

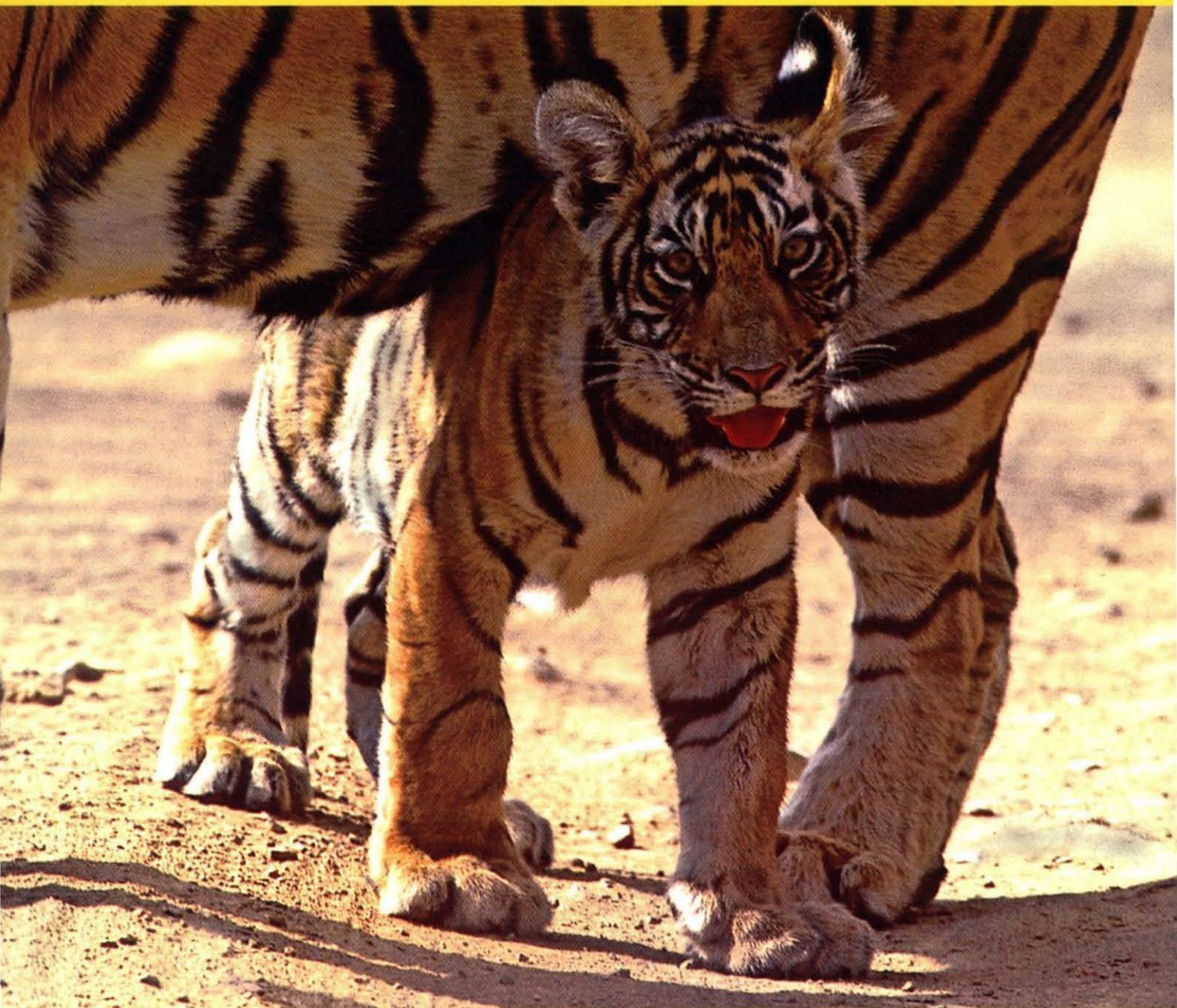
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Tiger, tiger burning bright
In the forests of the night,
What immortal hand or eye
could frame thy fearful symmetry?

– William Blake

Gobind Sagar Bhardwaj has attempted to capture this very symmetry, in all its majesty and grandeur.



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India's real 'liquid gold'

The oil industry arrogantly claims oil to be 'liquid gold'. At a time when the international oil price is more than \$140 a barrel, for some it would be blasphemous to change this view, but I would call water the real liquid gold, and not oil. Nature evolved life around a simple liquid, H₂O, and not a complex chain of hydrocarbons.

It is cliché to write that all civilizations flourished around water, particularly rivers, streams and lakes, and where such features were not present, Man took elaborate steps to harvest and conserve rain water. Some of the best examples of such measures can be seen in the dry districts of Tamil Nadu, Andhra Pradesh, Gujarat, Rajasthan, and Madhya Pradesh. Some of the water tanks in the Tirunelveli and Kanyakumari districts are more than 800 years old and still serve humankind. In the Thar desert, family settlements called *dhanis* cannot survive without *tankas* where almost every drop of rain is harvested. Flying over the grain belt of Haryana and Punjab will show that every village has a tank or two, sometimes three or four. Even in the comparatively wetter Assam, individual households maintain a small pond or tank for bathing, washing and pisciculture.

In Saudi Arabia, known for its oil wealth, water is treasured like gold. Even after 20 years, I still remember a very interesting case. I was in the field with my student when an unusual downpour happened. My Saudi colleague scrupulously avoided driving over even small puddles on a *katcha* road saying we should respect God's gift of water. He did not want to splash the water. He said that, "let it seep into the soil and fulfill the thirst of the plants". Our own Rig Veda and other religious scriptures are full of paeans of water. Is any ritual complete without sprinkling water?

But, look around and see what we are doing with our liquid gold. Ironically, as our dependency on water grows, our sins against water also grow. We treat our rivers as open sewers, we drain our ponds to make bus stands, we throw non-degradable litter everywhere, which ultimately lands up in a river or a lake, we destroy the catchment areas, and we criminally dump toxic wastes into underground channels, which pollute underground water sources. Jamuna near Delhi, Mithi river in Mumbai, Gomti in Lucknow, to give a few examples, are dead. We spent billions of rupees in the name of the Ganga Action Plan, but did it make any difference to the Ganga? I think it is more appropriate to call it the 'Action Plan to Loot in the name of Ganga'. While the corrupt politicians, engineers and bureaucrats became rich, our holy Ganga still flows polluted.

We have many laws to prevent water pollution, such as The Water (Prevention and Control of Pollution) Act, 1974, The Water (Prevention and Control of Pollution) Cess Act, 1974, The Environment (Protection) Act, 1986, but we do not have strong laws to prevent the destruction of wetlands. India is a signatory to the Ramsar Convention and has declared 25 Ramsar Sites. The Ministry of Environment and Forests, Government of India (GoI) has a National Committee on Wetlands, Mangrove and Coral Reefs, constituted to advise the government on appropriate policies and programmes for the conservation of wetlands. This Committee has identified 103 wetlands for which funding can be provided by the GoI. The Indian Bird Conservation Network (IBCN), BirdLife International, the Royal Society for the Protection of Birds and the BNHS have identified 135 potential Ramsar Sites – many of them are also included in the National Committee's list (of 103 sites) and thus they are already recommended by the GoI for protection. However, there are hundreds of thousands of other wetlands – village ponds, urban



tanks, reservoirs and temple tanks – that need protection from encroachment, draining, urbanization and neglect. Wetlands are generally considered as wastelands by politicians, bureaucrats and city planners. As the land price shoots up, many wetlands in urban areas are up for grab. For example, the Lake Development Authority of Bangalore wants to privatize water bodies – the main beneficiary of which would have been hoteliers and builders.

In order to protect wetlands, the GoI is considering establishing a Regulatory Authority for Wetlands at the centre, state and district levels. It is still at an initial draft stage so it will not be appropriate for me to comment in detail. I think it is a good first step to protect wetlands, but looking at the magnitude of the problem, it is not enough.



ASAD R. RAHMANI

A wetland littered with non-degradable garbage

What we need in our country is national and state wetland policies for the wise use and protection of wetlands, including rivers and streams. I suggest that the wetland policies and Regulatory Authorities should lead to a strong Wetland (Conservation) Act, on the patterns of the Forest (Conservation) Act 1980. The Forest (Conservation) Act (FCA) has played a major role in decreasing the rate of deforestation in India. Just imagine what would have been the status of our forests without the FCA?

If we have a strong Wetland Conservation Act, it will be difficult for a bureaucrat or a politician of a *mofussil* town to convert a wetland to a bus stand or a housing colony.

The threat of climate change, increasing unpredictability of the monsoon and a need to produce more food for our increasing population should be sufficient reasons to protect, restore and wise-use our remaining wetlands. Water pollution should be considered as 'the ultimate terrorism against humanity and mother Earth'. I have a very simple argument against water pollution. The waters in which a fish cannot survive, is unfit for human use too. Therefore, we have to prevent pollution not only for the fish and other biodiversity, but also for our own interest.



Rediscovery of the Indian Egg-eater: the inside story

Text: **Ashok Captain**

Late one night, Seema and Harry of the MCBT (Madras Crocodile Bank Trust) e-mailed me, pictures of a preserved (and therefore very dead) snake that someone had sent them for identification. He works on crocodiles and didn't even bother to hazard a guess. She thought it was some sort of trinket snake. One look at the pictures and I was certain it wasn't. In one of the close-ups, I could see a pixellated, but distinctly vertically elliptical (eye) pupil. All trinkets have round pupils. I

was scheduled to visit the BNHS (Bombay Natural History Society) the next morning and took the images along with me.

Fellow taxo-nerd Varad Giri and I subjected the pictures to careful scrutiny. A little 'photoshopping' and a close-up of one of the images showed a line of enlarged 6-sided 'kraitlike' scales along the back. To confuse matters, the snake wasn't black like most kraits; instead it was pale brown with a darker brown pattern in front and a chalky-white stripe down the mid-back. When

preserved in formaldehyde (the most commonly used fixative/ preservative), black snakes sometimes fade to brown. Even if such were the case, it did not explain the stripe, which had a suspiciously 'painted-on' look. When it comes to taxonomy, Varad and I make 'Doubting Thomas' look downright gullible. Smelling the proverbial rat, we checked for camera metadata on the off-chance that the images were from a digital camera. Yessss, they were! The camera model, date and time the picture was taken were written into the image file. Neither of us were familiar with the camera model - NV-GS120, so we 'googled' it. Hmmm. ... a 3-C.C.D Panasonic camera that could also capture still images. The pictures had originated in Wardha, Maharashtra. As Panasonic video cameras were popular throughout India, the images actually might have been genuine. The photo-sleuths (V 'n' I) still had no clue as to the identity of the mystery snake.

Utter bleaksville. Over tea we summed up the scanty facts we had to work with - the snake: i] had vertical (eye) pupils, ii] smooth scales (as opposed to keeled ones); those on the midback were enlarged and 6-sided, iii] was pale brown with a chalk-white stripe on its back and iv] had large symmetrical scales (shields) on the upper surface of its head. To this we added what seemed like reasonable assumptions: the mystery snake was 'Indian' and the images were not 'photoshopped' hoaxes. (I was once e-mailed images of an orange and blue Bronzeback Tree Snake that had been artistically enhanced and asked if it might be a new species!) India has between 275-280 known species of snakes. Based on the aforementioned data and our familiarity with several of them, we concluded that: it certainly wasn't a worm snake, shieldtail, python, boa, keelback, kukri, blackheaded snake, wolf snake, bronzeback, trinket, ratsnake, cobra, viper (pit, or pitless), sea



ASHOK CAPTAIN / R. NANDE / S. DESHMUKH

One of the first colour photographs of a live Indian Egg-eater taken at Amravati

Indian Egg-eater



ASHOK CAPTAIN

Parag Dandge examining his specimen of the Indian Egg-eater at the BNHS

snake... and though it had enlarged hexagonal scales on the back, it was probably not a krait. Phew! We were skating on thin ice with the last assumption, but skating on thin ice was better than skating on no ice at all. Besides the negative identifications, it resembled nothing in the BNHS collection. *Yeah right Sherlock, but what is it? Any fool knows what it's not. Gimme a name!* "Umm, can't actually be a snail-eater (*Pareas* sp.) from Maharashtra, maybe some kind of cat-snake?" was our hesitant guess. I got home none the wiser to its identity. Stoically, I consoled myself, "Ah well, maybe there's a specimen that I can examine (and count the scales of)."

On a whim, I forwarded the images to Frank Tillack (a taxo-pal in Germany). Within a few hours, back came his hyper-excited reply, "*Congratulations, you have what most likely are the first ever pictures of the Indian Egg-eater!*" It turned out that Frank had studied several African Egg-eaters and was able to hazard a guess.

Every herpetologist had visions of rediscovering the Indian Egg-eater considered to be the rarest of the rare snakes in India. Even though most herpetologists considered it to be extinct, it remained rather inexplicably on Schedule I of the Wildlife Protection Act of India (1972) right alongside tigers and their ilk. *Never question the government* - Old Jungle saying.

