HORNBILL

1987 (1)

BOMBAY NATURAL HISTORY SOCIETY

The picture of the Coral Reef on the cover page of this *Hornbill* is a reproduction of a photograph by our member, Mr Suresh Malkani.

Coral reefs, islands and atolls are the graveyards of earth's most ancient creatures known as polyps. The corals, the sponges encrusting them, the worms nestling around them all made their first appearance on earth some 500 million years ago. The fish, one finds, along these reefs joined in some 100 million years later.

The corals that form the reefs depend on warmth and sunlight, and grow best in shallow, sunlit waters. As a rule they prefer water of normal salinity and with an annual maximum temperature above 22°C, but below 28°C. Because of this, coral polyps are limited to continental and inland shores in tropical and sub-tropical zones.

For the diversity of life, coral reefs are comparable to tropical rain forests — a terrestrial habitat where life proliferates in its varied diversity.

Acknowledgement

We are grateful to Seth Purshotamdas Thakurdas & Divaliba Charitable Trust for financial help for the publication of *Hornbill*.

The Society was founded in 1883 for the purpose of exchanging notes and observations on Zoology and exhibiting interesting specimens of animal life. Its funds are devoted to the advancement of the study of zoology and botany in the Oriental Region. The Society also promotes measures for conservation of nature.

Membership of the Society is open to persons of either sex and of any natioanlaity, proposed and recommended by one or more members of the Society; and also to persons in their official capacity, scientific societies, institutions, clubs, etc. in corporate capacity.

Members receive during a year three issues of the *Journal of the Bombay Natural History Society* now in its 83rd volume, and four issues of *Hornbill*, the Society's popular publication.

Journal Editors

J.C. Daniel, P.V. Bole and A.N.D. Nanavati.

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1987(1) **January-March**

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EDITED BY
J.C. DANIEL J.S. SERRAO
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CARL D'SILVA

The Grapes of Wrath

The Narmada Project has been cleared. The massive project will construct 30 major dams, 135 medium dams, 3,000 minor dams and inundate an area of 350,000 ha including 11% of the forests of the Narmada Valley. The project will displace one million people of tribal origin. A similar project but on a more modest scale, the Bodh Ghat Project of the Indravati river in Bastar, Madhya Pradesh which is teetering on the edge of approval will submerge 10,000 ha of forest land, displace tribals from 42 villages and destroy the habitat of the only population of Wild Buffalo in the peninsula of India.

We are all set to build a brave new world on the stumps of the old. Stumps of the old? Are not we committed to reforest an area equal to the area of forests that will be submerged? But how many among us have seen or walked in the new forests so promised by the planners of these projects? It is a matter of faith. The forests are dreams visible only to the planners. It is a sop offered to those who cry for the wilderness, for a land despoiled. To the Conservationists it is only a land despoiled but to the villagers and the tribals whose land is submerged it is a life shattered. Nothing can be more traumatic than to see one's roots submerged in a flood of waters. The planners for plenty perhaps do not understand that what they offer in exchange cannot replace the traditions and the roots of a way of life in tune with the environment that has gone under the waters. Uprooting destroys the community and the family. We create our own families of Steinbeck's, Joads on the road to nowhere. As centuries ago the Israelis sat by the rivers of Babylon weeping for their lost Zion, we should now get ready to weep with and for the people of the Narmada and Indravati valleys for their Grapes of Wrath are ripening.

Wealth destroyed

Asad Rahmani

Author

Bustards of Rollapadu

Battameka pakshi

Battameka pakshi is the Telugu term for the Great Indian Bustard *Ardeotis nigriceps* (Vigors). The etymology of *battameka* is unclear, *pakshi* on the other hand definitely meaning, 'bird'. Initially, we were told by the locals that it meant 'white or cloth goat', *batta* meaning white and also cloth in some parts, while *meka* meant goat. Recently, we heard from another and probably correct source, that the bustard has to be addressed as *battameka pakshi* and not *battameka* alone, as mistakenly called by some people. *Battameka* as such, also is the term to describe a three coloured (black, brown and white) goat—the bustard has all the three mentioned colours—and *pakshi,* as mentioned earlier means bird. Thus *battameka pakshi* means 'three-coloured-goat bird'!

Till very recently, little was known about the present status of the Great Indian bustard in Andhra Pradesh. Most old records do not pinpoint their earlier distribution and numbers. However, there is a very interesting old falconry record by W. Elliot in the *Proceedings of the Zoological Society,* London (1880), but he mentions that bags were poor due to the fight put up by the bustard. In 1982, due to the persistent efforts of the present Additional Chief Conservator of Forests (Wildlife), Pushp Kumar, the bustard was 'rediscovered' at Rollapadu. This was subsequently followed by sightings/reports from Banganapalle, Nellibandha, Peddapadu, Siruvella in Kurnool district, Hanimireddy-palli in Anantapur district, certain parts in Mahboobnagar district and also in

some areas around the outskirts of Hyderabad city.

August 1985 saw me closing my four-year old field station at Nannaj in Solapur district, Maharashtra, leaving behind many happy memories and heading for Rollapadu, now the most well-known place for the bustard in Andhra Pradesh. The drive from Nannaj to Rollapadu took three days and on 9th August, we awoke from slumber the inhabitants of this once obscure hamlet. It is now more than a year since Rollapadu became my home, and in addition to studying the bustard, I had to adjust to the solitary confinement like atmosphere of the one-man camps of the Endangered Species Project of the Bombay Natural History Society, undergo the ordeals and pleasures of learning a new language, tackle over-friendly villagers and the invariably met, but fortunately few, sitting-on-the-head type of government officials (no offence meant to both, as life would not be so interesting without these characters!); and lastly but not least, getting used to the new cook and his cooking, and his getting used to you and your digestive system. In spite of all this 'additional work', I did have quite an interesting and happy stay and we have obtained quite a few interesting new findings on the Great Indian bustard and its habitat.

Rollapadu is situated about 18 km east of Nandikotkur town in Kurnool district. Its location is picturesque, lying in the plains between the Nallamalai and Erramalai ranges of the Eastern Ghats. The River Krishna flows a little north-west of Nandikotkur town, having joined the Tungabhadra near Kurnool. The terrain is gently undulating The climate is one with hot dry summers (up to 42°C) and mild winters (18°C). Rollapadu receives rains averaging about 677 mm from both the SW and the NE monsoons.

The vegetation of Rollapadu and surrounds is that of a grassland with a few scattered shrubs and trees. However, in some areas light scrub dominates. *Heteropogon contortus, Chrysopogon fulvus, Iseilema anthephoroides, Aristida funiculata* and *Eremopogon foveolatus* constitute the main grass cover. The common shrubs and trees are *Butea monosperma, Diospyrus melanoxylon, Morinda tinctoria, Cassia auriculata, C. fistula, Randia dumetorum, Canthium parviflorum, Prosopis spicigera,* and *Phoenix sylvestris.*

Regarding the population of the bustard around Rollapadu, we can only give a guess of 50 plus birds. During a survey in July 1984, we counted 35 birds. A few days later Forest Department officials saw 38 birds. The largest flock seen after that was 23 birds in July 1986. During the same period, we regularly saw an all-male drove of 17 birds. Fourteen eggs were located in 1985-86. Considering all these factors, a guess of 50 plus birds is offered, and probably it is somewhere

Author

A wolf on the trail

in the range of 60-100 birds (with a good increase every year). The other notable fauna include, among winter migrants, the barheaded goose, white stork, black stork and demoiselle crane, and mammals are represented by fox, jackal, wolf and the blackbuck.

Regarding bustards, the most interesting new find is the existence of two breeding seasons at Rollapadu: the major, starting with the onset of the monsoon and ending by December and the other, a 'mini' breeding season during the hot summer months. We found 12 eggs during the 'monsoon season' of 1985, and had evidence of nesting in two cases during summer. Only by long-term studies, and with birds banded for identification will we be able to understand the reasons for these two breeding seasons.

We learnt from Jampa, a former bird trapper and now Forest Department watchman, about how quickly the dominant displaying cock is replaced once captured or preyed upon. On one occasion during his *shikari* days, he was able to noose five males in succession from one display area. Similarly, he caught three males during another season. This incident again highlights the importance of banding birds for studies. Only with banded birds will we be able to know what is happening. If we had not witnessed the capture/predation, we would have been under the impression that the displaying male was the same one throughout the season, as all bustards look alike to the uncritical human eye.

