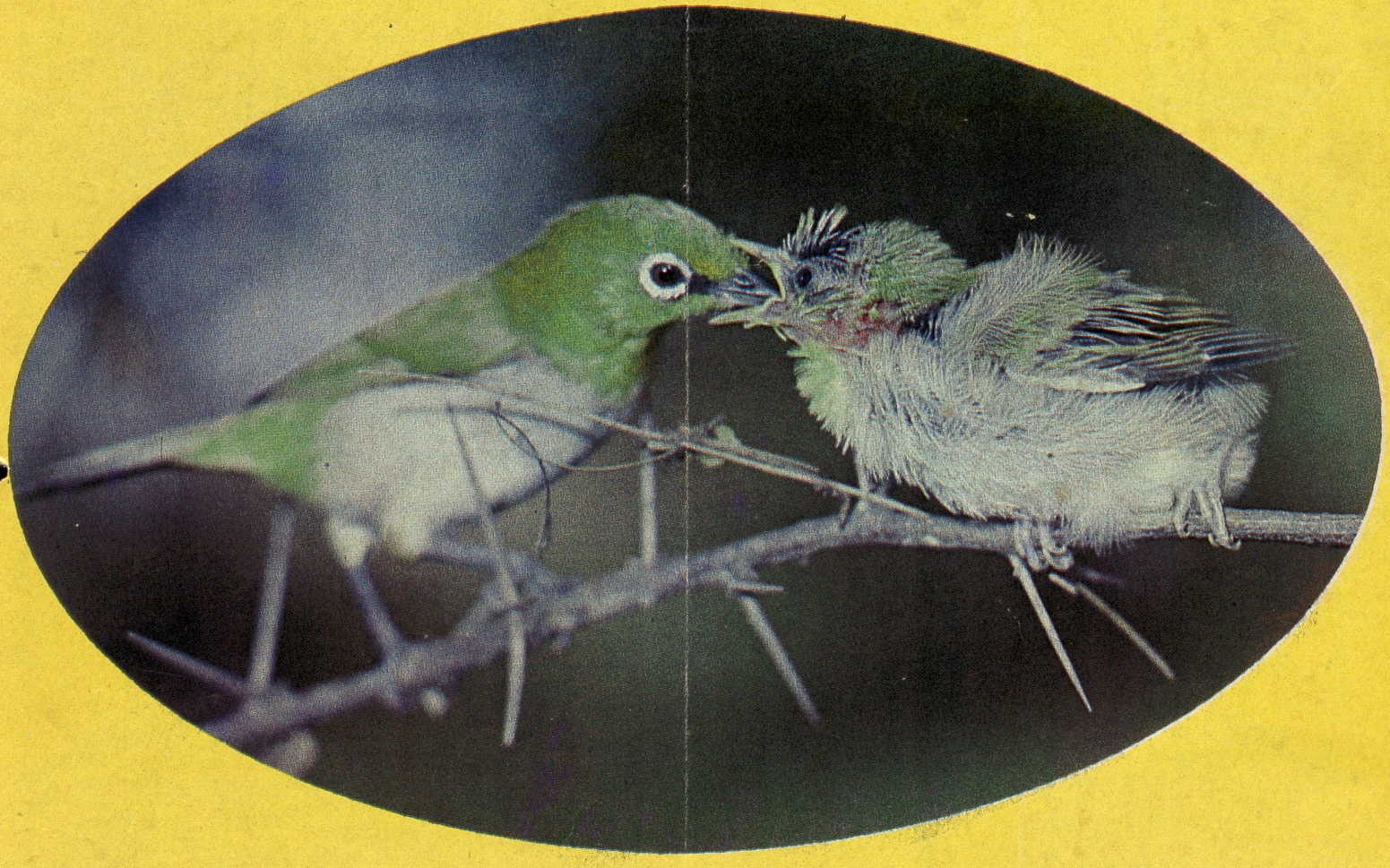
Newsletter for Birdwatchers

VOL.XXIX No. 9 & 10 September/October 1989



News from I.C.B.P.

THE INTERNATIONAL COUNCIL FOR BIRD PRESERVATION

EXXON VALDEZ: A MAJOR DISASTER FOR BIRDS

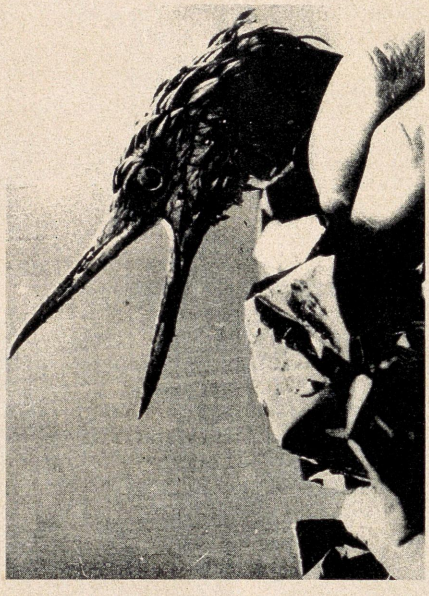
On 24 March this year, when the tanker Exxon Valdez ran aground, releasing 11 million gallons of crude oil into the fjord-like environment of Prince William Sound (PWS), Alaska, it was the largest oil-spill in United States history. As the extent and effects of the spill are monitored, it may yet warrant an even more ignominious label: the world's most disastrous oil-spill for birds. *Stanley E. Senner*, Chairman of ICBP-USA, reports.

The spill originated at Bligh Island, north-eastern PWS, but the slick quickly streamed south-west, bathing Knight Island and other spectacular wilderness beaches with oil. For birds within PWS, the spill followed the least damaging trajectory, and no oil ever got near the vast tidal flats of the Copper River Delta, a stopover for more than 20 million shorebirds and waterfowl during spring migration.

There was a much nearer miss on north-western Montague Island, where for several days in early May there were probably at least half of the small world populations of Black Turnstones *Arenaria melanocephala* and Surfbirds *Aphriza virgata* feeding along the shores of Rocky Bay and adjacent islands. However, tiny Green Island – only 10 miles to the west – took a direct hit. Previously it had only been visited by birds, seals and occasional fishermen and recreationists, but it quickly took on the character of a military staging area, as the target of and base for Exxon's clean-up operation in PWS (discontinued on 15 September).

For all this, the spill has been a major disaster for birds. Owing to their scavenging of oiled carcasses, dozens of Bald Eagles *Haliaeetus leucocephalus* are known to have succumbed, and many nests have been abandoned. Hundreds of migrant Common and Yellow-billed Loons *Gavia immer* and *G. adamsii* died; the impact on Alaska's population of the latter may be very significant. Hundreds of Marbled Murrelets *Brachyramphus marmoratus* were killed too, but because the species is not colonial and its true population size is uncertain, the overall damage to its numbers cannot be judged.

Wildlife suffered most when the oil left PWS and headed south-west, down the Kenai Peninsula, toward Kodiak, lower Cook Inlet and, ultimately, the Alaska Peninsula. Hundreds of miles of shoreline and thousands of miles of ocean were hit, and hit hard. This region



Valdez victim. (Photo: AP/J. Smith)

contains some of Alaska's richest marine and coastal fisheries and wildlife habitat, including numerous major seabird colonies.

Up to 20 June, the cumulative number of known bird deaths was over 27,000, 90% from outside PWS. From raw numbers, the species hurt most by the spill is the Common Murre *Uria aalge*, with 8,690 known mortalities. An additional 5,413 corpses could not be distinguished from Thick-billed Murres *U. lomvia*, but most were probably Commons (only 480 carcasses were known to be Thick-bills).

It is hard to say what these body-counts mean, but we can presume that the actual direct mortality due to the spill is easily 5-10 times higher than the number of bodies recovered. So the 14,000 or so murres known to have died probably represent an actual mortality in the order of 100,000 birds. This is consistent with reports that Common Murres were virtually wiped out in the Barren Islands, where an estimated 91,000 had been reported in the 1978 *Catalog of Alaska seabird colonies*.

Beyond the direct mortality of birds and other wildlife, the true impact of the spill may take years to gauge. Not only are individual birds killed but productivity is reduced: oil transferred from feathers to eggs kills embryos, and no-one knows how many stressed birds simply did not attempt to nest or were unsuccessful nesters this spring as a result of poor physiological condition or reduced food supplies.

Moreover, if oil is deposited in sediments or on the sea floor, there could be significant effects on birds' prey species, e.g. plankton and intertidal invertebrates. Some tidally influenced streams in PWS have oil penetrating gravel-beds as deep as five feet! Clean-up efforts under way are largely cosmetic actions, however well intended, and it is clear that "Mother Nature" must be the primary restorative agent. Moreover, and ominously, more than four months after the spill, the U.S. government – which was exceeding slow in mounting field studies in the spill's immediate aftermath – has yet to release a formal plan for assessing the long-term damage.

