Newsletter for Birdwatchers

Vol. 45 No. 1 Jan.– Feb. 2005

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A Note from the Publisher

Dear Fellow Birdwatchers,

Painted Storks Skip Veerapura Yet Again

By the time, we had taken a left turn at Adinarayana Konda, a little ahead of Bagepalli on NH 7, to proceed on the Chilamathur Road, our exhilaration had waned considerably and we were only half as enthusiastic as we were, when we left Bangalore that morning. Harish Bhat, Manjunath, Krishnakumar and Shreyas had joined me on a fact-finding mission to Veerapura; the Painted stork (*Mycteria leucocephala*) colony on the Karnataka-Andhra border near Gudibande. Enroute, we had seen only dry lakebeds and had ultimately pinned our hopes on Yellodu tank that had sufficient water in 2002. But on 6th February 2005, as my wife slowed the vehicle down to negotiate the tank bund; we were quite disheartened to find the tank parched and wrinkled. These ominous signs were enough to convince us that the Painted storks would have skipped Veerapura, for the third consecutive season.

In May 2002, when we had visited the Veerapura village, with a team of birdwatchers lead by S. Rangaswami and A. N. Yellappa Reddy, a record number of Painted storks were nesting there. K.V. Krishnamurthy, a retired schoolteacher, was smiling all over when he invited us to watch and photograph the storks from the rooftop of his house.

Veerapura is a small hamlet and Painted storks usually arrive here by February to nest. In 2002, as usual the villagers of Veerapura had eagerly waited, and they were extremely delighted impressive numbers of Painted storks arrived in batches and began their nesting activities. This was perhaps the largest known congregation of Painted storks in Asia and by May, almost all the nests had 2 to 3 chicks, and a few storks were still constructing their nests. While some were busy collecting twigs from the nearby fields, others were busy quenching their thirst in the Veerapura tank and yet a few more were forming semicircles and foraging in groups to hunt-down fish in the shallow waters of Yellodu and Gudibande tanks. Around 800 nests had been built on 21 trees, which included *Ficus religiosa, Tamarindus indica, Aegle marmelos, Pongamia pinnata, Acacia nilotica* and *Azadirachta indica.*

The Veerapura heronry's career-graph is rather inconsistent. The storks had been breeding continuously at Veerapura for about thirty years until 1981, and suddenly abandoned the colony in 1982, due to heavy lopping of trees, poaching of eggs and predation of eggs by bonnet monkeys. No nesting activities were observed for five years from 1983. When they resumed their nesting activities at Veerapura in 1988, around 1300

Veerapura tank (left) and villagers with Rangaswami, Yellappa Reddy and other birdwatchers at Veerapura, May 2002. Photo S. Shreyas.

Painted storks were counted, and their numbers had steadily ratcheted to 5000 by 2002. The villagers were vigilant and there had been virtually no incidence of poaching of the storks, either in the nesting colony or at the tanks frequented by them.

In Karnataka, Painted storks nest in two colonies; Kokre Bellur, near Maddur and Kaggaladu, near Sira. There has been a

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etween our forefathers, who knew and cared about everything that was happening to their wetland resources and the present generation that is more content to leave these issues to Fate prescribed by a selfish, visionless system, is tragically palpable. The main problem, which goes beyond the direct abuse of wetland resources, is the selection of crops. The current cropping practices in the region no longer reflect ecological realities. Instead of growing dryland crops, affluent farmers around Veerapura have dug up borewells and are growing water-guzzling crops such as sugarcane, sunflower and mulberry. The consumptive use of water in acre inches for some of the crops are; ragi 6, groundnut 9, sunflower 12, maize 13, potato 15, tomato 17, paddy 25, mulberry 27, banana 29, and sugarcane 60. One can easily figureout that crops such as sunflower, mulberry and sugarcane consume two to ten times the quantity required by dryland crops such as Ragi or Groundnut. Thus the borewells are silently siphoning off the ground water reserves and the farmers are digging deeper in sheer desperation; the water table has now ebbed to about 600 feet below ground level. The area has a predominant gneissic soil profile, which facilitates moderate to high downward permeation of water through the sub-surface gravel spread to the borewells, forcing the lakes to dry up much before the arrival of the storks. Day-by-day we are paying the price for this gamble and the storks are paying upfront, by forfeiting their breeding programme. The upbeat message is that Nature has no compunction or remorse for those who reduce it to rubble, but will readily rescue those who beseech for help by taking up ruthless and determined eco-restoration measures.

The environment around Ananthapur district not only depicts the spectre of forest abuse and wetland over-exploitation, but also illustrates the looming ecological disaster that poses a threat to the entire Rayalaseema region. The region has suffered ecological convulsion and is presently experiencing the recurrent phenomenon of severe drought.

As we can makeout from this case, the rush of storks to the breeding habitats taper-off under adverse conditions. This is also true in the case of the other two painted stork-breeding colonies in the region viz., Kaggaladu and Kokre Bellur. On many parameters the Veerapura birds had fared better than their counterparts in Kokre Bellur and Kaggaladu. The bigger danger is failure of monsoon and these colonies are likely to fade away due to constant exposure to the lingering cycle of drought. Under these circumstances, the painted storks' confidence in Veerapura, contra posed to Kokrebellur and Kaggaladu, may diminish in the long run.

Given their strategic location and relative safety offered by the villagers; the Ministry of Environment and Forests, will do well to draw up a composite conservation plan for these three heronries. If such an assurance is in place, other global agencies such as the BLI, Wetlands International, Storks Specialist Group, OECF, JFGE and IUCN will pitch in, and their joint efforts may help in retrieving the reputation of the three heronries as perfect nesting habitats for the Painted storks in Asia. Incidentally, Indian corporate leaders Hemendra Kothari, Ramadorai and Ratan Tata have issued a statement on behalf of the Indian corporate sector, committing themselves to lend their strength to the nature conservation movement and wildlife protection in India. On 24th February 2005, Ratan Tata has given the clarion call - *" All of us in India should be concerned with the wanton destruction of our indegenous wildlife. Our inability to act today will cause this heritage to be lost to us for ever"*. Such a support has come as a much needed shot in the arm of the wildlife conservation movement, and it has not come a moment sooner.

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In Karnataka, Painted storks nest in two colonies; Kokre Bellur, near Maddur and Kaggaladu, near Sira. There has been a decline in the number of storks visiting these two nesting colonies. In addition to Veerapura, there are half a dozen known Painted stork-nesting colonies in Andhra Pradesh. They are Telineelapuram, Ambarjipet tank, Manjira Island, Uppalapadu, Gantavaram and Etirapattu. Except Veerapura, all other nesting colonies attract fewer than 500 pairs.

Painted storks occur only in South Asia and Southeast Asia and are distributed in India, Sri Lanka, Nepal, Myanmar, Cambodia, and Vietnam. According to Wetlands International, there are less than 10,000 Painted storks in Southeast Asia and another 15,000 Painted storks in South Asia and the population is declining. Veerapura was harbouring almost a third of the entire global population of Painted storks in 2002 and the credit had gone solely to the villagers of Veerapura, for their ceaseless efforts to make the stay safe and comfortable for the storks in every respect.

We had anticipated the storks to stage a come back in 2005, as we were under the impression that the area had received moderate rains during September–October 2004. This run of poor form is in marked contrast to the bright period when Veerapura was resurgent and full of promise for the Painted storks. But all we found were trees bereft of the storks and their nests. As we looked skywards, we could see a small flock of 30 storks, on a reconnoitering mission, but they beat a hasty retreat on judging the inhospitable condition of the lakes. But, a dozen storks were just beginning to build their nests. Pitifully, given the hostile reception from a handful of bonnet monkeys, the storks seemed to be in two minds about raising their families. Krishnamurthy, who was taking stock of his maize yield, offered us only a wry smile. Most villagers were wishfully yearning for the storks to stage a come back, after a three year gap, which according to them, seemed like eons of waiting.

In principle, neither the farmers utilise the Veerapura tank waters directly, nor are the fish harvested from the tank. They are reserved for the storks. Moreover, the forest department had populated the tank with fingerlings for the exclusive use of storks in 2002, when the storks at Veerapura built around eight hundred nests. But due to scanty rains, tanks around Veerapura have been drying up much before the arrival of the storks in February. This has happened in 2003, 2004 and 2005 and thereby the heronry has become a no-visit area for the Painted storks for three consecutive years since 2003. For a species that has relied heavily on its wetland habitat, this collective deterioration has proved extremely costly.

The region was once renowned as the Great Dandakaranya, with several rivers originating from a network of verdant hills, paying perpetual ecological dividends to the agricultural and fishing communities, and quenching the thirst of the rural populace. But sadly they have all become the relics of the past.

Why this sudden downturn? The lamentable contrast between our forefathers, who knew and cared about everything that was happening to their wetland resources and the present generation that is more content to leave these issues to Fate prescribed by a selfish, visionless system, is tragically palpable. The main problem, which goes beyond the direct abuse of wetland resources, is the selection of crops. The current cropping practices in the region no longer reflect ecological realities. Instead of growing dryland crops, affluent farmers around Veerapura have dug up borewells and are growing water-guzzling crops such as sugarcane, sunflower and mulberry. The consumptive use of water in acre inches for some of the crops are; ragi 6, groundnut 9, sunflower 12, maize 13, potato 15, tomato 17, paddy 25, mulberry 27, banana 29, and sugarcane 60. One can easily figureout that crops such as sunflower, mulberry and sugarcane consume two to ten times the quantity required by dryland crops such as Ragi or Groundnut. Thus the borewells are silently siphoning off the ground water reserves and the farmers are digging deeper in sheer desperation; the water table has now ebbed to about 600 feet below ground level. The area has a predominant gneissic soil profile, which facilitates moderate to high downward permeation of water through the sub-surface gravel spread to the borewells, forcing the lakes to dry up much before the arrival of the storks. Day-by-day we are paying the price for this gamble and the storks are paying upfront, by forfeiting their breeding programme. The upbeat message is that Nature has no compunction or remorse for those who reduce it to rubble, but will readily rescue those who beseech for help by taking up ruthless and determined eco-restoration measures.

