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INTERNATIONAL SYMPOSIUM ON ENVIRONMENTAL AND HORMONAL APPROACHES TO ORNITHOLOGY

DR.MRS. ASHA SAKLANI, Garhwal University, Srinagar, Garwal

Ornithological activity in India has been going on for a long time. But unfortunately it has been confined to watertight compartments which in their own right have made an international impact but never intermingled so far. On one side are the naturalists, the lovers of birds, of the environment, living on the verge of fantasy. On the other hand are a small group of hard-boiled scientists basically dealing with hormones who within the confines of the laboratories often get so deeply involved with the insides of the birds that they even forget what the poor bird looked like. The ecologists perhaps represent the sensible compromise between the two extremes.

The chief objective of the symposium was to gather, for the first time ever, all the categories of ornithologists on a single forum (as evident from the rather longish title of the symposium) as also to provide a platform especially to the younger enthusiasts, to interact with leading authorities in the field, including some from different countries, thus giving an impetus to ornithological researches in the Indian subcontinent. One other objective was to highlight the contribution of Ornithology to some basic and applied aspects of our living world with special reference to a developing country like ours.

It is a pleasure to report that these objectives have been more than met with. Eighty five delegates including 25 from overseas had confirmed participation before the earthquake. The actual tally excluding the earthquake and other drop-outs was 65 including 20 from overseas. Seven members of the International Ornithological Committee (IOC) Walter Bock - Permanent Executive Secretary IOC; Jan Pinowski-Vice Chairman Executive Council; Asha Chandola-Saklani-Executive Councillor; Cynthia Carey-Executive Councillor; Raymond O'Connor, Manjit Dhindsa, Tsukasa Nakamura, and two members of IOC subcommittees (B.M. Parasharya and B.N. Bhattacharya) were present. The Chairman International Committee of Avian Endocrinologists (Susumu Ishii) was also present with a big contingent. A remarkable feature of the symposium was the representation of different well-known Institutions of the country, including various ICAR Centres of All India Co-ordinated Research Project on Ornithology, Viz. Andhra Pradesh Agricultural University, Banaras Hindu University, Central Arid Zone Research Institute, Jodhpur, Delhi University, Garhwal University, Gujarat Agricultural University, Indian Institute of Horticultural Research, Indian Institute of Sciences, Kurukshetra University, Manipur University, Meerut University, Punjab Agricultural University, University of Agricultural Sciences, University of Baroda and World Wide Fund for Nature (India). This was rendered possible chiefly due to the efforts of the Indian members of the IOC Zafar Futehally and Manjit Dhindsa. Padmashri Sri Zafar Futehally who was to inaugurate the symposium could not make it at the last moment due to a health emergency.

Fifty four papers including 18 reviews were presented at the Symposium in three hectic days of jam packed sessions on Feeding Ecology, Agricultural Ecology, Habitat Ecology,

Reproduction, Environmental Conservation, Evolutionary Biology, Migration and Rhythms. There were some general papers also. The quality of scientific presentations was excellent (barring a few of course!). Apart from the opportunity it provided for intellectual interactions important outcomes of the Symposium were:

- agreement on several collaborative programs e.g. between the ICAR group (represented in its entirety at the Symposium) and Institute of Ecology, Polish Academy of Sciences, Poland on Economic Ornithology; between Garhwal University and Japanese Institutions on assessment of faecal hormones in endangered species.
- agreement on publication of selected presentations by Journal of Biosciences (Indian Academy of Sciences, Bangalore) as a supplement on Ornithology - Walter Bock, Asha Chandola-Saklani and Susumu Ishii serve as the guest editors.
- the decision to increase the Indian representation at IOC at least by one
- decision to bid for the organisation of one of the future International Ornithological congresses in India.
- an overwhelming support for the Ornithological Society of India which is in the process of registration.

It would have been a lot easier and less expensive to organise the Symposium in Dehradun which offers star facilities but it would have been a lot less fun for the nature loving ornithologists. It was thought desirable to bring delegates to the heart of the Himalaya — although it was not the best season for bird watching. These mountains abound in avifauna, characterised by biogeographic and ecological diversity and envelope in their fold environmental extremes of tropics to tundra affording a unique opportunity to study how birds adapt to diverse ecosystems - all within a width of 150 km!

One unhappy aspect of the Symposium and which restrained the traditional highland hospitality somewhat was lack of funds in the wake of the current ban imposed by the Indian Govt. on agencies known for their generous funding like DST, DOEn etc. from financing conferences. Consequently financial assistance to participants was limited to a very few delegates especially to a few of the younger generation. The organisers were, therefore, extremely grateful to the delegates for having made the symposium a success by coming all the way at their own expense, some from abroad. Resources in this remote area are limited but the highland affection and merry making were evident at the social evenings (including bonfires!) and Himalayan habitat excursions.

Symposium was sponsored by the University Grants Commission, Council of Scientific and Industrial Research, Indian National Science Academy, Garhwal University and Ornithological Society of India.

The Organising Committee of the symposium constituted: W. Bock USA (Chairman), E. Bucher, Argentina, A. Chandola-Saklani India (Secretary), M. Dhindsa India, B. Follet UK, Z. Futehally India, E. Gwinner Germany, P. Lal India, T. Nakamura Japan, J. Pinowski Poland, B. Silverin Sweden and M. Wada Japan.

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A CORRECTION

In the list of THREATENED WATERFOWL OF SOUTH & WEST ASIA - REGIONAL POPULATION ESTIMATE (Vol. 31, No. 11 & 12, Nov.-Dec. 1991), Some numbers have jumped the columns while retyping. The correct figures are given here.

THREATENED WATERFOWL OF SOUTH & WEST ASIA REGIONAL POPULATION ESTIMATE

- () : Not threatened globally, only in the region
 + : Present other regions of the world
 ? : Relies on partial or old data

	South	West	Winters Elsewhere
Spot-Billed Pelican	6000		
Dalmatian Pelican	1000	1500	+
Pygmy Cormorant (African Darter)		10-20,000?	+
Indian Darter	2000		+
White-Bellied Heron	100?		+
Lesser Adjutant	1000		+
Greater Adjutant (Black-Necked Stork)	100 300 ?		+
Lesser White-Fronted Goose		25,000?	+
Bar-Headed Goose	20,000		+
Red-Breasted Goose		100 ?	+
White-Winged Wood Duck	100 ?		+
Marbled Teal	2000	15,000	+
Baer's Pochard	100?		+
Ferruginous Duck	5000	2000?	+
White-Headed Duck	200	4000	+
Black-Necked Crane	300 ?		+
Siberian Crane (Watercock)	10 500	10	+
Masked Finfoot	100?		+
Sociable Plover	100's?	1000's?	+
Slender-Billed Curlew		10's?	+
Asiatic Dowitcher	50?		+
Spoonbilled Sandpiper	250		+
Nordmann's Greenshank	100		+
White-Eyed Gull		300+	+?
Black-Bellied Tern	300		
Pallas Fish-Eagle	200?	?	+
White-Tailed Eagle	10's?	300?	+

Note: these estimates are very tentative, and prior to any AWC data analysis
 C. PERENNOU

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EDITORIAL

Scientific Notes

Salim Ali once told me that ornithology was getting too scientific for him, infested with graphs, statistics, tables and so on, which somehow took the joy out of birdwatching and reading about the experiences of others. He recognised of course the crucial value of statistics and scientific data. Perhaps it is not impossible to combine the two pursuits, and while carrying out fact finding missions not to ignore the beauty of the scene. In the long vigil kept by the Devasahayams on the bird bath (Newsletter Nov-Dec 1991), they must have observed some alluring incidents, and an appropriate interjection would make such notes more appealing. The reference to the fact that jungle babblers cannot fly away immediately after their bath must make them easy prey for shikras, and very soon these raptors will take up positions near the bird bath in the hope of an easy meal.

Our bird bath in the Andheri garden in the suburbs of Bombay, provided me with much entertainment. The eastern grey wagtail was the daintiest visitor, and even while bathing it retained its poise and elegance. As for the white spotted fantail flycatcher, its continued tingling song even in the bath, made it more appealing than the models advertising Liril soap. What would the birds say if they saw us struggling with mugs and towels in our bathrooms? The sight I recall vividly is of a house crow always at hand to annoy the Pariah Kite which came for a drink in the evening. As the kite bent forward into the container for a sip the crow tugged at its tail feathers. The kite turned around in helpless fury, and the crow was in position again to annoy the visitor. Salim Ali's reference to the crow and its life spent in "wrong doing" must find an echo in the hearts of all avians.

Birds and Land-use Planning

Readers of our Newsletter must have realized how much valuable data birds provide relating to appropriate land use. Reports of deaths of birds alert us to the overuse of pesticides; the disappearance of some species (e.g. the Hill Myna in the article by Prasad and Subramanya, and the Little Ringed Plover in the note by Neelakantan) points to undesirable physical changes in the environment. The mess that the planners made of the Mahim Creek in Bombay was partly arrested I think because of the last minute concern for the terns, the gulls and the plovers. Our

Newsletter must aim some day, to produce a memorandum for our Government on our land as it should be through the eyes of a bird. In England a sector of a serious project was held up to allow a plover to complete its nesting cycle. It is time for us to initiate a scheme for protecting even miniscule areas — a single tree, a puddle, and similar habitats as 'Sites of Special Scientific Interest (SSSI)'. This idea, I believe, is catching on in England. Perhaps we can request Sandy Hill (whose letter appears in this issue) to let us have information about this.

Forest Spotted Owllet or Blewitt's Owl

I was recently presented with The Encyclopedia of Vanished Species. Though the price on the jacket is \$ 25/-, a slip inside says: "exclusively imported and distributed in India by Wilco International, 33 Ropewals Lane, Off Rampart Row, ITTS House, Fort, Bombay 400 023", and apparently it is available for Rs.180/- — quite a discount. It is a splendid book with a Foreword by HRH The Duke of Edinburgh. This confirms its quality.

I was interested to read this note about the Forest Spotted Owllet *Athene blewitti* : "This owl inhabited the dense jungle areas of Central India near Sambalpur and Marial. It has not been seen since 1914 when the German

collector Minertzhagen shot one in the now vanished Mandvi Forest, 320 km (200 miles) north of Bombay.

"The Forest Spotted Owllet was a small owl about 23 cm (9") long with rounded wings. It was to be found in the moist deciduous jungle and among groves of wild mango, and seemed to favour the neighbourhood of streams. It was apparently not nocturnal: 'some specimens were shot in heavy jungle below the Satpura Hills late in the morning while sitting alone on the exposed tops of thin trees'. Though less than a dozen specimens have ever been taken, all exhibit one physical peculiarity: the quills on the heavily feathered feet present a jagged appearance where the filaments of the feathers have been somehow worn away.

"In February 1975, the foremost authorities on Indian birds, Dillon Ripley and Salim Ali, set out to find the owl if it still existed. They found that the Mandvi jungle had been completely cleared so they searched carefully through the forested areas of the Mahanadi River. They carried equipment to play tape recordings of owl cries at dusk and in the evening, and called forth every known owl except the one they were hoping to find."

Let us hope that like Jerdon's Courser, this owl will reappear.

BREEDING OF WHITE-EYED BUZZARD IN DESERT

R.G. SONI, Conservator of Forests, IGNP Stage II, Sagar Road, Bikaner 334 001

The White-eyed Buzzard *Butastur teesa* is well distributed over the Thar Desert also, besides being found in open deciduous forests, scrub and cultivated lands of north and central India. I have frequently seen single birds perched on electric/telephone posts in Bikaner, Jodhpur and Jaisalmer districts. This 43 cm long, smaller than a Pariah Kite *Milvus migrans govinda*, brownish bird with distinct whitish flanks and upright perching posture can be easily distinguished from all other birds of prey of this area from a distance. On closer observation white throat with three black lines running downwards, buff patch on the nape and, of course, white eye with black centre confirm it.

