ZSL
LET'S WORK FOR WILDLIFE

EDGE

EVOLUTIONARILLY DISTINCT & GLOBALLY ENDANGERED

# Survival Blueprint

## Bengal Florican, *Houbaropsis bengalensis*

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## 1. STATUS REVIEW

### 1.1 Taxonomy:

The Bengal Florican was first described by Gmelin in 1789 as *Otis bengalensis*. However, Baker (1929) termed it *Houbaropsis bengalensis* and thereafter BirdLife International (2001) and all subsequent conservationists termed it *Houbaropsis bengalensis*. It belongs to order Gruiformes and is classified into suborder Otides. There are 24 species of bustard in the family Otididae. It is the only representative of Genus *Houbaropsis.*

There are two recognised subspecies of Bengal Florican: *Houbaropsis bengalensis bengalensis* (Gmelin 1789) found in India & Nepal, and *H. b. blandini* (Delacour 1928) found in Cambodia.
The systematic classification of Bengal Florican is as follows:

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Gruiformes
Family: Otididae
Genus: *Houbaropsis*
Species: *bengalensis*
Subspecies: *bengalensis*

**Scientific Name**: *Houbaropsis bengalensis*
**Scientific synonyms**: *Otis bengalensis* by Gmelin in 1789
*Sypheotis bengalensis* by Blanford in 1898
*Eupodotis bengalensis* termed by Ali and Ripley (1969) and Sibley & Monroe (1990)
**Local Names**: *Charas*, *Charg* (Urdu, Hindi), *Ulu Moira* (Assamese), *Dao Triling* (Bodo), *Kher-menjur* (Tea Tribe), Dahar (Bengali)

### 1.2 Distribution and population status:

**IUCN Redlist category: Critically Endangered** A3bcd+4abcd

The Bengal Florican is distributed in the states of Uttar Pradesh, Assam and Arunachal Pradesh in India, in the terai of Nepal and in Bangladesh (possibly extinct). The population declined throughout its original range owing to large scale habitat loss. Jha et al (2018) suggested that the species should occur in some suitable habitats in Brahmaputra River in Assam. Another sub species of Bengal florican is distributed in Cambodia and in southern Vietnam.

The population status of the species remains unknown despite few studies. Population size is mostly recorded from protected area network and the information is lacking outside protected areas. Surveys in 2014-16 in Assam resulted in 79-81 adult male

floricans in four protected areas in Assam (A. Rahmani in litt. 2016). There are records of the bird in the river islands in Brahmaputra although the precise number is not known. In Arunachal Pradesh, It is estimated that 60-70 territorial males could be present in D'Ering Wildlife Sanctuary, making it one of the most important areas for floricans in India (A. Rahmani in litt. 2016). In Uttar Pradesh, India, the number declined to eight individuals only. In Nepal, the population varies 75-96 individuals (Baral et al. 2013). The population of Cambodia was estimated at between 312 and 550 based on surveys in 2012 (Packman et al. 2014).

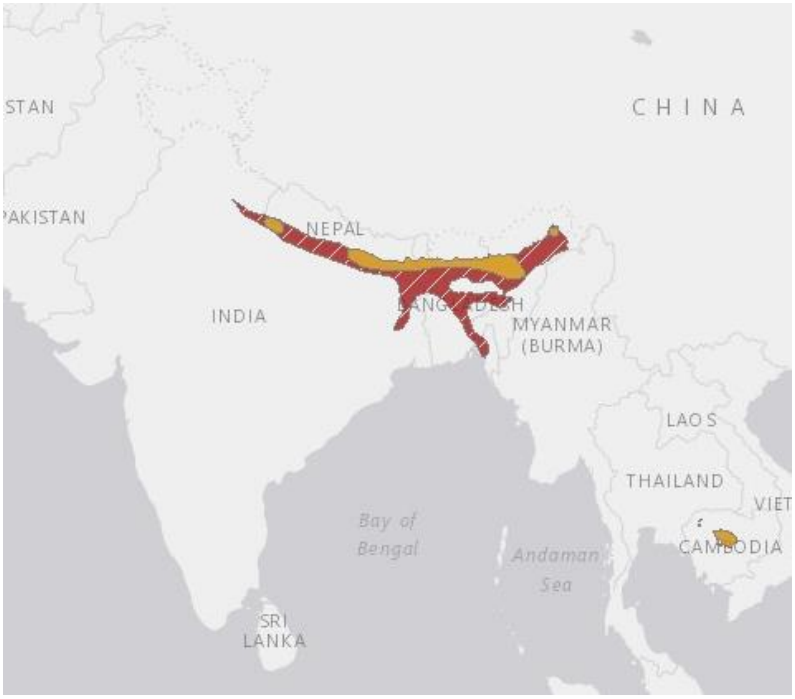


*Figure 1. Present (orange) and past (red) distribution of Bengal Florican (Birdlife International 2021)*