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The Keoladeo National Park at Bharatpur is the latest victim of a serious water dispute; wherein certain stakeholders have besieged the canal that brings water to the sanctuary. The past few years have witnessed the recurrent paradoxical blend of acute water shortage and squabble among the vested interests, bringing much grief and ignominy to a country that has been professing wildlife conservation for decades.

Yet it is hard not to be disturbed by these developments. The consolidation in ecological sector should therefore start with wetland habitats, which can offer complimentary strengths to flora and fauna. The argument that such conservation measures could result in exorbitant cost is valid only in a theoretical sense. The cost may appear high in absolute terms, but it is only a fraction of the Rs 46,000 crores, earmarked by the Andhra Pradesh Government in its budget to rejuvenate the State's irrigation system. It will augur well for the residents of Veerapura to bargain for their rightful share of Rs. three to four crores, that is needed to take-up the restoration of the lake and ensuring the presence of water in requisite levels and fish in acceptable numbers for the Painted storks, during the breeding season that lasts some four months, beginning February.

Veerapura can offer safety and protection to storks in a significant way and we have to rejuvenate the wetland resources on a war footing to sustain the breeding figures. Given the complexities of governing and the mediocre inter-State relations; this was estranged over a dispute in sharing the Chitravathy river waters three years ago, Veerapura has to evolve its own plans to invigorate its wetland resources and enhance its tree cover. In view of its strategic location in South India, nature lovers have to exercise greatest care to identify the problems and take immediate steps, signifying their willingness to conserve this heronry.

However despite its attractiveness, pivotal attention seems to elude the Veerapura heronry. For all its proximity to Bangalore, the problem is the heronry's jurisdiction, which is a mere fifty meters inside Andhra Pradesh, whose capital Hyderabad is located some 500kms away. In this disconcerting scheme of things it is unfortunate that this heronry cannot garner a package of measures and incentives that it rightfully deserves, notwithstanding its international importance. The sensitivity of the heronry linked to the vicissitudes of ecological cycle is an issue that must be addressed soon. But, the local administration is not only weighed down by cumbersome procedures and inordinate delays from the distant State capital, but is also hampered by a number of other factors ranging from lack of cooperation to serious naxal related law and order problem, that are continually rocking the Ananthapur district.

(PS. On 26th Feb. Krishnamurthy called from Veerapura to give the good news that some 200 storks had just arrived.)

Bustards are Wearing Thin in Ghatigaon Sanctuary

We have a note from Gaurav Parihar and Rajiv Saxena, pointing out the serious habitat related problems for Bustards in the Ghatigaon Bustard Sanctuary near Gwalior. The note presents a sad commentary about the unrelenting determination of the powerful miners, who are hell bent on reclaiming their mines that were closed down consequent to the notification of the area as a Bustard Sanctuary.

What emerges is a composite picture of an ideal bustard sanctuary, made worse by the miners who are exterminating the wildlife therein. By these maleficent acts, the miners are masquerading the habitat as a legitimate bustard-free zone, to nullify the most significant principles of the rule of law and schedules embedded in the Wildlife (Protection) Act. Today, the Ghatigaon Bustard Sanctuary is probably the most dangerous place on earth for the bustards, in as much as Sariska and Ranthambore National Parks for the tigers, from where the tigers have more are less vanished, if one were to go by the recent media reports.

The bustards are trapped between two sets of troubles that are rendering them disconsolate; on one side they face the barbarity of poachers, who snare, trap and shoot them and on the other, their habitats are being undermined, in a literal as well as a practical sense. In a virtual sense, every bustard is an ecological hostage that is shackled in its own sanctuary. The bustards are losing whatever little freedom that remained for them, as insurmountable obstacles are being placed across their path and it could turnout to be a gargantuan exercise to halt this ruinous trend. Given the current status of the administrative apparatus and the atmosphere of fear and intimidation, it is extremely unlikely for any restorative measure to be effective enough to salvage the bustards and their habitat. In any case Parihar and Saxena's eminently poignant advocacy of certain policy-induced restraints is vital to the bustards' future in Madhya Pradesh. Will the concerned wildlife authorities wake up to the dicey state of affairs at the Ghatigaon Bustard Sanctuary?

Thanking you,
Yours in bird conservation,
S.Sridhar
Publisher, NLBW

Foraging and Feeding Behaviour of Flamingos in the Aanasagar Lake Ajmer (Rajasthan)

H.S.A. YAHYA, Prof. & Chairman, Department of Wildlife Sciences A.M.U., Aligarh (UP)-202002

The Flamingos are a very interesting group of birds with special mode of feeding and type of beaks. Though they are largely resident birds, they undertake frequent local movements. Some are migratory too. Their largest concentration for breeding in India was reported in Rann of Kutch, Gujarat. However, they have adapted to Sambar Lake (Rajasthan) as second breeding ground in the country from a few years back; and this year, probably for the first time, they have visited Aanasagar Lake of Ajmer. I got an opportunity to observe them in Aanasagar between 26th and 28th August 2002. Aanasagar is rather a big lake amids human settlement. It is a natural depression of about 1 sq. km circular area surrounded by hills, extension of Arawali hills. Most of the foothills, and at some places even peaks have clusters of concrete buildings. At the eastern side of the hill is situated the palatial building of the then Resident General which is now used as Government Circuit House. In

the night when the lights of the surrounding houses are glowing, the Aanasagar provides a spectacular scene. The presence of about 1000 flamingos has now to added the beauty of the lake.

The Aanasagar is almost circular with a central island, which is now used as a picnic spot. There are two small, abandoned buildings within the lake; however no fresh construction is seen. Being a drought year most of the lake area is dry now. There is a sheen of shallow water at the deeper eastern side along the boundary of the Circuit House. For the flamingos the remaining shallow water is a boon, as they are largely filter feeders. In the drier central area of the lake there were patches of bajra cultivation. On the remaining grasslands over 100 buffaloes were found feeding in the afternoons. The lake must have been deeper to begin with, but now has become shallower due to siltation. Several drains bring in waste water and pollutants to the lake. There is a bathing ghat and washermen wash clothes at two places in the eastern side. Several garbage dumping spots were also noticed. Though the real physio-chemical quality of water would be revealed after some limnological studies, due to above mentioned human activities the present water of the lake seems quite polluted; nevertheless 15 species of birds were recorded feeding in the lake. The eastern surrounding of the lake near Baradari, consists of thick grove of Acacia and Neem trees with scrub vegetation at the ground. Several species of birds such as Little Cormorant, Cattle Egret, Pond Heron, Roseringed Parakeets, Common/ Pied and Brahminy mynas, Ring and Littlebrown doves, Grey heron, etc. roost in this grove. The list of birds recorded in and around the lake is given in Table 1.

Two species of flamingos, the Greater *(Phoenicopterus ruber)* and Smaller *(P.minor)* were recorded. The greater were estimated 750, while the lesser were about 250. There were several young birds too. Their foraging was recorded to be typical grouping of aquatic birds. The smallest group recorded 21 while the largest 350. The lesser Flamingo kept mostly segregated but there was frequent mixing as well. During short span of observation, I found them feeding most actively during afternoons. However, some were quite active even in the dead of night and early morning hours. The mode of feeding was typical-dipping the beak in water, moving right and left and forward. At times I noticed them stirring water by one leg-up and down and then feeding. The group would go on feeding for hours covering large areas. Some solitary feeders were also noticed. The group concentrated mainly at the banks but also selected some shallow water areas, or rocky bottoms in the mid of the lake. They have been reported to feed on various aquatic minor fauna (Ali & Ripley, 1978, Handbook of Birds of India and Pakistan Vol. 1. pp. 118-121). As a project on eco-behavioural studies has been taken up by Prof. S.P. Bhatnagar, we expect that some useful information will be collected during the study to throw more light on their behaviour and conservation.

While the flamingos were feeding, they were also fanning wings, calling infrequently, preening and at times resting on one leg for long times. On 2-3 occasions I also noticed some sort of dispute among the members, while foraging and feeding: two birds would fight by erecting their necks, billing, calling and a little pull and push. However, no severe fight was recorded. During breeding season there could be prolonged fight and chase, typical of territorial fighting among birds. All these aspects require detailed study. The research scholars of the said project should make study program and data sheet in such a way that all these aspects are covered.

Some immediate steps are needed to conserve the Aanasagar Lake vis-a-vis its fauna and flora:

1. A 30m. wide and 5m. deep moat should be constructed at the western, northern and southern periphery of the lake. This will (a) prohibit any further encroachment, (b) reduce human activity, (c) stop the movement of stray dogs roaming freely and disturbing the birds, (d) ensure some water throughout the year to the resident aquatic birds, (e) enhance boating facility for the visitors (though this practice should be stopped in due course) and (f) facilitate feeding and breeding of fishes and other minor fauna. Therefore, the proposed moat will enhance the ecology, beauty and sustainability of the lake to a greater extent.
2. Stop flow of sewage into the lake: This is also a very important step to be taken immediately, if the health/wealth of the lake has to be restored. Many of the wetlands in the country have been lost due to the lakes being treated as a "dumping site". It is imperative that such practices are immediately stopped. I was told that a Development Plan has been drawnup for the restoration of Aanasagar.
3. Discourage bathing and washing of clothes: To stop the addition of detergents and chemicals in the static water of the lake, the practice of bathing and washing of clothes has to be discouraged.
4. Fertilisers and pesticides should not be used in the cultivation within the lake. If possible, farmers should be given alternate place in lieu of their holdings within the lake.
5. No plantation should be taken up within the lake. As the wetlands have a tendency to change to grassland and then to woodland, the prosopis from inside the lake should be uprooted and removed. However, some may be allowed to grow or planted at the outer ring of the proposed moat. This will act as a natural barrier from human interference and good cover for some birds.
6. If funds are available, a boundary wall should be built on the southern, western and northern side of the lake to provide complete protection.

