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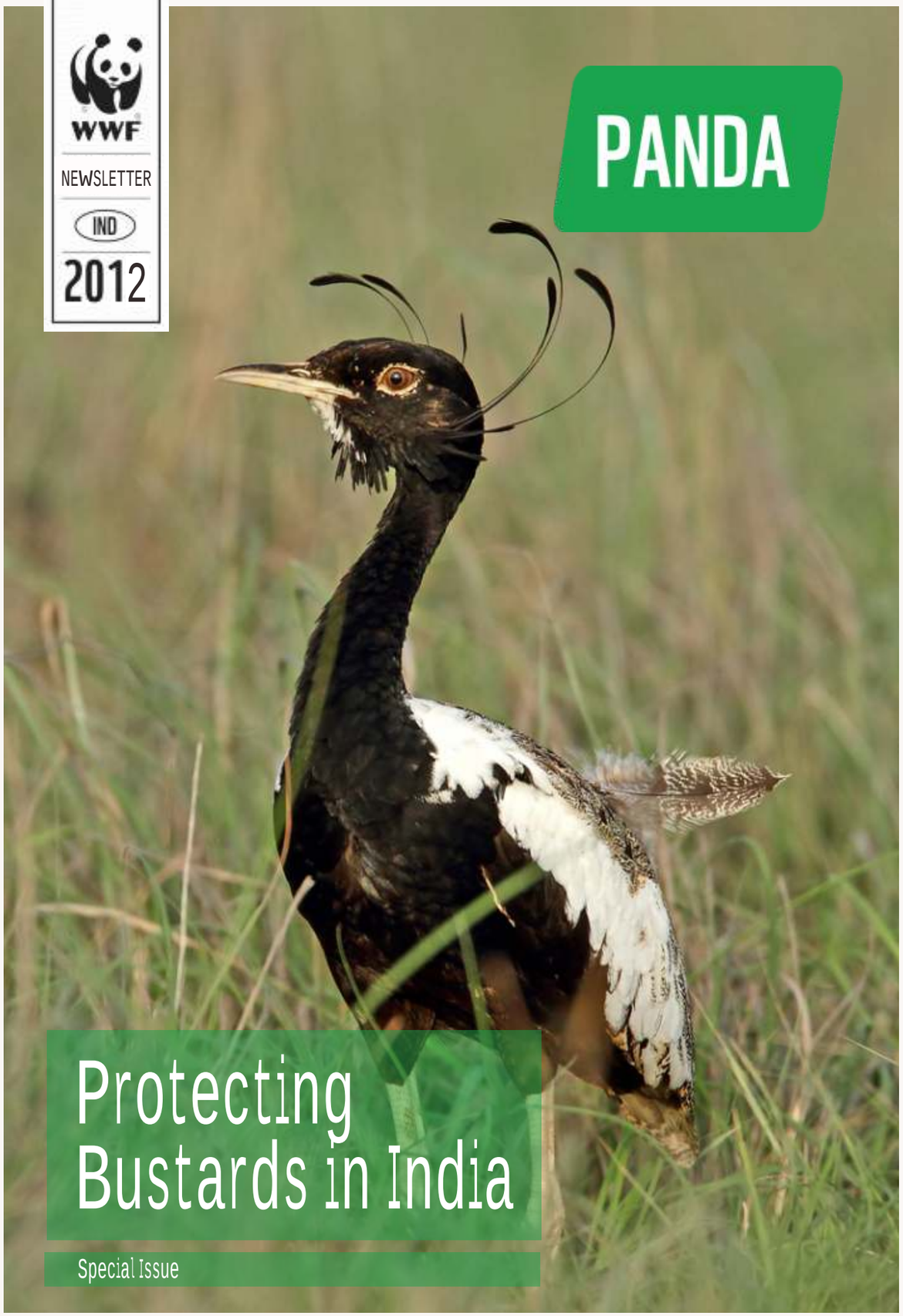

Protecting Bustards in India

Special Issue

FROM THE SG & CEO'S DESK

Dear friends,

The articles in this publication aim to bring attention to the alarming status of four species of bustards found in India - the Great Indian Bustard (*Ardeotis nigriceps)*, Lesser Florican (*Sypheotides indica)*, Bengal Florican (*Houbaropsis bengalensis)* and the Houbara (*Chlamydotis undulata)*. The situation is critical for all, the first three of which are resident with the Houbara being a migratory species.

I have always marveled at the sight of these incredible birds, which are becoming increasingly difficult to spot. I was fortunate to sight an adult Lesser Florican on the Lucknow airport just after landing. This chance encounter highlights the plight of this species and the pressures on its habitat as a result of land conversion, one of the many causes for the decline in its numbers.
In light of the alarming situation facing bustards and on the advice of the Task Force constituted for the conservation of the Bustard species in India, a *'Consultative Workshop to Develop Guidelines for Species Recovery Programmes for Three Species of Bustards and Floricans in India'* was organized from November 1-2, 2011 by WWF- India in collaboration with the Ministry of Environment & Forests and the Bombay Natural History Society. As an outcome of this workshop, guidelines for recovery programmes for all three resident species were prepared and have been submitted to the Ministry of Environment & Forests for action.
While bringing out this publication, we also reflect that it is unfortunate how many such meetings on endangered species have been conducted in the last 30 years with little or no action on the recommendations. It is especially telling in the case of the Great Indian Bustard - the state bird of Rajasthan - which was at a time being considered for the national bird symbol before the Indian peafowl was selected.

I take this opportunity to thank everyone who has helped us in bringing out this special issue by contributing articles, and also through their keen participation in the consultative workshop.
I would like to dedicate this issue to the late Dr. Ravi Sankaran, an eminent field biologist, champion of the Bengal Florican and an inspiration to many. Through this publication, we would like to urge immediate action, reiterating our commitment to the cause. We hope to bring out such editions on other species in the future.

Ravi Singh

FROM THE EDITOR'S DESK

Dear readers,

I remember reading about the Great Indian Bustard in a grade-school textbook, and never after.
Since then, the Great Indian Bustard has persevered in my mind (and possibly, in yours too) as the exemplar of endangered species on the verge of extinction. And so, to most people, this is what the Bustard has remained – a textbook example of a species tottering on the brink of extinction.

It is now time to draw the Bustard out of the textbook, and into context. In the Introduction to this special issue, Dr. Asad R. Rahmani asks a precarious question - "Can we prevent the extinction of Indian Bustards?" Heading the checklist of solutions he provides, is the need to reorient ourselves towards conservation itself– to expand our idea of vicinity to include not only that which affects us, but also that which we affect.

This special issue of the Panda is one such attempt to, metaphorically and literally, bring the Bustards back into our vicinity. The articles in this issue speak not only of the problems at hand, but also present recommendations for various levels of action – solutions that trickle down to not only affect all of nature, but also to involve all humans.

We would like to thank all article contributors for their enthusiasm in helping us introduce this special issue, and hope their initiative inspires concern and a greater spirit of conservation. Please mail in your responses, queries and ideas to fbraganza@wwfindia.net, so the story of the Bustards doesn't end here.

Fionna Braganza

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CAN WE PREVENT THE EXTINCTION OF INDIAN BUSTARDS?

ASAD R. RAHMANI

In October 2010 at Nagoya, Japan at the Convention of Biological Diversity (CBD), countries adopted an ambitious Strategic Plan of the Convention on Biological Diversity 2011-2020, with 20 time bound targets to halt the extinction rate by 2020. These are popularly known as the 'Aichi Targets', named after the Aichi Prefecture of Japan in which Nagoya is located. Target No. 12 specifically says: "By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained."

The four bustard species found in India are in great trouble. According to BirdLife International and IUCN criteria, two are Critically Endangered (the Bengal Florican and Great Indian Bustard), one is Endangered (the Lesser Florican) and one is Vulnerable (the Houbara Bustard). Among the 23 species of bustards in the world, India has the unfortunate distinction of being home to the three of the rarest bustard species. None of the species are strictly endemic to India but as my book *Threatened Birds of India*, has recently recorded, almost 95 percent of the Great Indian Bustard and Lesser Florican populations are found in India. Almost 50 percent of the Bengal Florican population is found in India. The Houbara is the only widespread species, observed in over 30 countries. In India, it is a migratory species, which winters in Rajasthan and Gujarat. Though poaching takes place in India, hunting is not as prevalent and extensive as Pakistan and the Middle East.
India is the 'custodian country' of three resident bustard species. If they disappear from India, they will be extinct from the world. This responsibility requires us to determine how we can protect these bustard species and halt their extinction.
One of the foremost thoughts that comes to my mind is that we have to change our attitude towards conservation. India is much too tiger-centric. This single-species conservation has played havoc with species that do not live in forests where Project Tiger is totally focused. Nearly 50 percent of globally threatened bird species found in India are not present in Project Tiger areas and/or forests. Thus they are not benefitted by Project Tiger. Besides giving attention to Project Tiger, which is a noble project in its own, we also have to focus our attention on landscape protection which will include all types of habitats: from grasslands to scrub forests, wetlands to intertidal mudflats and mangrove to coral reefs. All species and all ecosystems deserve conservation attention.
Secondly, we have to start species specific recovery plans which will focus on specific actions for saving species. Like Project Tiger, Project Elephant and Project Snow Leopard, we have to start Project Bustards to protect Indian bustards. With support from the Ministry of Environment and Forests, Government of India (MOEF), WWF-India, BNHS and many other organizations and individuals have developed recovery plans to three resident species of bustards.

There is an urgent need to implement these recovery plans with proper funding as well as implementable and target-oriented actions.
Thirdly, there is a need to pay attention to our grasslands. Although we have 15-20 percent of world's livestock, no attention is given to grasslands which our livestock depend on for grazing. Grasslands, like wetlands, are still considered as 'wasteland'. We even have a Wasteland Development Board which wastes millions of rupees every year to 'develop' so-called 'wastelands'. This begs the question. Is unrestricted and illegal mining not 'developing' wasteland where forest or grasslands used to occur?
We need a national grazing policy to restore and sustainably use whatever little grassland areas that remain in our country. Protection of bustards equals the protection of grasslands. The Great Indian Bustard and Lesser Florican live, breed and forage in semi-arid and arid grasslands, while the Bengal Florican is obligate to the wet grasslands of the Indian Terai. The migratory Houbara is found in desert and arid grasslands in winter. All these grasslands are important livelihood sources of rural communities. Bustard protection, grassland conservation and livelihood protection of some rural communities can all be integrated under Project Bustards.
Time is running out for our resident bustard species. The next 2-3 years could be crucial for the Great Indian Bustard as its population has fallen to extremely low numbers. Ex-situ conservation in the form of a Conservation Breeding Programme should be started soon, before the number falls so low that getting eggs and chicks becomes difficult. We need to get bustard breeding experts from abroad or send eggs on loan to top-class breeding facilities.
During the last 20-25 years, breeding of bustards, particularly the Houbara, has achieved a high level of success. According to latest information available, Morocco has bred 44,000 Houbara till now. In Saudi Arabia, thousands of Houbara have been bred and re-introduced to re-establish wild stock. They have three to four generations of successful breeding of the released birds.
Let us hope that we will see similar successes in the conservation breeding and re-stocking of the Great Indian Bustard and Lesser Florican. For such things to happen, we have to first change our attitude from single-species and single-habitat conservation focus to multiple species and all-habitat conservation. Perhaps that would be more difficult to achieve than the Aichi Targets?