It was by chance that I noticed a bird on nest 60 km from Bikaner on Pugal road on 4 April 1991. The nest was on a telephone post 15 ft above the ground. It was made of twigs, looked a bit bigger than a crow's nest, measured 46 cm across and was fairly deep. The pair had adapted to the desert conditions and built its nest in open as there are no mango trees or groves of thickly foliated trees. The nest was barely 10 m from the road and was surrounded by sand dunes. The female was on the nest, incubating, arched

downwards so that its head and tail were visible. My presence made it climb up on wires. The male soon arrived and even tried to mate. They uttered a harsh, piercing call "Chirrr" which sounded like single alarm call of a spotted owl.

On 7 April 1991 there were three beautiful eggs of very light blue-green colour and seemed a shade bigger than eggs of domestic hen. Perhaps the eggs were laid recently; may be on 4 April 1991, when I first saw the nest, there was only one egg. When I approached the nest the female flew off and sat on an exposed root of 'Phog' on top of the nearby dune. The male soon came and landed straight on the female and mated. White mating "Chir chir" calls were given.

On 18 April 1991 there were only two eggs left in the nest, with a few pieces of egg shells on ground beneath.

On 21 April 1991 there was only one egg left; the female continued to incubate. It was hatched on 3 May 1991 AN or in the morning on 4 May 1991. Thus the incubation period was at least 30 days and not 19 days as mentioned in the Handbook by Salim Ali.

The one day old chick was pink skinned with white down. Its bill was quite thick, yellow at the base and black at the tip. Legs were pinkish white. Its call was very faint "Sirr, sirr" ... audible only up to 3 m. Its eyes were dark brown and appeared a bit longish rather than circular. Because of the heat it frequently opened its mouth revealing red tongue. On 5 May 1991 tail and legs of a small lizard were seen on the nest. Perhaps the soft flesh was given to the chick. The male frequently brought small lizards of which there was no dearth in the desert.

Both parents brought feed, like lizards, rodents, grasshoppers etc. and fed the young. While the female incubated, the male was generally seen within 500 m of the nest. Once I saw it chase a Short-toed Eagle as far as 2 km.

By 23 May 1991, when the chick was 19 days old, the wings had taken shape with light and dark brown feathers, primaries partly having needle like feathers. Head was white, three lines on the throat and neck were getting formed of brown patches, a few brown patches on flanks at the base of thighs, legs were whitish feathered, feet yellow and claws black. There were two blackish prickles, one on each side of the red tongue 1 cm short of the tip, pointed inwards so that the feed can be easily taken in but would be prevented from slipping out. Some kind of white powdery stuff was present at the base of the bill. On close approach the chick exhibited aggressiveness opening its mouth and wings but did not emit any call. One of the parents brought a small lizard which it slowly swallowed whole - head first, tail last.

On 3 June 1991, when the chick was 30 days old, it had taken the shape of a full grown bird streaked with dark brown. Base of the bill and forehead were whitish, breast was rufous brown with dark brown streaks; eyes dark brown, legs yellow. Tail and outer feathers of wings were not fully developed to full length yet. Underwings were whitish with dark brown spots. Distinct white patch of the nape and slight white on flanks were already visible.

On 10 June 1991 the chick was on the nest looking like an almost fully grown bird that would leave the nest in a couple of days (my guess about its fledging period is 40-45 days). But I was not so fortunate to get the pleasure of seeing it leaving the nest for a free independent life. This part of Rajasthan was getting scorched for last 8 days when the maximum temperature was around 53°C. On 11 June 1991 in the morning the chick was seen dead on the sandy ground below the nest. There were no injuries. I went to the nest site with a very heavy heart. I cannot express the torturous feelings I had on seeing the mourning mother on the nearby sand dune in the scorching heat and strong sand storm. It may have been due to dehydration, for in this area stray odd cases of human deaths due to heat and dehydration are reported almost every year.

There seems a rising trend of maximum temperature, but this year had a sudden jump. Let us hope this trend stops or becomes very slow lest it may be impossible for the summer breeding species to survive for long or will they even start breeding a bit late or early?

THE WETLANDS OF UTTAR PRADESH — PART III

ASAD R RAHMANI, Centre of Wildlife & Ornithology, Aligarh Muslim University, Aligarh 202 002

In the earlier two parts, I have described four important wetlands of western Uttar Pradesh. The third part of this series covers two large wetland bird sanctuaries in the Avadh Plains of Central Uttar Pradesh.

1. Samaspur

A complex of seven jheels, 3 km from a village called Samaspur in Rae Bareli district has been declared a bird sanctuary in 1987. Samaspur is about 40 km from Rae Bareli, and 7 km from Salon town located on Lucknow-Varanasi national highway. Out of the seven jheels, six are interconnected while the seventh is separate, although forming a part of the sanctuary. The water depth varies from less than 10 cm to 5 meters, thus forming an ideal habitat for a large number of water birds which feed

at different water depths. Huge congregations of waders, from tiny stints *Calidris minuta* and *C. temmincki* to Blackwinged Stilt *Himantopus himantopus* and Blacktailed Godwit *Limosa limosa* utilize these variable water gradients.

Samaspur lakes are perennial and receive water from rain (850 mm per annum) and from the tail end of irrigation canals. Being depressions, water from surrounding areas is drained into Samaspur jheels. Out of 800 hectares declared as Samaspur Bird Sanctuary, only about 207 hectares is under water, the remaining area is dryland where UP Forest Department has done some plantation. It also includes 271 hectares of private land which has crop fields and orchards. These crop fields, orchards, wasteland (locally called 'usar') and pastures create a mosaic of habitats which results in species diversity. This is proved by the fact that in Samaspur, in one day in December 1987,

I could identify 112 species in six hours. I estimated nearly 80,000 birds, mainly waterfowl, in the area. Dr P S Pandey, a botanist of Feroze Gandhi Degree College in Rae Bareilly, identified 27 species of algae, 9 species of aquatic fungi, 27 species of marshy plants and 33 species of terrestrial plants. Both these lists are based only on a short term study.

Thirteen species of fish are recorded from Samaspur jheels. Since the declaration of the sanctuary, fishing has been banned. This step has drastically reduced human disturbance to birds, in addition to supplying abundant food to piscivorous birds such as storks, egrets, cormorants and darters. I could see such rarities like Pallas Fish Eagle *Haliaeetus leucoryphus* and Blacknecked Stork *Ephippiorhynchus asiaticus* nesting in the vicinity of the jheels. Both these species, but specially the latter, need large fish for food. With unregulated fishing in our wetlands, commercially exploitable fish are removed leaving practically nothing for these birds. For successful breeding, the Blacknecked Stork needs a large wetland with abundant supply of fish and a large tree for nesting. Both these requirements are now not available and in the wetlands of UP which I have visited, I could locate its nests only at four sites (Samaspur, Dudwa, Kishanpur and Sitadwara).

In 1988, I submitted a research plan about Samaspur which was incorporated in the overall plan prepared by Shri K N Singh, the then Conservator of Forests (Social Forestry) to develop Samaspur Bird Sanctuary. I have read many such plans but this was one of the most comprehensive. It covered every aspect such as geology, hydrology, climatology, vegetation, fauna and flora, land tenure and land use pattern. Unfortunately this elaborate plan of Shri Singh was scuttled due to lack of funds and not much work has been done even after the legal declaration of the sanctuary nearly four years ago.

Although I have no authentic data about the present and past bird populations, the local people told me that more birds are seen now in Samaspur jheels than 10 years ago. The first two decades after Independence saw a terrible massacre of wildlife but the turning point for conservation came in 1972 with the Wildlife (Protection) Act 1972, for which full credit should go to Mrs Indira Gandhi who was keenly interested in wildlife protection. In the 1980s the UP Government banned shooting in the whole State, wholesale slaughter of wildlife was curtailed and birds of Samaspur and other wetlands started getting some respite. Effectiveness of these conservation measures can be seen in many wetlands by the relative tameness of wild birds. At Samaspur, I could see Pintail *Anas acuta*, Common Teal *Anas crecca*, Shoveller *Anas clypeata*, Gadwall *Anas strepera*, Coot *Fulica atra*, etc. as close as 20 meters. The

usually wary Barheaded Goose *Anser indicus* has also lost fear of man in Samaspur and can be approached to within 25-30 meters.

I do not intend to list all the 112 species of birds seen by me at Samaspur. In brief, I saw fourteen species of ducks, 13 species of waders, 4 species of storks and 10 species of raptors. Ducks and waders were seen not in tens or twenties, but in hundreds and thousands. A longer stay and visits in different seasons would add more species to an already rich bird list of Samaspur.

2. Nawabganj

Nawabganj Bird Sanctuary, also called Priyadarshani Pakshi Vihar, in Unnao district is my favourite birding area which I have been visiting since 1972. It is easily approachable: the jheel adjoins Nawabganj town which is midway between Lucknow and Kanpur.

During my first visit in 1972 I saw a vast shallow jheel in a barren (usar), overgrazed area, so typical of Unnao district. A few hundred ducks were huddling in the centre of the jheel, away from hunters' guns and trappers' nets. Before the enactment of Wildlife (Protection) Act of 1972, Nawabganj jheel was the main supplier of wild ducks to Lucknow bird market. Incidentally, this bird market was one kilometer from my house and I saw my first Redcrested Pochard *Netta rufina* in the baskets of a trapper! After every visit to this place, I used to write in newspapers and to officials but each time I got the stoic answer that trappers have taken a stay order from court to pursue their traditional occupation, therefore, the wildlife authorities cannot arrest them. Fortunately in 1972, the new wildlife protection law came into existence which totally banned bird trapping for commercial purpose (except under licence). Armed with the new law, the wildlife authorities made a few arrests and soon the bird market of Lucknow disappeared — at least on the surface. I was told that with right connections, bird trappers can still supply partridges, quails and ducks but the sale is certainly not on that scale as in the early 1970s.

The 224 hectare Nawabganj bird sanctuary teaches us two lessons: (i) how a highly disturbed wetland can be developed into an excellent bird sanctuary; and (ii) how misguided management practices can alter the naturalness of an area. In their overenthusiasm to beautify the area, the UP Forest Department planted thousands of trees in the 4 km periphery of the jheel. A link road was built for tourists to go around the jheel but now the trees have become so tall and dense, that from most sections of the road the jheel is not visible. Hundreds of mounds were built, and trees planted to give Nawabganj a 'Bharatpur appeal'. Unfortunately, this type of 'development and

management' is becoming a bane for most of the wetlands which the UP Forest Department wants to protect.

Most of the migratory waterfowl breed in the vast open wetlands of Siberia and when they come to India in winter, they seek similar type of habitat. Natural seasonal wetlands of the Indo- Gangetic Plains, with very little tree cover, low emergent vegetation, and gradual gradient of water attract them. Any modification of natural habitat makes it less attractive for some species such as geese, cranes and waders, which may be in need of special conservation attention. Nawabganj is a good example. Before the jheel was encircled by dense trees, I used to see many Barheaded and Greylag geese, Brahminy Ducks *Tadorna ferruginea* and all sorts of waders (sandpipers, godwits, redshank, greenshank, curlew, etc.), but now these species are uncommon in Nawabganj. However, the number of dabbling ducks such as Pintail, Shoveller, Gadwall, Common Teal, Garganey and Wigeon has increased but I

still miss the large gaggle of geese which used to enliven the Nawabganj jheel.