This visit was made possible by the courtesy of Prof S.P. Bhatnagar. I am grateful to him for all the arrangements.

Table 1. List of Birds seen in and around Aanasagar Lake Ajmer, (Rajasthan)

S.No.	Common name	Scientific name
1.	Little Grebe	*Tachybaptus ruficollis*
2.	Little Cormorant	*Phalacrocorax niger*
3.	Little Egret	*Egretta garzetta*
4.	Grey Heron	*Ardea cinerea*
5.	Cattle Egret	*Bubulcus ibis*
6.	Indian Pond-Heron	*Ardeola grayii*
7.	Greater Flamingo	*Phoenicopterus ruber*
8.	Lesser Flamingo	*P. minor*
9.	Comb Duck?	*Sarkidiornis melanotos*
10.	Spot-billed -Duck	*Anas poecilorhyncha*
11.	Black Kite	*Milvus migrans*
12.	Grey Francolin	*Francolinus pondicerianus*

13.	Indian Peafowl	*Pavo cristatus*
14.	Common Coot	*Fulica atra*
15.	Little Ringed Plover	*Charadrius dubius*
16.	Red-wattled Lapwing	*Vanellus indicus*
17.	Black-tailed Godwit	*Limosa limosa*
18.	Common Sandpiper	*Actitis hypoleucos*
19.	Blue Rock Pigeon	*Columba livia*
20.	Little Brown Dove	*Streptopelia senegalensis*
21.	Eurasian Collared-Dove	*S. decaocto*
22.	Rose-ringed parakeet	*Psittacula krameri*
23.	Asian Koel	*Eudynamys scolopacea*
24.	House Swift	*Apus affinis*
25.	Common Swallow	*Hirundo rustica*
26.	Red-vented Bulbul	*Pycnonotus cafer*
27.	House Sparrow	*Passer domesticus*
28.	Brahminy Starling	*Sturnus pagodarum*
29.	Asian Pied Starling	*Sturnus contra*
30.	Common Myna	*Acridotheres tristis*
31.	Black Drongo	*Dicrurus macrocercus*
32.	House Crow	*Corvus splendens*
33	Jungle Crow	*Corvus macrorhynchos*

Wetland Protection Project of Nature Club Surat

SNEHAL PATEL, Nature Club Surat, 81, Sarjan Soc., Athwalines, Surat - 395007 (Gujarat)

Gavier Lake, situated about 7 km from the buzzing city of Surat in Gavier village, is the source of water for nearly 7 villages around it. Since it is very close to city and the surrounding areas are developing into housing colonies this lake has become very important to environmentalists and civic authorities. Earlier the lake belonged to the village panchayat. Now it is under the control of Gujarat Water Supply and Sewage Board. Until 1990 this wetland housed many migratory and resident waterfowl. The surrounding areas of the lake had private farms so that birds could take extra advantage. But now most of them have been converted to housing colonies and the birds have only limited place surrounding the lake. Sources of water to the lake are by rain and through a canal from Kakrapar dam. The lake is about a kilometer in circumference.

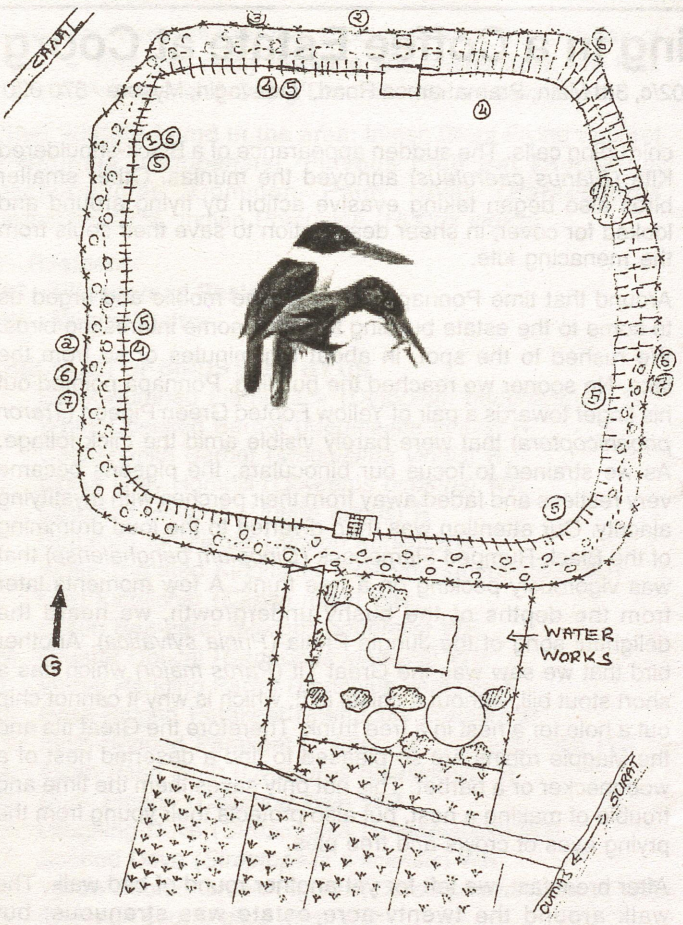
About 14 years ago Gujarat Water Supply and Sewage Board wanted to dig up the lake so that more water could be stored in the lake. Nature Club Surat went to the court and got a stay on the project. The case wad resolved through an out-of-court settlement. The Gujarat Water Supply and Sewage Board made arrangement for plants to be planted near the lake and the lake was dug a bit to accommodate more water. But as nature has its own way, the lake collected more sediments in the course of years, making it again a shallow wetland. So now there are two lakes, one belonging to the village and one belonging to Gujarat Water Supply and Sewage Board.

Members of Nature Club Surat visit the lake regularly. The lake has been included for Asian Water Fowl Census for the last 18 years. It was noticed that the number of migratory and resident birds were on a decline year after year. The last three years were the worst. Efforts were made to fence the lake with a six feet high chain link and then plant trees like Banyan, Peepal, Umro, Coral etc, to attract birds and butterflies. Permissions were obtained from the Gujarat Water Supply and Sewage Board and the village panchayat.

Clearing the periphery started in March 2004. The place was covered with thorny shrubs and trees *(gando baval)*. The fencing work was completed by May. On 5th June 'World Environment Day' tree plantation was initiated. The lake has on an average 20 feet wide land between the waterfront and the fence. Volunteers of Nature Club Surat visit the lake every Sunday to plant trees and water them. So far 500 trees have been planted. A full time watchman is employed to prevent hunting and trapping of birds.

The results started showing within a month. Birds and butterflies made their presence felt. In September we checklisted 74 different birds as against 38 in the previous year. Last year very few nesting activity was observed. However the nesting activities increased manyfold soon after the protection measures were taken up. From June 2004 to September 2004 we have spotted the nests of Baya, Streaked weaver bird, Paradise Flycatcher, Plain Wren Warbler, Bronze-winged Jacana, Purple moorhen, Purple Heron, Red-vented bulbul, Red Munia, White-throated Munia, Golden Oriole, Black Drongo. All the nests were successful and the fledglings flew away at the right time, bringing joy and pride to the members of the NATURE CLUB SURAT.

No.	Common Name	Scientific Name
1.	Cormorant	*Phalacrocorax carbo*
2.	Little cormorant	*Phalacrocorax niger*
3.	Pond Heron	*Ardeola grayii*
4.	Little Egret	*Egretta garzetta*
5	Night Heron	*Nycticorax nycticorax*
6	Grey Heron	*Ardea cinerea*
7	Purple Heron	*Ardea purpurea*
8	Chestnut Bittern	*Ixobrychus cinnamomeus*
9	Black Bittern	*Ixobrychus flavicollis*
10	Cattle Egret	*Bubulcus ibis*
11	Large Egret	*Ardea alba*
12	Smaller Egret	*Egretta intermedia*
13	Indian Reef Heron	*Egretta gularis*
14	Glossy Ibis	*Plegadis falcinellus*
15	Spot-bill Duck	*Anas poecilorhyncha*
16	Lesser Whistling Teal	*Dendrocygna javanica*
17	Cotton Teal	*Nettapus coromandelianus*
18	Pariah Kite	*Milvus migrans govinda*
19	Marsh Harrier	*Circus aeruginosus*
20	Painted Partridge	*Francolinus pictus*
21	Grey Partridge	*Francolinus pondicerianus*
22	White-breasted Water-hen	*Amaurornis phoenicurus*
23	Purple Moorhen	*Porphyrio porphyrio*
24	Common Coot	*Fulica atra*
25	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*
26	Bronze-winged Jacana	*Metopidius indicus*
27	Red-wattled Lapwing	*Vanellus indicus*
28	Little Stint	*Calidris minuta*
29	Greenshank	*Tringa nebularia*
30	Green Sandpiper	*Tringa ochropus*



	RICE FIELD (FARMS) ખેતરો
	LARGE TREES મોટા ઝાડો
	PLANTATION વૃક્ષારોપણ
	WATER OUTLET તળાવમાંથી પાણી બહાર જવાનો માર્ગ WATER INLET તળાવમાં પાણી આવવાનો માર્ગ
	NATURE TRAIL પ્રકૃતિક માર્ગ
	CHAINLINK FANCING લોખંડની જાળી
	ACASIA બાવળ

NESTING SITES OF BIRDS (AS MAP)
પંખીઓના માળાની વિગત

1. BAYA - સુગરી
2. PLAIN WREN WARBLER - પાન ટકટુકી
3. STREAKED WEAVER BIRD - રેખાવાળી સુગરી
4. BRONZWINGED JACANA - કાળો જલમોર
5. PURPLE MOORHEN - ભૂરી જલમુરઘો
6. WHITE THROATED MUNIA - ચુડિયું
7. RED MUNIA - લાલ ચુડિયું
8. RED VENTED BULBUL - પુલબુલ
9. PARADISE FLYCATCHER - દુધરાજ
10. BLACK DRONGO - કાળો કોશી
11. GOLDEN ORIOLE - પીળક
12. JUNGLE CROW - જંગલી કાગડો

