for birds. This illustrated version of his autobiography THE FALL OF A SPARROW is largely meant for

the young and the young at heart, as the illustrations highlight the characters in the text, both human and ornithological; though one wonders how R.S.P. Bates, the bird photographer, got on to the half-title page of the book. 🐦



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Why don't WOODPECKERS get brain damage?

NIKHIL DEVASAR

Yellow-crowned Woodpecker

Text: Lt. Gen. Baljit Singh (Retd.)

There is a very tall Dontha tree (*Anogeissus latifolia*) in my compound. Its cylindrical bole, fat, pale grey, smooth textured and bereft of branches up to about 10 m, rises straight as a mast. It then forks out and continues skywards for another 4.5 m ending in a modest, but attractive canopy, the shape of a barrel worn at a jaunty angle. Its unique bole is a favourite feeding space of the White-naped Woodpeckers, usually during May-June, perhaps because that is the period of peak growth of juveniles, before they become independent. In 2000, I watched two groups on several afternoons, always between 3:00 and 4:00 p.m. If one group was on the tree, the other either did not show up at all or arrived once the bole was vacated. They delighted me with their dexterity of hitching up

the bole in jerky short spurts, maintaining a straight row with about two body-lengths from the one above and pausing at intervals to hammer at the bole with persistence and precision, to prise out the food. There were times when one or more of the group would side-step to scout for food, but no sooner than it was time to resume the hitching spurts up the bole, they would all fall back in line as a group first! Occasionally they would also spiral around and up the bole, but even so maintaining the spacing (in a skewed row now), while searching out the bole along its entire girth. The most amusing part was when the group would suddenly and effortlessly slip into the reverse gear, taking the slide again in short spurts, but so synchronously that there was not the least noticeable change in the mutual

separation gap, nor a flaw in the straight row. And all this accomplished while they looked skyward without so much as stealing even a glance over their shoulders!

While I marvelled at the speed and precision of hammering at the hard wood of the bole, I wondered how the bird avoided injury from the force of such prolonged lifelong impact. The bird books in my meagre collection provided no answer. Fellow bird enthusiasts offered conjectures, but none were satisfying. At last on November 18, 2002, through the 'Why Corner', a column on the last page of 'Know How', a supplement to the Telegraph (Calcutta), the decades' old inquiry was laid to rest. I reproduce the text, which left me with a glow of happiness that comes with the acquiring of knowledge.

“Why don't Woodpeckers get brain damage?”

The 'KnowHOW' team explains:

“Filmed analysis of a woodpecker shows that the force of deceleration when its beak strikes the trunk is up to 1,200 times the force of gravity. It has to close its eyes just before impact, to stop its eyeballs flying out.

The woodpecker keeps its head absolutely straight while striking. This avoids rotational forces, which can cause concussion. Also, its head is constructed such that shock waves are transmitted less readily. It has a narrow space between the skull and the brain, with very little fluid. The brain is packed tightly by dense yet spongy bone, which buffers the force. Additionally, some of the muscles in the woodpecker's head contract, which helps to absorb and distribute the shock. Structures from the base of the tongue extend round the brain and may also absorb shocks.”

Can we safely assume that all species of birds that either seek out food or make nesting cavities by impacting their beaks on hard surfaces have the structure of their beak, skull and cervical region similar to woodpeckers?

I also have one field observation on the Yellow-crowned Woodpecker, which might be of interest to some readers. I see this woodpecker practically throughout the year on trees in our compound. But the bird is the most noticeable and easy to observe here in March and April. That is the time when their favourite tree, the Indian Laburnum (*Cassia fistula*), is almost totally leafless, but loaded with fully ripe seed pods, the cherished seasonal delicacy of this Woodpecker. The pods are cylindrical, about 40 cm long and 2 cm in diameter, with a dark brown sheath, the thickness of a postcard. In March and April, the sheath (skin) is crisp and dry, but the light brown pulp inside is moist, sticky and densely packed, concealing 40 to 100 seeds. The pods hang from



