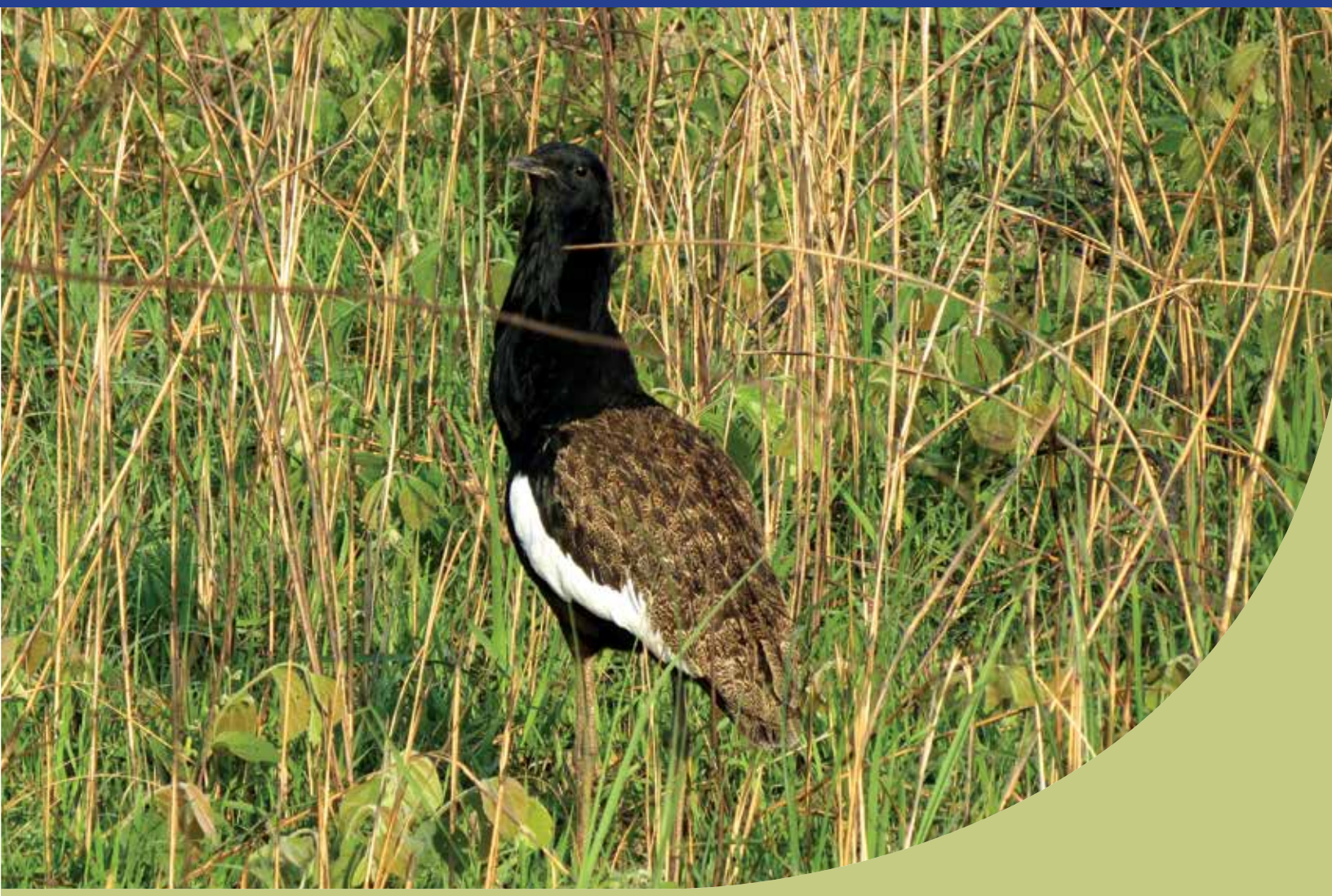
BENGAL FLORICAN CONSERVATION ACTION PLAN

2016-2020



Government of Nepal
Ministry of Forests and Soil Conservation
Department of National Parks and Wildlife Conservation

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Citation
DNPWC (2016) Bengal Florican Conservation Action Plan, Department of National Parks and Wildlife Conservation, Kathmandu, Nepal.

Cover Photo: Bengal Florican, Male © Bed Bahadur Khadka

Government of Nepal
Ministry of Forest & Soil Conservation
Department of National Parks & Wildlife Conservation
2037

Foreword

Nepal is rich in both faunal and floral biodiversity despites its small size and terrain geography. The richness of bird species is much higher than other species as the record shows more than 878 bird species inhabits in Nepal from tropical and sub-tropical ecosystem to high mountain ecosystem of Himalayan Region. The Government of Nepal has established 20 protected areas in order to conserve the wild species of fauna and flora including bird species across the country. Many conservation partners including local communities have been given their best efforts to conserve the bird species along with the government policy and programs. However, the population of all bird species is not equal or different by species and some of the bird species are at the position of extinction, and some others are in critically endangered conditions.

The Bengal Florican listed in Critically Endangered by the IUCN and is one of the nine protected birds listed under NPWC Act 1973 in Nepal. Historically, it was occurred throughout the terai grasslands from Koshi Tappu Wildlife Reserve to Shuklaphanta Wildlife Reserve which is one of the most important ecosystems in the Indian Subcontinent. Grassland habitat has largely been reduced due to conversion to agriculture land, expansion of human settlements and its degradation. Moreover, unsuitable management leading to succession to scrub and forest has also affected the grassland habitat. Consequently, the current distribution of Bengal Florican is exclusively restricted in and around a few protected areas. Further, its post breeding season movements away from protected areas into degraded grassland and farmland leaves them vulnerable to further threats reducing their chances of survival. Therefore, it is highly essential to develop an action plan of Bengal Florican and implement the conservation activities.

The Bengal Florican Conservation Action Plan for Nepal (2016-2020) is based on the findings of recent scientific studies jointly carried out by the Department of National Parks and Wildlife Conservation (DNPWC) and Bird Conservation Nepal (BCN). It mainly addresses the conservation issues and actions necessary across its range to conserve this particular species. It is a part of the timely effort of the DNPWC to consolidate the conservation initiatives for Bengal Florican and associated grassland habitat. Although, Nepal's protected areas are well designed to conserve diverse ecosystems and endangered species in the low land of Nepal, the presence of Bengal Florican outside protected areas means there is a need for cooperation among the different government bodies and local communities. This action plan provides the context and impetus for effective conservation to help bring back this majestic species from the edge of extinction.

The DNPWC greatly acknowledges the contribution of Bird Conservation Nepal (BCN) for providing financial and technical support to develop this action plan. Therefore, I kindly requests to all government agencies, conservation partners, donors and local communities to implement this action plan as stipulated and save this species in the wild not to give a single room to extinct the species from the nature.