31	Wood Sandpiper	*Tringa glareola*
32	Common Sandpiper	*Tringa hypoleucos*
33	Gull-billed Tern	*Gelochelidon nilotica*
34	Indian River Tern	*Sterna aurantia*
35	Sandwich Tern	*Sterna sandvicensis*
36	Black-bellied Tern	*Sterna acuticauda*
37	Little Tern	*Sterna albifrons*
38	Blue Rock Pigeon	*Columba livia*
39	Spotted Dove	*Streptopelia chinensis*
40	Little Brown Dove	*Streptopelia senegalensis*
41	Rose-ringed Parakeet	*Psittacula krameri*
42	Palm swift	*Cypsiurus parvus*
43	Indian Roller	*Coracias benghalensis*
44	Green bee-eater	*Merops orientalis*
45	Small Blue Kingfisher	*Alcedo atthis*
46	White-breasted kingfisher	*Halcyon smyrnensis*
47	Golden Oriole	*Oriolus oriolus*
48	Ashy-crowned Finch lark	*Eremopterix grisea*
49	Rufous-tailed Finch lark	*Ammomanes phoenicurus*
50	Red-vented Bulbul	*Pycnonotus cafer*
51	Black Drongo	*Dicrurus adsimilis*
52	Koel	*Eudynamys scolopacea*
53	House crow	*Corvus splendens*
54	Jungle crow	*Corvus macrorhynchos*
55	Ashy wren warbler	*Prinia socialis*
56	Plain Wren-warbler	*Prinia subflava*
57	Plain Leaf-warbler	*Phylloscopus inornatus*
58	Paradise Flycatcher	*Terpsiphone paradisi*
59	Yellow wagtail	*Motacilla citreola*
60	Starling	*Sturnus vulgaris*
61	Rosy pastor	*Sturnus roseus*
62	Black-headed Myna	*Sturnus pagodarum*
63	Common Myna	*Acridotheres tristis*
64	Bank Myna	*Acridotheres ginginianus*
65	Red Munia	*Estrilda amandava*
66	White-throated Munia	*Lonchura malabarica*
67	Black-headed Munia	*Lonchura malacca*
68	House sparrow	*Passer domesticus*
69	Baya	*Ploceus philippinus*
70	Streaked weaver bird	*Ploceus manyar*
71	Whimbrel	*Numenius phaeopus*
72	Fantail Snipe	*Gallinago gallinago*
73	Blue-cheeked Bee-eater	*Merops superciliosus*
74	Indian Great Reed Warbler	*Acrocephalus stentoreus*

Birdwatching in a Coffee Estate at Coorg

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Whilst many had drawn up their own plans for ringing in the New Year, we decided to do so in 'Coorg Dreams (Nimbeykad Estate)' a remote, picturesque coffee estate located near Gonikoppal, in Coorg District of Karnataka. Our family friend Prashanth, N. R. from Singapore, also joined us.

We had never dreamt that our very first visit to Coorg Dreams could provide us with such adorable moments, besides the much-needed respite from the tedious city life. When we landed at Coorg Dreams, the Greater Racket-Tailed Drongo (*Dicrurus paradiseus*) was the first to catch our attention and simultaneously we heard the Black-Rumped Flameback (*Dinopium benghalense*); as it delivered its high-pitched call and dashed across our path, at breakneck speed. The woodpecker's higher octaves were very pleasing to our ears.

To put it in a nutshell this estate is dotted with lots of coffee plants, pepper creepers, and imposing trees, with a cozy home nestled amid these sylvan surroundings. Mr. Ajith Ponnappa who owns the estate had arranged delicious, mouth-watering recipes for us. In many ways the estate redoubles as a resort cum home, away from home.

We were especially interested in spending the night in the open by pitching our own tent, and we informed our host accordingly. After a cup of hot coffee, we explored the estate for a suitable place to pitch our tent. We found a strategic place overlooking the valley and pitched our tent at that spot in no time.

We had almost an hour before the sunset and hence we took a stroll around the mini lake where we found two White-Throated Kingfishers (*Halcyon smyrnensis*) making determined efforts to catch their prey, before calling it a day. They were so much preoccupied with their vocation that they seemed to ignore our presence.

Around sunset we began collecting some dry twigs and our host Ponnapa instructed one of his workers, Kulla to set up the campfire. Kulla arrived and prepared the campfire and replenished dry twigs as and when needed to last the entire night. We cooked noodles for our dinner, sat around the campfire and engrossed in a lively discussion that went past midnight. Ponnapa and his family had arrived around 8 pm and made a vain bid to persuade us to return to our cozy guest rooms, rather than spend the cold and callous hours of darkness on a mid-winter night in the open, teeth-chattering and shivering. We thanked them for their genuine concern but opted for the strenuous tent-life amid campfire.

We found our tent absolutely cozy and after an undisturbed sleep, we woke up to the melodious calls of Plum Headed Parakeet (*Psittacula cyanocephala*) as they squealed and flew at impressive speeds. It was now time for us to take stock of the birds around the estate. The Common Kingfisher (*Alcedo atthis*) was our first bird for the New Year. No foliage is dense enough to conceal and no flower too brilliant to outshine the Common Kingfisher; the radiant little bird that dashes inches above water uttering its characteristic calls. It is the most glorious of the kingfishers – a sort of bluish brown kingfisher, with that impressive coral red beak. As we approached the lake we could see around 40 to 50 White-rumped Munias (*Lonchura striata*) chirping and moving about in small flocks on the green grassy patch. Bending down the tips of the grass they somehow managed to reach the seeds with their conical shaped bills. The entire flock took off suddenly uttering feeble chirruping calls. The sudden appearance of a Black-shouldered Kite (*Elanus caeruleus*) annoyed the munias. Other smaller birds also began taking evasive action by flying around and looked for cover, in sheer desperation to save their souls from the menacing kite.

Around that time Ponnapa called on the mobile and urged us to come to the estate building to watch some interesting birds. We rushed to the spot, in about ten minutes or so from the lake. No sooner we reached the building, Ponnapa pointed out his finger towards a pair of Yellow Footed Green Pigeon (*Treron phoenicoptera*) that were barely visible amid the thick foliage. As we strained to focus our binoculars, the pigeons became very restless and faded away from their perches with mystifying alacrity. Our attention was then diverted to the loud drumming of the Black-Rumped Flameback (*Dinopium benghalense*) that was vigorously pecking on a tree trunk. A few moments later from the depths of the bushy undergrowth, we heard the delightful song of the Jungle Prinia (*Prinia sylvatica*). Another bird that we saw was the Great Tit (*Parus major*) which has a short stout bill, without a chisel in it, which is why it cannot chip out a hole for a nest in a tree trunk. Therefore the Great tits and the Magpie robins are so pleased to find a deserted nest of a woodpecker or a barbet. This not only saves them the time and trouble of making a nest, but also protects their young from the prying eyes of crows and tree pies.

After breakfast, we left for yet another round of bird walk. The walk around the twenty-acre estate was strenuous; but rewarding in as much as we could see several species of birds and insects. The musically gifted Iora was in attendance with its choicest outpourings throughout our morning walk. The Magpie Robin also kept us company with its melodious song, rather intermittently. It was seen drooping its wings and cocking up its tail, as it moved about the leaf-littered ground in refreshing spurts, in search of insects and grubs. We chanced upon a Chestnut-bellied Nuthatch (*Sitta castanea*) climbing and sliding effortlessly on a tree trunk. It was deftly running upward, downward, and sideways to pick up minute insects along its path. A trifle smaller than a sparrow, this nuthatch is compactly feathered in bluish-slaty above, beautiful rich chestnut below and has a diagnostic white malar patch. We were quite lucky to discover the Blue-winged leafbird (*Chloropsis cochinchinensis*) as it restlessly flitted about the boughs of a medium sized tree. As the chloropsis moved from one leafy concealment to another, we became acquainted with the bird, by its appealing colours; the bright patch of bluish-green on the shoulders, the black chin and throat, and the bright purplish blue moustachial streak. By the time we returned to the house it was 1:30pm. Ponnapa's wife had prepared a sumptuous lunch. We rested a while before packing up for our return journey to Mysore.

This place is really secure, if you are in possession of a searchlight and lucky enough, you might sight a Common Palm Civet (*Paradoxurus hermaphroditus*). But the heartrending reports of poaching that has become a common practice in this area and the information that the locals and tribals habitually shoot birds for their meat, came as a brutal shock to us. Precious little is being done to educate them, about the need to protect

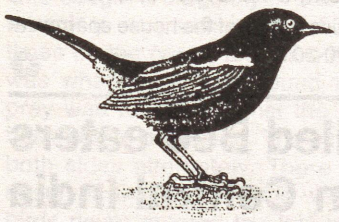
wildlife and birds. But for this shocking news, our first day of the New Year was really inspiring and cherishable. We took leave of Ponnapa and Coorg Dreams, with a heavy heart.

Other Wildlife found in the area: Indian Giant Flying Squirrel (*Petaurista philippensis*), Fulvous Fruit Bat (*Rousettus leschenaultia*), Common Palm Civet (*Paradoxurus hermaphroditus*), Indian Porcupine (*Hystrix indica*).