Nevertheless, Nawabganj is still the finest bird sanctuary of UP and its easy accessibility and rich bird life can play an important role to educate people about the value of wildlife conservation. During holidays thousands of people from nearby towns come to Nawabganj. Unfortunately most come for picnicking in the large, well-maintained lawns and restaurants. The UP Tourism Department has built a motel overlooking the jheel but being government-controlled, the service is outrageous, to use a mild expression. Once with Mr SA Hussain, a noted ornithologist of Bombay Natural History Society, I waited for two hours for lunch before deciding to go to a nearby 'dhaba' for a brisk hot meal. Unlike Samaspur which I have visited only once, Nawabganj is my favourite haunt for bird watching. During my 15 visits in as many years, I have added an impressive list of nearly 200 species, both water and terrestrial birds.

BIRDS OF AMIRTHI RESERVE FOREST (TAMIL NADU)

S. KARTHIKEYAN, 24 Opp. Banashankari Temple, 8th Block, Jayanagar P.O., Bangalore 560 082
and

B. ARUN, 'Navrang', 22, I Main, Vysya Bank Colony, Bannerghatta Road, Bangalore 560 076

Amirthi Reserve Forest is a picnic spot for Velloreans as Bannerghatta National Park is for Bangaloreans. Amirthi is at the base of Javadi Hills and about an hours drive from Vellore. The picnic corner houses a variety of wildlife (birds, reptiles and mammals) in small cages which are in a pathetic state. Though the Range Forest is a well wooded patch, a majority of the picnic corner is man-made with *Wrightia tinctoria* as the most common tree. The general habitat is a mixed forest with trees like *Terminalia arjuna* dominating the vegetation on the sides of the two streams that run through the Range Forest. During our visit to the area between 3 and 6 May 1991 a little water flowed in one stream alone. The two streams meet close to the guest house.

Sandal wood *Santalum album* is a common tree. Sandalwood smuggling is present in the area. Tribals in the area can often be seen with muzzle-loaders obviously used to take small game and also probably ground birds.

During our stay 63 species representing 26 families were seen. The most significant observation was the occurrence of five species of Owls, of which the two larger species were identified by their calls. A Collared Scops Owl *Otus bakkamoena* pair was seen with two fledglings which they fed with insects attracted to *Wrightia tinctoria* in bloom. The

adults pounced on the insects in a manner similar to flycatching. The Family Cuculidae was represented by five species. Sighting of Grey Wagtail *Motacilla cinerea* in May was noteworthy and occurrence of Shama *Copsychus malabaricus* in an area to which we were attracted by its song was interesting. A pair of Racket-tailed Drongos *Dicrurus paradiseus* was seen in the picnic corner only once on 5 May. The Redwhiskered Bulbuls *Pycnonotus jocosus* were conspicuous by their absence.

The list of birds given is by no means comprehensive since it is based on a mere four day visit to the place and does not include migratory species.

A systematic list of birds of Amirthi Reserve Forest, Javadi Hills (Tamil Nadu)

Family : Ardeidae

- | | |
|---------------------------|------------|
| 01. <i>Ardeola grayii</i> | Pond Heron |
|---------------------------|------------|

Family : Accipitridae

- | | |
|--------------------------------|-----------------------|
| 02. <i>Pernis ptilorhyncus</i> | Honey Buzzard |
| 03. <i>Milvus migrans</i> | Pariah Kite |
| 04. <i>Accipiter badius</i> | Shikra |
| 05. <i>Spilornis cheela</i> | Crested Serpent Eagle |

Family : Phasianidae

06. *Gallus sonneratii* Grey Junglefowl*
 07. *Pavo cristatus* Common Peafowl

Family : Charadriidae

08. *Vanellus indicus* Redwattled Lapwing*

Family : Columbidae

09. *Streptopelia chinensis* Spotted Dove

Family : Psittacidae

10. *Psittacula krameri* Roseringed Parakeet

Family : Cuculidae

11. *Clamator jacobinus* Pied Crested Cuckoo
 12. *Cuculus varius* Common Hawk-Cuckoo
 13. *Cacomantis passerinus* Indian Plaintive Cuckoo
 14. *Rhopodytes viridirostris* Small Greenbilled Malkoha
 15. *Centropus sinensis* Crow-Pheasant

Family : Strigidae

16. *Otus bakkamoena* Collared Scops Owl
 17. *Bubo zeylonensis* Brown Fish Owl*
 18. *Glaucidium radiatum* Jungle Owlet
 19. *Ninox scutulata* Brown Hawk-Owl*
 20. *Athene brama* Spotted Owlet

Family : Alcedinidae

21. *Alcedo atthis* Common Kingfisher
 22. *Halcyon smyrnensis* Whitebreasted Kingfisher

Family : Meropidae

23. *Merops orientalis* Small Green Bee-eater

Family : Coraciidae

24. *Coracias benghalensis* Indian Roller

Family : Capitonidae

25. *Megalaima haemacephala* Crimsonbreasted Barbet

Family : Picidae

26. *Dinopium benghalense* Lesser Goldenbacked woodpecker

Family : Pittidae

27. *Pitta brachyura* Indian Pitta

Family : Hirundinidae

28. *Hirundo daurica* Redrumped Swallow

Family : Dicruridae

29. *Dicrurus adsimilis* Black Drongo
 30. *Dicrurus paradiseus* Racket-tailed Drongo

* Species identified by their call and were not seen

Family : Sturnidae

31. *Sturnus pagodarum* Brahminy Myna
 32. *Acridotheres tristis* Common Myna

Family : Corvidae

33. *Dendrocitta vagabunda* Indian Tree Pie*
 34. *Corvus splendens* House Crow
 35. *Corvus macrorhynchos* Jungle Crow

Family : Campephagidae

36. *Coracina novaehollandiae* Large Cuckoo-Shrike
 37. *Coracina melanoptera* Blackheaded Cuckoo-Shrike

Family : Irenidae

38. *Aegithina tiphia* Common Iora
 39. *Chloropsis* spp. Leaf Bird

Family : Pycnonotidae

40. *Pycnonotus cafer* Red vented Bulbul
 41. *Pycnonotus luteolus* Whitebrowed Bulbul

Family : Muscicapidae

42. *Pellorneum ruficeps* Spotted Babbler
 43. *Chrysomma sinense* Yelloweyed Babbler
 44. *Turdoides striatus* Jungle Babbler
 45. *Turdoides affinis* Whiteheaded Babbler
 46. *Dumetia hyperythra* Whiteheaded Babbler
 47. *Terpsiphone paradisi* Paradise Flycatcher
 48. *Hypothymis azurea* Blacknaped Blue Flycatcher
 49. *Prinia hodgsonii* Franklin's Wren Warbler
 50. *Prinia socialis* Ashy Wren Warbler
 51. *Orthotomus sutorius* Tailor Bird
 52. *Copsychus saularis* Magpie Robin
 53. *Copsychus malabaricus* Shama
 54. *Saxicola caprata* Pied Bush Chat
 55. *Saxicoloides fulicate* Indian Robin

Family : Motacillidae

56. *Motacilla cinerea* Tickell's Flowerpecker

Family : Nectariniidae

59. *Nectarinia zeylonica* Purplerumped Sunbird
 60. *Nectarinia asiatica* Purple Sunbird

Family : Ploceidae

61. *Passer domesticus* House Sparrow
 62. *Petronia xanthocollis* Yellowthroated Sparrow
 63. *Lonchura striata* Whitebacked Munia

I.G.N.P. AREA A PARADISE FOR BLUECHEEKED BEE-EATER

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The Bluecheeked Bee-eater *Merops superciliosus* or "Bada Patringa" is one of the most beautiful birds of the Thar desert. This 31 cm long shining parrot green bird with prominent chestnut patch on the throat and bluish-white lines above and below the black eye-streak and joining behind the eye, breeds in the desert of Western Rajasthan besides Sind, Bluchistan, Punjab, Palestine, Iran, Egypt, Turkey, etc. The construction of Indira Gandhi Canal and its irrigation system is rapidly transforming vast hitherto sandy wastelands into productive lush green farms at the rate of over 25000 hectare every year. Besides this, over 5000 hectare area is being afforested every year. All this is bringing about very rapid environmental improvement in this area. We should accept some adverse side effects of minor magnitude like waterlogging etc. as inevitable part of such massive development. We should be able to see atleast 15-20 species of new arboreal birds, besides large number of water birds now already inhabiting the canals, in this area by the turn of the century which were not seen here so far.

This environmental improvement has (I guess) also increased the breeding population of Bee-eaters in this area tremendously. The I.G.N.P. area has become a paradise for the Bluecheeked Bee-eater which has a very small breeding zone in India as compared to the Small Green-Bee-eater *Merops orientalis* and Bluetailed bee-eater *Merops philippinus*. In I.G.N.P. Stage II area is an approximately 300 km long and 70 km wide belt along the Indo-Pak border from lat.28°30' in Bikaner district to 26°45' in Jaisalmer district where over 42000 pairs of Bluecheeked Bee-eaters must be breeding every year, assuming that two pairs may be breeding per square kilometer. Near the canals nests can be seen even as close as 100 metres from one another. However, it can be seen breeding in very dry dunny areas even up to 25-30 km away from any canal or a few kilometers from a village pond (Nadi). Though the bulk population breeds in the command area of I.G.N.P., a few birds can be seen breeding in other areas of Bikaner district, Phalodi Tehsil of Jodhpur district and Western parts of Jaisalmer district.

I had the opportunity of observing these birds in I.G.N.P. Stage II area and the area along Bikaner-Phalodi-Pokaran-Jaisalmer highway since September, 1988. They are seen here during winter. My first sighting of these birds during all the three years (89, 90 and 91) have been in the first week of May, when the small Green Bee-eater has already been breeding for about a

month. The population keeps increasing during May. Courting is seen during mid May to mid June. Birds are seen perched on telephone/electric wires in pairs. Suddenly the male takes off and returns with an insect in its bill calling sweetly "tirri tirri" and lands on the wire; quickly and affectionately it moves towards the female, head stretched towards her, an offer which the female readily accepts. The male then mates and flies uttering pleasant calls to hunt another insect.

Nests are made by digging long tunnels on sandy slopes of dunes, road and canal embankments, almost vertical faces of deep cuttings made for canal constructions and even undulating sandy areas. The depth of the nest tunnels varies considerably from 200 cm to 400 cm. The diameter of the opening is generally 7 cm.

In July the hatching takes place and by the end of July some young birds are already out of the nest holes. By second week of August lots of young birds are seen escorted, fed and trained by parents. The young ones are not so shining parrot green above but a bit dull green and wavy; breast and belly are whitish green. Their throat is white and light rufous as compared to orange and dark chestnut for adults. They do not have the bluish white lines above the black eyestripe yet. The under wings are very light rufous-brown as compared to brown of adults. The tail does not have the central pin-like projection yet but has very faint forking. By the end of August most young birds grow up and start hunting for themselves.

By mid September some birds start migrating out in flocks of 50 to 100 and are seen in large numbers around Bikaner, Nagaur, Osian, Jodhpur, Phalodi, Pokaran, etc. However, a few late breeders still carry feed for the young in the nest holes. By the third week of October most birds are gone leaving only a few behind which are also gone by the end of October.

The Bluecheeked Bee-eater brings a lot of colour and clamour in this drab desert for six months (May to October) every year. They breed here in very large numbers and seem very happy even in the most inhospitable period of June-July when temperature rises to torturous 53°C and sand storms keep blowing. They are colonial roosters and are sure to be found roosting in various plantations and Eucalyptus groves around the rest houses. They are one of the earliest risers and their sweet whistles (reminiscent of a referee's whistle) can be heard even earlier than 5 AM in May-june and earlier than 5.20 AM in August-September.