One of the most impressive sights I have had of the bustard was at Rollapadu. It was the 'march' of 17 adult males to a waterhole, where I hid and waited to photograph them. Equally impressive was the spectacle of 20 feeding birds suddenly coming upon a pair of sleeping wolves. Trusting their flight capability, they stood their ground and watched, probably a little too near and too long to the comfort of the wolves! On another occasion, a lone wolf was seen walking up to about 30 metres of the dominant displaying cock and lying to doze off there. The cock, though appearing startled for a moment, continued with his attraction displays unmindful of the sleeping wolf.

Author

The Battameka pakshi *Express*

Jampa, incidently a naturalist par excellence, also taught us many things which we had overlooked. He made us realise the profitability of looking for the characteristic three-toed footprints of the bustard during surveys, instead of relying only on sightings of birds. The birds could even be sexed by their footprints—males had bigger feet! His down to earth hypothesis for the reason of congregation of bustards during rains left us confounded. We had reasoned with 'scientific' theories like rains acting as catalysts and all that. But he felt that, it was all a matter of the black soil areas (especially fields ploughed and kept for the monsoon) getting too muddy during rains for the bustard to make walking comfortable, and they take to the refuge of *barkas* (waste lands, with stony and well-drained soils), which incidentally make the best nesting habitat.

The bustard in Rollapadu is certainly making a comeback, thanks to the good work of the Forest Department. *Battameka pakshi* is now a household term in these parts. The recently inaugurated Nandikotkur bus depot runs buses with the bustard as its mascot. Gone are the days, when this proud bird ended up on the dinner tables of the locals. Female bustards can now nest peacefully in the protected grassland enclosures set up by the Forest Department, free from human and human-related disturbances, and the cock can hope to strut about with his tail cocked, throat puffed, gular pouch inflated, watching the expanse of his vast territory, and breaking the silence of the grassland with his loud booming calls as he woos the females undisturbed, till the light dims and he realises that it is time to retire.

RANJIT MANAKADAN

A large herd of blackbuck in Velavadar National Park. Prosopis juliflora *is seen in the background.*

Author

Our Neglected Grasslands

From the conservation point of view, grasslands are the most neglected ecosystem in the Indian subcontinent. While most of the conservationists want to save a forest or a mangrove or a wetland, not much importance is given to grasslands which harbour some of the most spectacular animals of the country. Among the 300-odd national parks and sanctuaries in India, a very few of them have good grasslands, and even if a grassland is present it forms a small part of the sanctuary complex. There is no pure grassland sanctuary in the country where most of the representative fauna can be seen.

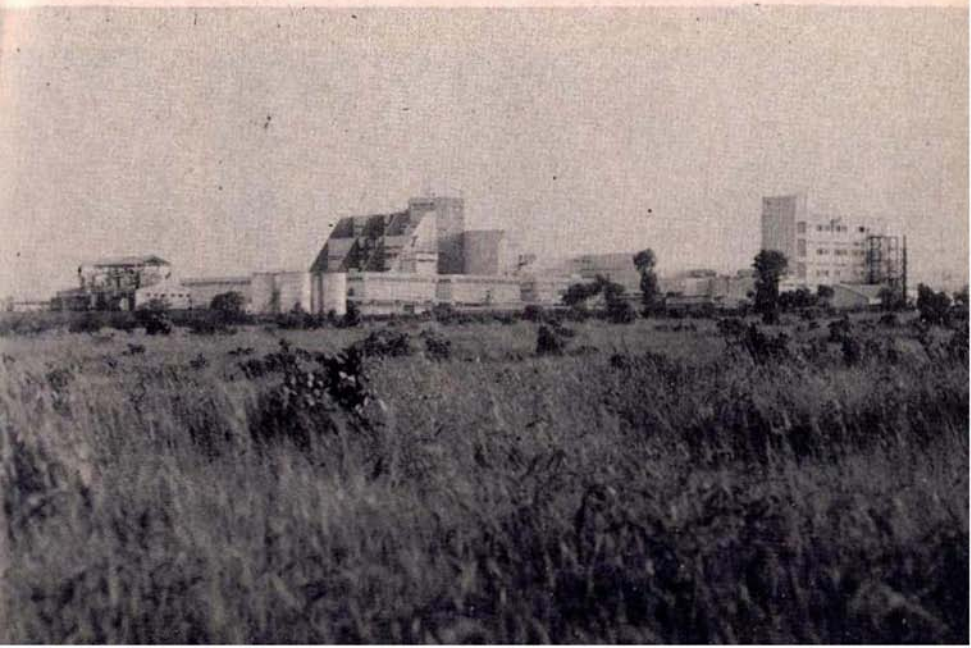
The main cause for the disappearance of our grasslands is human and cattle population. Grasslands are probably the first habitat to be colonized by immigrating or exploding human population. Actually, evolution of Man itself is considered to be connected with grasslands. According to the evolutionary theory, when hominoid came out of the forests of Africa (where Man is supposed to have evolved) and invaded the savannah, he had to stand up frequently on two legs to watch for the marauding predators and/or to look for the prey species. In the game of survival of the fittest, only those hominoid survived who could stand erect for a longer time and who could possibly run in this posture to avoid the lurking enemies. Through millions of years of selection (some say 3.5 million) modern man with the erect posture evolved. Some enterprising individual must have found the

palatability of certain grass seeds and the ease to grow them, and thus, evolution of our agricultural system took place. Most of the grains like wheat, rice, rye, barley and maize are nothing but cultivated grass species.

Grasslands were also the first to go under the plough because Man found it convenient to grow the wild grasses (grains) in the same area where he had discovered them. Side by side, domestication of animals also helped Man to settle in the grasslands because natural forage was easily available. However, due to fragility of the grassland ecosystem, with increasing human abuse (mainly overgrazing), many grasslands soon turned into desert. The 'scar' is still seen in the Middle East—the cradle of some of the oldest human civilizations. Fossils and even cave paintings of some of the animals of present day central African grasslands are found in North Africa and the Middle East, indicating that once these areas were also covered with grass and forests. Looking at the present day Egypt, it is difficult to imagine that the prodigious eater of grass—the hippopotamus—was found in the Egyptian section of the Nile.

Destruction of grasslands occurred in all the continents at various stages of history. In the Indian context, we have the case of Mohenjodaro and Harappa civilizations. Old seals of rhinoceros clearly indicate that Sind in Pakistan (now very arid) was once covered with wet grasslands and forests where the rhinoceros and the elephants lived. Comparing the present distribution and habitats of these animals, it is

Factory in Naulakhi grassland near Ujjain Author

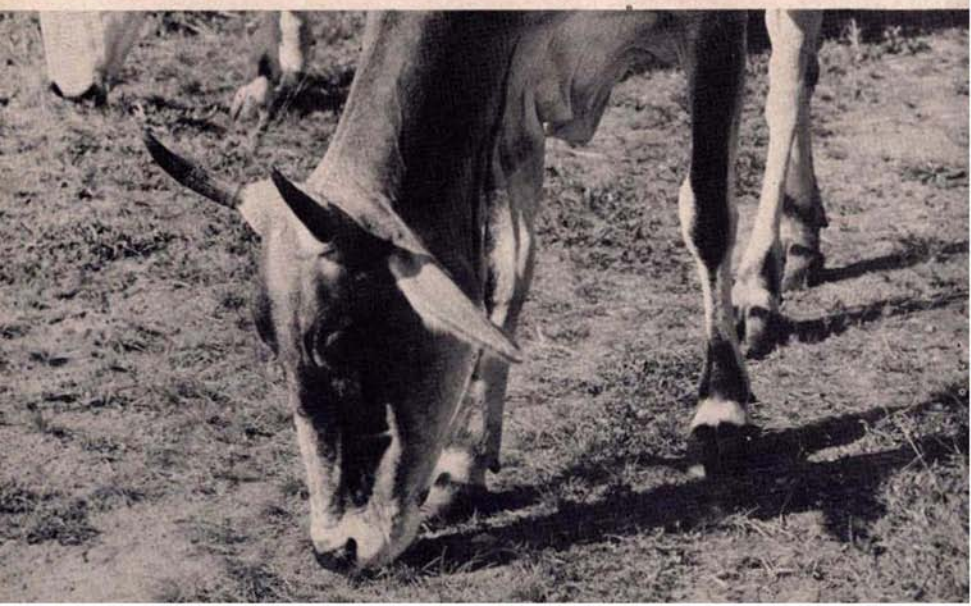


clear that the Sind region must have been quite wet in the olden days. The late M.S. Randhawa in his classical paper "Progressive dissication of northern India in historical times", published in 1945 in the *Journal of the Bombay Natural History Society*, has shown that Mathura region in Uttar Pradesh has become more arid owing to deforestation.

