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Rufous-necked Hornbill *Aceros nipalensis*  
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# C O N T E N T S

## A problem landscape in the Western Ghats



Can a habitat marred by destruction of its biodiversity revive itself? The Chilika restoration initiative undertaken by Chilika Development Authority and Sri Mahavir Pakshi Suraksha Samiti tells us a different story. **Gangadharan Menon** shares with us a tale of fruitful implementation not on paper but in reality.

The Talacauvery, Brahmagiri and Pushpagiri wildlife sanctuaries in the Western Ghats hold a treasure trove of flora and fauna. Unfortunately, today these sanctuaries suffer direct threat from activities by humans which are not in the best interest of conservation. **A.J.T. Johnsingh and R. Raghunath** tell us more.

## Species Recovery Programmes a conservation opportunity



The Wild Dog stands on the brink of extinction. With a startling figure revealed by the IUCN, the fate of this animal will be sealed in years to come unless the requisite measures are taken. **Salvador Lyngdoh** travels to Pakke Tiger Reserve to find out what exactly threatens the existence of this social hunter.

Species recovery programmes provide us an opportunity to restore the balance in nature. However, such programmes need to integrate current understanding with past experiences of conservation strategies to yield results. **Pramod Patil** shares one such recovery programme with us.



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## IAS: Invasive Alien Species

A few years ago I attended a meeting of the Australia-Pacific Region of BirdLife International where the main topic of discussion was the huge damage to biodiversity, particularly native birds and plants, by the invasive alien species or IAS as they abbreviated the term. Every discussion was on the damage done by IAS. Being Indian, I know what this abbreviation means to most of us. Although the Indian Administrative Service (IAS) was started by the British and a lot of alien species were also introduced by colonials, I dare not say that I see any connection between the two! I know some good forest officers who abhor the 'human IAS' as they sit on top of the decision-making pyramid without knowing much about ecology and conservation. For such dedicated forest officers, both types of IAS are difficult to tackle! But, as in Nature, there are always exceptions. We have wonderful IAS officers like Pravin Pardeshi of Maharashtra, Sanjay Kumar of Uttar Pradesh, and K.K. Dwivedi of Assam who have done exemplary work for conservation in collaboration with the Forest Department.

There is a huge literature on invasives and their impact on biodiversity and economy, so I will not go into details. I shall try to confine my editorial to the impact of invasives on small islands and what these island countries/territories are doing.

Nearly 70% of the bird species which became extinct in the last 400 years belong to islands – mainly small islands of the Pacific and Indian Oceans. According to BirdLife International, it is of great concern that 298 (25% of all) globally threatened birds are currently affected by introduced predator species, particularly cats, rats and mongoose. Invasive competitors, herbivores and plants impact on 72, 71 and 69 threatened bird species respectively.

We all know about the Dodo, a large clumsy ground pigeon of Mauritius which was eaten to extinction by early seafarers, and the dogs/cats introduced by them. Cats, dogs, mongoose, snakes and plants have played a major role in exterminating native species, which are defenceless against these marauders. Perhaps the worst marauders were the colonial powers in the 17th and 18th centuries which were not only expanding their influence in far-flung places but also deliberately introducing species for nostalgic reasons. That is why they created organisations to reintroduce animals, starting with La Societe Imperiale d'Acclimatation formed in France in 1854, followed by the Society for the Acclimatisation of Animals, Birds, Fishes, Insects and Vegetables within the United Kingdom, in 1860. Later, many such societies were established in the USA, New Zealand, Australia and far-flung islands. The colonialists did not realise the negative role these introduced species would play in future. Sometimes non-native species were introduced to control another non-native invasive, and both finally played havoc with the indigenous fauna and flora. A classic case is the introduction of the Indian Mongoose in 1872 from Calcutta to Jamaica to control rats which were devastating sugarcane plantations. Seeing the initial success in Jamaica, in 1883, Hawaiian planters brought 72 mongoose from Jamaica to Big Island where they were raised, and their offspring shipped to other islands. The mongoose soon became a major threat to native birds, which had no defence against this predator. The result was the near extinction of many defenceless bird species, particularly Hawaiian Goose or Nene which were reduced to 30 birds in 1952. Conservation breeding and reintroduction has brought the species back: today, there are an estimated 1,300, at least half of whom are clustered on Kaua'i, where the mongoose is absent.

Immigration and emigration is a natural phenomenon in nature, but it is a slow process. A good example is the presence of certain species of lizards in remote islands which probably reached there on driftwood or by similar agencies. Most of these natural emigrants die due to lack of food, breeding failure or competition from the native fauna, but some survive and through hundreds of years of adaptation and evolution, evolve into a new species, which finds





its ecological niche and becomes a part of the native fauna or flora. The Megapode is another good example of how biogeography works in nature. Megapodes, also called thermometer birds, are unique as they lay very large eggs and bury them in mounds of rotting vegetation or in burrows where they are incubated by the sun or geothermally heated ground. There are 22 species of these clumsy large birds in the Nicobar Islands, eastern Indonesia, the Philippines, Papua New Guinea, Tonga, Palau, Australia and Mariana Island. Megapodes are ground-dwelling forest birds, with weak flight ability, but how did they reach remote islands?

Andaman and Nicobar consist of hundreds of islands, some very small and remote. However, man has reached everywhere, and introduced rats, cats and dogs. A lot of literature is present on the negative impacts of introduced animals, but strangely no attempt is being made to eradicate these alien species in India. A few years ago, seven House Crows landed in Port Blair, probably stowaways on a ship. People like Dr. Rauf Ali of FERAL, and the late Dr. Ravi Sankaran of SACON requested the authorities to eliminate them before they increased to unmanageable numbers, but nothing was done. Now the Indian House Crow is well-entrenched on the island and is spreading. During my visit in February 2012, I saw a pair feeding four young ones. We have not learnt a lesson from countries like South Africa where the House Crow is a major pest to native birds.

As the saying goes, out of sight, out of mind. This is best exemplified by neglect of our native fish fauna. Thanks to the spread of aggressive African Tilapias in Indian rivers, many native fish have disappeared and natural fish community structures of our rivers and streams have been changed. Tilapia has even reached River Chambal – the last major unpolluted river in India.

During the 81st Session of the National Academy of Sciences, held at Thiruvananthapuram in November 2011, the following steps were suggested for Invasive Alien Species (IAS):

- A comprehensive inventory of alien species (including all taxa) growing in different biogeographical provinces of India is the need of the hour in view of increase in anthropogenic activities that promote introduction, establishment and spread of alien species. To achieve this goal, an All India Coordinated Project for preparing an inventory of Alien Species needs to be formulated and launched. It is also imperative in view of recognition of IAS as Target 9 of the 20 targets of the Strategic Plan on Biodiversity (2011-2020).
- Identification of priority invasive species on the basis of objective criteria followed by their mapping using GIS and Remote Sensing tools, their impact assessment and identification of habitats/areas likely to be invaded by such invasive species in future, employing niche modelling approach.
- Major introduction pathways and vectors of alien species need to be detected and plugged in order to prevent further introduction of alien species that are likely to become invasives.
- An institutional, legal and specific national policy on invasive alien species in India needs to be formulated based on '4P' approach of prediction, prevention (rapid response), prescription (control) and public awareness and put in place to manage the menace of biological invasions.
- A National Invasive Alien Species Information Network with regional nodes connected by a web-based network is an immediate priority for quick and easy dissemination of information about invasive species for prevention and rapid response measures.

Is anyone listening in the corridors of power in New Delhi?

Asad R. Rahmani



# A problem landscape in the Western Ghats

Text: A.J.T. Johnsingh and R. Raghunath  
Photographs: A.J.T. Johnsingh

One of the more problematic landscapes in the Western Ghats is the stretch of mountain forest from Brahmagiri Wildlife Sanctuary (WLS), (182 sq. km) to Pushpagiri WLS (103 sq. km, see map). The forest extends through the Talacauvery WLS (106 sq. km) and reserve forests, such as Brahmagiri Ghat, Urti, Kerti, Padinalkanad, Pattighat, Sampaje and Kadamakal. Continued high levels of poaching have rendered this landscape exceedingly poor in large mammal abundance. Several roads cut across this habitat, and the other major, persistent and possibly insurmountable problem is that of

human encroachment. Numerous enclaves are located within the forests, and many villages on the border aggravate the impacts.

In the summer of 2010 we visited Talacauvery, Brahmagiri and Pushpagiri WLS to assess abundance of large mammals and the problems that threaten this landscape. Our first night halt was at the Makut forest bungalow – built in 1919, and nestled in lush lowland evergreen forest, at an altitude of *c.* 40 msl. We were accompanied by M.O. Anand, a field ornithologist, and Navendu Page, a field botanist. The next morning we woke to the alarm call of the Indian Giant Squirrel. As we stepped out of



Map of the problem landscape in the Western Ghats





A view of the Brahmagiri hills; the grasslands have a rank growth of *Eupatorium adenophorum* and *Pteridium aquilinum*

the bungalow we were greeted by the whooping calls of a langur and bird song of species such as Common Iora, Yellow-browed Bulbul and Greater Racket-tailed Drongo. Noted by its absence was the *kuck-kaya-kaya-kuk* call of Grey Junglecock – the usual dawn bell that awakens the jungle in these parts. Interestingly, the common langur of this area *Semnopithecus hypoleucos*, confined as it is to south Coorg, has the most restricted range of all the seven langur species in South Asia, and is therefore the most threatened one. That day we walked about 13 km, visiting four forest camps all along the Karnataka-Kerala border. Evidences of large mammals were extremely low. All we saw were a couple of elephant dung piles, and twice we heard Barking Deer alarm calls. While the land on the Kerala side has been

converted into coconut farms and rubber plantations dotted with houses, an impressive lowland rainforest drapes the Karnataka side. The benefits of this rainforest are copious amounts of water from the numerous west-flowing streams that arise here and clean air enjoyed by the people of Kerala. Yet poaching for timber and animals is a problem. To counter this there are many police camps, in addition to the forest camps, along the state border. We spent the night at the Munrot forest bungalow, built in 1920 at an altitude of 86 m, and overlooking the Puzhingam stream.

The next morning, the valley was shrouded in mist as we boarded a jeep for the Nadumalai anti-poaching camp from where we commenced a 15 km trek to Talacauvery forest bungalow. On the way we saw an encroachment, constrained by

an electric fence, on the left bank of the Puzhingam stream. The forest staff accompanying us said that a case had been filed in the court to evict the encroachers. On the trek, we heard imperial-pigeons and giant squirrels call from the trees; we spied a Common Langur hurrying through the canopy; and twice we heard Barking Deer calls. There were a few tracks of Sambar and Wild Pig, and at one stretch we came upon the trail of a Leopard. It had left a scat which on close inspection revealed that its recent repast had comprised both porcupine and wild pig. Three kilometres of our walk at the upper end of the trail went across grassland dominated by lemon grass *Cymbopogon citratus*, a coarse grass, unpalatable when mature. We expected to find signs of Gaur in this stretch, but surprisingly there were none.





R. Raghunath with the head of a bull Gaur which weighed about 25 kg



Grasslands in the Western Ghats which are prone to repeated fires and grazing are invaded by the unpalatable fern *Pteridium aquilinum*

In the evergreen forests, we came across an interesting plant species that is reported to be endemic to the Western Ghats – a short, cane-like palm called *Pinanga dicksonii*. Another palm with a much wider distribution, *Caryota urens*, was common throughout this landscape. As we neared the Cauvery headwaters, we expected to see evergreen forests, but were surprised instead by the sight of numerous concrete structures and a temple. We spent that night at the well-maintained Talacauvery forest bungalow, built in 1965 at 1,265 msl. Returning home the next day, we drove past the Sampaje Forest Range and realized that there is a 8-10 km forest connectivity between the Talacauvery and Pushpagiri forests. It is imperative that any encroachments here are removed; in fact, even private properties in this corridor should be acquired so that the corridor remains viable in the long term. For the same reason, it is important to ban development of the private properties into tourism resorts.

On an April evening a few weeks later, we sat on a vantage point near Narimale forest rest house (1,418 msl) in the Brahmagiri WLS. While we enjoyed the fleeting mist and cool breeze, a group of four Sambar fed near a patch of shola. There should have been more in that vast area. There was no sign of Gaur either. *Nari* is a common word for fox and jackal in Tamil, but in the Kodava language it could mean either tiger or leopard. Our trek to Narimale had begun from the Iruppu falls (867 msl) and passed through semi-evergreen forests, a patch of dry, post-flowering *Bambusa arundinacea* and across grasslands flanked by patches of evergreen forests. These form the catchments of the Lakshmantheertha, a tributary of the Cauvery, which flows down as the Iruppu falls. Interestingly, the cicadas which sang merrily in the semi-evergreen patch were not to be heard in the patch of dry bamboo. It was a relief to see that there was not a speck of garbage along the entire trail. We



heard giant squirrels call at several places in the semi-evergreen forest, and on the distant slope we spotted a group of Bonnet Macaques feeding in a strip of vegetation over a stream. Old and dry elephant dung dotted the trail, but there were no fresh signs. There were leopard scats though, and a single tiger scat on the trail to the rest house where we spent the night.

The following morning we prepared for the walk to the Brahmagiri peak (1,618 m). A solitary Nilgiri Langur, possibly a male, that had taken up residence near the rest house made an appearance. We first visited Munikal cave (1,540 msl), which is in the Begur Range of Wyanad. Here we heard calls of Nilgiri Langur and Great Pied Hornbills. In response, a male Nilgiri Langur called back from the Karnataka border! Among the less enjoyable experiences was the sight of the weedy Common Bracken *Pteridium aquilinum* and Mexican Devil *Eupatorium adenophorum* invading the grasslands and the last 200 m climb to the peak that was not only steep, but also monotonous. Once at the peak we rested and relaxed for nearly an hour drinking copious amounts of cool and tasty Lakshmantheertha water that we had carried up. To the south we could clearly see the famous Thirunelli temple, reported to have been built by Brahma himself.

As we had to reach Aralam WLS (55 sq. km) the same day we rapidly descended to Iruppu falls, where we stopped for a quick break. During a 25 km walk in the Brahmagiris, we witnessed four tiger signs (three scats and one set of pug marks) and 14 Sambar. In the count was also a group of trekkers from Kerala who chatted and walked through the forest for all the world as though they were strolling in a bazaar. Aralam has lowland tropical evergreen forests and biodiversitywise it is as rich as the Silent Valley in Kerala. During our two-day visit we saw five Sambar, a Mouse Deer, a group of common



*Curcuma pseudomontana*, an attraction in the grassland



*Pinanga dicksonii*, one of the three endemic palms of the Western Ghats





Thirunelli temple, an important place of worship for the people of the region, is supposed to have been built by Brahma himself

langur and numerous Indian Giant squirrels. Tigers are reported in Aralam. K.V. Uthaman, Warden of Aralam WLS and a former Diploma Trainee Officer at the Wildlife Institute of India, Dehradun, explained to us the possibility of expanding the Sanctuary up to the Kalindi river in the east. Such an expansion would enlarge the Sanctuary to a respectable 150 sq. km.

Our last destination in this landscape was Pushpagiri WLS, established in 1994. It was mid-May and we stayed two nights at the Bidalli anti-poaching camp (850 msl) located in a beautiful valley. We expected to hear the alarm calls of Barking Deer and Sambar, but surprisingly the only call we heard at night was that of crickets. As we prepared for the climb to the peak at 1,712 m on the second day, a Giant Squirrel raised an alarm. Along the entire trail to the top, a distance of six kilometres, there was only one track of a gaur. This is a favourite trail for trekkers, as evident from unsightly garbage strewn, without thought in many places. Regretfully, even the area around the temple at the top was

heavily abused by visitors, as there was garbage and signs of cutting of the stunted mountain trees for camp fires. Heavy mist blocked our view of the valleys and hills all around, said to be a spectacular sight. Dejected on seeing the ravaged mountain top, we soon descended to the camp.