They start calling atleast 15 minutes earlier than Bulbuls. They can be often heard in their roosts up to even 8.30 PM and on moonlit nights even upto 10 PM. At dusk they are seen squatting in large flocks on road, particularly on canal side inspection roads, and would not fly off until the

vehicle is only a couple of metres away. They were also seen hunting on water; having sighted an insect in the canal from over 30 m, it dashed towards it, splashed on the water while catching it and went back to its perch - a leafless branch of Phog.

KLEPTOPARASITISM BY BRAHMINY KITE ON PURPLE HERONS

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On the morning of 9 May 1990 in Jhadi Tal in the Kishanpur Sanctuary, U.P., we observed piracy for food by a Brahminy Kite *Haliastur indus* on Purple Herons *Ardea purpurea*. The Kishanpur Sanctuary is located about 30 km south of the Dudwa National Park and constitutes core II of the Dudwa tiger Reserve. The Jhadi Tal, about 1.5 sq. km in area is one of the bigger tals in the Kishanpur Sanctuary. The south east edge of the tal is bound by a row of tall Sal *Shorea robusta* trees. On rest of the three sides the tal is surrounded by tall grasses.

The Jhadi Tal was filled with very shallow water with a profuse growth of low grass. There were seven Purple Herons foraging in the tal. One of the herons caught a fish and was holding it in the beak, preparing to swallow it. The fish appeared to be about 10 cm in length judged in relation with the bill length of the Purple Heron. The Brahminy Kite, from its perch on a sal tree, swooped at the heron holding the fish in its beak. The heron released the fish and crouched to evade the diving kite, calling in alarm at the same time. The kite dived at the heron five times, and suddenly swooped on the ground and picked up the fish in its talons. It carried the fish to its perch on the tree and spent the next 15 min devouring it. The heron flew off,

landed some distance away and resumed foraging. The kite after finishing off its meal, recommenced its piracy on another Purple Heron that had caught a fish.

Among raptors, Woffinden (1989) observed Swainson's Hawk *Buteo swainsoni* stealing food from American Kestrel *Falco sparverius*. Jorde and Lingle (1988) reported piracy for food in Bald Eagles *Haliaeetus leucocephalus*. Although fish are included in the diet of Brahminy Kite (Ali and Ripley 1987), this is probably the first report of kleptoparasitism by this species.

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INSECTIVOROUS BIRDS ASSOCIATED WITH RICE ECOSYSTEM IN LBP AREA

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A detailed study on the occurrence of insectivorous birds in rice ecosystems has been taken up during the second season of 1989 and Rabi of 1990 in the rice fields of Bhavanisagar Agricultural Research Station and adjoining areas commanded by the Lower Bhavani Project in Periyar district of Tamil Nadu. Throughout the crop season the

birds were watched during the weekends and their identification was fixed by referring to the field guides of Ali (1941) and Ganguli (1975). Wherever possible observations were also taken on the feeding of these birds on any particular species of rice pests. The birds were also classified as common, less common and rare based on their

Insectivorous Birds of Rice Ecosystem in LBP Area

No.	Name	Scientific name	Pests eaten	Status
1.	Black drongo	<i>Dicrurus adsimilis</i>	GH, EHB, CWM, Pen	Common
2.	Common myna	<i>Acridotheres tristis</i>	GH, EHB, Pen	Common
3.	House swift	<i>Apus affinis</i>	CWM, LRM, SBM, EHB	Less Common
4.	Palm swift	<i>Cypsiurus parvus</i>	CWM, LRM, SBM, EHB	Less Common
5.	Green bee eater	<i>Merops orientalis</i>	CWM, LRM, SBM, EHB, BHP, WJ, GH, Pen	Less Common
6.	Bluetailed bee eater	<i>M. philippinus</i>	OWM, LRM, SBM, EHB, BPH, WJ, GH, Pen	Less Common
7.	Hoopoe	<i>Upupa epops</i>	GH	Rare
8.	Indian roller	<i>Coracias benghalensis</i>	GH	Common
9.	Crow pheasant	<i>Centropus sinensis</i>	GH	Common
10.	Common kingfisher	<i>Alcedo atthis</i>	Not specific	Common
11.	Lesser pied kingfisher	<i>Ceryle rudis</i>	Not specific	Rare
12.	Whitebreasted kingfisher	<i>Halcyon smyrnensis</i>	Not specific	Less Common
13.	Common swallow	<i>Hirundo rustica</i>	RHB, Pen	Less Common
14.	Jungle babbler	<i>Turdoides caudatus</i>	GH	Common
15.	Purple sunbird	<i>Nectarinia asiatica</i>	BPH, WJ	Less Common
16.	Grey wagtail	<i>Motacilla caspica</i>	GH, CWM, LRM, SBM, EHB, Pen	Less Common
17.	Pied wagtail	<i>M. maderaspatensis</i>	GH, CWM, LRM, SBM, EHB, Pen	Rare
18.	Indian Pond Heron	<i>Ardeola grayii</i>	GH, Pen, Cat	Common
19.	Night heron	<i>Nycticorax nycticorax</i>	GH, Pen, Cat	Common
20.	Cattle egret	<i>Bubulcus ibis</i>	GH, Pen, Cat	Common
21.	Little egret	<i>Egretta garzetta</i>	GH, Pen, Cat	Common
22.	Redwattled lapwing	<i>Vanellus indicus</i>	GH, Pen, Cat	Less common
23.	Yellowwattled lapwing	<i>V. malabaricus</i>	GH, Pen, Cat	Common
24.	Common (House) crow	<i>Corvus splendens</i>	Not specific	Common
25.	Jungle crow	<i>C. Macrorhynchos</i>	Not specific	Common
26.	Redrumped swallow	<i>Hirundo daurica</i>	EHB, Pen, Mothis	Less common
27.	Indian Moorhen	<i>Gallinula chloropus</i>	GH, Cat, Pen	Less common
28.	Brahminy myna	<i>Sturnus pagodarum</i>	GH, Pen, Cat	Rare
29.	Medium egret	<i>Egretta intermedia</i>	GH, Pen, Cat	Less common
30.	Indian tree pie	<i>Dendrocitta vagabunda</i>	GH, RHB	Less common
31.	Indian robin	<i>Saxicoloides fulicata</i>	Not specific	Less common
32.	White necked stork	<i>Ciconia episcopus</i>	Not specific	Rare
33.	Common wood shrike	<i>Tephrodornis pondicerianus</i>	Not specific	Less common
34.	Cuckoo shrike	<i>Coracina melanoptera</i>	Not specific	Less common

GH : Grasshopper

BPH : Brown planthopper

LRN : Leaf roller moths

EHB : Earhead bug

WJ : White jassid

SBM : Stem borer moths

Pen : Pentatomid bugs

CWM : Caseworm moths

Cat : Caterpillars.

abundance in number and duration of their stay in the rice fields as done by Thirumurthi *et al.* (1981). The list on p.9 gives the names and other details of the birds associated with rice ecosystem and rice pests in the LBP area.

It could be inferred from the above list that most of the 34 species of the insectivorous birds associated with rice ecosystem also prey upon rice pests. Some of them like black drongo, common myna, swifts, bee eaters and wagtails are potential predators of insects like grasshoppers (*Hieroglyphus banyan* and *Oxya velox*) earhead bug *Leptocoris acuta* and the moths of caseworm *Nymphula depunctalis*, leafroller *Cnaphalcorocis medinalis* and stem borer *Tryporyza incertulas*. The ciconiforms like egrets and herons also destroy lot of grasshoppers, pentatomids and also moths. However, these birds also incidentally trample the nurseries and just-planted crops and do some damage. The lapwings and moorhens are always associated with rice and related wetland ecosystems feeding on some of the injurious insect forms. However, they also do harm to nurseries. In well established crops these birds are highly beneficial. Some of the birds like house crow, jungle crow, drongo, myna, cattle egret, little egret, pond heron, etc., follow the plough or tractor while ploughing to pick the insects and other organisms exposed during ploughing. In this way they destroy pupae of noctuids, beetle grubs, grasshopper eggs and adults and other insects and lessen

the pest load for succeeding crop. Most of the noctuid pupae and grasshopper eggs are destroyed in this way. Swifts, bee eaters and purple sunbirds also eat the small and delicate insects like brown planthoppers *Nilaparvata lugens* and white jassids *Tettigiella spectra*. Most of the birds are predaceous on pentatomid bugs like *Menida histrio*, *Tetroda histeroidea* and *Scotinophora lurida*. The herons, egrets and lapwings prey upon caterpillars like *Spodoptera mauritia* and *Cirphis unipucta* besides feeding on caseworm larvae.

It could be concluded that the insectivorous birds are active in the rice ecosystems in the LBP area and hence all possible measures should be undertaken to conserve them for the benefit of farmers and also to have a natural check on the pest explosions.

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BIRDS OF DEVARAYANADURGA STATE FOREST

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Devarayanadurga (13° 23'N, 77° 13'E), Tumkur district (Karnataka) is situated about 18 km east of Tumkur and about 68 km northwest of Bangalore. Devarayanadurga being the highest in the range of hillocks, is a famous pilgrimage centre. In 1907, Devarayanadurga and the forest area surrounding it was declared as Devarayanadurga State Forest with a total area of 42.27 sq.km. Devarayanadurga is famous for the temples of goddess Durga and Lord Narasimha which are situated on top of the hill.

This cluster of hills is close to other isolated hill ranges in Deccan plateau like the Nandi hills in Narasimhadevarabetta State Forest in Kolar district. Hence this area is of considerable interest with regards to the avifauna and is amenable for evaluating the distribution of bird species along this isolated chain of hills.

The altitude in the State Forest varies from 868m above MSL at Kumbarahallikere to 1264m above MSL at Devarayanadurga. Kumbarahallikere and another small tank fall within the boundary of the State Forest. The

average rainfall is about 660 mm and is mainly from south-west monsoon. The range of temperature is between 13°C to 32°C.

Namadachilume, located in the valley below to the west of Devarayanadurga hill range, is a natural spring and a popular picnic spot and has a recreation centre and deer enclosure. Namadachilume is surrounded by deciduous biotope.

Vegetation

The vegetation of the Devarayanadurga State Forest can be broadly classified into deciduous forests surrounding the Namadachilume Forest Rest House area and along the slopes of the hills, and southern tropical thorn scrub on hill tops, slopes and foothills in some areas. A dense impenetrable *Lantana* and *Pterelobium* undergrowth is present on the slopes and valleys, whereas the hill tops contain a sparse vegetation mostly of *Dodonia viscosa*, *Cipadassa baccifera* and grasses mainly *Cymbopogon*. Besides,

in recent years a lot of exotic species have been plated in and around Namadachilume by the Forest Department.

The common trees in the deciduous forest here are *Terminalia arjuna*, *T. paniculata*, *T. bellerica*, *T. alata*, *Tamarindus indica*, *Dalbergia lanceolaria*, *Pterocarpus marsupium*, *Ficus* sp., etc. mixed with dense undergrowth of *Lantana camara*, *Acacia concinna*, *Eupatorium* and *Pterelobium indicum*. In the scrub forest elsewhere *Lantana*, *Pterelobium indicum*, *Dodonia viscosa*, *Butea monosperma*, *Cassia fistula* dominate.