Many plant ecologists are of the opinion that in India grassland at a climax stage, equivalent to steppe, savannath, pampa or prairie, was absent and most of the grasslands were formed due to lopping, burning, grazing and shifting cultivation. However, taking into consideration the large number of animal species which inhabit the grassland more or less exclusively, it appears that grasslands were present in one form or the other in prehistoric India. Perhaps the arid zones of Rajasthan and Sind and the Central Deccan plateau were the true grasslands before they were xerophied by Man's activities.

Unrestricted grazing is the biggest threat to our grasslands. Due to religeo-economic reasons we have the largest livestock population in the world. Our country forms one fortieth of the land surface of the world but it has half of the world's buffaloes, fifteen percent of its cows, fifteen percent of its goats and four percent of its sheep. In addition to this we have other domestic animals ranging from the camel to the yak. According to Government's data, we have 400 million domestic animals in India (excluding the fowls). To feed such a huge livestock population we need

The insidious enemy Author



atleast 100 million hectares of pasture land but the availability falls far behind the requirement. We have only 12.4 million hectares of permanent pastures. Unlike western countries, where only the pastures are used for grazing, our whole country is used as grazing land. Cattle are found in forests (some national parks included), fallow and barren lands, mountains, parks and gardens, roadside plantations, cities and towns, and even in the railway stations!

Overgrazing in our country is so severe that nothing is safe from the hoofs of the cattle. It is the major factor for increasing aridity and soil erosion. With the destruction of habitat, all the animals of the grassland have become rare. The blackbuck, for example, which was at one time the most common natural herbivore of the Indian plains has disappeared from most parts of its range. In the Agra-Mathura-Aligarh region, where a Moghul Emperor had seen a herd of ten thousand antelopes and the species was never out of sight between Delhi and Agra, the blackbuck survives in one remote area in Aligarh district. Similarly, the Deccan plains, once famous for these graceful creatures, now have some isolated populations left. According to Humayun Abdulali, our noted natuaralist, Indapur on the Pune-Solapur road was the favourite hunting ground for the so-called sportsmen of Bombay and Pune. Some hunters had made special arrangements in their vehicles to load the carcases of slaughtered animals. Only the most unlucky used to return unloaded. This was the case even four decades ago. Now there is not a single blackbuck in that area.

Fortunately, due to the blackbuck's adaptability and prodigality, its numbers are recovering at a reasonable rate. During the last ten years, this exclusively Indian antelope is seen in more and more areas and in greater numbers, thanks to strict protection. I was pleasantly surprized to see seven blackbucks, seventeen kilometres from Solapur on Pune-Solapur road on 24 October 1984. A very healthy population of blackbuck is present in Nanaj area where we did research on the Great Indian bustard between 1981 and 1984. There are at least five hundred blackbuck in Nanaj and they are spreading out to adjoining areas.

The Great Indian bustard is another indicator species of dry grassland ecosystem. Like the blackbuck, it was also present in almost all the open areas and grasslands of India, from Uttar Pradesh to Tamil Nadu. In the west, it was seen up to Karachi and in the east up to Orissa. It also vanished with the disappearance of grasslands. Increasing livestock pressure made nesting more and more difficult for this ground-nesting bird. Only a decade back, it appeared that it is too late to save the Great Indian bustard but strict conservation measures and restora-

Author

Bustard, the symbol of grasslands

tion of its habitat under various ecodevelopment schemes made life less difficult for this majestic bird as a result of which the bustard is also increasing in some areas. The Great Indian bustard has proved—if any proof were needed—that the best way to protect a species is to restore its habitat.

Compared to the Great Indian bustard, the lesser florican is more dependent on the grasslands, especially during its breeding period. This enigmatic, smallest member of the Indian bustards was very common in the grasslands of peninsular India—one bird even landed up in 1913 near the present-day Churchgate Station in Bombay. Another was seen near Parel and one more near Andheri in subsequent years. Not only these stray records have become uncommon, the Lesser Florican is not even seen in some of its well-known breeding grounds. Davidson and Wenden in 1878 wrote in the now-defunct *Stray Feathers* that the Lesser Florican breeds commonly in Solapur district. A hundred years later not even a single florican was seen during the four years of our stay in that district.

Presently, the Lesser Florican is seen in some good grasslands in Gujarat, eastern Rajasthan and western Madhya Pradesh. For the last two years, we have been studying this elusive bird in the grassland near Sailana town in Ratlam district of Madhya Pradesh. In a recent survey in September 1986, we counted 49 male floricans around Sailana (females are very difficult to see). All the birds were seen in the grasslands or in the adjoining crop fields.

Our two years of studies have

proved that the Lesser Florican would not survive unless grasslands are protected as this bird greatly depends on the grassland for nesting, for food and for courtship display. Even the male territories are not established unless the grass is of a certain height. Though nests are sometimes found in the crop fields, they are generally unsuccessful due to disturbances connected with agricultural activities. All the nests which were successful in two years of our study were found in the grass.

Like the Lesser Florican, the Bengal florican is also exclusively dependent on grass, albeit of a different type. This florican was found in the whole of the terai at the foothills of the Himalayas, and in the duars of Bengal and Assam. Though human population was always very high in this region, malaria had somehow kept a check on colonization of the wetter parts of the terai. In the early 1950s, however, the situation changed completely when malaria itself was checked with the advent of new pesticides. The floodgates of human colonizers opened in the terai. As usual the grasslands were the first to disappear, followed by the forests. Timely creation of national parks and sanctuaries saved some grassland patches here and there, thus saving the Bengal florican and other rare species like the hispid hare, pygmy hog, rhinoceros, wild buffalo etc. from total annihilation. At present the Bengal florican survives only in the grasslands of Chitwan, Sukla Phanta, Royal Bordia

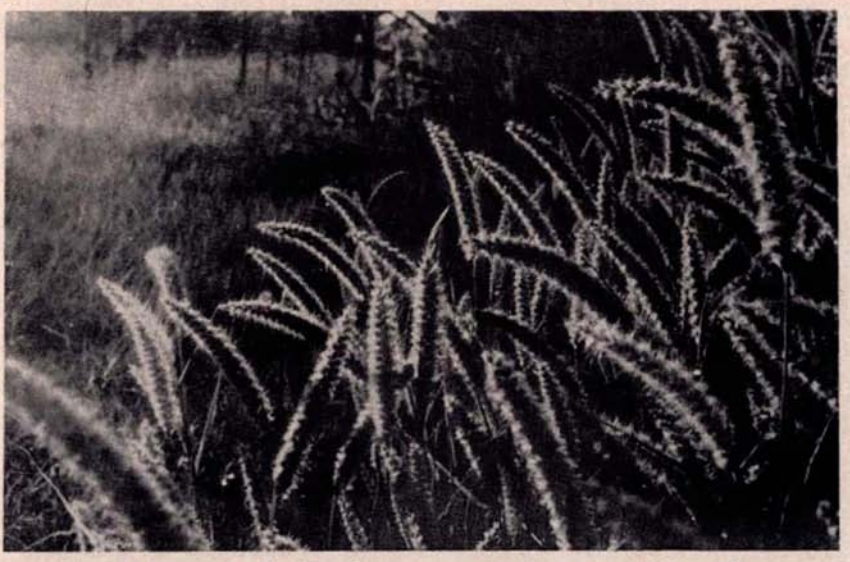
What one should do in a grassland—Plant trees?