Suppressing my excitement (her-

petologists are supposed to be cold blooded), I dashed off an e-mail to Seema at the Crocodile Bank asking her if I could get in touch with Parag directly (the lad who'd taken the pictures). I added - the snake certainly wasn't a trinket as it had vertical pupils, but to identify it we'd need to count its scales. This was true, but certainly not the whole truth! She readily agreed and I emailed P who said that he had a preserved specimen that he'd found dead, covered in ants and was willing to come to Pune with it! *This might turn out to be super sizzling hot!*

Immediately I called Varad at the BNHS and in a conspiratorial whisper told him that I might be bringing in an Indian Egg-eater. Parag came to Pune, I counted the specimen's scales, keyed it out using Smith's 1943 FAUNA OF BRITISH INDIA and there wasn't a shadow of doubt - a young lad from Wardha who shot wedding videos for a living had scooped every living herpetologist on the planet. Parag's rediscovery of the Indian Egg-eater, a snake feared to be extinct, ranked right up there with the rediscovery of the coelacanth. He surely deserved a medal. But there are no medals in taxonomy. A flurry of e-mails between India and Germany resulted in a paper that was published in the Russian Journal of Herpetology. The rest is herpetological his-story. A specimen is available at collections of BNHS for reference. ■

Despite most (not all) government agencies chronic phobia of 'the foreign hand' (read the bio-piracy bogey), collaboration often works. In this case: Wardha - Chennai - Pune - Germany - Russia - the entire herpetological world.

Sometimes fairy tales have happy endings. Soon after Parag's rediscovery of the Indian Egg-eater, it was reported from other localities in Maharashtra and one from Gujarat. I even got the opportunity to photograph a live snake. That the Indian Egg-eater is alive has been proven beyond a doubt, to establish whether its populations are doing well needs further research.



Ashok Captain photo documents Indian creepy-crawlies, has co-authored two books on snakes, writes papers on ophidian taxonomy, rides a bike, hates getting wet, but has fun working in rain forests.

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In Search of the Large-billed Reed Warbler



PHILIP D. ROUND / The Wetland Trust

One of the few priceless photographs of the Large-billed Reed Warbler

Text: **Tara Gandhi**

“There it is!” On a sweltering morning in late April, 2007, we were three birders training our binoculars on a small bird in a patch of bamboo in Narendrapur in the outskirts of Kolkata. This was the very spot where the Large-billed Reed Warbler *Acrocephalus orinus* had been sighted recently, rediscovered in India after 140 years by Sumit K. Sen, a well-known bird photographer, and his companions of the Kolkatabirds nature group.

We were in a mood of high anticipation. So far only a few selected members of the birdwatchers’

fraternity had had the opportunity of seeing the diminutive bird. Kushal Mookherjee, an accomplished and respected ornithologist, who was among the earliest to have seen it and to have photographed it just a few weeks ago, was our guide. If the bird we were looking at was indeed our sought-after bird, the two of us accompanying him would have been officially the 7th and 8th individuals in the whole world to see this little creature that had created a stir in the ornithological world with its reappearance after nearly a century and a half of oblivion. On April 1, 2007, Sumit Sen had captured it on camera and sent the photographs to the Bombay Natural History Society, as well as to a number of experts in India and other countries, who confirmed its identification. One of the experts was Bill Harvey, a friend of Sálím Ali and former resident of Chennai while serving with the British Council. The Large-billed Reed Warbler looked like the Blyth’s Reed Warbler *Acrocephalus dumetorum*, except for its longer bill and its flycatcher-like behaviour of constantly fanning its tail. Prior to this sighting, the only Indian record was a single specimen that had been collected in November 1867, in the Sutlej Valley in Himachal Pradesh. In March 2006, one bird was recorded in Thailand, photographed by Philip Round.

Everything was planned to perfection – this Warbler is not an early morning type, but prefers a reasonable 8.30 a.m. for its breakfast – so we were at the spot on the dot. Sunrise in Kolkata the easternmost metro on the Indian subcontinent being 5.15 a.m. in April, and the weather well into summer, the sun shone with mid-morning brightness and the pre-monsoon moisture-laden air misted our glasses. Through the dappled light between the bamboo fronds the tiny bird was a dark silhouette. We saw its unmistakable Warbler shape as it foraged among the leaves. We heard its call, ‘*tschek*’ that sounds halfway between a flying-kiss and a regretful ‘*tsk*’. Kushal caught a glimpse of its delicately graduated tail as it disappeared into the shrubbery.

Large-billed Reed Warbler

What more did we need? What stopped us from letting out a cheer? We could be sure it was a Reed Warbler, but it was impossible to positively identify it as the Large-billed Reed Warbler. In that fleeting moment we did not see it fanning its tail nor could we confirm its relatively browner colour. It could very well have been just the usual Blyth's Reed Warbler, its similar looking and similar sounding relative that is a regular winter migrant (surprisingly that year it had not left our shores for its northern breeding grounds as it normally does by now). The two species had been found moving about together at the time of the sightings in early April.

The Kolkata birds group has resolved to monitor the area throughout the year and look out for it. The fact that the vicinity of one of the most populous cities in the world could yet be attractive for a rare species is heartening. Far from being a patch of wilderness, this is a rural plot with a few trees and bamboo clumps between huts where people were going about their normal daily routine. One woman was collecting twigs for firewood and

another was husking coconuts. Nearby a sari-printing workshop was in function, as could be seen from the dark blue stream of its effluent running through a ditch. And not very far, a couple of large bungalows including one where a nature loving owner had allowed his garden to run wild and a little further was an old mango orchard that had recently been declared a bird sanctuary by the Forest Department.

Was it the natural ambience of this rural retreat without the cement and concrete of the city, or was it just the quiet and peaceful pace of life there without the suffocating exhaust fumes that gave our warbler a safe haven? Not only warblers, but many other bird species seemed to find the site hospitable. A pair of White-throated Fantail *Rhipidura albicollis* had built their nest in a completely exposed place on a slender bush by the side of a path. The birds were unperturbed by our presence, treating us to their dainty 'dance' and to their change of brooding duty at the nest. Another nest was being constructed before our eyes on a low branch



The habitat of the Large-billed Reed Warbler. Inset: a Large-billed Reed Warbler in its habitat

Large-billed Reed Warbler



MEETHIL MOMAYA

Oriental Magpie-Robin, a familiar songster of our gardens

— this was by a pair of Black-hooded Orioles *Oriolus xanthornus* who again seemed least bothered by our peering binoculars. In addition there were Orange-headed Ground Thrushes *Zosterops citrina*, Oriental Magpie Robins *Copsychus saularis*, Red-vented Bulbuls *Pycnonotus cafer*, Ioras and numerous other species that came trustingly close.

Will all this change if Kolkata expands as all cities inevitably do? Have we not helplessly witnessed sylvan surroundings in the outskirts of Chennai and Bangalore being engulfed by giant high-rises? After all Narendrapur is only 10 km from the great metropolis. When yet another mega-store with every imaginable consumer item on sale



CLEMENT FRANCIS

The Blyth's Reed Warbler - a look alike of the Large-billed Reed Warbler



KUSHAL MOOKHERJEE

The Orange-headed Ground Thrush, a shy mimic

comes up, or more fancy apartment blocks with exotic names are constructed after bulldozing every scrap of vegetation, will any of these beautiful birds come visiting, let alone the Large-billed Reed Warbler? And if it doesn't, so what? Perhaps a handful of birdwatchers would care, but for developers and town planners with their demand for land, such historic avian rediscoveries may appear too trivial to take into consideration. Can one dare hope for a day when conservation education reaches decision-makers?

After our inconclusive but enlightening trip, I was reminded of the expedition Sálím Ali undertook in 1934 to search for Finn's Baya *Ploceus megarhynchus*, a weaver bird species then considered extinct. That journey proved unsuccessful, but eventually twenty five years later in 1959, he rediscovered the bird by detective-style ferreting out data from old records and piecing them together to locate possible sites and seasons for observation. In the case of the Large-billed Reed Warbler there is virtually no information to work on. Whether it is a true migrant species, a local migrant or a resident in this part of the country is not known. Where it was during all these

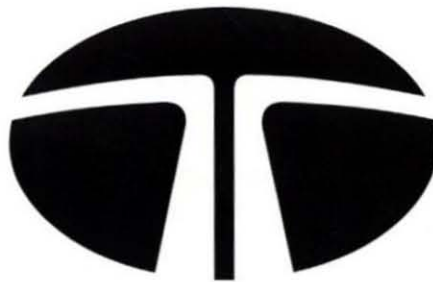
intervening years and why it appeared now and in this particular location are questions no one can answer. The influence of climate change being a factor can only be a matter of speculation. Most warblers and other small and insignificant-looking birds are often dismissed as 'LBJs' (little brown jobs), since they are so hard to identify. Yet one such has turned out to be an exciting mystery, grabbing media attention.

No doubt ardent bird conservationists like Sumit Sen, Kushal Mookherjee and their enthusiastic colleagues will spare no effort in lobbying for the protection of the Large-billed Reed Warbler's newly discovered habitat. Having lost my opportunity of securing the coveted 7th or 8th place in the line of international records of this bird, I will certainly keep my eyes peeled during the coming years in the hope of claiming a small space in the spotlight on a significant world event. ■



Tara Gandhi is a BNHS member, involved with bird and biodiversity conservation.

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'Insect Mania' ... Haven't you heard of this 'disorder'? Probably not, after all it is not a 'disorder' mentioned in medical books!! Meet me; I am an insect maniac, infected by the six-legged bug! Though it is 'contagious', not many succumb to this life long malady. I was infected by this 'disorder' and as I grew, I realized my undying passion for insects and the need to inform people about their unique and little-known lifestyle. I found solace to my restlessness in tracking insects and learning voraciously about their behaviour pattern, and owing to this new found attraction, I was able to spot the minutest of insects. At night, all I could think of were the different species of insects in my very own backyard minding their daily business and going unnoticed. I missed a beat whenever I saw an uncommon insect. I got a high out of every sighting of the Atlas Moth – the largest moth in the world – and that too in my own city. My life had changed completely. I was turning into an addict and loved every moment of it.

But this is not the case with most people. Generally, people have their own interpretations and reasons that justify their dislike and fear for insects. Some people may have a dislike for the basic appearance of an insect

INSECT MANIA

Text: V. Shubhalaxmi



The Atlas Moth – the largest in the world does not have a mouth or stomach as it has a very short lifespan where feeding is not a priority



ISAAC KEHIMKAR

The fast and elusive Tawny Rajah obliged the photographer by landing on the finger tip



ISAAC KEHIMKAR

A female Potter Wasp caught in the act of stuffing a paralysed caterpillar into its pot-like nest

depending on the colours and features, and this is common. To illustrate, people are always enamored by the beauty and grace of a butterfly, but little do they know that this same butterfly was, at a point of time, a creepy-crawly caterpillar.

There are some who are victims of conditioning and believe that every insect is capable of giving bites and stings. Also, some people cannot tolerate insects because they consider them to be pests. For this group, the entire gamut of 31 insect orders are represented by four insects; housefly, mosquito, cockroach and bedbug. Of course, then there are people who are scared of insects. For example, it is very common to hear a mother cajoling her reluctant baby to have food or else 'boo' (cockroach) will come and eat away the food. This sort of conditioning may contribute to individuals becoming "paranoid" of insects. These people need to be educated about beneficial insect services, in terms of pollinators, biological controllers, prey base and so on.

Insects have cleverly used the disadvantage of being small to their advantage. Smaller bodies not only mean minimum requirements for survival, but also more variety in the places for shelter. We may assume that insects are tiny, but guess what all these tiny geniuses have evolved to serve as their benefit? Let us start with the 'omnipresent' ants – the harvester ants saved food for a rainy day and carried bugs like aphids to their nests and 'milked' them for their honey-dew.

Adding to the list, the female potter wasp was way ahead practicing this as a mode of seeking food for her babies. She makes pot-like mud cells into which she lays her single egg, and seals the hole after stuffing 4-5 medium-sized paralyzed caterpillars. The wasp knows the exact amount of venom to be

delivered into the caterpillar so that it is paralyzed, but not dead. The paralyzed caterpillars remain alive in the mud cell till the wasp grub hatches out and feeds on them. The grub, then, pupates to emerge as an adult. Contrary to the wasp, there are insects that recycle waste and are the cleaning agents of the natural world. To illustrate, a pair of dung roller beetles make a ball out of dung, much too large in relation to their size, to grow their progeny who feed on the dung.

Insects are die-hard 'feminists'. Female species of insects are more powerful than their counter parts. A termite queen enjoys a flawless victory wherein she rules the colony for a number of years and yet none of the males compete with her. But then again, the termite queen is at least considerate in having young queens and kings as a standby arrangement but not the queen honey bee. There is no space for a male honey bee in the colony; he becomes redundant after mating with the queen – he dies in the mating act itself. Also, the ability to



SHUBHALAXMI VAYLURE

The female Leaf Katydid has sawed the stem of a Rose plant to lay her eggs



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Male grasshoppers of certain species "sing" and the "song" is unique to every species

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choose the sex of the progeny, which is a miracle in itself, is at the discretion of termite queen or queen honey bee. It is for her to decide when males should be born in the colony. It is then she may lay a fertilized or unfertilized egg from which only males are born. Another miracle that demands undivided attention is the ability of the females of paper wasp, aphids, tasar silk moth and many others to reproduce by a process called parthenogenesis (virgin birth) which gives rise to clones, that is, males are as good as extinct in paper wasp colony. In case of female praying mantises, love could very easily be fatal since the females are known for their notorious act of eating their mating partner alive. Glow worms are known to lure fireflies other than their own species by changing the frequency of their light blinks. When the confused fireflies descend for mating, the voracious glow worms eat them up. Female butterflies can 'say no' to their courting partner if they are not interested. They sit with open wings and raise their abdomens to signal the approaching male of their disinterest or that she is already fertilized by another male.