Avifauna

Devarayanadurga State Forest has a rich avifauna. In all 132 species belonging to 38 families have been recorded so far. Salim Ali during his trip to this area between 31 December 1939 - 4 January 1940 as part of his survey of the birds of erstwhile Mysore State recorded fifty six species [Ali, S 1942, 1943 : Birds of Mysore: JBNHS:43, 44]. Among these the authors have not come across nine species of birds which are Pintail snipe *Gallinago stenura*, Chestnutheaded Bee-eater *Merops leschenaulti*, Bluebearded Bee-eater *Nyctyornis athertoni*, Crested Tree Swift *Hemiprocne longipennis*, Thickbilled Warbler *Acrocephalus aedon*, Yellowthroated Sparrow *Petronia xanthocollis*, Common Rosefinch *Carpodacus erythrinus*, and Hill Myna *Gracula religiosa*. Of these Hill Myna is possibly extinct since the habitat is no longer suitable for the occurrence of the species due to extensive planting of exotic tree species especially *Eucalyptus*, while the other eight species could possibly occur though we have not come across them during our visits in July 1979, October 1990, March, November and December 1991.

Two endemic species occur in the State Forest namely the Yellowthroated Bulbul *Pycnonotus xantholaemus* and the Whitebrowed Bulbul *P. luteolus*. Sighting of the Yellowthroated Bulbul on 21 October 1990 at Devarayanadurga by two of us (JNP and SS) happens to be the first ever record of the species for Devarayanadurga State Forest. This species was not reported by Salim Ali. Though he gives a very interesting account on the mating behaviour of Alpine Swift observed from top of the hill [1943 : JBNHS: 44 (1): 9-26].

The first ever record for Karnataka of Whitebrowed Blue Flycatcher *Muscicapa superciliaris* reported by Salim Ali happens to be of a male shot by him on 2 January 1940, at Namadachilume.

The species Crested Hawk Eagle *Spizaetus cirrhatus*, Common Hawk-Cuckoo *Cuculus varius* and Shama *Copsychus malabaricus* which have not been met either by the authors or by Salim Ali were observed in the area by T.V.N. Murthy, G.S. Mahesh and K.R. Manjunath (*pers. comm.*) of Wildlife Aware Nature Club Tumkur. The authors are thankful to them for the support extended during the last two visits to the area.

Checklist of Birds of Devarayanadurga State Forest, Tumkur

Family : Podicipedidae		
001	005	<i>Podiceps ruficollis</i> Little Grebe
Family : Ardeidae		
002	0042	<i>Ardeola grayii</i> Pond Heron
003	0044	<i>Bubulcus ibis</i> Cattle Egret
004	0049	<i>Egretta garzetta</i> Little Egret
Family : Accipitridae		
005	0124	<i>Elanus caeruleus</i> Blackwinged Kite
006	0130	<i>Pernis ptilorhynchus</i> Honey Buzzard
007	0133	<i>Milvus migrans govinda</i> Pariah Kite
008	0135	<i>Haliastur indus</i> Brahminy Kite
009	0138	<i>Accipiter badius</i> Shikra
010	0161	<i>Spizaetus cirrhatus</i> Crested Hawk-Eagle
011	0164	<i>Hieraetus pennatus</i> Booted Hawk-Eagle
012	0172	<i>Ictinaetus malayensis</i> Black Eagle
013	0178	<i>Sarcogyps calvus</i> King Vulture
014	0182	<i>Gyps indicus</i> Longbilled Vulture
015	0185	<i>Gyps bengalensis</i> Whitebacked Vulture
016	0187	<i>Neophron percnopterus</i> Scavenger Vulture
017	0195	<i>Circaetus gallicus</i> Short-toed Eagle
018	0197	<i>Spilornis cheela</i> Crested Serpent Eagle
Family : Falconidae		
019	0211	<i>Falco peregrinus peregrinator</i> Shahin Falcon
020	0222	<i>Falco tinnunculus</i> Kestrel
Family : Phasianidae		
021	0246	<i>Francolinus pondicerianus</i> Grey Partridge
022	0301	<i>Gallus sonneratii</i> Grey Junglefowl
Family : Rallidae		
023	0343	<i>Amaurornis phoenicurus</i> Whitebreasted Waterhen
Family : Charadriidae		
024	0366	<i>Vanellus indicus</i> Redwattled Lapwing
025	0397	<i>Tringa ochropus</i> Green Sandpiper
026	0406	<i>Gallinago stenura</i> Pintail Snipe
Family : Columbidae		
027	0517	<i>Columba livia</i> Blue Rock Pigeon
028	0537	<i>Streptopelia chinensis</i> Spotted Dove
029	0541	<i>Streptopelia senegalensis</i> Little Brown Dove
Family : Psittacidae		
030	0550	<i>Psittacula krameri</i> Roseringed Parakeet
031	0558	<i>Psittacula cyanocephala</i> Blossomheaded Parakeet
Family : Cuculidae		
031	0573	<i>Cuculus varius</i> Common Hawk-Cuckoo
033	0590	<i>Eudynamis scolopacea</i> Koel
034	0595	<i>Rhopodytes viridirostris</i> Small Greenbilled Malkoha
035	0602	<i>Centropus sinensis</i> Crow-pheasant
Family : Strigidae		
036	0623	<i>Otus bakkamoena</i> Collared Scops Owl
037	0627	<i>Bubo bubo</i> Great Horned Owl
038	0637	<i>Glaucidium radiatum</i> Barred Jungle Owlet
039	0644	<i>Ninox scutulata</i> Brown Hawk Owl
040	0652	<i>Athene brama</i> Spotted Owlet
Family : Caprimulgidae		
041	0671	<i>Caprimulgus indicus</i> Indian Jungle Nightjar
042	0676	<i>Caprimulgus macrurus</i> Longtailed Nightjar
043	0680	<i>Caprimulgus asiaticus</i> Common Indian Nightjar

Family : Apodidae

- 044 0694 *Apus melba*
 045 0703 *Apus affinis*
 046 0709 *Hemiprocne longipennis*

Family : Alcedinidae

- 047 0724 *Alcedo atthis* Small Blue Kingfisher
 048 0736 *Halcyon smyrnensis* Whitebreasted Kingfisher

Family : Meropidae

- 049 0744 *Merops leschenaulti* Chestnutheaded Bee-eater
 050 0750 *Merops orientalis* Small Green Bee-eater
 051 0753 *Nyctornis athertoni* Bluebearded Bee-eater

Family : Coraciidae

- 052-0756 *Coracias benghalensis* Indian Roller

Family : Upupidae

- 053 0765 *Upupa epops* Hoopoe

Family : Capitonidae

- 054 0785 *Megalaima viridis* Small Green Barbet
 055 0792 *Megalaima haemacephala* Crimsonbreasted Barbet

Family : Picidae

- 056 0820 *Dinopium benghalense* Lesser Goldenbacked Woodpecker
 057 0847 *Picopides mahrattensis* Mahratta Woodpecker
 058 0858 *Chrysocolaptes festivus* Blackbacked Woodpecker

Family : Pittidae

- 059 0867 *Pitta brachyura* Indian Pitta

Family : Alaudidae

- 060 0883 *Ammomanes phoenicurus* Rufoustailed Finch-Lark

Family : Hirundinidae

- 061 0914 *Hirundo concolor* Dusky Crag Martin
 062 0916 *Hirundo rustica* Common Swallow
 063 0927 *Hirundo daurica* Redrumped Swallow

Family : Laniidae

- 064 0940 *Lanius vittatus* Baybacked Shrike
 065 0947 *Lanius schach* Rufousbacked Shrike
 066 0949 *Lanius cristatus* Brown Shrike

Family : Oriolidae

- 067 0953 *Oriolus oriolus* Golden Oriole

Family : Dicruridae

- 068 0965 *Dicrurus leucophaeus* Grey Drongo
 069 0967 *Dicrurus caerulescens* Whitebellied Drongo
 070 0973 *Dicrurus hottentottus* Haircrested Drongo

Family : Sturnidae

- 071 0987 *Sturnus malabaricus* Greyheaded Myna
 072 0994 *Sturnus pagodarum* Blackheaded Myna
 073 1006 *Acridotheres tristis* Indian Myna
 074 1010 *Acridotheres fuscus* Jungle Myna
 075 1016 *Gracula religiosa* Hill Myna

Family : Corvidae

- 076 1034 *Dendrocitta vagabunda* Indian Tree Pie
 077 1049 *Corvus splendens* House Crow
 078 1057 *Corvus marcorhynchus* Jungle Crow

Family : Camphephagidae

- 079 1070 *Tephrodornis pondicerianus* Common Wood Shrike
 080 1072 *Coracina novaehollandiae* Large Cuckoo-Shrike
 081 1079 *Coracina melanoptera* Blackheaded Cuckoo-Shrike
 082 1094 *Pericrocotus cinnamomeus* Small Minivet

Family : Irenidae

- 083 1100 *Aegithina tiphia* Common Iora
 084 1107 *Chloropsis cochinchinensis* Jerdon's Chloropsis

Family : Pycnonotidae

- 085 1120 *Pycnonotus jocosus* Redwhiskered Bulbul
 086 1128 *Pycnonotus cafer* Redvented Bulbul
 087 1135 *Pycnonotus xantholaemus* Yellowthroated Bulbul
 088 1138 *Pycnonotus luteolus* Whitebrowed Bulbul

Family : Muscipidae

- 089 1154 *Pellorneum ruficeps* Spotted Babbler
 090 1174 *Pomatorhinus horsfieldii* Slaty headed Scimitar Babbler
 091 1221 *Dumetia hyperythra* Whitethroated Babbler
 092 1231 *Chrysomma sinensis* Yellow-eyed Babbler
 093 1254 *Turdoides caudatus* Common Babbler
 094 1262 *Turdoides striatus* Jungle Babbler
 095 1267 *Turdoides affinis* Whiteheaded Babbler
 096 1407 *Muscicapa latirostris* Brown Flycatcher
 097 1411 *Muscicapa parva* Redbreasted Flycatcher
 098 1421 *Muscicapa superciliaris* Whitebrowed Blue Flycatcher
 099 1442 *Muscicapa tickelliae* Tickell's Blue Flycatcher
 100 1445 *Muscicapa thalassina* Verditer Flycatcher
 101 1452 *Rhipidura aureola* Whitebrowed Fantail Flycatcher
 102 1458 *Rhipidura albicollis* Whitespotted Fantail Flycatcher
 103 1461 *Terpsiphone paradisi* Paradise Flycatcher
 104 1465 *Hypothymis azurea* Blacknaped Flycatcher
 105 1504 *Prinia hodgsonii* Franklin's Wren-Warbler
 106 1511 *Prinia subflava* Indian Wren-Warbler
 107 1517 *Prinia socialis* Ashy Wren-Warbler
 108 1535 *Orthotomus sutorius* Tailor Bird
 109 1549 *Acrocephalus aedon* Thickbilled Warbler
 110 1550 *Acrocephalus stentoreus* Great Reed Warbler
 111 1556 *Acrocephalus dumetorum* Blyth's Reed Warbler
 112 1579 *Phylloscopus affinis* Tickell's Leaf Warbler
 113 1605 *Phylloscopus trochiloides* Dull Green Leaf Warbler
 114 1662 *Copsychus saularis* Magpie-Robin
 115 1665 *Copsychus malabaricus* Shama
 116 1701 *Saxicola caprata* Pied Bush Chat
 117 1720 *Saxicoloides fulicata* Indian Robin
 118 1723 *Monticola cinclorhynchus* Blueheaded Rock Thrush
 119 1726 *Monticola solitarius* Blue Rock Thrush
 120 1753 *Turdus merula nigropileus* Blackcapped Blackbird

Family : Paridae

- 121 1794 *Parus major* Grey Tit

Family : Motacillidae

- 122 1852/54 *Anthus sp* Tree Pipit
 123 1884 *Motacilla cinerea* Grey Wagtail
 124 1891 *Motacilla maderaspatensis* Large Pied Wagtail

Family : Dicaeidae

- 125 1899 *Dicaeum erythrorhynchus* Tickell's Flowerpecker

Family : Nectariniidae

- 126 1907 *Nectarinia zeylonica* Purplerumped Sunbird
 127 1917 *Nectarinia asiatica* Purple Sunbird

Family : Zosteropidae

- 128 1933 *Zosterops palpebrosa* White-eye

Family : Ploceidae

- 129 1938 *Passer domesticus* House Sparrow
 130 1949 *Petronia xanthocollis* Yellowthroated Sparrow
 131 1974 *Lonchura punctata* Spotted Munia

Family : Fringillidae

- 132 2011 *Carpodacus erythrinus* Common Rosefinch

PUZZLING PLUMAGES OF THE LITTLE RINGED PLOVER

K K NEELAKANTAN, Kongalakode, Kavassery 678 543 (Palghat Dt)

While collating my notes on the Little Ringed Plover *Charadrius dubius* for the Supplement to Dr Salim Ali's *Birds of Kerala*, I found that I have always had difficulty in identifying certain Ringed Plovers seen at various places in and outside Kerala. I am writing this note in the hope that some reader of the Newsletter will be able to solve the problems for me.