THE GREAT INDIAN BUSTARD

© ASHOK CHAUDHRY

Just about 300 birds currently exist in the world. There is no known breeding population outside India.

Scientific Name

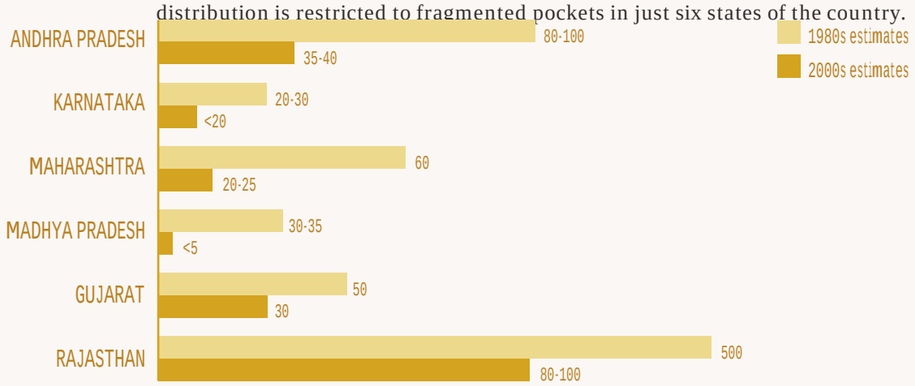
Ardeotis nigriceps

Status

- It has been declared as the State Bird of Rajasthan.
- Listed as 'Critically Endangered' in 2011 by BirdLife International and the IUCN Red List.
- The Great Indian Bustard has disappeared from about 90% of its range.
- Currently about 300 birds exist in the world with no known breeding population outside India.

Distribution: Past and Present

Historically, the Great Indian Bustard was distributed throughout western India; spanning eleven states (Rahmani 1989). However, the current distribution is restricted to fragmented pockets in just six states of the country.



Habitat

Bustards generally favour flat open landscapes with minimal visual obstruction and disturbance. In the non-breeding season, they frequent wide agrograss scrub landscapes (Rahmani 1989). While in the breeding season (summer and monsoon) they congregate in traditional undisturbed grassland patches (Rahmani 1989; Johnsgard 1991) characterized by a mosaic of scantily grazed tall grass (less than 50 cm). Bustards tend to avoid grasses taller than one metre and dense scrub like thickets of *Prosopis juliflora* and a*cacia*.

THE GREAT INDIAN BUSTARD HAS DISAPPEARED FROM ABOUT 90% OF ITS RANGE.

Behavioural Aspects

The Great Indian Bustard is a diurnal species, typically active in early mornings and evenings. They are gregarious and usually form sexually segregated flocks. Flocking is more prominent during the roosting season.

Food

The species feeds on grass seeds, *Zizyphus*, *Eruca sativa*; agricultural crops such as groundnut, millets and legumes; as well as insects, lizards and rodents (Bhushan and Rahmani 1992). This desert-adapted species drinks water only if available but frequently during the hot summers (Rahmani 1989).

Breeding

The Great Indian Bustard mainly breeds between March and September, but the season varies from area to area.

Display

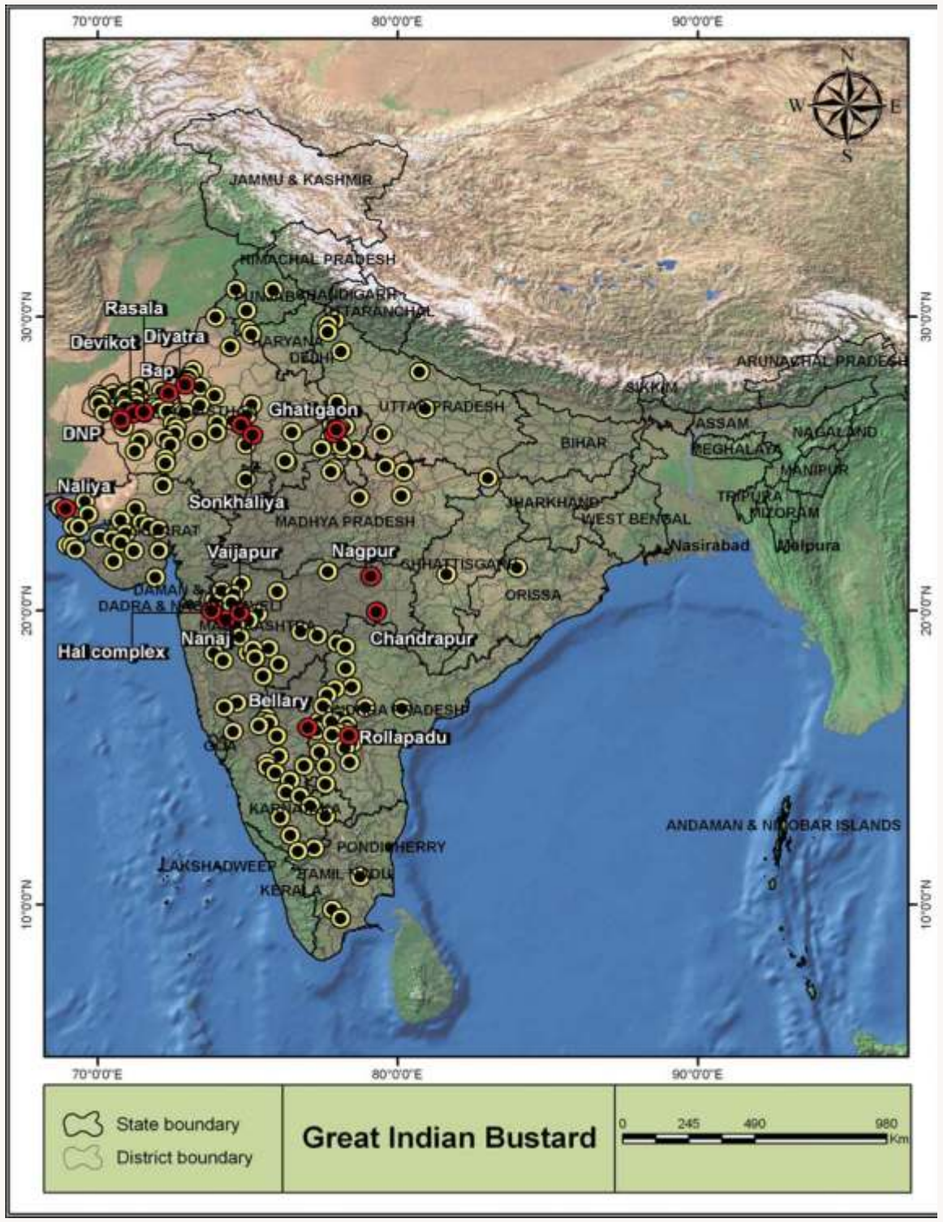
Males display elaborately from specific spots by inflating their gular pouch and producing deep resonant calls, cocking their tails and occasionally engaging in highly ritualized territorial fights with intruding males.

75

THE CHICK FLEDGES IN ABOUT 75 DAYS AND FOLLOWS THE MOTHER FOR ALMOST A YEAR

Egg Laying

The female typically lays a single egg (rarely two) in secluded, open ground, and incubates it for 25 days without any cooperation from the male in nest guarding. The chick fledges in about 75 days and follows its mother for almost a year.



Former (yellow) and present (red) distribution of the Great Indian Bustard in India. For details of former distribution, see Rahmani and Manakadan (1990) and BirdLife International (2001)

1260

THEIR NUMBERS WERE ROUGHLY EQUAL TO 1260 INDIVIDUALS IN 1969 THAT DWINDLED DOWN TO ABOUT 745 INDIVIDUALS BY 1978 AND AROUND 600 INDIVIDUALS AT THE TURN OF THIS MILLENNIUM

Species Status and Trend Analysis

Their numbers were roughly about 1260 individuals in 1969 (Dharmakumarsinhji 1971). This dwindled down to about 745 individuals by 1978 (Dharmakumarsinhji 1978) and further shrank to about 600 individuals at the turn of this millennium (BirdLife International 2001). A study conducted by Dutta *et al*. (2010) on simulation habitat availability and different carrying capacity, predicted that there is a high extinction probability of all small populations of the Great Indian Bustard.

International and National obligations

The Great Indian Bustard is listed in Schedule I of the Indian Wildlife (Protection) Act, 1972 (WPA) and the National Wildlife Action Plan (2002-2016). It is also listed in the CMS Convention and Appendix I of CITES, India is a signatory to both. The Great Indian Bustard has been identified as one of the species for the recovery programme under the Integrated Development of Wildlife Habitats (Centrally Sponsored Scheme) of the MoEF, Government of India, 2009.

Threats

Direct threats include hunting, this still continues in Pakistan (Khan *et al.* 2008), low intensity poaching outside protected areas, fatal collisions with high tension electric wires, fast moving vehicles, free ranging dogs in villages and unethical photography.

Other threatening factors include, habitat loss and alteration as a result of widespread agricultural expansion and mechanization of farming; infrastructural development such as irrigation, roads, electric poles and construction; mining and industrialization; and encroachment. Exotic shrub/tree species plantation and overgrazing are also serious threats.

There is insufficient data on habitat relationships and seasonal movement patterns, the effect of grazing regimes, linkages between populations and seasonal habitat preferences, the impact of pesticides/chemical fertilizers and the impact of predators such as the wolf, Indian fox and domestic dogs. Awareness about bustards and changes in land use pattern throughout the bustard landscape form a barrier in the conservation of this species.