One of the major concerns is that the spill response has become a process dominated by legal rather than scientific considerations. Everyone wants to see the responsible companies pay their share of the damages; but if we are to learn from this experience – and especially if the conservation community is to influence public policies successfully to prevent recurrences – there must be a full scientific evaluation of the long-term impact. To that end, ICBP, its U.S. Section and member organisations in the United States have offered their expertise, and will continue to report in *World Birdwatch* on developments.

Cover: White-eye (Zosterops palpabrosa) feeding its chick. Photo by S. Sridhar

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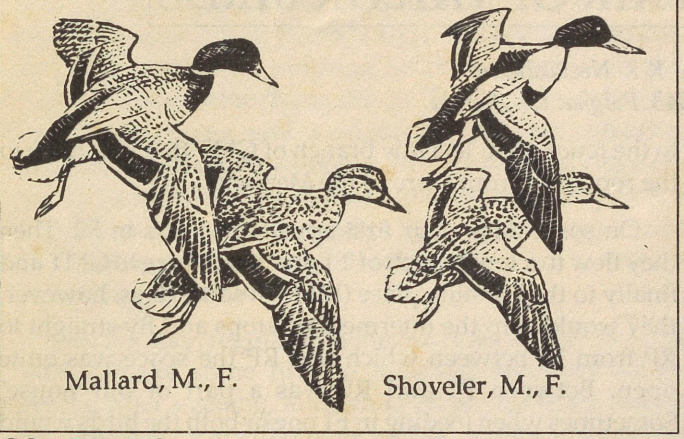

Mallard, M., F. Shoveler, M., F.

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EDITORIAL

Birds of Kodai

There has been a sudden influx of wagtails in Kodaikanal. This is a cheering event for on the whole one sees very few birds on the ground and those on the trees are not easy to locate. During a recent five hour walk on the main roads and a few bylanes, all that I could see were : Redvented and Redwhiskered Bulbuls (one of the Redvented had most extraordinary white cross bands on the underside of the tail); Jungle and Common mynas, Rufousbacked Shrike, Spotted Doves (easily the commonest bird here), Jungle Crows (no House Crows), House Sparrows, Pied Bush Chats (a few fighting for territories), Grey Wagtails, Little Kingfisher. Not much to show for for a five hour effort. On other days I have seen the Palni Laughing Thrush, heard the calls of the Crested Serpent Eagle and the Large Green Barbets, Grey Tits and a Velvetfronted Nuthatch.

Asian Crane Congress at Rajkot, Dec. 27 – 29th

Details of this Congress have been announced in the previous issues of our Newsletter. If a sizeable number of our readers are going to be present there, we could have a get together to celebrate 30 years of our existence. Comments and names of those who are attending will help to take this plan forward.

News From ICBP

S.A. Hussain of B.N.H.S. has become Vice Chairman of the Asian Section of the International Council for Bird Preservation. It seems that the Indian National Section of the I.C.B.P. is in bad shape – one reason being "non–payment of requisite fee for several years (apparently no one knew who was to foot the bill)." I hope some of our "senior" readers can get in touch with Hussain and revive this Section. As is well known, I.C.B.P. was one of the first international organisations to have campaigned for the saving of birds.

New logo for the Migratory Birds Conservation Programme.

ON THE ROOSTING OF A PAIR OF TAILOR BIRDS

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Introduction

While many birdwatchers would have observed the roosting of communal roosters such as crows, mynas, sparrows and bee–eaters, it is seldom that even the most enthusiastic among them come across small, non–social passerines at their roosting places. Therefore, we consider ourselves fortunate in that we found a pair of Tailor Birds (*Orthotomus sutorius*) roosting day after day on the same twig for not less than 70 days from 27.xi.1988 to 10.ii.'89. From 29.vii.'89 again we have been watching a pair of Tailor Birds regularly going to roost on the same twig in a teak tree till today (22.viii.'89). This note, however, deals primarily with the former pair, although the behaviour of the latter is also mentioned from time to time.

The Roost

The plant that the first pair used was an eight–foot tall sapling of the Indian Mulberry (*Morinda* sp.) known locally as *'manja pavatta'*. Its leaves are so large that a single leaf is enough to cover a pair of Tailor Birds sitting close together. (The average length and breadth of a mature leaf are 24.5 cm and 9 cm.) The twig they used was at the top of a vertical branch that had a good number of leaves growing close together in a whorl near the top. These leaves provided excellent cover to the sleeping birds from above and would have kept them dry if it had rained. (The second pair roosted at the tip of a thin teak branch under a large horizontal leaf which gave them even better cover and shelter: They roosted about 25 feet above the ground.)

The *Morinda* sapling stood about 4 feet to the south of a lean–to and under a spreading graft–mango tree (referred to in what follows as GMT) whose dense foliage, too, provided the birds with additional cover and shelter. To the east of the *Morinda* was a stand of coconut, jack, teak and other trees serving as a good wind–break. Some 20 feet to the south and 35 feet to the north were two fences of bamboo twigs (F1 and F2), in which grew various plants making the fences hedge–like. A large tamarind tree (TT) stood close to F2.

The Routes to the Roost

The birds used one of two routes without sticking rigidly to either of them. Before going to roost they used to spend some time feeding in F1 or F2. If feeding in F1, they used to fly to a Coral Jasmine (*Nyctanthus arbor–tristis*) close to the fence, then to a low branch of GMT that was close to the roost and from there to the *Morinda*.

On some days their first appearance was in F2. Then they flew to a low branch of TT and from there to GMT and finally to the roosting place (RP.) On some days, however, they would skip the intermediate stops and fly straight to RP from F2 between which and RP the space was quite open. Between F1 and RP was a part of our house. Sometimes when feeding in F1 one or both the birds would fly to the tiled roof, hop along it for a few seconds and then fly to GMT en route to RP.

The time at which the Birds reached the Roost

There was no fixed schedule for their movements. Only once did one or both come to roost at the same time on two consecutive evenings (on 6.xii and 7.xii.'88, at 17.17 hrs.) But on the next three days their times of arrival were 17.30, 17.18 and 17.41 hrs. The earliest time recorded was 17.05 (on 30.xi.'88) and the latest 18.25 (on 6.ii.'89.) The changes in the time of roosting were thus not gradual. When they went to roost seemed to depend on whether they had obtained sufficient food and also, perhaps, on whether they had been disturbed by human activity. It was not influenced by the intensity of the light or by the weather.

On most days the male and the female arrived at RP more or less simultaneously, but on 2.xi.88 the female came at 17.14 and the male only at 17.42.

'Our' pair invariably came to roost before another pair which roosted in a neighbour's garden. On most days the latter could be heard *chit–chit*–ting after our birds had settled down on RP. On 3.i.89, for instance, the distant pair were heard calling 41 minutes after our pair had settled down.

Time spent at the Roost

On two mornings one of us (KKN) was able to watch our pair leaving the perch, and so could calculate the duration of their roosting. On 30.xii.88 they had come to roost at 17.42 and left the perch at 06.44 on 31.xii, having spent 13 hours and 2 minutes (782 minutes) on RP. On 31.xii the male came to RP at 17.46 and the female at 18.10. On 1.i.89 they left the roost together at 06.45. So the male had spent 12 hrs and 59 mts (779 mts) and the female 12 hrs and 35 mts (755 mts) on RP.

Posture on the Perch

On most days both the birds sat shoulder to shoulder on the same twig, close to the main stem, their backs almost touching the leaf above them. They sat horizontally, their feathers fluffed out and covering the legs and feet. Whenever we directed a torch at them (generally around 20.30 hrs) we found that their heads were not turned backwards. But many years ago KKN had seen a family party of six Tailor Birds sleeping in a row low down on a citrus plant. All of them had appeared to be headless. When we looked at the second pair (which roosts in a teak, on a twig 20 feet above the ground) on 29.vii.89 at 20.00 hrs we found that both had turned their heads back. (In the Encyclopedia of British Birds Dr. Bruce Campbell has remarked, "Birds are such light sleepers that the observer usually sees them with head up and eyes open, gazing unwinkingly into the beam of his torch.") The *Morinda* pair had been roosting low down and could easily have heard us approaching and turned their heads to the normal position. The birds that roosted in the teak were some 20 feet above the ground and we could approach the tree silently and without using the torch to find our way.

Call–notes and Behaviour

Generally the birds used to utter a rapid series of low *chit–chit's* from time to time while feeding in the fences on their way to the roost. On reaching TT and/or GMT they would utter faster runs of the same notes. Sometimes they would utter these notes for a few seconds after alighting on the *Morinda* but before going to RP. On a few occasions the male used to utter a loud *chyoo–chyoo* or a *chooyi–chooyi*. However, once they had reached RP they used to remain quite silent and motionless.