In the Palghat District, Kerala, during the Forties and Fifties (of this Century!) I recorded at least one or two Little Ringed Plovers in every month of the year, and quite a good number during the dry season. Many pairs also used to nest in the river-beds between November and July. The peak season for breeding was March to May, but a nest with 4 eggs was found as early as 20 November in 1954, and one with a single egg in it was found as early as 3 June in 1951 (it hatched the next day).

As the *Handbook to the Birds of India and Pakistan* and other texts say that only *C.d.jerdoni* breeds in the south, I have assumed that all the pairs I found nesting at Kavassery, Kudallóor, Chittur and Palghat town (all in the Palghat dt.) were of this sub-species.

However, the *Handbook* (2:234) says that *C.d.jerdoni* lacks a winter plumage, and does not describe the juvenile plumage of this race. G M Henry in the *Birds of Ceylon* (1955, p.287) gives an illustration of the juvenile along with the adult. The juvenile has a dark grey eye-streak and a broken collar-band (paler and thicker than the adult's), but no black on the forehead. Moreover, he says, "In winter plumage, the black marks on the face and black collar become duller, and the forehead becomes pale buff; in this phase the two races are indistinguishable except by size, which is unreliable as a means of identification in the field."

But John Marchant *et al* *Shorebirds* (1986, Croom Helm, London & Sidney, p.285) say that in *C.d.curonicus* as well as in *jerdoni* "non-breeding plumage hardly differs from breeding". Still, in plate 34:89c "Adult non-breeding" closely resembles the immature illustrated by Henry (op.cit). The 'busts' of 90a and 89d are not numbered in the *Shorebirds* plate! Marchant *et al* also say that in this species "breeding plumage is often regained quickly".

In the Palghat district although most of the Ringed Plovers seen on river-beds are always in 'breeding plumage', I have sometimes come across individuals (1) with no black on head or breast, and only a very obscure ring round the eye; (2) with a distinct gap in the middle of

the breast-band, with the broken ends much broader than the rest of the collar; (3) with an unbroken black ring round the neck, but no black at all on the forehead.

Some instances are given below :-

Location of Nos.1—5; bed of River Gayatri in Kavassery, Palghat district.

1. On 20.12.1950 a single bird closely resembling the immature illustrated by G M Henry and Fig. 89c of plate 34 in *Shorebirds*; legs reddish, eye-ring yellow but obscure; calls and behaviour as of 'normal' *jerdoni*. It stood alone near a cow-pat, feeding on the insects in it, often 'drumming' on the sand with one foot. On the same day, a bird in this plumage was seen with 2 'normal' *jerdoni* which had a nest with one egg in it.
2. On 7.5.1951 two birds were together, one a 'pale' bird, and the other a 'normal' one. These were seen together again on 3.6.1951. The normal bird was shielding a newly-hatched chick while the pale one with the broken collar was sitting on an egg in a nest nearby! When I went closer, it ran off the nest and put on the broken-wing display.
3. On 12.9.1951 a couple ran about and both squatted in hoof-prints, pretending to be brooding. Of these one was 'normal' and the other of the pale type.
4. On 22.12.1951 a 'normal' bird and 3 'pale' birds (none of the pale birds had an orbital ring) were seen together. In this case, the pale birds could have been immature young ones of the normal bird.
5. On 14.9.1952 only one Ringed Plover was found on the river-bed, and it was of the 'pale' type.
6. (River Kalpathy, Palghat Town): a pair, both with complete black collars, but no black on the forehead.
7. On 22.9.1955 (location same as item 6), two birds moved about together while a normal bird fed a few yards away. Both the 'pale' birds had yellow orbital-rings, and unbroken, greyish-brown breast-bands, but no black on the forehead. When I approached the pale birds, the normal bird did not react in any way (which it should have done if the pale birds had been its chicks).
8. On 21.6.1960 (River, Chittur, Palghat district), 3 birds were together; two were quite 'normal'; the third

was a pale bird with a gap in the middle of its breast-band, the broken ends much broader than the rest of the 'ring'.

9. On 24.11.1987 (Kavassery), in a slushy field that had just been reaped, there was a flock of some 50 Ringed Plovers, most of which seemed to be 'pale' birds with buff foreheads and no black on heads and breasts. After these had flown off on my closer approach, 5 or 6 remained, and these were 'normal' birds. In the river itself there was not a single Ringed Plover to be seen.

Incidentally, it was noted that in 1986, when, after an absence of nearly 40 years, I visited the River Gayatri at Kavassery, in that part of the river where as many as six pairs of Ringed Plovers used to nest at the same time (a stretch of the river-bed some 2 furlongs long), not even one Ringed Plover could be seen. The disappearance of the Ringed Plover from that part of the river seems to have been due to: (1) the uncontrolled removal of sand and gravel from the river-bed, (2) the construction of a check-dam a furlong lower down from where the Ringed Plovers used to nest, (3) the installation of innumerable water-pumps for irrigation, and (4) the enormous increase in human activity on and around the river-bed.

BHARATPUR BIRD SANCTUARY WHEELS WITHIN WHEELS IN AN ECOSYSTEM

MAMATA PANDYA, Centre for Environment Education-Network for Information Sharing, Thaltej Tekra, Ahmedabad 380 054

Bharatpur Bird Sanctuary in Rajasthan, now part of the Keoladeo Ghana National Park, is world famous for the unrivalled spectacle it offers of hundreds of thousands of aquatic birds. Its claim to fame is that it has been the only wetland in India where the rare Siberian Cranes stop over every winter.

Not so well known is the long-running research on the area being carried out by the Bombay Natural History Society (BNHS). Dr V S Vijayan, principal investigator of the research project, visited Ahmedabad recently. CEE-NFS talked to him about the project, the park and his experiences. Dr Vijayan traced the history of this famous bird sanctuary, and cleared many common misconceptions about wetlands.

CEE—NFS : Dr Vijayan, could you tell us about the project that you have been involved with for the last ten years ?

VSV : In 1980, BNHS established a research centre at Bharatpur. It started essentially as a bird project but gradually expanded to cover the study of the entire ecosystem of the area. It can today be counted as the first study in the country on how an ecosystem functions in its entirety, as distinct from earlier studies concentrating only on parts.

CEE—NFS : What makes this study so different ?

VSV : Generally, in an aquatic ecosystem, people study only certain elements — such as aquatic plants, insects, fish. In other words, so far studies have been element-wise. This

project attempts an integrated and simultaneous study of all the elements in an aquatic ecosystem starting from the plankton right up to the mammals, including aquatic plants, insects, fish, birds, and also the soil and water chemistry. It covers the qualitative and quantitative study of the density and distribution of these elements in the park, and factors limiting their distribution.

CEE—NFS : What are the special features of this ecosystem?

VSV : To answer that, I will have to tell you something about the history of this area. It started, in fact, as a terrestrial ecosystem — a flat terrain with a slight depression that used to fill up during the rainy season at which time it attracted waterfowl. But the area used to dry up in a month or two and the birds would also leave.

CEE—NFS : When and how did it turn into a perennial water body ?

VSV : In 1755 Suraj Mal, the Maharaja of Bharatpur, decided to create a permanent waterfowl refuge — primarily to provide hunting for his guests. He also wanted to provide grazing land for buffaloes. At that time feral cattle used to raid village crops and in doing so were often killed by the villagers. In order to protect the cows, the Maharaja fenced the area thereby taking an early conservation measure, albeit unintentionally. Suraj Mal was also looking

for some measures to prevent periodic flooding of the city. So he thought of making dikes. One of these is the Ajan Bund, just 500 metres from the present sanctuary.

CEE—NFS: How did these steps lead to the formation of a water body?

VSV: The Maharaja constructed more dikes. He then brought in water by canal from the Ajan Bund to what is today the sanctuary, and through it to villages on the other side. The dikes and sluice gates made it possible to retain water at the desired depth, ensuring abundant growth of grass which buffaloes could feed on. Grazing also helped control the growth of grass. The water and aquatic vegetation attracted aquatic birds. So the Maharaja's needs were met, but by planning in this manner, he also unwittingly practiced sound water management.

CEE—NFS: So the presence of a perennial waterbody led to the establishment of a waterfowl refuge?

SVV: Oh no. There is more to the story. Water alone could not sustain the birds. The key attraction was in the millions of fish fry (young fishes) brought in by the canal water. Only when the fish come, do fish-eating birds arrive and start breeding.

CEE—NFS: How does this take place?

VSV: It is not as simple as saying that the fish come and the birds follow. Here, too, there is a distinct pattern and schedule. The water is released around July—August, depending on the rains. With the water come the fish. The Openbilled Storks are the first to arrive and start building nests. They feed on molluscs (shelled creatures like snails) that start becoming active with the first trickle of water. These storks lay their eggs only when they see the fish, as that visual stimulation is essential for them to start laying. Then comes the heronry—the larger fish-feeding birds like ibises, herons, storks, cormorants. About 15 species of these birds now have permanent nesting places in the sanctuary, with 8,000 to 10,000 nests. Birds like Painted Storks need larger fish. They wait till September, when the fish have grown, before they start breeding. By mid-September, the migratory birds start coming in and the bird population is at its peak in January. Migratory birds remain till March-April.

CEE—NFS: Do these birds also nest in the sanctuary?

VSV: No, they use it as a staging and feeding ground. Some remain, but most move on.

CEE—NFS: With the congregation of so many fish-feeding birds, are there enough fish for all?

VSV: You will be surprised to learn that as far back as 1945 Dr Salim Ali had estimated that to feed all these birds for just one day, two tonnes of fish would be required! But the estimated numbers of fish that come in with the waters is equally astounding — 65 million in one season! Of the 42 species of fish in the sanctuary, 36 come from outside. And by summer not a single outside fish remains — they are all eaten up.

CEE—NFS: Then what happens to the sanctuary in the summer?

VSV: As winter progresses, the water starts drying up. At the peak of summer, only a few deep pools have water in them, and these teem with the fish that congregate there. Where the fish go, the birds follow. Some birds, like the Adjutant Storks, come all the way from Assam in May—June to feed on these readily available fish. By July rains begin, water comes in, and the cycle begins again.

CEE—NFS: To backtrack slightly, you talked of the water being released. Who releases this water and from where?

VSV: The water is released from the Ajan Bund by the Irrigation Department. In fact, the Forest Department buys this water that feeds the sanctuary.