A study conducted by Dutta et al. (2010) on simulations habitat availability and different carrying capacity predicted that there is high probability of extinction of all the small populations of the Great Indian Bustard

Recommendations for recovery of the species:

At the species level-

Study of population ecology by systematic and centrally organized surveys,

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In human-dominated landscape, the Great Indian Bustard can survive only with the support of the local communities

a well coordinated satellite telemetry programme to evaluate the seasonal movement pattern and other determinants must be undertaken.

Ex-situ conservation is an urgent need for protecting the Great Indian Bustard. Since scientific execution of breeding has been proved to be possible (Collar 1983), a workshop with national and international experts needs to be organized for the same.

At Habitat Level-

Protection of core areas by preventing human disturbances in existing breeding areas, restricting infrastructural development, freeing breeding areas from carnivores like domestic dogs, fox and jackals and the provision of

The Need for Project Bustards

Since bustard species are indicators of grassland ecosystems, their conservation can ensure the survival of a number of other species dependent on healthy grasslands. Considering that these magnificent birds are now on the verge of extinction, there is an urgent need to launch Project Bustards.

Project Objectives:

- To conserve all four species of bustards in India.
- To strictly protect the habitat and all four species both inside and outside protected areas (PAs).
- To establish interstate cooperation among range states.
- To identify areas which could be declared as bustard sanctuaries, conservation reserves or community reserves.
- To provide inputs required to protect the habitat.
- To plan and implement landscape level strategies for grassland management.
- To start a long term conservation breeding programme at least for the Great Indian Bustard.
- To produce educational material in local languages on grassland ecosystems and bustards for publicity in institutes.
- To initiate discussions on and finalize a national grazing and grassland policy.

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alternative livelihoods need to be undertaken.

Involvement of local communities in following agro - environmental schemes, increasing eco-tourism, raising awareness, training Forest Department officials and NGOs will help. At a legal level, developing environmentally viable grazing and land tenure policies may go a long way in harnessing support for Great Indian Bustard conservation.

Research and monitoring protocol with modern population estimation theory and techniques should aim at understanding vital rate parameters (such as survival, recruitment, dispersal and effective population size) in order to plan the long term survival of the species.

CONSERVATION

The conservation of bustards was first brought into focus at a symposium in Jaipur, Rajasthan in 1980 (Goriup and Vardhan, 1983). Following this, different State Governments declared eight Bustard Sanctuaries during the 80s.

However, prevalent governance and policies were characterized by legal limitations such as the delay in settlement of land rights between local communities and the Forest Department which restrict Government control over lands. There was also a lack of local support (since the stringent policies restricted villagers from using their land freely and generated bitterness). Furthermore, lack of effective grassland management (the consideration of grasslands as “wasteland” and the policy of converting them into “forests” resulted in crucial habitat loss). Institutional failures such as accountability, interdepartmental coordination and funding have further defeated Great Indian Bustard conservation initiatives.

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At home, in the fields, a Great Indian Bustard at high noon in Siruguppa.

BUSTARDS,

A CONSERVATION DATELINE

BY HARSH VARDHAN

Can one cite a successful public movement across the globe aimed at conserving a wild species? In the mid 70s, a Jaipur Hindi newspaper reported that 'Arab Sheikhs' were practicing falconry in the Thar desert to bag Houbara and other species.

WE ADDRESSED A LETTER TO THE PRIME MINISTER TO STOP THIS 'WANTON' FALCONRY.

This news could not be ignored as the launch of Project Tiger, a couple of years ago, had charged the conscience of people. Although this hunting was illegal in India, the forest authorities said that they had 'no power' to intervene. They claimed it was a 'Government decision' and a question of 'petro-dollars' for India, which was reeling under a foreign currency crisis at the time. But this, at the cost of wildlife? When I raised this question in front of the Revenue Minister of Rajasthan, who also had charge of Forests, he stared at me and said: “Better keep quiet, they are guests of the Government!”

Our small group of concerned citizens decided to set up a conservation-body called the Tourism and Wildlife Society of India. Our signatories included Gayatri Devi; the Rajmata of Jaipur, Maharawal Lakshman Singh of Dungarpur, MK Raj Singh Dungarpur, Vishwambhar Modi, Prahlad Singh and nearly fifty others. Yours sincerely was designated as the honorary secretary. The Arab guests re-appeared the following winter to sport with their prized falcons, bag birds and shoot animals in Jaisalmer district of Rajasthan. These included the Houbara, Great Indian Bustard and several other bird and reptiles species. We wasted no time and initiated the following actions:

- We addressed a letter to Prime Minister, Morarji Desai, to stop this 'wanton' falconry and conserve the threatened birds like bustards and animals like the Indian Gazelle which were being 'bagged' by the royal party.
- We addressed a letter to the Chief Minister of Rajasthan, Bhairon Singh Shekhawat, to oppose this illegal 'falconry' and set a precedent by conserving the fauna of the state.
- A similar letter was also written to K. S. Sankhala, the Chief Wildlife Warden of Rajasthan.

Since no action followed, it was jointly decided to kick-start an awareness campaign through the press. K.C. Kulish, Founder Editor, Rajasthan Patrika was ready to support such a cause through his publication.

After gathering facts about the legal status of the species and obtaining information from a representative of Rajasthan Patrika based in Jaisalmer, we informed all the leading dailies based at Jaipur, about the illegal hunting by the royal guests in the interiors of Jaisalmer. N.C. Jain, the Collector of Jaisalmer and Rajendra Bora from Rajasthan Patrika provided us with details of the species shot in the region.

Jaipur, at that time had no English daily. We were solely dependent on English dailies published in New Delhi to splash the 'falconry' issue. The Jaipur-based

Saudi Arabian prince in Jaisalmer

By Our Special Correspondent

JAIPUR, December 27: Prince Badr, brother of the King of Saudi Arabia, today arrived in Jaisalmer from Pakistan on a pleasure trip. During his stay, the prince is expected to undertake trips into the desert to shoot rare birds.

The state government has made arrangements to make the five-day stay of the prince and his entourage as pleasant as possible. It has, however, been placed in an unenviable position.

It is learnt that the prince may like to shoot the bustard, a "protected" species under the Wildlife Protection Act.

The Indian bustard, now found only in the Jaisalmer desert, is on the verge of extinction. Only a month ago, an Arab prince visited Jaisalmer and was said to have killed 75 of them.

The incident evoked world-wide protests from bird-lovers and international wildlife protection coumbis.

It is learnt that the authorities will provide all facilities to the prince to shoot birds, which are not "protected", but will explain to him the legal difficulties in giving him permission to shoot bustards.

The Times of India
December 28, 1978

On 31 December 1978, we were out on Jaipur streets, with banners and posters during our silent 'Save Bustard Rally'. About forty of us converged upon the Raj Bhawan, to meet the Governor

press correspondents saw their reports appearing prominently. They were also asked to follow the issue on a daily basis as it was being treated as an exciting and uncommon piece of news.

To whip up the tempo, we then started to call it "poaching supported by the Government." Though the campaign initiated a dialogue between the Central and State Governments, petro-dollars and diplomatic relations came in way and the Ministry of External Affairs put its foot down.

The press coverage inflamed the issue. We received verbal support from communities like the Bishnois and Jains who asked us to publicise the cause. Hence on December 31, 1978, we were out on the streets of Jaipur with banners and posters during our silent 'Save Bustard Rally'. Since the daughter of the Governor, Raghukul Tilak happened to be one of our founding members; our entry into the Governor's house was facilitated, after the Chief Minister's refused to meet us. At our request, the Governor agreed to have a group photograph with all agitators, this quasi official-recognition inspired each one of us.

Next was our meeting with Bhairon Singh Shekhawat, the Chief Minister of Rajasthan. Before we could have a word with him, his press advisor, K.L. Kochar displayed a few black-and-white photographs, as evidence of such hunting being a usual practice. However, I reasoned with him that those photographs were from the 60s, when India had no appropriate legislation over wild species. I reminded him that the Government should realise implications of the Wildlife Protection Act, 1972 and stop denying facts. At this, a speechless Kochar retreated and Bhairon Singh asked us to go to New Delhi and meet the Prime Minister.

Vishwambhar Modi and I alleged that the Act was to be regulated by the Government of Rajasthan as the "poaching" was being held in the State and the Prime Minister had no locus-standi in this case. Bhairon Singh Shekhawat finally withdrew from the scene. However, we were happy to have hammered the issue at the two levels where it had to be settled.

The 'Save Bustard Rally' recieved wide coverage by the press and similar rallies were carried out in Bombay and New Delhi with WWF- India and BNHS taking leads in these cities.

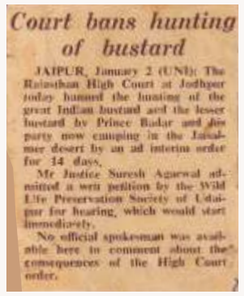
Since the Government seemed to be taking no serious note, a petition was filed at the Jodhpur High Court. The Court issued stay orders over the illegal falconry in the desert following an application moved by Tej Razdan.

Within days, the Minister of External Affairs, Atal Bihari Vajpeyi flew from New Delhi to Jaisalmer and met the royal prince to request him to desist with falconry in view of the High Court order. The curtain finally came down. Starting on December 24, 1978, this violation of the Wildlife (Protection) Act came to an end by January 2, 1979.

Subsequently, I shared the table with R. S. Dharmakumarsinhji at the Rajasthan State Wildlife Advisory Board meetings and it was decided to hold a conference to carve out a Bustards' Conservation Programme. BNHS suggested seeking advice from the International Council for Bird Protection, (now known as BirdLife International) and the Smithsonian Institution, USA. However, the Ministry of Agriculture turned down the proposal as the Joint Secretary was unhappy about

© M L MEENA

The International Symposium on Bustards (ISOB) was held at Jaipur from 1- 3 November 1980, and a postal stamp on Great Indian Bustard was released byBal Ram Jakhar, the Speaker of Lok Sabha.



Court bans hunting of bustard

JAIPUR, January 2 (UNI): The Rajasthan High Court at Jodhpur today banned the hunting of the great Indian bustard and the lesser bustard by Prince Badar and his party now camping in the Jaisalmer desert by an ad interim order for 14 days.

Mr Justice Suresh Agarwal admitted a writ petition by the Wild Life Preservation Society of Udaipur for hearing, which would start immediately.

No official spokesman was available here to comment about the consequences of the High Court order.

The Times of India
January 3, 1979

The wind beneath its wings, a Great India Bustard stands alone.

The stamp featuring the Great Indian Bustard.

our decision to hold an international meet.

However certain political changes and interactions with Rao Birendra Singh (who took over as the Minister for Agriculture), Samar Singh, the new Joint Secretary in the Ministry of Agriculture and our founder member, Raj Singh Dungarpur, we received approvals within days!