### 1.2.1 Global distribution:

| Country | Population estimate (plus references) | Distribution | Population trend (plus references) | Notes |
|---|---|---|---|---|
| India | 350-400 (Collar et al. 2017; Rahmani et al. 2016, 2017) | Terai and floodplain grasslands of Assam, Arunachal Pradesh & Uttar Pradesh. In India, the present distribution of the bird is mostly in protected areas and few non-protected Brahmaputra River *chaporis* (islands). In Assam, Manas National | Huge declines in the population in India (Narayan and Rosalind 1990a) particularly in Uttar Pradesh (Rahmani et al. 2017). Significant decline in South | During 2013–2017, survey recorded 137–140 territorial males and 18 females, with the adult territorial male population estimated to |

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| | | Park (NP), Kaziranga NP & Tiger Reserve (TR), Orang NP & TR, Dibru-Saikhowa NP; in Uttar Pradesh, Dudhwa NP & TR and Pilibhit Tiger Reserve; in Arunachal Pradesh, D'Ering Memorial Wildlife Sanctuary | Asia (India & Nepal) from 298–396 birds recorded in the period 1996–2007 to 179–182 in 2013–2017 (Collar et al. 2017). | be 174–198 in India (Rahmani et al. 2016, 2017) |
| Nepal | <100 adult birds (DNPWC 2016) | Shuklaphanta National Park, Bardia National Park, Chitwan National Park and Koshi Tappu Wildlife Reserve | Declining (Baral et al. 2020; Collar et al. 2017) | |
| Cambodia | 432 (Packman et al. 2014) | The subspecies *Houbaropsis bengalensis blandini* is now restricted to the Tonle Sap floodplain, in Cambodia (Collar et al. 2014). | The population declined by an estimated 44–64% between 2005– 2007 and 2012, when only 216 (95% CI 156–275) displaying males remained (Packman et al. 2014). | In preliminary survey in 2017 recorded just 135 displaying males (Collar et al. 2017) |

### 1.2.2 Local distribution within India:

| Region / province | Site | Level of Protection | Population size (Adult males only) | Reference(s) | Notes |
|---|---|---|---|---|---|
| Assam | Manas National Park | High; National Park, Tiger Reserve and Biosphere Reserve, World Heritage Site | 32 | Ghosh et al. 2014 | Including the population of Koklabari Agriculture Farm. |

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| Assam | Koklabari Agriculture Farm | Medium; Non-protected area | 15-20 | Ghosh et al. 2014, Chakdar et al. 2017pers. obs. | |
| Assam | Kaziranga National Park & Tiger Reserve | High; National Park, Tiger Reserve and World Heritage Site | 32 | Rahmani et al. 2014 | Recorded 25 males and indirect sightins 7 males (Rahmani et al. 2014) |
| Assam | Laokhowa & Burhachapori WLS | Low; Wildlife Sanctuary and Tiger Reserve | 5 | Rahmani et al. 2016 | Both the sanctuaries are now part of Kaziranga Tiger Reserve |
| Assam | Orang National Park | High; National Park and Tiger Reserve | 6-10 | Chakdar et al. 2019; Rahmani et al. 2017 | |
| Assam | Dibru-Saikhowa National Park | Low; National Park and Biosphere Reserve | 1 | Chakdar et al. 2020 | |
| Assam | Amarpur | Low; Non-protected area | 7-10 | Chakdar et al. 2017 | |
| Assam & Arunachal Pradesh | Sadiya and nearby river islands | Low; Non-protected area | 15-20 | Rahmani et al. 2017 | Seen two male birds and estimated 15-20 |
| Arunachal Pradesh | D'Ering Memorial Wildlife Sanctuary | Low; Wildlife Sanctuary | 50-60 | Rahmani et al. 2017 | Rahmani et al. (2017) estimated 50-60 Floricans in the Sanctuary based on 29 sightings of territorial male birds |
| Arunachal Pradesh | Nizamghat | Medium; Private land | 5-7 | Chakdar et al. 2017 | Four adult males and one female were recorded in 2014-2015 (Rahmani et al. 2017) |
| Uttar Pradesh | Dudhwa Tiger Reserve | High; National Park and | 4-7 | Rahmani et al. 2017; Chakdar et al 2017 | |