CEE—NFS: If enough water were to be supplied to the area throughout the year, would it attract more birds or keep them in the sanctuary all year round?

VSV: On the contrary, it would spell disaster for the ecosystem. It is crucial to have the distinct wet and dry periods. In fact, it is this cycle that keeps the system dynamic. In the dry period cattle enter the area that was, not long ago, covered with water. In the course of grazing, they clean up all the vegetation from the area. This helps prevent its accumulation which would lead to stagnation, siltation and, ultimately, eutrophication of the water body. So while the general belief is that the

continuous presence of water will solve all problems, it is much more complex than that.

CEE—NFS : What kind of complexities are you talking about?

VSV : As I told you, having water all through the year would be undesirable. So seasonal release of water is important. More important, however, is the timing of release. Water must be released during a particular period — the end of July till 20 August, to be precise. Otherwise the birds will not have enough time to raise their chicks before the migratory birds flock in. Sometimes even if the water is released on time, the birds may not breed. Why ? Because the fish population too needs to be of the right size for the birds to feed on.

CEE—NFS : There seem to be so many variables that need to fall into place

VSV : And that's not all. Some birds may not breed even if these two conditions are right. They also require the correct depth of water to facilitate their feeding. So different depths of water need to be available in different parts of the sanctuary.

CEE—NFS : It seems that all aspects of water management are crucial to ensure that birds breed.

VSV : Even perfect water management may not be guarantee enough. The nature of vegetation also plays a big role. If the grass becomes too dense, it may form a thick mat over the water. This affects the fish who can't breathe, as well as the birds who can't get at the fish. In the case of some birds, even seeing the fish is essential for them to breed.

CEE—NFS : How is it possible to manage the vegetation ?

VSV : This is one of the vital facets of an overall plan to manage the habitat. We seem to have forgotten that an aquatic ecosystem is a community in transition. It is not a climax community like a tropical rain forest. Vegetation, if not controlled, can rapidly take over open water areas. We learnt this lesson when the decision to stop grazing in the sanctuary came into effect in 1982. In just one year, grass, which was earlier grazed by cattle, grew wildly and began encroaching on open water areas. This had an immediate impact on the diving birds such as coots, whose numbers went down. On the other hand, species such as geese and Purple Moorhen that required grassy patches, wet up in number. Grass

growth also became uncontrollable because previously the local people also used to collect grass from the sanctuary. But in 1981 when it was declared a National Park, this was stopped. Today grass management has become an important issue.

CEE—NFS : What then are the options for managing grass ?

VSV : BNHS has suggested several measures. Bulldozing the grassy areas, controlled burning, giving grass to the villagers, and allowing a limited number of buffaloes to graze in some parts.

CEE—NFS : Have these been implemented ?

VSV : The Forest Department has accepted the first three suggestions but not grazing. Also each of these has its accompanying problems.

CEE—NFS : What kind of problems ?

VSV : Bulldozing is very expensive and is not a lasting solution. BNHS studied the bulldozed areas. In the first year, with overgrowth cleared, we got a good population of migratory birds. But the next year grass grew back and by the third year it was back to square one. So the costs, both economic and ecological, are too high. Burning of grass in the summer has its own side-effects — such as changes in the plant community and destruction of some species particularly liked by the birds.

CEE—NFS : Would it be easier to control the growth of grass if people were allowed to cut it ?

VSV : That brings in its own set of headaches. It is as difficult to control thousands of people as it is to control buffaloes. Incidentally, at one time there were 6,000 head of buffalo grazing in an area of just about 8.5 square kilometres. Letting in people means also opening up the possibility of other things like illegal tree felling. Not to talk of the disturbance to the birds, especially the ground-nesting ones.

CEE—NFS : So you think buffaloes may still be an answer to managing the habitat ?

VSV : Several countries have successfully adopted the use of controlled cattle grazing as a management tool to control grass growth. In UK domesticated cattle are let in to graze in the wetland areas when the birds have left. In Israel grazing in rotation is an accepted system. I think we must realize the role of the

buffalo. This is especially crucial in a wetland like Bharatpur where there are not enough wild herbivores to control the growth. What we need to work out is how to control numbers and grazing. An optimum number would be approximately 2,000 head of buffalo. You may not know that a buffalo can eat 45—50 kg of grass every day. Imagine how much grass was cropped each day — 50 kg into 6,000 buffaloes! Now all this just accumulates.

CEE—NFS : Over the years you have seen many changes in the area. What are some of your main concerns for the sanctuary today ?

VSV : One thing that makes me sad is the fact that Siberian Cranes are disappearing from the sanctuary. Bharatpur was once known worldwide as an ideal stopping ground for these birds. Today few of these cranes come.

CEE—NFS : Have you found out why this has happened ?

VSV : Siberian Cranes feed mainly on sedges which are grasslike plants. As the grass grows wild and takes over, it also forms a thick mat which prevents growth of sedges. In a study done in 1975, it was noted that the cranes took 5—6 seconds to extricate one tuber of sedge. Now it takes 25—30 seconds. When grass growth is ideal the birds spend 58% of their time in feeding; the rest is spent for maintenance activities like preening, etc. Now more and more time has to be spent in searching for food. This means that the habitat has become unsuitable. So the cranes have stopped coming. Why can't we ensure that they continue to come ?

CEE—NFS : We seem to come back to grass management every time. What are some other problems ?

VSV : The sanctuary is not a self-supporting system. Even during the critical breeding period, birds go outside the park for feeding. So the water bodies outside the park are as important as those within. In recent times, pollution too has reached the park. Water which comes from the Ajan Bund is affected by pesticides. A number of factories discharge effluents into water bodies outside the park.

CEE—NFS : Has this affected the birds ?

VSV : Definitely. Sarus Cranes, for example, feed outside the park in fields where crops are treated with Aldrin, a pesticide. In the last two years, we've had 18 dead Saus Cranes. In one

week when Aldrin was used in the fields, we counted 52 dead Ringed Doves in the park.

CEE—NFS : How do you see the future of the sanctuary ?

VSV : To my mind, we need to take urgent and serious management steps to protect this important wetland. And as we have seen, the management should be not of one aspect or another in isolation, but an integrated and multipronged effort. Designating the area as a Biosphere Reserve could be a possible step towards achieving this crucial goal. (CEE—NFS).

Note : The following coloured transparencies are available for one-time use against payment of Rs.50/- each.

1. Bharatpur was once an ideal stop-over for the Migratory Siberian Cranes. Today these birds have become rare visitors to the park.
2. Grass and water combine to provide an ideal habitat for Sarus Cranes.
3. Birds come home to roost. Sunset at the Bharatpur Bird Sanctuary.

CORRESPONDENCE

News from Sandy Hill, 64 North parade, Grantham, Lincolnshire NG31 8AN, England

My wife was very keen that I should go off on my usual bird-ringing session to the Coto Donana, so I spent 5 weeks there in September/October. I took the car with all the gear on the Plymouth/Santander ferry and drove down through Spain. A friend, another ringer, flew out to Faro in the Algarve and made his way to E1 Rocio, and gave me a hand for the last two weeks. Ringed 456 birds of 31 species, of which 200 were House Martins, at a local colony of about 500 nests (on the Town Hall), just before they finally left for Africa on 18th October. I'm attempting a bit of an article on these birds, as they differ from ours in that they start their moult before migrating, which ours do not. I'll submit it to the BTO technical magazine "Ring and Migration" and will be interested to see if they publish it. My 1991 Report on House Martins should be out fairly soon, and I'll send you a copy. I think I sent you the 1990 report last year.

The other interesting thing about the E1 Rocio birds is that they had no parasites, no fleas, lice nor hippoboscids. I have a friend in Leicester University, Frank Clark, who studies these things and have been "de-lousing" quite a few birds for him this last summer. He showed me how to do it: I gather it's known as the Fowler and Cohen System! No doubt he'll be writing a highly technical treatise on it

all some time. His guru is Miriam Rothschild. He sent me one of her books "Fleas, Flukes and Cuckoos" which is very good reading, even for a layman. She writes well and most amusingly.

I spent a couple of weeks in February/March with my son, near Johannesburg.

I had written previously to my friend Terry Oatley in Capetown University (he administers all the ringing activities in southern Africa — Namibia, Zimbabwe, Botswana, Mozambique, South Africa, etc.) and asked him for the addresses of ringers in the Johannesburg area. He gave me one or two, and I spent 4 days with one of them, and one day with another. This latter is keen on Raptors and uses a Balchatri Trap — invented, I assume, by an Indian? Perhaps you know all about them? Anyway, I spent a most enjoyable day with him, driving around the Bushveld, and we caught 7 Steppe Buzzards, a Dark Goshawk and a Black Shouldered Kite. The trap is made of strong mesh with about 40 nylon nooses all over it, with a heavy metal ring on the base. And two little mice running around inside. When you spot a bird on a telegraph pole you drop the trap on the side of the road opposite the bird, drive on for a bit, then turn round and watch. Down comes the bird, lands on the trap and gets its feet caught. The trap is too heavy for it to be dragged on to the road. This bloke has ringed about 1,500 raptors in his 6 years in RSA (he's an English electrician who emigrated out there) and has had several Steppe Buzzard recoveries from Russia!

COMMENTS ON SIGHTING OF SIBERIAN CRANE IN LITTLE RANN OF KUTCH AND ON RAINFALL IN CHINNAR. ASAD R RAHMANI, Centre For Wildlife & Ornithology, Aligarh Muslim University, Aligarh 202 002

I read with interest the sighting of Siberian Crane in Little Rann of Kutch by Dhanraj Malik but he has not given the date of sighting which I think is very important.

In the article "Avifauna of Chinnar Wildlife Sanctuary", the authors have mentioned that the annual rainfall is only around 150 mm, which I think is very very low. This is the rainfall of Jaisalmer and Barmer districts which are considered as super arid. Is Chinnar area also super arid? I seriously doubt. I consulted a general map of rainfall in India and nowhere it is shown that any part of Kerala has so low rainfall. Will you ask the authors to check their data.

SOCIABLE LAPWING IN MADHAV NATIONAL PARK. RAJIV SAXENA & PRADEEP SHRIVASTAVA, Hanuman Nagar, Phalka Bazar, Gwalior 474 009 (MP)

According to Ali & Ripley (Handbook), sociable Lapwing *Vanellus gregarius* goes to South India through

Rajasthan and Gujarat during winter. There does not seem to be any record of its sighting in Madhya Pradesh. In North Madhya Pradesh, the lists of birds prepared by BNHS Biologists for Karera Bustard Sanctuary (Dihaila Jheel — Conservation Strategy: A R Rahmani) and Madhav National park (Management Plan: S K Sharma) do not include it. Similarly, no participant of Asian Waterfowl Census (Census Report — 1990: C Perennou *et al*) found it in 1990 in India.

During the Midwinter Waterfowl Census — 1991 seven *V. gregarius* were seen in Madhav National Park (77°15' — 78°30' E. and 24°50' — 25°55' N) on 12.1.1991. Earlier six birds were seen on 1.12.1990. This sighting was duly reported in the census report sent to IWRB. One major reason of its not having been recorded in Mid-Winter Waterfowl Census is that it is less addicted to jheels and marshes (Handbook: Ali & Ripley). In Madhav National Park also, it was sighted on the rocky area with some bushes. As it is regarded as endangered species (Birds to Watch: JN Collar & P Andrew) by ICBP, it should be closely looked for in Jan 1992.