Author

Author

Grass in flower

The flower heads of the grass Pennisetum pedicillatum



Author

etc. in Nepal and Dudwa, Kaziranga, Manas, Orang etc. in India. As long as these sanctuaries are safe the Bengal florican will continue to live.

Apart from the "glamorous" species described above, there are hundreds of species of invertebrates, reptiles, birds and mammals which live in the

grasslands. Even a hundred hectares grassland patch in Solapur district had so many interesting species that it kept our interest throughout our bustard study period. My colleague, Mr Ranjit Manakadan, who worked on the bustard habitat for his M.Sc. dissertation, found marked difference in the species composition, density, and distribution of grasses and herbs in protected and unprotected study plots. *Pulicaria,* for example, a small yellow flower of the Compositae family, carpetted the protected plot but was rarely found where livestock grazed. During the monsoons, the grassland was so much vibrant with new growth of grasses, with birds, reptiles and insects that we soon realized that a full-scale study, encompassing both flora and fauna, is necessary to understand the ecology of the Indian grassland.

There are many excellent studies on the grasses, and numerous comprehensive survey reports on grass types of India but there is hardly any work on the fauna of the grassland ecosystem, especially on the higher vertebrates. To fill this lacunae in our knowledge, the Bombay Natural History Society has submitted a project proposal to the Goverment of India, to study the ecology of the endangered grasslands of the country with special emphasis on the fauna. Under the project, a thorough survey of the whole country will be done to select some representative grasslands for long-term conservation measures. An important part of the project will be to study the rational utilization of grass in order to give maximum benefit to the local people without destroying the habitat for the local fauna.

Possibly, we may have some areas in the future where Man and his livestock will learn to live in harmony with the bustards and the antelopes. If we are more successful, we may develop some areas exclusively for the threatened denizens of the grasslands. That should be the time to consider the reintroduction of the cheetah which was once at apex of the food pyramid of the Indian grassland ecosystem but was unfortunately exterminated about forty years ago.

ASAD RAFI RAHMANI

Cheetah—A life that has vanished from India

Author

NEWS, NOTES AND COMMENTS

BIRTH OF A NATURE CLUB

Nagarjunasagar-Srisailam Tiger Reserve in Andhra Pradesh is one of the largest sanctuaries in our country with an area of 3568 sq. km of Nallamalai hill forests, on either side of River Krishna. Under the auspices of Project Tiger, Srisailam, a new Nature Club named Naga-Sri Nature Club was inaugurated on the occasion of the 32nd *Vanya Prani Saptaha* at Srisailam. Wildlife enthusiast students of the local high schools and colleges in the age group of 14 years to 25 years are enrolled as members through an aptitude test in Nautre and Wildlife Conservation. Shri K. Jaganmohan Rao, IFS, the Field Director, Project Tiger, Srisailam is the Honorary President of the Club, providing valuable guidance. Shri B. Vara Prasad, M.Sc., Research Assistant, Project Tiger, Srisailam, who is a trained Range Officer in Wildlife Management is the Organising Secretary.

Two Natural Science teachers from local colleges and high schools are invited as co-ordinators for the Club's activities. The present strength of the Club is 52.

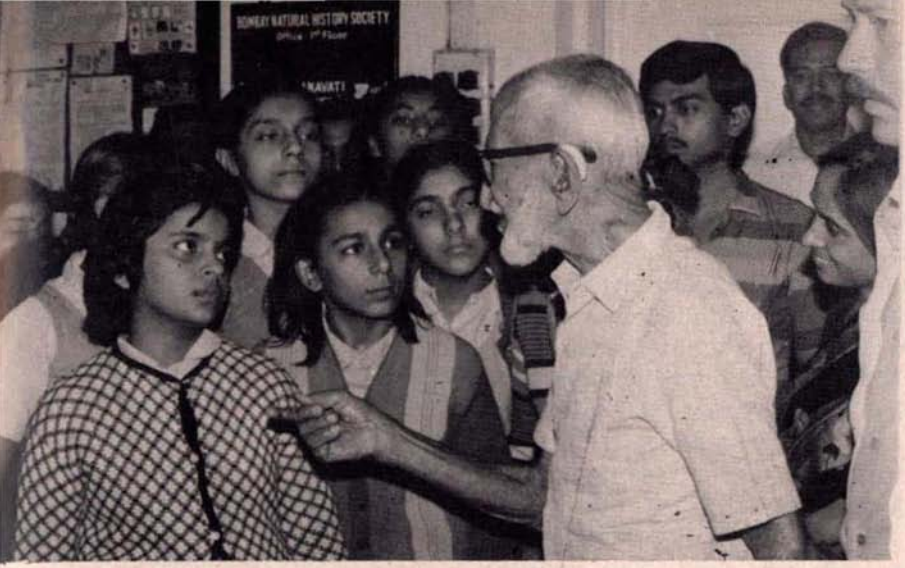
The members assemble every Sunday and participate in various programmes such as group discussions, film shows or slide projections on Wildlife and Nature Conservation, and field trips in the Tiger Reserve.

ENVIRONMENTAL MONTH—19th November to 18th December 1986

Under the Society's Nature Education Scheme, an exhibition on environment 'Forests for prosperity' was held at the Society's auditorium from 16th to 20th December and later extended up to 7th of January. Dr Salim Ali inaugurated the exhibition in which along with information on the importance of trees to mankind, models of two biospheres were shown depicting prosperity when the forests are there and environmental deterioration that follows with vanishing forests.

About 5000 students visited the exhibition and showed keen interest in the exhibits and demonstrations.

Among the distinguished visitors were the Vice-President of India, Shri R. Venkataraman and the Governor of Maharashtra.



Isaac Kehimkar

The message of Conservation from the old to the new generation

Explains what a wisely utilized environment degrades into following over-exploitation

Robert Grubh

CONGRESS GRASS, *GAZAR GAVATH*, OR FEVERFEW

Parthenium or the Congress grass, as it is deridingly called in India because of its white flowers, is an exotic weed along with Lantana, Eupatorium and Water Hyacinth. It has invaded pastures, agricultural lands and forests where it has successfully ousted the indigenous plants. Parthenium is known to cause allergy to human skin and respiratory system, and intestinal ulcers in cattle if eaten.

So far all attempts to eradicate this noxious weed have failed. However, the results of extensive field and laboratory studies conducted at the University of Agricultural Science, Bangalore, reveal that Parthenium has met with its match in a legume called *Cassia sericea*. Leachates of this plant suppress the germination as well as growth of Parthenium and it has been observed that *Cassia sericea* replaces Parthenium in successive years and is eologically sustainable.

A group from Bangalore called PROPEL (Programme for Parthenium Elimination) aims to eradicate Parthenium by 1992. For further information please write to

RAMESH DHARMAJI
C 20/1483, BDA FLATS
AUSTIN TOWN, BANGALORE 560 047

— *Nature*. The Environmental Action Newsletter, March 1986

AN EXPERIMENT IN AFFORESTATION

In just twelve years the barren steep slopes of a Jamaican hillside cleared for agriculture and fuelwood have a lush green canopy again.

The afforestation experiment called 'automatic terracing' was designed by Andreas Oberli, Project Manager of Cinochona Botanical Garden. Two rows of trees are planted every six metres. Species used are *Albizia lophantha, Colliandra calothyrus* and *Acacia meanrnsii* all three of which fix nitrogen and can grow to four metres in height after 18 months. Trees are coppiced every two to four years for firewood and to give light to the fields between. Small branches and crop debris from the fields are packed into the tree rows to build up the terrace.

Local response has been very enthusiastic. Village farmers planted the trees and tree nurseries were to be established this year at local schools. The Botanical Garden has guaranteed to buy three to four thousand of the trees produced and schools could also sell fruit, timber and fuelwood. Trees planted on the hillsides had the unexpected advantage of being tended by the school children as an activity of the education programme.

IUCN Bulletin 17: 1-3, 1986

ORIENTAL BIRD CLUB

The Oriental Club was established in 1985 and has a membership of ornithologists from all over the world, both amateur and professional, who share a common interest in the region's birds and wish to assist in their conservation.