| | | | | | |
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| | | Tiger Reserve | | | |
| Uttar Pradesh | Pilibhit Tiger Reserve | Medium; National Park and Tiger Reserve | 2-5 | Rahmani et al. 2014; Chakdar et al. 2017 | |

**1.3 Protection status:**
CITES: Appendix I & II
India: Schedule I of the Indian Wildlife (Protection) Act 1972
Convention on Migratory Species: Appendix I (2020)
Nepal: Appendix I in National Parks and Wildlife Conservation Act 1973

Bengal Florican has been identified as one of the species for recovery programme under the Integrated Development of Wildlife Habitats (Centrally Sponsored Scheme) of the Ministry of Environment and Forests, Government of India, 2009.

**1.4 Ecology, behaviour and habitat requirements:**

Bengal Florican is a grassland indicator species. Bengal florican shows reverse sexual dimorphism and colour dichromatism (male and female are differently coloured). Bengal Florican is a medium sized cursorial bird of about 65 cm height. The males (64 cm) are slightly smaller than the females (68 cm). The adult breeding males have black head, neck, breast and underparts. Upperparts and tail buffy brown, heavily mottled and vermiculated with black arrowhead markings. Broad white panel on closed wing which is distinctly visible while flying. Breeding males also have elongated feathers on the head, neck, and breast. The adult female is rufous buff or sandy buff and mottled with black on the back (Narayan & Rosalind 1990). The immature males are like the females but with much paler wings.

Bengal Florican probably has equal sex ratio (Narayan & Rosalind 1990). However, according to Donald (2007), unbiased sex ration possibly not reliable because females are commonly less numerous in small declining populations. Female Bengal Floricans are elusive and cryptically coloured. Consequently, females were less frequently seen than the conspicuous territorial males. They are omnivorous and known to feed on various seeds, grain, tender shoots of grass and insects like grasshoppers, ants, beetles and even frogs and small snakes.

Bengal Florican is a polygynous and has a promiscuous mating system. During breeding season, an adult male establishes territory in suitable habitat having enough food resources. The male defends the territory from other males and attracts the females with two types of displays. A significant amount of time is spent in stand-display by the territorial male during morning and afternoon. During stand display, the male stand in short height grasses with erect neck for several minutes. At times it fluffs up the head, neck, and breast feathers when females are around. It also swings its fluffy head and neck in both directions, and down and upwards while walking. The

flight display usually takes place in the open patch of the male's territory. Display flight of the Bengal Florican was first properly described by Sankaran (1991) and Narayan (1992). Once the male is aroused, it fluffs up the head, neck and breast feathers. Just before taking the jump, it inflates the breast pouch even further, draws the head further back and lowers the body by bending the legs partly. The bird springs up diagonally forward at an angle of about 45º. A loud and rapid wing-flapping sound is heard while ascending and on reaching a peak of 3-4 m high, where the flapping stops and the wings are opened, displaying the glistening white wing feathers vividly against the jet-black body. It is then that it delivers its sharp, whistle-like '*chip-chip*' call. It glides down a metre or two, moving forward on open wings, with the pouch drooping under the breast and the head thrown back. Just 1-2 m above ground, it begins to flap its wings again and moves forward, gaining the lost height. On reaching the apogee, it stops flapping and floats down more or less vertically with partly open wings, drooping pouch, dangling and even paddling legs. During the display flight, it covers anything between 20-40 m grounds and takes 6-8.5 seconds from take-off to landing. It calls 4 to 7 times while in the air (Narayan 1990).

Bengal Florican does not make nest and eggs are laid simply on the ground among grasses. It lays one to two eggs in a clutch. The female raises it young alone without any help from male.