Can we bring back the large mammals throughout the Brahmagiri-Pushpagiri landscape? Large mammals may continue to survive in the southern part of this landscape as it is closer to Wyanad WLS and Aralam WLS. We earnestly hope that Aralam WLS, once expanded to 150 sq. km and together with Brahmagiri WLS (total area of 330 sq. km) would be able to help in ensuring the future of charismatic animals, such as the Nilgiri Langur, Sambar, Gaur, Elephant and

Tiger in this part of the Western Ghats. This is a place where, with protection, even today Sambar and Tiger can make steady recovery. Nevertheless, if we want to regain large mammal abundance in other parts of this landscape, we have to accomplish the following: keep poachers away with a firm hand, prevent encroachers, remove the existing encroachments and completely stop developments that are inimical to conservation. Can this even be done in this landscape of muzzle loaders and rifles where the local people rejected the idea of establishing the Greater Talacauvery WLS nearly a decade ago? Only the people of this area, who live in one of the most beautiful and salubrious landscapes in the country, can answer this. ■



A.J.T. Johnsingh is the first Indian to conduct a long-term study on a free ranging large mammal. Based in Bangalore, he works for Nature Conservation Foundation, Mysore and WWF-India.



R. Raghunath works as a GIS analyst and provides mapping support to a variety of research and conservation projects at Nature Conservation Foundation.



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# The rebirth of Chilika

Black-tailed Godwit

Text and Photographs: **Gangadharan Menon**

Chilika lake is situated in Odisha state on the eastern coast of India. This teardrop shaped lagoon is the largest brackish lagoon in Asia, and the second largest in the world. With a catchment area of 3,500 km, admeasuring 70 km in length and 30 km in breadth, it is vast.

If the large presence of birds is an indication of the ecological health of a habitat, Chilika is truly in the pink of health. It is home to over 10,00,000 birds annually, spread across c. 225 species. Of these, a number of species migrate all the way from the Caspian Sea, Siberia, Mongolia, Manchuria, Central Asia, and from closer home – the Himalaya, thus making it the largest congregation of birds in the entire Indian subcontinent.

Chilika also has over 250 species of fish, and supports over 180 Irrawaddy Dolphin *Orcaella brevirostris*, which is the largest population of this rare and endangered species. These are over and above many other rare, vulnerable, and endangered species listed in the IUCN Red List, one of the most prominent among them being the limbless skink of Barkud Island.

Dr. Ajit Kumar Pattanaik, Chief Executive, Chilika Development Authority, explained the uniqueness of this wetland. He said, “Situated on the eastern coast of India, Chilika was a bay many centuries ago. Over time, tidal waves deposited sand in the bay and created a sandbar with a mouth. Thus, virtually cutting off this bay from the sea, and creating a salty lake in the process. From the western side, this lake was supplied with fresh water from the rivers; and from the

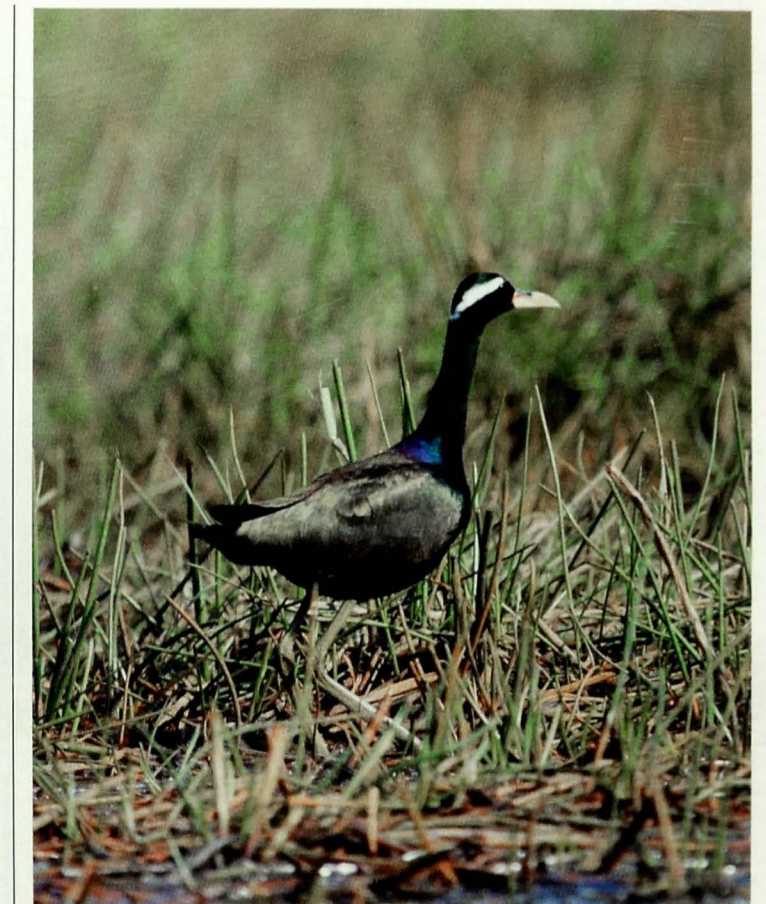
mouth, during high tide, salt water came in from the sea. Thus, this habitat became home to a wide variety of freshwater and saltwater species.”

In 1981, this unique brackish lagoon was internationally recognized as a Ramsar Site for its ecological importance and rich biodiversity. That was precisely the time when multiple tragedies struck Chilika. In a little over a decade, in 1993, it was included in the Montreux Record\*, as its ecological character had become completely degraded.

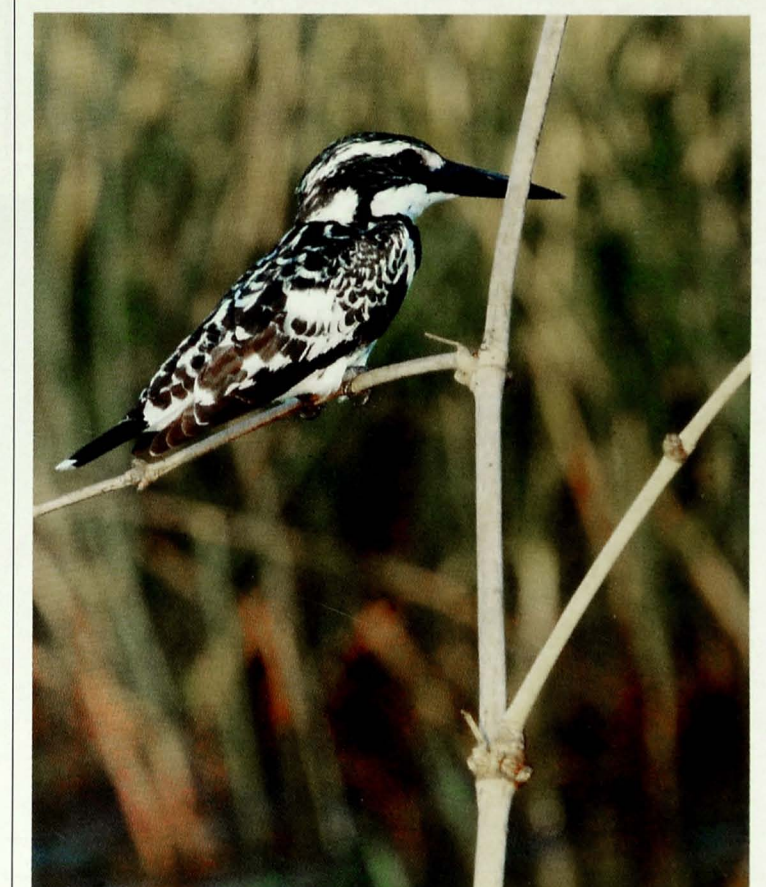
The following were the reasons for this degradation:

The mouth of the sandbar that controlled the movement of seawater in and out of the lake kept shifting due to tidal currents. In a decade it moved over 10 km, and finally shut

\*The Montreux Record is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference. It is maintained as part of the Ramsar List.



The Bronze-winged Jacana occurs in jheels and ponds with floating vegetation



The black and white, black-bellied Lesser Pied Kingfisher can be easily identified as it hovers over water





The largest brackish water wetland in Asia, Chilika is a haven for birds along the Central Asian flyway

itself off completely. Meanwhile, the 52 rivers and rivulets that supplied fresh water to the lake continued their perennial supply. Soon the balance of fresh and sea water that was achieved over centuries was disturbed. Many seawater species, flora and fauna, disappeared. Freshwater invasives like Water Hyacinth and Ipomea flourished, suffocating many local plants.

Deforestation along the path of the rivers caused soil erosion, resulting in large-scale siltation in the lagoon. So much so that in this eventful decade, the depth of the lake reduced from 3.5 m to barely 1 m!

Added to this were the pressures of fishing. Chilika is the only source of livelihood for over two lakh fishermen, who continued with their profession relentlessly. Traditionally, the fishermen of Chilika are assigned the methods of fishing, and the type of fish they catch, according to their caste. For example, the Nolias fish in the lagoon, as well as the deep sea. Hula Keutas fish only at night. Bilua Keutas use fixed nets, while the Gokhas cast their nets. Khatias don't fish, they only sell dried fish! Despite these strict traditional divisions, greedy modern methods, like fish trapping, hook



The Asian Openbill has peculiar arching mandibles with a narrow gap in between



nets, drag nets, motor boat fishing and trawler fishing, and even fishing during the breeding season, took its toll and fish population was reduced drastically.

Parallely, another human drama was unfolding in Chilika. Fishermen had turned poachers in order to make a fast buck. On an average, about a thousand birds were killed every day by shooting, trapping in nets, and poisoning them with pesticides. In a few years' time the bird numbers dwindled, till there were just a few thousands left.

That is when a man named Nandakishore Bhujbal entered the scene, and changed the destiny of Chilika. In the 1970s, Nandakishore had moved out from Mangalajodi to earn his livelihood in urban Odisha, then called Orissa. When he returned in the 1990s, rampant poaching had already taken its toll. Pained by the sight of hundreds of dead birds, he decided to act. He made discreet enquiries about the people behind these dastardly acts, and was led to the 'dirty dozen' (they were 12 in number!), whose leader was the firebrand Madhu Behera.

Nandakishore accosted them with courage of conviction, and asked them whether they were responsible for the wanton killing of the birds of Chilika. They proudly claimed responsibility, and warned him that it would continue unabated, and that it was none of his business. Nandakishore simply told them, "these birds are your guests; they have nowhere else to go."

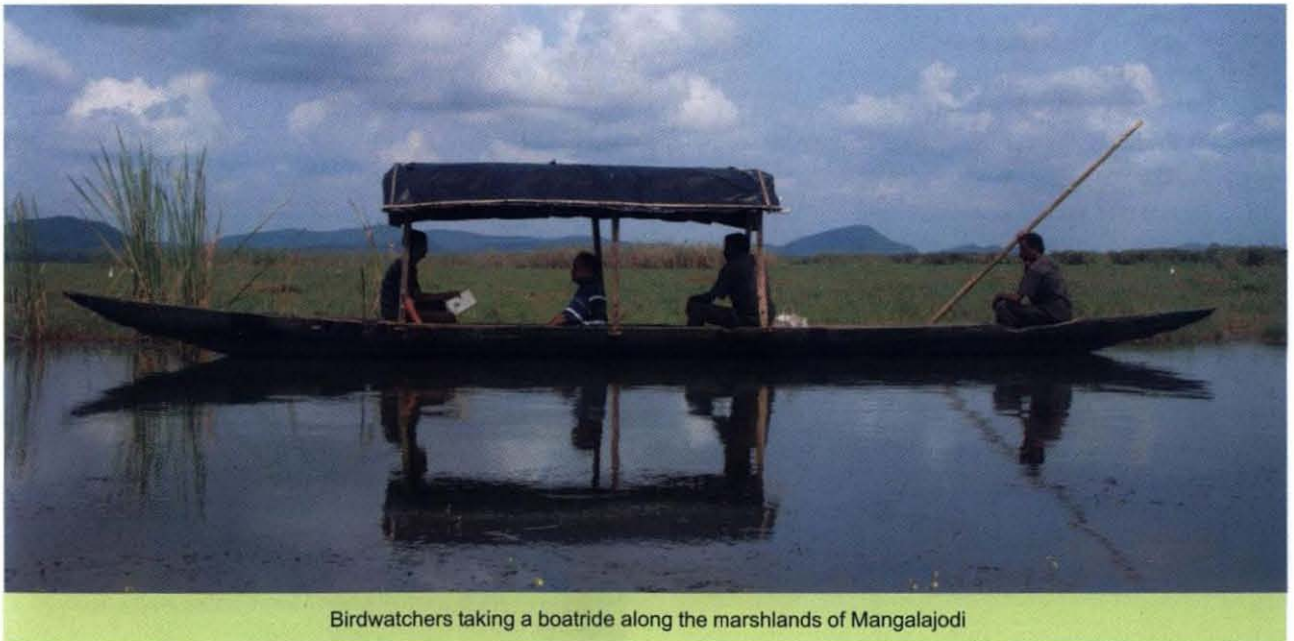
These words possibly touched Madhu; a week later he came to Nandakishore's house, his 'dirty dozen' in tow. They informed him that they had thrown away their air guns in the lake, and would never again kill a single bird in their life. Knowing the psyche of this fickle-minded fishing community,

Nandakishore told them that their decision was welcome. But he would believe them only if they took the oath in the temple of Kalijai, a goddess they venerated. And on a morning that would change Chilika forever, they took the pledge in the temple. They have stood by it for 17 years, and they will stand by it for the rest of their lives.

When Madhu and his gang gave up the lucrative business of poaching, a kind of vacuum was created in their lives. That is when Wild Orissa – an NGO – led by Nandakishore stepped in. He had realized that poaching was serious business. To conduct it, the poachers had to learn to identify scores of migratory birds that were winter visitors to Chilika; they had to keep a track of when they start coming in and going back; what they feed on and where they roost. In short, they had to be experts in birdlife, which they had become, over the years.

Nandakishore, along with members of Wild Orissa, started conducting workshops for these ex-poachers to convert the vast knowledge at their disposal to become nature guides. They taught them the English names of these birds, and even helped them with their communication skills, both of which were needed in their interactions with nature lovers.

Around the same time, the Government of Odisha too had swung into action. They formed a government agency called Chilika Development Authority (CDA). This body decided to approach the ecological problem of the closed mouth of Chilika in a scientific way. On the one hand, they commissioned the job of hydraulic intervention to Central Water and Power Research Station (CWPRS), a Pune-based firm, part of the Union Ministry of Water Resources. Under the able guidance of Dr. Pattanaik of CWPRS systematically desilted the lagoon; and after a thorough scientific analysis,



Birdwatchers taking a boatripe along the marshlands of Mangalajodi





From a dying wetland to a model for conservation, it has been a long but happy journey for Chilika

dredged a new mouth in 2000. CDA also conducted many workshops and seminars for the local fisher folk, educating them about the imminent need to adopt sustainable fishing practices. The farmers too were informed about the beneficial aspects of the visit of migratory birds in their farmlands. They were told that these birds fertilise their farms as no fertilizer can, with their guano which is extremely rich in phosphates. This crucial information helped reduce man-bird conflict enormously.

The results of all these efforts showed up in two years. By 2002, Chilika was removed from the dreaded Montreux Record, becoming the only Ramsar Site in Asia to achieve this feat.

The sterling efforts of restoration even brought a whole host of awards to Chilika: The Ramsar Wetland Conservation Award 2002, the Indira Gandhi Paryavaran Puraskar 2002 and the Special Avian Award 2002.

But a vagary of nature was witnessed in ensuing years. The new mouth created by scientific intervention shifted by a kilometre in a matter of a decade. And a new, natural mouth was created in 2008 by a massive tidal action during a solar eclipse, proving beyond doubt that Mother Nature always has the last word!

To make the eco-tourism efforts truly successful, an organization called Sri Mahavir Pakshi Suraksha Samiti was formed in Mangalajodi. The Chilika Development Authority gave them land to house their office and also to start an Interpretation Centre. The Samiti was supplied with tents in which it could put up visitors wanting to stay the night. Armed with the binoculars provided by CDA, the poachers-turned-

protectors patrolled the waterways of Chilika, day in and day out. They took nature lovers in their boats, with the precise knowledge of which species can be found where. The division of labour among them was well-defined. Some of them became boatmen, some turned cooks who provided food on a day-long boat journey, and the ones with better communication skills became guides.

Dr. S. Balachandran, Deputy Director, BNHS, who has been closely monitoring the birds of Chilika for more than a decade, avers that indeed there has been a dramatic rise in the bird congregation in Chilika, especially of migratory birds. According to his beautifully compiled book, the *BIRD ATLAS OF CHILIKA*, the density of bird species is the most in and around the wetlands of Mangalajodi, apart from Nalaban Sanctuary. Mangalajodi is the very area that is passionately protected by the ex-poachers, with unstinted support from CDA. All of which goes to prove that to be successful the conservation efforts of tomorrow will have to begin at the grassroots, involving and engaging local communities.