Krishna Prasad Acharya
Director General

Acronyms and Abbreviations

AFU	Agriculture and Forestry University
BCN	Bird Conservation Nepal
BFCAP	Bengal Florican Conservation Action Plan
BNP	Bardia National Park
BS	Bikram Sambat
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNP	Chitwan National Park
DDC	District Development Committee
DFO	District Forest Office
DNPWC	Department of National Parks and Wildlife Conservation
DoF	Department of Forests
EDGE	Evolutionary Distinct Globally Endangered
GIS	Geographical Information System
IOF	Institute of Forestry
IUCN	International Union for Conservation of Nature
KTWR	Koshi Tappu Wildlife Reserve
KU	Kathmandu University
MoFSC	Ministry of Forests and Soil Conservation
NGO	Non-Governmental Organisation
NHM	Natural History Museum
NPWC	National Parks and Wildlife Conservation
NTNC	National Trust for Nature Conservation
PA	Protected Area
RSPB	Royal Society for the Protection of Birds
SWR	Shuklaphanta Wildlife Reserve
TAL	Terai Arc Landscape
VDC	Village Development Committee
WWF	World Wildlife Fund
ZSL	Zoological Society of London

Contents

Executive Summary

The Bengal Florican is one of the world's rarest bustards and is identified as Critically Endangered by the IUCN with a global population less than 1000 mature individuals. It is one of the nine protected birds of Nepal under the Schedule I of National Parks and Wildlife Conservation (NPWC) Act 2029 (1973) and is included in CITES Appendix I.

The global distribution is extremely patchy, being found in South East Asia in Cambodia and in South Asia in India and Nepal. Historically, the bird was distributed throughout the lowland grassland areas of the Terai. However, due to habitat destruction by grassland conversion to agricultural land, plantation, succession and hunting, the current breeding distribution is restricted to a few grassland areas, most of which have official protection, and farmed areas during the non-breeding season. In Nepal it is recorded in Shuklaphanta Wildlife Reserve, Bardia National Park, Chitwan National Park, Koshi Tappu Wildlife Reserve and Koshi Barrage area with a combined total of fewer than 100 individuals.

The bird is a habitat specialist, preferring alluvial grasslands and an optimum grass height. Terai grasslands were traditionally maintained by changing river courses and grazing and trampling by large wild herbivores such as Greater One-horned Rhinoceros *Rhinoceros unicornis*, Asian Elephant *Elephas maximus*, Wild Buffalo *Bubalus arnee* and deer species. Expansion of settlements and agricultural land along river belts together with a decrease in herbivore numbers has altered these natural grasslands. As a result most grassland patches are now small and isolated and facing pressure from encroachment and uncontrolled cattle grazing especially outside the protected areas. The grasslands inside protected areas are also facing succession leading to unfavourable habitat for Bengal Florican.

Little was known about the species' population size, distribution and habitat ecology especially during the non-breeding season when the bird went largely unrecorded. However, recent research work has greatly improved our knowledge of the potential distribution, seasonal movement and habitat requirements during both the breeding and non-breeding seasons. During the non-breeding season birds are known to move outside protected areas and spend time in degraded grasslands and farmlands near human settlements exposing themselves to various threats. Furthermore there is trans-boundary movement between India and Nepal during the non-breeding season.

The goal of this action plan is to ensure the Bengal Florican and its habitat are fully protected and its national status is improved. The objective is to maintain a healthy and viable population of Bengal Florican through increasing the area of high quality habitat, better understanding of its ecology and reduced threats.

Four desired outputs are,

1. Traditional breeding and non-breeding sites and habitats are restored and managed
2. Science based knowledge on Bengal Florican is increased
3. Bengal Florican conservation awareness among community members and other key stakeholders increased
4. Partnership among national and international organizations established and maintained

Each output is further detailed with issues, activities, objectively verifiable indicators and means of verification. The total estimated cost for the five year plan is NRs 50,000,000 (Fifty Million). The DNPWC will coordinate different stakeholders to ensure the successful implementation of this action plan.

Grassland of Shuklaphanta © Jyotendra Jyu Thakuri

The Context

1. Introduction

1.1 Relevance of the Action Plan

Bengal Florican *Houbaropsis bengalensis* (J. F. Gmelin, 1789) is one of the world's rarest bustards being classified as Critically Endangered on the IUCN RedList. Loss and degradation of grassland habitats are major threats and as a result there remain few small populations patchily distributed in and around protected areas on the Terai. A low level of conservation awareness among the local communities and various stakeholders has resulted in less attention being given to this species. Responding to the provision in the National Biodiversity Strategy and Action Plan 2014-2020 (NBSAP) to prepare species action plans to conserve threatened species, the Department of National Parks and Wildlife Conservation (DNPWC) has initiated this plan to secure the future of the Bengal Florican in Nepal.

1.2 Scope of the Action Plan

This action plan is a legacy of the Government of Nepal to help save the CITES listed and Critically Endangered Bengal Florican in Nepal. It is informed by the findings of recent scientific studies and provides guidelines for all relevant stakeholders, especially DNPWC and Department of Forests (DoF), to take a lead role for the conservation of this bird. The timely implementation of this action plan with adequate resource allocation will ensure not only the conservation of Bengal Florican but also other highly threatened species such as Hispid Hare *Caprolagus hispidus* and Pygmy Hog *Porcula salvania* which share the same habitat. It will also contribute to conserve the highly restricted Terai grasslands across the Indian Sub-continent.

2. Background

2.1 General Introduction

Bengal Florican is a highly threatened and rare bustard listed as Critically Endangered by IUCN (BirdLife International 2016a). Globally, it is distributed in two isolated populations, one in South East Asia in Cambodia (subspecies, *Houbaropsis bengalensis blandini*) and other in South Asia in India and Nepal (subspecies, *Houbaropsis bengalensis bengalensis*). With fewer than 1,000 mature individuals remaining, it is already extinct from Bangladesh and Vietnam.

Although, India is likely to hold higher population of Bengal Florican compared to Nepal, no recent estimates are known from India (BirdLife International 2015). In Nepal, it is restricted to sites in and around Protected Areas with small numbers (less than 100 individuals) susceptible to local extinction (Inskipp *et al.* 2016). The solitary and territorial bird is a habitat specialist preferring open short alluvial grassland with scattered bushes (Inskipp & Inskipp 1983, Narayan & Rosalind 1990, Sankaran 1996, Baral *et al.* 2003 and Poudyal *et al.* 2008a, 2008b & 2008c). Loss and degradation of Terai grasslands within and outside PAs has been the major threats to its survival. Until recently, limited information on population status and ecology has only been available from the breeding season when the bird becomes more conspicuous during display flight. However, recent satellite telemetry studies in Nepal and India have increased our understanding of its ecology, habitat requirement and seasonal movements especially during the non-breeding season (BCN 2016).

Bengal Florican is one of the nine protected birds listed in National Parks and Wildlife Conservation (NPWC) Act 2029 (1973); but has received little conservation attention, especially outside protected areas. The protected areas located in the Terai lowlands were established and have been managed primarily for mega fauna such as Greater One-horned Rhinoceros *Rhinoceros unicornis*, Asian Elephant *Elephas maximus* and Bengal Tiger *Panthera tigris tigris*. This often overlooks the special needs of habitat specialist bird like Bengal Florican. The lack of knowledge has also been a constraint on its management. Due to its critical conservation status both in Nepal and globally the DNPWC has identified this species as a priority for conservation.

2.2 Taxonomy

Bengal Florican is a member of the order Gruiformes and further classified into suborder Otides. The family Otididae has 11 genera comprising 24 species worldwide, six species are found in South Asia with two species found in Nepal (Table 1). 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).