The International Symposium on Bustards (ISOB) thus was held at Jaipur in November 1980, and a postage stamp on Great Indian Bustard was released by Balram Jakhar, the Speaker of the Lok Sabha. Salim Ali, Dharmakumarsinhji and other experts, including forest officers from several states joined hands to prepare the much needed Bustards' Conservation Initiative. This paved the way for setting up some bustard sanctuaries in Maharashtra, Karnataka, Gujarat and Rajasthan. Along with Paul D. Goriup, I led the ISOB proceedings: “Bustards in Decline” that stood out as a lone compendium on the species.

Bustard hunting issues continue to erupt elsewhere, but not in Rajasthan. Reports came from Gujarat of some Arab Sheikhs having sported falcons there. A letter from Samar Singh to me written on 6 August, 1982, made it clear that hunting issue was unlikely to be permitted by the Government again.

Thanks to David A. Ferguson, who kept a keen eye on bustards and their conservation in India, the travel grant for overseas experts at the symposium was made possible. Grants were provided to some experts to re-visit India in 1981 to survey all bustard habitats and as agreed at ISOB, establish the Indian Bustard Study Group (IBSG) though it could not happen. Asad R. Rahmani took up the Bustards Research programme for BNHS in 1981, which he continues to this day.

While India took a positive stand, Pakistan continued to lure Sheikhs and organize falconry, which meant India would receive less, or no Houbaras. In fact, India's Great Indian Bustards that flew over from Jaisalmer to Pakistan became easy-quarry of the princes! The Second International Symposium on Bustards was therefore held in Peshawar, Pakistan, in 1983 to encourage our neighbour to take conservation-friendly decisions. The Sheikh’s representatives present at this meet, were canvassing in favour of 'falconry.' I was offered a 'deal' by one of them. The meet decided to recommend the issue of banning falconry to Zia-ul-Haq, the President of Pakistan, who probably did not even care to read the document.

Sadly, falconry continues unabated in Pakistan. I often receive an invitation from Rana of Umarkot to visit the Sindh Desert and photograph the widespread sport during each winter, if not be a falconer myself.

THE GREAT INDIAN BUSTARD IN BELLARY DISTRICT

SAMAD KOTTUR
Ex- Honorary Wildlife Warden of Bellary district

The Great Indian Bustard is also known as *yerladdu* and *yeribootha* in Kannada, *bettamyaka* in Telugu and *gunjann* in the Lambani tribal dialect. Once, abundant in the grasslands of South India, Great Indian Bustards are now on the brink of extinction. The bird was commonly seen in the grasslands characterized by black cotton soil of eastern and northern Karnataka till 1990.

The Great Indian Bustard is not only extinct from about 95% of its former range, but it has also disappeared from the three wildlife sanctuaries that were declared for its protection 25 years ago. In north Karnataka, a wildlife Sanctuary at Ranibennur, once a safe haven dedicated to the conservation of the Great Indian Bustard where it was breeding till a decade ago, no longer has any sighting records. The reason is evident. In spite of the declaration of the sanctuary, grasslands were replaced with tree plantations. This has resulted in huge landscape change and habitat loss for the Great Indian Bustard.

Sighting of Great Indian Bustards in Bellary District

We, the members of Society for Wildlife and Nature (SWaN) along with other wildlife enthusiasts took to conserving the bird's habitat in 2005. Along with Ananda Kundaragi of Siraguppa, Santosh Martin of Bellary, I researched unknown habitats of Great Indian Bustards in the eastern plains of North Karnataka. After two years of field work and research, we finally found 9 individuals in 2006. Their numbers are now estimated to have increased to 10-15 (2011-12). But proper extensive research would give us exact number of birds in this area. As most of the land was privately owned, we began to monitor the birds by employing local people, we hope to conserve the bird with their participation.

Threats

The conversion of rain-fed black cotton soil fields into wetlands, replacement of traditional crops like jowar, cotton and sunflower by paddy are all affecting the habitat of the Great Indian Bustard. The eggs are often trampled by cattle or humans. The use of chemical pesticides and fertilizers is leading to excessive accumulation of poison in the birds who consume the locusts and lizards in these agriculture fields.

95%

THE GREAT INDIAN BUSTARD IS NOT ONLY EXTINCT FROM ABOUT 95% OF ITS FORMER RANGE, BUT HAS ALSO DISAPPEARED FROM THE THREE WILDLIFE SANCTUARIES THAT WERE DECLARED FOR ITS PROTECTION 25 YEARS AGO

Silhouetted against the sky, a Great Indian Bustard in Bellary.

Usage of chemical pesticides and fertilizers is further leading to an excessive accumulation of poison in the birds through poisoned locusts and lizards.

Awareness Project

Vijay Mohan Raj, an IFS officer and Asad R. Rahmani of BNHS have been guiding us in our efforts to conserve this bird. A New Delhi based NGO- Wildlife SOS is also contributing to the documentation of the bird in another habitat in Koppal district. It is planned to conserve Great Indian Bustard under the Community Reserve, suggested under the recently amended WPA. There are also possibilities of taking recourse to various provisions of the Environment (Protection) Act, 1986, by restricting certain activities in bustard habitats without displacing or disturbing the human populations. We are looking for the collaborators to take up the project for research and for creating awareness among villagers and students in the Great Indian Bustard area.

COMMUNITY AND LANDSCAPE LEVEL APPROACH TO CONSERVATION

DR. PRAMOD PATIL, GIB FOUNDATION

In the early 80s, many conservation measures were taken in the five states where the Great Indian Bustard existed, and eight PAs were declared. However, the status of Great Indian Bustard has sharply deteriorated in the last 30 years. It has vanished from three protected areas. Local communities in and around PAs can play a major role in bustard conservation.

With nearly 40 percent of the wildlife present outside PAs and some of the most endangered species inhabiting grasslands, wetlands, coasts, rivers, and rural landscapes, there is an urgent need to look beyond PA's and come up with alternate conservation strategies. The Great Indian Bustard is locally extinct from almost 90 percent of its original range. It is thus important to understand the role of communities to conserve the Great Indian Bustard.

Community Interactions and Relationships

Bustards consume pest insects, tender shoots, grains and pods in crop fields. This is where they interact with local farmers. This interaction has always been healthy and the bustard has never been considered as a threat to crops because it feeds on pest insects.

Bustards interact with the shepherd community in the grasslands. Occurrence of bustards in grasslands indicates that the grassland is healthy and hence a reservoir of quality fodder for the livestock which is dependent on it. However, for the maintenance of grassland habitat, controlled grazing is a must. Bustards usually prefer open and short grass areas for territorial or breeding display.

95%

OF LAND IN THE BUSTARD SANCTUARY OF MAHARASHTRA IS PRIVATELY OWNED AND HAS BEEN DISTRIBUTED TO THE LOCAL COMMUNITY BY THE REVENUE DEPARTMENT, DESPITE IT BEING DECLARED AS A SANCTUARY

COMPLICATING FACTORS

Bustards and grasslands have been exploited to a great extent. Increased population and hence increased demand for food have resulted in the conversion of grasslands into crop lands. The condition has been worsened by the new land use policies and patterns. All of this has resulted in the loss of bustard population and habitat The declaration of bustard sanctuaries without settling land rights and the lack of control over land use pattern (the land being privately owned) has further detiorated the situation. For example, 95 percent of land in the Bustard Sanctuary of Maharashtra is privately owned and has been distributed to the local community by the revenue department, despite it being declared as a sanctuary. Most of this land is used for farming or is under human habitation and is thus irreversibly damaged. Local communities, on the other hand are suffering because of restrictions on livelihood-related activities and lack of basic facilities. This has created a strong anti-bustard environment in the region.

Another reason behind the lack of local support to bustard conservation is the damage caused by wolves and blackbucks. Blackbucks and wolves are greatly

benefited by bustard conservation as the existing bustard sanctuaries provide breeding grounds for these associated species. Unfortunately, both are causing damage to crops and livestock respectively. The legal compensation procedures are very lengthy and barely make up for the actual loss. This has built up resentment about bustards.

How to Move Ahead?

Currently the major factor limiting bustard conservation is the absence of land ownership. A few compact and well protected breeding areas (minimum 300 hectares) surrounded by buffers of any large size would be ideal for bustard conservation. In order to form core breeding areas, land acquisition is essential which is possible only with strong political will and budgetary support. Reducing disturbances such as quarrying and coal mining in buffer areas is also important.

Grasslands need to be protected, at least in the breeding season. There are several ways of doing this. Rotational grazing, appropriate means to restrict access to breeding sites, limiting agricultural activities, providing alternative fodder sources, protecting eggs and increasing compensations. Community workshops to increase awareness, involving local youth, promoting traditional organic farming and establishing bio-pesticide production units are also measures that will improve bustard habitat.

Just as the tiger is considered the 'spirit of Indian forests' bustards are the 'soul of grasslands'. Given their current status, the first step towards bustard conservation is to accept ground realities and to target the most potent and accessible sectors. It's not only about bustard or florican conservation, it's about arid biodiversity, local communities, agriculture, pastoral communities and and livestock conservation!

© DR. AJIT DESHMUKH / WWF-INDIA

Just like the tiger is considered the 'spirit of Indian forests' bustards are the 'essence of grasslands.'

© SAMAD KOTTUR

THE LESSER FLORICAN

The Lesser Florican is a bird of the dry grasslands and open fields that prefers drier ungrazed plains with grass upto the height of 0.51 m.

Scientific Name

Sypheotides indica

Status

Endangered' in IUCN Red List (2011). Also included as a priority species for recovery in the Integrated Development of Wildlife Habitats (Centrally Sponsored Scheme) by the MoEF (2009).

Characteristic Features

The male measures about 46 cm and the female about 51 cm.

The breeding male is black and white with a tuft of narrow spatulate-ende, up-curved black plumes projecting behind the head, three on either side. The non-breeding male resembles the female, but it has more white on its wings. The colour of bare body parts is pale yellow or brownish fawn. The colour of the upper mandible in the bill is horny brown, the lower one is yellowish. The legs and feet are fleshy or dusky yellow and look like old discoloured ivory.

The female is sandy buff and mottled, with blackish arrowhead marks on the back and two parallel blackish stripes down center of throat and fore-neck. The forehead and crown are black with a pale median stripe or 'centre parting'. Females have head plumes. The chick is dirty pale yellow in colour, with some black stripes on the wings, back and sides. It has an unclosed 'V' on the crown.