R – Resident
WR – Widespread Resident
WV – Winter Visitor

CHECKLIST OF BIRDS SEEN BY US

1. Black-Rumped Flameback (*Dinopium benghalense*) **R**
2. White-Cheeked Barbet (*Megalaima viridis*) **R**
3. Coppersmith Barbet (*Megalaima viridis*) **R**
4. Indian Grey Hornbill (*Ocyceros birostris*) **WR**
5. Common Hoopoe (*Upupa epops*) **R**
6. Common Kingfisher (*Alcedo atthis*) **WR**
7. White-Throated Kingfisher (*Halcyon smyrnensis*) **WR**
8. Pied Kingfisher (*Ceryle rudis*) **WR**
9. Green Bee-eater (*Merops orientalis*) **WR**
10. Greater Coucal (*Centropus sinensis*) **WR**
11. Vernal Hanging Parrot (*Loriculus vernalis*) **R**
12. Rose-Ringed Parakeet (*Psittacula krameri*) **R**
13. Plum-Headed Parakeet (*Psittacula cyanocephala*) **WR**
14. Asian Palm Swift (*Cypsiurus balasiensis*) **R**
15. Rock Pigeon (*Columba livia*) **WR**
16. Laughing Dove (*Streptopelia senegalensis*) **WR**
17. Spotted Dove (*Streptopelia chinensis*) **WR**
18. Yellow-Footed Green Pigeon (*Treron phoenicoptera*) **WR**
19. Common coot (*Fulica atra*) **WR**
20. Black-Shouldered Kite (*Elanus caeruleus*) **WR**
21. Black Kite (*Milvus migrans*) **WR**
22. Brahminy Kite (*Haliastur indus*) **WR**
23. Crested Serpent Eagle (*Spilornis minimus*) **WR**
24. Little Grebe (*Tachybaptus ruficollis*) **WR**
25. Little Cormorant (*Phalacrocorax niger*) **WR**
26. Little Egret (*Egretta garzetta*) **WR**
27. Indian Pond Heron (*Ardeola grayii*) **WR**
28. Black Ibis (*Pseudibis papillosa*) **WR**
29. Blue-Winged Leafbird (*Chloropsis cochinchinensis*) **R**
30. Bay-Backed Shrike (*Lanius vittaus*) **WR**
31. Rufous Treepie (*Dendrocitta vagabunda*) **WR**
32. House Crow (*Corvus splendens*) **WR**
33. Large-Billed Crow (*Corvus macrorhynchos*) **WR**
34. Small Minivet (*Pericrocotus cinnamomeus*) **WR**
35. Black Drongo (*Dicrurus macrocercus*) **WR**
36. White-Bellied Drongo (*Dicrurus caerulescens*) **WR**
37. Greater Racket-Tailed Drongo (*Dicrurus paradiseus*) **WR**
38. Common Iora (*Aegithina tiphia*) **WR**
39. Oriental Magpie Robin (*Copsychus saularis*) **WR**
40. Indian Robin (*Saxicoloides fulicata*) **WR**
41. Pied Bushchat (*Saxicola caprata*) **WR**
42. Brahminy Starling (*Sturnus pagodarum*) **WR**
43. Common Myna (*Acridotheres tristis*) **WR**
44. Jungle Myna (*Acridotheres fuscus*) **R**
45. Chestnut-Bellied Nuthatch (*Sitta castanea*) **R**
46. Great Tit (*Parus major*) **R**
47. Barn Swallow (*Hirundo rustica*) **WV**
48. Red-Rumped Swallow (*Hirundo daurica*) **WR**
49. Red-Whiskered Bulbul (*Pycnonotus jocosus*) **WR**
50. Red-Vented Bulbul (*Pycnonotus cafer*) **WR**
51. Jungle Prinia (*Prinia sylvatica*) **R**
52. Purple Sunbird (*Nectarinia asiatica*) **WR**
53. House Sparrow (*Passer domesticus*) **WR**
54. White-Browed Wagtail (*Motacilla alba*) **WR**
55. Yellow Wagtail (*Motacilla flava*) **WV**
56. White Rumped Munia (*Lonchura striata*) **R**



Some Aspects of the Breeding Cycles of the Indian Robin *Saxicoloides fulicata fulicata* (L.) of Dharwad (Karnataka: India)

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There is a general trend for the breeding seasons of birds to shorten from the equator to the poles (Baker, 1939 Murton and Westwood, 1977) and this is hardly surprising in view of the variations in ecological conditions (Murton and Kear, 1978). In support of this hypothesis latitudinal distribution of different congeneric species of birds, both aquatic and terrestrial, and their breeding seasons are often cited (Hiremath and Desai, 2003; Murton and Kear, 1978; Murton and Westwood, 1977 and Threadgold, 1960). One can add to such a list the latitudinal distribution and the breeding seasons of the common passerine bird, the Indian Robin *Saxicoloides fulicata fulicata* (L) of the Indian subcontinent. Following are some important features of the same, as observed by us in Dharwad (Lat. 15° 28'N).

1. *Saxicoloides fulicata fulicata* being a tropical species, exhibits a primitive or tropical breeding activity with a marked sexual dimorphism, promiscuity, short pair bond and long egg laying period.
2. In Dharwad this bird is an open nester and a double brooder showing nesting activities once in January and again in late August as studied by us for the last three and a half years i.e., January 2001 to August 2003.
3. In order to avoid predation of eggs and nestlings by their common enemy, viz. the common babbler *Turdoides caudatus* the female bird is regularly building the nest in an earthern pot fixed on the terrace of our house - Yeri. V.V.
4. The nest is made up of flat and soft bed of grass rootlets, feathers, hairs, etc.

5. Invariably the January clutch had two eggs while that of August had only one.
6. The reproductive success was 100% in January while in August, of the four eggs observed during 2000-2003 three failed to develop.
7. The female alone incubates the eggs, and she does not develop any brood patch.

While this bird is known to be a single brooder and to breed principally in April, May or June in S. India (Daniel, 1966), in Bhindwas Sanctuary, Haryana it breeds during May to September (Sharma and Harvey, 2003). During early March or late July particularly in Pune (Stuart, 1985), from March to August throughout the Subcontinent including Nepal (Carol and Inskipp, 1985), during February to July in Rishi Valley (Rangaswami and Sridhar, 1993). *S. fulicata* is a double brooder and breeds once in January and again in August, in Dharwad (Karnataka). Perusal of literature shows that the American Robin *Turdus migratorivs L.* is also a single or double brooder. Occasionally it breeds even thrice a year (Audubon, 1972).

Table 1 gives a clear account of the latitudinal distribution of the Indian Robin and its breeding seasons. It is evident from the account that the breeding season of *S.f. fulicata* gradually shortens from the equatorial region to the tropical and subtropical regions. Findings of Threadgold (1960), Sanjeeva Rao (1988), on the breeding season of the house sparrow *Passer domesticus* and by Hiremath and Desai (2003) on that of the Indian shag *Phalacrocorax fuscicollis* are in conformity with this concept.

In birds the average clutch size declines steadily as the season progresses and this may be an adaptation to increasingly poorer feeding conditions under which the young will have to be raised (Lack, 1968). The Indian Robin of Dharwad, with two eggs in January and only one in August has also adopted this principle.

Under tropical conditions photo-periodic entrainment is less well synchronised than under temperate conditions. So populations in the former are often less well synchronised in their breeding rhythms (Murton and Westwood, 1977). Probably for this reason, other conspecific forms of *Saxicoloides* like *S. fulicata and S.f. cambaiensis* have breeding seasons slightly different from that of *S.f. fulicata* even though they are all tropical forms confined to S. India.

Indian Robin *Saxicoloides fulicata fulicata* (L)
Latitudinal distribution and the breeding seasons.

Place	Latitude	Breeding season
Ind. sub-cont incl.	8°00'N - 38°00'N	Mar.-Aug.
S.W. Nepal	28°35'N-29°-40'N	Early Mar.- Late Aug.
Bhindwas (Haryana)	28°20'N	May-Sept.
Pune	18°32'N	Mar.-July
Dharwad	15°28'N	Jan. and Aug.
Rishi Valley	12°30'±N	Feb. - July
S.India	8° - 20'± N	Apr.-Jun.
Sri Lanka	6° - 9° 45'N	Jan.-Dec.

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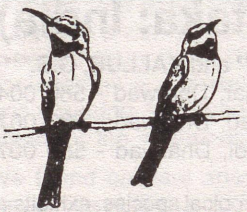

Breeding Behaviour of Blue-tailed Bee-eaters *(Merops philippinus)* in Central India

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In May 2003, master Kishor Dudhe and myself discovered a huge nesting colony of Blue-tailed Bee-eaters *Merops philippinus* near Upper Wardha dam on the bank of Wardha River near Morshi in Amravati district of Maharastra. Our grueling trips to the nesting colony in 2003 resulted in a short article in NLBW. Every trip included at least 130 km biking on my Honda, and venturing out in the grueling heat, heavy rains and then the chill of the mornings.

The breeding of Blue-tailed bee-eaters has been reported in North Pakistan, Northeast India, South Nepal and Bangladesh. Hence this might be the first record of mass breeding of the Blue-tailed Bee-eaters in Central India

According to Grimmet R. Inskipp R. and Inskipp C. Blue-tailed Bee-eaters breed in (summer) North and Northeast subcontinent, winters in peninsula and Sri Lanka. However, my findings of 2003 and 2004 prove that the bee-eaters arrive and start breeding in the first week of April (summer) in Central India and migrate to unknown locations with the new fledglings in mid-August (before the onset of winter).

Bearings of the colony site are: 21°16"27 N and 78°03"55 E. The elevation of water level is 991 feet above sea level. The height of cliffs is 50 to 55 feet. In my last visit on September, 13,2003 the birds were all gone with the fledglings. Our subsequent visits to the nesting site on December 29th and

31st in 2003 and on February 7th, 2004 yielded no sighting of the birds.

April 3, 2004:

When I was going to the nesting site, at Zero Point (21°18 "04 N and 78°01"90 E), which is 6 Km. west of the site, I saw a group of 11 Blue-tailed Bee-eaters foraging on dragonflies and bees. I was overjoyed, to see them come back for nesting.

I watched them for half an hour before going to the nesting site. The birds caught 2 dragonflies and 4 bees. When one bird brought a dragonfly and perched near another bird, the latter fanned and quivered its tail and demanded the food with open bill. But the first one flew.

I reached the colony site at 10 a.m. There were no birds! I decided to wait. Within minutes there was the familiar 'be-rek...be-rek' call high up in the sky. Soon a Blue-tailed Bee-eater landed on a *Acacia* tree on top of a cliff. Within the next 5 minutes, there were total 9 Bee-eaters, perched on the *Acacia.* One of them flew and clung to a cliff like a woodpecker, but with its tail fanned and supporting its body weight. It then tried to dig at the cliff by pecking at the soil. Then it flew over the cliff five times, looked at it and every time went back to its perch on the *Acacia.* At 10.15 a.m. all of them flew towards south. I noted that a Small Green Bee-eater *Merops orientalis beludschicus*, which was feeding above the cliff, had immediately shifted to the water level for feeding.