That it is unwise to generalise about a species as a whole from one's experience of one individual or a single pair was brought home to us once again when we began watching the pair roosting in the teak. On 3 evenings between 29.vii.89 and this day (22.viii.89) a bird that arrived first at the roost uttered loud call–notes from the perch. On 3.viii one came to the perch at 18.42. A minute later it uttered a number of loud *chweeyi's* from the perch. At once its mate replied with a number of *chweeyi's* and came to the roost. On 6.viii one came to the roost at 18.43. A minute later its mate called *cheep–cheep–cheep* from a fence (F2) and the bird at the roost responded with 3 or 4 *pee–chee–choo*'s. Half a minute later the second bird came to the roost and settled down. On 9.viii what had happened on 6.viii was repeated.

Generally the *Morinda* birds used to ignore the calls of others of their species after reaching RP. However, on 4.xii.88 both the birds had come to RP at 17.30; five minutes later, from a fence of the same compound some 100 feet away came the loud *chyoo–chyoo*'s and *chit–chit*'s of another pair. At once one of 'our' birds flew to that place and returned to RP only at 17.56. This was probably the male and he had perhaps gone to drive the intruders away. On subsequent evenings the other pair were heard calling in the next compound, but were ignored by our pair.

Conclusion

After 10.ii.89 the *Morinda* birds never came to roost there. The reason(s) for their desertion of RP could not be discovered. Throughout this period only a male and female had used the roost. It may be safely assumed (1) that they were a mated pair, (2) that their pair–bond was 'permanent', and (3) that this pair did not nest during this period of 10 weeks.

Our thanks are due to Prof. R.Vasudevan Nair, former Professor of Botany, Govt.Victoria College, Palghat, for providing us with the scientific names of plants referred to in this note.

A BRIEF INTRODUCTION TO THE BIRDS OF BANDHAVGARH NATIONAL PARK

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Bandhavgarh National Park is situated in the north–eastern segment of the state of Madhya Pradesh amongst the ridges and valleys of the northern flank of the Vindhyachal range (23°30′ to 23°46′ North and 80°46′ 45″ to 81°11′ 36″ East). Once a famous hunting reserve of the erstwhile Maharajas of Rewa, it is now a small (448 sq.km. inclusive of recent extensions) park getting increasingly well known for its abundance of tigers. Scenically, it is a very beautiful place with the low–lying valleys forming large amphitheatres of grass ringed by forested hills.

Although it is a part of the great sal (*Shorea robusta*) dominated moist deciduous forests that once swept down from the foot of the Himalayas across the Ganga through Orissa and Eastern M.P. south through Bastar, topography and human activity have together, fashioned a rich diversity of habitats within the park.

This diversity helps support a large variety of mammals and birds and the present checklist includes about 240 species of birds.

Until fairly recently there was hardly any reliable ornithological information available from this part of M.P. and especially from Bandhavgarh and its surroundings. Even now the information being gathered mainly concerns the identification of species with an effort to determine their status and habitat preferences although a lot more field work will be required before even a reasonably accurate picture can be constructed.

However, even in this condition of partial ignorance, some interesting points have emerged. One is the contribution of human activity in modifying the environment and creating new habitats and the effect of this on the avifauna. For instance the meadows of tall or short and medium grasses are almost all a result of the clearing of the forests for the purpose of cultivation by villagers long since re–settled. This new habitat and the ecotones thus created harbour a large variety of species which include such rarely seen winter visitors as the Eurasian Rubythroat (*Erithacus calliope*) the Bluethroat (*Erithacus svecicus*) and the Great Indian Red Warbler (*Acrocephalus stentoreus*) as well as residents like the Painted Partridge (*Francolinus pictus*), Streaked Fantail Warbler (*Cisticola juncidis*), Jungle Wren–Warbler (*Prinia sylvatica*), Yellow–eyed Babbler (*Chrysomma sinensis*) and many others. Even had some of these species been found here before the development of the present grasslands, their abundance would have been considerably less. Similarly all the large bodies of water in and along the boundaries of the park, which add enormously to the species richness, are man–made. One of the largest is a tank called Khitauli on the western edge of the Park. In winter I have often had some excellent birding here, adding such species as the Barheaded Goose (*Anser indicus*), Ruddy Shelduck (*Tadorna ferruginea*), Nukta (*Sarkidiornis melanotos*), White Ibis (*Threskiornis melanocephala*) and Temminck's Stint (*Calidris temminckii*) to the check–list of the Park. However, on one occasion, 18th December '88, I arrived at Khitauli to discover, instead of a sheet of blue water, a small, braided stream flowing through an expanse of mud flats. The water in the tank had been released. In the event this circumstance presented me with a most unexpected bonanza in the form of large numbers of waders who hailed my arrival with piping shouts and then, overcome by the occasion, indulged in all the showy antics of their kind – lifting off in a tight–packed disciplined mass, wheeling, dipping, banking, all at high speed and with astonishing precision and then just as suddenly, returning to exactly the same spot they took off from, making a few perfunctory, jerky curtesies and back to dinner.

There were Lesser Sand Plovers (*Charadrius mongolus*), Little Stints (*Calidris minuta*) and, amongst some rocks, a pair of Greater Stone Plovers (*Esacus magnirostris*) all three new additions to the list. With them were Little Ring Plovers (*Charadrius dubius*), Little and Median Egrets (*Egretta garzetta* and *E.intermedia*), a stately Purple Heron (*Ardea purpurea*), solitary Greenshanks (*Tringa nebularia*), Black–winged Stilts (*Himantopus himantopus*), Temminck's Stints (*Calidris temminckii*) and Common Sandpipers (*Tringa hypoleucos*) flitting about with their curious vibrating wing–beat and many others for whom the draining of the tank had suddenly unveiled a 'Happy hunting ground' where none, or at best, marginal habitat had existed earlier. It was a fascinating example of the functioning of a 'dual' habitat and its creation through human agency.

Another instance of the modification of the environment and its effect on the avifauna can be seen in the extension areas of the park where large patches of scrub jungle bear testimony to the over–exploitation of the forest. But these bare, open patches with their desiccated look support species which would almost certainly not have occurred here when the land was under its original cover. Thus we find the Large Grey Babbler (*Turdoides malcolmi*), the Ashycrowned Finch–Lark (*Eremopterix grisea*), the Grey Partridge (*Francolinus pondicerianus*) and in the heavily grazed meadows, Tawny Pipits (*Anthus campestris*), Yellow–wattled Lapwings (*Vanellus malabaricus*) and the Rufous–tailed Finch–Lark (*Ammomanes phoenicurus*).

Raptors are fairly well represented with 26 species being recorded which include three species of falcons – the Shahin (*Falco peregrinus*), which is resident and only one pair have been seen who have made their home in the cliffs of Bandhavgarh fort. No breeding activity has been observed. The other two are the Eurasian Kestrel (*Falco tinnunculus*) and the Eurasian Hobby (*Falco subbuteo*) both of which are winter visitors with the former being far more common, inhabiting dry open forests and the edge of grasslands. The cliffs of the fort and of its neighbouring hill, Bandhaini, with their ledges and scooped out hollows, offer convenient sites for vultures to nest in and for roosting. The Long–billed Vulture (*Gyps indicus*) is in the majority though the Whitebacked Vulture (*Gyps bengalensis*) and the Scavenger Vulture (*Neophron percnopterus*) are both present as well. Because of the heavily forested nature of the Park the two commonest eagles are the Crested Serpent Eagle (*Spilornis cheela*) and the Crested Hawk–Eagle (*Spizaetus cirrhatus*). The former is more often seen out in the open along the edge of grassland or near water and the latter tends to stay deeper in forest, in thicker cover and hence is less easily seen although it is probably just as abundant as the Crested Serpent Eagle, the

numbers of which also seem to increase around spring just before the breeding season and I have seem them mate on one occasion on 17th March '89.

Over the last two and a half years there have been occasional sightings of birds which are essentially sub–Himalayan species like the White -tailed Blue Robin (*Cinclidium leucurum*) and the Rufousbreasted Blue Flycatcher (*Muscicapa hyperythra*). Being field sightings made while I was alone these must be regarded as unconfirmed and treated with caution as regards status. Nevertheless, it is interesting to note that Bandhavgarh provides a roughly similar habitat for birds that wander along some of the tenuous forest corridors and tributaries of the Ganga and that it is within the drainage basin of the Ganga, another connection with the sub–Himalayan region. It may well be that a long term, systematic ornithological survey conducted in this region including parts of Orissa, will reveal hitherto unsuspected species. Other species which are new for this area the Dark–grey Bush Chat (*Saxicola ferrea*) which was reported for the first time from Central India, from Kanha by Newton, et al (1986). Interestingly, this bird which is a winter visitor, is being seen in increasing numbers every succeeding year since 86–87. The Dusky Leaf Warbler (*Phylloscopus fuscatus*), described as a winter visitor to Uttar Pradesh, Assam and Bangladesh (Ali & Ripley 1968–74) is another bird seen in the winter in fairly large numbers in scrub jungle and stubble fields and occasionally amongst the dry, open forest found on ridge–tops. Here, where the stunted trees, bushes and scrub grass are found I have had my only sighting of the Spotted Grey creeper (*Salpornis spilonotus*).