LAXMAN GOSAVI

Cylindrical boles are favourite feeding spaces of the White-naped Woodpecker

branches and sway with the breeze like a pendulum. These tiny woodpeckers are crazy about the pulp inside the pods, but getting through to the delicacy is no easy task. One might think that puncturing the thin sheath of the pod would be child's play for the woodpecker. Far from so! The moment the woodpecker attaches itself to the pod, that action combined with the velocity of hammering, sets the pod and the woodpecker swaying and in the process there is possibly some loss in the impact of hammering. But the bird perseveres, getting so engrossed, that with care one can get to watch them from close quarters. Finally, the bird does get access to the pulp, but only at one centimetre cross-section of the pod, it still has at least another 30 cm to explore. So you can be watching them for days and at the end collect a souvenir as well. The pod would now have shed from the branch in a natural way and it would have a number of rectangular and circular holes; at times circular only and almost in a row, resembling the flute! I do not know if these birds eat the seeds too.

But they certainly are the most efficient dispensers of seeds, since in eleven years we have five more Indian Laburnums, within 20 m of the original two.

As the shape and size of the pod resembles the tail of a monkey, the Adivasis of Chottanagpur have named the Indian Laburnum 'Bundar Loria' – the down to earth, common-sense pragmatism of indigenous culture, giving this tree a name, so much the more expressive than Laburnum! For that matter, think of the name 'Hazaar Daastan' of the Blue (Himalayan) Whistling Thrush, at once so apt and poetic, and descriptive of the character of the bird. Wish all our checklists will, as a rule, carry the English Name followed by the most popular Vernacular Name and then the Scientific Name. ■



Lt. Gen. Baljit Singh (Retd.) is an active promoter of nature conservation, particularly within and by the Armed Forces, over the last 35 years.



Text: J.C. Daniel

The only time I have woken up in the morning with a song in my heart were the days after school finally closed for the summer holidays, and there was a long vista of non-regimented days ahead. But Sparrows wake up every day with a song in their heart and wake up everybody else, not necessarily with a song in their heart.

There is a Bhenidi tree, or to be more 'scientific', a *Thespesia* tree, outside my bedroom window; a hardy tree that has withstood Mumbai's pollution and the annual Holi hacking, and is still profuse in its branches and leaves! The Sparrows roost on it. This is their slack breeding season and they live as a community when they are not diffidently looking around in your house with a straw in their beak for a place to build a nest, to bring up a family. Flock after flock flies in the evening and settles down on my Bhenidi tree with the soft sleepy murmur of greetings, of friends meeting friends at the end of the day, and by sundown there is silence. The joyous awakening starts with a few tentative chirps at about 5:00 a.m. and as the light strengthens, so also does the joyous chirping welcome to the rising sun. There is something exhilarating to listen to so much of happiness, so early in the morning. But it is short-lived, and as the sun comes over the horizon, flock after flock silently leaves for the daily foraging for a living. ■

J.C. Daniel is at present
the Honorary Secretary of the Society.



AN APPEAL

The Conservation Education Centre (CEC), Mumbai, of the Bombay Natural History Society (BNHS), established in 1997, is situated in a forested area adjoining the Sanjay Gandhi National Park. The first of its kind in Mumbai, it is exclusively oriented towards conservation education. The surrounding wilderness fascinates all who walk its paths and breathe its fresh air.

An oasis of serenity, the Centre's anthill-like building is an example of environment friendly construction. The Centre has an auditorium, discovery (activity) room, display room, open classroom, butterfly garden and wildlife watching hide. People from all walks of life visit the Centre, with more than 16,000 school children visiting annually.

The Centre has to undergo massive repairs to arrest the wear and tear to the building, the total cost for which is about Rs. 50 lakhs. With a generous grant of Rs. 10 lakhs from the Union Bank of India, and by pooling our tender resources, the Centre's external repairs have been completed. However, we still need Rs. 30 lakhs for internal repairs, like internal plaster, and acoustic, electrical and drainage systems. We are looking for support from individuals, institutions, agencies and corporate bodies. All contributions will be acknowledged; for donations of over Rs. 5 lakhs, a nature trail at CEC, Mumbai will be dedicated to the donor(s) for a year.