The Club has just published the first issue of its journal, *Forktail*, with the aim to cover all aspects of Oriental birds, and is the first journal of its kind for the region. A bulletin is also being published by the Club every six months. the annual membership fee is £6/- for UK and £5/- for residents in the Orient belonging to other Oriental ornithological or natural history societies. For further details please write to

ORIENTAL BIRD CLUB
C/O THE LODGE, SANDY
BEDFORDSHIRE SG 19 2DL, U.K.

CACTUS CONFISCATED

Last March the U.S. Federal and State Fish and Wildlife agents engineered simultaneous early morning raids on three homes and nurseries in southern California, netting 200 rare cactii believed to have been smuggled into the U.S. from Mexico. Confiscated specimens included 56 'living rock' plants, 96 Aztec Cactus and 54 Lophophora Cactus.

The seizures were the culmination of year long undercover investigation in which agents posed as collectors and dealers in rare cactii. Violations of Endangered Species Act are punishable by a maximum of one year in prison and a $20,000 fine.

— *Traffic* (USA) 7:1(1986)

SNAKES INTRODUCED TO THE BLIND

Poona Snake Park has now information on snakes in braille script also, which will enable the blind to learn about snakes. This facility was inaugurated on this year's Republic Day. It consists of information charts about each species, prepared in braille. No entrance fee is charged for the blind and disabled. The blind will also be allowed to touch and feel non-poisonous snakes. In addition to this, more information about snakes will be played on audio cassettes. Books containing detailed information are being prepared in braille also. These books will be presented to the Blind Schools and Institutions.

The Lesser Florican

Photo: Ravi Sankaran

Back to Florican Country

Dark clouds covered the horizon pushing before them a wind thick with the smell of imminent rains. As slender eucalyptus trees bent over the strengthening winds, the thunderstorm broke abruptly overheaded and torrential rains drenched the dry earth parched after the unrelenting heat of a long summer. I hurried out of the Forest Nursery to scour the grassland once more. Kalu, my local assistant, walking some distance from me flushed a bird. *Kharmor*! I heard him exclaim and, as I intently watched, it flew away with steady strong wing-beats. I felt elated. At last the monsoons and the Lesser Florican had arrived. A season had just begun.

The Lesser Florican *Sypheotides indica* is the smallest of the three endemic Indian bustards. Owing to the tremendous changes in its breeding habitat over the last few years and indiscriminate hunting, the florican has become considerably rarer over much of its former range. In 1984, the BNHS started a five year project to study the Lesser Florican and to assess its status. Initially, surveys were done and Sailana, 18 km from Ratlam, Madhya Pradesh, was for various logistic reasons chosen as our first field station. The topography of Sailana is typical of the Deccan, the gentle undulations extending for kilometres in all directions. The study area is a pure grassland devoid

of any tree cover.

About the size of a trim domestic fowl, the male florican in his nuptial dress is a handsome bird. With belly, neck and head a glossy black, mantle covered with brassy vermiculations and a broad white band running across his wings and over his shoulders, the cock florican stands out in sharp contrast to the soberly clad hen.

With the first heavy showers, the floricans come into their grassland breeding grounds. At first the landscape is covered with a mosaic of emerging 'green'. Continued heavy showers and spells of sunny weather soon transform this apparently barren landscape into a vibrant growing grassland.

Like other bustards, the promiscuous male floricans select and establish territories on prominent ridges having a good view of the surrounding grassland. Fiercely territorial, the males resent the presence of any other male close to them and fights often occur.

Close to sunset, I watched a cock florican engrossed in foraging and its ludicrous attraction display, that of jumping up one to two metres and landing at the spot of take-off, accompanied by a loud rattling sound. Suddenly to my left I heard another male display and as I quickly turned to locate it I saw it running towards the first male, displaying as it hurried along. Intensely disliking any intrusion into its territory, the first male displayed rapidly before it too ran down to meet the rival male. The scenario quickly turned into a sort of medieval battle field, with green 'lawns' and 'knights' in their bridal finery. Both males assumed ritualistic threat postures by cocking their tail and raising their mantle feathers. Neither giving way or neither taking the initiative, they circled each other warily. A few minutes later, the 'owner' of the territory was unable to tolerate the presence of the rival male any longer. He rushed at the equally pugnacious intruding male. With beaks interlocked, they pushed each other with wings and body, until one was pushed down, thus signalling the end of the fight. The loser scooted from there and until dark that day they both displayed from opposite ridges apparently competing in the intensity and number of jumps.

Intent on a fight!

A cock bird in courtship pursuit with his auricular plumes thrown over his head

Author

The female florican wanders between territories in search for a suitable male and an ideal nesting site. Cryptically coloured the hen florican is at all times difficult to follow, more so when the grass has crossed 15 to 20 cm in height. I saw some interesting interactions between male and female floricans, results of hours of patient observations.

Early in the breeding season I watched a male florican wander over sprouting maize field in his seemingly endless search for food. A female whom I had lost sight of, foraged into the vicinity of the male. It was as if the male had received an electric jolt. With the feathers of his neck, head and chin fluffed up and his auricular plumes thrown forward, head craned out and neck arched slightly in the middle, he began chasing her in a most 'sinister' manner. When he reached her, the cock florican depressed his posterior end into the ground and raising his head up, he abruptly threw its back against his mantle. Then he looked towards her as if to see whether she was impresed but obviously she was not for she carried on foraging with the male desperately chasing her, pausing every now and then to snap his head back. This is the courtship display of the male florican which he indulges in whenever a female comes in close proximity to him. It is apparently a pre-copulatory display of the male, the final attempt at sweeping his lady love off her feet!

By the end of August the grass is dense enough for the hen floricans to begin laying eggs. The nest is merely a depression the ground about the size of a squatting hen. She lays three to four olive-green eggs, almost spherical in shape. The male takes no part neither in incubation nor in rearing of the chicks. The incubation period is twenty-one days and the hen soon leads her precocial chicks into the tall grass.

Owing to the height of the grass which now conceals all its denizens, our observations come to a standstill. There are still many questions to be answered. What is the relation between the hen florican and her chicks? How long do the floricans remain in the Sailana grassland?

A female on her nest Author

And most important of all where do they go after breeding? By mid-October, the time has come for me to leave. I sit on top of the ruins of the Maharajah's hunting lodge and as the sun slowly sinks over a golden brown grassland I wonder what will be the fate of one of India's most beautiful birds!

RAVI SANKARAN

FEEDBACK

Hornbill 1986(3)—July-September

Your *Hornbill* 1986(3) was wonderful. The cover page photograph of the Tawny Eagle by Mr. Mervyn Sequeira was a winner. Thank you also for the fine introduction to this beautiful bird.

Above all, your editorial 'We accuse' was indeed excellent and thought provoking. I wish this message is also published in leading newspapers so that it reaches all those who are not members of our Society.

In my opinion the Society itself should start its own legal cell to keep check on Government Departments and the likes. Furthermore the cell could take to court all those departments and individuals who indulge in misusing, abusing their authority and acting contrary to what they are paid for. I am not only hopeful but confident that other non-governmental organisations will inspire from us and follow suit.

P.P. DHAR
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'Olive Ridley Hatchlings Return to the sea'

We do not know the source from which Dr. E.G. Silas and M. Rajgopalan got the information that "between 1st to 10th April hardly 18,000 Olive Ridley females emerged for nesting at Gahirmatha, an extremely low figure" —*Hornbill* 1986(3), p. 6. Actually, the following is the correct data for nesting for the period.

Date	No.
1. iv. 1986	1500
2. iv. 1986	10000
3. iv. 1986	18000
4. iv. 1986	15000
5. iv. 1986	3000
6. iv. 1986	125
Total...	47,625

Prof. P. MOHANTY-HEJMADI
DEPT OF ZOOLOGY
Utkal University, Bhubaneswar

'The Madras Tree Shrew (*Anathana ellioti ellioti*)'

I see that the credit for the drawing of the Madras Tree Shrew has been given to me (*Hornbill* 1986(3), p. 12). It was in fact drawn by Dr. Muthazhagan of Madras. I am sorry I failed to mention this in my letter. Please publish this correction.