When it comes to communication, insects make use of pheromones. A female moth releases her pheromones in the air for her mate and soon enough her mate tracks her down through his sensitive antennae.

The insect world also has its share of sports idols and the records created by them may make some of our records look like child's play. The credit for long jumping goes to grasshoppers and high jumping to fleas that can jump up to 150 times their body length! Ants can carry things 50 times heavier than their body weight! Long throw was practiced by male rhinoceros beetle, where in rivalry; the loser is tossed by the winning beetle.



SHUBHALAXMI VAYLURE

The carpenter bee gets its name from its behaviour of drilling holes in wood



SHUBHALAXMI VAYLURE

The beetles carry the stigma of pests as their larvae bore into our precious wood and may cause extensive damage

Insect Mania

The water scorpion is a good example of scuba diving with a snorkel.

And when it comes to saving themselves from predators, autonomy is very handy to grasshoppers and crickets. They cut off their legs in case of danger when they are held by their legs. There is a line of weakness which becomes active, the blood supply is disconnected and the area is immediately covered by a sheath before the leg breaks off. All of this happens in a fraction of a second. Hibernation is another concept which is not new to the animal kingdom. Insects are able to do this with ease as they have antifreeze cells in their vital organs, which keep them alive for months and sometimes for years!

All these are only some of the magic that insects can whip up...and yet not many have realized the fact that it is for betterment of humankind that we

need to understand insects. The real reason being: they are one among our closest competitors in the entire animal world in all aspects. Their power of adaptability, if not superior, is definitely equivalent to ours and this is proven by the extent to which insects have colonized the planet and also the myriad species which have survived.

Unfortunately enough, today, people are only concerned with insects that are either commonly known to be harmful or the colourful and graceful ones, as they are the only ones that will affect them in a negative or positive manner. The other insects in the animal kingdom seem to be non-existent. Since we look at nature in terms of commercial returns, we have no value for those who fall in the list between the harmful and useful. In nature a simple rule prevails – make

hay when the sun shines, so when we humans converted forest lands into huge plantations of Teak or Sal for our timber requirements, the Teak or Sal borer beetle rejoiced over this and prospered by voraciously feeding on our timber. The borer may get the status of a pest, but the insect was following nature's rule. The cockroach that needs three things for its survival, namely garbage, warmth and moisture, which we well provide in our unkempt kitchens, is one of the most undesired pests. In fact, in nature there are no pests. Pest is a term that was specially coined when human needs collided with that of the other animal's need. Since DDT was introduced to get rid of agricultural pests, none of the pest species have gone extinct. On the contrary, DDT entered our dining tables through polluted water and food, and today it is present even in mother's



SHUBHALAXMI VAYLURE

Aphids, also known as plant lice, are small plant-eating insects and their natural enemies include the predatory ladybird beetles, hoverfly larvae and lacewings. Inset : Aphids on a *Calotropis* leaf.

milk. With every new strong pesticide, insect pests have become stronger to render it ineffective.

During my lectures, I often brain storm with the audience on insects. It is very common to see that 98% of an audience is not interested in insects, and 2% of the audience specifically like butterflies. But when it comes to insect products such as honey, wax, silk and lac jewellery, everyone unanimously agrees that we need them. We, humans, tend to exercise double standards when it comes to insects, we dislike them but like to enjoy the benefits brought about by them. I often have to advocate for the usefulness of insects, but in reality insects do not need this. They have equal rights on this planet to live a life as per their requirements and needs. And still, I have to convince every second person I meet, as to why we should not only like but love insects by default? Every third morsel we take, we need to thank an insect pollinator who has taken effort to pollinate most of our vegetables and fruits. Moreover, if the insect kingdom contributes 95% of the benefits, with 5% losses suffered due to pest insects, it is still not fair on our part to ignore them.

Here is some statistics for you to appreciate the impact of insects on human lives. The overall value of pollination in the world, most of it by insects, has been estimated at about \$117 billion per year. The overall value of natural biological control, again mostly by insects, is over \$400 billion per year. The value of nutrient cycling



Semi Looper caterpillar of Noctuid Moth

in terrestrial ecosystems is over \$3 trillion per year. Much of the nutrient cycling is done by insects and related arthropods, which can compose half the animal biomass in some tropical forests. As pests and human competitors they destroy or eat \$5 billion; as disease vectors, insects weaken or kill 200 million people per year.

So, insect watching could be a life-long addiction, if one desires so. I assure you that if insects capture 10% of your attention then the distance learning course in basic entomology conducted by the BNHS would help change your attitude about insects and look at them in better light. To cite an example, one of the bird watchers at my camp commented on the overt display of my passion for insects and yet sent me insect pictures for identification, confessing that insects were indeed very absorbing. Also, as far as I have observed, insects are one of the most accommodating species in the animal kingdom, especially when it comes to being accessible, approachable and available. Their sheer numbers is the very proof of their adaptability and them being one among the top competitors in the race for survival. Yet not many people have woken up to the modesty of humble insects. So far, 8,67,391 (entomologists argue over this number) insect species have been documented, and more remain to be discovered.

These are some of the miracles that these little wonders of nature perform as mundane deeds. All I would say is that, it is important to respect and understand the insects that have quietly crept all over the planet and made a place for themselves in the world to come!!! ■



V. Shubhalaxmi is currently the Centre Manager, BNHS-Conservation Education Centre, Mumbai.

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Man-animal Conflict? 

On June 28, 2007, at around 6.00 p.m., I was walking through a sugarcane field near the Ousudu Lake which is situated 10 km from Pondicherry. The farmers were cutting sugarcane, as it was time to harvest the sugarcane. I noticed enormous Weaver bird (*Philetairus socius*) nests spread all over the field with their eggs destroyed and their hatchlings dead. All the bird nests were built using the sugarcane leaves. I searched the other sugarcane fields to see whether the birds had nested in these fields. The Weaver birds for some reason had preferred only the matured sugarcane leaves for building their nests. Hence, during the harvest all the nests and hatchlings were destroyed. The birds happened to be in the wrong place at the wrong time; is this just another incident of man-animal conflict?

R. Alexander
Pondicherry



A huge congregation of Alpine Swifts 

I was in the Ratanmahal Sloth Bear Sanctuary in the Godhra district of Gujarat in the third weekend of February 2006. A large number of bird watchers from Gujarat state had been invited by a very active group in Dahod, a railway town on the Western Railway, main line from Mumbai to Delhi via Ratlam. The bird rich Ratanmahal Sanctuary is their favoured location situated on the border of Madhya Pradesh, the Sanctuary has some spectacular Sahyadri type escarpment scenery.

At the invitation of the DCF Mahendrasinh Parmar I visited a visitor center, being developed on the



eastern periphery of the Sanctuary, which overlooks a small reservoir and has a backdrop of high escarpments, clothed with fairly well preserved deciduous forest, the rock crags feeling out above the forest – great swift country.

After examining the birds on the water below, I glanced up and was delighted to see a large flock of Alpine Swifts circling a little above us. Delight turned to utter astonishment as we saw a huge column of the swifts circling above extending to heights where the birds were mere specks scarcely visible! The entire column was packed with whirling swifts! I hesitate to indicate an exact number for fear of making a tall claim – hundreds? Perhaps three thousand? As we watched, the birds rose higher and higher. During half a century of active bird watching, I have seen immense congregations of different species of birds, this sight ranks among the top most.

Lavkumar Khachar
Rajkot, Gujarat



Large Congregation of Common Swallows 

Recently I had an opportunity to visit Rourkela to attend the National

Conference of Youth Hotels Association of India from the 5-7 October, 2007.

During this visit it was amazing to see thousands of Common Swallows roosting on the telephone and electric wires (almost 2 km) passing through the Delhi market area of Rourkela, known for its steel plant, at night.

I explained about the occurrence of these birds at my place, Dharwad, to Dr. J.C. Uttangi (Life member of BNHS), and he asked me to write to the BNHS to study it and inform others to collect information about this phenomenon.

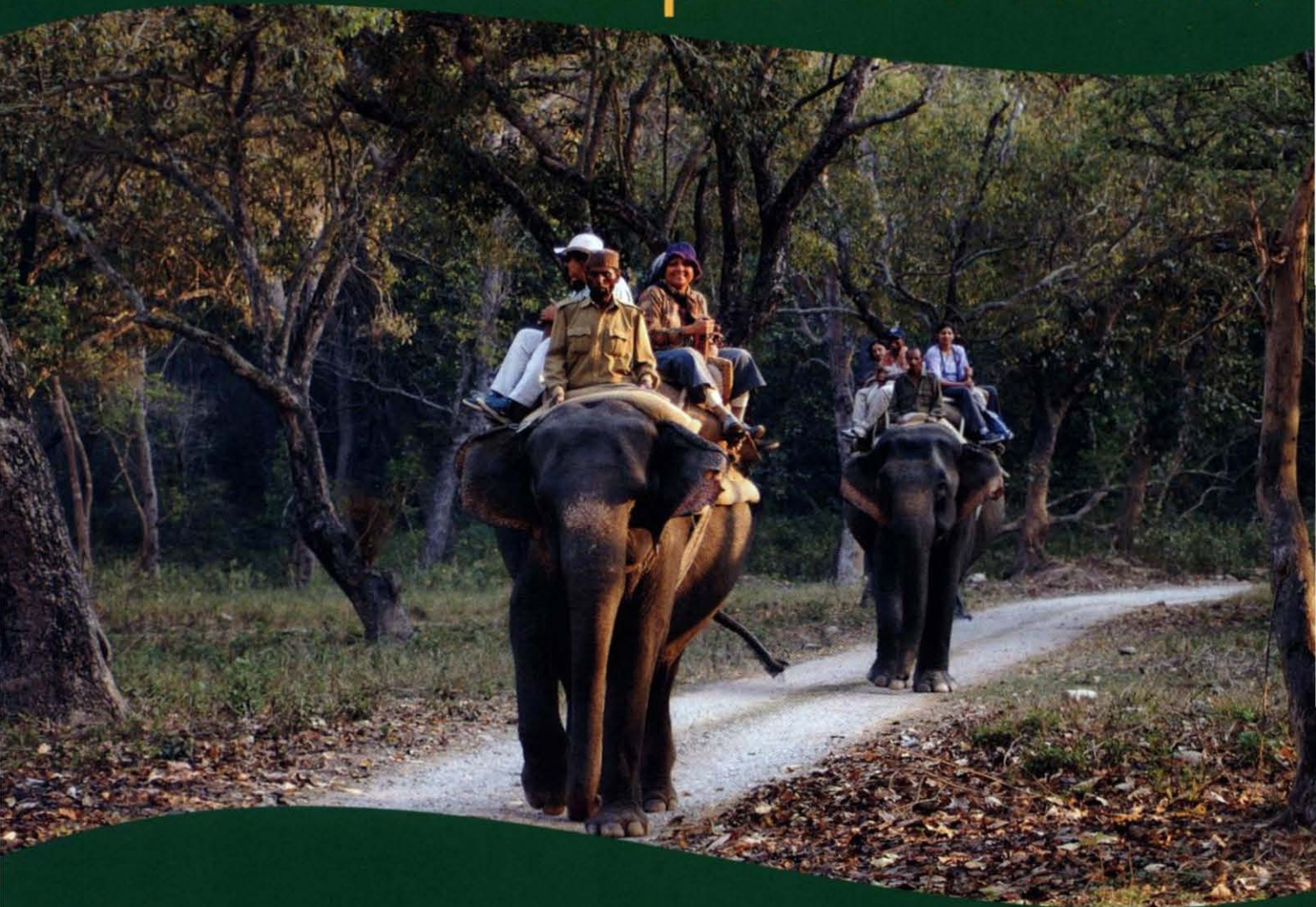
It was learnt from the locals that these birds came regularly during June-July to January-February to this locality since the last 28 to 30 years, their roosting time being 6.30 p.m. to 5.30 a.m. It is not yet known where they go to after January-February to June-July, which is the time when the summer is at its peak. But nothing as far as I know has been done to investigate the reason why this large population of Common Swallows has preferred this area as a regular roosting site. It would be useful information for birders to study details regarding the nature of food habits and preference and roosting in the town of Rourkela.

S.M. Patil
Dharwad, Karnataka

Editor's Note: Large congregations of Common Swallows is a known phenomenon and has been recorded in literature. A similar case has been published in the *JBNHS* - Vol. 62(1): 160.

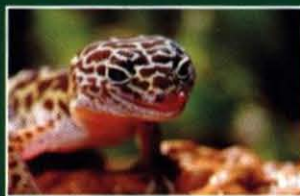


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Editors' Choice



MEETHIL MUMAYA

Stone Curlew is also popularly known as Thick-knee

STONE CURLEW

S. Murali

*Once again we froze against the stony shore,
as the curlew turned, with a graceful sweep-
wings light, open, alert, eyes wide, beady bright.
We knew it knew and yet was game to play
all over again the very same game
of hide and seek in the softening light.
one foot bent and the forward thrust
of the westerly breeze did the rest-
the bird rose and soft-landed, leading our eyes
away from her speckled brood. The stream
passed silent. The wind kept pace, and
no stone moved while the curlew called.
A shrill whistle, plaintive, lone, while
her mate somewhere heard and turned.
The sky lay vast, unquiet in its intense spread.
The bird rose and called again. A feather
floated down. We stood silent,
amazed at both bird and sky.*

The word Flamingo comes from the latin word for flame. There are five species of flamingos in the world. They are found in brackish lakes and lagoons, and even concentrated brine in which they feed with head immersed in the water. They are highly gregarious and are found in vast numbers at their favourite feeding spots and nesting spots. They usually rest standing on one leg with the long slender neck coiled around the head and head tucked in feathers of the back.