Please contribute generously, so that the important work of spreading the message of conservation can continue. We will keep you informed on how your donations, large or small, have been used.

For details, please contact:

Dr. Asad R. Rahmani, Director, at bnhs@bom3.vsnl.net.in
or Dr. V. Shubhalaxmi, Centre Manager, at vshubhalaxmi@gmail.com

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Onchidium verruculatum

The Crawling Stones

Text and Photographs: Bhavik Patel

It was May 2006, and the summer was at its zenith. I was in southern Gujarat, a land of beautiful rocky and sandy beaches. This was my first survey as a Research Fellow of the Bombay Natural History Society for the 'All-India Coordinated Taxonomy of Molluscs' project, funded by the Ministry of Environment and Forests. Mr. Deepak Apte, the Principal Scientist of the Project, had told me that the Gujarat coast had a good diversity of molluscs and I was all set to 'capture' this diversity during this survey. The tides determined the time of my visits to the coast.

I returned to the coast soon after the south-west monsoon had receded. On one hot afternoon during November, I was at the coast of Veraval in Junagad district near Somnath, searching the rock bed for molluscs, when the ground under my feet felt soft and slippery. "Probably a bunch of sea weeds", I thought, and continued walking. A few metres away the ground felt soft and slippery again. This time I looked carefully and almost jumped with excitement when I realised that I had stepped on an *Onchidium* sp. – a relative of the Sea Slug!

They were in thousands; some lying on the rock, some feeding on sea weeds (*Ulva* sp.), and some mating. They looked like an upturned bowl; their yellow or red patterned body covered with numerous blunted spines, well camouflaged against the rocks they crawled on.

Many individuals that I saw seemed to be mating. They had confined themselves to shady places, mostly under massive rock boulders. Of the two, one had a yellow patterned body, while the other a red patterned body. Both moved in circles, the siphon of one touching the anus of the other. It looked like a pre-mating display, observed in many higher animals. They were in this posture for several minutes, until the yellow patterned animal broke this formation and started moving away. The red patterned animal followed it, all the while touching the other's anus with its siphon. This went on for some distance and then the red patterned animal went its own way and started feeding on sea weeds. Only molluscs larger than 10 cm were involved in this kind of display; the smaller ones were feeding or resting.

I immediately informed Mr. Apte about this sighting and he suggested that I collect a specimen for identification. I returned the very next day, equipped with a collection bottle and formalin. To my surprise, the many thousands of them that were crawling on the coast just a day earlier had disappeared! I searched for them and finally found some feeding on the sea weeds and resting. They were later identified as *Onchidium verruculatum*, one of the most common Pulmonates from Phylum Mollusca.



The Pulmonates were probably mating

This incident made me start thinking about their behaviour. A number of questions crossed my mind. What was the display that I had seen the previous day? Was it mating? If not, then what could it have been? Do they come to the coast only for mating? Why and where did the thousands of them suddenly disappear in one day?

For now these questions remain unanswered, and all I can say is *bon voyage* to the 'Crawling Stones', whose appearance was as surprising and strange as their disappearance! ■



Bhavik Patel was a research fellow with the Conservation Department at the BNHS. He is at present pursuing further studies in the UK.