S. THEODORE BASKARAN

With regard to the delightful little note on the '(Madras Tree Shrew, *Anathana ellioti ellioti)*' in *Hornbill* 1986(3): p. 12-13, by my good friend, S. Theodore Baskaran, may

I, in the authentic, meddling manner of all good friends, add to it and contradict it a little?

Some 50 years ago, I have watched this tree shrew closely about a mile or two below Moonjikkal on the road leading to Kodaikanal. It was often seen in pairs, clambering about the roadside cuttings, rocky and covered by small bushes and creepers, and I noticed that though it is termed a tree shrew (it had not yet been elevated to the status of a lowly primate then). It was much more at home on rock-faces and cuttings, and on the ground among bushes.

During my survey of the wildlife of Tamil Nadu for the National Wildlife Action Plan in 1984-85, I went to the Sitteri Hills in the Dharmapuri district to investigate the possibilities of setting up a proposed sandalwood sanctuary there. I could spend only two days at Sitteri, as I was working to a very tight time schedule. Seeing the roadside cuttings and banks there, and the deciduous bush growth, I was somehow reminded of the Indian tree shrew and made inquiries of the locals about it. I was told that the *mookanathaan* was not at all uncommon there, though there were few other wild mammals. I tried hard to catch at least a glimpse of it there and photograph it if possible, but the frustrating thing about my work then was that I had to finish surveying various areas, having a quick, overall look at their flora and fauna, and could not find the time for personally investigating some animal, however fascinating its probable occurrence in the locality might be. Some months later, a group of enthusiasts from the Madras Naturalists' Society came to me for details about the Sitteri Hills which they proposed visiting, and I specially asked them to be on the look-out for the tree shrew (which I described to them in adequate detail, also showing them pictures of it) at a certain location that had seemed a likely place to me—the road behind the rest-house flanked by an earth-and-rock embankment overgrown with plants. On their return they told me they had seen it twice at this spot, seen three different individuals there.

Though the Salem and Dharmapuri districts have been separated, the Sitteri hills are a natural extention of the Shevaroys. Both feature sandal, and are mainly dry deciduous in their floristic complexion: the bamboo of both ranges is the solid 'male bamboo', *Dendrocalamus strictus,* the bamboo of dry areas.

As Mr. Baskaran points out, the Malay tree shrew, *Tupaia glis,* is named that way because *tupaia* in the vernacular of its region means 'squirrel'—I have seen it in Assam, and it is brighter coloured and handsomer than the Indian tree shrew. A notable coincidence in nomenclature is provided by the scientific generic name of the Indian tree shrew, *Anathana.* 'Anathaan' is the name in Tamil for a squirrel in the

dialects of the Salem and Dharmapuri districts, and also the Arcot districts. So they call the giant squirrel *kaattanathaan* in these tracts, i.e. the forest squirrel (*kaadu* = forest + *anathaan* = squirrel) and the familiar striped palm squirrel *anathaan*. The more usual names for a squirrel in Tamil, *anil* and *anipillai (anil + pillai)* is the literary form and also the forms used in speech outside those districts.

I am afraid Mr. Baskaran's suggestion that the Indian tree shrew is called *moonganathan* because it frequents bamboo clumps is not sustainable either in natural history or in the trends of Tamil nomenclature. It is not specially addicted to *Dendrocalamus* clumps, though it inhabits the dry, rocky, shrub-grown tracts where this bamboo is found: in Tamil, *moongil* = bamboo + *anathan* = squirrel, cannot be *moonganathan,* but can only be *moongilanathan*. As the excellent illustration to Mr. Baskaran's note bears out, as also Prater's wholly admirable and concise account of this tree shrew in his book, its pointed snout is its one point of manifest difference from its otherwise squirrel-like looks. So it is called *mookanathaan,* i.e. *mooku* = snout or nose, + *anathaan* = squirrel—the snouted-squirrel. The one other thing about its generic name (*Anathana*), the third 'a' alone should be pronounced long, as an 'aa'.

M. KRISHNAN
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'Common Marine Shells of the Bombay Coast—5'

It is mentioned in the last paragraph of the article that primitive people used the cowries as currency amongst other uses.

I recollect that as a young boy in the early thirties, amongst currency conversion table that we had to learn by heart was "so many cowries make a pie", which itself was 192nd part of a rupee. It was common to see cowries being exchanged as change while making purchases of vegetables in the weekly village bazaar. I wonder what today's housewife thinks of the prices then.

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This is the seventh part of the series and is continued from p. 22 of Hornbill *1986(4)* - EDS

We are describing here nine more species of the family Muricidae, falling into the categories of Drupeshells and Purpleshells.

Drupeshells are carnivorous, found living in intertidal areas of rocky shores. They are common along the Bandra seashore.

42. Tubercled Drupeshell (*Drupa tuberculata*)

A small and stout shell with pointed apex and elongated aperture. Anterior canal well developed. Outer lip thickened showing four prominent teeth on its innerside. Intervening space between the whorls occupied by spiral rows of prominent, dark, knob-like tubercles. Shell colour usually grey; mouth and columella stained with purple.

43. Konkan Drupeshell (*Drupa konkanensis*)

Distinguished from *D. tuberculata* by its larger size and spiral rows of prominent, black-stipled elevations resembling dashes over the ribs. Outer lip serrate and dentate, showing five teeth on its innerside.

44. Noded Drupeshell (*Drupa subnodulosa*)

Shell small. rather elongated, reaching a length of 13 mm. Intervening space of the whorls occupied by a double row, one thick and the other thin, of tubercles. Tubercles may grow transversely in the last whorl to form a continuous dark ridge. Aperture elongated, carrying five teeth along the innerside of the outer lip.

We come to Purpleshells. They are so named because of the colour of their operculum.

45. Faintly-marked Purpleshell (*Thais echinulata*)

A large-sized shell with conical apex and canaliculated aperture. Shell surface ornamented by a strong and slightly carinated spiral ridge which alternates with every four well-developed growth lines. Columella margin smooth, broad and sloping inwards. Outer lip irregularly wavy. Shell surface light brown in colour, partly occupied by irregular patches of pale yellow. Columella stained with yellow; markings on spiral ridge obscure.

46. Rudolph's Purpleshell (*Thais rudolphi*)

Differs from *T. echinulata* in having prominent black spiral ridge, interrupted by white oblong markings. Body colour grey-brown, interrupted by yellow patches. Columella sloping almost straight and orange-pink in colour. Aperture wide, having serrate outer lip. Attains a size of 75 mm in length.

Thais tissoti

Thais rudolphi

Drupa subnodulosa

Drupa tuberculata

Thais carinifera

Thais sacellum

Drupa konkanensis

Thais bufo

Thais echinulata

Carl

47. Toad-shaped Purpleshell (*Thais bufo*)

A thick and massive shell, with depressed spire and well-developed body whorls. Last whorl bears a number of swollen tubercles towards its centre. Aperture wide, creamish, having thin and serrate outer lip. Columella well developed, extending posteriorly beyond the upper extremity of the outer lip. Shell covered over by brown encircling lines. Young shells are dull yellow in colour with fine encircling striations.

48. Clawed Purpleshell (*Thais carinifera*)

Shell smaller than *T. rudolphi*, about 40 mm in length. It can be recognised by its double row of sharp, upwardly pointed tubercles round the upper and middle part of the last whorl. Columella smooth and flattened at the anterior end. Outer lip dentate. Umblicus deep. Colour of the body varies from light yellow to grey; mouth orange from inside.

49. Noduled Purpleshell (*Thais tissoti*)

A small, spired shell, growing to about 19 mm in length. Whorls ornamented by spiral rows of fine, rounded, beautiful nodules of almost uniform size. Shell colour reddish brown; inside of mouth creamish.

T. blanfordi is a species allied to *T. tissoti* and can be separated form it by its larger size and plain transpiral ribs.

50. Sacred Purpleshell (*Thais sacellum*)

A medium-sized shell up to 32 mm in length. Spire elevated. Body whorls occupied by fine growth lines and a single peculiar spiral midrib, that carries sharp and scaly ridges. It gives an appearance of a miniature sacred pagoda, hence the name Sacred Purpleshell.