THE VERTICAL JUMPING HABIT OF THE MALE BIRDS IS THE MOST CHARACTERISTIC FEATURE OF THE LESSER FLORICAN

Distribution: Past and Present

Endemic to the Indian sub-continent, it currently breeds in Gujarat, western Madhya Pradesh, north-western Maharashtra and south-eastern Rajasthan; moving there at the beginning of the monsoon (June to July). Subsequently in (October to November) it seems to disperse south and east into the breadth of the Indian subcontinent, where there is little clear evidence of its precise status, distribution or habitat requirements (Sankaran and Rahmani 1986, Sankaran 1990, 1993, 1997, Sankaran et al. 1992).

Lesser Floricans generally feed during early mornings and evenings, but might feed throughout the day on being newly immigrated.

Habitat Status

India has two exclusive Lesser Florican sanctuaries, both in Madhya Pradesh; Sailana Wildlife Sanctuary in Ratlam district and Sardarpur Wildlife Sanctuary in Dhar district.

Flight

The flight of a Lesser Florican is characterized by rhythmic strokes of the broad wings, an outstretched neck and legs and feet tucked under. Floricans fly individually, not in flocks.

Food

The diet of Lesser Floricans comprises of a diverse mix of invertebrates including locusts; insects like flying ants, hairy caterpillars, worms, centipedes; small lizards and frogs. Seeds, herbs, berries and plant shoots are also eaten. Floricans generally feed during early mornings and evenings, but might feed throughout the day when newly immigrated.

Display of the Lesser Florican

Voice and Calls

A characteristic harsh frog-like croak is produced by males during their jumping display. A short whistle-like call is made when frightened (Dharmakumarsinhji, 1950). A low chuckle is constantly expressed while feeding.

Display and Territory Establishment

The most characteristic feature of the male Lesser Florican is the vertical jumping habit. The male stands at a selected place, looks around and leaps up to two meters high into the air with an energetic flurry of wing beats. Then, with wings tucked in, he falls swiftly back to the ground. During courtship males repeat this aerial display as many as 400 times a day, while producing a frog-like croak which can be heard from as far as 300-400 meters.

The jump is used to set up a territory durig the breeding season by warning other males to stay away and to lure potential mates.

Breeding

The species follow a ‘lek mating system’ in which no pair-bond is formed.

India has two exclusive Lesser Florican sanctuaries, both in Madhya Pradesh; Sailana Wildlife Sanctuary in Ratlam district and Sardarpur Wildlife Sanctuary in Dhar district.

Males attract females with their springing display, mate with the hen for a short while, but take no further interest in raising the family. Except when a female wishes to mate with a male, the sexes rarely come together.

Egg Laying

Following successful courtship, the female finds a scrape in the ground to locate a simple nest, which is not more than a bare patch of ground, often even without any depression, amidst grass thickets or crops. The female lays four to five eggs which are quite distinct with a shade of olive-brown; mottled, streaked and blotched with brown. During the 21 day incubation period, the female cautiously sits still on the nest to avoid detection. The relatively mobile, newly hatched chicks stay with their mother about 15-30 days.

Evading the eye of its beholder.

Trend Analysis

While the overall population is declining in all parts of the country, the over-dependence of the species on monsoon and temperature makes it difficult to make any conclusive claims about population trends.

International and National obligations

The Lesser Florican is protected in India by its inclusion under Schedule 1 of the WPA. It is classified as 'Endangered' on the IUCN Red List. It is also listed in the CMS Convention and CITES Appendix II. It has also been identified as one of the species for Recovery Programme under the Integrated Development of Wildlife Habitats (Centrally Sponsored Scheme) of the MoEF.

The intensive use of the pesticides in the crop fields is a great threat to floricans that feed on the insects.

RECOMMENDATIONS FOR SPECIES RECOVERY

Since Lesser Floricans are highly dependent on rain and the condition of the grasslands where they arrive for breeding, a proper study of population ecology becomes significant while searching for alternative breeding grounds. Management interventions like protection of natural grasslands and improvement of degraded grasslands must also be undertaken.

© G S BHARDWAJ IA

A wary florican stealthily moving in a field to evade human eye.

Protection of Habitat from encroachment, degradation and change in land use pattern is necessary to maintain conditions favourable for breeding.

Removal of Invasive Species: Shrubs like lantana and trees like *Prosopis* are degrading florican habitat in several areas. Promotion of native vegetation is necessary to create favorable conditions for the Lesser Florican.

Grazing Regulation: Local and nomadic cattle populations pose a serious threat to grasslands due to over grazing. This can be balanced by rotational or seasonal grazing, new regulations on free ranging animals and total protection of select grassland plots to serve as nucleus for seed banks. At a livelihood level other measures should include securing tenure for pastoralists (both resident and nomadic) over pastures in consultation with local communities to save the grasslands for floricans.

Organic Farming: It is necessary to educate, encourage and support local people to shift to organic farming or at least minimize the use of chemical insecticides in breeding grounds preferred by floricans. This will also ensure adequate supply of natural food (insects) for floricans.

Livelihoods Support: Providing suitable income generating activities to pastoral communities in villages frequented by the Lesser Florican will help to reduce the pressure on grasslands.

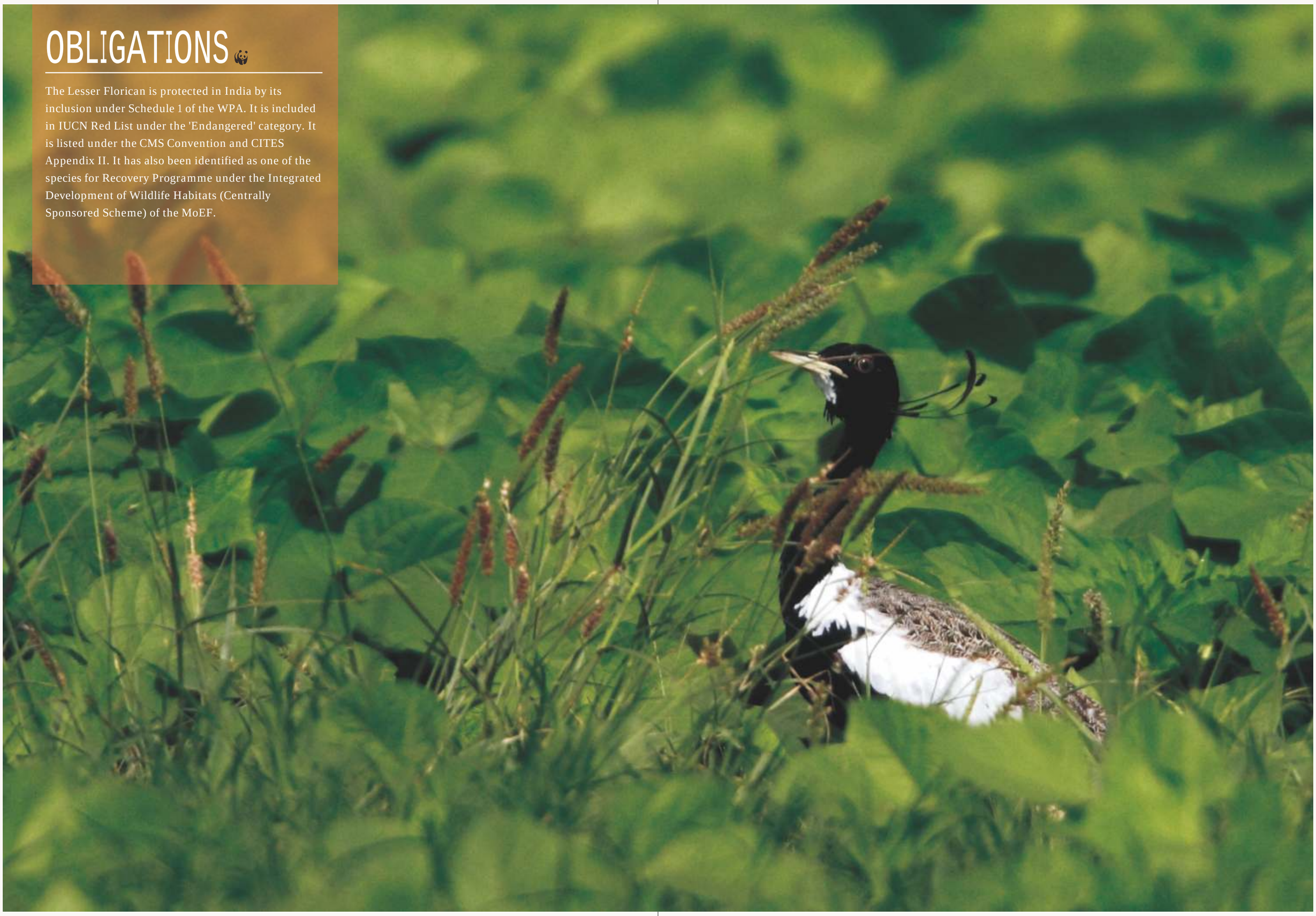
Research and Monitoring: A systematic status survey and study of the ecology and behavior of Lesser Florican, during the breeding and non-breeding season. Involving local communities and private grass beed owners, providing suitable literature and audio-visual training material are necessary to formulate a sound conservation strategy.