In India, before leaving the shores of Mumbai to their breeding grounds, the Lesser Flamingos present a spectacular display that is rivalled by few. It is one of the unique, most breathtaking sights in the natural world. The bright pink adults group together in tight formations (sometimes over 300 adults) and move around adorning their lovely plumage, twisting and turning their necks, tapping their delicate feet in water ... they march in tandem ... This behaviour is known as the Dance ritual of Flamingos. And here you can see

ABOUT THE POSTER



the different ways in which they move, some of which are termed as 'Broken Neck' and 'Forward march' display ... it is one of the experiences that one can justify as visual ecstasy.

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Lesser Flamingo
(*Phoenicopterus minor*)

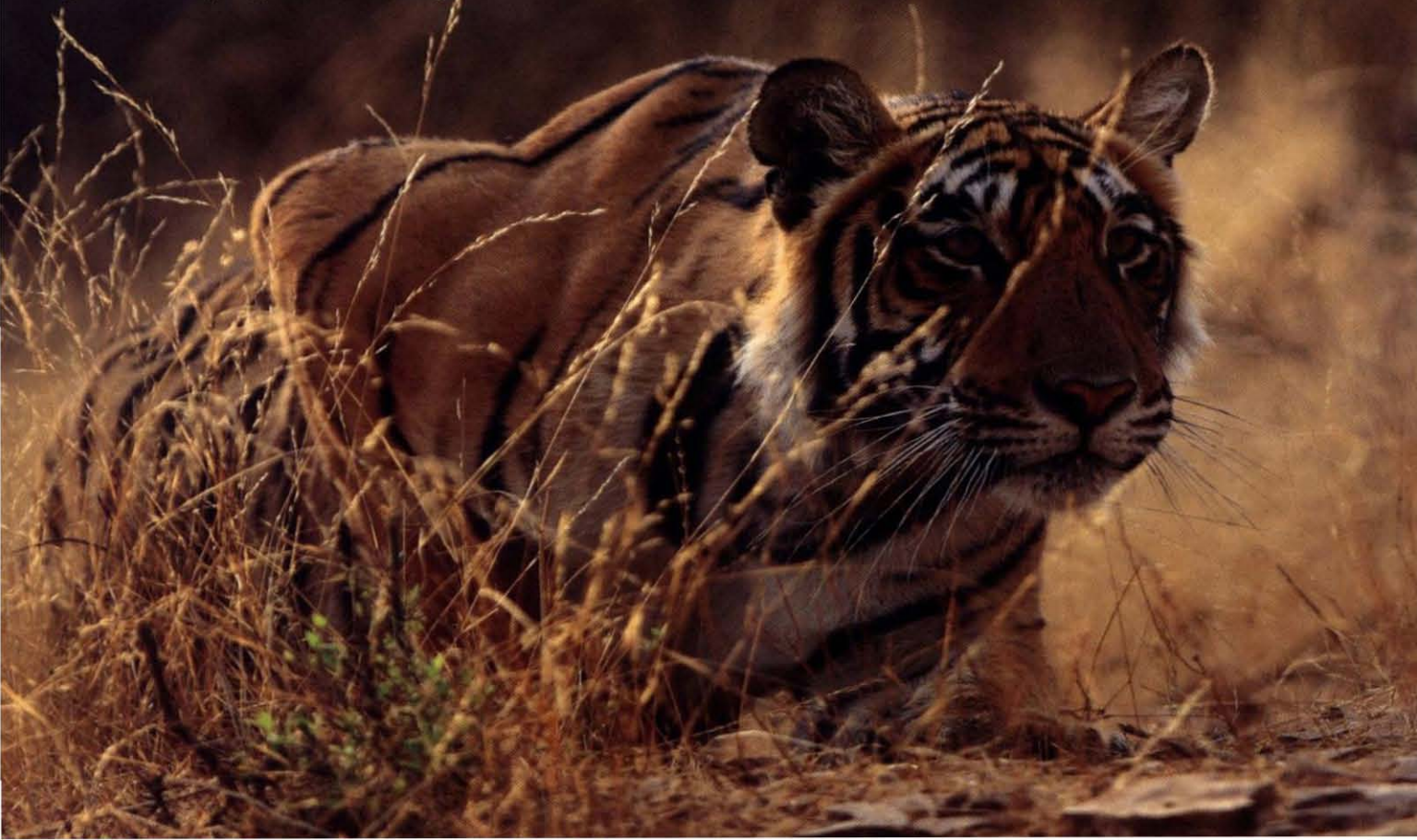


Successful hunt of the princess...

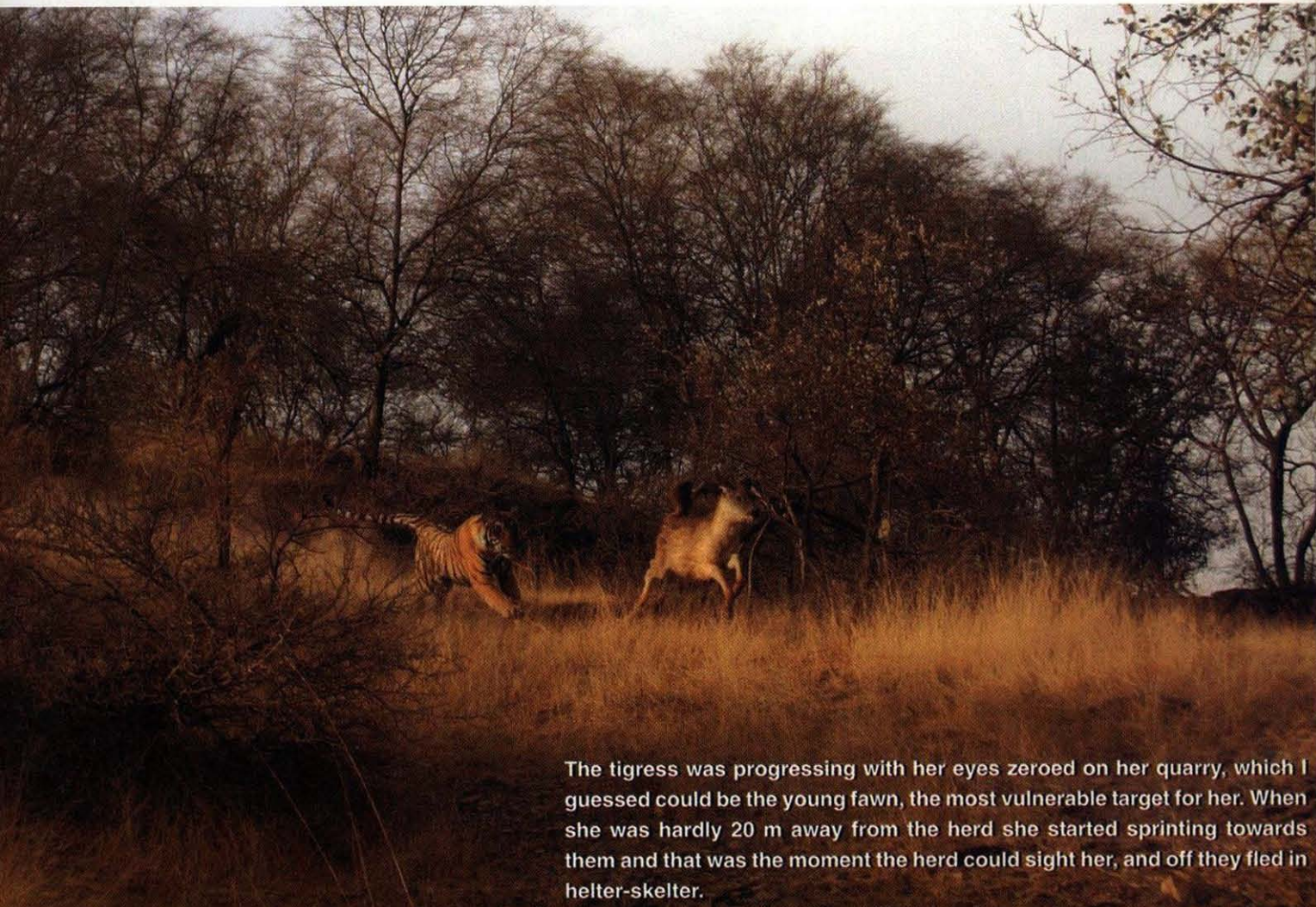
Text and Photographs: Gobind Sagar Bhardwaj

It was the last trip of our weekend in Ranthambore in April 2008. It was a usual hot day with the mercury soaring up to 40-degree Celsius. On reaching Rajbag area, we saw 5-7 vehicles lined up ashore *Padam talab*. We were told that one of the female cubs of Jugni, the queen of *Rajbag*, was behind the tufts of Khus grass and the other one had moved off.

The 20 month old tigress was strolling on the curve of a small hillock; completely unaware of a small sambar herd grazing near the morri. We all now expected the usual alarm call of the vigilant sambars followed by their chaotic stampede, but nature has its own plans and surprises. The predator became alert before the prey could judge its presence. I still remember how the expressions of the nonchalant tigress changed when she sighted the herd. She immediately crouched behind a small tuft of grass, her only support to camouflage.

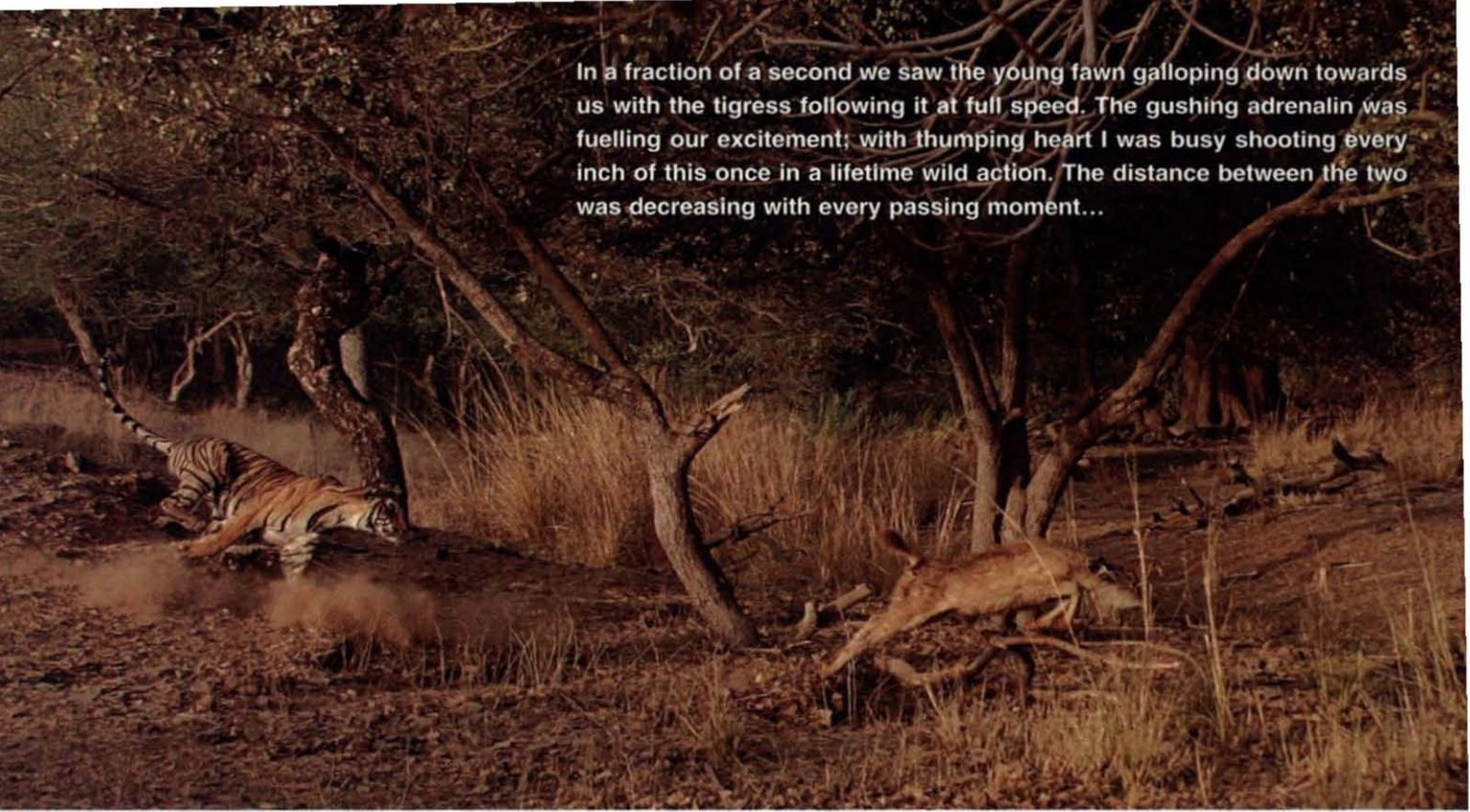


For the first time in my ten years of experience, I was witnessing such pin drop silence amongst the tourists. The tigress remained in crouched position for 7-8 minutes, intermittently lifting her head to assess the situation. She then stalked for 4-6 metres and stopped near a Jaal bush (*Capparis seipia*). She remained ambushed behind that bush for around 30-40 seconds anticipating the situation.