The systematic classification is as follows:
Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Gruiformes
Family: Otididae
Genus: *Houbaropsis*
Species: *bengalensis*
Sub species: *bengalensis*
Local Names: Kharmujur, खरमुजुर

Bengal Florican, Female © Smarajit Ojah

Bengal Florican, Male © Dr. Paul Donald

Table 1: Asian Bustards and Conservation Status

Species	IUCN/Global Status	National Status	Distribution in Asia
Bengal Florican *Houbaropsis bengalensis*	Critically Endangered	Critically Endangered	Nepal, India and Cambodia. (Extinct from Bangladesh and Vietnam).
Lesser Florican *Sypheotides indicus*	Endangered	Critically Endangered	Nepal and India.(Extinct from Pakistan)
Little Bustard *Tetrax tetrax*	Near Threatened		Afghanistan, Pakistan
Great Bustard *Otis tarda*	Vulnerable		Afghanistan, Pakistan
Great Indian Bustard *Ardeotis nigriceps*	Critically Endangered		India, Pakistan
Macqueen's Bustard *Chlamydotis macqueenii*	Vulnerable		India, Pakistan, Afghanistan

SOURCE: *BirdLife International (2016b), BCN and DNPWC (2011), Inskipp et al. (2016)*

Ali and Ripley (1995), Grimmett *et al.* (2012), Rasmussen and Anderton (2012) has described the Bengal Florican as a distinct sexually dimorphic bird. It is a medium sized ground-nesting bird with long neck and legs, the female is slightly taller (66 cm) than the male (55 cm). The adult males have black head, neck and under parts with a white wings patch which is distinctly visible while flying. However, when standing the white wings are seen as a thin patch on either side of the body. The back is mottled with buff-brown. However, during the breeding season males have a thick bunch of feathers hanging under the breast. The non-breeding male is like the female but slightly darker above, with broad white wing patched and black on breast through vent. On the other hand, the female has dull brown and black flight feather.

Including Bengal Florican and Lesser Florican *Sypheotides indicus* found in Nepal, a total of six species of bustards under family Otididae are found in South Asia and all are threatened with extinction, listed in different category of IUCN RedList (Grimmett *et al.* 2012, Rasmussen and Anderton 2012 and BirdLife International 2016b).

2.3 Habitat and Ecology

The Bengal Florican favours relatively open short grass (25-50 cm) for establishing territories, often within an expanse of tall grass (1-2 m) and scattered bushes (Inskipp & Inskipp 1983, Narayan & Rosalind 1990, Baral and Inskipp 2004 and Baral et al 2003). 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 for breeding (Inskipp and Inskipp 1983). During the non-breeding season, they move to short grassland and farmlands. Recent studies (BCN 2014, 2015 and DNPWC 2016) indicate that the birds leave their breeding grasslands when the vegetation height is higher than optimal. However the ecology during the non-breeding season and reasons behind leaving its breeding grassland still need to be investigated. The Bengal Florican is omnivorous and

Breeding grassland at Shuklaphanta © BCN

feeds on fruits, shoots and flowers, and insects such as grasshoppers and beetles and even frogs and small reptiles (Ali and Ripley 1987 and Choudhury 2000).

The breeding season starts from late March and lasts till the early part of July (Ali and Ripley 1987, Rasmussen and Anderton 2012). Female Bengal Floricans are elusive and males become highly territorial and cryptically coloured against burnt grass and flowering *Imperata cylindrica* during the breeding season. Males are normally solitary and highly territorial in the breeding season and perform aerial displays, but some males may come together for a short period lasting several minutes, chasing and fighting each other for lekking or display ground. The flight display usually takes place in an open patch of the male's fixed territory. Territorial males make long circular flights with shallow, rapid wing-beat, with their white wings extremely conspicuous. Display flight of the Bengal Florican is properly described by Sankaran (1991), Narayan (1992) and Rasmussen and Anderton (2012).

2.4 Status and Distribution

Globally the Bengal Florican is distributed in two isolated population, *Houbaropsis bengalensis bengalensis* is found in South Asia in the Terai area of Nepal and India while *H. b. blandini* is distributed in South East Asia in Cambodia. In South Asia, the Bengal Florican was once widely distributed in the Gangetic and Brahmaputra plains south of the Himalayas from the Kumaon Terai of Uttar Pradesh through Bihar and southern Nepal, to northern West Bengal, and the foothills and plains of Assam and Arunachal Pradesh (BirdLife International 2001 and 2016a).

The Bengal Florican is considered to be one of the rarest bustard species (Hoyo *et al.* 1996). In Nepal it is recorded below 305m in the Terai, restricted to a few Protected Areas and adjacent sites: Shuklaphanta Wildlife Reserve (SWR), Bardia National Park (BNP), Chitwan National Park (CNP) and Koshi Tappu Wildlife Reserve (KTWR) (Baral and Inskipp 2005, BCN and DNPWC 2011 and Inskipp *et al.* 2016).

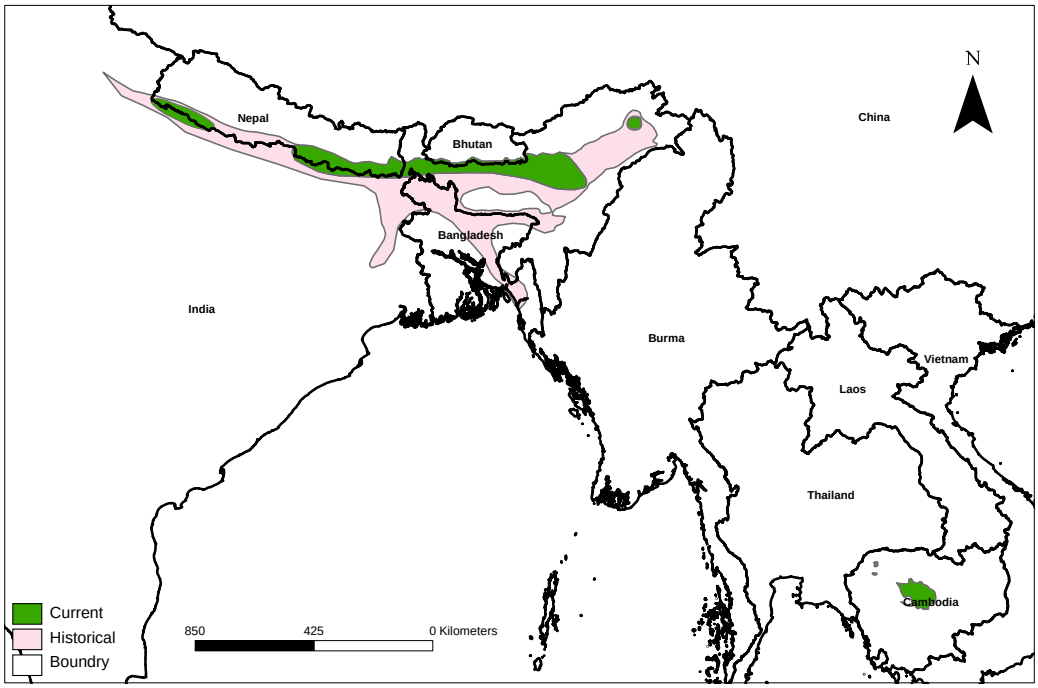
Various surveys on breeding population have been carried out in known occupied sites in Nepal since 1982. Inskipp and Inskipp (1983) represent the first survey, other notable survey include Weaver (1991) in 1990, Pokharel & Dhakal (1998), Tamang (2001), Tamang *et al.* (2001) Baral *et al.* (2001 and 2003) in 2000-2001, Thapa and Khaling (2006), Poudyal (2007) and Poudyal *et al.* (2008a, 2008b & 2008c) in 2006-2007, Baral *et al.* (2013) in 2012, Khadka *et al.* (2013) in 2012, and BCN (2014 and 2015), as summarised in table 2 below.