This is only a brief description of some aspects of the avifauna of Bandhavgarh and, while the tiger will doubtless continue to rule the imagination of layman and naturalist alike, the diversion of some attention to the bird–life will not only be merited but will also, I feel, be rewarding.

NOTES ON THE SLENDER–BILLED CURLEW

S.A.Hussain, Bombay Natural History Society, Hornbill House, Shaheed Bhagat Singh Road, Bombay 400 023

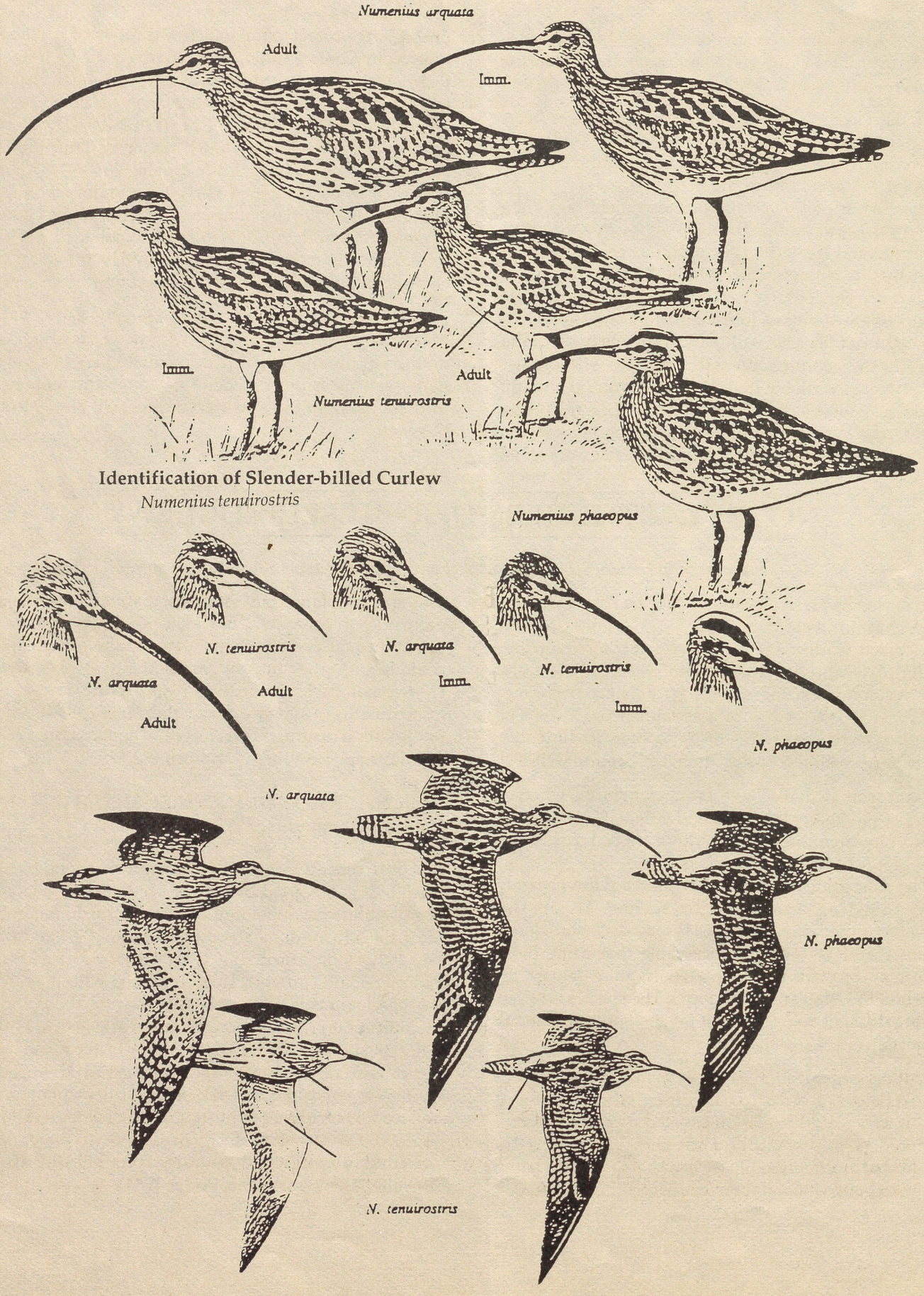
I am enclosing an information paper on Slender–billed Curlew communicated to me by Dr. Adam Gretton, Slender–billed Curlew Project Coordinator for the ICBP. According to Dr. Gretton, the Slender–billed Curlew is one of the rarest migratory birds in the West Palearctic (as few as 100 survive), and the ICBP has launched a two–year project to research the status of the species and identify action necessary for its conservation. Dr. Gretton writes :

"The reason is that I have been wondering whether there is any possibility that the Slender–billed Curlew may occur in Pakistan or N.W. India. There are no records that I know of, and I realise that this is a very long shot, but would be most grateful for your help and advice. The only known breeding areas for the species are in the Omsk–Novosibirsk region (i.e. as far east as Delhi), and it does not therefore seem inconceivable that some birds (perhaps a separate sub–population) may winter on wetlands in Pakistan and N.W. India. The species is rather easily overlooked, being difficult for the non–specialist to distinguish from *N.arquata*.

Does your organization have any plans for bird surveys in the wetlands of N.W. India, particularly the Rann of Kutch? If so, I would be very interested if you could send me some details. I would be most grateful if you could bring this to the attention of any ornithologists you know visiting any good wetlands between September and March. The species shows no specialist habitat requirements, occurring on saltmarsh, brackish areas, fish ponds and sometimes beaches. Perhaps a short note on the species could be published in your Newsletter to increase interest in *N.tenuirosris*? Care does need to be taken with identification, and we have therefore produced the enclosed drawing and notes. Please feel free to duplicate/publish this as appropriate."

IDENTIFICATION OF SLENDER–BILLED CURLEW
Numenius tenuirostris

Until recently the identification of Slender–billed Curlew was hindered by lack of accurate references. The standard European field guides are seriously misleading, with the illustrations showing *Numenius tenuirostris* as decidedly long–billed (bill length intermediate between Whimbrel and Curlew). This, combined with the rarity of the species, resulted in a lack of clarity about the key identification criteria. More recent works, such as BWP, 'Shorebirds' and 'Birds of the Middle East and North Africa' are very accurate and have greatly reduced the confusion regarding this species. Excellent photographs and useful notes were published following observations in Morocco, winter 1987–88 (van den Berg 1988), whilst previously published photographs should also be consulted (Marchant 1984, Porter 1984).



Identification of Slender-billed Curlew

Numenius tenuirostris

Because of the difficulty of obtaining the key reference books in many parts of the species' range, an identification sheet with drawings by Craig Robson, has been produced and will be widely distributed. These notes are intended to summarise the key identification features, as indicated by lines on the drawings, and are based on recent personal observations in Morocco.

The overall impression of Slender–billed Curlew is of a small, compact curlew with a very different 'jizz' to *N. arquata*. Body length is on average 70% that of Curlew (and slightly smaller than Whimbrel), whilst bill length is 55–60% that of Curlew (only 7–9cm). The bill is generally all dark, without the prominent flesh–coloured base to the lower mandible of *N. arquata*. It is noticeably thinner at the base and tapers to a finer point than that of its congener. The species appears very 'neat' and round–bodied, with short bill, neck and legs; in comparison *N. arquata* seems rather 'gangly'. The prominent round black flank spots are particularly obvious at close range. *N. tenuirostris* has a distinctive 'nodding' action of the head while walking, reminiscent of Little Whimbrel or Upland Sandpiper. Although at times it runs rapidly, its movements can also be rather slow and deliberate. In flight, the short bill is particularly prominent as well as the very white flanks, underwing and rump/lower back.

There should be little possibility of confusion with Whimbrel, because of the species' distinctive head pattern and voice. The above features should allow confident separation from *N.arquata*, particularly where the two species are seen together. Care must be taken, however, where *N. tenuirostris* is seen in isolation, particularly in autumn, as *N. arquata* immatures can be notably small and short–billed, whilst individuals of *N. a. orientalis* can be quite pale, with white underwings.