The Veraval coastline has a very good mollusc diversity

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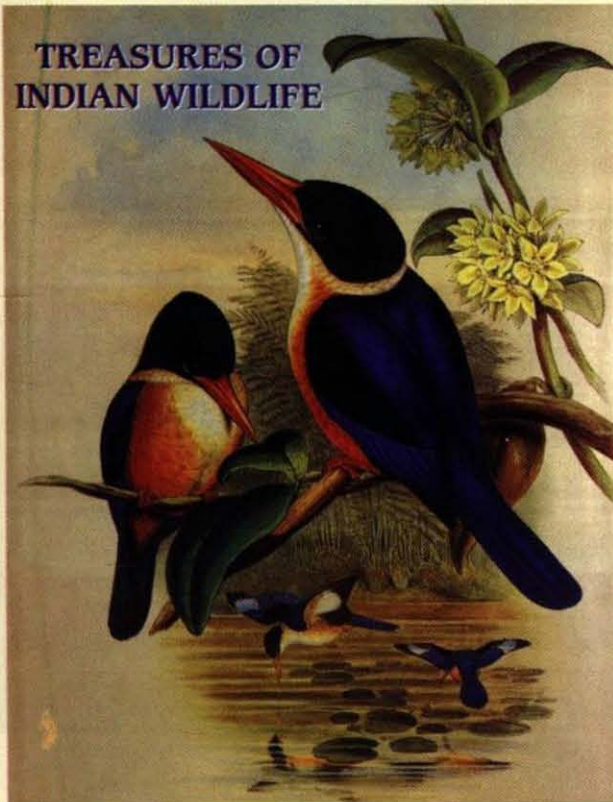
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BNHS - Green Governance Awards 2006

GOPINADU

Compiled by Rushikesh Chavan, Conservation Officer,

The road to sustainable development is less travelled. However, with rapid globalisation it makes business sense to take this less trodden path as it ensures greener pastures for present and future generations.

In an attempt to sensitize corporates, financial institutions, Public Sector Units, and Government organisations, the Green Governance Programme, since its inception in 2003, has made good progress in achieving its objectives. As part of the Green Governance Programme, the BNHS has instituted the BNHS-Green Governance Awards for three categories. The first Green Governance Awards were presented by the Honourable Prime Minister of India, Dr. Manmohan Singh on November 10, 2005.

The three-tier process for the BNHS-Green Governance Awards-2006 started in April 2006. The process involved short-listing of nominations by the Evaluation Committee, site visits to the eight short-listed nominations by experts, and the final assessment by the Steering Committee. The Committees consisted of distinguished individuals, such as Mr. B. Majumdar, PCCF (WL), Maharashtra; Dr. Prasad Modak, Director, EMC, Mumbai; Dr. Shyam Asolekar, IIT, Powai; Mr. Anil Malhotra, Chief Manager, ICICI Bank; Col. Prakash Tewari, Indian Army; Maj. Arun Phatak, Ex. Executive Committee Member, BNHS; Mrs. Pheroza Godrej, Vice President, BNHS; Mr. J.C. Daniel, Honorary Secretary, BNHS; Dr. Rachel Reuben, Executive Committee Member, BNHS and Dr. Asad R. Rahmani, Director, BNHS.

The BNHS-Green Governance Awards-2006 were presented by His Excellency, the Governor of Maharashtra, Shri. S.M. Krishna on March 21, 2006. On this occasion the Hon'ble Governor said "Although this is only the second year of the Awards function, the awards have already acquired very high stature and prestige because of two factors: the highest norms of selection set by the Society from the beginning in identifying the winners, and second, the name of the BNHS associated with it. The Society which is in its 124th year of existence is easily one of the most committed organisations in the field of nature conservation ... The Green Governance Programme is a timely initiative of the BNHS that seeks to imbibe ecological consciousness among Corporates, financial institutions, government agencies and society at large."

CONSERVATION OF FAUNA – 3 Infantry Division, Indian Army

The Headquarters of the 3 Infantry Division of the Indian Army and its affiliated Units undertook the mammoth task of management of habitat at high altitudes for conservation of fauna. The Division identified the potential threats to the flora and fauna of this unique region and planned their ecological conservation activities.

The Ladakh Region

The Ladakh region of Jammu & Kashmir (J & K), located in the trans-Himalaya, is part of the picturesque high altitude cold desert region. The harsh and inhospitable terrain houses some of the most unique and fragile ecosystems that are rich in a wide variety of flora and fauna, however, many species found here are threatened and endangered. Among the rarest and most endangered species found here is the magnificent Snow Leopard *Uncia uncia*, which is at the apex of the food chain, and hence its status reflects the health of the environment. Other animals found in these highlands are the Himalayan Ibex, *Shapu*, Bharal, Tibetan Antelope, Fox and Wild Ass, Wild Yak, Himalayan Marmot, Nubra Pika, Lynx, Red Fox, Brown Bear and the Bactrian Camel.