From a dying wetland to a model for conservation, the world over, the story of restoration of Chilika has a happy ending. Could all conservation efforts take a leaf out of this successful book? ■



Gangadharan Menon made a documentary on Silent Valley, referring to the impending disaster of a hydel project coming up there, which played a small part in Silent Valley being declared a national park in 1981.





# Save Indian Bustards

## Before it is too late !

Less than 30 Indian Bustards are left in the wild in Kutch, out of the 300-odd that still exist in India. Despite being listed as **critically endangered** by IUCN, not much attention is given to protect the Indian Bustard and its habitat.

The Corbett Foundation, an NGO established and supported by Infinity Resorts, is fighting hard to save the natural habitat of these majestic birds in Kutch, Gujarat.

Lend your support to "Save the Indian Bustards Campaign" of The Corbett Foundation and urge the Gujarat Government to protect and conserve their habitat by signing an online petition of The Corbett Foundation  
[www.change.org/petitions/save-the-indian-bustard-campaign](http://www.change.org/petitions/save-the-indian-bustard-campaign)



[www.corbettfoundation.org](http://www.corbettfoundation.org)

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# Species Recovery Programmes

## a conservation opportunity

Text: Pramod Patil

Conservation of highly threatened species like bustards and floricans exclusively through isolated Protected Areas is impossible. Therefore, a nationally coordinated and time-scaled programme is essential for long-term conservation. Species Recovery Programme (SRP) is an essential part of 'Integrated Development of Wildlife Habitats', a scheme initiated by the MoEF. Any Species Recovery Programme needs to be prepared as per the obligatory guidelines set by the Ministry of Environment and Forests (MoEF) and Wildlife Institute of India (WII). The Recovery Programme for bustards and floricans is a three-tier action plan with a specific objective, with all levels being compatible to each other. First – a national level generic plan, which discusses principal measures for recovery of species. Second – a state level plan, which elaborates the priority of actions as per the necessities of issues in relation to a particular state. Third (and the most crucial component) – a site-specific plan, that can be implemented at multiple sites within a state. While preparing a recovery programme experts need to integrate current understanding with past experiences of conservation strategies and their outcome.





Conservation of highly threatened species solely through a Protected Area Network is not possible as some individuals occur outside such areas where land use pattern plays a key role in their survival. Moreover, for species like bustards and floricans that move over wide landscapes, which are under tremendous biotic pressure and not under the control of the Forest Department, conservation is not an easy task.

In the last 30 years we have encountered a mixed bag of success and failure in places where conservation measures were implemented for bustards and floricans. The conservation strategies for these magnificent birds were ambiguous, due to complexity at the level of execution and community facet of every policy. According to the International Union for Conservation of Nature (IUCN) and BirdLife International, the Great Indian Bustard and Bengal Florican are Critically Endangered, the Lesser Florican is Endangered, while the migratory Houbara Bustard is Vulnerable. Their status is a clear indication of the condition of their habitat and hunting pressure. Grasslands and dry open areas where all the four species of bustards of the Subcontinent live are neglected, and modified by plantation. Grasslands provide livelihood security to the local communities through fodder, but most of them are overgrazed. With initiatives from WWF-India, BNHS, MoEF, and many regional NGOs, a national level Species Recovery Programme for the Great Indian Bustard, Lesser Florican and Bengal Florican is in its final stages. The experience and understanding gained from almost 30 years of bustard conservation will be of great assistance in planning their Recovery Programmes. Such programmes along with 'Project Bustards' are possibly the last chance to save the bustards, floricans and grasslands in India.

### **Current Indian paradigm of bustard and florican conservation**

In the early 1980s, five states where the Great Indian Bustard (GIB) was still found took some initiative and eight areas with bustard populations were declared as protected. Despite these conservation measures, the status of the GIB deteriorated and it vanished from three protected areas (i.e., Karera in Madhya Pradesh, Sorsan in Rajasthan and Ranebennur in Karnataka). In the case of the Lesser Florican, there are only two sanctuaries in India – Sailana and Sardarpur, both in Madhya Pradesh. Many individuals are outside protected areas and their movements over a vast landscape are relatively unpredictable. The Bengal Florican is totally dependent on scientific management of terai grasslands. There is little hope for its survival outside the protected areas that are not well-managed. Fortunately, protected areas still hold a major population of this bird.

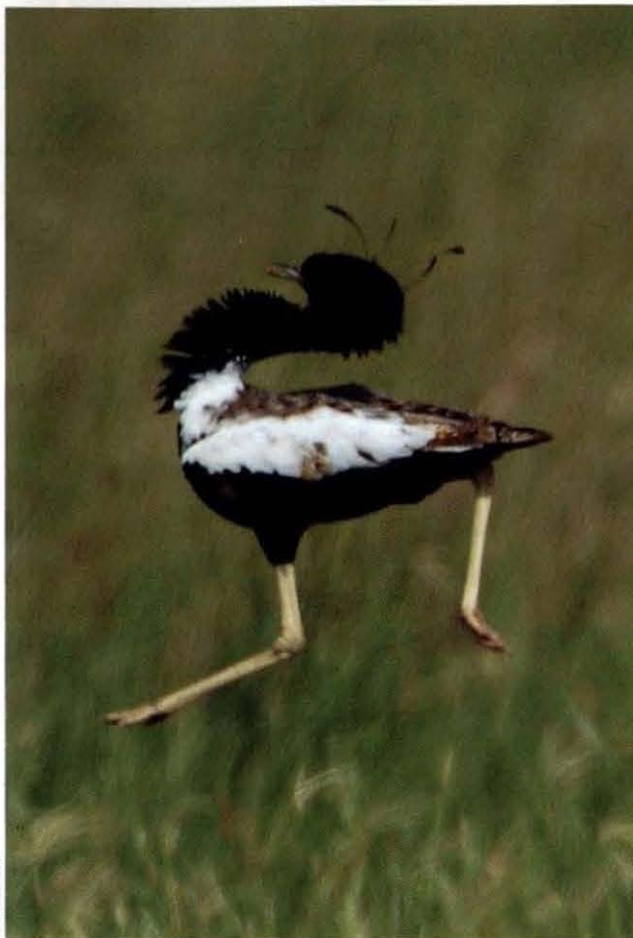
### **Great Indian Bustard: King of arid grasslands**

Tall and handsome, the GIB lives in short grass plains and deserts, in a large landscape. Deterioration of its habitat

and hunting are the major problems. In the mid 1980s, its population was estimated to range from 1,500-2,000. Presently it is confined to a handful of pockets in six states of India, i.e., Rajasthan, Gujarat, Madhya Pradesh, Andhra Pradesh, Maharashtra and Karnataka, and less than 300 birds survive. Much of its habitat is under the control of village communities and is therefore severely overgrazed. Besides, due to wrong management practices the government has acquired grasslands and planted trees on them. Though details about the GIB's movements are still not known, it is presumed to range over a few hundreds to thousands of square kilometres. The major problem faced in the case of the GIB, therefore, is the conversion of agro-pastoral landscapes into intensive agriculture (mechanized, irrigated along with high fertilizer and pesticide use) precipitated with industrial development. The associated infrastructural developments, such as high traffic roads, power lines, wind-mills, etc. are detrimental for the survival of GIB in its existing habitats. The main stronghold of GIB is the Thar desert in north-west India, but here it is threatened by the Indira Gandhi Nahar Pariyojana (IGNP) irrigation canal, which is causing massive landscape level alterations in the habitat, pushing the entire desert biodiversity towards extinction. It is suspected that drastic changes in the desert landscape are pushing bustards into Pakistan, where they are indiscriminately hunted. From our recent experience, we have understood that habitat protection, and development of core breeding areas in a large multiple-use region could help to sustain the existing bustard population. As bustards live in marginal agriculture areas, support from locals is necessary for long-term conservation. In order to reduce disturbance to bustards during their breeding, its grassland habitats need to be protected at least during the breeding season. This has a dual benefit as it helps the bustard to breed and also helps to maintain the growth of grass for sustainable grazing by livestock. Buffer grassland needs to be protected with public support and, if applicable, through monetary incentives. During the breeding season alternate fodder source should be provided for livestock. Conservation of the GIB would be easier if it could be linked to community development and ecotourism.

Recent research by scientists from WII and BNHS clearly indicate extinction of GIB in the near future if human population growth and the pressures on its habitat continue. Captive breeding is a way to ensure that it does not become extinct. There is a popular misconception that captive breeding of bustards is difficult. Related species, such as the Australian Bustard *Ardeotis australis* and Kori Bustard *Ardeotis kori* have been successfully bred. During the last 20 years, in Rollapadu, three GIB chicks have been raised successfully in captivity. Similarly, large-scale captive breeding of the Houbara Bustard *Chlamydotis undulata* is ongoing in the Middle East countries. Previous (unscientific) attempts at captive breeding GIB may have failed, but with experts in charge of the breeding programme, the result could be reversed.





NIRAV BHATT

Community participation has greatly benefitted the future of the Lesser Florican



DHIRTIMAN MUKHERJEE

Modern technology can help reveal unknown aspects of the Bengal Florican thereby ensuring better conservation efforts

## Lesser Florican: Black pearl of Indian grasslands

The Lesser Florican was once one of the most common game birds of our grasslands extending from Sindh to Tamil Nadu, and from Gujarat to West Bengal. Tremendous hunting pressure brought down its numbers and today less than 2,500 birds survive in the wild. It is one of the most endangered birds of India. It breeds exclusively in semi-arid, undisturbed grasslands (and sometimes in pseudo-grasslands, i.e., fields or at the borders of fields with short-statured crops) during monsoon. Currently the majority of the breeding population is confined to Rajasthan, Gujarat, Madhya Pradesh and northern Maharashtra. It winters over a vast landscape of south-western India and nothing is known regarding its movement and wintering ecology. Threat of destruction exists for both its breeding and wintering habitat.

The Lesser Florican is not confined to protected areas and is known to change its breeding site according to the monsoon pattern of the region. This unpredictability of movement makes it difficult to limit the boundaries of its protected area. If we can create a network of fodder producing grasslands throughout the Lesser Florican's breeding range, it will ensure fodder for livestock as well as provide optimal breeding habitats for the Lesser Florican and other associated species. Certain community practices if modified would serve the Florican with a better habitat, e.g., delayed grass cutting till breeding is completed or leaving a small patch of the grassland uncut for sheltering pre-fledged chicks. All the grasslands under the control of local communities (e.g. *vidis* and *bbeeds*) need to be protected with active involvement of the locals. An interesting initiative by 'Samvedana', a local NGO, can be seen in the Vidarbha region of Maharashtra, where a well-known hunting tribe – the Paradhi – is now engaged in the conservation of the Lesser Florican's breeding population here. Such examples show that community participation in wildlife conservation can be successful even in the absence of the Forest Department.

## Bengal Florican: Dark and illusive

A bird of the tall terai grasslands of Nepal and northern India (mainly Uttar Pradesh) and the Brahmaputra Valley (Assam and lower Arunachal Pradesh), its number has declined everywhere because of disappearing grasslands, except in protected areas such as Dudhwa National Park in Uttar Pradesh, Jaldapara in West Bengal, Manas, Kaziranga and Orang in Assam, and D'Ering Sanctuary in Arunachal Pradesh. The Bengal Florican has benefited by the conservation of more conspicuous species, such as the One-horned Indian Rhinoceros, Tiger, Swamp Deer, Asian Elephant, Pygmy Hog, Hispid Hare, and Wild Buffalo, as its habitat also gets protected. Its population is estimated at less than 400





Grasslands and dry open areas have been neglected for long, and this trend needs to be reversed before we reach the point of no return

individuals in the Indian subcontinent, with about 150-200 birds in Assam. Monitoring of population over many years shows that habitat management and protection from poaching plays a significant role in its conservation. The Bengal Florican spends about six to seven months in its breeding ground and its ecological requirements are crucial for survival during this period. It must be left undisturbed during courtship and nesting. Harrowing and ploughing of grasslands are detrimental for its survival and practised clearance regimes (controlled burning, thatch collection, or grazing either by wild ungulates or domestic cattle) in florican habitat should be completed before the males establish display territories. The development of grasslands and their proper utilization can greatly benefit rural communities if these are protected for cultivating thatch and fodder grass, while the Bengal Florican would be left undisturbed during the breeding season. Continuing research and population monitoring, preferably using modern techniques such as radio-telemetry are essential to know more about the species and help ensure its long-term survival.

### The road ahead

Though a good programme begins with good planning, its success lies in sincere implementation. We can overcome major limitations in our current conservation paradigm through these recovery programmes provided they are taken up as a national mission; this calls for sincere commitment and hard work. It is not just about saving bustards, but looking at the conservation movement from a new perspective. Conventional practices will not help in conserving India's wildlife and biodiversity, 40 per cent of which lies outside

Protected Areas. Considering the recent development driven land-use changes in our country, a landscape level approach is the need of the hour. Additionally, conserving a huge array of threatened species in their natural environment is possible only if we have bird's eye view of their existence at a landscape level, unlike the current conservation scenario which is single species centric. The Bustard and Floricans Recovery Programmes provide a great opportunity to undertake such comprehensive approaches with a long-term perspective. ■

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Dr. Pramod Patil is currently pursuing his MD degree from Bharati Vidyapeeth Medical College in Pune. He also works on conservation issues related to the Great Indian Bustard and grasslands in Maharashtra.



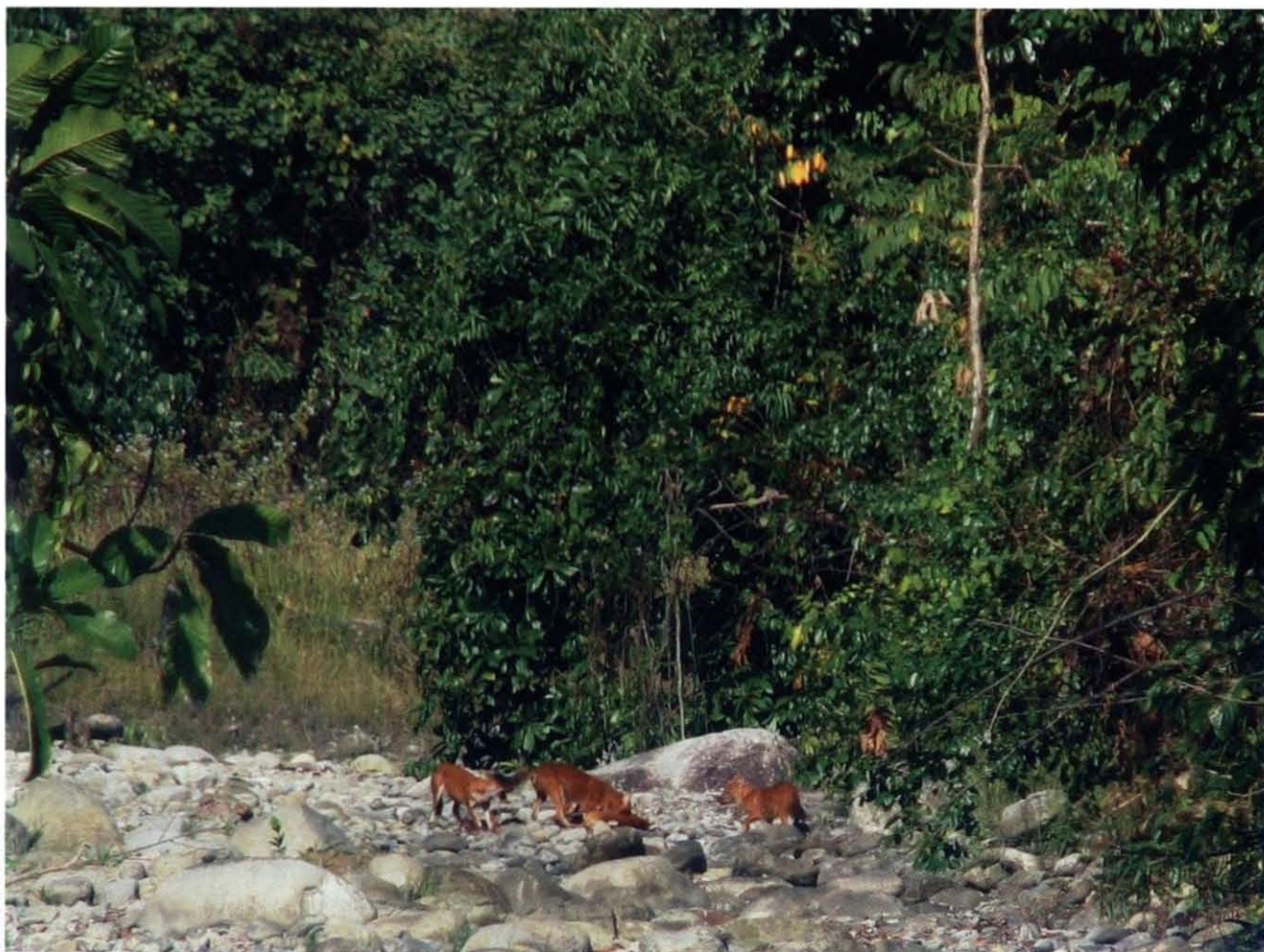
# Wild Dogs v/s People of Pakke

Text: Salvador Lyngdoh

I first arrived at Seijosa, a tiny speck on the border of Assam, at the peak of monsoon. While trying to keep my head still (it wasn't exactly a magic carpet ride), as I gazed out of the car window, I could see from a distance a blue haze over the enchanting mountains of Arunachal Pradesh. To my left were two sign boards, one for 'Welcome' the other 'Pakhui Tiger Reserve'. We stopped at the checkgate; this point marked our ascent into Arunachal Pradesh, the hornbill state, and end of the Brahmaputra valley of Assam. An eerie silence filled the place. It was a much awaited

change from the Wildlife Institute of India (WII) campus back in Dehradun. Needless to say, I wanted to set foot as soon as possible into this dense tropical evergreen forest.