The breeding season of Bengal Florican is during February-June. Adult males are territorial in the breeding season, but a few males remain non-territorial, probably due to lack of suitable habitat. Up to six males may come together for a short period lasting several minutes, fighting for suitable habitat or chasing each other during breeding season. Two to three females are also seen in the same patch of grassland. It prefers open short grasses of height less than 50 cm for establishing territories, often within expanse of tall grass (1-2 m) and scattered bushes (Inskipp & Inskipp 1983, Narayan & Rosalind 1990). The grassland dominated by *Imperata cylindrica, Saccharum spontaneum* and *Vetiveria zizanioides* with or without scattered small trees are suitable for Bengal Florican (Narayan & Rosalind 1990). The bird prefers short grasslands for foraging and displaying but seek shelter in tall grass during the heat of the day, and females spend much of their time in the tall grass (Sankaran 1996).

**1.5 Threat analysis:**

| **Threat** | **Description of how this threat impacts the species** | **Intensity of threat** *(low, medium, high, critical or unknown)* | **IUCN Threat Category** |
|---|---|---|---|
| Habitat loss and modification | Habitat loss and degradation is one of the major threats to Bengal Florican in India. Due to conversion of floodplain and alluvial grasslands to agriculture, Bengal Florican survive mostly inside protected areas, which are 'small and isolated, making the populations | Critical | 5 Biological resource use > 5.3 Logging & wood harvesting > 5.3.5 Motivation Unknown/Unrecorded |

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| | susceptible to local extinctions' (Dutta et al. 2013). Spread of trees and invasive plant species are also causing degradation of habitats. Many remaining grasslands are subject to high grazing pressure from domestic livestock and intensive harvesting by local communities. Floods in Kaziranga National Park have washed away islands and waterlogged other areas, resulting in much suitable habitat overgrowing with tall grasses or becoming too sandy (Narayan and Rosalind 1990a). Similar situation has been noticed in D'Ering Memorial Wildlife Sanctuary where large patches of suitable grassland have been affected by flood. Bengal Florican has disappeared from many protected areas of India due to habitat loss and modification. Grasslands of conservation value are now mostly restricted to protected areas but continue to suffer degradation (Bell and Oliver 1992, Peet 1997), and grasslands are generally poorly represented in protected-area systems (Rahmani 1988). Remaining grasslands in India are reduced and fragmented, and the population of Bengal Florican is facing threat of local extinction. | | |
| Spread of trees & Invasive plant species | Spread of trees like *Bombax ceiba and Zizyphus Sp.* and invasive plant species viz., *Lantana camara, Chromolaena odorata, Mikania macrantha, Mimosa sp.* is one of the key threats prevalent across the Bengal Florican's range in India. High invasion of trees and invasive species has occurred in some of the known breeding sites in protected areas such as Manas NP & TR, D'Ering Memorial Wildlife Sanctuary, Dibru-Saikhowa NP and Orang NP & TR. | Critical | 8 Invasive & other problematic species, genes & diseases<br>8.1 Invasive non-native/alien species/diseases |
| Hunting | Hunting of Bengal Florican is another major threat to the species in northeast India. Opportunistic hunting of Bengal Florican in non-protected areas of | Critical | 5 Biological resource use |

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| | Assam and Arunachal Pradesh by local tribal people are often heard. | | 5.1 Hunting & collecting terrestrial animals<br>5.1.1 Intentional use (species being assessed is the target |
| Egg collection | Collection of eggs is also reported from non-protected areas viz., Amarpur and other chaporis. Though people know about the bird but unaware about legal protection status (Chakdar et al. 2017). | Critical | 5 Biological resource use<br>5.1 Hunting & collecting terrestrial animals<br>5.1.1 Intentional use (species being assessed is the target |
| Human Disturbance | Human disturbance is quite high in non-protected grasslands in Northeast India. The local communities are highly dependent on the grasslands for livelihood. Cattle grazing is one of the most common livelihoods for many villagers near Bengal Florican habitats. Human settlements are increasing on all the permanent river islands (*chaporis*) of the Brahmaputra River and its tributaries. With increase in livestock there is possibilities of eggs being destroyed. In some sites, heavy vehicles and tractors are used by local communities for timber collection and agriculture practices.<br>The impact of tourists and/or photographers reported to be potentially serious for Great Indian Bustard and Bengal Florican in protected areas (Dutta et al. 2013, Collar et al. 2015). | Medium | 2 Agriculture & aquaculture<br>2.3 Livestock farming & ranching<br>2.3.2 Small-holder grazing, ranching or farming<br><br>And<br><br>1 Residential & commercial development<br>1.3 Tourism & recreation areas |
| Collision with Power lines | Powerlines are proving to be a very serious threat to all Asian bustard species; bustards are particularly vulnerable to collisions with overhead cables due to their head structure, with eyes arranged for >300° vision (Martin & Shaw 2010, Mahood et al. 2018). It could be a serious problem for Bengal Florican in India if electricity infrastructure of | Low | 12 Other options<br>12.1 Other threat |