The tigress was progressing with her eyes zeroed on her quarry, which I guessed could be the young fawn, the most vulnerable target for her. When she was hardly 20 m away from the herd she started sprinting towards them and that was the moment the herd could sight her, and off they fled in helter-skelter.

In a fraction of a second we saw the young fawn galloping down towards us with the tigress following it at full speed. The gushing adrenalin was fuelling our excitement; with thumping heart I was busy shooting every inch of this once in a lifetime wild action. The distance between the two was decreasing with every passing moment...



Next second we heard the shrieking wail of the fawn confirming the success of the 'predator', which gave us goose pimples. The next thing we saw was the tigress holding the neck of the fawn and heaving her struggling prey towards us. She hauled it for a few metres towards us, and then dropped it and started panting. Later, she dragged it to a nearby grass thicket and sat down to feast on her trophy.



We made our way back after seeing this young tigress preying successfully, proving her prowess that means ready to rule the jungle. Some people were sorry for the young fawn but 'survival of the fittest' is the rule of nature. In fact, it was a reason to celebrate, as we were the witness to the success of this young princess, shaping up perfectly to be the new queen of *Rajbag*.



Gobind Sagar Bhardwaj, IFS, developed a passion for wildlife as an incharge of Ranthambhore. Recently he has also authored a book 'Tracking Tigers in Ranthambhore'.

Nocturnal Seed Dispersers

Text: J. Patrick David

The evening breeze from the Bay of Bengal blew through my hair as I stood over a small bridge looking up in anticipation towards the sky in front of me for dark shadows to emerge from the narrow strip of riverine forest along the Mavalam Wagu. As the sun went down, the shadows emerged one by one filling the sky. I began to count and counted more than eight hundred individuals. The 'winged creatures' that I was registering was the Indian Flying Fox *Pteropus giganteus*, which had their roost in a couple of huge banyan trees along the stream.

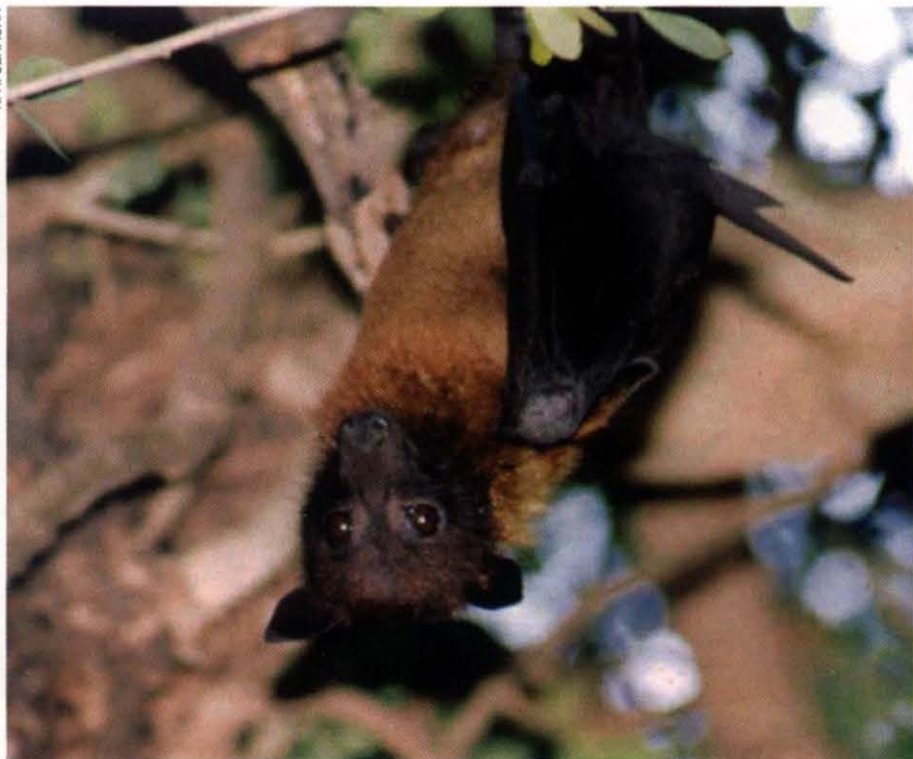
I am in the space port of Sriharikota in south-eastern Andhra Pradesh. One

might wonder what a wildlife researcher was doing in a place known for its rockets. These same queries crowded my thoughts when I was offered an opportunity by the Bombay Natural History Society (BNHS) to work on plant-animal interrelationships in Sriharikota. Later on, I would learn that Sriharikota, in spite of being India's spaceport also contains the largest remaining pockets of Tropical Dry Evergreen Forest in India, which was once prevalent along the Coromandal Coast. Sriharikota is located in the extreme south-east corner of Andhra Pradesh in Nellore district. It is surrounded by the Bay of Bengal in the

east and on the other sides by the massive Pulicat Lake. The Indian Space Research Organisation (ISRO) took over the island in the early seventies for launching rockets. Instantly, Sriharikota got connected to the mainland by an 18 kilometre long road from the nearest town of Sullurpet, cutting through the Pulicat Lake in an east-west direction. Previously, the Island was accessible only by boat (See *Hornbill*: July-September 2006 for details of the Island).

In March 2004, I joined the research team of Ranjit Manakadan and S. Sivakumar to study the interactions between fruits and fruit-eating animals or frugivores in Sriharikota island under a project funded by ISRO. Frugivores are animals that prefer fruits and fruits constitute a major portion of their diet. Some frugivores defecate seeds intact, away from the original fruiting tree helping in the dispersal of seeds. Seed dispersal is advantageous as it allows seeds and seedlings better chances of escaping from invertebrate and vertebrate seed-eaters, herbivores, and fungal pathogens. It reduces the competition seedlings would experience if they germinated at high densities around the parent plant. Finally, widespread dispersal by creatures as mobile as birds and mammals allows plants to colonize new habitats.

To cite a remarkable example of the role of seed dispersal by frugivores; one can say that frugivorous birds and bats played a significant role in the reintroduction of many plant species in the Krakatau group of islands in the Indonesian archipelago which was once obliterated by a huge volcanic eruption. Among the frugivores, bats interest me more. My fascination for bats began while working with ATREE (Ashoka Trust for Research in Ecology and the Environment) at their field station in Upper Kodayar in the



The Indian Flying Fox has an uncanny memory of locations and fruiting time of trees

Kalakad-Mundanthurai Tiger Reserve. In February 2004, we trapped a couple of fruit bats *Cynopterus sphinx* in a fruiting *Acronychia* tree. That was the first time that I handled bats, and unlike what is portrayed or perceived of them, they seemed to be very fragile and sensitive creatures needing utmost care and attention.

Bats are enigmatic creatures that took to the skies some 70-100 million years ago from their tree dwelling, leaping and insectivorous ancestors. They belong to the Order Chiroptera meaning "hand wing". The membrane connecting its four limbs, the patagium enables bats to fly. Unlike flying squirrels and flying lemurs, which also have a parachute like mechanism to glide through the air, bats can beat their wings helping them cover huge distances. This adaptation has enabled bats to colonise islands situated far away from the mainland and in the process has helped them extend their range and exploit various food resources.

There are two suborders, Megachiroptera which specialise in feeding on fruits using sight and smell, and the Microchiroptera which feed on insects using echo-location. The Megachiropterans are Old World fruit bats that are found in the tropical regions of Africa, Asia and Australia, and are represented by more than 170 species. In India, there are fourteen species of fruit bats under eight genera.

Among the Microchiropterans, however, there are a group of bats coming under the Family Phyllostomatidae (leaf or spear nosed bats), which also feed on fruits. They are found in South and Central America. Besides these insect and fruit-eaters, there are also the well-known vampire bats that feed on blood and also fish and frog eating bats. In fact, many of the bats, especially the larger insectivorous bats also feed on small



V. KANNAN

The restless Short-nosed Fruit Bat

birds and even cannibalize on their smaller forms.

My studies on fruit bats in Sriharikota started in mid May 2004 at a fruiting *Ficus racemosa* tree. The 15 m tree stood leaning against an abandoned and dilapidated shrine, alone amidst a sea of Mesquite (*Prosopis*) shrubs. At six in the evening, we reached the spot and hoisted the net up to the desired

height. The previous day we had swung a rope over a fruiting branch to lift the net without any delay. We withdrew some 20 m away from the tree and waited anxiously flashing our torches at the net intermittently to look for any movement. In the twilight, we could notice some flying foxes flying above the tree, but none were caught till we departed late in the night.



K. R. SENACHA

The Flying Fox lives in colonies of a few hundred to several thousand individuals

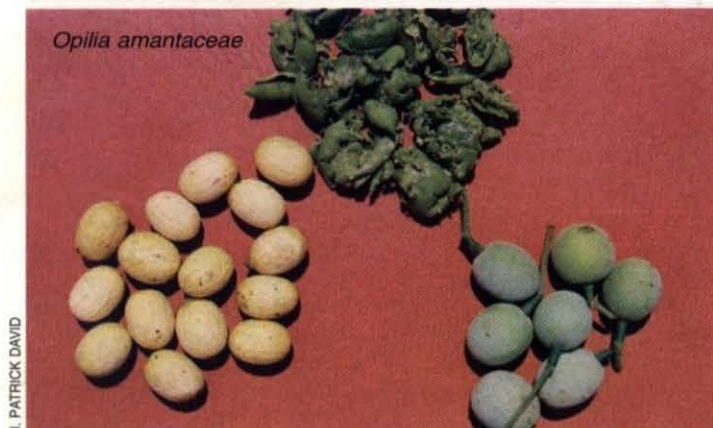
Nature Watch

We arrived early the next morning to find four bats trapped in the net. The bats gave out very shrill cries the moment the net was touched. We carefully pulled the strings of the net that were entangled around their soft bodies and relieved them of their long agony, placed them in a bag and brought them to the field station. Our immediate task was to energise the bats, and fed them with some saline using a syringe and blew warm air onto their bodies. Using the exhaustive Paul J.J. Bates and David L. Harrison's *BATS OF THE INDIAN SUBCONTINENT*, two of the bats were identified as the Short-nosed Fruit Bat, *Cynopterus sphinx*. We had assumed the two smaller ones to be the Lesser Dog-faced Fruit Bat these turned out to be juveniles of *Cynopterus sphinx*. With time, we found out that other than this species, the only other fruit bat in the

Island was the relatively much larger Indian Flying Fox *Pteropus giganteus*. Regarding these two species, the Indian Flying Fox lives in large colonies of several individuals usually occupying one or two huge trees as day roost site. They are noisy creatures usually squabbling with each other which makes it easy to locate flying fox colonies. On the other hand, the Short-nosed Fruit Bat's favourite roost site are palm trees, where they live in groups of usually five to ten individuals or more.

Since bats are nocturnal creatures, studying them poses problems and night vision binocular and flashlights covered with plastic filters are equipments used to overcome this problem. Moreover, bats are silent feeders and can be located only by listening keenly, to the sound of falling

fruits. Bats would either consume the fruit in the actual fruiting tree or would carry it away to another plant nearby to feed. On one occasion, we came across seeds of Mast Tree *Polyalthia longifolia* in the eucalyptus plantation, but the source tree was traced to a water treatment plant some 100 m away. On another nocturnal bat locating mission, we heard sounds of a rain of falling fruits from a tree on the side of the road. On flashing the torches, we flushed out four flying foxes from a *Syzygium (jamun)* tree. During another bat finding trip, we located a short-nosed fruit bat feeding on *Atalantia monophylla* fruits, this time though the flashlight did not scare away the bat, instead it continued to munch on two more fruits which it was holding between its wings. While feeding on fruits, they ingest only the



Important non-fig resource for fruit bats of which only the juices are consumed and the rest discarded

fruit juice dropping the chewed pulp and seeds to the ground, hence it is easy to identify fruit debris left behind by bats from other frugivores.

Through direct observations on fruiting trees and indirect evidence from fruit debris, we recorded the bats to feed on eighteen species of plants. Among the eighteen plants *Garcinia spicata*, *Opilia amantaceae* and *Atalantia monophylla* are more or less dependent only on bats for seed dispersal. Such obligatory relationships are rare in the natural world and the disappearance of fruit bats might lead to the extinction of plants dependent solely on them for dispersal.

When the North-east Monsoon arrives, the flying foxes abandon their favourite roosting site along the Mavalam stream, which is close to the coast. However they were much in the Island during this period as evidenced from our night searches flying above us in the night sky and also when feeding. Exactly where they were roosting, whether they are within the island or outside was a big puzzle for us. We enquired the locals and also visited the adjacent villages but got no answers. Finally, when we were making our way through a fireline cut across an eucalyptus plantation during a field trip, we heard the unmistakable screeching sounds of squabbling flying foxes. Following these sounds, we found them hanging upside down in a huge tamarind tree. We reasoned that the flying foxes shift to this new site in the secluded middle part of the island to escape the strong wind and rain that would otherwise batter them in their original roosting site close to the sea coast. I was happy to have finally solved the puzzle and to see them in an apparent state of bliss, oblivious to the great threats that most of their own kind face in other areas outside the island.