On April 19,2004 no birds were seen by Mr. Kranti Rokade. On April 29, Kranti saw a group of 12 birds near the Zero Point again.

May 5,2004:

When I was going to Morshi along with Kranti, we saw a Rufous-tailed Shrike *Lanius isabellinus* and a White-browed Bulbul *Pycnonotus luteolus* on a roadside puddle on a field fence. As we reached the nesting site, we saw two Monitor Lizards *Varanus benghalensis* basking in the sun near the bridge over the Wardha river. The bee-eaters were busy excavating the nest tunnels.

One caught a dragonfly in mid-air with a 'click' sound, brought it back to its perch on the *Acacia* branch, whacked it many times on the perch, and then devoured it. Every time the prey was whacked a 'tick' sound was produced. Sometimes the prey was rubbed against the perch and even juggled in the beak before devouring. The birds rub its beaks on the perch to both sides alternately. There were around 60-70 birds. We observed that all the birds were excavating new tunnels. The birds never entered the last year's readymade tunnels. This was evident from the shallowness of the tunnels, as the birds could hardly be accommodated, in most of the tunnels. However, some bee-eaters peeped out of those tunnels, which were about a foot deep.

White droppings were seen below the favoured perches viz., *Acacia* branches, hanging roots, *Calotropis procera* branches, and soil mounds. The birds were seen vomiting black coloured pellets, which were also seen below the perches. A crop of pellets was collected from below the favoured perches. The pellets were brittle, shining black, oblong and the average length was 16.42mm and average breadth was 9.77mm.

One bee-eater moved towards another on a perch, the latter vacated its perch and flew away.

Greeting signal:

When a bee-eater arrived, another one already clinging to the cliff fanned and quivered its blue tail with some excited notes. This was seen happening every time a bee-eater landed near another on the cliff. Also, it was observed that when this 'greeting signal' was not given; the arriving bird was actively attacked! Later, during the course of this study it was found that, this 'greeting signal' was given only to the members of the bee-eater 'family' or 'clan'.

May 9, 2004:

A short visit to the nesting site revealed that the birds were busy in excavating the tunnels. When a bird entered a tunnel, soil was thrown out from the tunnel. Then the bird reversed out tail first.

May 16, 2004:

Our visit to the nesting site at 1610 hours revealed the presence of only 5 bee-eaters at the nesting site. They were actively foraging for the dragonflies and honeybees and butterflies. The depths of the nest tunnels ranged from 90-110 cm.

May 30, 2004:

Two bee-eaters were seen fighting among themselves. Excavation continued, and three types of calls of the bee-eaters were noted.

Vocalisation:

The regular call of the bee-eaters when they are flying and hunting is 'be-rek'...'be-rek' which is also heard as 're-lip...re-lip'. The call during periods of danger is a continuous 'bik-bik-bik-bik...bik-bik-bik-bik' till the danger is over. At the very sight of a predator like a shikra, all the bee-eaters began flying in a centrifugal direction away from the nests with this alert call. The third call is an excited call given during the 'greeting signal' and can be described as 'beririk-beririk... beririk-beririk'.

June 19, 2004:

The weather was cloudy. It was observed that the bee-eaters did not land on the cliffs for one hour, and kept flying over the colony. Mating was observed after a male offered a dragonfly to a female.

July 1, 2004: Altruism:

Today I was alone at the nesting site. For some time I looked at the pretty birds. Then I decided to concentrate on a few birds, and a small portion of the cliff (let us call it a 'territory'), with only five tunnels, rather than looking at the whole colony. I sat with folded legs amongst a bush opposite to a cliff. I concentrated on a group (family?) of four bee-eaters (let us call them A, B, C and D), which often perched near each other. And every time one of them landed back on the 'territory' with only five tunnels, one of the two, A or B, already present on the cliff gave a 'greeting signal' to it. My observations of these four birds were noted as:

(1) Bird A was excavating all the four nest tunnels alternately.

(2) Bird B was excavating three tunnels out of the four, which bird A was excavating. Only bird B was allowed to perch very near to bird A.

(3) When bird B attacks or dodges bird C, the latter starts excavating, one of the four tunnels. Otherwise bird C just stays clinged to the cliff.

(4) When birds B and C are excavating, bird A keeps a vigil from a soil mound. When bird B lands on the 'territory', bird A gives a greeting signal.

(5) Bird D is continuously excavating only one of the tunnels. When bird D lands on the cliff, one of the remaining three give a greeting signal. When bird D wanders into adjoining 'territories', it is chased away and returns back to this particular cliff.

(6) If any other bird from outside this 'family' of four (who does not get a 'greeting signal') tries to land or intrude into this 'territory', it is chased and whisked out.

(7) If any bird from this family tries to perch near any other 'territory', it is actively chased by other birds and pursued only till it leaves the territory. However, the incidences of intrusion and subsequent chases seldom result in an active fight.

(8) No bird visited the fifth tunnel. It was only few cm deep and was probably abandoned.

After three hours of observation, I was happy to infer that Blue-tailed Bee-eaters have 'helpers' (here birds C and D) at nest and they excavated tunnels far more than the number of breeding pairs of birds. These 'false-starts' or 'supernumerary' tunnels may offer protection to the eggs, nestlings and incubating adults from nest-predators like Indian Water Monitor, Rat snake and other snakes, which are sighted near the colony site. Many tunnels are just a few centimeters to many centimeters deep. Tunnel excavation is sometimes abandoned because of obstacles like tree roots or hard soil or rocks. Last year we counted nearly 1100 nest tunnels, whereas the number of birds was only 250 -300. This time however the number of nest tunnels is only around 800 at the same site. The soil here is light, sandy and loamy and easy to excavate.

July 4,2004:

Excited over the new findings, I went back to the nesting colony, just after three days with fellow birders Mr. Jayant Wadatkar and Kranti. On the way to Morshi from Amravati, we found a full-grown Barn Owl and three Pied Crested Cuckoos dead on the road.

We took the prey count of the bee-eaters as dragonflies-19 (19.6%), damselflies-2 (2%), butterflies-53 (54.6%) (Mottled Immigrants-51, Lime Butterfly-1, Common Leopard-1), moth-1 (1%) and unidentified insects-22 (22.6%). Total prey items counted were 97.

One egg was found in the soil of a collapsed cliff and was measured to be 23 mm x 20mm in size. The egg was pure white and roundish oval. A pair of Common Myna *Acridotheres tristis*, a pair of White-breasted Kingfishers *Halcyon smyrnensis* and a pair of Indian Robin *Saxicoloides fulicata* were found nesting in the colony. However this did not seem to bother the bee-eaters much.

We observed that, before entering the nest tunnel, with a prey, the bee-eaters hover in front of the nest tunnel first and retreat to the perch. Again they fly, hover slightly and then enter the nest tunnel. This is practiced everytime the bird takes food to the nest tunnel. And every time the birds reverse back tail-first from the tunnel.

July 20, 2004:

Besides Mr.Kranti Rokade, Mr. Kedar Pawagi also accompanied me. A good prey count was taken by all of us. Probably this was the busiest day for the birds as every bird brought some prey for the nestlings. In all the visits the prey was taken to the nests, and never consumed by the birds themselves. Out of 170 prey items counted 120 (70.58%) were dragonflies, 43 (25.29%) were butterflies (34 Mottled Emigrants, 8 Blue Tigers and one Lime Butterfly) and 7 (4.11%) were small insects (bees and unidentified insects).

At 1610 hours a part of the cliff collapsed in front of us with a loud noise. This exposed two empty nest tunnels up to the egg chambers. We found that the egg chambers were 11-12cm high and 22-23cm wide.

Opportunistic Feeders:

A pair of Red-vented Bulbuls was seen perched on the Calotropis bush. When the bee-eaters brought a prey to this perch one of the Bulbuls dodged the bird. The Bulbul succeeded only once in robbing the prey, after trying many times. The bee-eaters did not try to attack the Bulbuls and they even perched next to the Bulbuls.

After some time a pair of Black Drongos arrived in the nesting colony. This pair directly attacked the bee-eaters returning with a prey. Once when a prey was dropped by a bee-eater, the drongo caught it in mid-air. The drongos were more successful in robbing the prey from the bee-eaters. The drongos attacked the Bulbuls and chased them out of the nesting colony. House Crows arrived on the scene and all the bee-eaters flew away from the colony. However, the pair of Black Drongos attacked these intruders and chased them away from the colony. The interaction of the Bulbuls and drongos was similar on all three days. After continuously observing the feeding activity in a cliff and marking the active nest tunnels on a map of the cliff we found that out of 91 nest tunnels in the cliff only 8 were active.

Social behavior:

Our observations about the **social behavior** of the bee-eaters are as follows:

(1) The bee-eaters have territorial and common perches. The territorial perches are defended aggressively. These might be a protruding root, a small bush or a soil mound near the cliff. The common perches are not defended actively. These are larger trees high above the cliffs.

(2) We started to divide the cliff into territories and families. Within hours we were able to divide a cliff into three parts, using perching, active nests, territorial fights, feeding to the nestlings, and the 'greeting signal' as clues. We found that the cliff had three families, viz., one with six members and three active nests; second with seven members and two active nests and the third with thirteen members and three active nests. Active nest here means the tunnel, which is being visited by the birds with prey for feeding the 'inmates.'

(3) We then divided another cliff into five territories, as: two families of five members each with only one active nest tunnel; one family of five members with two active nest tunnels; and two families of two members each with only one active nest tunnel each. This cliff had total 160 tunnels out of which only these 6 tunnels were active.