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| | power plants and transmission network expands in near future. As of now it is not a major problem for Bengal Florican in India. However, there are records of collision of some bird species with powerlines near Kaziranga National Park & Tiger Reserve. | | |
| Stray Dogs | Predation of eggs, chicks and nesting females by dogs is a potentially serious unquantified threat in all areas in Cambodia (SPM pers. obs. in Collar et al. 2017). Stray dogs are very common in most of the *chaporis* having human settlement. There are no records of Bengal Florican being killed or egg being depredated by stray dogs. But there are records of stray dogs killing other wildlife from the Bengal Florican habitats. So, there is a high possibility of Bengal Florican being killed or eggs being eaten by stray dogs during breeding season. | Unknown | 8 Invasive & other problematic species, genes & diseases<br>8.2 Problematic native species/diseases |
| Uncontrolled Fire | Indiscriminate and untimely dry season burning of grass every year by frontline staff is affecting the Bengal Florican. In some protected areas, late prescribed burning of grasses for grassland managements overlaps with breeding season of the bird. Repeated grass burning results in degradation of habitat quality and cover for the species. | Critical | 7 Natural system modifications<br>7.1 Fire & fire suppression<br>7.1.1 Increase in fire frequency/intensity |
| Climate Change | Shifting precipitation and thermal patterns might affect birds' habitats, ranges and migratory behaviour which will intensifying anthropogenic threats and thereby increasing extinction risks (Estrada et al. 2016). Deadly heat waves predicted in South Asia (Im et al. 2017). could affect the Bengal Florican population | Unknown | 11 Climate change & severe weather<br>11.3 Temperature extremes |

**1.6 Stakeholder analysis:**

| **Country** | **Stakeholder** | **Stakeholder's interest in the species' conservation** | **Current activities** | **Impact** *(positive, negative or both)* | **Intensity of impact** *(low, medium, high or critical)* |
|---|---|---|---|---|---|
| International | BirdLife International | Interested in conservation of the species | Fund raise and support to local partner organisations | Positive | High |
| India | State Forest Departments | Interested in management of grasslands, expanding protected area network and also raising awareness in fringe areas | Management of grasslands through controlled burning and removal of tree saplings like *Bombax ceiba,* expanding protected areas, sensitizing locals on conservation needs | Positive | Critical |
| India | Bombay Natural History Society | Interested in Research and conservation of Bengal Florican since 1980s. | Identification of grasslands for threatened grassland birds of the Brahmaputra Floodplain. Population monitoring in Northeast India. Awareness among local communities and capacity building of Forest staff. | Positive | Critical |
| India | Aaranyak | Research and conservation | Monitoring of Bengal Florican in Manas National Park and improvement of grasslands in some protected areas. | Positive | Critical |
| India | Local Communities | Livelihood opportunity | Collection of thatch for building house. Conversion of grassland to agriculture, livestock grazing in grasslands. Some are managing private grasslands for grazing and protection of the birds. Hunting and collection of eggs. | Both | Critical |

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| India | WWF-India | Research and conservation | Working in the same landscape for habitat management. | Positive | High |
| India | Corbett Foundation | Community Outreach | Working with communities in the same landscape | Positive | High |
| India | Bird guides | Livelihood through bird-based tourism | Bird watching in Bengal Florican habitats | Both | High |
| India | ZSL EDGE | Research and conservation in North East India | Research work on Bengal Florican in North East India | Positive | High |
| India | Wildlife Institute of India | Research and Conservation | Working in the same landscape for habitat management of other wildlife species | Positive | High |