Throughout their range, flying foxes



J. PATRICK DAVID

Fruit bats play an active role in the seed dispersal of the Banyan tree *Ficus benghalensis*



J. PATRICK DAVID

The cauliflorous fruits of *Ficus racemosa*, commonly known as the country fig, are a major attractant for fruit bats

are persecuted. They are considered as pests in orchards and plantations and are shot by farmers. Their meat is believed to cure asthma and kidney complaints. In Dindigul, Tamil Nadu, a special day is set aside for killing of flying foxes. Young men participate in the hunt using slings, rifles and spears. Despite the importance of flying foxes to the ecology of Old World tropical

forests and their considerable contribution to local and national economies through the plants that depend on them (see box on page 34), many of these bat species are declining rapidly. Although habitat destruction has played a large role in their decline, colony eradication by fruit growers and unregulated hunting (for sustenance and sport) appear to be major causes

J. PATRICK DAVID



Popularly known as the "Alexandrian laurel", the fruits of *Callophyllum inophyllum* are a food resource of fruit bats and are found along brackish water streams

of population declines in Southeast Asia, the Pacific and Indian Ocean islands, and increasingly in Africa and Australia. The extent of flying fox decline in India is not clear but their increasing presence in urban areas indicates the loss of their original forest habitats.

Sriharikota's status as a spaceport makes it immune to threats that increasingly plague Indian sanctuaries due to pressures from local populations on the natural resources. India's huge growing human population, once a

cause of concern, is now propounded to be a reason for its booming economy, but it will definitely sound the death knell for our wilderness. However, even in Sriharikota, habitat fragmentation will be inevitable with the planned expansion plans for the spaceport (see *Hornbill*: July-September 2006 for details). ISRO will need to adopt a judicious and practical mix of development and conservation strategies to ensure that the Island's forest and its wildlife will survive into the future, and of course, my lovable fruit bats! ■

J. PATRICK DAVID



The Strychnine tree *Strychnos nux-vomica* is a common plant found in Sriharikota

Fruit Bat Economics

Over 300 plant species in Southeast Asia, tropical Africa, and the Pacific Islands rely to varying degrees on flying foxes for pollination or seed dispersal. At least 134 of these plants, yield products that are used by humans. More than 450 products, including medicines, food, drinks, fruits, dyes, tannins, timber, fiber and fuel wood, are derived from these plants.

Bananas, originally from Southeast Asia, are one of the best known tropical fruits, and perhaps, the most commercially important. Wild bananas are pollinated almost exclusively by bats, with at least 20 species of the plant known. In Southeast Asia, the durian (*Durio zibethinus*) is known as the 'King of Fruits' and is considered one of the most delectable delights of Southeast Asia. By some estimates, the durian harvest is worth \$120 million annually to producing countries. Durian flowers are pollinated by flying foxes, especially the Dawn Bat (*Eonycteris spelea*).

Another 'bat plant' that produces valuable export products is Kapok (*Ceiba pentandra*). Although this species probably originated in Central and South America, it is now common in Thailand, Malaysia, Indonesia, the Philippines and certain parts of Africa. Throughout its range, it is pollinated by bats, and the seedpods contain high-quality fibers used for insulation and as stuffing for life-jackets, cushions and mattresses. In Indonesia alone, statistics indicate that kapok fiber is worth over \$5 million in exports.

Source: Flying Fox and Economics by Marty Fujita in BATS 1988, Vol 6(l): 4-9.



Patrick David is a senior research fellow with the Bombay Natural History Society and is interested in studying the ecology of fruit eating animals.

The distribution of the Eurasian Spoonbill *Platalea leucorodia* (to give it its full official name, though many Spoonbills spend more than half their year in Africa!) extends from the Atlantic across Europe and Asia to the Pacific. They generally breed in temperate latitudes, and migrate south to winter in warmer areas: birds breeding in western and central Europe, winter in Africa (either south of the Sahara around the Senegal Delta, or north of the Sahara in tidal areas of the Mediterranean, particularly in Tunisia); birds breeding in eastern Europe, winter along the Nile or in the Gulf region.

Recent work on an international Action Plan for the Spoonbill in Africa, Europe and south-western Asia has raised the question of the status of the Spoonbill in India. A good number of Spoonbills are recorded breeding in India (in Tamil Nadu, and also in Punjab, Gujarat, Rajasthan and Madhya Pradesh); winter censuses organised throughout Asia by Wetlands International recorded respectively 2,799 Spoonbills in 2002, 4,063 individuals in 2003 and 6,069 in 2004. The question is where do these wintering Spoonbills in India come from?

Clearly, some of the wintering birds have bred in India, and stay in India all the year round. On the other hand, it has long been known that some Spoonbills breeding in Russia and central Asia reach India: Eliot MacClure's 1974 volume illustrates five recoveries in northern India of birds born in colonies round the Caspian and the Sea of Azov. Furthermore, Dr. Sálím Ali's 1996 edition of THE BOOK OF INDIAN BIRDS refers to a recovery of a bird ringed in Turkey. Work on the international species Action Plan has now



A young Spoonbill from the Netherlands ringed with multiple colour rings, a yellow flag and a metal ring

OTTO OVERDUK

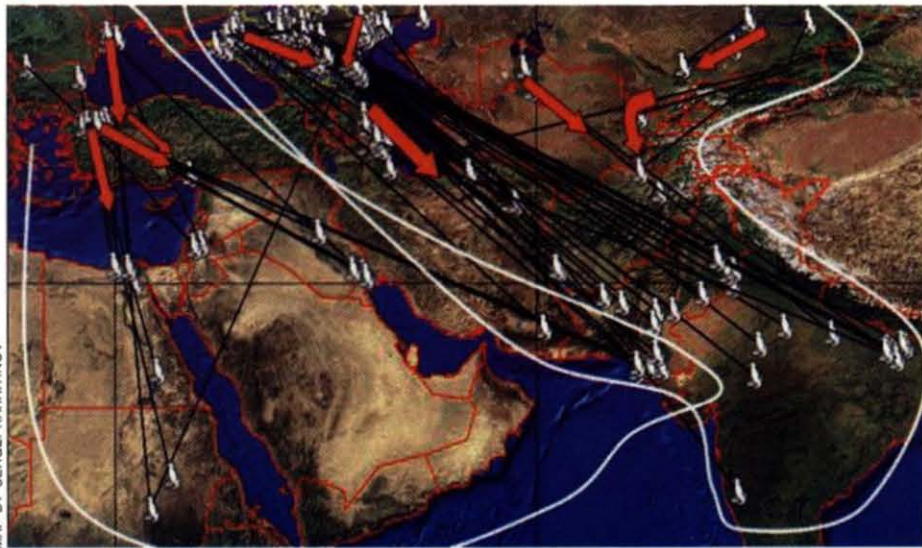
Spoonbills in India

Text: Michael Smart

uncovered a whole series of additional recoveries, kindly provided by the Russian and German Ringing Centres (see the map). Most of these recoveries are of metal rings used in Turkey in the 1950s, and in Russia, Azerbaijan, Uzbekistan and Kazakhstan, mainly in the 1970s and 1980s.

As shown in the map in the following page, some Spoonbills from

the western Black Sea go along the Nile, but many Turkish birds move via Mesopotamia to reach the Indus Delta and northern India. Birds from the eastern Black Sea and the Sea of Azov take one of two routes: one takes them to the south-east corner of the Caspian in Iran, from where they move through Baluchistan, to wintering grounds along the Indus and



Recoveries of Spoonbills ringed with metal rings in Romania, Turkey, Russia, Azerbaijan, Uzbekistan and Kazakhstan

north-west India; the other route takes them through Turkmenistan and then over the top of the Hindu Kush (at an altitude of 8,000 metres or so!)

somewhere near the Khyber Pass, to winter in Punjab and along the Ganga. This latter route is also taken by birds from the Aral Sea in Uzbekistan and

by birds that nest in Kazakhstan, which turn round the corner of the Himalayas to reach the Khyber Pass.

Some Spoonbills also breed in Iran, generally (given the lack of large reedbeds in that country) on rather bare islands in large lakes like Uroomiyeh or Tashk; their wintering grounds are poorly known; some may winter along the coastline of the Persian Gulf, or perhaps move into the Indus Delta or north-west India.

Use of coloured plastic rings

The exciting and little-known information, summarised above, in fact comes from ringing carried out many years ago with metal rings; in practice, the ring is obtained when a bird is shot or found dead, as there are few other ways of obtaining the



A spoonbill wades in shallow water with an outstretched neck and partly open bill looking for food

rings. In recent times, a new system of ringing has been developed to follow the movements of Spoonbills, involving the use of coloured plastic rings, which carry an inscription legible with a telescope at a distance of up to two hundred metres. The advantage of this method is that the ring can be read several times while the bird is still alive, and thus a bird may be followed for many years, sometimes for its whole lifetime. This method was pioneered in breeding colonies in the Netherlands, and has since been used in Spain and Italy, and in many countries of central Europe, including Croatia, Hungary, Serbia, Greece, and Romania. The same plastic ring is placed on each leg (as the birds often stand on one leg for a long time); it is very important to note whether the metal ring is above or below the plastic ring and whether it is on the left or right leg.

Another way of colour marking Spoonbills, developed more recently, is to use a number of different colour rings plus a metal ring and a flag (or protruding plastic ring); the flag indicates the country of ringing. The image on page 35 shows a recently-fledged immature Spoonbill in the Netherlands with a yellow flag on the right leg reading upwards, a blue ring and a red ring, and on the left leg a red ring, a metal ring and a green ring; the yellow flag shows that it is a Dutch bird; a blue flag would mean it was from Hungary. It is obviously important to note very carefully the colour and relative position of the different rings, on which leg they are placed, and where the flag is placed.



Spoonbills at the nest on a bare island in Lake Tashk, Iran

This method has been used in the Netherlands and some countries of central Europe, and in 2008 it is being used for the very first time in Uzbekistan, that is to say in a country whose breeding birds are likely to winter in India; the Uzbek birds will carry lime green flags. So, here is an appeal to bird watchers in India: please look carefully for Spoonbills with colour rings and if you see any, send details to the ringers in Uzbekistan (via the Uzbekistan Important Bird Areas website), or to the co-ordinator of the Spoonbill colour ringing scheme, Otto Overdijk, at O.Overdijk@Natuurmonumenten.nl, who will be able to provide details of original ringing and of any later sightings. Otto and Patrick Triplet (at patrick.triplet1@orange.fr) are the editors of the Spoonbill Newsletter.

Of course, it is to be hoped that use of coloured rings for marking immature Spoonbills will develop at nesting colonies all over Russia and central Asia, and indeed within India; and for that matter in China too; as

noted at the beginning of this note, Spoonbills breed as far east as the Pacific, and little is known of the migrations of these Spoonbills; maybe some of them come to winter in north-east India!

Thanks are due to the many people who have provided information and photographs for this note, in particular to Otto Overdijk the organiser of the colour ringing scheme, and to Patrick Triplet, who with Otto coordinates the International Spoonbill Working Group; to Ms E. Suhendan Karauz Er for information on Turkish Spoonbills; to Sergei Kharitonov of the Moscow Ringing Centre for providing information on recoveries of Russian Spoonbills and for producing maps; to the German ringing centre at Radolfzell for data on German rings used in Turkey; to Ms Leila Joolae for providing information and photographs on Spoonbills in Iran.■

Michael Smart, a British birdwatcher, worked in Tunisia and Iran, at IWRB and the Ramsar Secretariat, and was recently at Bharatpur for the World Heritage.

It is not so much for its beauty that the forest makes a claim upon men's hearts, as for that subtle something, that quality of air that emanates from old trees, that so wonderfully changes and renews a weary spirit.

– Robert Louis Stevenson

Gharial crisis on the Chambal – winter of 2007-08



NICK BAKER

Text: **Janaki Lenin** (inputs from GCA members)

As of March 29, 2008, 111 gharial (54 males, 48 females and 9 unknown) have been found dead on the Chambal. The first report of the mass die-off was received on December 8, 2007. The mortality was limited to the lower 40 km of the National Chambal Sanctuary, the stretch closest to the Yamuna, killing about 33% of the adult/sub-adults (between the sizes of 1.6 m and 3.5 m). There are an estimated 1130 gharial found in four populations in India, of which nearly 1000 were counted in the Chambal during the survey of 2008.

During the initial days of the investigation, parasite overload and heavy metal concentration in the internal organs were considered as the possible causes. However, these were subsequently ruled out by international crocodile veterinarians. The Ministry of Environment and Forests instituted a Crisis Management Group headed by Ravi Singh, the CEO of WWF-India. Post mortems conducted by experienced crocodile vets revealed visceral and articular gout, caused by kidney failure. What caused this is still a matter of speculation. Toxins in the ecosystem, perhaps in the fish or in the environment, are an avenue of investigation. The other speculation is that the gharial may have indulged in gluttony until their metabolism could not handle it anymore in the cold winter months, leading to gout.

Although the National Chambal Sanctuary is a 428 km stretch of river, the gharial live in four main groups. The affected area is close to one of the large groups and the incident may



SHALENDRA SINGH

The decomposing body of a Gharial

have wiped out a majority of the adults/sub-adults of this area. However, surveys of 2008 reveal that this is not a static system allowing the incident to be isolated. Instead, animals were seen moving downstream to occupy the area vacated by the dead gharial. In 2007, surveys revealed that the affected area had 153 adults/sub-adults, while in 2008 the same area has 128 adults/sub-adults. So this stretch of river could become a sink for the Chambal population.