(4) In the families with five members we recorded following observations: (A) Maximum number of birds perching in the territory was five. (B) Maximum number of birds seen simultaneously with prey held in beaks was four. (C) One or two birds (helpers) always waited in the territory with prey held in their beaks, for long durations. They neither fed the nestlings nor ate it themselves. They were lazing away (?) their time. (D) Only two 'active feeders' (breeding

pair?) visited the nests with greater frequency. But as soon as this 'lazy helper' fed the prey to the nestlings, one of the 'active feeders' of the nest attacked it. (E) The helper is not allowed to sit without prey and is forced to bring another prey for the nestlings.

Some observations that aroused my interest are mentioned here: (1) In a 6-tunnel territory with one active tunnel, a member of the family visited another tunnel twice! It did not enter the tunnel but just clung to the tunnel opening and peeped in. (2) Once two birds entered in a tunnel one after another. Soon one reversed back. (3) The bee-eaters did not eat anything for themselves till the evening. (4) One intruder peeped into an active nest. However one bird that had already entered the nest with a prey came out, and chased this intruder till it left the territory. This happened twice.

At 1820 hours we noticed a sudden fall in the number of birds in sight. On observing minutely I noted that they were flying towards east. Immediately we followed on my bike. First we went along the Arvi road. This road was prepared by cutting through small hillocks. The roadside cuttings thus produced were having around 60 nest tunnels and 20 birds were seen flying up above. I checked the soil and found that it was loamy and easy to excavate. This site is nearly 500 meters away from the Wardha river basin, thus proving that the Bee-eaters also nested away from rivers.

Then we drove towards the Boating Club, which is at the eastern end of the dam wall. We found that the birds were perched loosely on electric wires along the roads. They were active, catching dragonflies, whacking it on the wire and devouring themselves! At 1845 hours a pair was seen mating on the wire itself. We left the area at 1900 hours.

August 2, 2004:
An ammonia-like stench pervaded the nesting colony. It was more pronounced in the east-west erosion gully of the colony. The chicks were peeping out of the nest tunnels. The Bee-eaters were feeding the chicks. One Common Grass Yellow butterfly was fed to a chick. One or two bee-eaters were seen lying flat on the soil mound on the belly with the wings wide open. They were rubbing the belly against the soil, probably to get rid of some ecto-parasites.

Roosting:
At 1820 hours the Bee-eaters started flying towards east. We too followed them on my Honda. All birds were perched on electric wires along the roads. Mr. Kranti Rokade went on counting as I drove along the rough road upto 5 kilometers. We again counted more than 500 Bee-eaters! The Bee-eaters were active and catching dragonflies. We turned back but stopped at a vantage point, which gave a picturesque view of a valley on one side and a large part of the water reserve in the dam on the other side.

At 1915 hours, Kranti saw something like a 'twister' in the mirror of the bike. Frightened we looked back and lo, there were more than 500 Bee-eaters flying and gliding high in a formation that looked like a balloon-shaped 'twister', in which all the birds were flying in circles. The 'twister' moved towards the valley and at once it came down into the valley and everything fell silent. It was like the musical fountains stopping as soon as the current is put off! That means, the birds roosted in the trees in the valley far away from the nesting colony! I wonder whether the Bee-eaters perform this exercise or 'ritual' every evening before going to roost!

August 18, 2004:
There was silence at the colony site! Only two Blue-tailed Bee-eaters could be seen flying high over the site! Rest of the birds had all migrated with the fledglings! All the riverside nesting cliffs had collapsed due to heavy rains! I felt sad on departing them! The unpleasant ammonia-like odour was the only thing they had left behind. While coming back to Morshi I saw one more Bee-eater near the zero-point that was exactly where I had seen my first Blue-tailed Bee-eater this season.

August 25, 2004:
Mr. Kranti visited the site, noted three bee-eaters flying high over the colony, which disappeared after some time.

Epilogue:
The bee-eaters were also sighted at three other locations in Central India viz., at Itiadoh dam in Gondia district (by Mr.P.M. Lad), at Yawal Sanctuary in Dhulia district (pers. com. Mr.Jayant Wadatkar) and in Akola district (pers. com. Mr. Laxmishankar Yadav). Also according to a note in Sanctuary Asia, August, 2004 (Anonymous), "an astounding 20,000 (twenty thousand!) bird nests have been estimated along a 20km stretch of the Wardha river!"

Acknowledgement
The author is indebted to Mr. S. Sridhar, Bangalore, for guiding and providing scientific support. The author is grateful to Dr. Satish Pande, Pune, Dr. Asad Rahamani, BNHS, and Dr. Reuven Yosef, Israel, for continuous encouragement. Mr. Kranti Rokade, was a real help. Thanks to Master Kishor Dudhe, Mr. Jayant Wadatkar, Mr. Kedar Pawagi, Mr. Satish Charthal, Mr. Raghavendra Nande and others for accompanying me during the trips.

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CORRESPONDENCE

SMALL YELLOW-NAPED WOODPECKER Picus chlorolophus IN MANGROVE FOREST OF SUNDERBANS TIGER RESERVE, INDIA. *ARUNAYAN SHARMA, N.S. Road, In front of T.O.P. Malda - 732 101, West Bengal, India. E-mail : s_arunayan@rediffmail.com*

On 14th December 2001, I was in the Sunderbans Tiger Reserve, West Bengal, as part of a tiger-census team. At around 1300 hrs, while returning from a pugmark recording visit, I found a dead woodpecker near a sweet water pond in the Ponchomukhani Block-2. It appeared to have died only a short while ago; perhaps fallen prey to some raptor. I noted the following aspects of its plumage: Yellow nuchal crest, red markings on head, greenish upper back and spotted underparts. It appeared to be a male Small Yellow-naped Woodpecker *Picus chlorolophus* (Grimmett *et al* – 1998, Kazmierczak *et al* 2000). Dr. Asad R Rahmani, Director BNHS, later confirmed my identification through the photographs.

Since then I have been to the Sunderbans Tiger Reserve many times to look for this species. Between 5 - 29 April, 2002, I went

to the Sunderbans delta along with a National Geographic team from U.S.A., as a field assistant in their shark study. During my period of stay in the Sunderbans Tiger Reserve and Sunderbans Biosphere Reserve, I was able to record a few individuals of this species; only deep inside the Sunderbans Tiger Reserve. The first single sighting was on 15th April at Bagmara (core area), the second was also at Bagmara on 17th April, followed by two individuals on 21st April at Chamta (primitive area) and one individual on 22nd April also at Chamta. It was recorded as rare in those areas.

This species is known to occur along the terai, duars and foothills of the lower Himalayas from Arun valley in Nepal eastward through Sikkim, Bhutan and NE India. It is also found in the hills south of Brahamputra, in Manipur, Mizoram, Bangladesh and hills of Bihar, Orissa. Krys Kazmierczak refers to isolated record of this species from the lower part of Bangladesh (East Bengal). The only confirmed reports of this species' presence in West Bengal have been from Jalpaiguri district (Majumdar et al 1992).

The Small Yellow-naped Woodpecker prefers mixed-deciduous and evergreen secondary jungle from terai and foothills to c. 2000m (Ali & Ripley - 1989), deciduous and broad leaved evergreen forest and forest edges (Grimmett *et al*-1998) and mixed deciduous ever green and secondary jungle, including teak, bamboo, rubber and coffee plantation (Kazmierczak *et al* - 2000).

The forest type of Sunderbans Tiger Reserve is primarily mangrove classified as Tidal Swamp Forest, Saline Water Type Mixed Forests, Brackish Water Type Mixed Forests and Palm Swamp Type (Champion *et al* – 1968). The first finding of a dead specimen of small Yellow-naped Woodpecker followed by several live sightings from the Suderbans, thus happens to be the first record of this species' presence not just in mangrove habitat but also from lower West Bengal. It was found that the species is rare in the Sunderbans Delta and only habituated to the deep wooded forest area. It is quite possible the species might be more widespread along these mangroves and in the adjoining mangrove belt of Bangladesh.

Acknowledgement :
I am grateful to Dr. Asad R. Rahmani for confirming my identification and Mr. Sunjoy Monga for providing me useful information and encouragement for writing this note. My thanks also to Ms. Collete Beaudry of National Geographic, U.S.A. and Mr. Pradip Vyas, Field Director of Sunderbans Tiger Reserve.

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HOUSE CROW (CORVUS SPLENDENS) FEEDING ON GUM OF ACACIA NILOTICA AT JODHPUR, RAJASTHAN. *Anil Kumar Chhangani, Department of Zoology, J.N.V. University, Jodhpur - 342005, E-mail : chhanganiak@yahoo.com.*

On August 2, 2004, at 1745 hrs I was coming back from Keru "Municipal Corporation Dumping Ground (MDCG)" observing vultures. I stopped to observe the Hanuman langur (*Semnopithecus entellus*) troop at Kayalana lake. The langur troop was feeding on provisioned food like wheat and millet, chapatti, potato, peanuts, maize and banana given by people. The provisioned food was plenty and was also consumed by many birds and animals like crow, sparrow, myna, mongoose, cow and dogs. Several crows were feeding on wheat and millet chapatti, peanuts, etc. After feeding on provisioned food, one crow flew to the broken branch of *Acacia nilotica* and started feeding on the some thing at the broken spot for 5-6 minutes. I thought it must be feeding on some insects etc. When the crow flew away another crow came and fed at the same spot for about 2 minutes. When they all flew away, I went close to the broken branch and I saw no insect, but gum was oozing from the broken part of the branch, which was consumed by the crows.

The house crow is a well-known scavenger and takes practically everything that can be eaten (Ali & Ripley, 1983; Pilot and Soniya, 2002) also reported house crow feeding on nectar/fruits (Santharam, 2002) and seeds (Natarajan, et. al., 1992). The gum feeding in mammals particularly primate species has been reported by many scientists (Chhangani, 2000), but this for the first time that house crow has been reported feeding on the gum of *Acacia nilotica* and is worth recording.