**1.7 Context and background information that will affect the success of any conservation action for this species:**

| | Description | Barriers to conservation | Opportunities for conservation |
|---|---|---|---|
| **Socio-cultural effects and cultural attitudes** | The communities living in and around the Bengal Florican habitats are poor and depend on grasslands for cattle grazing. Their primary income source for livelihood is from rearing cattle. Hunting of wild animals for bush meat is common practice in tribal communities which inhabits near BF habitats in North-east India. However, Bengal Florican is not a target species for hunting. Collection of eggs and hunting of female florican for consumption were reported from few sites. The local cattle grazers are involved in such opportunistic hunting of Bengal Florican and egg collections. These non-protected grassland patches are mostly distributed in small *chaporis* (river islands). There is belief among Mishmi community of Arunachal Pradesh that killing any animals having three toes are bad. Due to lack of hind toe in Bengal Florican, this community consider the species one such animals. | Conversion of grassland to agriculture land, hunting, egg collection, overgrazing by livestock and collection of thatch by local communities in all of its range, are major barriers to conservation of the species. There is general lack of awareness on the conservation needs of the species. | There are possibilities of alternative livelihood opportunity for local communities on Bengal Florican centric eco-tourism in certain areas. This would significantly reduce the pressure on the existing habitat (grasslands)<br><br>The traditional belief about the bird among Mishmi community may be an opportunity for conservation. |
| **Economic implications** | Grassland area is decreasing due to increase in livestock population and changes in water regime. The cattle grazers and other villagers are converting grasslands into agriculture Field.<br>Bengal Florican is prime target for birdwatchers and local photographers. These activities disturb the bird in its habitat | Reduction in Suitable grasslands of Bengal Florican. Possibility of birds being disturbed by birding tourists. | The local people can be involved in monitoring and conservation of Bengal Florican. Youths can be trained for bird guide. |

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| **Existing conservation measures** | Some PAs are doing annual grassland management practices such as controlled burning, removal of trees viz., *Bombax ceiba.* Eradication of invasive plant species has been carried out in some PAs for grassland management.<br>Few private grasslands are also under some amount of protection from the owners | In some PAs, late controlled burning is done which could be detrimental for the bird. The present grassland management protocol is focused on large herbivores. Hunting and egg collections are still going on.<br>Lack of knowledge about non-breeding habitats and no conservation measures for Bengal Florican there. | Preparation and implement of Grassland Management Protocol for conservation of Bengal Florican habitats in protected areas |
| **Administrative/political set-up** | Communities settled near grasslands have been provided with several facilities by government. Several government schools have been established near Bengal Florican habitats for easy access to education for children. However, there is lack of income opportunities.<br>Present PAs are under the government forest department set up. Most PAs suffer from staff shortage and lack of logistics. Except few, most of the protected area managers give less priorities to the conservation of Bengal Florican and its habitats. | More settlements are coming up in grasslands as political parties are providing facilities in remote river islands also to be used as vote banks.<br>Plantations have been carried out in grasslands of some Bengal Florican sites. These results in degradation of grasslands. | Providing income opportunities to the villagers could motivate them to participate in conservation.<br>Providing logistic support to the frontline forest staff for monitoring and conservation of the bird.<br>Recruiting adequate forest staff in protected areas from the local communities could help. |
| **Local expertise and interest** | Communities and NGOs are acquainted about the local name of the species. But most of the people fail to identify the bird. However, people living near existing Bengal Florican sites know about the bird and its behaviour. Local bird watchers have very good | Local communities not aware about the legal protection status and importance of the bird. Except a few, most of the local | Capacity building training for frontline forest staff and awareness programme for local communities will raise interest for the species. Their |

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| | knowledge about the species. Some frontline forest staff know about the bird and its habitat preference. | people are not interested in conservation of this bird. | active participation in conservation of this species is very important. |
| **Resources** | There is lack of trained human resource to monitor the bird in the landscape during the short breeding season period. The PAs do not have enough resources to manage the grassland habitats and protection of Bengal Florican. Infrastructure and equipment are not adequate for monitoring of the bird in PAs during breeding period. | All the Bengal Florican sites are not accessible which results in lower protection. Less resources availability leads to degradation of habitat quality. | Availability of resources can help understand about the bird and its habitats. |

