

# Survival Blueprint

## Bengal Florican, *Houbaropsis bengalensis*



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## 1. STATUS REVIEW

### 1.1 Taxonomy:

Animalia >Chordata > Aves > Gruiformes > Otididae > *Houbaropsis* > *bengalensis*

It was first described by Gmelin in 1789 as *Otis bengalensis*. Blanford termed it *Sypheotis bengalensis* (1898), while Baker in his Fauna volumes (1929) termed it *Houbaropsis bengalensis*. Ali and Ripley (1969) and Sibley and Monroe (1990) had termed it *Eupodotis bengalensis* but BirdLife International (2001) and all subsequent workers call it *Houbaropsis bengalensis*. There are two subspecies, *H.b. bengalensis* and *H. b. blandini* (Delacour 1928).

English: Bengal Florican

Nepali: Khar Mujur

### 1.2 Distribution and population status:

#### 1.2.1 Global distribution:

Country	Population estimate (plus references)	Distribution	Population trend (plus references)	Notes
Nepal	49 (DNPWC 2016, BCN 2014 and 2015)	Three isolated populations from Terai of Nepal from Shukalaphanta National Park (ShuNP) in the west to Koshi Tappu Wildlife Reserve (KTWR) in East.	Declined has been observed (Inskipp and Inskipp 1983, Poudyal <i>et al.</i> 2008, BCN 2014 and 2015. Baral <i>et al.</i> 2012, 2013 and BCN 2014 and 2015).	Nominate Subspecies <i>H. b. bengalensis</i> distributed in southern Nepal and northern India along the foothills of the Himalayas,
India	179 (Ghosh <i>et al.</i> 2014 And Rahmani 2016 and 2017)	Distributed in 16 locations from, D'Ering Memorial Wildlife Sanctuary in the east to Pilibhit Tiger Reserve west along northern India	Decline has been observed (Ghosh <i>et al.</i> 2014 And Rahmani 2016 and 2017)	and the Brahmaputra Plain in northeastern India.
Cambodia	139 (Packman <i>et al.</i> 2014 and WCS unpublished data)	Distributed in 12 locations of Tonle sap flood plain	Decline has observed (Packman <i>et al.</i> 2014 and WCS unpublished data)	Sub species <i>H.b. blandini</i> is distributed in Tonle Sap flood plain in Cambodia.



## 1.2.2 Local distribution:

***This Survival Blueprint from here onward deals with the Nepalese population only.***

Country	Region / province	Site	Level of Protection	Population size	Reference(s)	Notes
Nepal	Eastern/1	Koshi Tappu Wildlife Reserve (KTWR) and surrounding area	KTWR protected and surrounding unprotected area	35	DNPWC 2016, 2014 and 2015 BCN and	This is a breeding site, this population also relies on non-breeding sites that are unprotected
Nepal	Central/3	Chitwan National Park (CNP)	protected	6	DNPWC 2016, 2014 and 2015 BCN and	Non-breeding sites unprotected
Nepal	Western/5	Bardia National park (BNP)	protected	No record since 2007	DNPWC 2016, 2014 and 2015 BCN and	
Nepal	Far-western/7	Shuklaphanta National Park	protected	8	DNPWC 2016, 2014 and 2015 BCN and	Non-breeding sites unprotected

### 1.3 Protection status:

Protected by National Parks and Wildlife Conservation Act 1973  
 IUCN RedList category: Critically Endangered, Criteria: A3bcd+4abcd  
 National RedList category: Critically Endangered, Criteria: A2ac, C2a(i)  
 CITES: Appendix I

### 1.4 Habitat and resource assessment:

The Bengal Florican is a grassland specialist bird that favours relatively open short grass dry grassland with scattered bushes. During the breeding season, short grassland appears to be favoured for foraging and displaying but the males seek shelter in tall grass and females spend much time in the tall grass for breeding (Inskipp & Inskipp 1983, Narayan & Rosalind 1990 and Baral et al 2003). During the non-breeding season, both males and females move to short grassland and farmlands (BCN 2014, 2015 and DNPWC 2016). The species is omnivorous and feeds on fruits, shoots and flowers, and insects and even frogs and small reptiles (Ali and Ripley 1987 and Choudhury 2000).