SWR is one of the strongholds for Bengal Florican but there has been a continuous decline in population of 46.66% from 1982 and 33.33% from 2000. Shuklaphanta grassland is a regular breeding habitat but there have been no records at Karaiya Phanta since 2000. Once BNP was one of the best sites with Bengal Florican occurring at Lamkauli Phanta, Baghaura Phanta and Khauraha Phanta but there

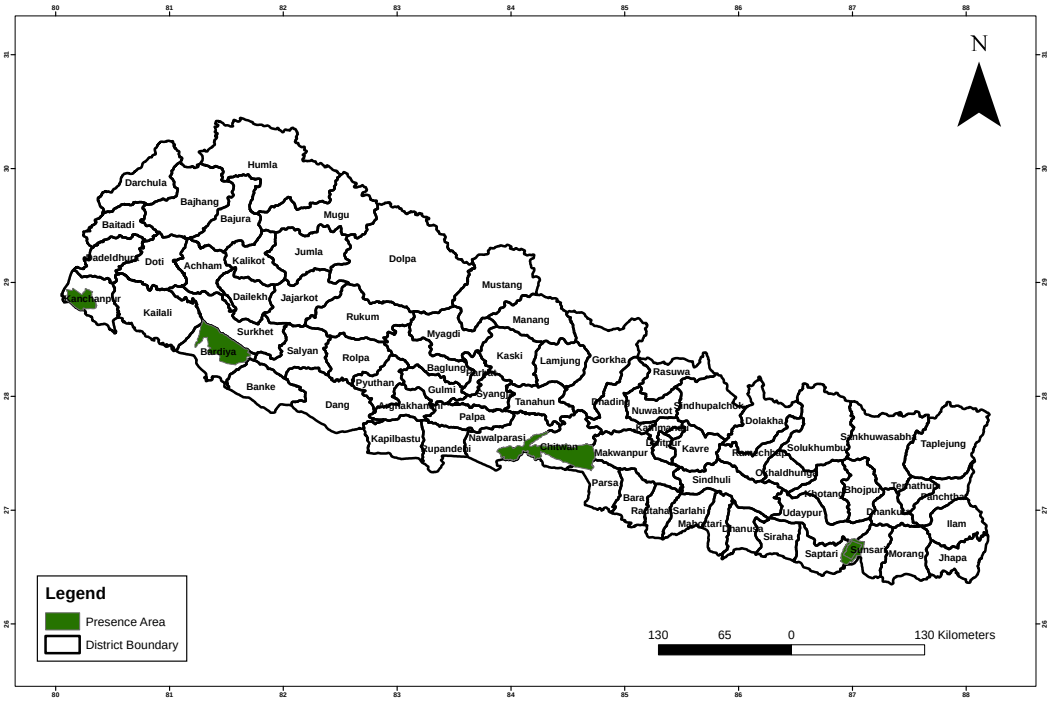
Table 2: Population of Bengal Florican in Nepal

Area	1982	1990	1998	2000-01	2006-07	2012-13	2014-15
SWR	15	17		12	11		8
BNP	10-11	6	9	5	2		0
CNP	8-21			4	5	11	6
KTWR and surrounding areas	4					47	35

Map 1: Global Distribution Range of Bengal Florican



Map 2: Distribution of Bengal Florican in Nepal



has been a continuous decline since 2000 with just two recorded in 2006, a single record in 2007 and no record since then. CNP shows a fluctuation in population with Bengal Florican being lost from previous known sites, but making a comeback at created and managed habitat inside the park and recorded in newly managed grassland in the buffer zone (Chaudhary 2007 and Khadka *et al.* 2013). The species made a comeback at Koshi flood plain including KTWR in 2011 after a long absence (Baral *et al.* 2012), this represents the largest known population in Nepal, and perhaps the most densely populated area in the Indian subcontinent (Baral *et al.* 2013 and BCN 2014 and 2015).

It is estimated that the Bengal Florican population is no more than 100 individuals in Nepal (BCN and DNPWC 2011, BCN 2016, Inskipp *et al.* 2016).

2.5 Conservation Status

BirdLife International, the official IUCN Red List authority for birds, has listed the Bengal Florican as Critically Endangered. In 1988 it was in the Threatened category, from 1994 to 2004 it was evaluated to Endangered and finally uplisted to Critically Endangered in 2007. The estimated global population is less than 1,000 mature individuals (BirdLife International 2016a).

Bengal Florican was first assessed at a national level in Threatened Birds of Nepal by Baral *et al.* (1996) and identified as Endangered. This report was updated as State of Nepal's Birds in 2004 and 2010 (Baral and Inskipp 2004 and BCN and DNPWC 2011) and was evaluated to Critically Endangered. Recent work on the assessment of Nepal's bird species has treated the species as Critically Endangered at a national level (Inskipp *et al.* 2016)

2.6 Threats

2.6.1 Grassland Habitat Loss, Degradation and Isolation

The key threat to the species is grassland loss and modification throughout its range (BirdLife International 2001). 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). The grassland ecosystem is one of the most threatened ecosystems in the Indian Subcontinent (Grimmett *et al.* 1998). 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. Short grasslands are either converted to tall grasslands and scrub by succession or by inappropriate management. At CNP ploughing in known Bengal Florican grasslands (Inskipp and Inskipp 1983) appeared to be counterproductive leaving tall grass *Narenga porphyrocoma* and *Saccharum benghalensis* (Baral 2001). Encroachment of bushes and construction of fire lines intersecting known grasslands are causing habitat loss in BNP. Grasslands at known non-breeding sites north of KTWR are heavily encroached for agriculture and human settlement expansion.

Table 3: Details of Bengal Floricans fitted with satellite transmitters

Date Tag Fitted	Bengal Florican	Tag ID	Location
01 April 2013	Male	123075	Jabdi , North of KTWR
02 April 2013	Male	123071	Jabdi , North of KTWR
19 April 2014	Female	123074	Kamalpur, KTWR
04 June 2014	Male	123076	Shuklaphanta , SWR
04 June 2014	Female	123070	Shuklaphanta, SWR
22 May 2015	Male	123072	Shuklaphanta, SWR
14 May 2016	Male	136678	Harrabasa, CNP

Source: *BCN (2014, 2015 and 2016)*

© BCN

Satellite transmitter fitting on Female Bengal Florican at SWR.

Late grassland management practices adopted between April and June, especially by fire, is detrimental for Bengal Florican and other breeding birds. Grasslands outside the PA system mostly along river banks are poorly identified and managed.

2.6.2 Lack of Protection in Non-breeding Areas

The mystery of seasonal movements of Bengal Florican has largely been resolved through recent satellite tracking studies conducted in both Nepal and India using Darwin Initiative funding. In Nepal, a total of seven birds were fitted with satellite transmitters (Argos PTT100) as detailed in Table 3.

The satellite tracking studies at KTWR, SWR and CNP showed that Bengal Florican leave their breeding areas for more degraded grassland and farmland areas near human settlements outside the PAs from late August to March. The birds are therefore exposing themselves to additional threats such as hunting, disturbance, pesticides and power line collision for approximately seven months of the year.