Crocodile biologists say that it is critical to monitor nesting this year to assess reproductive success. Loss of fertility may indicate continued toxin presence. The future course of action is to conduct extensive toxicology tests to identify the lethal toxin and its source, and studies on gharial behavioural ecology.

The various organizations involved in the operation to get to the bottom of the crisis are:

1. Ministry of Environment and Forests, Government of India
2. Forest Departments of Uttar Pradesh and Madhya Pradesh
3. RiverWatch – a joint initiative of Gharial Conservation Alliance (GCA) and Worldwide Fund for Nature-India (WWF)
4. IUCN/SSC Crocodile Specialist Group
5. The San Diego Zoological Society
6. AZA Crocodile Advisory Group, (USA)
7. Ocean Park, Hong Kong
8. Madras Crocodile Bank/Centre for Herpetology, Chennai
9. La Ferme aux Crocodiles, France
10. Wildlife SOS, Delhi and Agra
11. University of Florida, Gainesville
12. The City University, Hong Kong
13. Indian Veterinary Research Institute (IVRI), Bareilly
14. Defence Research and Development Establishment, Gwalior ■

The Notorious Greater Racket-tailed Drongo

Text: Vinatha Viswanathan

A sharp shriek pierces the quiet still summer afternoon. Frizzy is at it again – terrorizing a Jungle Babbler *Turdoides striatus* into giving up a large cricket it had just found. Frizzy is one of the Greater Racket-tailed Drongos *Dicrurus paradiseus* that I have been observing for the past two hours as a part of my study on their foraging behaviour. As the babblers settle down to foraging after the brief disturbance, with the Drongo perched amidst, my thoughts go back a few years when this species had first attracted my attention.

I had come to Bori Wildlife Sanctuary three years ago to study the sentinel behaviour in Jungle Babblers. I set up my field station near the forest rest house of Churna, a village of Gonds and Gavlis. I settled down soon enough to a routine, following and observing groups of Jungle Babblers.

Jungle Babblers lead extremely interesting lives. One such feature in their life is that they are frequently found in large flocks with species of Drongos, Woodpeckers, Orioles and others. It was while watching Babblers in such mixed species flocks that I had the opportunity to observe a



The noisy Greater Racket-tailed Drongo has a large repertoire of loud metallic calls and is a convincing mimic



The author measuring a banded bird for information and identification

rather unusual tactic employed by the Greater Racket-tailed Drongo. Individuals of this species would often indulge in obvious piracy – snatching prey, a behaviour known as “kleptoparasitism”. I was intrigued by it and decided to divert my attention towards this species for a while. Preliminary observations revealed that these Drongos targeted several species they were associated within mixed foraging flocks. Occasionally, the Drongos would even take on species larger than themselves.

Armed with this information, I made the decision to change the focus of my research to the foraging behaviour of the Greater Racket-tailed Drongo. Since I wanted to explore variation in the foraging behaviour of the Greater Racket-tailed Drongos, I decided to follow and study the behaviour of ten of them, for a start. Greater Racket-tailed Drongos are completely black in colour and both sexes look alike. Individual identification of a few of them was possible due to colour banding. For the unbanded birds I used a combination of crest and tail feathers such as size, shape, cuts and twists to tell them apart.

While much of the data I have collected on the foraging of Greater Racket-tailed Drongos awaits analysis, some patterns are emerging. My observations so far seem to indicate that many of the Greater Racket-tailed Drongo in my study are territorial. At the most three Drongos share a territory, but amongst them a social hierarchy exists. These Drongos usually associate with Jungle Babblers and other species in mixed flocks within their territory, but forays into neighbouring territories are not uncommon. Such forays, however, can lead to aggressive confrontations and on very few occasions can take the form of violent fights. The birds in my study rarely travel far, across and beyond neighbouring territories on a daily basis except during a few weeks of spring (February – March), when flowering Semal trees would attract them from great distances.

Drongos regularly seek out other species, especially Babbler groups, and join them. They monitor such individuals from a vantage which may be as close as a couple of metres, from where they swoop down to snatch their prey. Their attacks are very often accompanied by loud calls, though one

of the birds in my study was a silent striker. As would be expected, not all attempts would result in a feeding event. Sometimes a Drongo would go up to a bird that has a prey in its mouth, but will come back without trying to snatch it. I have wondered if this relates to some individual characteristic of the host bird; are some birds more susceptible to attacks or has the Drongo decided that the prey is not of its preference?

Another intriguing aspect is that larger species such as the Rufous Treepie, the Black-rumped Flameback and the White-naped Woodpecker often resist attempts by the Drongo, but groups of Babblers which suffer most from this piracy are more tolerant of the Drongos. It may be that the loss of food now and then does not warrant as much of a response as if there was a risk of losing their lives.

On the whole, watching Greater Racket-tailed Drongos these past few years has been immensely enjoyable. In addition to getting familiar with the individual quirks of the Drongos, I have also had the opportunity to observe another interesting behaviour of this species – vocal mimicry. These drongos have long been known as accurate and versatile mimics of several species they share their environment with. Their mimicry of other birds had fooled me several times, but I cannot remember being as surprised as when the tuneless whistling of a cowherd had me scanning the surroundings for a villager, when the culprit was the black bird right in front of me! ■



Vinatha Viswanathan has a M.S. in Ecology and her research interests are in ecology and animal behaviour.

Poshitra: The Crown of Gulf of Kutch

A photograph of the reef canopy at Paga, one of the beautiful reefs in Poshitra

Text: Dishant Parasharya

Most of us have heard the famous line – “Water is Life” ... Yes, indeed water is life and it is an important component of our lives, and why not! After all, life on Earth originated in water about 5,000 million years ago. The timeless association of water with the evolution of various life forms on Earth cannot be ignored.

The oceans on our ‘blue planet’ contain about $1,370 \times 10^6 \text{ km}^3$ of water. Life exists throughout this volume of water, making oceans the single largest repository of organisms on our planet.

For convenient understanding, and depending upon the various habitat types, the marine environment has been broadly categorised into different

ecosystems, such as mangrove ecosystem, coral reef ecosystem, rocky shores, sandy beaches, mudflats, estuaries, and coastal wetlands.

India, a peninsular country, is blessed with a long coastline. The western most state of India, Gujarat, has the longest coastline of 1,650 km. Out of the three gulfs in the country, Gujarat has two gulfs, namely the Gulf of Khambhat and Gulf of Kutch. Both the gulfs are unique in terms of habitat, diversity and overall hydrology. The Gulf of Khambhat is situated towards the south-east of Saurashtra coast. Both the gulfs are distinct in their own way. No major river ends in the Gulf of Kutch. Whereas, four major rivers, namely Sabarmati, Mahi, Narmada and Tapi, release their waters into the Gulf of

Khambhat, the reason for the high turbidity and sedimentation rate in this Gulf.

The southern boundary of the Gulf of Kutch, i.e. from Jamnagar to Dwarka, has the coral reef ecosystem. These reefs are the northern most reefs of the Indian subcontinent, and most of them are of fringing types, fringing either along the coastline or around the island cluster. There are 42 major islands along the Jamnagar-Dwarka coast of which about 37 are lined with fringing coral reefs. Coastal reefs are located on five locations along the coastline, the major locations being Narara and Poshitra.

The Marine National Park and Sanctuary (MNP & S) located in the intertidal area of the Jamnagar district was one of the first declared Marine

Conservation Notes

Protected Areas of the country due to its amazing and important marine ecosystem. In an attempt to conserve the fast degrading coral reef and mangrove ecosystems, the Government declared an area of 620.81 sq. km as national park and sanctuary in 1982, popularly known as MNP & S.

Poshitra is one of the most important reefs of the MNP & S; it is situated on the western shore of the Gulf of Kutch, about 30 km from the ancient city of Dwarka. Poshitra is a cluster of almost 14 reefs and islands such as Boria, Paga, Savjo, Man Marodi, Leffa, Chandri, Chank, Bhaider, Noru, and Pashu. Geographically, it is like a gulf within the gulf. Coral reefs and rocky shores are the most dominant habitat of the Poshitra cluster.

I remember the day when I first visited Poshitra with my college friends in 2001. I was fascinated by the faunal diversity present there; however, I was not aware of the precious marine biodiversity of the area. My

subsequent visits to Poshitra, for studying the coral reef habitat kept drawing me back to it and my affinity towards the area became stronger. It became my prime research focus and as time progressed, I realised that Poshitra was unique.

Whenever we think of coral reefs, we always visualize swimming in the deep sea in a scuba suit. However, in case of Poshitra, most of the reef is exposed during the negative tide and being a fringing reef coupled with extremely turbid water one has to walk on the reef to see it. Therefore, what one needs to enjoy the Poshitra reefs is a pair of jungle shoes ... and as one walks on this reef (avoiding corals), during low tide, glimpses of the magnificent corals and the colourful marine life makes it a magical experience. During the diurnal low tide, the sea recedes almost one to four kilometers depending upon the location, exposing the corals of the intertidal areas. High turbidity and salinity fluctuations allow only tougher species of corals to flourish in this

Gulf. Though the diversity of reef building corals is low, the associates found are in abundance. Compared to the other islands and reefs of the Gulf of Kutch, the Poshitra cluster is the richest in terms of live coral cover, be it diversity or density. The live coral cover is as high as 40% in some locations, which easily stand out after a visit to the reefs of the Gulf of Kutch. The Reef adjoining the shoreline of village Poshitra has large tidal pools, in which one is sure to sight large colonies of plate like corals, mainly *Turbinaria* and *Montipora* species. These delicate corals are little sensitive to sedimentation and turbidity, and will thrive only where both the sedimentation and turbidity rates are low.

The reefs of Boria, Paga, and Ajaad are known for high density and diversity of soft corals. Gorgonoids, called as sea fan, is a soft coral species and found in abundance on these islands. The reef ecosystem of Poshitra bay is one of the finest coral reefs of India and has a good diversity of life; almost every form of marine life of Gujarat is present in this area. The reef is known for the breeding of sea horse. More than 300 species of molluscs are found here. Octopuses, sea anemones, brittle stars and crabs are a common sight here. *Acanthastrea hillae* a coral species found in Gulf of Kutch has not been reported from anywhere else in India. Endangered species like Dugong (one of the rare marine mammal) has been recorded from this area, sea turtles are nesting largely on the islands of Poshitra bay. Three species of Sea turtles, namely Green Sea Turtle, Olive Ridley Turtle and Leatherback Turtle, have been recorded from this cluster of islands. The Common or Bottlenose Dolphins are common. It is also an important area for migratory water birds as it falls on the Indo-Asian



Turbinaria peltata are plate corals and indicate less sedimentation



DISHANT PARASHARYA

The Neptune crab, *Portunus pelagicus* is a common colourful crab in the Poshitra reef. Crabs are indicators of the extent of pollution in the system

migratory pathway. More than one lakh migratory cranes have been recorded in Jamnagar district thanks to the undisturbed Poshitra bay, which serves as an entrance during the migration to India. It is a once in a lifetime experience to see thousands of migratory cranes flying back home during March. The mangrove forests on the island are also one of the best heronries of the area.

Boria, one of the submerged reefs, gets exposed only during the negative tides, has a myriad of corals to its credit and out of 51 species of corals found in Gulf of Kutch, 35 species are recorded from this area. In fact, in some places live coral cover has spread to an extent that one cannot walk on the reef.

One of the most interesting life forms at Poshitra is the *Bonellia*, popularly called Tongue worm; it is

an echiuran worm. *Bonellia* was hitherto considered endemic only at Pirotan islands. However, my study in Poshitra revealed that the worm is abundant in

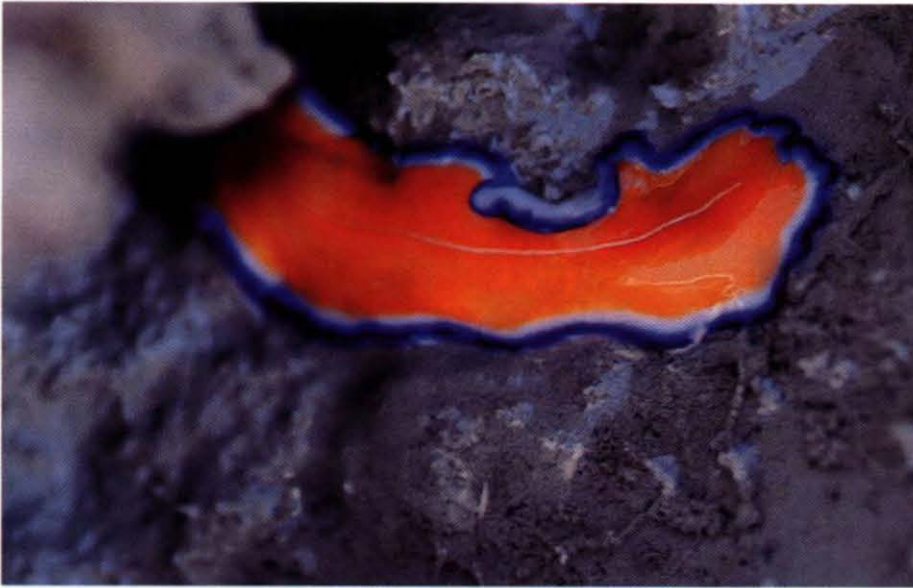
the Poshitra cluster of islands too. The Tongue worm is unique, for at the time of birth the sex of the larvae is undifferentiated. If the floating larvae



DISHANT PARASHARYA

Cyprea Onyx, a Cowrie, is a rare sighting in the Gulf of Kutch

Conservation Notes



VINOD GAJJAR

Flat worms, *Pseudoceros* sp., are difficult to spot in the turbid waters of Gulf of Kutch



DISHANT PARASHARYA

The 'Y' shape helps to identify the Tongue Worm, *Bonellia* sp.

settle inside the mouth of a female worm of the same species they turn into males. However, if the larvae settle on a substratum away from the female they turn into females.