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OBSERVATIONS ON THE BEHAVIOUR OF SUB–ADULT BLACKNECKED STORKS AT DIPOR BEEL, ASSAM

M.Raj, J.Deka and P.C. Bhattacharjee, Animal Ecology Lab, Dept. of Zoology, Gauhati University, Guwahati 781 014

The Blacknecked Stork, *Ephippiorhynchus asiaticus* is rare and patchily distributed in Assam. During the last two years the species has been sighted within the proximities of Kaziranga National Park, Manas, Orang and Pobitara wildlife sanctuaries in the region. Interestingly, though the species is mainly a large wetland type, within the natural reserves it was mainly seen solitarily or in groups of two to three by the side of small streams and marshes. No records exist of the sightings of the species, outside the natural reserves, within the last decade in Assam.

For the first time, three sub–adult Blacknecked Storks were sighted at Dipor beel (beel–local term for lake in Assam), situated outside the natural reserves, in the suburban areas of Guwahati city. Dipor beel having a total area of 40 sq. km is a potential bird sanctuary of Assam and has been monitored closely for the last three years. It is the only beel in Assam which has been included in the Asian Waterfowl Counts during the years 1987 and 1988. 122 species of birds have been identified to–date in the area. The coming of the sub–adult Blacknecked Storks on 23rd April 1989 on the beel presented the authors an opportunity to study the behaviour of the species at close quarters. Some of the behavioral activities noted are mentioned below.

The Storks were very shy. The minimum distance to which they would allow a person to approach them was 30 feet. Any further approach would be met with the sub–adults walking rapidly in the other direction, or flying away to another distant patch. Most of the time of the day was spent by the Storks near the proximities of the branches of the beel where the water is relatively shallow and clear. All other portions of the beel are almost completely choked up with *Euryale ferox*, an aquatic angiosperm which starts growing from February onwards. The Storks were found to keep themselves away from the areas in which this plant grows.

Feeding was mainly accomplished during the early or late hours of the day. While feeding, the species either walked rapidly or slowly in knee deep water looking for prey or stood crouched at one place with its bill slightly open and dipped in water to grope for the prey. It was mainly seen feeding on fish.

Resting included standing or squatting on the ground with the bill at most times resting against the curve of the long neck. While standing and resting on one leg, the toes of the other leg were raised and brought to rest on the knee joint of the first leg or brought up to the belly or simply held apart. While squatting on the ground, the legs were bent at the knee joint with the whole of tarsus touching the ground, supporting the body weight. During this time the relatively long legs of the species became almost invisible from a distance. Maximum portion of the day was spent in resting.

Preening was accomplished somewhat leisurely during the day. The portions of the body feathers nibbled with the beak were the wings, breast and tail. The observed movements which can be assigned to the category of comfort movement are stretching of one wing, turning of bill sideways or towards the sky, opening of the bill and closing it with a snap and rubbing of the head on the back by stretching the neck.

Very few instances of soaring high in the sky were noticed in the sub–adults. They mostly walked from one patch to another. Short distance running on the ground with the wings open and flapping slightly was a common feature. This movement seemed to be an imitation of the pre–flight running movement.

Doubts still persist regarding the breeding of Blacknecked Storks in Assam (Luthin 1987). The sighting of the Sub–adult at Dipor beel gives weightage to the breeding status of the species in the region. It however seems that their population is much fragmented. There is an urgent need of a survey for identification of the breeding grounds of this rare Stork in Assam to aid in its conservation.

Reference

Luthin, C.S. 1987. Status and Conservation priorities for the World Stork species. Colonial Water–Birds 10 (2) : 181–202.

A NOTE ON THE DISTRIBUTION OF THE RUDDY SHELDRAKE (Brahminy Duck) *Tadorna ferruginea*.

C.S. Nagendran, 21, Hardi Compound, Naryanpur, Dharwad 580 008

During my three persistent attempts made in 1987, 1988 and 1989 to count and gather data on different types of water birds in areas of Dharwad District I came across this large orange brown duck called the Brahminy Duck only once in 1988 January midwinter–time and that too I saw them in pairs and not in parties. Two of the 4 members observed basking in an open tank near Makarolli (Coordinates N 14°35′ E 75°10′) were photographed, about 150 km away from Dharwad town. In 'The Book of Indian Birds' by Salim Ali it is stated that although the Duck is found throughout the Indian Union it is rare in extreme South India. According to the 1987 & 88 water bird counts organised and published by the IWRB and BNHS the number of Ducks recorded in Andhra Pradesh was highest about 1415 in 1987 but it came down suddenly to 313 in 1988. Down towards Tamilnadu only 25 birds were recorded in 1987 but the number is nil in 1988. No birds of this species were recorded in Kerala and Karnataka during the same period but in 1989 January count, 4 members occurred as stragglers. It may be deduced from this observation that the distribution of the Brahminy Duck in South India is somewhat irregular and the reason for this may be due to disturbed ecological and physical conditions of the chosen open tank habitats to which the Duck gives special preference during its winter movements. Quite a few mud spit open tank habitats remain unsurveyed on the fareastern side of Karnataka adjoining to Andhra Pradesh and to guage and determine the distribution and population sizes of this somewhat unfamiliar Duck in South India, a coordinated effort to intensify midwinter counts in Karnataka should be made during the next few years.

It is not only the Ruddy Sheldrake but there are other species of water birds like the Barheaded Goose, Shelduck, Common Crane, Black Stork, Blacknecked Stork, White Stork, whose number and distribution in Southern India is still not adequately understood.

' NEW BIRDS ' ON THE INDIAN INSTITUTE OF SCIENCE, CAMPUS.

Shyamal, L., D–206, IISc Campus, Bangalore–560 012.

As one of the birdwatchers on the IISc Campus I would like to report some of the 'new birds' (birds not seen on the campus in the past few years) seen.

Three Painted Snipes (two males and a female) were often seen during the months of May and June.

A small flock of Blossomheaded Parakeets has been on the campus since July.

Some of the other new birds worthy of mention are Grey Partridge, Crested Hawk–Eagle, Whitethroated Ground Thrush (winter) and the Tree Pipit (winter). But perhaps the most interesting new addition was the one that was found dead on my balcony on the night of 9th May 1989 – a sparrow sized thrush like bird with olive green upper parts and a rust coloured breast. It was identified as an Indian Blue Chat (*Erithacus brunneus*) by Mr. Ranjit Daniels

of IISc, known only in the Himalayas and the Western and Eastern Ghats (winter), this is probably the first time it has been seen in interior peninsular India. It was probably in transit, by night as in most of the smaller birds of passage, when it died.

The bird has been preserved by Mr. Ranjit Daniels at CES, IISc

NEED TO IMPLEMENT RAMSAR CONVENTION. *Dr. Diptimanta Barooah, MBBS, Dass Pharmacy, Sibsagar 785 640, Assam*

For the last 5 years I am observing the migratory bird population in the south bank of the river Brahmaputra – principally in an area called the Panidihing Reserve Forest. About 30 – 40,000 birds winter here. They are mostly geese (Greylag and Barheaded), ducks (about 15 species), Ruddy Sheldrake and two species of grebes. But due to almost non–existent Govt. machinery, a large scale slaughter is taking place by hunters equipped with nets and guns. A very brief report appeared in CUB of BNHS this summer, but the report was 'trampled' it seems, because there was no "trampling of nests" in my report simply because the migrants do not raise any nests at all!

During my research I found out about something called "RAMSAR CONVENTION" of 1971 in a neglected file of the Forest Department. It seems the convention urged the necessity to preserve the wetlands – specially those used by the migratory water birds. Panidihing Reserve Forest is a wetland and is used by migratory flocks. I wish to draw the attention of the people of Assam and the Government about the importance of saving these wetlands as India has accepted this convention.

KINGFISHER HELPS DESTRUCTION OF MAGGOTS. *K.Sivasubramaniam and N.Ganapathy, National Pulses Research Centre, Vamban 622 303*

We have been amused to observe a Whitebreasted Kingfisher (*Halcyon smyrnensis*) at our quarters in the early mornings. A refuse tank nearby was its attraction for the recent rains have filled the tank, now harbouring numerous hoverfly maggots. The Kingfisher, perching at the edge of the tank went on its dive bombing session lifting the maggots one after another. Hoverfly maggots are detritus feeders, unlike their adults, that feed on nectar. The eggs are laid near water sources on plants and on hatching out crawl to the water to lead an aquatic mode of life. The maggots are 5cm. long with a long tapering rat–like tail bereft of hairs. The tail serves the purpose of movement and breathing. It has a breathing pore at its tip which the maggots expose at the water surface. Their movement is also interesting to watch as they wag their tails in a serpentine manner like an eel with intermittent somersaulting movements (Fig.1). This observation may be a forerunner for further research on this colourful bird as a potent predator of sandfly and harmful mosquito larvae that prove pernicious vectors of human diseases.