BIRD SPECIES. FRED SWENGEL, Minnesota Zoo, Apple Valley, Minnesota 55124

I was surprised by the figure of 9672 bird species in Sibley & Monroe as well. The widely quoted figure of 8600 species apparently comes from an estimate that Ernst Mayr made in 1946. Two other recent checklists give estimates of 8904 (Clements, 1974, *Birds of the World: A check list*) and 9016 species (Morony, Bock, & Farrand, 1975, *Reference List of the Birds of the World*). Since only a handful of new species have been described since 1975, I assume that Sibley & Monroe have elevated a number of birds to species level that the earlier checklists considered to be subspecies. I have only used species recognized by Ali & Ripley in my checklist and didn't check Sibley & Monroe to see if they considered any of the endemic subspecies mentioned by Ali & Ripley to be valid species.

I am glad to hear that the various conservation organizations in South India are keeping in close contact. I would be most interested in receiving information on the current status of the Nilgiris Tahr in the Palnis and nearby areas for inclusion in the next edition of my studbook if possible. Anything from a short note to a full fledged article would be very welcome.

Announcement

IV WORLD CONFERENCE ON BIRDS OF PREY AND OWLS. Berlin, Germany, 10-17 May 1992

Please address all inquiries to the World Working Group on Birds of Prey (WWGBP) (15b Bolton Gardens, London SW50AL, Great Britain, or Wangenheimstr. 32, D-1000 Berlin 33, Germany, Telefax: ##49/30/892 80 67).

SPOTBILLED PELICAN

by S SRIDHAR

A bird whose endurance is being tested to the utmost in South Asia, is the Spotbilled Pelican (*Pelecanus pilippensis*).

Once widely distributed along well watered tracks of Indonesia, Malaysia, Vietnam, Laos, Cambodia, China, Thailand, Myanmar, Bangladesh, India, Sri Lanka and Pakistan, this bird has bowed out of many countries and has almost retreated in most others. In the 19th Century, vast colonies holding "millions of pelicans" used to exist in Myanmar; and the bird has tragically disappeared from that country. India and Sri Lanka are its last strongholds today. In India also it has suffered serious setbacks, though its population is seemingly stable in Sri Lanka.

A bird celebrated for its elegance, today occurs in isolated populations, meriting a special measure of understanding and conservation efforts.

It has become a victim of over exploitation of natural resources by mankind. Is it the 'metabolic price' it has to pay for competing with man for fish? A pelican requires nearly two kilograms of fish a day.

The Spotbilled Pelican though widespread occurs in very low densities, throughout its annual cycle, surviving a long series of ordeals; loss of nesting sites, degradation of wetlands, pollution, pesticides and relentless hunting. But identification of the real causes of decline is a crucial component of any conservation effort.

The key factor is the non-availability of safe breeding habitats which are now extremely limited. Several important sites for the species have been identified from the five year census data. They range from Kaziranga of Assam, Kokre Bellur of Karnataka, Aredu- Sarapalle of Andhra Pradesh, to smaller concentrations along the Coromandal coast. Mr. Tilo Hoffman of Ceylon Bird Club informed me at Karachi that the number of breeding pairs in Sri Lanka are not known, chiefly because during the period of annual counts, breeding is not normally on and also because important areas could not be visited during the last 10 years, due to security situation in North and East. Most of the pelicans counted during the Asian Waterfowl Census were from the South (Bundala-Tissa- maharama area). The number of breeding pairs must be in hundreds, if not thousands, he felt.

Many of the areas frequented by the species have undergone radical changes particularly due to universal intensification of agriculture and the birds must have had increasing difficulty in locating safe nesting sites.

This pelican was recommended for inclusion as a candidate for the 1988 IUCN Red Data list of threatened animals.

In Koladuar, Agroatoli Range of Assam the number of nests declined from 600 in 1984 to 155 in 1991 and in Minimukh of Assam, 150 nests were counted till 1981, but due to disturbances generated by heavy tourism, the birds have deserted this colony, and have shifted to the Koladuar Sanctuary. If complacency is to be found anywhere it is surely in Assam of India and north & eastern areas in Sri Lanka. It is certain that steep declines have taken place there too.

This leaves the Aredu-Sarapalle of Andhra Pradesh, but the birds are dependent on Kolleru lake, for their fish requirement. This lake has been declared by IWRB as one of most seriously threatened wetlands in India.

The period of juvenile dependency (four months) suggests that a successful breeding cycle will occupy a pair for a long time with limited success. By reason of their friendly exposure to humans and protection enjoyed only at the breeding colony, the young ones are particularly vulnerable to hunting, soon after they leave the colony in search of food.

The wetlands that provide fish are already badly degraded by the inflow of sewage, agricultural pesticides and industrial effluents. Poisoning or sterility through organochlorine pesticides, still widely in use, are also suspected.

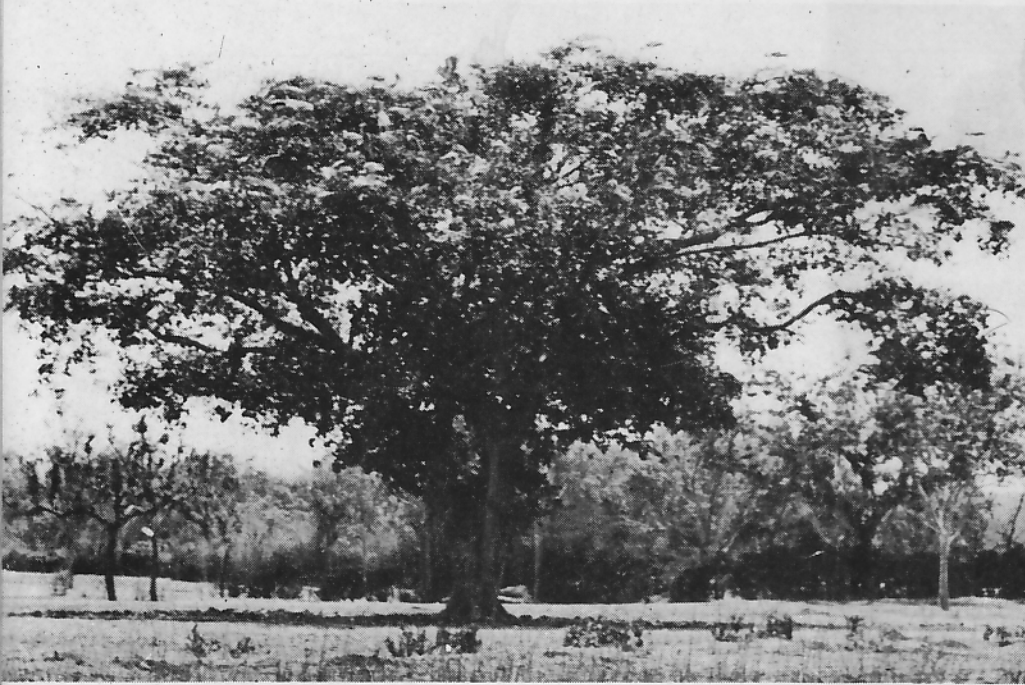
The present population in its entire range is estimated to be around 6000; a perilously low number for such a large bird.

Since 1987, population monitoring and conservation study of this species have taken place. Although data at present are not sufficient for detailed statistical analysis, some interesting facts are obtained. The primary conservation measure has to begin at the nesting colonies.

I visited the Kokre Bellur Pelicanary this year also; a remote unlikely place for pelicans because the nearest water source is at least several



In order to focus attention on this rare bird, the department of Posts has introduced a permanent pictorial cancellation, depicting a flying Spotbilled Pelican, at the branch post office at Kokkre Bellur from 28/1/92. Philatelists and others, who wish to have the cancellation of 28th January, can send their envelopes to the Postmaster, Mandya Head office or to the Philatelic Bureau, Bangalore G.P.O.



The pelicans suffered a major tragedy, when this prime tree much preferred by them for nesting, came under the axe due to a fatal confusion about its ownership. Photographs : KNS Iyer

kilometers away. It is here the pelicans have been coming to breed for centuries among the calm trees surrounding the thatched village hutments. The distress of witnessing a steady decline of this species over the years, from 185 nests in 1979 to 60 nests in 1991, was all too poignant.

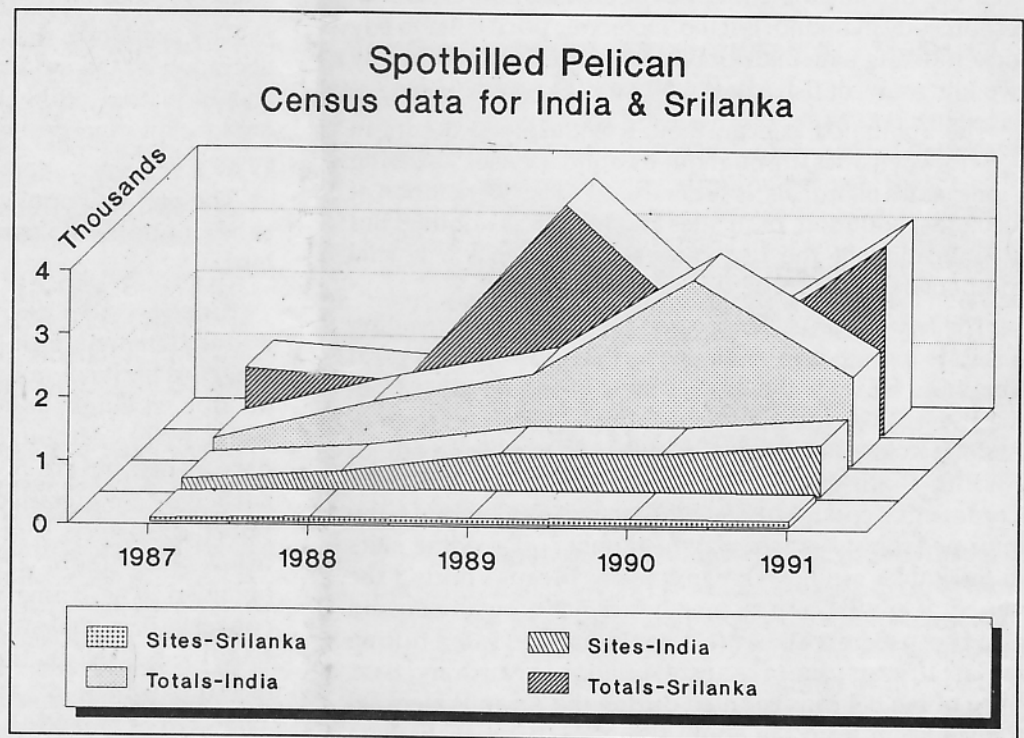
The pelicans suffered a major tragedy, that dashed the expectations of naturalists in 1985, when this pelicanary lost its prime tree, much preferred by the pelicans for nesting. The tree came under the axe due to a fatal confusion about its ownership.

At the workshop on 'Threatened Waterfowl of South & West Asia' held at Karachi, during December 1991, it was proposed that suitable artificial nesting platforms be erected on experimental basis at Kokre Bellur Pelicanary. The Karnataka Forest Department has been apprised for needful action in the matter.

The pelicans at the breeding colony confirmed my gloomy prognosis and the luck seems to be fading for them. The sound of their whimpering filled too insecurely for comfort as I walked around with much drooling regret.

Should we not vouchsafe for their future atleast now? Lest we forget this majestic pelican by amnesia for ever.

Spotbilled Pelican Census data for India & Srilanka



Compiled from IWRB Annual Reports

Cover: Spot-Billed Pelican (*Pelecanus pilippensis*): Flying away towards a point of no return? In the 19th Century, vast colonies holding "millions of pelicans" used to exist in Myanmar; and the bird has tragically disappeared from that country. A maximum of 3000 in India and 3000 in Srilanka make up the current population of Spot-billed Pelicans in the world.

Photo S. Sridhar, ARPS

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