### 1.5 Biology and ecology:

The Bengal Florican is ground dwelling defenceless grassland bustard. This bird is solitary but some time males feed and fly together for a short time. During breeding season the male becomes territorial performs a jumping aerial display in recently burnt grassland. Females lay 1-2 eggs on ground in tall grass. After the breeding season (late March-July) when the grass grows too tall and dense, the bird leaves the breeding grassland, travel up to 80km and spend the non-breeding season in relatively short, scattered and highly grazed grassland among the farmlands near low density settlements (Jha et al. 2016). However, the reasons behind the seasonal movement still need to be investigated. The Bengal Florican





has significantly larger non-breeding season home range, 5.62 km<sup>2</sup>, than the breeding season home ranges, 2.86 km<sup>2</sup> (Jha et al. 2016).

## 1.6 Threat analysis:

### Grassland Habitat Loss, Degradation

The key threat to the species is grassland loss and modification throughout its range (BirdLife International 2001). The grassland ecosystem is one of the most threatened ecosystems in the Indian Subcontinent (Grimmett *et al.* 1998). In Nepal, after the eradication of malaria there was a great loss in grassland area as a result of increased human population and agricultural expansion (Peet 1997) and the trend of migration from hilly areas is still increasing. The grassland is a relatively young and vulnerable ecosystem but shelters many threatened species, however grasslands are often regarded as waste/open land among the local and government authorities encouraging them to expand the plantation and encroachment for land conversion.

Nowadays most known and occupied grassland patches are small, isolated and restricted to inside protected areas so that populations of this species are highly susceptible to local extinction. Even inside the protected areas (PAs) short grasslands are either converted to tall grasslands and scrub by succession or by inappropriate management. Encroachment of bushes and construction of fire lines intersecting known grasslands are causing habitat loss. Grasslands outside the PA system, mostly along river banks, are poorly identified and managed. Known non-breeding grassland are mostly private lands and unregistered land so those are susceptible to conversion.

High survival rate of tagged birds indicates the low breeding success at breeding grasslands.

### Overgrazing and Disturbance

Disturbance from people and cattle grazing during the breeding season is a serious threat. Among the known breeding sites in Nepal, KTWR receives the highest pressure from cattle and local peoples' interventions (Baral *et al.* 2013).

People enter the breeding grasslands in the early morning and late afternoon to collect cattle dung and grass, this timing corresponds with peak activity for Bengal Florican breeding behaviours. . Tourism activities such as flushing the bird during birdwatching disturbs the birds and could further reduce breeding success.

This human activity also leads to untimely, accidental and repeated fire events. Further location of fire lines near the display ground and movement of vehicles prevents the Bengal Florican for foraging and breeding. Non-breeding areas are also highly disturbed and heavily grazed among the farmlands.

### Genetic Depression

Recent satellite studies suggest the Bengal Florican shows high site fidelity for their breeding and non-breeding sites. There is mixture of two populations (e.g. Pilibhit population and ShuNP population) during non-breeding season but during the breeding season they move to their respective breeding sites. The low breeding success rate is already causing population decline and the small and isolated populations may be facing genetic depression.

### Power line collision

Power line collision is a common threat for all bustards those fly at the height of high tension line and other power supply line. At CNP and ShuNP there is network of power supply lines in non-breeding areas and at KTWR there are power supply lines in both breeding and non-breeding areas.



## Invasive Alien Species and Natural Predators

Degradation of grassland by the neotropical climbing vine *Mikania micrantha* is another serious problem at KTWR and CNP as it grows quickly and covers other plants, causing habitat degradation.

Unusual increases in the number of predators like Asiatic Golden Jackal, Indian Grey Mongoose and feral dogs are other potential threats at KTWR (Baral *et al.* 2013).