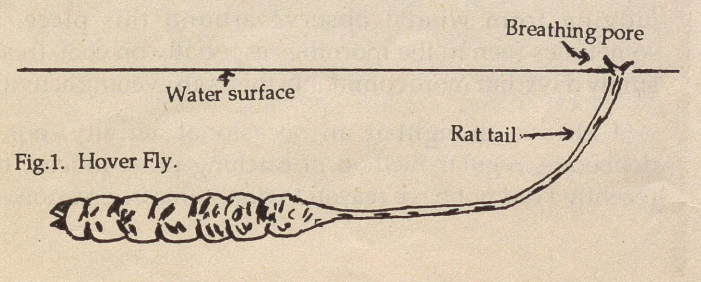


Fig.1. Hover Fly.

MYNAS ATTACK A SQUIRREL. *Deep Narayan Pandey, I FS robationer, 44 New Hostel, Indira Gandhi National Forest Academy, Dehra Dun 248 006*

On 29th June 1989, around 3.30 p.m. I noticed a conflict between the Indian Myna (*Acridotheres tristis*) and a Five–striped Palm Squirrel (*Funambulus pennanti*), at New Forest, Dehra Dun.

The Squirrel descended down a *Melia azedarach* tree after being attacked by a pair of Indian Mynas nesting on the same tree. The Squirrel crossed a metalled road and ascended a nearby *Adenanthera pavonina* tree. The Myna pair followed the Squirrel and again attacked it. Within 4 minutes 30 seconds, the Squirrel fell down from about a height of five metres. The Myna pair was soon joined by three more mynas to continue 'Operation Assault'. The birds left the Squirrel due to the approach of a vehicle and did not return for further action. After 32 minutes the wounded Squirrel was lifted away by a Pariah Kite, *Milvus migrans*, which carried the Squirrel to its nest placed atop a *Terminalia myriocarpa* tree about 150m away from the site of incidence.

PIED CRESTED CUCKOOS. *J.S. Serrao, Bombay Natural History Society, Hornbill House, Shaheed Bhagat Singh Road, Bombay 400 023.*

In response to the Editorial in the May–June 1989 issue, J.S.Serrao of the Bombay Natural History Society, writes :

There are two populations of the Pied Crested Cuckoo resident in the Indian subcontinent, which are allied and/or are inseparable from the African Pied Crested Cuckoo, which is the harbinger of the S.W. monsoons. One such Indian resident population is in N.E. India, and the other south of 15 degrees north latitude. The African and Indian Birds (P.C. Cuckoo) are inseparable in the hand too,

the only difference being the wing measurement which is less than 144mm in the Indian populations and 144+ mm in the African populations, which enters through the S.W. of the peninsula and the west coast of India, riding the S.W. monsoon currents along the Arabian sea. So fine and indistinguishable are these two populations, that to understand them better we can only *add* or *subtract* the square–root of 144mm, and come to a measurement : 144 ± 12. This means taken at random, the birds would have a wing ranging from 132 to 156mm, and 144mm being the cut–off figure; any bird with a wing below 144 going down to 132mm should belong to the Indian population and anything from 144 to 156mm should be of the African population.

It is the individual of the resident population which you heard on 25th May and your identification of the bird by its call is absolutely correct. The date indicates the time that the local population gets into the breeding mood.

That the African Pied Crested Cuckoo population enters and leaves India through the south too is undoubted. Only a few years back when I wrote a note in *Hornbill* about the Mystery of the Bird, a member of the BNHS who was then posted in Laccadives wrote in to say that the birds were there a day or two before they were reported from Bombay. And the late Dr. Salim Ali himself during his Mysore Survey in 1940, collected a Pied Crested Cuckoo with a wing measurement much above 144mm and from its body condition and the fat layers he concluded it to be the African bird on its return migration. This was in November.

ON SHOOTING BIRDS. *S. Theodore Baskaran, 124, Ashoka Pillar Road, Jayanagar I Block, Bangalore 560 011*

I have read the article on waterfowls by Thomas F. Martin in the *Newsletter* of Jan–Feb. He says that he shoots and kills ducks and yet loves them. This raises a basic question ... can conservation and hunting be compatible? In the context of status of wildlife in India, can hunting be thought of at all?

There are many reasons why men go about shooting birds. To the primitive man hunting for food was a necessity. When it was no longer a need, he made it a sport. As long as he killed for food, the hunter had a place in the ecosystem, just as another predator. It is when he started shooting for trophy, for commercial purposes or just for the thrill of killing (sport), that all the havoc was caused.

I have heard people argue that the sportsmen of earlier days had contributed to conservation. This statement requires close scrutiny. The trophy–hunter always went for the best and the biggest specimen, usually a male in its best breeding state ... like a sambar stag with antlers. By shooting these, he reduced the gene quality of the species. Some maharajas helped in preserving certain habitats, like the Bharatpur sanctuary, as hunting preserves. It must be remembered that in these cases conservation was incidental. These areas were protected so that a privileged few could hunt there. When viceroy Lord Hardinge visited Bharatpur in December 1914, as many as 4,062 ducks were slaughtered on a single day.

On the other hand, many species of birds have been destroyed by hunters. The Red–data book is replete with names of birds that were shot out of existence ... the Passenger Pigeon of America, the Pink Pigeon of Mauritius, the Great Indian Bustard and the Pink–headed Duck of India. (I am aware that habitat loss was also a factor in the case of the last two.) The International Council for Bird Preservation has estimated that shooting has accounted for 30% of extinction of bird species. 20% of endangered species of birds live in wetlands ... the area where sportsmen shoot ducks. Here, shooting also has the insidious side effect of dispersing lead shots in the habitat. There have been cases, particularly of Bewick's Swans (*Cygnus columbianus*), in which birds pick up these as food and are poisoned by it.

In India the absolute number of each species is very low though we have 1,600 different species of birds. So there is no room for shooting. We will never have enough number of birds to permit shooting. In 1878 there were millions of Passenger Pigeons in America. In 30 years it was extinct. A species' numbers are no guide to its vulnerability to extinction.

How can we say that we love birds and shoot them? Do we destroy something we love? ... unless we use the word 'love' in a gastronomical sense, as in 'I love sausages ... '.

FLY–CATCHING BULBULS. *Dr. Sudhakar Marathe, Department of English, University of Hyderabad, Hyderabad 500 134*

I have always seen the common or Redvented Bulbul (Ali–Ripley *Handbook*, compact edition, OUP 1983, No.1128, *Pycnonotus cafer cafer*) making brief sallies from bush–tops to catch floating or flying insects. This activity, judging from what I observe around this place, is sometimes seen in the mornings especially on cool, fresh, sunny days; but more commonly this is an evening activity.

I always thought it an occasional activity, not a deliberate, regular method of catching prey. Indeed, till recently I did not have reason to doubt this impression.

However, all through this first month of the monsoon, it has been possible to observe almost bee–eater like behaviour from Redvented Bulbuls. We have a terrace at about two–and–a–half floors' height. Whenever possible, we spend time there, perching on the parapet wall, and looking around at the flying things. To one side of us is the roof of the building, with a similar parapet wall and other perches like television antennae. In the evenings, there are usually two to five or six Bulbuls up there, on these perches and they can be seen rising after flying insects, again and again making sallies every few seconds for up to half an hour before nightfall.

That is to say, regularly flying out from the perches, the Bulbuls make some fifty to hundred–and–fifty sallies evening after evening, and while on occasion the insects they are after escape them, by and large they hunt pretty accurately, as far as I can make out just as accurately, as the bee–eaters and drongoes. First, then, it seems possible to say that for both day–break and dusk, one of the *regular* ways of hunting adopted by the Redvented Bulbul resembless the bee–eater's sallies.

But what is more startling, and it is something for which I find no authority in the Ali–Ripley *Handbook* (compact edition, Vol.6 : 87, p.414), is the following fact: the Bulbuls are *not* restricted, as the *Handbook* suggests, to *short* flights of this kind; for the birds fly out by as much as fifty or sixty feet (again, like bee–eaters and drongoes), and moreover, they can and do fly straight up whenever necessary. That is to say, their eyesight, their positioning themselves in such locations as will make this hunting method possible, *and* their flight itself, all seem perfectly adequate for this behaviour. Is it not strange that while the Bulbul is not built like either of the famous hunters by this method (the bee–eater and the drongo), it can still successfully execute the various manoeuvres necessary for in–flight insect–catching?

While I have seen Indian Robins (*Saxicoloides fulicata*) flying up a few feet off the ground to catch a flying ant (?). and even on occasion a Hoopoe (*Upupa epops*) executing a few spectacular twirls a few feet off the ground after a flying insect, I have not seen anything so significant as the Bulbul's behaviour. It would be interesting to read about other bird–watchers' observations on this subject.

STORKBILLED KINGFISHER IN EASTERN RAJASTHAN.