MANAGEMENT INTERVENTIONS

LIKE PROTECTION OF NATURAL GRASSLANDS AND IMPROVEMENT OF DEGRADED GRASSLANDS MUST ALSO BE UNDERTAKEN

OBLIGATIONS

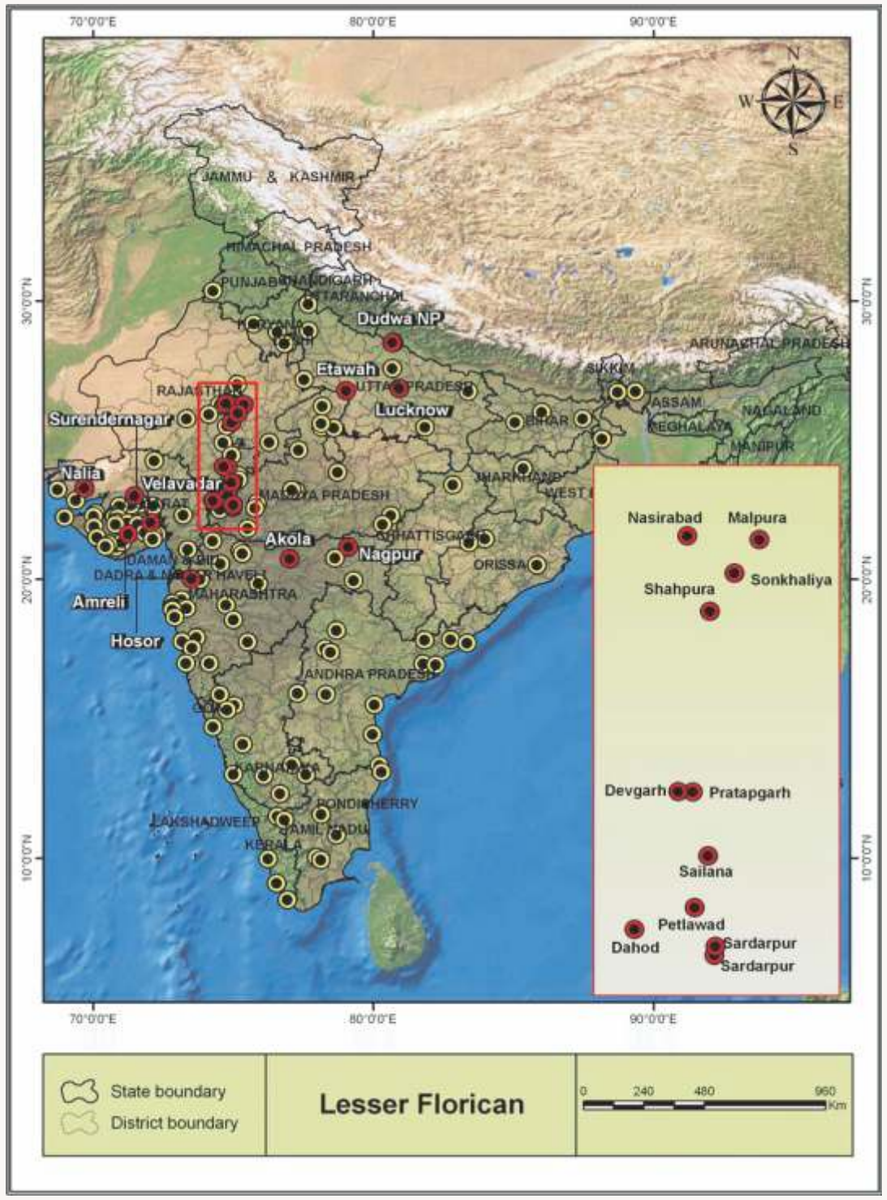
The Lesser Florican is protected in India by its inclusion under Schedule 1 of the WPA. It is included in IUCN Red List under the 'Endangered' category. It is listed under the CMS Convention and CITES Appendix II. It has also been identified as one of the species for Recovery Programme under the Integrated Development of Wildlife Habitats (Centrally Sponsored Scheme) of the MoEF.



SINKING PULSE OF GRASSLAND: THE LESSER FLORICAN

BY G. S. BHARDWAJ

The Lesser Florican or the 'likh' is one of the bustard species found in the Indian subcontinent. It is the smallest of all the bustards, weighing only 510-740 grams. During the breeding season, their distinct movement into Gujarat, eastern Rajasthan and western Madhya Pradesh (areas of good rainfall) have been documented for over a century (Jerdon 1864, Sankaran et al. 1992.)



GRASSLANDS

WERE IDENTIFIED AND DISTRIBUTED ACROSS KNOWN BREEDING RANGE IN THREE STATES: RAJASTHAN, MADHYA PRADESH AND GUJARAT

In western India, these grasslands are fragmented; the habitat available to the Lesser Florican is mostly a mosaic of grassland and cropland. There has been a considerable loss of private owned grasslands and grass patches between crop fields (Rahmani 1987, Sankaran, 1994). In addition, most of the grasslands, either pure or mosaic are under excessive grazing pressure. Unlike the breeding areas, there is hardly any information about the non-breeding habitat of this species, which is crucial for preparing a comprehensive conservation plan.

Its population and range is believed to be decreasing at an alarming rate due to breeding habitat loss and threats in the non-breeding habitats, believed to be in south and south-east India. In the absence of any systematic study in the last decade, a survey following an established protocol (Sankaran 2000) was carried out in August 2010 to understand the status and distribution of the Lesser Florican in the north-western India. Therefore, based on previous experience with Dr. R. Sankaran, and past surveys (Sankaran 1991 and 2000), grasslands were identified across the known breeding range in three states: Rajasthan, Madhya Pradesh and Gujarat. Covering a distance of more than 8000 kilometres these sites were surveyed in 65 villages to accurately establish the precise number of males. Grasslands belonging to the forest department, revenue department, private individuals and agriculture fields, all collectively comprised our 91 target sites. To study the habitat preference of floricans, these sites were classified into seven categories namely pure grassland, pure cropland, savannah grassland, mosaic grassland, plantation, plantation grassland and mosaic cropland. This classification was done on the basis of relative dominance of certain vegetation types and landscape. While mornings and evenings were spent in the field with our binoculars and cameras to observe florican activity, afternoons were reserved to understand the population trends by analyzing data and comparing it with baseline data (Sankaran 2000).

83

MALE FLORICANS

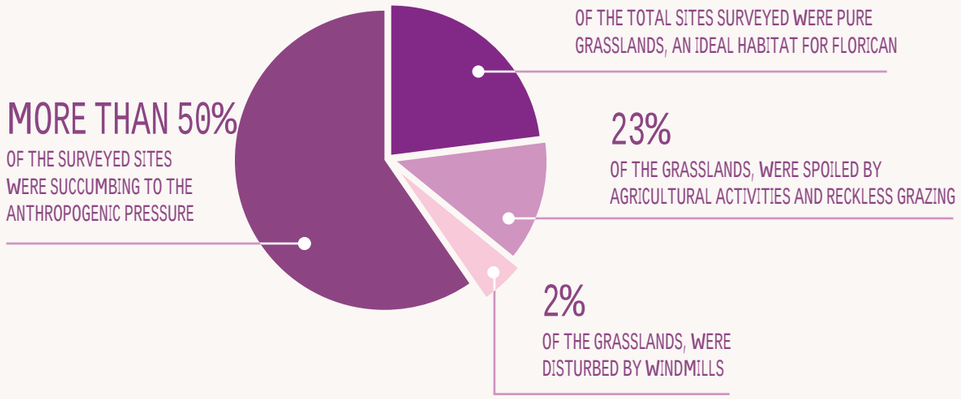
FELL CONSIDERABLY SHORT TO THE NUMBER OF THE SIGHTINGS REPORTED IN 1999 BY DR SANKARAN

Current Scenario

The survey outcome was not very encouraging. The total count of 83 male floricans fell considerably short of sightings reported by Dr. Sankaran in 1999. Even the number of grasslands that exhibited jumping floricans was reduced to 24 as against 37 grasslands in 1999.

The situation regarding the population and habitat utilization of floricans in all three surveyed states is quite grim. Gujarat where more than 55% of the grasslands that were thriving with floricans in 1999 looked deserted without a single florican sighted in 2010. The story holds true for the state of Madhya Pradesh. In Gujarat, the number of floricans has plummeted to 54 individuals compared to 141 individuals in 1999. In the same period in Madhya Pradesh the number has nose-dived to 12 from 63. And in Rajasthan the number of individuals has dipped to 18 from 34.

It was observed that more than 50% of the surveyed sites were succumbing to the anthropogenic pressure. Around 28% of the grasslands were ruined by reckless grazing, 23% of grasslands were affected by agricultural activities while windmills were creating disturbance in 2% of grasslands. Pure grasslands, the ideal habitat of floricans only existed in 30% of the total sites surveyed.



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Reckless grazing destroys the sanctity of the grassland ecosystem, thus hampering the successful breeding possibilities of the Lesser Floricans

Need for a Species Recovery Plan

Conserving this endangered species requires an intensive recovery programme to be chalked out now. This must address excessive grazing and invasive species like *Prosopis juliflora* in potential grasslands. It must also include research and monitoring of the florican species, and the launch of intensive awareness and sensitization programmes. The present study also stresses the need for a National Policy on Grassland Management in India which recognises the ecological services provided by this ecosystem and the inclusion of more florican habitats in the existing PA network.

Lush green grassland, a jumping florican, drizzling droplets and refreshing breeze; this is not just a description of an idyllic pastoral; it is a dire need of today for our healthy and secure tomorrow. A prospering and healthy grassland is not only a breeding ground for floricans but is a complete ecosystem in itself, serving as a survival niche for several other species.

Their contributions which may appear tangible individually are actually of great importance collectively, in balancing the equilibrium of life and ultimately making our environment a better place to live. Grasslands have their unique benefits parallel to those of wooded landscapes and the Lesser Florican is like the pulsating beat of these grasslands.

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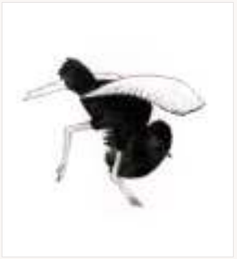
THE BENGAL FLORICAN



The Bengal Florican population in India is estimated at less than 350 birds.

Scientific Name

Houbaropsis bengalensis

Status

'Critically Endangered' in the IUCN Red List (2008).

Characteristic features

The Bengal Florican is about 60 cm tall at standing height. The adult males have a black head, neck and body with white wings. When standing, the white wings appear as a thin patch on either side of the body. The back is mottled with buff-brown. During the breeding season, males have a thick bunch of feathers hanging under the breast. Females and immature males are dull brown and moulted on the back. Females are slightly larger in size than males.

Distribution and Population Status

Once widely distributed in India, Nepal and Bangladesh, the Bengal Florican is currently restricted to a few protected areas in India with just 40 surviving in Nepal (BirdLife 2010). Its population in India is estimated at less than 350 birds. The current distribution of the Bengal Florican in three Indian states is, Uttar Pradesh (70-80), Assam (180-220) and Arunachal Pradesh (40-50).

National and International obligations

The Bengal Florican is listed under Schedule I of the WPA and in the National Wildlife Action Plan 2002-2016. It is also listed under the CMS Convention and CITES Appendix I. It has also been identified as one of the species for recovery programme under the Integrated Development of Wildlife Habitats (Centrally Sponsored Scheme) of the MoEF.

Habitat

All recent Bengal Florican records are from undisturbed tall patches of *Saccharum narenga imperata* grasses in the *terai, duars* and similar grasslands in the Brahmaputra valley. These grasslands are characterized by a

high diversity of grasses, sedges and shrubs and are sparsely scattered with trees such as *Bombax ceiba, Acacia catechu* or *Embelica officinalis.*

Food

They feed on various seeds, grains, tender grass shoots and insects like grasshoppers, ants, beetles and even frogs.