His Excellency, the Governor of Maharashtra, Shri. S.M. Krishna giving the keynote address

THE WINNERS

CONSERVATION OF FAUNA — 3 Infantry Division of the Indian Army for their outstanding contribution for protecting the high altitude fauna in Ladakh, Jammu & Kashmir.

CONSERVATION OF FLORA — Mechanised Infantry Regimental Center (MIRC) of the Indian Army for the protection of grassland flora in Ahmednagar, Maharashtra.

CONSERVATION AND RESTORATION OF HABITAT — Tata Motors Limited for protection and restoration of over 130 ha of habitat and creating wetlands for migratory birds in Pune, Maharashtra.

A certificate was also awarded to 8 Mountain Division, the winners of 'Conservation of Flora' for BNHS-GGP 2005 for continuing efforts to conserve the native flora of Ladakh region.



Award winning team of the 3 Infantry Division, Indian Army

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- JRD Tata

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MIRC

Blackbucks are a common sight at the MIRC, Indian Army

Major activities

Afforestation: 44,500 trees were planted in 2005-06 and 45,000 trees are scheduled for plantation in 2006-07.

Installation of renewable resources of energy in rural areas: A number of micro-hydel projects were installed in areas where drinking water was not available. Solar power systems were installed in remote villages where electricity was absent.

Conservation of High Altitude Wetlands: Both the Pangong Tso and Tso Morari are home to a wide variety of flora and fauna. Protection of wetlands and nesting grounds have ensured a chance for the survival of the Black-necked Crane. Conservation of endangered animals and birds, especially the Black-necked Crane *Grus nigricollis* is one of the major achievements of 3 Infantry Division in this unique region.



BNHS PHOTO LIBRARY

Brigadier R.S. Chand, Commandant, MIRC receiving the Award

- ❖ The gradual transformation of the landscape is encouraging. The 3 Infantry Division, under the able leadership of General Officer Commanding, Major General (Dr.) A.K. Lal, VSM, has left no stone unturned in making this isolated region of Ladakh a splendid model of green governance for others to emulate.

CONSERVATION OF FLORA – Mechanised Infantry Regimental Centre, Indian Army

Ahmednagar is known not only for its rich history, but also for its barren wastelands and frequent droughts. The Mechanised Infantry Regimental Centre (MIRC), raised in 1979, was allotted 2,179 acres of land on the Ahmednagar-Solapur Highway. Their mission was 'To convert the waste and barren training land into lush green surroundings'. This humble but determined beginning of the two-phase 'Project MIRC Green' under the Command of Brigadier R.S. Chand has proved 'Where there is a will, it always makes way.

Project Implementation

Phase I: 7.5 lakh trees were planted in chosen locations on 929 acres of land, west of the Ahmednagar-Solapur Highway – a residential area, since 1979, when Phase I began, until 1993.

Phase II: Phase II, launched in 1994, involved reclamation of wasteland – a difficult task, as compared to Phase I, since the land allotted for training was rocky and had very little top soil, and only two dry wells existed in the area.

The Project had the full cooperation and participation of the local population who were employed to develop nurseries for future plantation activities. Shady trees and the availability of water, along with eco-friendly fencing, made this wasteland a safe sanctuary for wildlife. The variety of fauna that made the training area its home includes Blackbuck, Indian Fox, owls, reptiles and a number of bird species.

Major activities

Study of soil composition: MIRC with help from the local soil testing department and Mahatma Phule Agricultural University carried out land surveys. The soil chemistry was analysed and a

Conservation Notes

soil sample map prepared for guiding the plantation pattern in different pockets.

Protection from grazing: Unchecked grazing menace was controlled with the help of locals. Three varieties of grass seeds were brought from Madhya Pradesh and scattered in the area. Small insects and birds have now made this area their breeding ground.