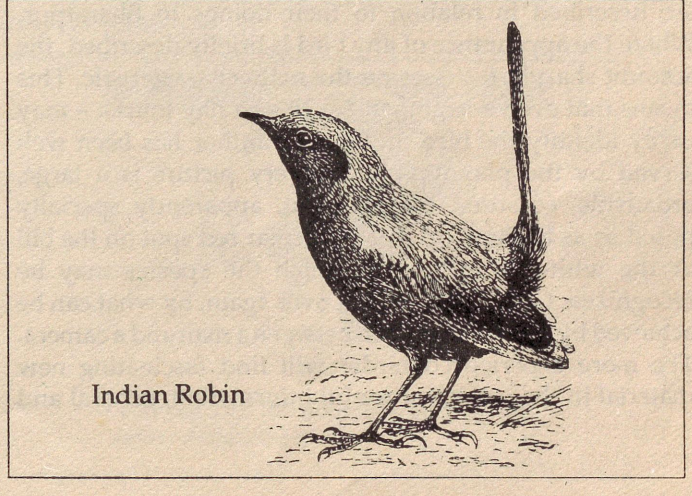
Manaj Kulshreshtha and Rakesh Vyas, 2P22, Vigyan Nagar, Kota 324 005

It was a fine winter morning very suitable for nature trail. Reacting to the appeal of Co–ordinator–Asian Midwinter Waterfowl count, we had gone to an irrigation dam about 22km from Kota. While walking on the embankment of the dam a melodious call greeted us from the dense canopy of Arjuna trees growing by the side of the Dam. The call confused us for a while as it was quite new to our ears and very pleasing too. As we trained our binoculars towards the call we saw an Indian Roller sitting on the branch and also the agitated behaviour of some crows.

The call continued but we found that the Roller was not calling. On moving a few steps to our right we located a bird a little larger than Roller itself, which had a dagger like prominent red bill. The bird was overall bluish green with yellowish collar and large brown head.

We found that it was some type of kingfisher yet we could not be sure which one. So we consulted 'The Book of Indian Birds' by Salim Ali. It confirmed that the bird was none other than the Brown headed Storkbilled Kingfisher (*Pelargopsis capensis*). The most interesting part was that the book clearly stated that the Storkbilled Kingfisher is not found in Rajasthan and adjoining arid areas. That is why we find it appropriate to report its repeated sightings in this part of Rajasthan. The Storkbilled Kingfisher was again observed on 19.3.89 and 21.4.89 sitting on Eucalyptus and Cassia trees along the bank of Ummed Sagar reservoir approximately 15km from Kota in altogether different direction. Once again on 5.7.89 it was observed sitting on a telegraph wire overhanging a small pond on Kota–Bundi Highway about 9km from Kota. One of the authors, on a visit to Ranthambhor National Park on 6th June saw two Storkbilled Kingfishers perched on two different branches of an *Anogeissus pendula* tree near the stream of Bakola Nullah inside the Park area.

On the basis of these repeated sightings at different places in East Rajasthan we may conclude that the Storkbilled Kingfisher is found in East Rajasthan, which our enthusiastic bird watchers may please note.



Indian Robin

Review

BHARATPUR BIRD PARADISE. *Martin Ewans. Photos by Thakur Dalip Singh, Rajpal Singh, James Hancock and others. Published by Lustre Press (Pvt) Ltd., (144 pages). Reviewed by Laeeq Futehally, 'Moitaka', Bear Shola Road, Kodaikanal 624 101.*

Usually, in India, books about particular places have as their subject places which have a historical or cultural significance – that is, places with important monuments, whether religious or secular. Occasionally, as in the case of the Himalayas, it is a particular landscape which is celebrated.

Martin Ewans has written about a place whose importance lies not in any man–made work, but in the quantity and quality of the birdlife by which it is inhabited. Bharatpur has, in the last few years, become as important a tourist attraction as many of the traditional tourist areas.

During the years he was posted in Delhi, Martin Ewans made a practice of going birdwatching to Bharatpur as often as possible and at all seasons. His careful notes form the framework of this book. But it was not only the birds which he was watching and studying with such care. He was also watching and studying the area as a whole. He was noting the effects of the changing seasons, of how a good monsoon or a bad monsoon affected the flora and fauna, of the interactions between weather, wildlife, vegetation, domestic animals and tourists. So that, at the same time as he adds to our stock of ornithological information, he also gives us an accurate and complete picture of the entire Park, and its shifting patterns.

Each of the major groups of Bharatpur birds – the storks, egrets, ducks, geese, raptors, and so on, get a chapter. The author never forgets that the subject of his book is Bharatpur and not any individual specis. So that the birds are described in relation to their doings in Bharatpur. Where the appearance of any bird is briefly described, the account sharply focusses on the main characteristic. This means that even a beginner – such as a day tourist – may easily identify the bird. In this the author has been well served by the photographers. Every picture is a large, broadside, coloured bird portrait, apparently specially posed so as to show up that particular red spot on the bill or the white wing bar by which the species may be recognized. One is amazed, all over again, by what can be achieved by the collaboration between a man and a camera. The more experienced birder will find fascinating new material in the wealth of useful information, general and particular.

Perhaps some extracts from the Chapter on "A Winter Day's Birdwatching" will give the readers a flavour of the more personal parts of the book.

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"As I struck down the edge of the marsh, there, sure enough, were a pair of Siberian Cranes, and nearer the shore, three or four flocks of Barheaded Geese, probably a couple of hundred birds in all. Whether it was the misty morning, or they were simply not in the mood to be bothered, the geese were, like the Sarus Cranes earlier, not their usual upright selves. I was careful not to approach too close, but for once they seemed determined not to be disturbed. I was able to note what seems to be an established difference of habit between the Greylags and the Barheaded : Whereas the former seem to be quite contented just sitting, standing or floating around during the day, the latter seemed to prefer the muddy verges of the marsh, where they forage for food. The handbooks say that the Barheaded are crepuscular or nocturnal feeders, and that they snooze out of harm's way during the day : here at Bharatpur they seem to occupy their days with some assiduous feeding, while it is the Greylags who seem content in day–time to do nothing in particular, nowhere in particular."

P.121

"I then saw the Harrier gliding low beneath the tree line and sweeping on the various groups of waterfowl, which concentrated for safety. This went on intermittently for some time; and it was only after retracing my steps a little while later that I saw the upshot – the contented Harrier on a low bank in the marsh pecking at its kill. Incredibly, a flock of Pintail, Cotton Teal and Common Teal paddled around nearby quite unconcerned, either realising that the Harrier was well sated for the time being or, more probably, not sensing danger while the Harrier was not on the wing. I then realised that there had been, as is not uncommon, two Harriers, as the second of the pair emerged from behind the nearby trees, still gliding low across the marsh."

In the last Chapter the author discusses the future of the Park. He writes of the happenings of the last few years, the good and bad monsoons, the pressures of human and cattle population, and its chances of surviving as a "bird paradise". We come to the conclusion that Bharatpur can only survive if there is "eternal vigilance" on the part of those who value it – among whom must be everyone of the readers of this Newsletter.

Harpy Eagle

by N. J. Collar

Harpy Eagle. Drawing by J. Fjeldså.

As a native of the lowland rainforests of Latin America, ranging from México to Brazil and northernmost Argentina, the Harpy Eagle *Harpia harpyja* is as classic a "flagship species" for conservation as it is an "indicator species" for environmental quality. With no particularly charismatic large animals to capture the public mind (other perhaps than the non-endemic Jaguar *Panthera onca*), the New World's rainforests can have no prouder champion than this devastatingly handsome and compelling raptor.

It is hardly possible to find an article on the Harpy Eagle that does not claim it as the largest and most powerful of all birds of prey. There are, however, four truly massive eagles in the world: the piscivorous Steller's Sea Eagle *Haliaeetus pelagicus* in eastern Siberia, the Martial Eagle *Polemaetus bellicosus* of the African savannas, the Philippine Eagle *Pithecophaga jefferyi* in four islands of the Philippines, and the Harpy Eagle of South and Central America. I list them here in descending order of recorded weights, which is perhaps a better guide to their relative power than physical dimensions (although both weight and size in raptors vary with sex and age, and the samples of these large, rare eagles are too small for any confidence).

The Steller's and Philippine Eagles again outstrip the Harpy in the size of their awesomely hooked and compressed bills, and the Martial outstrips them all in wingspan; but it is the unparalleled development of the Harpy's legs, feet and talons that have established its primacy over the others as the most awesome of all killers in the class of birds.

These feet and claws have evolved in response to the Harpy's preferred food: forest canopy mammals – monkeys, porcupines, kinkajous and in particular sloths. The slowness that gives sloths their name is the metabolic price they pay for depending on leaves for food: the cool of the night slows them down even more, so that at dawn they move high into the forest canopy to seek heat from the early sunshine, staying immobile but unavoidably exposed. This is the time the Harpy hunts them, but it has to strike and dislodge them without losing flight speed. Sloths' long, inverted claws are scarcely less robust than the Harpy's, and the eagle evidently needs enormous power in its legs to grip and drag the prey off its branch.