Analyses of the data to date suggest that the annual survival rate is 95%, while the chance of a bird surviving for five years is over 80%. These rates of survival are very high but the population is still declining suggesting that breeding success is the major limiting factor for the species (DNPWC 2016).

2.6.3 Overgrazing and Disturbance

Disturbance from people and cattle grazing during the breeding season is a serious threat at KTWR and adjacent areas. Around 3,278 domestic cattle and 148 peoples were encountered during the breeding season (Baral *et al.* 2013). Though the impact of grazing on grassland ecology is poorly understood, some level of cattle grazing may in fact be beneficial to Bengal Florican. Therefore, further detailed research is required.

At KTWR many people enter the Reserve in the early morning and late afternoon to collect cattle dung which corresponds with peak activity for Bengal Florican. Uncontrolled human presence inside KTWR leads to untimely, accidental and repeated fire events during the breeding season. The use of heavy machinery near the breeding islands at KTWR is causing disturbance during the breeding season. Uncontrolled grazing and human presence are threats at Lebarnagar Grassland at CNP; this route is used by local people for illegal grass cutting inside the CNP. Disturbance by vehicle and people is a threat at the breeding grasslands of BNP.

2.6.4 Invasive Alien Species and Natural Predators

Degradation of grassland by *Mikania micrantha* is another serious problem at KTWR and CNP. 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).

3. Legal and Policy Framework

The following extracts outline the protection afforded to Bengal Floricans through the various legal and policy frameworks in Nepal.

3.1 NPWC Act 2029 BS (1973) with fourth amendment 2049 BS (1992)

- Includes the provision of "National Park", "Strict Nature Reserve", "Wildlife Reserve", "Hunting Reserve", "Reserve", "Conservation Area" and "Buffer Zone".
- Bengal Florican is included in schedule I of NPWC Act 1973 as a protected bird.
- Wildlife means mammals, birds, reptiles, pieces, amphibians and insects of any kind other than domesticated and this term also includes the eggs of Oviparous creatures.

Prohibited Actions within National Park or Reserve:

- To hunt wildlife,
- To construct or possess house, hut, shelter, or any other structures of any material,
- To occupy, clear, reclaim or cultivate any part or grow or harvest any crop,
- To graze any domestic animal or bird, or feed water to it,
- To cut, clear, fell, remove or block trees, plants, bushes or any other forest resources, or do anything to cause any forest resources dry, or set it on fire, or otherwise harm or damage it,
- To dig mines, stones or remove any mineral, stone, boulder, earth or any other similar material,
- To cause damage to forest resources or wildlife or birds or any land,
- To carry arms, ammunition or poison, or use them,
- To take any domestic or any other kind of animal or trophy by persons other than government employees on deputation or visitors of the public paths within the national park or reserve, and
- To block, divert any river or stream flowing through national park or reserve, or any other source of water, or use any harmful or explosive materials therein.

Punishment

Any person who hunts and kills or injures protected birds shall be punished with a fine ranging from fifteen thousand to thirty thousand rupees or face imprisonment ranging from three months to nine months or both.

- *Punishment for accomplices:* In case any person who knowingly helps any person in committing any offense is punishable under this Act, such accomplice shall be punished with half the punishment to be given to the principal offender. But offence related to Rhino, Tiger, Musk deer and Elephant, same punishment to be given to the accomplices same as principal offender.

Along with the NPWC Act 2029 BS, different regulations are in place namely, NPWC regulation 2030, CNP regulation 2030 and BNP regulation 2053 and wildlife reserve regulation 2034.

3.2 Forest Act 2049 BS (1993)

Birds, other wildlife and trophies are defined as "Forest Products".

This Act includes the provision of National Forest and Private Forest with National Forest being categorised into: "Government Managed Forest", "Protected Forest", "Community Forest", "Leasehold Forest" and "Religious Forest".

Some of the prohibited actions within the National Forest are:

a) To deforest, plough, dig or cultivate in the land of Forest Area and to construct house or hut.
b) To set fire or to do any act to cause firing.
c) To remove, traffic or sell and distribute Forest Products from the Forest Area.
d) To cut trees or plants or their branches, extract resin or bark or to damage them in any way.
e) To damage any other Forest Products by negligence while cutting, felling dragging or removing trees from the Forest Area under the license.
f) To extract boulders, pebbles, sand or soil, burn charcoal or lime or manufacture other finished products from them or collect them.
g) To damage Forest Products by contravening the terms of the permit in the case when a permit is received to take the Forest products.
h) To hunt
i) To commit any offence contrary to this Act and the Rules made thereunder.

There is provision of punishments for committing offences from a to i.

3.3 Buffer Zone Management Regulation, 2052 BS (1996)

Conservation in Buffer Zone: The warden shall have the responsibility to do or get the following conservation works done in the buffer zones: (a) wildlife, (b) natural environment and natural resources, (c) bio-diversity, (d) forests, (e) development works.

Some of the prohibited actions within the Buffer Zone are:

- Occupy any land without legal ownership or cut trees, clear forests or cultivate forest land.
- Any activities damaging forest resources or to set fire in the forests.
- Use of any harmful poison or explosive substances into the river, stream or source of water flowing in the buffer zone.
- Hunting illegally and any acts damaging to wildlife.

3.4 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973.

Nepal is a signatory to CITES.

- Bengal Florican is included in Appendix I
- Appendix I include species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.
- An import permit issued by the Management Authority of the State of import is required. This may be issued only if the specimen is not to be used for primarily commercial purposes and if the import will be for purposes that are not detrimental to the survival of the species. In the case of a live animal or plant, the Scientific Authority must be satisfied that the proposed recipient is suitably equipped to house and care for it.
- An export permit or re-export certificate issued by the Management Authority of the State of export or re-export is also required.
- An export permit may be issued only if the specimen was legally obtained; the trade will not be detrimental to the survival of the species; and an import permit has already been issued.
- A re-export certificate may be issued only if the specimen was imported in accordance with the provisions of the Convention and, in the case of a live animal or plant, if an import permit has been issued.
- In the case of a live animal or plant, it must be prepared and shipped to minimize any risk of injury, damage to health or cruel treatment.

4. Methodology

Nepal has a long history of species conservation focusing on iconic species through conservation action plans. The Government of Nepal has committed to develop and implement conservation action plans for at least 10 rangeland dependent plant and animal species in its National Biodiversity Strategy and Action Plan 2014-2020 (Government of Nepal 2014). A national workshop on "Bengal Florican Conservation in Nepal" was organised at Sauraha, Chitwan on 26th March 2015 at which it was agreed to develop a Bengal Florican Conservation Action Plan (BFCAP) to help conserve the species in Nepal.

DNPWC formed a task force committee to develop species conservation action plans for Nepal with the provision of two expert members for relevant species. A meeting of the task force held at DNPWC authorised a core team to prepare the draft the action plan. This draft was shared during the National Workshop on BFCAP on 29 February 2016 at Kathmandu attended by representatives from the Ministry of Forests and Soil Conservation (MoFSC), DNPWC, DoF, IUCN, ZSL Nepal, BCN, RSPB and individual experts. Feedback and comments from participants were incorporated and reviewed by expert reviewers. Finally, after received the comments from the reviewers, it was finalized by the core team and proceeded for approval.

National workshop on Bengal Florican Conservation Action Plan

The Action Plan

5. Goal

Bengal Florican and its habitat are fully protected and its national status improved.