Tackling Water Scarcity: The training area was surveyed to identify the flow of rainwater for harvesting. Watersheds were identified and small engineering structures were created in each watershed to successfully stop the flow of water. Subsoil aquifers and wells revived, and the water table in the region has now increased.

Improving poor nutritional status of soil: Since the nutritional status of the soil was very poor, clusters of four tree species that would help fix nitrogen in the dry and arid area, produce dense underground roots and increase organic matter or humus content of the soil were selected for plantation.

❖ MIRC has laid down strict norms for the utilisation of the training area. A knowledge park with a floatation training area for

trainees, an indigenous herbal nursery and a weather station are some of the new plans.

CONSERVATION & RESTORATION OF HABITAT – Tata Motors Limited – Pune

Tata Motors is engaged in community and social initiatives to promote greater environmental responsibility and incorporate environmentally friendly technologies in its manufacturing process. The company is playing an active role in community development around its manufacturing locations.

Greening of a barren landscape

Tata Motors, Pune Works, established in 1975, (then known as Tata Engineering & Locomotive Company Ltd. – TELCO) had plans to protect the environment of c. 800 acres of land it had procured in 1965, even before its manufacturing facilities were completely set up.

Tata Motors, in the centre of the Pimpri-Chinchwad industrial belt, has worked to create an ecologically diverse natural habitat – originally degraded land with poor soil conditions – by careful planning and timely allocation of



Painted Storks make use of shrubs/trees for nesting in the Tata Motors compound

resources. At a time when wetlands are being progressively destroyed by silting/drainage/ tipping of waste and sewage or being taken over by urban sprawl, a beautiful wetland that provides a safe refuge for local flora, resident and migratory birds, was developed on the campus.

Major activities

Water bodies: The four ponds and two lakes, originally created by excavation, are spread over an area of c. 40 acres. Storm water and treated effluent flow into the lakes through the ponds. These ponds are frequented by a variety of small waders, cormorants and kingfishers. This 40-acre stretch of open water in Sumant Sagar and Lake Sharma is the preferred foraging area for various water birds. The lakes are also visited by a number of migratory birds from October to March.

Marshy area/ Reed beds (*Typha*): Marshy/ swampy areas were especially developed all along the margin of the water bodies to create ideal nesting spots for some birds. *Typha* is the pre-dominant plant species here and is the preferred feeding spot for waders. Rocks and dead tree trunks have also been provided in these marshy areas as resting perches. The reed beds are areas of 'still water' where fish, amphibians, reptiles and invertebrates, such as snails, molluscs, crustaceans, insects and annelids thrive.

Open scrubland/grassland: The open scrub/ grassland areas were developed by prohibiting the entry of grazing cattle and ensuring that no new trees are planted, to create a habitat promoting the shrubby or grassland eco-system. Birds that feed mainly on insects and seeds are seen in these areas. The absence of grazers in these open scrub/grasslands has resulted in an abundance of herbaceous plants and shrubs.

Mixed-dense tree cover: Almost 165 acres of the Project Area have been developed as a dense tree plantation. 157,728 trees were counted during the first comprehensive tree census in 2003.

Garden/orchard area: Pockets of orchards have been developed in the Project Area. Grafts of different species like coconut, mango, guava,



The artificial lake at Tata Motors, Pune Works is a visiting ground for many water birds

chikoo, jamun, jackfruit, cherries, fig, tamarind, amla, ber, phalsa are grown here. Such plantations are spread over c. 80 acres of the Project Area.

Pisciculture: With the creation of a perennial water body by 1975, Tata Motors decided to push further in transforming it into a natural lake ecosystem, by introducing fish fry and fingerlings into the lakes and ponds. A large variety of fish, including Rohu, Catla, Mrigal, Mahseer and Silver Carp obtained from the Government Fish Breeding Farm in Hadapsar were introduced into the lakes. This attracted water birds, which have now become residents. Annual netting done in the presence of officers from the Fisheries Department Government of Maharashtra has revealed that the fish are healthy, and fit for human consumption.