When pursuing other prey, such as monkeys dodging through the canopy, the Harpy can show astonishing turns of speed and agility; but otherwise things move slowly in the bird's life, and a kill must be the highpoint of its week. When breeding, the egg-laying period is ten days or more; incubation (done almost entirely by the female) lasts some eight weeks; the fledgling period is around 21 weeks. During incubation, the male provisions the female, on average just once a week! In a study of a nest in Guyana extending over 235 days, the adults arrived with prey only 52 times, 43 by the male, nine by the female; in another study, a fledged juvenile went without food for 10 days. The period of juvenile dependency suggests that a successful breeding cycle will occupy a pair for two years and result in a single young.

These studies tend to suggest that a breeding pair of Harpies may consume less than 200 prey items per year, a seemingly modest impact on the biologically richest environment in the world. All the same, how big an area do they need in order to sustain themselves? And how many pairs are needed in adjacent tracts of forest in order to sustain the species? What, in effect, is the minimum critical size of forest for the Harpy? From his work in French Guiana Jean-Marc Thiollay assumed a territory size of between 100 and 200 km^2. Assuming further a population minimum of 250 pairs for perpetual viability, we would then require a minimum critical area of 37,500 km^2 of intact rainforest to ensure the Harpy's survival.

However, Thiollay had two further observations of importance to these calculations: first, hunting adversely influences Harpies by removing food sources, so any putative Harpy reserve needs to be free of such disturbance; second, Harpies tended not to overlap territories with the next biggest forest raptor, the Crowned Eagle *Morphnus guianensis*, so that a still larger area may be necessary to contain the requisite 500 birds. Shall we say then, for the sake of argument, 60,000 km^2, six million hectares? We are now talking of an area twice the size of Belgium.

- An area the size of Belgium was burnt in the Amazon last year, and despite all the international protests it seems to be happening again this year. How many Belgiums, how many years, does the Amazon have? What hope can there be to stop this disaster? Two glimmers emerged over the summer, *writes Adam Gretton.*

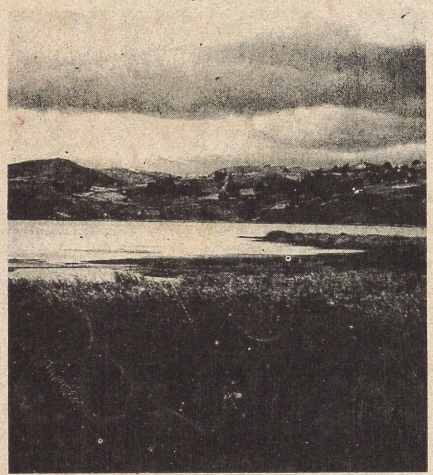
A study published in June (*Nature* 339: 655-656) of a single hectare of lowland rainforest near Iquitos, Perú, identified 275 tree species, of which 72 yielded locally saleable products, including timber. If clear-felled, the area would earn US$1,000 as timber; but if harvested for fruit and latex, it has a "net present value" (NPV) of $6,330, based on a present net annual revenue of $422. Selective cutting would add a mere $490 to the NPV (and is very unlikely to be sustainable). The authors conclude: "Without question, the sustainable exploitation of non-wood forest resources represents the most immediate and profitable method for integrating the use and conservation of Amazonian forests".

In July the U.K.'s Overseas Development Administration signed an agreement with Brazil for technical cooperation on the environment. This will involve the establishment of a biological reserve near Belem and the provision of funds and expertise to assist with forest conservation. The agreement is the first such between Brazil and a developed country, and respects the former's "sensitivity and sovereignty" in determining its future forest policy.

COLOMBIA IN FOCUS

by Humberto Alvarez-López

Colombia's avifauna is famed as the richest in the world. Nearly 1,700 species of bird (about 19% of all bird species on earth), residents and migrants, have been recorded within the country's 1.1 million km^2, and over a hundred more may be expected to enter the list when the remotest frontiers are more thoroughly surveyed. This richness is the result of a variety of factors. Situated in the north-western corner of South America, Colombia occupies the zone of contact between the Central and South American avifaunas, and possesses both Caribbean and Pacific coastlines. In particular, the division of the Andes into three distinct ranges, with other minor mountain systems such as the Sierra de la Macarena and Sierra Nevada de Santa Marta, provides a complex mosaic of altitudinal belts, isolated mountain peaks and inter-Andean valleys, all tending to promote high levels of diversification. Moreover, roughly one-third of the country lies within the Amazon basin, with a corresponding share in the richness of the bird species of that region.



Lake Tota, Colombia. (Photo: D. A. Scott)

Unfortunately, the Andean region holds the densest concentration (85%) of Colombia's twenty-five million human inhabitants, crowding along the subtropical and temperate belts, including the inter-Andean valleys, with all the usual consequences for the natural vegetation and general environment. So with very few exceptions, the Andean forests have already given way to agricultural land, pasture and urban sprawl. There only remain a few, relatively small pockets of high-altitude vegetation, as well as two rather extensive belts of subtropical wet forest along the Pacific and eastern flanks of the Andes.

Birdlife has undoubtedly suffered from such environmental deterioration, although the lack of long-term research on individual species and habitats precludes anything but generalisation. Of 135 bird species included by Hilty in his preliminary ("blue") list of species at risk in Colombia (*Neotropical ornithology* pp.1000-1012), 101 (nearly 75%) belong to the subtropical and temperate regions of the Andes and to the main inter-Andean valley systems of the Cauca and Magdalena rivers. Of particular concern are many species whose ranges are smaller than 50,000 km^2 and whose habitats could disappear in a matter of a few years.

Deforestation has also been intense throughout the Caribbean lowlands, but the wetlands of this region are of greatest concern, as they harbour a rich aquatic bird fauna of both resident and migratory species. The formerly extensive wetland system of the Cauca, Magdalena and Sinú rivers has been subject to drainage, siltation and pollution. Furthermore, public works have proceeded with no environmental impact assessment: for example, the Barranquilla – Santa Marta highway cut the water-flow from the Ciénaga Grande, and the resulting increase in salinity caused the wholesale death of mangroves in Isla de Salamanca National Park. As a result, most of the breeding colonies of herons and ibises were abandoned. In the Ciénaga Grande itself, the most important wintering ground for migratory ducks and shorebirds on the Colombian Caribbean coast, several road dykes blocked the main freshwater inlets, again causing the salinity of the wetland to rise: the periodic massive mortalities of fish attest to the magnitude of the environmental degradation in progress.

Wetlands of the interior have been even more severely affected. In the upper Cauca valley, for example, wetlands have suffered at least 90% reduction since 1950. The Sonso Lake, the only important remnant of its type in the valley and despite being a nature reserve, is seriously threatened by pressures from surrounding landowners. Some of the high Andean lakes are being degraded by agricultural practices in their immediate vicinities. The endemic Andean Grebe *Podiceps andinus* (whose chief site was Lake Tota) became extinct in the late 1970s, probably as a result of water contamination and over-exploitation of the reedbeds in which it nested.

Illegal trade is also taking its toll on Colombian birds. Macaws, parrots, toucans and other favoured cagebirds are regularly to be seen for sale in numbers on the streets of most cities. But it seems that international traffic dwarfs this domestic trade. The influence extends far into the remote and still intact forests of the country. The Toucan-barbet *Semnornis ramphastinus* has already been wiped out from large areas of its restricted range by bird dealers. Obviously this is a rather sensitive issue for research, and the intensity and impact of the illegal bird trade can only be guessed at from occasional confiscations made at international airports.

Substantial efforts are being made for the protection of Colombia's natural resources. The government agency for conservation, INDERENA, has established a system of more than 30 national parks and other protected areas, covering a total of nearly five million hectares. In general, though, protection is inadequate owing to social pressures and underfinancing. On the other hand, non-governmental organisations have bloomed in the 1980s, becoming fundamental sources of support and encouragement for INDERENA. Fundación Natura, Fundación para la Educación Superior, Fundación Biológica Puerto Rastrojo and Fundación Herencia Verde are some of the bodies that have already earned international recognition and support for their work in conservation and environmental education. More specifically bird-oriented organisations have also made a start in the last decade. The ornithological societies of Cauca Valley (the Colombian Section of ICBP), Caldas, and Antioquia are devoted to promoting bird conservation by encouraging education, research and public appreciation of birds. These three groups are actively involved in the development of a national bird conservation strategy.

Toucan-barbet. (Photo: C. H. Greenewalt/ VIREO)

As in many tropical countries, conservation in Colombia is a race against time, but Colombian conservationists are running fast and strong. Their pace could be further improved by more active collaboration from conservation communities in wealthier countries. But still more important would be an honest pondering by the citizens of those countries of the impact of their economic policies on the conservation of natural resources in less developed nations.

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