Before entering the boundaries of the Reserve, I had my first glimpse of the shimmering Pakke river cruising through the green hills. My eyes followed the river but lost sight of it as it meandered between the hills. Pakke Tiger Reserve (PTR), a name derived from the Pakke river circumscribing it on the east and Kameng river on the west, is a relatively new tiger reserve.



A pack of wild dogs enjoying a kill

SALVADOR LYNGDOH





A victim of man-animal conflict, this beautiful red dog needs to be free of the tag of 'social pest'

I was here with my colleagues to study the status of the Indian wild dog *Cuon alpinus* in the western part of Arunachal Pradesh (AP). We chose PTR located within the eastern biodiversity hotspots, as it is one of the source populations and the eastern-most limit for the Indian Wild Dog, as well as the tiger.

#### Have all dogs gone to heaven?

The Indian Wild Dog or red dog or dhole or *sacha*, as the local Nyishi call it, is on its decline. The IUCN reported in 2008 fewer than 2,500 mature wild individuals. India has a few central and southern landscapes have good wild dog population. In Arunachal Pradesh, their image is that of a vile beast that predates on *Bos frontalis*, a highly valued animal of the state.

This social carnivore probably has 11 subspecies out of which four are speculated to occur in AP. According to literature this might be a region where two haplotypes meet. Dholes play an important role of regulating ecosystem functions. Sadly their status, especially in AP, remains no greater than that of a pest. Due to recent efforts of the Forest Department, PTR is probably one of the last refuges for this beautiful whistling hunter, as well as other large mammals.

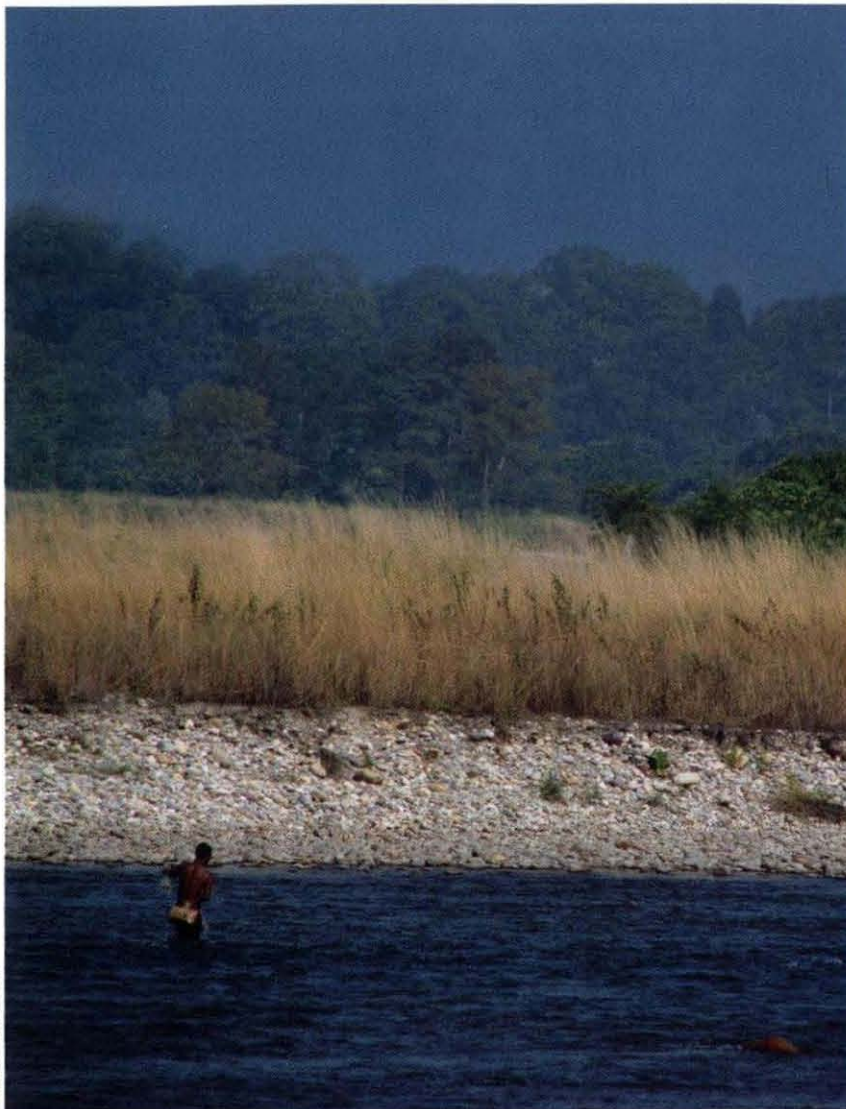
The Indian Wild Dog is a shy canid, wary even of the slightest smell of humans. As we descended from a curve armed with our backpacks, binoculars and cameras, we chanced upon a strange red creature – a wild dog – smaller than expected. At first I saw one glaring at us, and then another galloped from the

right and another pushed its way right through a bush. As I stumbled to take a shot, they bounced off into the thick undercover. Our camera traps were later more successful in capturing a couple of wild dogs every ten days.

The locals believe that there are two kinds of wild dogs here. The difference between the two lay in their body size. Larger ones are usually seen to be solitary or moving with smaller groups and vice-versa. Similar observations have been made by naturalists from Sikkim, before Independence.

Tigers, leopards and wild dog are the top predators in this forest. Their existence governs much of the forest dynamics here. A good number survive in PTR due to abundance of prey. Moreover, it serves as a refuge from





SALVADOR LYNGDOH

Pakke Tiger Reserve has got its name from River Pakke circumscribing it on the east



SALVADOR LYNGDOH

The rare and elusive Golden Cat at Pakke Tiger Reserve

persecution by the nearby village folk. Interestingly, not a single case of wild dog depredation has been recorded by the Forest department, since 2006, from the southern sides, but it is not so for villages from northern parts. Near Seijosa, ten cases of cattle lifting by tigers and leopards were reported, however, the locals disagree; they believe that it was the Wild Dog. Compensation schemes are mostly cumbersome, as to prove their claim photographic evidence or any other proof is required, which on a number of occasions are hard to get. The locals, therefore, resort to retaliation.

### Walkabouts under the canopy

The rich forests of Pakke, which were exploited for non-timber forest products until 1989, support a variety of fauna. They teem with wild animals like elephants, deer, civets, and other small rare cats like the Golden Cat and Marbled Cat.

Anti-poaching efforts have secured Nameri's vast openness, which has become ideal for wild elephants and other animals alike. The expansive river beds, impossible to cross in most of the summer and monsoon months, become their playground. Gaurs are common in Chiryapung, a marshy bend on the side of Nameri river. Dinai and Diji are excellent for scanning wildlife in the morning and evening hours. Almost often one can see fresh pugmarks of a tiger that may have crossed early in the morning or the previous night.

### Patient future

Our camera traps have revealed the presence of wild dogs, and other rare and elusive species like the Golden Cat. The remoteness and inaccessibility of the area provides shelter, as well as danger to wildlife. Retaliatory hunting of wild dogs by locals, one of the major reasons for their decline, is rampant. It



is likely that one out of ten villagers has hunted even large predators, such as tiger and leopard. Wildlife here faces a double-edged sword – habitat loss and hunting. Many local people believe in their right to hunt and observe local customs. A mix of both old and new influences has led to hunting for pleasure as well as profit. When I asked a local about his future if he continued this way, he replied with a smile “... We are hill people, and this is our way...”

Insurgency in the neighbouring state has crippled growth and communication for the people of Pakke who have come a long way in the last 10 years due to active crusading by the park staff, though much still needs to be done. Through their efforts, locals have committed to not hunt, but more protection is needed, coupled with long-term sustainable incentives and alternatives for the



Marbled Cat skin at Pakke Tiger Reserve

SALVADOR LYNGDOH

locals. The Wild Dog is a victim of these conflicts as are the other wild animals. The tag of ‘a social pest’ still remains to be lifted from its head. This beautiful red dog, without it, any jungle of India would be called empty and it needs another chance. ■



Salvador Lyngdoh is a Ph.D. Scholar at the Wildlife Institute of India.

**ABOUT THE POSTER**



BHAVYA JOSHI

Pheasant-tailed Jacana *Hydrophasianus chirurgus*

The Pheasant-tailed Jacana in breeding plumage is a striking white and chocolate-brown rail-like marsh bird with enormous spidery toes and pointed sickle-shaped pheasant tail. It is known to breed in the plains during the SW monsoon, principally June to September and in Kashmir from about 2<sup>nd</sup> week of May into July. The nest is an insignificant skimpy pad or raft of grass or weed stems freely floating or resting on partly submerged vegetation. Sometimes the eggs are laid directly on water-lily or water hyacinth leaves.

The larger female is polyandrous. The male acquires territory in rivalry with other males which the female later helps to defend vigorously while her liaison with the owner lasts. The male is known to rear two, sometimes three families in a season. How many clutches a female lays in a season is unknown.

We are grateful to

**RISHAD NAOROJI**

for a generous donation to the  
*Kekoo Naoroji Memorial Fund*  
to support the publication of *Hornbill*



Pheasant-tailed Jacana  
*Hydrophasianus chirurgus*







Source: Birds of an Indian Garden

# Brood Parasitism: Yours, Mine and 'Ours'!

A Common Hawk-Cuckoo (*Hierococcyx varius*), popularly known as the Brainfever Bird, removing the eggs of a babbler species, after which it will lay its similar-looking eggs for the babblers to incubate and raise the chicks on her behalf.

Text: Ranjit Manakadan

Photographs: S. Rudraprakash

**B**rood-parasite refers to species that dupe other species to raise their young by laying eggs in the nests of the intended foster parents. Interspecific brood-parasites in birds include the Old World cuckoos in Eurasia and Australia, cowbirds and Black-headed Duck (*Heteronetta atricapilla*) in the Americas, and indigobirds, whydahs and the honeyguides in Africa. Most avian brood parasites are specialists that will only parasitize a single host species or a small group of closely related host species. Other than the well-known case of Koel-Crow relationship in India, the other cases of interspecific brood-parasitism that I witnessed are instances of the Pied Crested Cuckoo *Clamator jacobinus* and Common Hawk-Cuckoo *Hierococcyx varius* being cared for by Pale-headed Babbler *Turdoides affinis* – both cases in the Point Calimere Wildlife Sanctuary, Tamil Nadu.

My article on the House Crow *Corvus splendens*, along with a smaller write-up on its brood-parasitism relationship with the Asian Koel *Eudynamys scolopaceus*, was published in the March 18, 2012, Tamil Nadu and Kerala editions of *The Hindu*. The articles were quite popular, judging from the flood of responses received over email.

Among the readers was Mr. S. Rudraprakash, who sent some photographs of a pair of House Crows with Asian Koel nestlings in their nest. Mr. Rudraprakash informed me that he photographed the nestlings during the middle of 2010 from the third floor of his apartment in Chennai, the activity causing no disturbance to the birds due to the distance (two floors above the nest) from which they were photographed. The location of the nest on the top canopy of the tree, without any obstructing branches, granted a perfect bird's eye view shot without much effort.

Other than these crystal-clear pictures showing brood-parasitism between the two species, what interested me was the nest-tree, namely a Yellow Oleander (*Thevetia peruviana*). All the nests I had noticed till then were in trees (small or large ones), but never shrubs. I was wondering whether it was due to scarcity of trees in the area and enquired from Mr. Rudraprakash. He replied that the Yellow Oleander was not a shrub but a small tree, and on accessing Google, I learnt that the species grows up to seven metres.

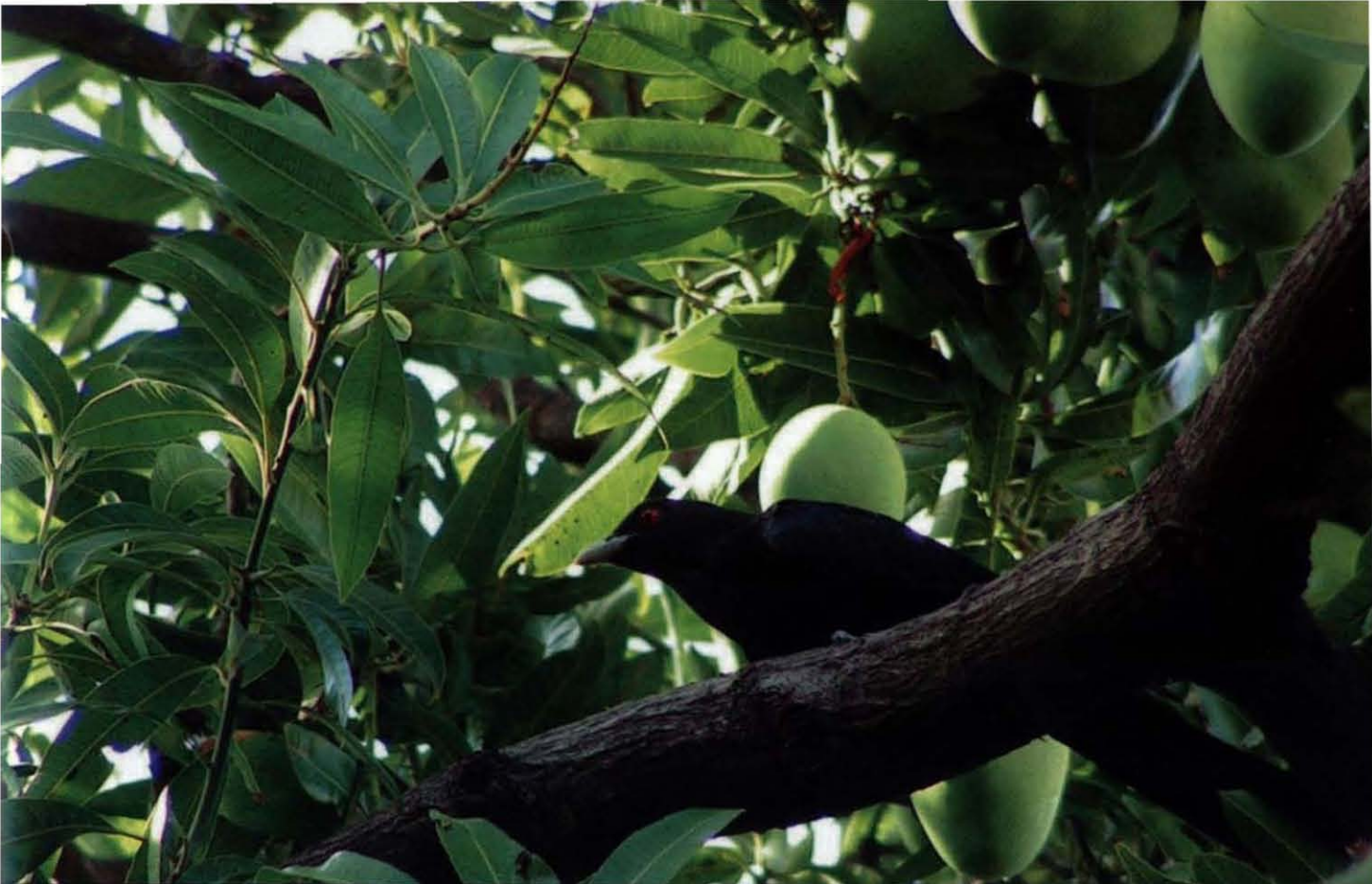


Ranjit Manakadan has been working with the BNHS since the early 1980s. He is presently an Assistant Director at the Society.