❖ Tata Motors believes in creating technology for tomorrow and their products stand as testimony. Environmental planning for Tata Motors' products includes improving emission and noise performance ahead of regulatory requirements, reduction of hazardous materials in vehicle components, developing extended life lubricants and fluids and using ozone-friendly refrigerants. The company has also been investing environmentally sensitive technologies in the manufacturing processes in its existing and upcoming Greenfield facilities. ■



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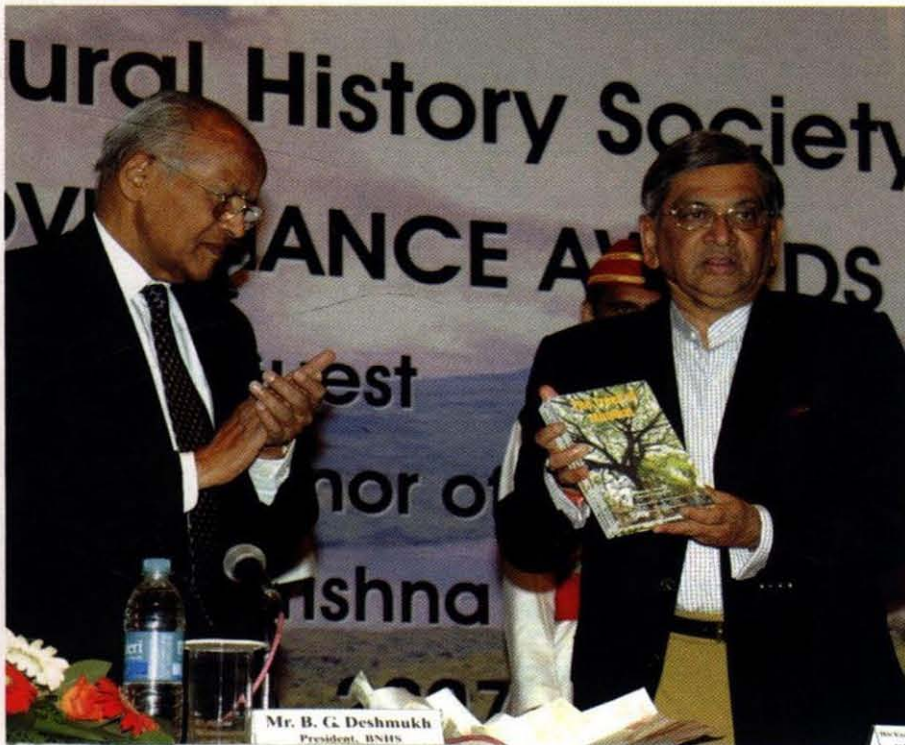


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The Hon'ble Governor of Maharashtra, Shri S.M. Krishna released 'The Trees of Mumbai' in the presence of a number of dignitaries

'Trees of Mumbai' Released

'The Trees of Mumbai', a new BNHS publication compiled by Marselin Almeida and Naresh Chaturvedi, was released by His Excellency, the Governor of Maharashtra, Shri. S.M. Krishna on March 21, 2006. He praised the efforts put in the making of the book. "It is a very informative, interesting and easy to understand account of the trees of Mumbai, giving pictures and valuable information of over 100 trees. I compliment both the authors and hope the book will be found immensely useful by nature lovers, botanists and citizens at large."

The book, priced at Rs. 350/- for members, is available for sale at Hornbill House. ■