Breeding

The breeding season starts from February and lasts till early July.

Territory Establishment

It favours relatively open short grass (25-50 cm) for establishing territories, often within expanse of tall grass (1-2 m) and scattered bushes (Inskipp & Inskipp 1983, Narayan & Rosalind 1990). Although short grassland appears to be favoured for foraging and displaying, the birds seek shelter in tall grass during the heat of the day, and females spend much of their time in the tall grass (Sankaran 1996).

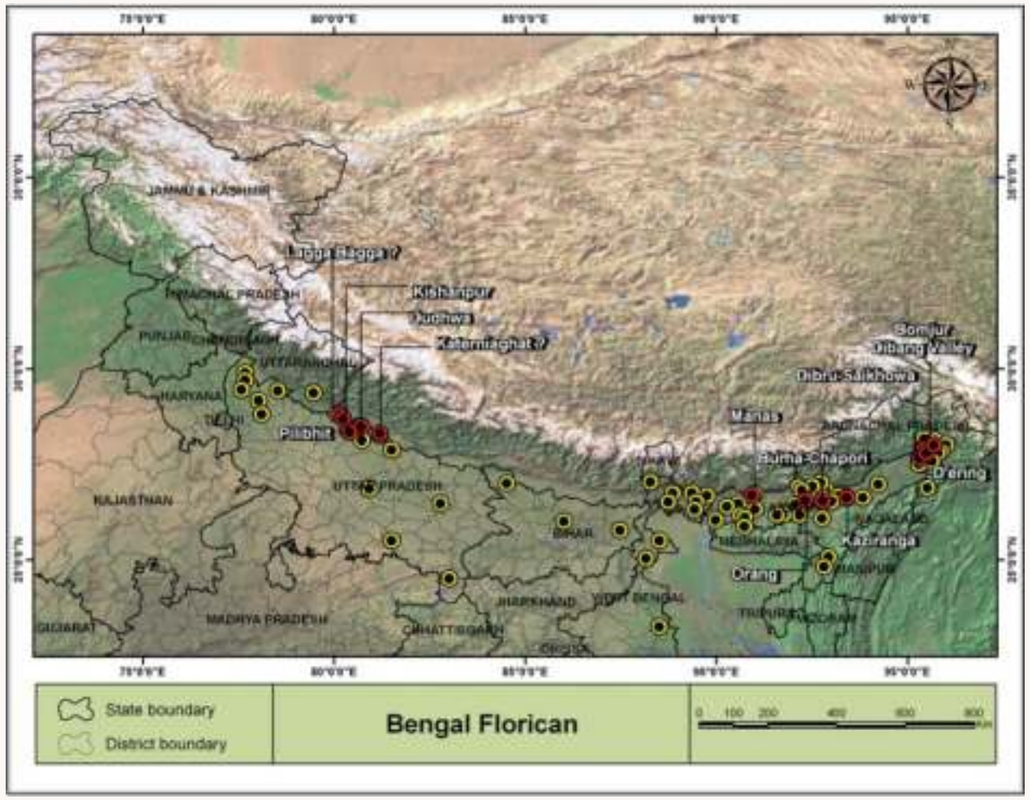
Egg Laying

They do not prepare a proper nest, they just lay eggs after scratching bare ground. The clutch size is 2-3 eggs. The female raises the young without any help from the male.

Display

Once the male is aroused, it fluffs up the head, neck and breast feathers. Just before taking the jump, it further inflates the breast pouch, draws the head further back and lowers the body by partially bending the legs. The bird springs diagonally forward at an angle of about 45 degrees. A loud and rapid wing-flapping sound is heard while ascending. On reaching a peak of 4-5 metres, the flapping stops and the wings are opened, displaying glistening white wing feathers against the jet black body.

It is then that it delivers its sharp, whistle-like *'chip-chip'* call. Just 1-2 m above the ground, it begins to flap its wings again and moves forward, regaining lost height. On reaching the apogee, it stops flapping and floats down more or less vertically with partly open wings, drooping pouch, dangling and paddling legs.



Remote sensing indicates that less than 2.0 percent of alluvial grasslands remain intact!!

During the display flight, it traverses 20-40 metres and takes 6-8 seconds from take-off to landing. It calls 4 to 7 times while in the air.

Threats

Habitat loss and Alterations

This includes conversion of land for agriculture and forestry plantations, burning (illegal or legal) and decline in the area and quality of grasslands as well as dam and irrigation schemes. In addition, there is high grazing pressure from domestic stock, intensive harvesting by local communities and establishment of communities within the PAs. Other complication factors are erosion caused by annual floods and the impact of invasive species on the composition of grassland species.

Persecution and Human Disturbances

During a survey in Assam and Arunachal Pradesh from 1992-95, several instances of birds being shot, snared or killed with long sticks were reported (Choudhury 1996; also Choudhury). Collection of eggs, thatch, wild herbs and fruits from the grasslands by locals and nest destruction is also observed.

Management of Protected Areas

Most PAs suffer from inadequate protection and unscientific management of habitat. Furthermore, conservation measures are difficult to implement, given the 'meagre strength of Forest Department staff', poor infrastructural facilities, lack of funding and personnel training (Choudhury 1995).

Data Deficiency

There is poor information on the lifecycle, demography, sex ratio, food preferences, pesticide poisoning and disease risk of the species. The dispersal, local migration and status of its non-breeding habitat are also unknown.

Recommendations for Recovery of the Species:

A systematic and centrally organized status and distribution survey by undertaking a satellite telemetry program must be implemented to understand seasonal movement patterns, life-history and habitat requirements. A workshop with national and international experts needs to be organized for the execution of a conservation breeding programme.

The preservation of the Bengal Florican depends on the conservation of some associated species like the Swamp francolin, Manipur bush-quail, Marsh babbler, Jerdon's babbler, Slender-billed babbler, Black-breasted parrotbill, Hodgson's bushchat, Grey-crowned prinia, Bristled grass-warbler and Finn's weaver.

Habitat Level Recovery

Protecting breeding areas from all kind of human disturbances by restricting infrastructural development and landuse diversion is necessary for the conservation of the species.

Landscape Level

Integrating livelihoods with conservation by translocating enclave villages, increasing patrolling and manning of camps throughout the reserve, encouraging eco-tourism, preventing encroachment onto grasslands, re-marking boundaries of forest villages, preventing establishment of new settlements and dissuading villagers from hunting, must be coupled with other actions to strengthen protection.

Research and monitoring of the population, understanding the vital rate parameters (such as survival, recruitment, dispersal and effective population-size) is required to draw a survival plan for the species.

Proposed Recovery Actions:

1. Strengthening protection along the PA boundaries.
2. Complete ban on grazing by livestock and the collection of food plants and thatch.
3. Controlling repeated grass burning.
4. Eradication of invasive species.
5. Gathering information on the non-breeding habitat and behaviour of the Bengal Florican.
6. Gathering new biological and scientific information.
7. Preparing a habitat reclamation plan
8. Increasing the level of awareness among target stakeholders

BENGAL FLORICAN: AN ENIGMA FOR SCIENCE TO UNRAVEL

LIMA ROSALIND

It was during the winter chill of December 1987, when I first stepped on Assam soil. It was a tiring journey spanning four days in our old Mahindra Jeep, a hand me down from our dear “Old Man” - Salim Ali. After transversing the states of Maharashtra, Madhya Pradesh, Uttar Pradesh and Bihar, Goutam Narayan and I, finally set out on foot in Assam.

After a short visit to Mr. Sanjay Deb Roy, Chief Conservator of Forests, in his office at Barpeta Road to make sure that our permits were in place, we set out for Bansbari, the Range Office of Manas National Park. This would be our home for the next few years until we disclosed the secrets of the Bengal Florican.
Our project aim was to study the ecology of some endangered birds and their habitats. Our list included the Great Indian Bustard, the Lesser Florican and of course the Bengal Florican.

Following are some insights that I gathered during these years.
Male Bengal Floricans are extremely alert and wary. They move into tall grass or hide themselves by squatting on the ground at the slightest suspicion. Adept at moving in tall grass without being noticed, they are capable of disappearing even in 20 cm grass by lying flat on the ground with their neck stretched. Once disturbed, the bird disappears for several minutes even after the source of danger has withdrawn. Thus, the bird spends several hours just watching and looking out for danger. This ability of the bird to stay as still as a statue while watching, has made me observe even burnt logs of trees amidst the green pastures of Manas, such is the behaviour of this extremely wary bird. During the breeding season that lasts for about 16 weeks, males are territorial. At Manas National Park, they establish their territory in late January or early February depending upon the extent of burning and regeneration of grass. The distance between male territories varies. Female floricans are rarely seen in male territories and never come out in the open. They usually remain hidden in the taller vegetation. For breeding, these birds show 'lek behaviour'. In normal lek behaviour the 'hotshot' male is chosen by potential females based on his attractiveness.

IN LEK BEHAVIOR THE 'HOTSHOT' MALE WOULD BE CHOSEN BASED ON THE ATTRACTIVENESS BY POTENTIAL FEMALES

Floricans are strong footed and prefer to walk. They walk slowly while foraging or moving from one site to another and can move brusquely or even run, if need be, while approaching a female or escaping from danger. They are also good fliers. Male floricans fly a lot during the breeding season, mostly to chase away an intruding male. The Bengal Florican has one of the most spectacular and breathtaking flight displays among the three bustard species.
At other times, in the suspected presence of a female, the male florican fluffs its drooping pouch and walks with an unusual gait, making the front part of its body

© ASAD R. RAHMANI

Maintenance of Terai grasslands (above) is essential for the survival of the Bengal Florican.
There is a need to study the grass burning regime in the context of the Bengal Florican as it breeds on the ground, and burning during its breeding season could be a major reason for its decline.

The Bengal Florican

The Bengal Florican has one of the most spectacular and breathtaking flight displays among the three bustard species.

undulate ludicrously while walking behind an unconcerned female! We termed this the 'pumping' display.
Bengal Florican eggs are glossy and olive-green in colour with several tiny purple-brown freckles and blotches. The main chick rearing season begins from May onwards in Assam.

The end of territoriality among male floricans takes place around the third week of May in Manas. But so many questions remain unanswered. Where do the floricans go? Why aren't they seen during their non- breeding season? Do they change their plumage? Do they disperse to other areas? These knowledge blanks need to be filled.

Eons have passed and many researchers have worked on the Bengal Florican. But all these studies will come to naught if we fail to conserve the remaining habitats for these critical species. The grassland habitat of the Bengal Florican is well protected in National Parks such as Manas, Kaziranga, Pobitora and Orang but not in the Reserve Forests, where the Forest Department's priority is afforestation of 'blank' areas. Alteration of grasslands into agricultural fields or forest plantations is one of the major threats to this species.