6. Objective

Maintain a healthy and viable population of Bengal Florican through increasing the area of high quality habitat, better understanding of its ecology and reduced threats.

7. Outputs

1. Traditional breeding and non-breeding sites and habitats are restored and managed.
2. Science based knowledge on Bengal Florican is increased.
3. Bengal Florican conservation awareness among all key stakeholders increased.
4. Partnership among national and international organizations established and maintained.

Output	Issues	Activities
1. **Traditional Breeding and non-breeding sites and habitats are restored and managed.**	1.1 Grassland management practices in PAs are not sympathetic to Bengal Florican. Grassland management practices outside PAs are currently unsuitable.	1.1.1 Develop appropriate protocols for grassland management within PAs and outside PAs. 1.1.2 Update PAs management plans and District Forest management plans to include grassland management protocols. 1.1.3 Implement the grassland management protocols in non-breeding as well as breeding habitat.
	1.2 Bengal Florican exposed to additional threats during non-breeding season.	1.2.1 Create grassland corridors to connect existing isolated grassland sites. 1.2.2 Conduct community awareness and develop community stewardship for Bengal Florican conservation.
	1.3 Bengal Florican has been lost from previously known sites within CNP, SWR and BNP due to habitat loss.	1.3.1 Update information on previously known, current and potential grassland habitat. 1.3.2. Manage habitat in previously known sites for Bengal Florican.
	1.4 Known non-breeding habitat is also shrinking as a result of expansion of farmland and human settlement.	1.4.1 Identify and map the non-breeding areas. 1.4.2 Monitor the changes in land use and agricultural practices and infrastructure (eg roads, powerlines). 1.4.3 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. 1.4 .4 Encourage and support local communities to manage and expand the grassland. 1.4.5. Identify the impact of grazing and make the local communities aware.

Output	Issues	Activities
2. **Science based Knowledge on Bengal Florican is increased.**	2.1 Survival and movement of Bengal Florican especially at CNP is poorly known.	2.1.1 Continue tracking of satellite fitted birds at CNP and other sites.
	2.2 Growth rate of grassland and response to the cutting and burning is poorly understood.	2.2.1 Continue and expand the ongoing grassland monitoring research.
	2.3 There is no long-term monitoring protocol in place for Bengal Florican and other key grassland species.	2.3.1 Develop Bengal Florican monitoring protocol 2.3.2 Train PA staff and local communities on monitoring
	2.4 Robust information on population status and trend is needed.	2.4.1 Conduct regular survey of Bengal Florican
	2.5 Impact of grazing on Bengal Florican habitat ecology is poorly known.	2.5.1 Conduct study on grazing pressure on Bengal Florican habitat.
	2.6 There is no proper database management system on Bengal Florican.	2.6.1 Establish and maintain the centralized database management system.
3. Bengal Florican conservation awareness among all key stakeholders increased.	3.1 Limited level of awareness toward Bengal Florican among the relevant stakeholders.	3.1.1 Conduct capacity enhancement workshops/trainings for the PAs and DFO staff. 3.1.2 Produce and disseminate Bengal Florican conservation promotional materials. 3.1.3 Conduct conservation campaign for local communities, tourist guides and lodge owners.
	3.2 High intensity of repeated human disturbance in Bengal Florican habitat during breeding season.	3.2.1 Conduct special awareness campaigns to control the disturbance during breeding season
	3.3 Unexplored potentiality of managed tourism linking with livelihood of local peoples.	3.3.1 Sensitize local community regarding Bengal Florican tourism. 3.3.2 Incorporate Bengal Florican conservation issues in Tourism guide training. 3.3.3 Promote home stay tourism. 3.3.4 Establish and support community based Bengal Florican monitoring program. 3.3.5 Explore and implement livelihood enhancement programs including the potential for suitably managed tourism.
4. Partnerships among national and international organizations established and maintained.	4.1 The issues on trans-boundary movement of Bengal Florican during non-breeding season is not discussed in trans-boundary meetings.	4.1.1 Ensure the conservation needs of Bengal Florican in existing annual PA trans-boundary meetings. 4.1.2 Continue co-operation over research work with all relevant organizations.
	4.2 There is currently inadequate coordination between key stakeholders to address the need of Bengal Florican trans-boundary conservation.	4.2.1 Establish national and international Bengal Florican working groups to bring together all key stakeholders.

8. Business Plan

8. 1 Institutional Arrangements

DNPWC will take a lead role in the overall implementation of the BFCAP and will undertake the activities inside PAs while liaising with the DoF for those activities outside of PAs. In addition other partner organization will help DNPWC to implement the action plan.

At central level, a Bengal Florican conservation expert group of relevant organisations and experts will be established which provide the technical advisory role to PA managers, DFOs and other partners. At the local level, Action Plan Implementation Committees under the PAs or DFOs will be formed as necessary to ensure effective management and implementation of the specific project.

8.2 Human Resources

8.2.1 Capacity Building of Community Frontline Staff and other Relevant Stakeholders

The level of understanding about Bengal Florican conservation is poor among the local communities, including frontline and other concerned stakeholders so regular capacity enhancement programmes are essential.

8.2.2 Coordination

For the effective implementation of the action plan, the DNPWC at central level will coordinate with other government bodies such as DoF and with international government bodies (India). At a local level, PA managers will coordinate with DFO, District Administrative Office, District Development Office, Village Development Committee and Municipality as per the need.

DNPWC will also maintain close coordination with national and international conservation partner organisations to implement this action plan.

8.3 Financial Resources

8.3.1 Indicative Budget in NRs.

Output		Year I	Year II	Year III	Year IV	Year V	Total
1.	Traditional Breeding and non-breeding sites and habitats are restored and managed.	4,400,000	5,200,000	4,900,000	4,150,000	4,600,000	23,250,000
2.	Science based Knowledge on Bengal Florican is increased.	2,650,000	2,250,000	2,050,000	1,750,000	1,450,000	10,150,000
3.	Bengal Florican conservation awareness among all key stakeholders increased.	2,850,000	2,650,000	2,800,000	3,850,000	3,200,000	15,350,000
4.	Partnership among national and international organizations established and maintained.	250,000	250,000	250,000	250,000	250,000	1,250,000
Total		**10,150,000**	**10,350,000**	**10,000,000**	**10,000,000**	**9,500,000**	**50,000,000**

8.3.2 Sustainable Financing

The Government's annual budget to DNPWC, PAs and DFOs will be a major source of financing for administration. In addition to the government budget, partner organisations are expected to make significant contributions for the implementation of this plan. Further, DNPWC with support from conservation partners will prepare and solicit proposals to other national and international sources for funding support.

9. Conservation Partners and Organisations

DNPWC will take a lead to implement this action plan. The government bodies such as DoF, DFO, DDC, VDC, Municipality are important partners. The major national and international organisations who are already involved in Bengal Florican conservation as well as other potential organisations are as follow:

Bird Conservation Nepal (BCN): the BirdLife International partner is the leading organisation in Nepal for the conservation of birds. BCN is involving in research and conservation of Bengal Florican in close coordination with other partner organisations. Major activities conducted by BCN include satellite tracking studies, grassland management, population survey, awareness raising and capacity enhancement.

National Trust for Nature Conservation (NTNC): have field offices at CNP, BNP and SWR so are well placed to collaborate with DNPWC to conduct conservation programs.