India's First Bird Migration Study Centre at Point Calimere

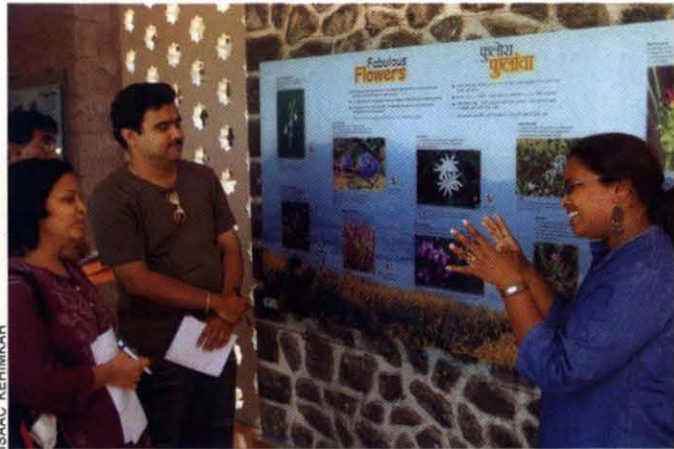
The Bombay Natural History Society has, since 1958, under the direction of Dr. Sálim Ali, carried out bird migration studies at the Point Calimere Wildlife Sanctuary and the Great Vedaranyam Swamp. The study was terminated in 1992 due to lack of funds. The BNHS, in 1998, decided to establish a Bird Migration Study Centre, aimed at expanding bird migration studies.

The foundation stone for the Bird Migration Study Centre, the first of its kind in India, was laid on April 17, 2007 at Point Calimere by Mrs. Pheroza Godrej, Vice President, BNHS, who later lighted the traditional lamp to the sound of 'Mangalavathyam' – folk music traditionally played on auspicious occasions and functions. A *bhoomi pooja* was also performed as land in India is conventionally worshipped as the mother. A tree was planted and a granite plaque was unveiled by Mrs. Godrej in the presence of the villagers, students and forest officials. ■



Mrs. Godrej laid the foundation for the first Bird Migration Study Centre in India

World Environment Day with the BNHS



ISAAC KEHIMKAR

Dr. V. Shubhalaxmi, Centre Manager, BNHS-CEC, Mumbai (extreme right) and her team developed the informative displays, now exhibited at the MTDC Resort, Malshej

BNHS-Conservation Education Centre, Mumbai

A set of twelve exhibits depicting the flora and fauna of Malshej Ghat and some general conservation issues of the country, developed by the BNHS for an MTDC Resort at Malshej, were launched on June 5, World Environment Day.

A programme, including games and a slideshow and quiz, was organized for the staff and workers at Chemtell Industry, and a slideshow was also organized for the children of BEST (Brihanmumbai Electric Supply and Transport) staff.

BNHS-Nature Information Centre, Mumbai

The BNHS-NIC, Mumbai on June 3, 2007, conducted a forest visit, held interactive sessions and screened 'An Inconvenient Truth' – a recent film on climate change, for members of *Hirvai*, a citizens group. The theme of the entire programme was climate change and its effects; it was conceptualized on the suggestions of the United Nations Environment Programme. ■

News from BNHS-NIC, Mumbai

The BNHS-Nature Information Centre, Mumbai, under its Maharashtra Education Project, conducted one-day training programmes for 2,800 teachers of rural and urban secondary schools across ten districts of Maharashtra between January and April 2007. More than 350 principals and ward officers attended forest visits, Lion and Tiger Safaris and presentations on Environment Education between April 10 and 12, 2007. All the principals were gifted a copy of *IN HARMONY WITH NATURE – A TEACHER'S HANDBOOK ON LEARNING FOR SUSTAINABLE LIVING IN MAHARASHTRA*. The book, priced at Rs. 315/- for members, is available for sale at Hornbill House.



BNHS PHOTO LIBRARY

Principals and officers from ten districts of Maharashtra attended the workshop organised by BNHS-NIC, Mumbai

News from BNHS-CEC, Mumbai



BNHS PHOTO LIBRARY

The 'wild brats' never had an idle moment during their stay at the BNHS-CEC, Mumbai

The BNHS-Conservation Education Centre, Mumbai, had planned a series of camps during April to June. One among them was 'The Wild Brats Camp' for children aged 8-14 – the first of its kind in a series of adventurous, mischievous yet educative overnight camps.

A total of 24 participants underwent the Volunteer Training Programme this year, which was held in two modules during May, the participants will be ready to volunteer for activities organized by the BNHS after passing the observer stage in June-July.

The BNHS-CEC, Mumbai will be forming Hornbill Nature Clubs in Municipal Secondary Schools in Mumbai; this year-long project will be funded by Dr. Mridula Thakkar, a BNHS member. ■

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