S. Rudraprakash is an agriculture graduate. He was a planter and is now producing hybrid seeds. He loves nature and indulges wholesomely in it; camera happy.





The Asian Koel is a truant parent, and to ensure the survival of its kind takes the role of a brood parasite of the House Crow. The female Koel slyly approaches the unguarded nest of the House Crow, lays its eggs in it, and slips away. It is also said that the male Koel (photo above, the female is spotted) may play a helpful role by distracting the House Crow from the nest to aid the female to lay her eggs.



The young that hatch are cared for by the gullible foster parents and escape from the scene as soon as they can take care of themselves. The Koel is also reported to use the Jungle Crow as its foster parent in some areas, and there are also rare reports of it conning oriole and drongo species. Starling and mynas are their victims in Malaysia.





The House Crow comes under the genus *Corvus* comprising rooks, crows and ravens. Corvids are placed at the highest pinnacle of the bird classification order, not surprising considering their known intelligence. However, even smart guys get duped, and for the House Crow, it is by the Asian Koel. See the pitiable case of the poor parents in the photo who are fooled into thinking that the young of the Koel are their very own. One of the young in the picture is a male (black) and the other is a female (spotted).



To end on a happy note – for the House Crow – while posted in the Point Calimere Wildlife Sanctuary in the 1980s, I was surprised to learn that the Asian Koel was a preferred bird 'for the pot'. Trapping was done by the tribals. The ingenuous trap was a simple shallow basket made of climber species with a circle of nylon nooses laid off its centre. The trap would be tied-up in the trees with fruit (usually papaya) placed in the centre of the contraption. A Koel that came to eat the fruit would get either its neck or leg entangled in the noose. The unfortunate bird would be removed, and the trap set for the next bird. The House Crows of Point Calimere must be a much happier and less harassed lot!

I guess with our living quarters getting higher as we shift to apartments, such overhead pictures could become more common in the future. Moreover, pursuing a doctoral thesis on the House Crow-Asian Koel relationship would become much easier and done from the comfort of one's home, and especially with remote controlled cameras becoming common and much cheaper. A search on the internet showed that this is already happening - check the film on YouTube uploaded by Major George C. Maliakal (Retd), shot over a mango tree in his backyard using a remote controlled camera. The film has a commentary and subtitles providing details of all the happenings, recorded from the day of hatching till the birds fledged. Let us hope that with these and more intensive studies covering more nests in different areas, the full story of the Koel-Crow drama will be revealed.





## **FOR BETTER TOMORROW SAVE AND PROTECT THREATENED SPECIES**



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## John Gould – The Man and his Art

John Gould had acquired celebrity status several years before the BNHS was established. It was therefore natural that the BNHS would, in due course, acquire Gould's books for their reference library. Though the Society has used Gould's paintings to good effect both for conservation education and motivational purposes of the Indian public at large, there perhaps was no textual attempt to understand the 'Man' and his single-minded focus on bird-art. So here is a modest attempt, in the nature of a brief biographical note.

When John Gould passed away on February 3, 1881, at age 76, he was the undisputed illustrator and publisher of the most magnificent extant art-work on birds ever created: 15 definitive books and 16 significant monographs with about 3,000 full-page plates in colour, covering birds of Australia, Pacific Islands, Asia, Himalaya, Europe, Great Britain and the Americas. All his books carried full-page illustrations of a bird with such vibrant colours and so incredibly life-like that they could fly off the page, as it were! And each book casts a spell on the viewer similar to what a believer experiences the first time, on beholding whatever be his Mecca!

On the sidelines, when he once momentarily broke free from birds, his two publications on mammals (*A MONOGRAPH ON KANGAROOS* and the more definitive *THE MAMMALS OF AUSTRALIA*) were received with equal acclaim. John Gould was also among the greatest of pioneers of taxidermy. Besides, he was such an extraordinary collector that his Humming Birds aviary alone accounted for 5,378 specimens.

Writing John Gould's biography, *THE BIRD MAN*, with 200 years detachment, Isabella Tree's narrative holds interest right up to the last word. She refrains from passing judgements, but with access to monumental research material of the times, she uses John Gould's contemporaries, employees, peers and family to do the speaking. The result is a self-made, rounded man, warts and all; part intuitive genius and a devoted husband, but mostly a primed work-engine who could

disassociate from the home for months without any regrets. Gould was a conscientious and doting father too where providing comforts of home were concerned, but he could never bridge the gap between conventional paternity and close intimacy with his children.

He had an uncanny eye for spotting the right talent to work with, as his assistants. The trio comprising Edward Lear, H.C. Richter and William Hart accounted for perhaps 70% of Gould's celebrated, published work, yet they died in obscurity. The balance 30% of the Gould heritage was the creation of his wife Elizabeth, but even in this, Edward Lear was the inspiration and guide. Lear motivated her to introduce the nuances of fluidity in the character of her objects as also to perch them on branches, surrounded by representative foliage and a background, suggestive of delicate mist or clouds, lending an overall enhanced aesthetical, artistic appeal. Gould did pay them more than the time but worked them down to the bone, and did not acknowledge their talent in any narrative. Admittedly, none could match him then or now in our times in running the publishing business, both for superlative quality and mind boggling output. Though affable, he had no friends among his peers, instead he successfully cultivated plenty of steadfast patrons from among aristocracy and royalty in Europe, and rich art benefactors in the USA.

Much as he was proud and happy with his professional attainments, his personal life was terribly sad. Behind the scenes, Elizabeth was the bed-rock both of his business and home, and among his very best bird artists and painters. When she passed away at age 37, and just twelve years in marriage, she had borne him eight children and contributed close to 500 outstanding coloured plates and over 600 drawings to Gould's published works. The strain of interminable child bearing and a punishing work schedule, simply wore her down. John Gould was devastated at her demise. A lesser man may have slowed down, but not John Gould; he held his chin up, assumed Elizabeth's place as best he could with the children and kept up publishing with even greater vigour.

When his eldest son passed away in his prime in India with cholera, John Gould stumbled, but steadied himself yet again. When cruel fate felled his third son, also in the prime of youth, it was a blow too severe even for this indomitable spirit. Notwithstanding, he conceived the book, *A MONOGRAPH OF THE PITIIDAE*, of which Part I got published barely months before his own death.

Till I read John Gould's biography by Isabella Tree about a decade ago, I did not know that his skills of sketching and painting were so mediocre that not a single one of his own handiwork merited inclusion in any of his publications. However, his knowledge of the living bird was so acute that of the over 3,000 plates he published in his life-time, the proof



Blyth's Tragopan  
Painted by Joseph Wolf



copy of each carries in Gould's hand elaborate corrections, criticism, suggestions and directions to his artists for affecting appropriate improvements. And that process would be repeated till he was satisfied with the natural authenticity of the visual image, at which stage alone he would assign the letter-press to the finished plate.

Much as he loved all species of birds, the ones that possessed him the most were the Humming Birds. Yet, paradoxically he never saw one alive till well after he had published comprehensively on them! Finally, he did visit the Americas expressly to see and study them in their natural environment.

There is little doubt that above all else in nature, John Gould loved birds the most. Yet he would not hesitate from acquiring a specimen, even at the cost of risking the extinction of the species, driven solely by the imperatives of science and the lure of his business, to add a hitherto unseen plate in a forthcoming book. This impulse shows up so starkly when in the Australian bush he shot the male of a new species of raptor. He knew full well that it was a highly endangered species and yet, the following day he added the female of the species too, along with the nest and eggs that she was incubating. It was perhaps for such crass business-driven impulses that the prestigious British Ornithologists Union

(BOU) did not accord him membership. The BOU were cognizant that Gould had established claims to the discovery of over two score new species of birds and mammals, and that some of his field observations and inferences had helped Charles Darwin with the Theory of Natural Selection. The BOU even had several papers of John Gould published in *The Ibis*, but they would not condone transgression of the ethical line between science and business. What further isolated John Gould, both from the academia and birders, was his deliberate aloofness from the decade old movement in the UK that culminated in the legislation of The Bird Protection Act, in 1880. John Gould was too shrewd not to have realized that the antagonists of the bird conservation movement were the Grouse and Pheasant shooting aristocracy, who were the patrons of his art-work.

So understandably, where the new generation of lay and professional ornithologists were concerned, Gould remained essentially an outstanding illustrator and publisher of birds. However, John Gould would contest that verdict even from his grave, leaving behind an epitaph to read: "Here lies John Gould, the Bird Man".

Lt. Gen. (Retd) Baljit Singh  
Chandigarh

### Spot-billed Duck feeding on grains!

Spot-billed Duck is a bird of freshwater lakes and marshes seen in fairly open country, and known to feed by dabbling for plant food.

In India, it is a practice of some individuals to spread grains for birds such as Blue Rock Pigeon, Laughing Dove, Eurasian Collared-Dove, Red Collared-Dove, Common Myna, Bank Myna, Common Babbler and House Sparrow.

On March 4, 2012, early in the morning, at Kankeshwar temple near Ratnal, Bhuj, Gujarat, I saw a group of 12-15 Spot-billed Duck feeding on grains with a flock of Blue Rock Pigeon.

Surprised with this strange behaviour I looked for the ducks on my next visit, a few days later; this time I observed a group of Ruff feeding with the Rock Pigeons!

The area where the Spot-billed Duck were feeding on grains was near a freshwater marsh and a number of water birds, like cormorants, herons, egrets, Ruff, Eurasian Spoonbill, Oriental Darter, Indian Pond-Heron, were also observed.

I have seen photographs of Black-headed Ibis feeding on bajra roti and bread at Porbandar with pigeons. Does such behaviour indicate inadequate food supply or changing feeding habits?

Jaysukh Parekh  
Bhuj





## Butterflies of Mumbai

by Nelson Rodrigues, 2012  
 Published by: Anitha Art Printers, Mumbai  
 Size: 20 cm x 13 cm, 199 pp.  
 Price: Not mentioned.  
 Paperback.



Reviewed by: **Amol P. Patwardhan**

I have known Nelson since 2005 when we were together for a Butterfly India Meet in Aralam Wildlife Sanctuary (WLS). He is crazy about butterflies; I quote just two instances that more-or-less prove his craze. The first instance is from Aralam WLS; one morning we were chasing the Nigger butterfly along the periphery of the Sanctuary that is electric fenced to avoid conflict with elephants. During this chase Nelson accidentally touched the fence and the next moment he was lying five feet away on his back, smiling. He did, finally, manage to photograph the butterfly. The second incident occurred in Namdapha National Park. He was so engrossed in the butterflies that he stepped into quicksand. Luckily I was around to help him out. This book, his work of labour, is hard-earned. Jokes apart, the book has shaped up nice and tidy.

The cover of this book is interesting, the UV laminated photograph of the Common Jezebel, Common Bluebottle and Black Rajah appear distinct. The black border to these photos is printed in sand paper texture. This, according to the author, helps to grip the book in the field.

The book is truly a one of its kind field guide. The butterflies are placed according to their colour and not in their taxonomic hierarchy, i.e., if one sees a yellow butterfly the yellow section in the book should be referred to. However, the closed book does not guide the reader to a particular colour section. This can be incorporated in the next edition. Every section starts with a quote on butterflies by a well-known author. The photos inside are big enough to identify the species.

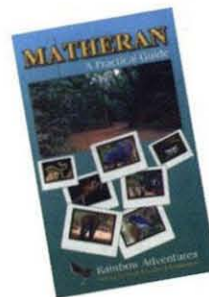
The first 32 pages contain a foreword by Isaac Kehimkar, preface, acknowledgements, anatomy and life cycle of a butterfly, butterfly families, and how to use this book. There is a separate section on Frequently Answered Questions where common questions about butterflies have been answered supplemented by photographs.

To identify butterflies their upper side, underside, male, female, wet season form, dry season form are essential, this book contains all except the dry season form. Photos of male and female are given wherever the sexes are sexually dimorphic. For the first time, we have a book with images of 103 caterpillars.

A total of 410 photographs, by 34 photographers including the author, in 199 pages makes this concise book a collector's item, and of course a valuable addition to the library of a butterfly enthusiast. 📖

## Matheran – A Practical Guide

by Shailendra Patil, Sunil Patil and Yogesh Chavan, 2012  
 Published by: Rainbow Groups for Rainbow Adventures, Mumbai  
 Size: 21 cm x 14.4 cm, 110 pp.  
 Price: Rs. 380/-.  
 Paperback.



Reviewed by: **V. Shubhalaxmi**

A concise and pictorial guide to Matheran was the need of the hour for the thousands of tourists who visit Matheran annually. A significant feature of this book is that it has been written by practical authors, hence, the scientific jargon is restricted. The authors being regular trekkers to Matheran, have addressed the common problems of the visitor. They have painstakingly prepared a detailed map of Matheran, which includes important tourist points, markets, hospital, etc. The map is unique as it depicts for the first time the northern, southern and central Matheran.

The content consists of a number of themes, which include details for recreational activities, accommodation and travel facilities, dining places and a range of places to visit. The book also covers the local history, communities and culture, and environmental activities carried out in the region. This book sets itself apart from other tour guides by including information on local flora and fauna, covered in 19 colour plates. The GPS co-ordinates provided for each point gives a technological edge to this book as most smart phone users have GPS navigation, thus making their journey hassle free. The book also lists important telephone numbers, train timings and transport charges that come handy when planning an itinerary. The important practical tips given by the authors speak about their own field experience in the region. I specially liked the segment where they ask tourists to wave their hand to a passing train as a gesture of fun.

On the downside, the book suffers from an improper layout. The language is poor. The authors need to place chapter-wise content coherently in order to improve on clarity. The plates depicting the flora and fauna could have been numbered. In the checklist of flora, the Latin names could have been avoided as no other section provides these. The size of the photographs being small they fail to do justice to the subject captured by the photographer. The book is expensive and should have been priced not more than Rs. 200/-. From the list of hotels it is not clear whether the authors are recommending them to the visitors or these names got listed because they are advertised at the end of the book. The authors can address these issues in the next reprint.

Overall a good book and highly recommended for tourists visiting Matheran. 📖



**Birding in the Doon Valley**

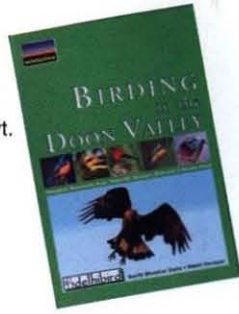
by Suniti Bhushan Datta and  
Nikhil Devasar, 2012

Published by: Winterline Publishing Pvt.  
Ltd., Mussoorie.

Size: 21 x 4 cm. 200 pp.

Price not stated.

Paperback.



Reviewed by: **Asad R. Rahmani**

Whenever I read *Birds*, the popular magazine of the Royal Society for the Protection of Birds (RSPB), a U.K. based bird conservation organisation with more than a million members, I envy the birdwatchers of U.K., Europe and developed countries for the number of regional and district level bird books that they have. Thanks to the popularity of birdwatching, producing bird books is a growing industry – there is so much demand. Writing bird books and illustrating them is now a full-time and well-paid job for many. In U.K., birdwatching is the second most popular hobby, after gardening, and for fanatic birdwatchers it has reached cult status. There are bird books on each part of the country, each habitat type, each protected area, and each RSPB reserve. Selling thousands of copies of a bird book is not unusual as there are enough buyers. We in India have a long way to go, but the book *BIRDING IN THE DOON VALLEY* shows that we are going in the right direction.

This book shows that the authors, both eminent birdwatchers, and the publisher, Winterline, are confident that there will be a sufficient number of buyers to make this book commercially viable. Looking at the high standard of the text and pictures, and general quality of production, I am sure this book will sell very well and soon there will be another print run.