Purples are carnivorous in nature and abound on mud-covered mussel rocks near low tide mark. Empty shells are common near Shivaji Park area of the Dadar coast. Live ones belonging to the species *T. bufo, T. rudolphi* and *T. carinifera* are collected and eaten as a delicacy along the Indian coast line.

MANOJ MUNI
CARL D'SILVA

(To be continued)

With this issue, HORNBILL *will carry a monochrome centre-spread.*

Members are requested to send in an additional B/W print (minimum 30 × 25 cm), relevant to their article.

Author

Sahnis *preparing for the night's netting*

The *Mirshikars*

On a dark windy night under a star spangled sky, I walked waving a flaming grass torch in one hand and held a square net mounted on a bamboo frame in the other. Mehboob, the *Mir Shikari,* followed me with a complement of baskets on his shoulders and a metal plate, which he struck incessantly with a stick, to produce an eerie din in the darkness. Walking warily on the fishbone-strewn and snake-infested Nalban Island of Chilka lake, I kept a watch for clusters of waders on the squelchy shore of the island. They appeared like hazy white blobs in the dim glow of the torch, and a feeling of elation ran through me as I nervously approached them within striking distance, I threw the net and luckily for me it hit the target. A little stint was fluttering underneath the net which I quickly transferred to Mehboob's basket and jumped around in elation, for that was my first catch. Later in the night, as we waded across the sting ray infested waters of the lake to our boat house, I felt glad for I had finally been initiated into the age-old art of the *Mir Shikars.*

The *Mir Shikars* are the traditional Muslim bird trappers from Bihar and along with the *Sahanis,* who are Hindus, have formed the backbone of the Bombay Natural History Society's Bird Migration Projects and other projects which involve trapping of birds for ringing and colour banding. The art has traditionally been handed down from generation to generation. It is termed a 'game' by the *Mir Shikaris* and is played on moonless nights by

Ali Hussain and Mehboob, the BNHS Mirshikars

Vibhu Prakash

Mashaal *in the making*

a team of two persons walking one behind the other. The person in the lead holds a *Mashaal* (flaming torch) in one hand while in the other he holds a net mounted on a bamboo frame. The person behind follows with baskets and a metal plate which he strikes continuously with a stick, as the duo walk in pitch darkness. The sound of the plate muffles the footsteps while the *mashaal* which is waved rhythmically helps to light up the area in front. This combination of light and sound confuses the birds, and allows a close approach, just enough to throw the net. As soon as the birds are trapped they are transferred to the baskets. In the meanwhile, with a deft move of the thumb the intensity of the flame is controlled. A ring around the bundle of grass helps to tighten or loosen the burning end consequently extinguish or revive the flame with a wave of the hand.

The *Mir Shikars* are an extremely ingenious tribe of bird trappers. On Nalban, when the breeze became too strong for a conventional grass torch, it was replaced by an ordinary wick lamp mounted inside an oil tin! When the area to be covered happens to be under water and unfordable a boat is used to cover such areas, while the basic technique remains the same.

Quite often the clanging of the metal plate in the darkness coupled with the figures of the trappers moving in the dim glow of the torch, fills the rustics with a gelid fear of some ghost on the prowl. This was brought home to us almost tragically when a team of *Mir Shikars* operating in Bharatpur were fired upon by a nervous villager. Luckily for the *Mirshikars* the bullet narrowly missed them. Since this incident, we always take care to familiarize the people of the surrounding villages with the methodology.

During our assignment at Harike lake, Punjab, the villagers

sometimes tried to intimidate our trappers to part with their catch, but each time they were successfully resisted, except once when one of the *Sahanis* had to give in when he was forced to part with a cormorant at gunpoint, deep inside the lake. It was indeed surprising to see our trappers working nonchalantly during the heydays of Bhindranwale and later during Operation Woodrose when an undeclared curfew used to descend on the nearby habitations. Their deep sense of destiny has always impressed me. Incidentally, Harike lake later became the focal point of two police operations, namely Operation Munda and Operation Mand.

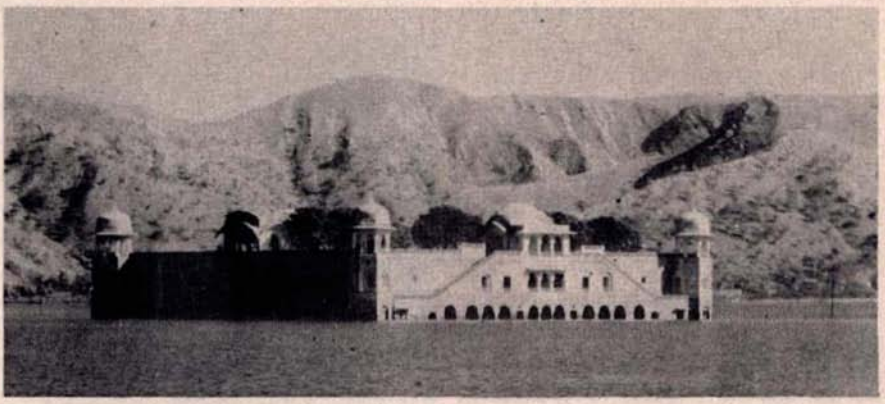
Ali Hussain, who is our chief *Mir Shikari* and has been working for us almost since the inception of the bird migration project of the Society is an extremely intelligent man. Quite often, he leaves us gaping in surprise with his knowledge of bird life, in his area of operation. Prior to the actual trapping in the night he reconnoitres the area in the evening. To all appearances the area looks completely devoid or rather unsuitable for birds to be seen later in the night, but each time he proves the doubting Thomases wrong. His conclusions are based on the probe marks of the birds as well as the droppings around the area. Moreover, he keeps a track of all movements of the birds as they move from their roosting spots to their foraging areas each evening. He has a knack of locating such areas and leaves us stunned with his catch in an otherwise unproductive area. To some extent he knows and identifies quite a good number of birds by their scientific names. This sometimes becomes intimidating to youngsters like us, as he calls out the Latin names of birds while he shows them around. This never fails to impress the people around.

Over campfires he recalls experiences of his younger days, especially the time when the thought of wading in the ice cold water with his father on cold winter nights would make him shirk his unpleasant chore and he would often elude his father by running away and hiding in the nearby groves. Today, the very thought of wading in the marshes of Bharatpur while the mercury hovers around zero degree makes me shiver. For I myself, have attempted it quite a few times, but found the bone cracking icy cold waters of the marsh unbearable.

Ali Hussain and Mehboob, who happen to be a father and son team, are probably the last of the *Mir-shikars*. The tradition is now vanishing slowly with most of the professional trappers having turned to other means of livelihood, which is a good sign as far as the conservation of wildfowl is concerned. However, the Government should also lend its hand towards their rehabilitation or else just tightening of the wildlife laws will make these hard working and talented people poachers.

ASAD AKHTAR

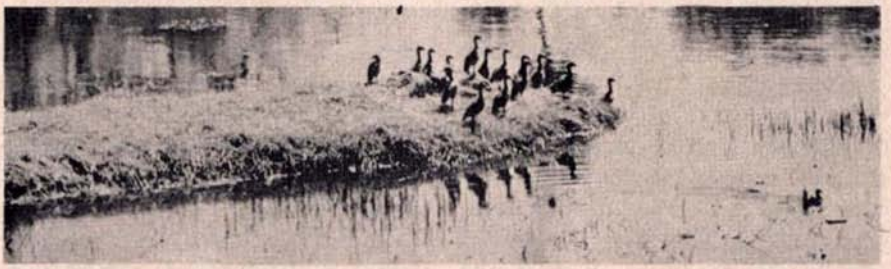
Aquatic birds of Jalmahal Jheel, Jaipur



Nihal Mathur

The Jal Mahal Palace and its jheel

Lesser Whistling Teal at the lake's edge



Nihal Mathur

On the outskirts of Jaipur City there is a perennial lake which has an old palace built by Maharaja of Jaipur right at the centre. Hence the area is called as JAL MAHAL (Lake-palace). During the rainy season it gets filled with water and in winter it is a fabulous place for birdwatching. A number of common aquatic birds like Grey heron (*Ardea cinerea*), Little cormorant (*Phalacrocorax carbo*), Median Egret (*Egretta intermedia*), Pond heron (*Ardeola grayii*), Shoveller duck (*Anas*

clypeata), Tufted pochard (*Aythya fuligula*), Pintail duck (*Anas acuta*), Dabchick (*Podiceps ruficollis*), Whitebreasted waterhen (*Amaurornis phoenicurus*), Indian moor hen (*Gallinula chloropus*), River tern (*Sterna aurantia*), and plenty of waders like Blackwinged stilt (*Himantopus himantopus*), Redshank (*Tringa totanus*), Greenshank (*Tringa nebularia*), Common sandpiper (*Tringa hypoleucos*), Avocet (*Recurvirostra avosetta*) etc., get concentrated at this oasis. Once the lake was parasitized by water hyacinth; fortunately that is under control now. The water of this jheel has many molluscs and also sustain three species of air breathing fishes, namely *Girahi (Channa punctatus), Singhi (Heteropneustes fossilis)* and *Poothi (Barbus ticto).*

This jheel makes a delightful tourist resort. It is surrounded by small hills on its two sides. It is located on Jaipur-Delhi National Highway. Although it should be preserved for its natural beauty and historical background, it is really pathetic that it is grossly neglected and it is further spoiled deliberately. The City's sewage system is connected to this lake, moreover it is a place for dumping garbage and dead animals.