## 2. ACTION PROGRAMME

| **Vision (30-50 years)** | |
|---|---|
| Increase the population of Bengal Florican In India by 50% through restoration and management of its habitats | |
| **Goal(s) (5-10 years)** | |
| Improve Bengal Florican population and its habitat in India through research and conservation | |
| **Objectives** | **Prioritisation** *(low, medium, high or critical)* |
| **1. Population of Bengal Florican in existing sites increase** | Critical |
| **2. Habitat use and movement pattern of Bengal Florican during breeding and non-breeding period is known** | Critical |
| **3. Existing Bengal Florican habitats in protected and non-protected areas are well managed** | Critical |
| **4. Potential suitable habitats of Bengal Florican are well managed** | High |
| **5. Raised awareness on Bengal Florican conservation among stakeholders** | Critical |

| Activities | Country / region | Priority *(low, medium, high or critical)* | Associated costs (USD) | Time scale | Responsible stakeholders | Indicators | Risks | Activity type |
|---|---|---|---|---|---|---|---|---|
| ***Objective 1: Population of Bengal Florican in existing sites increase*** | | | | | | | | |
| 1.1 Population monitoring in known sites | India | Critical | 40000 | 2022-2027 | BNHS, Aaranyak, Forest Departments | Annual Survey Reports | Permission from state forest departments | Survey and Species management |
| 1.2 Initiate Captive breeding programme | India | Critical | 133000 | 2025-2032 | MOEF, State Forest Departments, BNHS | Breeding facility | Permission from state forest departments; Captive breeding not successful | Species management |
| 1.3 Strict control on Hunting and egg collections | India | Critical | 7000 | 2022-2027 | Forest Departments, local communities | Allocation of funds for enforcement and inclusion of BF protection in park management plan | Local communities do not want to help in conservation | Law Enforcement |
| 1.4 Control stray dogs in known Bengal Florican sites | India | High | 200 | 2022-2023 | Forest Department, local communities | Stray dog census and sterilization by Forest Department | | Species management |

| Activities | Country / region | Priority *(low, medium, high or critical)* | Associated costs (USD) | Time scale | Responsible stakeholders | Indicators | Risks | Activity type |
|---|---|---|---|---|---|---|---|---|
| ***Objective 2: Habitat use and movement pattern of Bengal Florican in Northeast India during breeding and non-breeding period is known*** | | | | | | | | |
| 2.1 GSM/GPS tagging of Bengal Floricans | India/Assam & Arunachal Pradesh | Critical | 40000 | 2023-2027 | MoEF, State Forest Departments, BNHS | Final Report; X Number of birds tagged. | Permission from MoEF & state forest departments | Improving Knowledge about the species |
| 2.2 Habitat assessment in breeding and non-breeding season | India/Assam & Arunachal Pradesh | Critical | 3000 | | BNHS, Aaranyak | Habitat Assessment Report; number of sites visited and assessed | All sites are not accessible | Improving knowledge about the habitats |
| 2.3 Mapping of existing Bengal Florican territories | India | Critical | 1000 | 2022-2027 | BNHS, Protected Area managers | GIS Map | Change in territories due to habitat loss | Improving knowledge about the habitats |
| 2.4 Study Insect abundance in Bengal Florican presence and absence sites during breeding & non-breeding season | India/Assam & Arunachal Pradesh | High | 1000 | 2023-2027 | BNHS & Other NGOs, Researchers | Final Report : number of sites visited and assessed | All sites are not accessible | Research |
| 2.5 Identification and protection of non-breeding sites | India/Assam & Arunachal Pradesh | Critical | 7000 | 2022-2027 | BNHS, Forest Departments, Administration, Communities | GIS Map | Community not interested in protection activities | Species management |

| Activities | Country / region | Priority *(low, medium, high or critical)* | Associated costs (USD) | Time scale | Responsible stakeholders | Indicators | Risks | Activity type |
|---|---|---|---|---|---|---|---|---|
| ***Objective 3: Existing Bengal Florican habitats in protected and non-protected areas are well managed*** | | | | | | | | |
| 3.1 Prepare Bengal Florican habitat management protocol for PAs | India | Critical | 1500 | 2022 | BNHS & State Forest Departments | Habitat Management Protocol | Present Grassland management protocol is focused on large mammals. Lack of interests in managing Bengal Florican habitats. | Policy making |
| 3.2 Protect grasslands outside PAs by creating Community Conserved Areas | India | Critical | 40000 | 2022-2027 | BNHS, Local NGOs & Communities | PBR Document, delineation of CCA | No interest among communities | Habitat Management |
| 3.3 Involve local youths in monitoring and conservation of Bengal Florican | India | Medium | 7000 | 2022-2027 | BNHS, local NGOs & Communities | 'X' number of youths trained | Youths involved in hunting of the bird | Species Monitoring |
| 3.4 Eradication of Invasive plant species | India | Critical | 40000 | 2022-2027 | NGOs, PA Managers | 'X' ha of habitat restored | Lack of interest from funding agencies | Habitat Management |
| 3.5 Intensive patrolling along PA boundary | India | High | | 2022-2027 | Forest staff & PA managers | Staff monitoring report | Frontline staff were given other duties | Habitat Management |