As the name indicates, the book covers only a small area of the Western Himalaya and sub-Himalaya, but it is an area visited by a large number of tourists. Dehradun, the capital of Uttarakhand, has the unique distinction of having some of our most venerable research institutes, such as the Forest Research Institute, Wildlife Institute of India, Zoological and Botanical Surveys of India, Wadia Institute, and various

famous schools in the Valley and in Mussoorie. The famous Rajaji National Park and Asan Barrage are top class birdwatching areas.

*BIRDING IN THE DOON VALLEY* describes 17 birding areas in and around Doon Valley. Each site has a brief description of the habitat, the birds that one can expect, best time to go, route to take and even hotels (*dhabas*) where to get “hot tea and *parathas*”. The maps are of excellent quality, like the text. Highlights of the place are given as stand-alone box items. For example, the box items ‘The Elusive Goldeneye in Asan’ (p. 12) or ‘Snowbirds in Dhanaulti’ (p. 44) are a delight to read. Picture quality is also very high. I was told that most of the bird pictures were taken in the Doon Valley, so we can be assured that subspecific differences, if any, have been taken care of.

After the description of birding areas in about 70 pages, the book has a species guide covering 200 species. For each species, tips are given on where to see the bird and in which season. Besides the unmistakable picture of a species, there is also a brief description that is very useful for beginners. Most of the photographs are by Nikhil Devasar who has made a name for himself in bird photography in India, with additional pictures by Santanu Sarkar, Suniti Bhushan Datta, Tenzin Jamchen and Tenzin Dophen. Unfortunately, the name of the photographer is not given beside the picture, so we do not know which picture is by whom. If there is sexual plumage dimorphism in a species, the female is shown in an inset. This will greatly benefit beginners and amateurs who may not have access to other bird books. Glossary of technical terms (pp. 179-180), Guide to Binoculars (pp. 181-182), and Popular Bird Guides (Pp. 183) give additional information to popularise birdwatching. Full Regional BirdLife (504 species, pp. 187-196) further enhances the value of this book.

Although it is an area-specific book, I recommend all birdwatchers to get a copy, and work in their respective areas to bring out similar books. India’s birdwatching, which remains in infancy at present, will come to age when we have similar books for all regions of India. At present, we do not even have state-wise bird guides. We have a long way to go, but Datta and Devasar have shown us the path. 🐦

We are grateful to

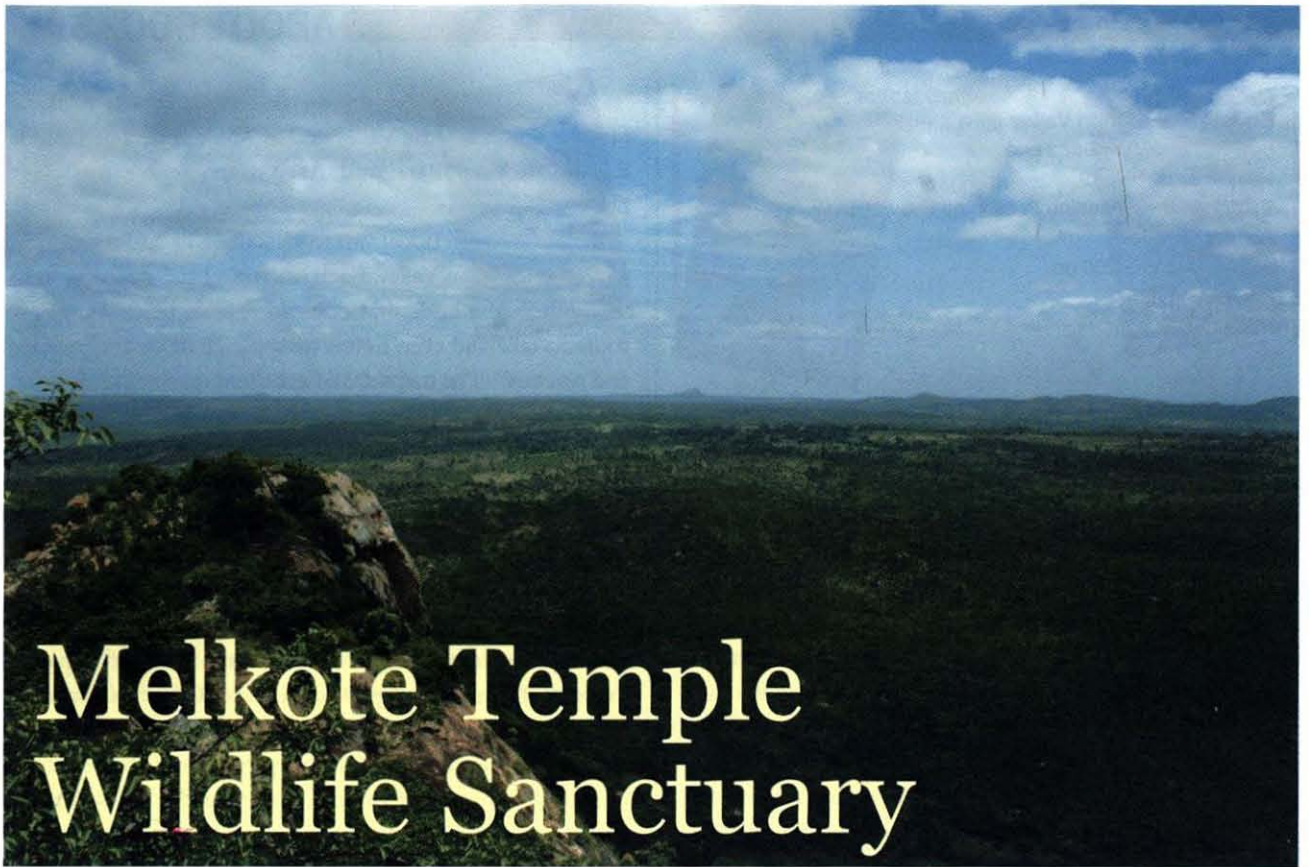
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# Melkote Temple Wildlife Sanctuary



GOUTHAM

Presence of the Yellow-throated Bulbul was instrumental in declaring the area as an IBA

Text: Sumanas Koulagi

**M**elkote Temple Wildlife Sanctuary (49.82 sq. km), situated in Mandya district of Karnataka, was declared a sanctuary in 1974, especially to protect the habitat of the Grey Wolf *Canis lupus pallipes*.

The Sanctuary is a part of the Mysore plateau or South Karnataka plateau, which is highly undulated and is bounded on the west and south by the Western Ghats. It constitutes the easternmost edge of the Southern Western Ghats and joins Biligirirangan (BR) Hills. The extension of the BR Hills to the east forms a continuous geographical link between the Western Ghats and Eastern Ghats, and perhaps facilitates the migration and mixing of the natural biotic elements of the Western Ghats with those of the Eastern Ghats. Hence, we can see unique vegetation in the region that represents both the Western and Eastern Ghats. Tropical Dry Scrub forest dominates the Sanctuary area.

Melkote Temple Wildlife Sanctuary has been known for its once abundant species – *Cycas circinalis*, which in recent times has been over-exploited for floriculture, traditional medicine and as a pest repellent in livestock. Cycads are the most primitive of plants with a fossil history dating back to the Permian and possibly the Carboniferous period. They are regarded popularly as ‘living fossils’ and play an important role in the study of evolution. Cycads are the bridge between



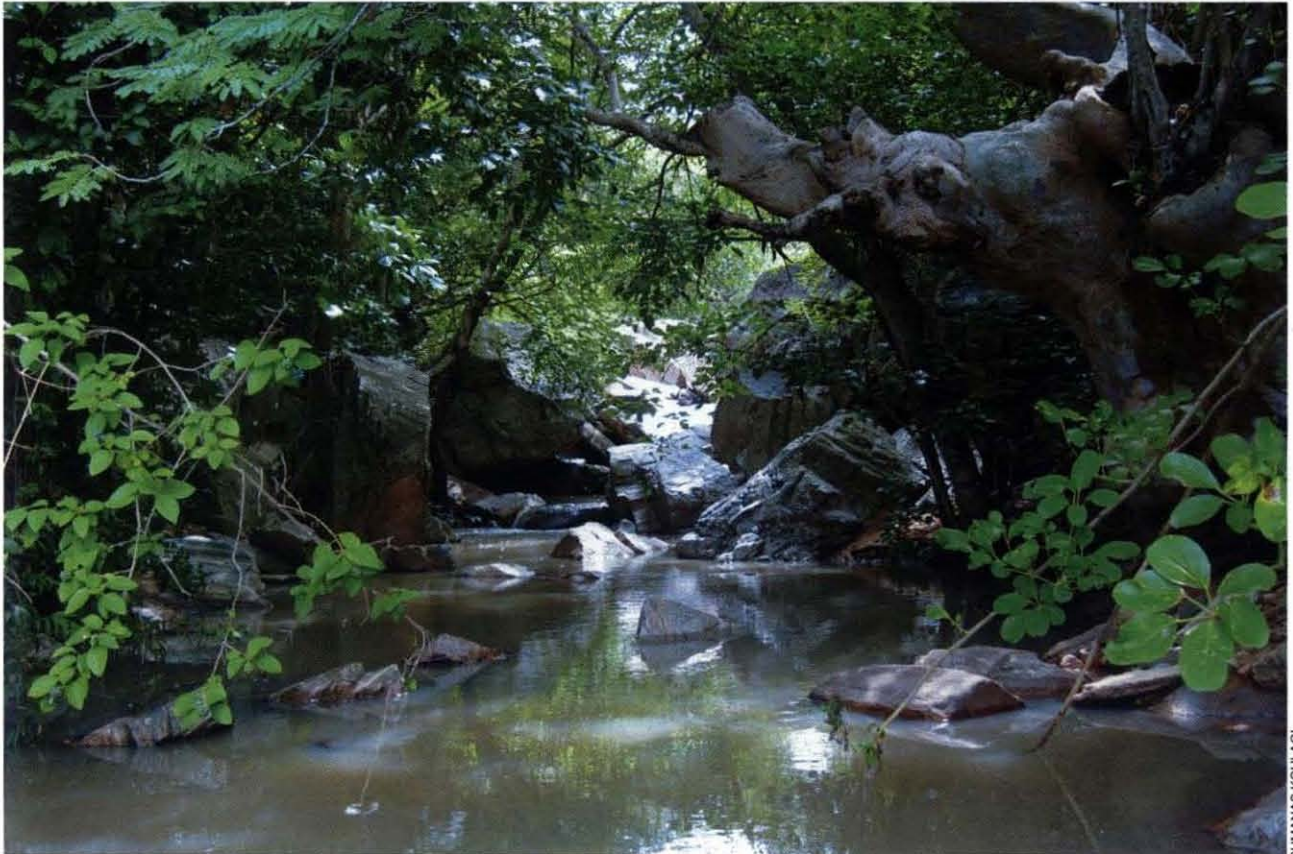
Pteridophytes and Angiosperms. They are seed plants, typically characterized by a stout and woody trunk with a crown of large, hard and stiff, pinnately compound (usually) evergreen leaves. They are dioecious. Cycads vary in size from having a trunk that is only a few centimetres tall to trunks up to several metres tall. They typically grow slowly and live a long life, with some specimens known to be up to 1,000 years old!

Besides Cycads, the rocky terrain of the Sanctuary has a good population of Yellow Silk Cotton *Cochlospermum religiosum*. During the flowering season, the whole tree is covered with beautiful yellow flowers. The tree's seeds are embedded in the silky cotton contained in its five-segmented capsule. The endangered Taloor Lac *Shorea roxburghii* is found around the Narayandurga and Mudibetta hillocks. These large trees exist sporadically within the Sanctuary, but are found commonly in valleys where there is moisture. The tree density in the area is decreasing due to logging and collection of resin. Ceylon Satinwood *Chloroxylon swietenia* trees are found on the rocky hillocks of the Sanctuary. This medium-sized hardwood deciduous tree is used for small luxury items and as a veneer in wooden furniture. It is one of the best known satinwoods. Many important threatened plant species like *Terminalia chebula*, *Anogeissus latifolia*, *Santalum album*, *Pterocarpus marsupium*, *Canthium dicoccum* are also present in the area.



SUMANAS KOULAGI

Popularly known as 'living fossils' cycads play an important role in evolution



SUMANAS KOULAGI

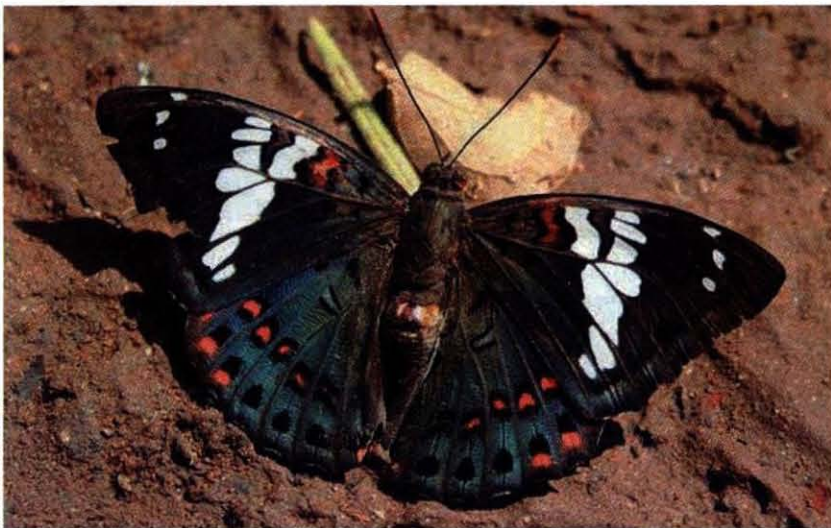
The Melkote Sanctuary is home to a variety of flora and fauna





ARPIT DEOMURARI

Highly territorial, wolves are known to generally establish extensive territories to assume a steady supply of prey



ROHINI DESHPANDE

A strong flier, the Gaudy Baron is known to settle on tree tops



ROBERBLUE

The Bamboo Pit Viper frequents low vegetation, showing a preference for bamboos

The Sanctuary also supports snake species like the Indian Python *Python molurus* and Bamboo Pit Viper *Trimeresurus gramineus*, and over 100 species of butterflies. Among them, the Rustic *Cupha erymanthis* can be seen, away from its known habitat in the Western Ghats. The Monkey Puzzle *Rathinda amor* is found in almost all parts of the Sanctuary. Many other species like Gaudy Baron *Euthalia lubentina*, Striped Albatross *Appias libythea*, Common Lascar *Pantoporia bordonia*, Common Nawab *Polyura athamus*, Banded Blue Pierrot *Discolampa ethion* are also found. Congregation of Danaid butterflies is common in thick shrubs near wet patches and in valleys during their migration period.

The Sanctuary and its adjoining water bodies support 199 species of birds. The area is considered as an Important Bird Area (IBA) by the Indian Bird Conservation Network (IBCN). Presence of White-rumped Vulture *Gyps bengalensis*, Long-billed Vulture *Gyps indicus* and the Yellow-throated Bulbul *Pycnonotus xantholaemus* was instrumental in declaring the area as an IBA. A soiled egg and abandoned nest of Long-billed Vulture was last recorded in 2007. In recent years, both species of vultures – White-rumped and Long-billed – have not been sighted; a fairly healthy population of the Yellow-throated Bulbul still exists. Rare residents like Sirkeer Malkoha *Taccocua leschenaultii* and Long-billed Pipit *Anthus similis* and migratory birds like Indian Blue Robin *Luscinia*

The Sanctuary is named after the famous Melkote temple situated on its periphery, and is divided into two blocks. The Narayandurga block lies from 12° 37' to 12° 44' N and 76° 34' to 76° 39' E and the Mudibetta block lies from 12° 41' to 12° 43' N and 76° 39' to 76° 41' E. Not less than two dozen water bodies can be counted in and around the Sanctuary. Altitude varies from 880 m to 1,127 m; temperatures range from 17°C to 38°C and mean annual rainfall is 700 mm.



*brunnea*, Eurasian Blackbird *Turdus merula*, Ultramarine Flycatcher *Ficedula superciliosa* have been recorded here. The least disturbed locations near secluded water bodies adjoining the Sanctuary support foraging resident as well as migratory waterbirds like Small Pratincole *Glareola lactea* and Little-ringed Plover *Charadrius dubius* that come here to breed.