This place needs immediate attention of various departments, namely Tourism, Wildlife, Water Works etc. The lake starts drying up as summer approaches, water from Ramgarh (another lake) could be brought to fill it up. It could be declared as a resort for birdwatching and boating. Anyway the dumping of garbage and carcass and sewage should be banned as early as possible

REENA MATHUR
B. RAM MANOHAR

'Catalogue of Birds at the BNHS'

It may at the outset be worthwhile drawing attention to the fact that the grant for the building of Hornbill House as also the annual grant for the staff for research, upkeep and maintenance of the collections was primarily due to the national value attached to the Society's bird and other natural history collections.

Up to the late twenties, the bulk of the bird collection consisted of odd specimens sent in by members and others who had obtained them in the course of their own shikar and natural history excursions and experiences. The more active contributors were mostly members in the services who were largely cut off from their social contacts and

devoted their spare time to big and small game shikar, the collection of birds and their eggs, butterflies and other groups of insects in which they were interested.

The first ornithological work was the identification of the large variety of ducks and other game and semi-sporting birds. These were first covered by a series of articles in the *Journal,* some of which led to the publication of excellent, well-illustrated books by E.C. Stuart Baker of the Indian Police in Eastern India. After retirement and working on the collections of Indian birds made by Hume and others lying at the British Museum, he published for Government 8 volumes of the 2nd edition the FAUNA OF BRITISH INDIA, Birds, in which trinomial nomenclature was adopted drawing attention and the uncertainty regarding the form or subspecies of common and resident birds in many different parts of the country and the necessity of obtaining specimens from areas whence none were available.

With the financial assistance of Mr A.S. Vernay, an American businessman, the first systematic collection was made by the BNHS along the whole length of the Eastern Ghats, under V.S. La Personne, Asst. Curator, and N.A. Bapista, Field Assistant. The collection was reported upon by Hugh Whistler and Sir Norman Kinnear in 17 parts published in the *Journal.* The former had also spent his service years in the Indian Police, mostly in the Punjab, while the latter, once curator at BNHS had on his return joined the British Museum and risen to the position of Director. This collection and the report thereon stressed our lack of knowledge regarding the distribution and other aspects of many birds particularly in the large areas covered by the native states in different parts of the country.

These gaps in our knowledge prompted Salim Ali to undertake collecting trips to Hyderabad, Travancore, Cochin, Mysore, Kutch and other States, which paid for the routine expenditure involved. One or more Field Assistant was lent to look after the skinning and help with the collecting. Similar efforts were made by members in Burma and other places.

Each collection from the different States was sent abroad, mostly to Whistler, for study and led to a series of ornithological reports on these States published in the *Journal* jointly with Salim Ali who added his field notes to the taxonomic studies. This series of papers included one on the Birds of Bombay Island and Salsette, based largely on the odd specimens from this area in the Society's Collection brought in by local sportsmen and others and a more systematic collection made by the present writer while at St. Xavier's College (1932-36). In all these reports the taxonomic work was completed by experts abroad who had the option of retaining specimens of special interest, e.g.

types and co-types of new species and subspecies, etc. either for themselves or the British Museum and returning the bulk to India. Unfortunately there is now no definite record of how each collection was disposed of. Many of Salim Ali's papers led to popular books like the BIRDS OF KERALA, KUTCH, SIKKIM and INDIAN HILL BIRDS.

After Independence, Salim Ali and S. Dillon Ripley made collections in the remoter parts of eastern India, shared the specimens, and carried out taxonomic research at the Smithsonian Institute. The results have found place in the 10 volumes of HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN together with those from Bangladesh, Nepal, Sikkim, Bhutan and Sri Lanka jointly prepared by Salim Ali and S. Dillon Ripley.

The Society's Bird Collection now consists of some 26,000 specimens representing the species and subspecies obtained both before and after Independence in India, Burma and Sri Lanka, as well as a few from the Middle East areas like Arabia, Iraq and Iran.

After I left the Honorary Secretaryship of the Society, I found some time to spare and visited the Andaman and Nicobar Islands which had not been ornithologically explored for many years. This group of 246 islands is an interesting zoogeographic complex and some differences in birds of the same species were visible in the field on the different islands and prompted me to undertake their examination myself.

The discovery of several new subspecies increased my interest in the taxonomic side of ornithology and drew attention to the fact that the Society's bird collection was registered according to species only, even where the specimens had been racially identified by Whistler and others. The many collections had also never been looked at together, for each new lot was sent separately and returned when the report was complete. I thought it would be a useful effort to re-examine the whole collection and re-arrange it on a subspecific basis. In the early stages however it was discovered that there were mistakes at species level too, e.g. the Snow goose (*Anser caerulescens*) recorded from India was an albino Greylag Goose (*A.a.rubrirostris*) while the Pink-footed Goose (*Anser fabalis brachyrhynchus*) was also wrongly identified and led to the removal of both species from the Indian list. More recently the only specimen supporting the occurrence of *Phylloscopus trochilus acredula* has been found to be wrongly identified and has also been removed from the Indian list. The Catalogue (32 parts, 31 covering 692 pages printed) has so far (July 1986) covered some 19,000 specimens of 1700 species and subspecies from Ripley's SYNOPSIS (with a few extra-limital specimens). Though the work as implied by the name is to a large extent clerical, the routine work has in-

volved at least 5 measurements of each bird in millimetres, and the comparison of the colour of each specimen with that of others of the same species. This has so far led to the discovery of over 700 specimens being found listed under the wrong species. In addition, this and associated work has so far added 3 species and 3 subspecies to the avifauna of our region and prompted the description of 13 new races.

In addition there have been revisions of the races of several Indian birds, remarks on the validity of subspecies described by others but rejected in INDIAN HANDBOOK or earlier, the extension of the known distribution of several species, adjustment of the recorded measurements etc. etc.

It is unfortunate that this work is now often considered unimportant and more attention given to field work in ecology. Under these circumstances it may be of interest and worthwhile drawing attention to the fact that in 1982 Dr. S. Dillon Ripley was in India for the release of the 2nd edition of his SYNOPSIS and was invited to attend a meeting of the BNHS Executive Committee when he said: "the main concentration must be on the importance of collections.... Within these institutions collections should be more important than data processing libraries."

The second edition of Dr. Ripley's SYNOPSIS naturally attempts to bring it up to date. A cursory examination reveals that in the first 1000 entries about 100 changes are based on remarks in the Catalogue. And of the first 1691 species and subspecies we have no specimens of more than 230.

In many cases special lines of research are suggested leaving the door open for many years of additional work. Most of the time one assistant from the Society's staff or a student member has been helping me, mostly with the routine work, without which this work would have been slower than it is.

There can be no doubt that many additions to our collections are necessary but the collecting must now be planned to fill in the gaps and not just haphazardly increase. Incidentally the Ornithological section of the British Museum (N.H.) now at Tring contains about 1.25 million birds from all over the world.

This note has been written at the specific request of the Executive Committee and it is hoped that it will be of interest to members.

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