### 1.7 Stakeholder analysis:

Country	Stakeholder	Interest	Current activities	Impact (positive, negative or both)	Intensity of impact (low, medium, high or critical)	Proposed activities
Nepal	Department of National parks and Wildlife Conservation (DNPWC)	Government authority for wildlife research, conservation and PAs management	Leading the conservation work coordinating with other stakeholders	+	Critical	Endorsed Bengal Florican Conservation Action Plan for Nepal
Nepal	Department of Forest	Government authority for habitat management outside the PAs	Species conservation is a medium priority for them	+	Critical	
Nepal	Municipalities	...		+	Critical	
Nepal	Bird Conservation Nepal (BCN)	Research and conservation	Leading field research and conservation	+	Critical	Implement the plans of action plan
Nepal	National Trust for Nature Conservation	Research and conservation	Birds in low priority but works on grassland	+	Medium	
Nepal	Local NGOs (4)	conservation	Supporting BCN and DNPWC to implement the conservation work at local level	+	Medium	
Regional	Bombay Natural History Society (BNHS), India	Research and conservation	Leading conservation work in India near to Nepalese population	+	Medium	Conducted join project on Bengal Florican
International	WWF Nepal	Conservation /donor	Bird not in priority but working on grassland management	+	Medium	Supporting DNPWC and Pas for habitat management for mega fauna.



International	ZSL Nepal	Research/ Conservation / Donor		+	Medium	Bengal Florican EDGE species, grassland management work
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**1.8 Context and background information that will affect the success of any conservation action for this species:**

	Description	Threats	Opportunities
<b>Socio-cultural effects</b>	Grassland is an important natural resource for local indigenous people for thatch grass and fodder for cattle.	The grassland outside the PAs are heavily degraded and not sufficient for the florican. Only some PAs allow grass cutting to provide the short grass the males need to display.	Raise awareness about the importance of grassland and work with local people to manage and conserve the grassland outside the PAs particularly in known non-breeding areas.
<b>Economic implications</b>	Due to loss of grassland local peoples have to switch profession. Traditional houses are converting to concrete houses.  Bengal Florican is important bird for birdwatchers.	Risk of negligence for grassland among the local peoples. High pressure on Bengal Florican from birdwatchers.	Raise awareness about the importance of Bengal Florican grasslands and work with local people to conserve the species and habitat, using improvements to the local economy and increases to government revenue from tourism.
<b>Existing conservation measures</b>	Conservation Action Plan has guided the priority work.  This species is protected by law.  Detailed study has been carried out to understand the ecology of the species.  Developing grassland	There are very few existing conservation measures in the non-breeding sites.	The existing knowledge and work should help secure funding to implement the action plan and protocol.



	<p>management protocol is in progress.</p> <p>DNPWC is allocating small amount of budget to manage the grassland.</p>		
<b>Administrative/political set-up</b>	<p>DNPWC is the authority for species conservation in Nepal but the habitat management outside the PAs comes under the jurisdiction of DOF. According to new federal system local government (municipalities) have been given more power to prioritise the different works and they want more developmental projects.</p>	<p>Habitat outside the PAs may face more degradation from municipality level.</p>	
<b>Local expertise and interest</b>	<p>Local NGOs and birdwatchers have good knowledge about the species presence. However due to its secretive nature during non-breeding season, the general public have low level of awareness.</p>	<p>Low level of awareness means a higher risk of habitat degradation at non breeding sites.</p>	<p>Enhance capacity of local NGOs and local youths to implement the conservation work generating citizen scientists and more engagement inside and outside PAs</p>
<b>Appeal of species</b>	<p>One of the rarest and Critically Endangered bustard, found in few protected areas. Closely associated with human for their livelihood (for grass). The habitat used by the species can be ideal habitat for other mega</p>		<p>Can be used as indicator species to conserve other several threatened fauna such as Rhino, Tiger, Swamp Deer, Hispid Hare etc.</p>



	fauna also.		
<b>Resources</b>	The PAs do not have projects and enough budget to implement the plans of action while increasing the management effectiveness and capacity of front line staff.	Low level of priority and capacity is causing the degradation of habitat resulting low breeding success of Bengal Florican.	

## 2. ACTION PROGRAMME

<b>Vision (30-50 years)</b>	
National status of the Bengal Florican is improved by maintaining a healthy and viable population through increasing the area of high quality habitat, improved understanding of its ecology and reduced threats.	
<b>Goal(s) (5-10 years)</b>	
Assess the status of Bengal Florican and ensure the breeding and non-breeding habitats are safe.	
<b>Objectives</b>	<b>Prioritisation</b> <i>(low, medium, high or critical)</i>
Science based knowledge of Bengal Florican is increased.	<b>Critical</b>
Traditional breeding and non-breeding sites and habitats are restored and managed.	<b>Critical</b>
Increased awareness of Bengal Florican conservation among all key stakeholders	<b>Critical</b>
Partnership among national and international organizations established and maintained.	<b>Medium</b>
Feasibility assessment of ex-situ conservation of Bengal Florican conducted and implemented	<b>Medium</b>