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CONFIRMATION OF PRESENCE OF GREAT INDIAN BUSTARD IN GHATIGAON SANCTUARY AND RELATED PROBLEMS. ***Gaurav Parihar**, Nai Sadak, Kaith Wali Gali, Lashkar, Gwalior (M.P.) and **Dr. RAJIV SAXENA** M-853, Darpan Colony, Thatipur, Gwalior - 474 001 (M.P.)*

This refers to Asad R. Rahmani's article "Need for Project Bustard" (NLBW 2002 42(2):18-19). Similar articles came

through internet also, with additional information on its status in 1985 and 2001. Figures show that while in Karera Bustard Sanctuary, Shivpuri (M.P.). Great Indian Bustard is locally extinct it is still present in Ghatigaon Bustard Sanctuary, Gwalior (M.P.). We wish to confirm its presence in Ghatigaon and point out some recent problems in its conservation.

One of us (GP) saw three bustards - one adult male and two sub adults near Rai village just inside Ghatigaon Sanctuary on 13th Oct. 2000, Between 5.30 and 7.30 am. This sanctuary is approachable from Ghatigaon along Agra - Bombay Highway. After a visit to the sanctuary that lasted two hours, one female was sighted near the newly laid broad gauge railway line between Gwalior and Shivpuri, its faeces contained Zyzyphus seeds.

In 2000 and 2001, the miners whose mines have been closed and who are now dependent on illegal mining inside the sanctuary, and local politicians supported by Zilla Panchayat, made concerted efforts and sent a proposal to Govt. of M.P. to denotify the sanctuary, on the pretext that there were no bustards in the sanctuary now.

The forest staff of the sanctuary successfully produced evidence that these birds were actually present there and publicized their finding in newspapers.

Resenting such efforts to save the rare species, lawless elements made threatening phone calls that those who opposed their moves would also disappear like the bustards. Bold action on priority basis is called for to save the bustards and to prevent denotification of the sanctuary. It will be a shame if Gwalior district looses its only protected area.

So far, dedicated individuals, NGO's and court intervention have saved this sanctuary, but for how long, nobody knows.

* * *

UNUSUAL SIGHTINGS OF SARAS CRANE (Grus antigone). *Anil Kumar Chhangani, Department of Zoology, J.N.V. University, Jodhpur-342005, E-mail : chhanganiak@yahoo.com.*

The Sarus crane (*Grus antigone*) is the only resident crane distributed in India (Ali and Ripley, 1980). It was previously widespread in south Asia; recently its range of distribution and population have reduced (Gole, 1989; Meire and Archibald, 1996).

A district-wise survey conducted by Gopi Sundar *et al* in Rajasthan in 1998-99 revealed that it is commonly encountered with central and southeastern parts in summer months. But during the same survey conducted in winter the bird was not encountered in Jodhpur district. Earlier, in Jodhpur sarus cranes were observed during winter months (Agoramurthy and Mohnot, 1989, Chhangani, 2002). On April 21, 2003 around 4 pm, while on a study of the impact of drought on wildlife in Luni Block, I saw one sarus crane in the dry river bed of river Jojari on the way to Fitkasni village. I stopped to observe through my binoculars (10 x 50) and saw the bird feeding in the mud of the river. No agricultural activity was possible due to lack of water during these three years. However, utilising the sewerage water from Jodhpur city that was being let in to the river, a few farmers were growing crops like mustard, wheat and vegetables. It was due to this reason that insects, frogs and other small forms of prey could also be present and prove a source of attraction to birds in the area, even though the year 2003 faced the worst drought with its adverse impact in the sanctuaries of the area.

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RED JUNGLE FOWL (Gallus gallus) *Dr. RAJIV SAXENA,* M-853, Darpan Colony, Gwalior - 474 011 (M.P.)

Red jungle fowl is considered the ancestor of all domestic chickens (Ali, 1996). Brisbin *et al* (200), the character of genetically pure red jungle fowl include (1) a complete moult to an overall dark/black"eclipse" plumage by male following the breeding season (generally June-September) and (2) complete absence of a comb in adult female, as common features of this bird species.

They suggested that a more likely ancestor of domestic chickens would be more docile in disposition, show a prominent comb in hens, and might lack an eclipse plumage in the male. The discovery of such a population would leave unanswered the question of the status of populations of India.

Whether the Red jungle fowl is the real ancestor of chickens or not, will be proved with genetics and other methods in future. But it is interesting to note that they were taken from one country to another and not eaten for a long time.

The Vedas testify that red jungle fowl was prominent on the list of sacred animals as far back as 1000 BC. The sacred book of Persians 'Avesta' provides detailed description of the house-cock's mission of driving away the evil spirits of the night with its crowing and thus making life safe for people. The cocks were never killed and there was the death penalty for slaying one.

King Darius brought jungle fowl from India to Persia. There also, they were protected by law as their main function was to help the sun fight the darkness with their early morning calls. From Persia, they moved to Rome where these sacred birds were used by priests to foretell the outcome of battles and to influence other decisions. Julius Caesar wrote that Britons also considered it a sacrilege to eat chicken flesh.

Gradually, they lost their sacred use and began to be bred for gastronomical purposes. Chickens reached America in 1493 with Columbus's second expedition. America sent turkey to Europe in 1519 or 1530 according to two versions.

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Book Review

FOREST TREES OF SOUTH INDIA. S.G. NEGINHAL, *# 643, 9th Main, 2nd Cross, III Stage, III Block, Basaveshwaranagar, Bangalore - 560 079.*

The plant diversity on this planet especially the Tree Diversity not only gives beauty to the landscape but supports a wide variety of life forms from microorganisms to large animals; It is this fact that fascinates the whole world with the variety of microhabitats to large ecosystems.

Trees also form the most inseparable biological unit for all human needs like timber, fuel, fodder, medicine etc. For a long time the emphasis on the diversity of trees that play a major role in human welfare is put to threat by way of dislodging them from natural habitats to produce more food related crops for the growing human and animal population. In the wake of sustainable management of living resources, trees have shown the way, not only to harbour the variety of life forms, also directly played a major role in the life of farming and other rural communities at large in most of the developing countries and underdeveloped countries and indirectly the developed world.

It is refreshing that *Forest Trees of South India* is reaching the hands of people concerned at an appropriate time, when a lot of discussion and planning is going on for conservation of tree wealth and tree cover of this land mass.

The growing stock of many valuable tree species of *Terminalia, Lagerstroemia, Hopea, Artocarpus, Calophyllum, Diospyros, Myristica, Cinnamomum, Ficus* and others like *Vateria indica, Poeciloneuron indicum, Kingiodendron pinnatum* and *Anogeissus latifolia* are a few along with a host of timber, fuel, ornamental, economic value and littoral forms, play a crucial role in the maintenance of ecosystems. Many from these categories are losing ground in their natural habitats owing to their over exploitation or habitat destruction.

A large number of these species have entered the *threatened plants* list. It is distressing to note that several species are facing regeneration problems in their natural homes

Trees not only perform their role as a component of climax vegetation, but also have a variety of roles to play in other locations as avenue trees, trees of aesthetic value, fruit yielding trees, trees for shade, timber, fodder, medicine etc. This clearly shows the importance of trees and justifiably the knowledge that is essential for all managers of natural resources.

Majority of the publications available speak of a few well-known species and do not attempt to dig into a host of resources that is untapped in most of the tropics. Some of the publications brought out during the pre-independence period like *Hortus Malabaricus* by Van Rheede, *Flora Sylvatica* of Southern India by Beddome, *The Forest trees of Travancore* by Bourdillon are note worthy. The later attempts of *Flora of British India* by J.D.Hooker and *Flora of Madras Presidency* by Gamble, *Flora of Bombay Presidency* by Cooke give a fair account of trees in them. Many books on flora have appeared for various regions including the states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. However, an exclusive compendium on the trees of peninsula was wanting.

The author perhaps enthused by the response to his earlier work *Handbook of City Trees,* felt prompted to venture into the great task of compiling the tree wealth of Southern India more comprehensively.

The Book covers an extensive region of Peninsular India with four major states, Goa and part of Maharashtra. About 988 species belonging to 89 families of flowering plants and also ferns are included. About 176 colour illustrations along with 193 line drawings are included. The introduction provides the details of the area covered with physiography and vegetation. Emphasis is laid on major areas of plant explorations made in the past. Several lists of plants with valuable information on various aspects of utility of the species like medicine, timber, food, ornamental, sacred plants and some specialty plants are provided. A list of abbreviations used in the text is provided. A list of families along with number of species covered and page numbers are provided. The list of colour plates included in the book is provided followed by the plates.

The families are organised as per Bentham and Hooker's treatment with some modifications and the genera and species are alphabetically listed. The synonyms and local / common names are also provided with emphasis on the south Indian languages. Although it is not a taxonomic work, the author's effort is highly commendable, making good compilation and also providing his experience and observations on many species from several forests of Karnataka and adjoining states.

The book offers good information to foresters, horticulturists, birdwatchers and others who require simple information and tips for observation of the characters and recognising the plants. It is useful for all birdwatchers and general public who have a flair for taking field notes of the events observed, but they often give wrong reference to the plants. This book offers easy identification to most of the commonly available trees. The text in respect of each of the species also provides some special notes on the treatments of the species by earlier botanists. A glossary of terminologies used and index for scientific names and common names provided at the end of the text are very useful for the users. The illustrations are very good and helpful in recognising the plants. The line drawings adopted also add to the utilitarian aspects of the book. The book could have been more useful to the botanists had nomenclature details were more thoroughly looked into to meet the contemporary standards.

The size of the book enabling easy handling makes it more user friendly in the field. It is highly commendable that the author has put in all his effort to bring out a good quality book.

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Cover: **Painted Stork** (*Mycteria leucocephala*) at nest, in the Veerapura heronry in May 2002. Perhaps the largest known congregation of Painted storks in Asia was noticed at Veerapura in 2002. This stork is distributed in India, Sri Lanka, Nepal, Myanmar, Cambodia, and Vietnam. According to *Wetlands International*, there are less than 10,000 Painted storks in Southeast Asia and another 15,000 Painted storks in South Asia and the population is declining.

Photo S. Sridhar, ARPS