Poshitra's ecological values are immense and cannot be undermined, yet, today all of this is under threat from many of the negative activities conducted at these sites. As the area is

so rich in biodiversity, the fisher folks from surrounding areas also fish here; hence, increasing the pressure on these reefs. Unregulated fishing activities, such as blast fishing, and the use of pesticides to kill fishes is a regular phenomenon here.

Nevertheless, the worst conservation concern is the Port development activities in this area. These began in

1998-99, when the first proposal to prepare an EIA report for developing the Poshitra port was submitted, but, luckily, for some reason it did not work. Today, the corporate giants are once again eyeing this site to build an industrial port with foreign collaborations. This port will be as large as the Mundra port. If a port comes up in this area, not only will it damage the coral reefs and its associated fauna, but also disturb the ecology of the region. The entire region may lose its natural bountiful excellence. It will also be a loss to the fishing community, who depend greatly on the marine resources. Moreover, the traffic of ships would kill the sea turtles, dolphins and dugongs in this area. All these are listed in the 'Schedule - I' of the Wildlife (Protection) Act, 1972 and the area is a breeding site for sea turtles and dolphins.

Construction of a jetty or a port, or declaring the area as a Special Economic Zone (SEZ) will not harm just a few marine species of Poshitra area, but will destroy an ecosystem that is so important for the coast. All the mentioned activities require more or less amount of dredging or "deepening" – a word used intelligently to mask the dredging activities, will cause a serious damage or complete loss of corals, which form the basic components of the reef ecosystem. This seriously creates an imbalance in the ecosystem harming the food web, disturbing the animal interactions, ultimately leading to the collapse of the ecosystem.

Why only marine biodiversity, the human population of the area also faces a major threat, as many small villages of this area highly depend on the fishery resources. The income of many fishing families is only through fishing activity. Prawns and lobsters are their main resources. Some part of these resources is processed in the



DISHANT PARASHARYA

Huge jetties constructed for crude oil transports in the area are a potential threat to the reefs



DISHANT PARASHARYA

Irresponsible unloading of coal powder at Sikka Jetty may have detrimental effects on the coral reef

marine food processing industries situated at Okha and then exported to many Europe and south-east Asian countries. Though promises such as the project will bring in more jobs, are made when such developments come

up the fact remains that the poor fishing communities are not educated or skilled enough to take these jobs and end up with jobs whose dignity is a question mark. Compensation to the traditional fishing community is

difficult to make under such circumstances. We should not shift the largest sedentary structures created by animals, which we know as coral reef but we should think of developmental activities at some other area to avoid obvious disaster.

Looking at the short term vision for development in these fragile areas. I wonder if there can be a better way of managing our resources and carrying out development. Can we let such an important ecosystem die away ... should we just wait and watch? I believe not; something needs to be done and fast, lest we regret the loss of such important and enchanting coral systems. ■



Dishant Parasharya is currently the Project Officer on the Molluscan Taxonomy Project of the BNHS.

Princess presents conservation accolade to Indian biologist



Mr. Deepak Apte receiving the prestigious Whitley Award from HRH Princess Royal, Princess Anne

The Whitley Award, one of the world's top prizes for grassroots nature conservation, for the year 2008 was presented to Mr. Deepak Apte, Assistant Director, BNHS, for his work of protecting the marine life of the Lakshadweep archipelago. The award was presented by HRH The Princess Royal Princess Anne at a ceremony at the Royal Geographical Society, London, UK, on May 21, 2008. Mr. Apte was one of 11 people honoured at the ceremony.

Other Whitley Award and Associate Award winners came from Bangladesh, Borneo, Brazil, Chile, China, Guatemala, Haiti, Peru and Turkey. The ceremony consisted of an audience

that included Sir David Attenborough, leading scientists and environmentalists and celebrity conservation supporters.

The Whitley Awards are the flagship grants of the Whitley Fund for Nature (WFN), a UK-based registered charity which administers the international awards programme, and which celebrates its 15th anniversary this year. WFN's aim is to identify the world's most dynamic conservation leaders and support them in practical work that benefits both wildlife and local communities. This year the extra funding is worth around £400,000.

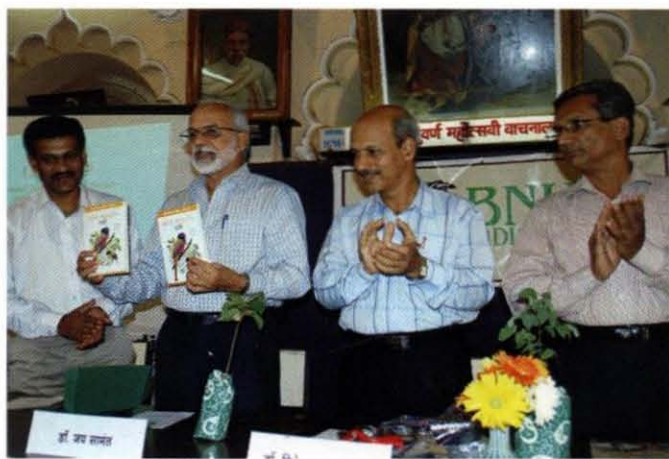
Speaking before the results were announced, the fund's founder, Edward Whitley, said: "The aim of the Whitley Awards is to find and support the environmental leaders who are helping to build a future where nature and people co-exist in a way that benefits both. The example given by people like Deepak Apte is an inspiration for us all."

Mr. Apte's was recognised for his work amid the remote reefs and atolls of the Lakshadweep archipelago, off the west coast of Kerala, India. The area supports a rich range of marine species, including whale shark, sperm whale, saw fish and giant clam. For his project, Mr. Apte is working with islanders to monitor and improve the marine environment and the lives of Lakshadweep communities, who depend on the sea for almost all their resources. The approach has been so successful there are, now, high hopes that Lakshadweep will soon become India's first interconnected network of marine protected areas.

Regional launch of 'Dakshin Bharatatil Pakshi'

In order to make the Marathi field guide '*Dakshin Bharatatil Pakshi*', authored by Mr. Richard Grimmet, Mr. Tim Inskipp and Mr. Prashant Mahajan, available to the front line staff of the Forest Department, and the amateur as well as potential bird watchers, regional launch events for the book were held. On May 5, 2008, the regional launch and distribution of copies to the front line staff of Forest Department and local bird guides from the Nagpur division was held at Nagpur. The field guides were distributed to 20 staff members and five local guides at the hands of Shri. B. Mujumdar, Principal Chief Conservator of Forest (Wildlife), Maharashtra. Besides the staff members of the Forest Department, the members of BNHS and IBCN, local conservation groups and representatives of media participated in the event.

A similar programme was held at Kolhapur on June 5, 2008, in association with WWF-India (Kolhapur Division), local volunteers and conservation groups, as part of World



(L-R) Mr. Prashant Mahajan, Dr. Jay Samant, Dr. Haladwanekar, Dr. Bachulkar at the book release at Kolhapur

Environment Day Celebration. The regional launch of the field guide was held at the hands of Dr. Jay Samant, former Director, BNHS, and Head of the Environmental Science Department, Shivaji University, Kolhapur. Copies of the field guides were presented to 13 front line staff members of the Forest Department, Kolhapur Division. ■

Book Release: The Book of Indian Butterflies

World Environment Day, June 5, 2008, was commemorated at the BNHS by the release of the much awaited THE BOOK OF INDIAN BUTTERFLIES, by Mr. Isaac Kehimkar, General Manager, Programmes, BNHS. The book was released by Mrs. Usha Thorat, Deputy Governor, Reserve Bank of India at the Hornbill House. Mrs. Thorat was the Vice President of the Society and has been associated with the BNHS for many years. At the ceremony, she spoke about her experiences at BNHS and how her fondness for birds, with time, is being transferred to other aspects of the natural world.

Mr. J. C. Daniel, the Honorary Secretary, BNHS, and the author aptly presented her with Verbena – a plant that attracts butterflies on this occasion.

The event culminated with a presentation by the author, wherein he shared his experiences about the making of the book and also about the rich butterfly wealth of India.

Isaac Kehimkar, a Fulbright Scholar, joined the BNHS as a volunteer in 1978 and since then has been lending his expertise to the Library, Publications, Public Relations and Members'



(L-R) J. C. Daniel Honorary Secretary, BNHS, Mrs. Usha Thorat, Deputy Governor, RBI and Isaac Kehimkar at the moment of the book release

Programmes. His other published works include MOTHS – AN INTRODUCTION, INCREDIBLE INSECTS AND COMMON INDIAN WILD FLOWERS as well as photographs and articles contributed to various nature publications.

The book is available for sale at the Hornbill House for Rs. 1125/- for the members of BNHS. ■

'Project Mangrove' celebrates World Environment Day

To commemorate the World Environment Day this June 5, Project Mangrove carried out a variety of events in Maharashtra and Gujarat.

Mangrove plantation was carried out at Shirgaon, Ratnagiri district, Maharashtra. The main objective was to create awareness among people living along coasts about importance of mangroves and their conservation. Saplings of *Rhizophora mucronata* developed in the nursery of Gogate Jogalekar College, Ratnagiri (local partners of BNHS' Project Mangrove) were planted near Shirgaon Sakhartar Bridge. The Chief Guest for the programme was Mrs. Vrushali Narvekar, Ex-sarpanch of Shirgaon. Dr. A.S. Kulkarni, Vice Principal and Head, Department of Zoology; Dr. Sameer Terdalkar, Head, Department of Biotechnology; Dr. R.B. Kale, Department of Zoology; Mr. Subhash Nachankar, Forest Guard, Social Forestry Department, Ratnagiri, and nature lovers were present on the occasion.



Mrs. Vrushali Narvekar, the ex-Sarpanch of Shirgaon planting a sapling of *Rhizophora mucronata*

A presentation on mangroves was conducted at ONGC – Ankleshwar, Gujarat for the staff of ONGC. The Chief Guest for the programme was Mr. H.S. Singh, GGM – Ankleshwar (Assets). Also present, were Mr. R.F. Dhiram, GM (Reservoir) and Mr. James Varathi, GM (Engineering Services). Around 50 senior officials of ONGC were also present for the programme. A

short film 'Diminishing Resources' was screened on the occasion.

Another presentation on the Importance of mangroves was given at Ritumbhara School, Saputara, Gujarat on June 4, 2008 for NCC cadets under commanding officer Col. Paul; 400 cadets and 15 armed forces (Army, Navy, and Air Force) officials were present for the presentation. ■

BNHS-Conservation Education Centre, Mumbai back in action

After undergoing massive repairs and being non-functional for six months, the BNHS-CEC, Mumbai sprung into action with a new look and a series of innovative, interactive and interesting activities.

A 'Wild Brats' Camp was organized from May 1-6, 2008, comprising of six overnight modules and was attended by 88 young nature enthusiasts within the age group of 10-14 years. Each of the modules - *Pyare Plants*, *Istlyish Insects*, *Rocking Reptiles*, *Bindas Birds* and *Mast Mammal*; was able to hit the right note with the participants. The participants were handed informative booklets at the start of each session. Every module had its own highlights varying from indoor activities like poster presentation, quiz, preparation of a bird feeder to outdoor activities like nature trails, treasure hunts and making of plaster cast for animal tracks. The camp was successful in instilling the message of conservation, creating awareness and sensitivity towards nature in the participants.

On popular demand from young parents, BNHS-CEC, Mumbai, for the first time, held a three day non-residential camp known as 'Junior Wild Brats' Camp, for children between 5-9 years from May 7-9, 2008. Due to overwhelming response, a second camp was on May 19-21, 2008. Altogether 73 children participated in the camps. The event aimed at sensitizing the young towards nature and the environment as a whole. It included nature trails, tree autographs, greeting card making, clay modeling, animated audiovisuals, dance shows and juice making sessions. A unique activity book of newspaper was specially designed for the children wherein they struck their activity sheets, puzzles, craft and artifacts



Sensitising the little wild brats towards nature

as well as certificate. Altogether, the children learnt to enjoy, explore and value nature during this three-day camp.

The workshop on Green Lifestyles was another first timer, held in collaboration with United States Educational Foundation in India (USEFI). The two-day residential workshop, held on June 7 and 8, 2008, was aimed at the art of living in an environment friendly manner. The

workshop created awareness about the local environment through a series of talks and demonstrative sessions. It included informative sessions on a variety of topics dealing with daily indoor and outdoor activities. Sessions such as Green Shopping, Pesticide Free Homes, Art from waste and Advanced Locality Management were very popular. The workshop was attended by 50 individuals. ■



Participants with creative artwork from waste

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