Activities	Country / region	Priority ( <i>low, medium, high or critical</i> )	Associated Cost	Time scale	Responsible stakeholders	Indicators	Opportunities and threats	Activity type
<b>1. Science based knowledge on Bengal Florican is increased</b>								
1.1 Conduct the grassland monitoring research in all known breeding sites	Nepal	critical	20,000	2018-22	PAs	Monitoring reports	Knowledge on grassland ecology understood/trained staff involved	Improving Knowledge
1.2 Train PA staff and local communities on monitoring	Nepal	high	2,600	2018-22	PAs, BCN	Successful monitoring by trained staffs	Capacity enhancement/transfer of trained staffs	Capacity building
1.3 Conduct annual survey of Bengal Florican	Nepal	high	33,000	2018-28	DNPWC, PAs, BCN,	Survey reports	Status of Bengal Florican known	Species management
1.4 Conduct study on grazing pressure on Bengal Florican habitat.	Nepal	high	6,000	2018-21	PAs, BCN	Survey reports	Research area widened	Improving Knowledge



1.5 Conduct genetic study on three national populations.	Nepal/Regional	critical	3,333	2019-21	DNPWC, BCN	Report	Status of Bengal Florican known/ sample collection may be difficult	Improving Knowledge
1.6 Establish the display sites at KTWR	Nepal	high	6,600	2019-21	PAs, BCN	Survey map of display sites	Priority area for conservation identified/all Bengal Florican display	Improving Knowledge
1.7 Investigate the characteristics that define chosen display grounds	Nepal	high	3,333	2019-22	PAs, BCN	Report	Priority area for conservation identified	Improving Knowledge
1.8 Establish and maintain the centralized database management system.	Nepal	medium	3,333	2018-28	DNPWC	Effective database system is in place	Availability of data/data management is in place	Improving Knowledge



2. Traditional breeding and non-breeding sites and habitats are restored and managed.								
2.1 Develop appropriate protocols for grassland management within PAs and outside PAs.	Nepal	critical	2,660	2018	DNPWC, DOF	Protocol	Grassland management is in place	Law and policy
2.2 Update PAs management plans and District Forest management plans to include grassland management protocols.	Nepal	critical	5,333	2019-21	DNPWC, PAs	PAs and Community Forest management plans	Grassland habitat is well managed	Law and policy
2.3 Implement the grassland management protocols in nonbreeding as well as breeding habitat.	Nepal	critical	133,333	2018-28	DNPWC, DOF	Report and increasing area of grassland	Area of suitable habitat is increased/budget is secured	Land/water management



2.4 Purchase private known breeding grassland and create grassland corridors to connect existing isolated grassland sites.	Nepal	high	200,000	2021-23		Maps showing new corridors and connectivity on a large scale	Potential habitat is secured/funding is secured	Land/water Protection
2.5 Conduct community awareness campaigns and develop community stewardship for Bengal Florican conservation.	Nepal	high	26,667	2018-28	BCN, Municipalities, Local NGOs	Event reports	Communities positive toward the Bengal Florican/	Education and Awareness
2.6 Update information on previously known, current and potential grassland habitat.	Nepal	high	8,000	2019-20	DNPWC, Pas	Survey reports		Improving Knowledge
2.7 Manage habitat in previously known sites for Bengal Florican.	Nepal	high	66,666	2020-23	DNPWC, Pas	Restored habitat map and Bengal Florican record		Land/water management





2.8 Identify and map the non-breeding areas.	Nepal	critical	8,000	2018-19	DNPWC, BCN	Report with map		Improving Knowledge
2.9 Monitor the changes in land use and agricultural practices and infrastructure (eg roads, powerlines).	Nepal	medium	13,333	2019-22	BCN, Municipalities	Report with map	land use practices are understood	Improving Knowledge
2.10 Encourage local community to protect non-breeding habitat at northern part of KTWR and eastern part of SWR and collaborate with DOF for the possibility of establishing community managed grassland in these areas.	Nepal	critical	26,667	2019-28	DNPWC, BCN, Municipalities, Local NGOs	Bengal Florican number increased due to suitable habitat	/Local communities are supportive	land/water management