WWF Nepal: Working in wildlife conservation in Terai Arc Landscapeso can provide support to DNPWC in Bengal Florican conservation.

Zoological Society London (ZSL): Nepal has been working on grassland management and conservation at SWR. ZSL is supporting research on grassland ecology under ZSL EDGE Fellowship.

IUCN Nepal: IUCN has been working in Nepal since 1960s to conserve biodiversity linking with better livelihoods. IUCN Bustard Specialist Group will be potential partner for technical guidance.

Himalayan Nature: Working on research and conservation of birds having established the Koshi Bird Observatory at KTWR.

RSPB: The UK BirdLife Partner organisation supporting BCN and coordinating the Darwin Initiative funded project involving satellite transmitter monitoring of Bengal Florican.

BirdLife International: the official IUCN Red List Authority for Birds, can be a potential partner and championing of the species through their Preventing Extinction Programme.

Darwin Initative: Supported the four years project on Bengal Florican for research, monitoring and conservation.

Research and Academic Institutions: Natural History Museum (NHM), Central Department of Zoology (CDZ) of Tribhuvan University, Institute of Forestry at Pokhara and Hetauda (IoF), Agriculture and Forestry University (AFU), Kathmandu University (KU), Kathmandu Forestry College (KAFCOL) and other academic and research institutions can be strategic partners for joint project development and research.

Local NGOs: Koshi Bird Society (KBS), Bird Education Society (BES), Bardia Nature Conservation Club (BNCC), Nature Guide Association of Shuklaphanta (NGAS) are local NGOs assisting BCN and PAs for monitoring of Bengal Florican.

Besides these, other organisations interested in birds and grassland conservation are potential partners.

10. Monitoring and Evaluation

The DNPWC will be responsible for the monitoring and evaluation of this action plan in close coordination with MoFSC and DOF. Progress of planned activities and achievements, involvement of partner organisations and their projects will be monitored on an annual basis.

11. Review of the Plan

A mid-term review will be conducted after the 3rd year of implementation and the plan will be adjusted in accordance with the review feedback. A final review of the plan will be conducted in the 5th year to form the basis for a new and revised conservation action plan from 2021.

Bengal Florican, Male in Display © Laxman Prasad Poudyal and Paras Bikram Singh

Bengal Florican, Male © Jyotendra Jyu Thakuri

Bengal Florican, Male © Bed Bahadur Khadka

12. References

Ali, S & S Ripley, S. D. (1987) *Compact Handbook of the Birds of India and Pakistan.* Oxford University Press, New Delhi

Ali, S. and Ripley, S. D. (1969) *Handbook of the birds of India and Pakistan.* Vol. 2. Bombay: Oxford University Press.

Ali, S. and Ripley, S.D. (1995) *Handbook of the birds of India and Pakistan. Compact edition.* Oxford University Press and BNHS, Mumbai.

Baral, H. S. (2001) *Community structure and habitat association of lowland grassland birds in Nepal.* PhD Thesis, Universiteit van Amsterdam and Cardiff University.

Baral, H. S. and Inskipp, C. (2004) *The state of Nepal's birds 2004.* Department of National Parks and Wildlife Conservation, Bird Conservation Nepal and IUCN Nepal, Kathmandu.

Baral, H. S., Inskipp, C., Inskipp, T.P. and Regmi, U.R. (1996) *Threatened Birds of Nepal.* BCN & DNPWC, Kathmandu, Nepal.

Baral, H. S., Ram, A. K., Chaudhary, B., Chaudhary, D., Timsina, A., Acharya, S., Bidari, K., Acharya, S., Acharya, B., Thulung, P., Karki, A. and Acharya, K. P. (2013) Survey of Bengal Florican *Houbaropsis bengalensis bengalensis* (Gmelin, 1789) (Order- Gruiformes, Family Otididae) in Koshi Tappu Wildlife Reserve and adjoining areas, east Nepal. *Journal of Threatened Taxa* 5(7):4076-4083.

Baral, H. S., Ram, A., Chaudhary, B., Basnet, S., Chaudhary, H., Giri, T. R. and Chaudhary, D. (2012) Conservation status of Bengal Florican *Houbaropsis bengalensis bengalensis* (Gmelin, 1789) (Gruiformes Otididae) in Koshi Tappu Wildlife Reserve and adjoining areas, eastern Nepal. *Journal of Threatened Taxa* 4(3): 2464-2469.

Baral, H.S. & Inskipp, C. (2005) *Important Bird Areas in Nepal:* Key Sites for Conservation. Bird Conservation Nepal, Kathmandu and BirdLife International, Cambridge.

Baral, N., Timilsina, N. and Tamang, B. (2001) Bengal Florican *Houbaropsis bengalensis* in Royal Suklaphanta Wildlife Reserve, Nepal. *Oriental Bird Club Bulletin* 34: 30-33.

Baral, N., Timilsina, N. and Tamang, B. (2003) Status of Bengal Florican *Houbaropsis bengalensis* in Nepal. *Forktail* 19: 51-55.

BCN (2014) *Conserving the critically endangered Bengal Florican - a Terai flagship species.* An updated report submitted to Department of National Parks and Wildlife Conservation Babarmahal, Kathmandu, Nepal.

BCN (2015) *Conserving the critically endangered Bengal Florican - a Terai flagship species.* An updated report submitted to Department of National Parks and Wildlife Conservation Babarmahal, Kathmandu, Nepal.

BCN (2016) *Conserving the critically endangered Bengal Florican - a Terai flagship species.* An updated report submitted to Department of National Parks and Wildlife Conservation Babarmahal, Kathmandu, Nepal

BCN and DNPWC (2011) *The State of Nepal's Birds 2010.* Kathmandu: Bird Conservation Nepal and Department of National Parks and Wildlife Conservation: http://www.birdlife.org/datazone/userfiles/file/sowb/countries/Nepal2010report.pdf

BirdLife International (2001) *Threatened birds of Asia: the BirdLife International Red Data Book.* Cambridge, UK: BirdLife International.

BirdLife International (2016a) *Species factsheet: Houbaropsis bengalensis*. Downloaded from http://www.birdlife.orgon 14/7/2015.

BirdLife International (2016b) *IUCN Red List for birds.* Downloaded from http://www.birdlife.orgon 14/7/2015.

BirdLife International (2015) *Houbaropsis bengalensis. The IUCN Red List of Threatened Species 2015:*e.T22692015A82252874. http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T22692015A82252874.en. Downloaded on 09 August 2016.

Choudhury, A. (2000) *The Birds of Assam. Gauhati:* Gibbon Books and World Wide Fund for Nature – India.

Chaudhary, D.B (2007) Namuna Community Forest-a good home for birds and mammals. *Danphe* 16(1):23

Delacour, J. (1928) *Quatrième expédition en Indo-chine.* L'Oiseau 9: 257–269, 301–308.

DNPWC (2016) *National Workshop on Bengal Florican Conservation Action Plan.* 29 Feb 2016, Kathmandu Nepal. Unpublished Report.

Gmelin, J. F. (1789) *Caroli a Linné, systema naturae.* Tom. I. Pars II. – pp. 724-725. Lipsiae. (Beer)

Government of Nepal (2014) *Nepal National Biodiversity Strategy and Action Plan 2014-2020.* Ministry of Forests and Soil Conservation Singhadurbar, Kathmandu, Nepal

Grimmett, R. Inskipp, C. Inskipp, T. (2012) *Birds of the Indian Subcontinent.* Helm Field Guide.