The Sanctuary has a good population of Leopard *Panthera pardus*. Conflict between leopard and humans is frequent. Locals have seen cubs crossing roads with the mother. A few endangered species like the Sloth Bear *Melursus ursinus*, Rusty-spotted cat *Prionailurus rubiginosus* and Blackbuck *Antelope cervicapra* are also present here. Along with this, a few Wolf *Canis lupus* have survived in the area, the last sighting being in 2008. The reasons for the decrease in wolf population in the Sanctuary are:

1. Change in forest type: the local forest department planted thousands of wild tree species in the area in the early 1970s. This has changed the original grassland and scrubland into dry deciduous forest, decreasing the hunting grounds for the wolves, resulting in declining population.
2. Good vegetation has led to increase in leopard, thereby increasing competition for food between leopard and wolf.
3. Increase in irrigation facility changed the occupation of the local farmers; sheep rearing became minimal, affecting the wolf which was dependent on sheep for survival.

Apart from the diminishing number of wolves, the Sanctuary also faces threats such as:

1. Forest fire – a major threat for the area.
2. About 500 families in c. 40 human settlements around the Sanctuary are dependent on the Sanctuary for fodder and firewood.

Effective conservation education programmes are required for locals to reduce human pressure on the Sanctuary. ■

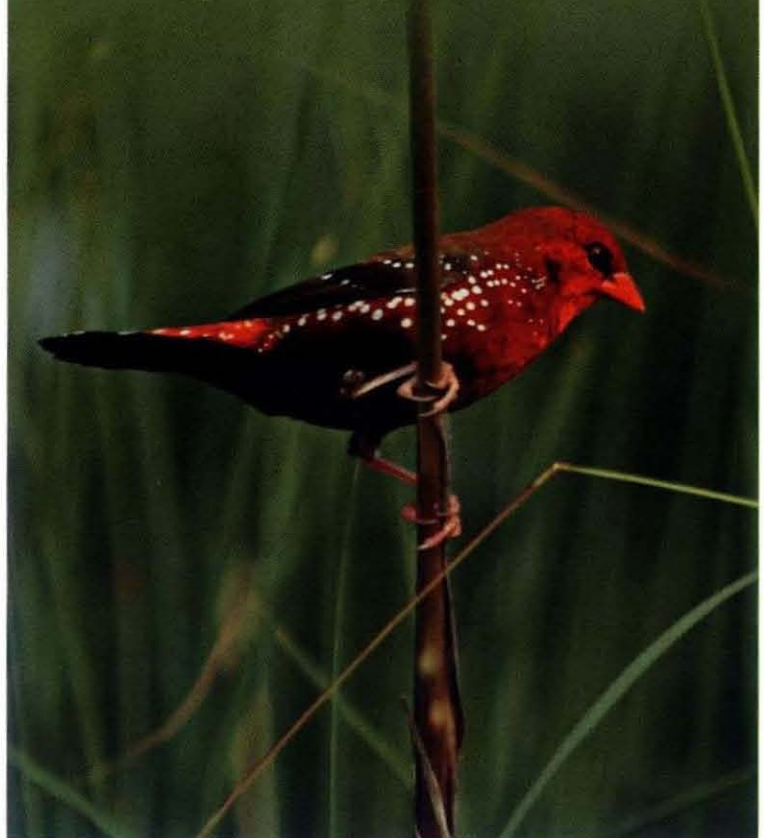


Sumanas Koulagi is an amateur naturalist and a student of Biology in Yuvaraja's College, University of Mysore. He is working for the conservation of Melkote Wildlife Sanctuary.

# Birds of Solapur

Text and Photographs: Aditya Kshirsagar

It was September 2007; I woke up early, like always, to explore the avian world in my home town Solapur. I geared myself with a pair of binoculars, a water bottle, and a field guide, and hope to see something interesting. Little did I know that I was just 22 km from a memorable moment in my eight years of documenting the diversity of Solapur! I picked up my friends Bapu, who has worked as a field assistant for many projects on Indian wolves, Indian foxes, blackbuck, and Sarang, who was waiting for us at Nannaj.



Red Avadavat is a seed eater and can be seen in grasslands





Unmistakable for its long slender snake-like neck, the Oriental Darter can be seen around lakes and reservoirs

It was 6:00 a.m. and the sun had started spreading its golden light over the grasslands of Nannaj. The Great Indian Bustard Sanctuary, established in 1979, is 2 km from Nannaj village. We entered the Sanctuary and headed for the area '100 hectares' – an ideal place to watch bustards. However, that day within minutes of entering the Sanctuary gate, Bapu whispered in my ear with excitement "*maldbok*" (the Marathi name for Great Indian Bustard). It was an adult male flying just 50 feet away from us. Our excitement knew no bounds, when we realized that there was not one but twelve birds! We celebrated our sighting with a special tea and *pakodas*.

The Great Indian Bustard (GIB) is just one of the faunal and floral riches of Solapur district. A dry place with little rainfall and temperature ranging from 13°C to 46 °C, Solapur has beautiful grasslands. Every road in the district leads to a grassland. Other than grasslands, Solapur has thick plantations well-maintained by the forest department like 'Smrutivan' and 'Siddheshwar Van Vihar'. There are four lakes, and a number of small seasonal water bodies during monsoons.

I have been studying the biodiversity of Solapur for the last eight years and have observed some interesting behaviour of GIBs. It is nearly April when the first few GIB males arrive in the Sanctuary. They feed and live alone until June when more birds arrive to join the early males; August and September is the best time to see bustards in the Sanctuary. Bustard groups, which consist of more females than males, feed with the displaying males during the breeding season. The birds begin dispersing in November and by December the last male leaves Nannaj.

The GIB may make the grasslands special, but there are many grassland species like Ashy-crowned Finch-Lark, Lesser Short-toed Lark, Yellow-wattled Lapwing, bushlarks, pipits, quails, and sandgrouses, and others like Black





Inspite of encroachments, birds arrive in great numbers at lakes in the city

Drongo, Indian Robin, Scaly-breasted Munia, babblers, warblers and silverbills that are residents of Solapur throughout the year. During monsoon more species join the 'party'. After the first or second rains green grass carpets the land. This is also the time to see the Indian Courser all across grasslands in Solapur.

One day Sarang and I went to Courser Hill, a place where one can definitely sight the Indian Courser. I have recorded this bird in Solapur up to January. Other birds like Pied Cuckoo, Common Hawk-Cuckoo can also be seen during the monsoon. I have seen a number of species of shrikes like Bay-backed Shrike, Woodchat Shrike and Long-tailed Shrike in Solapur. Shrikes are known to hunt and store their prey. They kill more than they need, and impale the surplus on thorns, hence the common name Butcherbird.

A number of raptors like Black-shouldered Kite, Brahminy Kite, White-eyed Buzzard and Shikra are common throughout Solapur district. I once saw a Peregrine Falcon make nearly seven



The Long-tailed Shrike is known to favour open wooded country and cultivation





Courser Hill is one place in Solapur where the Indian Courser can definitely be sighted

unsuccessful attempts to hunt silverbills at Gangewadi, a village in Solapur district. The huge Bonelli's eagle and Tawny Eagle, Short-toed Snake-Eagle, and Steppe Eagle are other raptors recorded from Solapur. Nocturnal birds like Grey Nightjar, Barn Owl, Eurasian Eagle-Owl, Short-eared Owl and Jungle Owlets can be observed during a night walk in the grasslands.

October is the time for winter visitors to Solapur. Beautifully coloured birds like Common Stonechat, Common Redstart, Rosy Starling, Small Minivet, Red-headed Bunting and local migrants like Indian Roller and Little Green Bee-eater. One can also see Pale Harrier, Montagu's Harrier and Marsh Harrier soaring in the skies of Solapur from October.

Residents of Solapur need not travel to distant lands to enjoy a bird 'carnival', as Siddheshwar and Kambar lakes, situated in the heart of the city, have a diverse and plentiful turn-out. In spite of encroachments by humans, many birds visit these places every year. At Siddheshwar lake one can see Spot-billed Duck, Little Grebe, Common Teal, Cotton Teal and colonies of Eurasian Spoonbill, Little Cormorant, Black Ibis and Woolly-necked Stork. Kambar lake is a good place to see waterfowl like Northern Shoveller, Gadwall, Lesser



The male Comb Duck has a knob at the base of the bill that becomes greatly swollen during the breeding season



Whistling-duck, Northern Pintail and other winged migrants. Even Oriental Darter, Grey Heron, Purple Heron, Brown-headed Gull, Purple Moorhen, Common Moorhen, Bronze-winged Jacana, Pheasant-tailed Jacana are commonly seen around the lake at close quarters from the roadside. You need to witness this breathtaking congregation of birds personally to enjoy the experience I am describing!!

But the real 'show-stopper' is Hipparga lake, about 8 km away from the city. Ibis a big water body that Solapur's agriculture depends on; it is also used for commercial fishing. The weather of Solapur and availability of food attracts migratory birds to Hipparga. Seeing gulls, Pied Kingfisher and River Tern diving into the water is pleasing. A huge flock of waterfowl diving and dabbling on water is a joyful experience. One can watch the birds closely in a fishing boat, as it does not disturb them. Every year around 70 to 80 flamingos visit the lake and remain till December. But a few subadults and immatures stay back and leave only the following year. Therefore, a few flamingos can be seen at Hipparga lake through the year.

Birds sometimes use temporary habitats created by negligent civic authorities. A small water body in Solapur has formed due to a leak in a drinking water pipeline. Tall grass has grown around this water body, providing safety to the birds. Ruddy Shelduck, Comb Duck, and Indian Spot-billed Duck are usually seen here during winter; I have also recorded Ruddy-breasted and Brown Crakes here. Just a kilometre from the water body, farmers cultivate grass for their cattle. In 2009, I recorded 34 Comb Ducks grazing in these fields that are just 50 m from the roadside. For once I appreciated the Municipal Corporation for being negligent! The wetlands around Solapur hold a variety of waders like Little Ringed Plover, Wood Sandpiper, Greater Painted-Snipe, stilts and birds like Glossy Ibis, Oriental



Rather crepuscular, the Small Pratincole often hunts till well after dusk



Crepuscular and nocturnal, nightjars are well-camouflaged when roosting

White Ibis, Painted Stork, Asian Open-bill, Grey Heron, Purple Heron and Demoiselle Crane.

Solapur provides secure breeding areas for many birds. Grassland birds like Indian Courser, Yellow-wattled Lapwing and larks breed in Solapur. It is among the last few places where the critically endangered GIB also prefers to breed. Besides these, other visitors like Small Pratincole, Indian Stone-Curlew and Pheasant-tailed Jacana also breed in Solapur. I have seen two nests of River Tern surrounded by nine nests of Small Pratincole at Hipparga. It was a daily routine to see females of both species chasing each other. I have also seen 70-80 nests of Painted Stork, cormorants, and spoonbills on a single tree surrounded by water at Gangewadi.

At times there are rare sightings records, like Blue-faced Malkoha, Sirkeer Malkoha, Yellow-footed Green-Pigeon, Egyptian Vulture, and surprising records, like Asian Paradise-Flycatcher and Indian Pitta, not expected in a dry region like Solapur. These are vagrants or perhaps migrants *en route* on their migrations.

The list of birds from Solapur for now is about 200, but I am sure that this list will be longer if more and more people start observing these feathered jewels that arrive and depart from their very own backyard every year. ■



Aditya Kshirsagar is a Marine engineer by profession and a passionate wildlifer documenting the grasslands of Solapur and its surrounding area for the last eight years.



# Invasion in our Rivers

Text: Unmesh Katwate, Deepak Apte, and Rupesh Raut

**W**estern Ghats, a biodiversity hotspot harbours a rich freshwater fish diversity, which currently totals 290 species. With around 189 species, the endemic freshwater fish fauna of this region is remarkable. The IUCN Red List assessment of freshwater fishes of the Western Ghats indicates that the native and endemic fish fauna are far more threatened than the non-endemics. Around 97 freshwater fish species of the Western Ghats were found to be Critically Endangered, Endangered or Vulnerable. Deforestation, drainage alteration, pollution, increased urbanisation and industrialisation, damming, fishing and overharvesting, the major threats, ensure that this list continues to grow. Besides these, invasive alien fish species are one of the emerging potential threats to the natives of the Western Ghats. Invasives are found to be the second major cause of extinction of endemic and native species around the world. Catastrophic impacts of invasive fish species in the Western Ghats are well documented, but their ecology is poorly studied. Increasing trade of aquaculture, international ornamental aquarium fish

trade and bio-control of mosquitoes are major 'vectors' of non-native exotic fish species. Cumulative impacts of exotic fish species are resource competition and predation and niche overlap that results in an ecological havoc, like species extinction.

West flowing rivers of the northern Western Ghats are its least studied biomes. While exploring rivers of northern Western Ghats in December 2011 at Gadhi river in Panvel, Maharashtra, we angled a huge pomfret-like silvery fish, later identified as Red-belly Pacu *Piaractus brachypomus*. Subsequently, we collected eight full grown *Piaractus brachypomus* in the main river channel. Pacus are commonly found in aquarium shops and have a high demand in the international aquarium trade. Detailed investigation revealed that in Panvel area Red-belly Pacu were commonly preferred for aquaculture. It is likely that the presence of Pacu in the wild is from an accidental release of aquaculture stock. Interaction with local fishermen revealed that sighting of Pacus increased from 2010. Incidentally, locally known as Riverine Pomfret, Pacu are now commonly sold for food.



Diverse tributary of Arjuna river at Ratnagiri northern Western Ghats



Another predatory alien species – Red-bellied Piranha *Pygocentrus nattereri* – was recorded by our co-researchers later from the same area. Aquarium trade is possibly an important vector for its release in rivers and associated streams of Panvel area.

*Piaractus brachypomus* and *Pygocentrus nattereri* are Amazonian natives found in Colombia, Venezuela, Peru, Bolivia and Brazil. Introduced populations are thriving in various parts of the world, mainly in Far Eastern countries, such as China and Taiwan where they are farmed for food. Pacu and piranhas are shoaling fishes and always occur in big shoals in the wild in the Amazon. Based on gut content analysis, some researchers report that pacus and piranhas are herbivores, but it is well-known that at least piranhas are voracious predators. Nibbling fins and scales, biting and giving strong competition for food resources is common behaviour of pacus and piranhas.

The Red-bellied Piranha was first introduced in Kerala for aquarium trade in 1999. Recently, in 2011, a scientist recorded it in Periyar river of Kerala, and in Dimbhe reservoir near Pune, Maharashtra, far north in the Western Ghats.