2.11 Encourage and support local communities to manage and expand the grassland at ?.	Nepal	critical	66,667	2018-28	DOF, Municipalities, BCN	Increased area of suitable habitat	/Local communities are supportive	Land/water management
2.12 Identify the impact of grazing and make the local communities aware.	Nepal	high	3,333	2019-21	PAs, BCN	Report		Improving Knowledge
<b>3. Bengal Florican conservation awareness among all key stakeholders increased.</b>								
3.1 Conduct capacity enhancement workshops/trainings for the PAs and DFO staff.	Nepal	high	6,660	2018-25	PAs, BCN, DOF	Training report	Capacity is enhanced	Capacity building
3.2 Produce and disseminate Bengal Florican conservation promotional materials.	Nepal	medium	33,333	2018-28	BCN, Pas, Local NGOs	Printed educational materials		Education & awareness
3.3 Conduct conservation campaign for local communities, tourist guides and lodge owners.	Nepal	high	26,667	2018-28	Pas, BCN, Local NGOs	Campaign report		Education & awareness



3.2 Conduct special awareness campaigns to control the disturbance during breeding season	Nepal	high	3,333	2018-22	BCN	campaign report		Education & awareness
3.3 Sensitize local community regarding Bengal Florican tourism.	Nepal	medium	27,000	2018-28	PAs	Report		Education & awareness
3.4 Incorporate Bengal Florican conservation issues in Tourism guide training.	Nepal	medium	4,000	2018-22	Pas	Updated curriculum	Enhanced knowledge of guides/	Education & awareness
3.4 Promote home stay tourism in bufferzones.	Nepal	medium	21,000	2019-25	PAs, BCN	Homes stay established and tourism increased	National tourism increased/	Livelihood, Economics & other Incentive
3.5 Establish and support community based Bengal Florican monitoring program.	Nepal	high	10,000	2018-21	Pas	Community involved in monitoring	Local capacity enhanced/they continue to work	Capacity building



3.6 Explore and implement livelihood enhancement programs including the potential for suitably managed tourism.	Nepal	high	66,000	2018-25	PAs, BCN	Livelihood enhanced and less pressure on Begal Florican habitat	Livelihood of locals' enhanced/Projects are designed in line with Bengal Florican need	Livelihood, Economics & other Incentive
3.7 Reduce and monitor the use of pesticides in farmland in non-breeding areas	Nepal	high	13,333	2018-28	PAs, Local NGOs	Buying selling on pesticides	/smuggling of pesticides	Education & awareness





4. Partnership among national and international organizations established and maintained								
4.1 Ensure the conservation needs of Bengal Florican in existing annual PA trans-boundary meetings.	Regional	High	10,000	2018-28	PAs	Meeting attained by appropriated PAs staffs		Capacity building
4.2 Continue co-operation over research and conservation work e.g. genetic study and ex-situ conservation with all relevant organizations.	Regional	Medium	-	2018-28	DNPWC		/National policies are positive	Capacity building
4.3 Establish national and international Bengal Florican working groups to bring together all key stakeholders.	Regional	Medium	6,700	2018-28	DNPWC	Groups are regularly meeting	Coordination committee continue to guide the conservation work/stakeholders prioritise the species	



5. Feasibility of ex-situ conservation of Bengal Florican conducted and implemented								
5.1 Assess the success of conservation breeding program of similar Bustards	Regional	Medium	9,333	2021-22	DNPWC	Visit reports		Improving Knowledge
5.2 Experiment with a pair of Bengal Florican in Zoos	Nepal	Medium	6,600	2021-22	DNPWC	Bengal Florican kept and it survival	/Bengal Florican adapt in new environment	Improving Knowledge
5.3 Establish success of egg rearing in an Incubator	Nepal/Regional	Low	3,333	2022-23	DNPWC	Success or failure	/National capacity is in place or permit to export eggs	Improving Knowledge
5.4 If 1.3 suggest the continuous decline and 5.1, 5.2 and 5.5 add confidence start captive breeding program	Nepal	Low	333,333	2023-28	DNPWC	Establishment of breeding center	Secure the survival of Bengal Florican in Nepal/Breeding program is successful	Species management
TOTAL COST			1,227,333					