Dr. Asad R. Rahmani, Director, BNHS, also my erstwhile Project Director on the Endangered Species at the BNHS, has been crying hoarse at every fora for the MoEF to approve a Project Bustards on the lines of Project Tiger and Elephant. Finally the MoEF has seen greater counsel and has agreed to institute a first level of inquiry. A species recovery plan has been recommended for these bustards. Things are looking good for the Bengal Florican and other bustards as well.

THE HOUBARA BUSTARD

Scientific Name

Chlamydotis undulata

Status

'Vulnerable' in the IUCN Red List (2008)

Characteristic Features

The Houbara Bustard is a small to mid-sized bustard. It is light brown above and white below and has a black stripe down the sides of its neck. The flight feathers have large areas of black and brown. The sexes are similar; however, the female is comparatively smaller.

Food

The species feeds on seeds, insects and other small creatures.

THE SEXES ARE SIMILAR; HOWEVER, THE FEMALE IS COMPARATIVELY SMALLER.

Display

It raises the white feathers of its head and throat and draws the head back during its flamboyant display.

Egg Laying

They typically lay 2-4 eggs in a scrape on the ground.

Threats

Hunting, habitat loss and degradation, collisions with powerlines, overgrazing, sand extraction and nest predation.

Conservation Actions

Improved protection from poaching, reduction of grazing, habitat management within protected areas, studies on status, ecology and migration need to be undertaken to protect and conserve the species.

WINTERING IN THE LITTLE AND GREAT RANN OF KUTCH

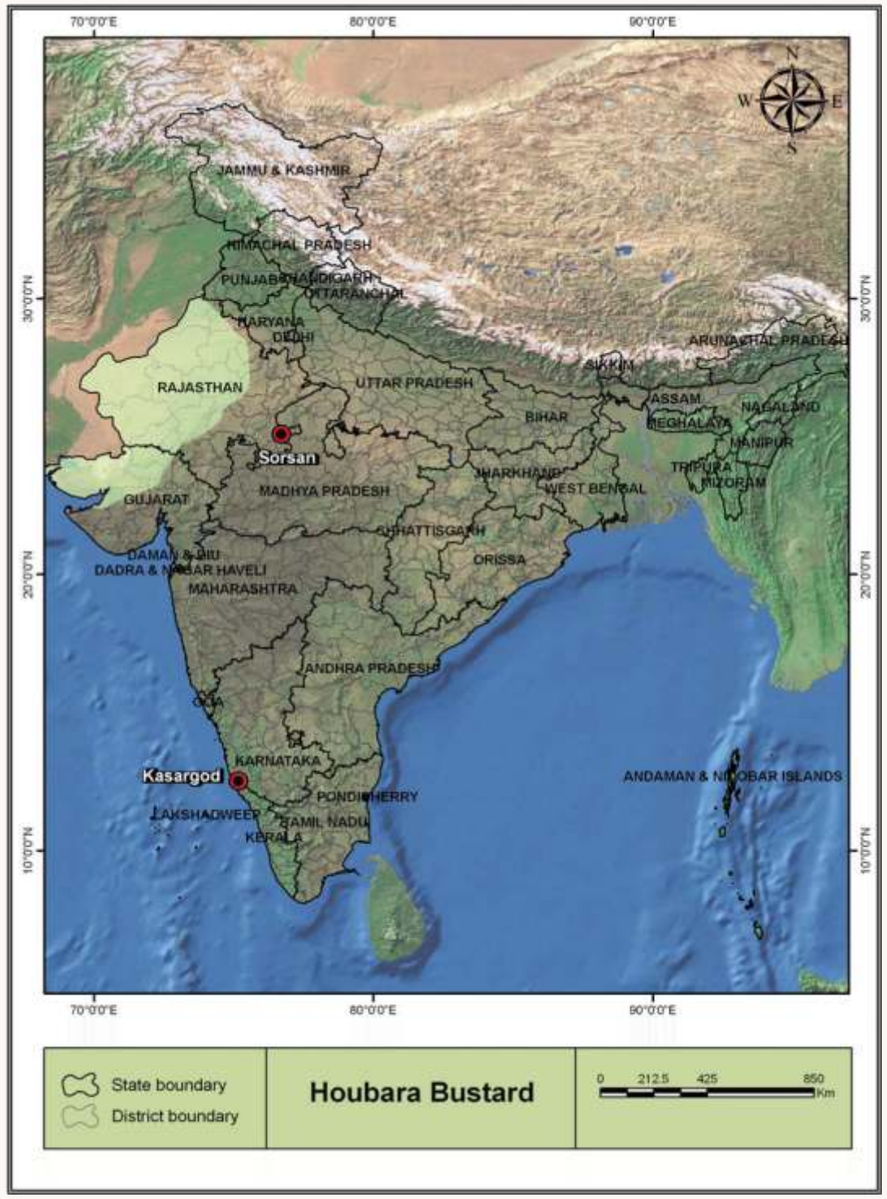
NITA SHAH

Protected Areas that secure the habitat of the Houbara in the Great Rann of Kutch include: Narayan Sarovar Sanctuary, Dayapar, Lala Great Indian Bustard Sanctuary and the Kutch Desert Wildlife Sanctuary.

Houbara bustards (Chlamydotis undulata; Jacquin, 1784) are small to mid-sized birds, measuring 55-65 cm from beak to tail and with wingspans of 135-170 cm. Males weigh about 1.15-2.4 kg and females 1-1.7 kg. The three subspecies are The African Houbara (*Chlamydotis undulata undulata)*, the Canarian Houbara, (*Chlamydotis undulata fuertaventurae*). and Macqueen's Bustard (*Chlamydotis macqueenii*), present in Asia which resides and breeds in the southern part of the Arabian Peninsula and Central Asia and winters in India and Pakistan. Recent studies which establish that the African and Asian populations are in fact two different species, are under consideration. The Asian Houbara is historically the favorite quarry of most falconers in the Gulf Cooperation Council (GCC) region.

Conservation Status: Houbara bustards have undergone rapid population declines over the last three decades as a result of widespread hunting and loss of habitat; thus making it globally threatened. They are classified as 'Vulnerable' by the IUCN. The Houbara is included as an endangered migratory bird in CITES Appendix I and in CMS Appendices I and II, under Schedule I of the WPA. The Houbara is a winter visitor to India (Ali and Ripley 1983, listed under Schedule I of the WPA). Its major wintering grounds are in Rajasthan and Gujarat.

I have been monitoring the wintering grounds and their arrivals along the fringes and *bets* (islands) in the arid Little and Great Rann since 1989. Surveys, both direct and indirect, ad libitum sightings and interview-based information was gathered on the Houbara over the years. The birds arrive in the Rann landscape by September-end or early October and leave the saline mudflat by end February or early March. The Houbara population (numbers arriving into the Rann) via Pakistan and Baluchistan fluctuates year after year. The factors determining their arrival and distribution may be attributed to: disturbances along their migratory route to India, the cyclical droughts in the Rann and rainfall patterns within north Gujarat and Saurashtra.



HOUBARA DROPPINGS

WHEN EXAMINED COMPRISED OF REMNANTS OF HERBACEOUS MATERIAL, FRUITS, REPTILES AND INSECTS.

Habitat

Houbara flocks tend to show site fidelity. Houbara have been sighted and reported from Great Rann in Abdasa, Bhuj (Banni), Rapar (Khadir), Santalpur, Vav Taluka and the fringes of the Great Rann expanding from Lakhpat in the west to Vav in the east. In the Little Rann of Kutch, the major Houbara areas are along the vegetated fringes and *bets*. The other areas include small pockets along the coasts of the Gulf of Kutch (Mandvi, Mundra) and the Gulf of Khambhat (Bhavnagar: Velavadar) and the coasts of Jamnagar, Porbandar and Veraval. However, the wintering of the Houbara in Gujarat is not systematically documented.

Protected Areas that secure the habitat of the Houbara Bustard in the Great Rann of Kutch include: Narayan Sarovar Sanctuary, Dayapar, Lala Great Indian Bustard Sanctuary and the Kutch Desert Wildlife Sanctuary.

Houbaras prefer open areas with tall to short grasslands, wastelands, *vidis*/*rakhals* (reserved and non-reserved grasslands), saline grasslands and grasslands interspersed with sparse to moderate dense bushes of *Prosopis juliflora, Salvadora persica, sueda species*. and the fringes of agricultural areas.

Winter Activity

An uncommon flock size of 8-14 individuals has been occasionally sighted in the Little Rann. The best sightings have been in the cool hours of morning (0630-0900 hrs) and evening (1630 to 1830 hrs). They were mostly sighted in close proximity to water (approximately 200-400 m). A bi-modal winter feeding pattern was observed in the Rann landscapes. Houbara are omnivorous, droppings when examined comprised of remnants of herbaceous material, fruits, reptiles and insects. Roosting and resting period of the species usually continues from mid-day till early evening.

Studies need to be conducted on wintering population, feeding habits, grouping behavior and habitat preference.

Threats

Construction of dam canals and lakes, changes in the land use patterns and other disturbances in the last three decades has led to the fragmentation of the landscape and shrinkage of the wintering habitat. Anthropogenic threats include conversion of fallow lands to agricultural landscapes, displacing grasslands and wastelands (for salt industries, bauxite mining or plantations), grazing, fuel wood collection and illegal hunting.

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The last stand of the Houbara.

Ecological Studies

Unfortunately, the Houbara unfortunately happens to be the least studied species in its wintering ground in India. Systematic monitoring in the Rann of Kutch and the grasslands along the coast of Gujarat needs to be conducted in order to understand the habitat of the Houbara in Gujarat and Rajasthan. Satellite transmitters need to be deployed to provide information on their migratory paths to summer range countries, winter range and local movements. Ecological studies need to be conducted on wintering individuals.

The Bustard Recovery Program initiated by the MoEF in collaboration with various conservation organizations accords a recovery plan to India's other bustard species. Ironically the trans-boundary Asian Houbara has been completely overlooked. There is urgency for a separate guideline titled, ‘ Securing and Managing the Winter Habitat of Houbara’ in India which needs to be included in the National Bustard Recovery Plan. India being a signatory to CMS and CITES, makes it all the more important to have the Houbara as part of the National Bustard Recovery Plan. Why can't the wintering Houbara be given its due conservation stand, equal to the status of the wintering Black-necked Crane?

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