Multiple cases of bio-invasions have been recorded in this hotspot, and pacus and piranhas are the new competitors in the race for survival of the Western Ghats fish. A classical and well-known example is that of the African Catfish *Clarias gariepinus*. An escapee from aquaculture practices, it now dominates most of the river systems of the Western Ghats. The exotic *C. gariepinus* is a regular in the fish catch of Periyar lake, Kerala. The introduced population of Amazonian Pacu in the tropical waters of Chalakkudy river is also established and reproducing well. Recent studies on the endangered *Glyptothorax poonaensis*, in Indrayani river, indicates that the African Catfish may pose a serious threat to its



AJINKYA SAWANT

Red-bellied Piranha *Pygocentrus nattereri* is popular in the aquarium trade



UMESH HATWATE

The sharp-toothed predatory Amazonian Pacu creates resource competition for the native species





UNMESH KATWATE

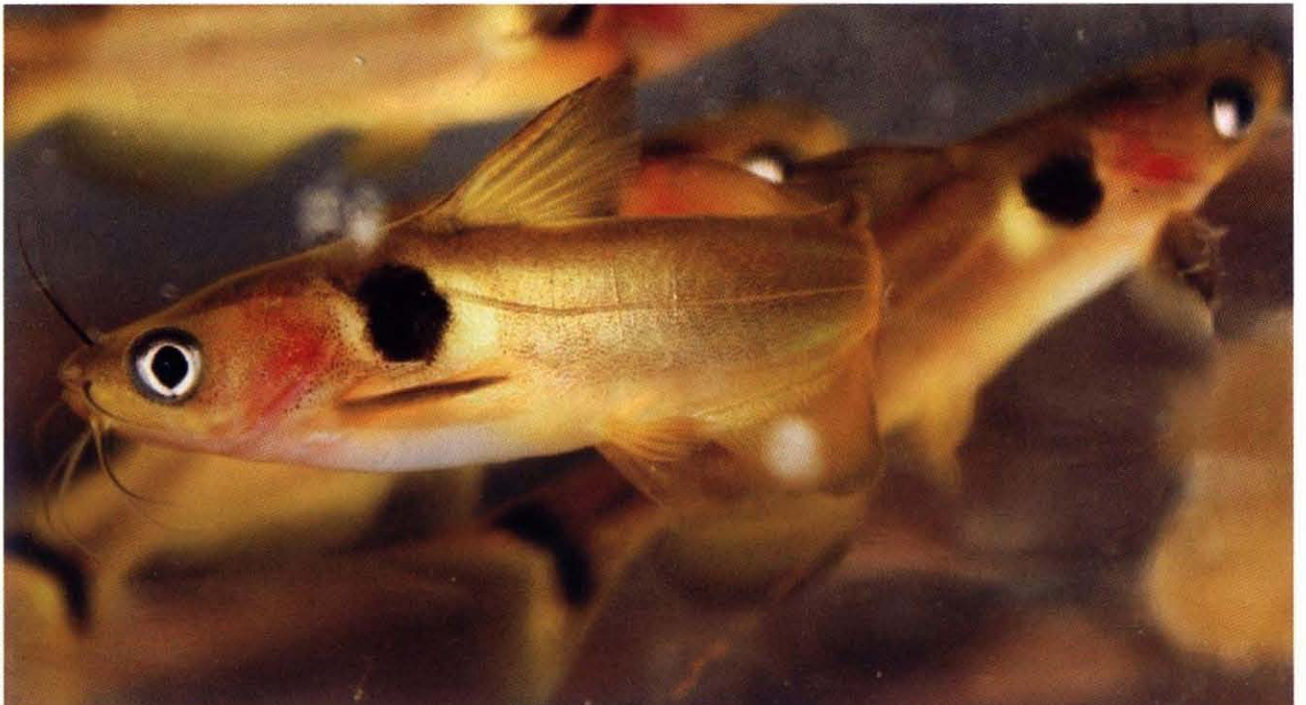
An invasive, the African Catfish *Clarias gariepinus* is spread all over Western Ghats and competes strongly with the native species

existing population. Alien aquarium fish species introduced purposely or accidentally into natural waterbodies may adversely affect native fish species by way of genetic impacts, disease introduction, and catastrophic ecological impacts, such as predation, competition and environmental modification.

Aquarium fishes like Sword-tail *Xiphophorus helleri*, Platy *Xiphophorus maculatus* and Guppy *Gambusia affinis*,

*Poecilia reticulata* are known to threaten the native *Aplocheilichthys lineatus* population because they share the same niche. *Oreochromis mossambicus* – listed in the ‘100 of the World’s Worst Invasive Alien Species’ – has already spread in most rivers of the Western Ghats; several cases of its invasion have been recorded from different parts of this area. At times, fish like *Catla catla*, *Cirrhinus mrigala* and *Labeo rohita*, native to the Ganges river system,

are introduced in greater numbers for mass aquaculture practices. It is assumed that these species will not breed in the ecological conditions of rivers in the Western Ghats. However, our recent collection of juveniles of *C. catla* and breeding males and females from Kundalika river, Maharashtra, indicates that they are breeding easily in our rivers. Our recent studies in the river systems of Raigad district, northern Western



UNMESH KATWATE

Sun Catfish *Horabagrus brachysoma*, an endemic of the Western Ghats is threatened by the increasing load of invasives and exploitation of wild stock for international trade





(L): Melon Barb *Dravida fasciata* is a beautiful native barb of the west and east flowing rivers of southern India  
 (R): Filament Barb *Dawkinsia filamentosa* is an endemic barb of peninsular India

Ghats, suggest that exotics are one of the major threats for the endemic fish fauna of this region. We have recorded nine exotic 'pest' fish, i.e.  $\approx$  13% of the total fish fauna.

In more than 20 provinces of United States countries pacu and piranha are legally banned for aquarium trade and aquaculture because of their deleterious impact on native fish fauna and ecosystems. Nationwide invasive fish species eradication programmes are needed in India to sustain our precious freshwater ecosystems. Education, awareness, and spread of scientific knowledge among locals, aquaculturists and aquarium traders will hopefully control exotic species dispersion in the wild. Strong rules and regulations should be set for selection of fish species for aquaculture practice. Use of endemic species should be promoted for aquaculture instead of exotic varieties, reducing the ecological loss of natural ecosystems. Awareness about catastrophic ecological impacts of exotic fishes among aquarium stakeholders, shopkeepers and buyers will prevent



The vulnerable Ratnagiri Minnow *Parapsilorhynchus discophorus* is endemic to the northern Western Ghats

further loss. Captive breeding programmes of native aquarium fish species may reduce exploitation of the wild stock and minimize use of exotic varieties. Scientific monitoring of spread of invasive alien fish species to implement and achieve conservation goals is the need of the hour. Effectively implemented

policies are needed to control spread of exotic alien species in global biodiversity hotspots. Recent records of predatory pacus and piranhas have set the alarm bells ringing for ecological havoc in the Western Ghats biodiversity hotspot. Should we ignore them for now or act before it is too late? ■



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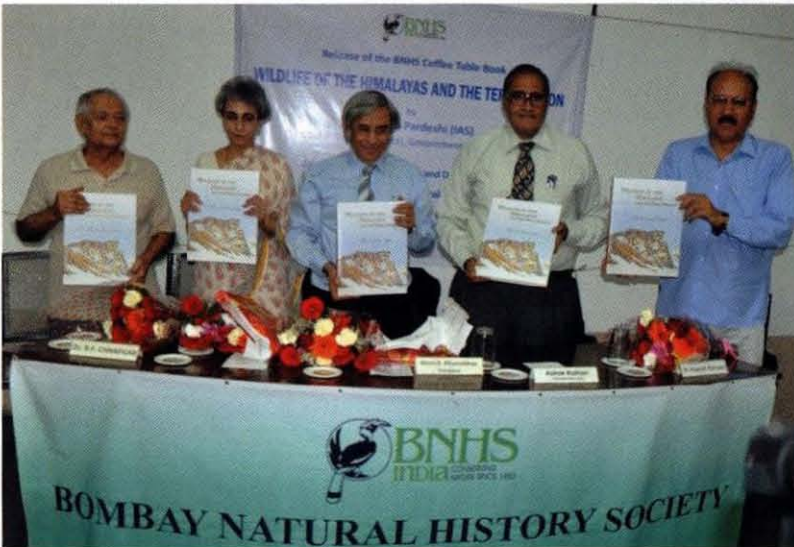


## WILDLIFE OF THE HIMALAYAS AND THE TERAI REGION released



BNHS PHOTO LIBRARY

(L-R): Dr. A.R. Rahmani, Mr. Homi Khusrokhhan, Dr. Karan Singh, Mr. Ravi Singh and Dr. Ashok Kothari at the release of the book in Delhi



RAJU KASAMBE

(L-R): Dr. B.F. Chhapgar, Ms. Radhika Sabavala, Mr. Homi Khusrokhhan, Dr. Ashok Kothari and Dr. A.R. Rahmani at the Mumbai launch of the book

**B**NHS released its latest premium quality art book titled **WILDLIFE OF THE HIMALAYAS AND THE TERAI REGION** in the WWF auditorium, in New Delhi, on March 28, 2012. Co-edited by Dr. Ashok Kothari and Dr. Boman F. Chhapgar, the book was released by Dr. Karan Singh, Member of Parliament and President, Indian Council for Cultural Relations. Dr. Singh enthralled the audience with his deep insights into the cultural and natural heritage of the Himalayan region. Subsequently, the book was launched in Mumbai on March 29, 2012, at Hornbill House. This unique book is a collector's item, and will be of interest to all. It includes rare articles by researchers and shikaris, and rare paintings and lithographs of Himalayan wildlife like Derby's Parakeet, Long-tailed Minivet, Chestnut-headed Tesia and Spotted Forktail from the British period. A major attraction of the book are ten double-page plates of pheasants like Cheer Pheasant, Satyr Tragopan and Western Tragopan. The lithographs of animals like the Tiger, Snow Leopard, Leopard Cat, Clouded Leopard and Red Panda are realistic. This 216-page book with more than 70 plates and a number pictures is moderately priced at Rs.1,250/- and is available for sale at the Hornbill House. ■

## CEC-Delhi organises 'Living Heritage Walk'

**T**he Conservation Education Centre (CEC) in Delhi recently organised a memorable event 'Living Heritage Walk' in Rashtrapati Bhavan and Mughal Gardens on March 12, 2012, in collaboration with Delhi Metro Walks. The programme was well-attended by people from various countries; the participants were given a glimpse of the rich floral and faunal heritage of the most high profile garden in the country! ■



BNHS PHOTO LIBRARY

The participants got an opportunity to visit the Rashtrapati Bhavan and Mughal Gardens



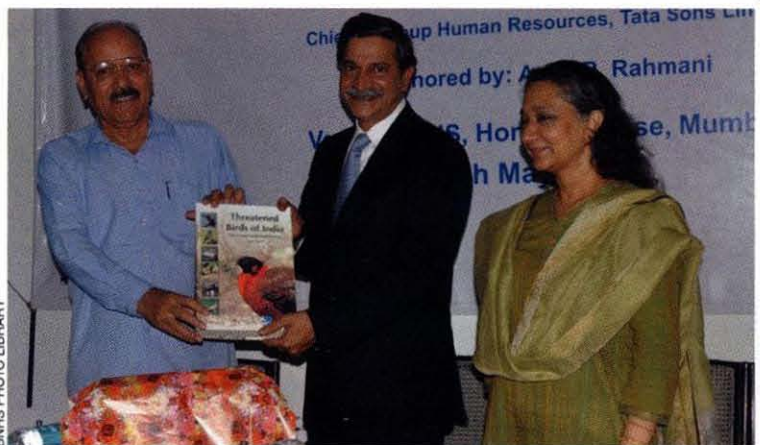
## Book on THREATENED BIRDS OF INDIA released

Keeping up with its tradition of churning out quality scientific publications, BNHS released a comprehensive book on avian ecology of the country titled **THREATENED BIRDS OF INDIA – THEIR CONSERVATION REQUIREMENTS** in New Delhi on May 22, 2012, in the WWF auditorium. The chief guest Smt. Jayanthi Natarajan, Minister of State (Independent Charge) for Environment and Forests, Government of India, said that the book does not stop at thoroughly researched data, excellent pictures and detailed information, it also proactively gives recommendations for conservation of each species. This function was one of the many successful events organized by the BNHS in the national capital.

The book was launched in Mumbai on May 24, 2012, at Hornbill House, by Mr. Satish Pradhan, Chief, Group Human Resources, Tata Sons, and member of BNHS Governing Council. It was subsequently launched in Singapore and Bengaluru. This book has been sponsored by MSPL Limited. Priced at Rs. 3,000/-, this book will be of interest to researchers, students, policy makers, bureaucrats, bird lovers, corporates and NGOs. It is available for sale at Hornbill House. ■



Smt. Jayanthi Natarajan, Minister of State (MoEF) released the book in the presence of a number of dignitaries



Mr. Satish Pradhan with Dr. A.R. Rahmani (L) and Mrs. Sumaira Abdulali (R) at the Mumbai launch of the book

## BNHS hosts World Environment Day Exhibition

BNHS has been doing pioneering work in public awareness and advocacy for nature conservation, for many years. And what better way to reach out to people than hosting an exhibition at one of the busiest railway stations in a megalopolis! On the occasion of World Environment Day, BNHS set up an exhibition at Churchgate railway station in Mumbai from June 5-7, 2012.

This year the theme of the exhibition was 'Green Economy', – the annual theme of the United Nations. The aim was to create awareness among Mumbaikars about the importance of integrating biodiversity with businesses and having a holistic approach for sustainable development. The bilingual exhibits, in English and Marathi, discussed important issues. The exhibition was a huge success with over 3,800 visitors, of which 724 visitors took an online pledge to follow sustainable lifestyles. The event was sponsored by the American Centre of the US



(L-R): Mrs. Sumaira Abdulali, Mr. Michael Mullins, Acting Consul General, US Consulate, Mumbai, Mr. Homi Khusrokhana, Mr. G.S. Banerjee, Chief Commercial Manager, Western Railway, and Dr. Asad R. Rahmani at the inauguration of the exhibition

Consulate General, Mumbai, and supported by the Western Railway. Forty employees from Standard Chartered Bank volunteered to help as instructors, computer hub managers and at the help desk. ■

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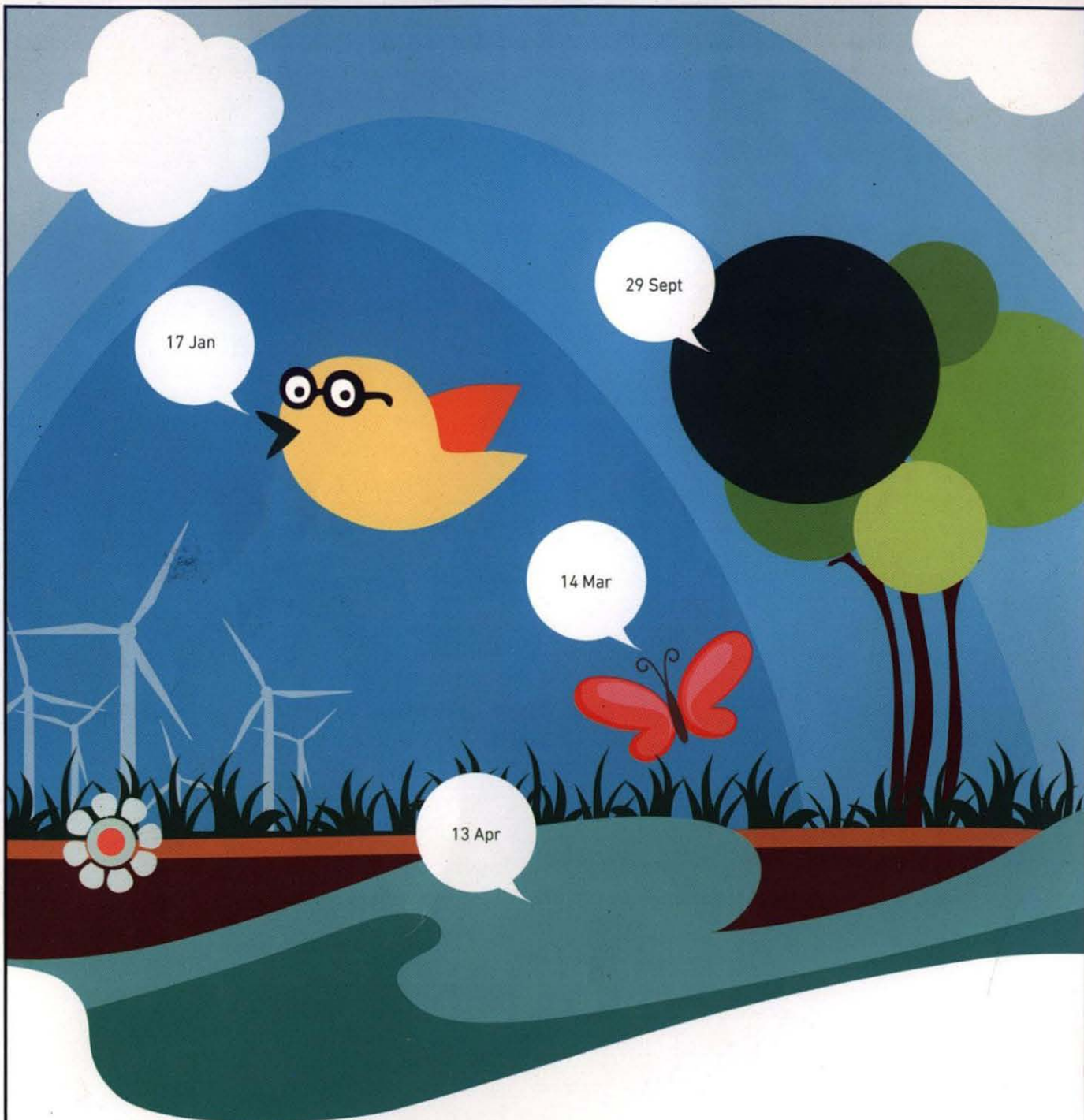


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