| Activities | Country / region | Priority *(low, medium, high or critical)* | Associated costs (USD) | Time scale | Responsible stakeholders | Indicators | Risks | Activity type |
|---|---|---|---|---|---|---|---|---|
| 3.6 Control burning of grassland in PAs before commencement of breeding season | India | Critical | 7000 | 2022-2027 | Frontline Forest Staff & PA Managers | X ha of habitat managed | Improper implementation | Habitat Management |
| 3.7 Stop livestock overgrazing and thatch collection | India | High | 7000 | 2022-2027 | PA Managers, Frontline Forest staff, communities | Habitat Management Report | Community did not participate | Habitat Management |
| 3.8 Fencing of grasslands where required | India | Medium | 3000 | 2023-2024 | PA Managers & communities | X ha of habitat fenced | Fencing destroyed by large animals | Habitat Management |
| 3.9 Stop use of insecticides/pesticides in Bengal Florican habitat | India | Medium | 200 | 2022-2027 | Communities | Market survey of pesticide/insecticide availability in the area | Communities keep using pesticide/insecticide | Habitat Management |
| ***Objective 4: Potential suitable habitats of Bengal Florican are well managed*** | | | | | | | | |
| 4.1 Identification and mapping of potential suitable habitats | India | High | 1000 | 2022-2023 | BNHS | Identified X ha of suitable area using RS and GIS | | |
| 4.2 Identification and management of grassland corridors in the Brahmaputra | India (Assam & Arunachal Pradesh) | High | 40000 | 2022-2027 | BNHS, Local Administration, Forest Departments | Identified X ha of corridor area using RS and GIS | Lack of interest from concerned administration on protection of corridors | Habitat Management |

| Activities | Country / region | Priority *(low, medium, high or critical)* | Associated costs (USD) | Time scale | Responsible stakeholders | Indicators | Risks | Activity type |
|---|---|---|---|---|---|---|---|---|
| Floodplains for movement of Bengal Florican | | | | | & Communities | | | |
| 4.3 Reduce anthropogenic activities in the grasslands | India | Medium | | 2022-2027 | BNHS, Local Administration, Forest Departments & Communities | X ha of area is under CCA | Communities not interested | Habitat management |
| ***Objective 5: Raised awareness on Bengal Florican conservation among stakeholders*** | | | | | | | | |
| 5.1 Capacity building of Frontline Forest staff for monitoring and conservation | India | Critical | 4000 | 2022-2023 | BNHS, Forest Departments & Forest staff | Event Report + X Number of participants | Transfer of Trained Forest Staff to other Pas | Awareness Training |
| 5.2 Awareness programme among stakeholders | India | High | 14000 | 2022-2025 | BNHS, Local NGOs, Communities | Event Report + X Number of participants | No response from community | Education and Awareness |
| 5.3 Network of bird watchers for record and monitoring of Bengal Florican | India | High | 400 | 2022-2027 | BNHS, Local NGOs, bird watchers | Final Report + X Number bird watchers and volunteers enrolled in scheme | No response from bird watchers and volunteers | Education and Awareness |
| 5.4 Celebration of Bengal Florican Day | India, Nepal & Cambodia | Medium | 7000 | 2022-2027 | All stakeholders | News Reporting | | Education and Awareness |

| **Activities** | **Country / region** | **Priority** *(low, medium, high or critical)* | **Associated costs (USD)** | **Time scale** | **Responsible stakeholders** | **Indicators** | **Risks** | **Activity type** |
|---|---|---|---|---|---|---|---|---|
| 5.5 Publish Education materials in local languages | India | Medium | 600 | 2022-2027 | BNHS, Local NGOs, Communities | Published Documents | | Education and Awareness |
| 5.6 Promote sustainable eco-tourism near Bengal Florican sites | India | High | 20000 | 2022-2027 | Bird guides, Communities, Forest Departments, NGOs | Number of tourists visits | Disturbance to the birds from tourists and photographers | Livelihood Promotion |

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