Grimmett, R., Inskipp, C. and Inskipp, T. (1998) *Birds of the Indian Subcontinent.* London: A. & C. Black/Christopher Helm.

Hoyo, J.D., A. Elliott and J. Sargatal (1996) *Birds of the World. Volume 3.* Lynx Edicions, Barcelona, 821pp.

Inskipp, C. and Inskipp, T. P. (1983) *Report on a survey of Bengal Floricans Houbaropsis bengalensis in Nepal and India, 1982.* Study Report No. 2. International Council for Bird Preservation, Cambride, UK.54 pp.

Inskipp, C., Baral, H. S. Phuyal S., Bhatt T. R., Khatiwada M., Inskipp, T, Khatiwada A., Gurung S., Singh P. B., Murray L., Poudyal L. and Amin R.(2016) *The Status of Nepal's Birds: The National Red List Series.* Zoological Society of London, UK.

Khadka, B. B., Subedi, H. and Chaudhary, D. B. (2013) Current status of Bengal Florican in Chitwan National Park. *Ibisbill* 2: 81-86.

Narayan, G. (1992) *Ecology, distribution and conservation of the Bengal Florican Houbaropsis begalensis (Gmelin) in India.* PhD Thesis. University of Bombay, IV+301pp.

Narayan, G. and Rosalind, L. (1990) *The Bengal Florican at Manas Wildlife Sanctuary,* pp.35-43. In: Status and ecology of the Lesser and Bengal Floricans with reports on Jerdon's Courser and Mountain Quail. Final Report. Bombay Natural History Society, Bombay.

Peet, N. B. (1997) *Biodiversity and management of tall grasslands in Nepal.* PhD thesis. University of East Anglia, Norwich.

Pokharel, C. P. and Dhakal, N. P. (1998) *Status of Bengal Florican Eupodotis bengalensis in Royal Bardia National Park, western lowland, Nepal.* Unpublished report to the Oriental Bird Club, UK.

Poudyal, L. P. (2007) *Status and distribution of Bengal Florican Houbaropsis bengalensis in Nepal.* Preliminary report to Oriental Bird Club, UK. Unpublished.

Poudyal, L. P., Singh, P. B. and Maharajan, S. (2008a) *Status and distribution of Bengal Florican Houbaropsis bengalensis in Nepal.* Final report to Oriental Bird Club and The Club 300 Foundation for Bird Protection Sweden. Unpublished.

Poudyal, L. P., Singh, P. B. and Maharajan, S. (2008b) The decline of Bengal Florican *Houbaropsis bengalensis* in Nepal. *Danphe*17(1): 4-6.

Poudyal, L. P., Singh, P. B. and Maharajan, S. (2008c) Bengal Florican *Houbaropsis bengalensis* in Nepal: an update, *Birding Asia* (10): 43-47

Rasmussen, P.C. and Anderton, J. C. (2012) *Birds of South Asia. The Ripley Guide. Vols 1 and 2.* Second Edition. National Museum of Natural History-Smithsonian Institution, Michigan State University and Lynx Edicion, Washington, D.C., Michigan and Barcelona.

Sankaran, R. (1991) *Some aspects of the breeding behaviour of the Lesser Florican Sypheotides indica (J. F. Miller) and the Bengal Florican Houbaropsis bengalensis (Gmelin).* Ph.D. thesis, University of Bombay, India.

Sankaran, R. (1996) Territorial Display of the Bengal Florican. *Journal of Bombay Natural History Society* 93 (2):167-177

Sibley, C. G. and Monroe, B. L. (1990) *Distribution and taxonomy of birds of the world.* New Haven: Yale University Press.

Tamang, B. (2001) Population status and distribution of Bengal Florican in Royal Chitwan National Park, Nepal. *Oriental Bird Club Bulletin* 34:13-14.

Tamang, B., Baral, N. and Timilsina, N. (2001) *Population status and distribution of Bengal Florican Houbaropsis bengalensis in Royal Chitwan National Park.* Report to Oriental Bird Club, Unpublished. 27pp.

Thapa, K., and Khaling, S. (2006) *Survey of Bengal Florican (Houbaropsis bengalensis) in Protected Areas of Terai Arc Landscape, Nepal.* Report submitted to Department of National Park and Wildlife Conservation. WWF Nepal, Kathmandu Nepal.

Weaver, D. (1991) *A survey of Bengal Floricans Houbaropsis bengalensis at Royal Suklaphanta Wildlife Reserve and Royal Bardia National Park, western Nepal.* Report to Oriental Bird Club.

13. Logical Framework

Goal: Bengal Florican and its habitat are fully protected and its national status improved.

Hierarchy of Objectives	Objectively Verifiable Indicators by 2020	Means of Verification	Risks/Assumptions
Objective: Maintain a healthy and viable population of Bengal Florican through increasing the area of high quality habitat, better understanding of its ecology and reduced threats.	• Bengal Florican population in known sites is stable or increasing and recolonising at previously occupied sites. • Habitat management practices are in place and continue.	Bengal Florican survey reports. Quality grassland assessment report. No mortality of tagged Florican outside the breeding sites.	Birds respond to conservation management
Outputs			
1. Traditional Breeding and non- breeding sites and habitats are restored and managed.	• Grassland management protocols developed and agreed by all key stakeholders. • PA management plans are adapted to include needs of Bengal Florican. • PA and DFO management plans include the non-breeding needs of Bengal Florican. • Grassland corridors created to connect existing isolated grassland sites, especially at Koshi flood plain and Khata corridor. • Local communities are supportive of Bengal Florican conservation issues and protecting the habitat. • Areas of suitable grassland at BNP and CNP are increased. Monitoring protocol developed and implemented. • Grassland area in and outside PAs increased. • All non-breeding sites are mapped and trend of land use changes and development practices are monitored. • Known non-breeding sites are protected properly. • Population of birds in buffer zone grassland does not decline	PAs management annual plans and reports. Areas of suitable grasslands as indicated by GIS model are stable or increasing.	Stakeholders supportive toward the work.

Hierarchy of Objectives	Objectively Verifiable Indicators by 2020	Means of Verification	Risks/Assumptions
2. Science based Knowledge on Bengal Florican is increased.	• Continue monitoring of birds fitted with satellite transmitters. • Results of satellite monitoring and grassland monitoring research feeding in to grassland management protocol. • Monitoring protocols developed and agreed by key stakeholders • PA staff are able to lead grassland and Bengal Florican monitoring. • Results of grazing pressure study feeding in to grassland management protocol. • Centralized database management system is in place.	Bengal Florican movement report. Habitat monitoring reports. Annual Bengal Florican monitoring report.	Existing tags continue to transmit. New satellite tags are deployed and function successfully. Central database on research finding is maintained and shared with relevant stakeholders.
3. Bengal Florican conservation awareness among all key stakeholders increased.	• Trained PAs and DFO staffs are leading conservation initiatives. • Local people are more supportive of Bengal Florican conservation. • Local people changed their behaviour to reduce their impact. • Strict areas are established and peoples movements are regulated particularly at CNP and SWR during breeding season. • Local people and tourism professional assess the potentiality for Bengal Florican tourism. • Information on Bengal Florican is gathered through citizen science. • Economy of local people increased and pressure on Bengal Florican habitat is reduced.	Conservation awareness reports. Press release and media coverage report.	Local stakeholders' attitude is positively changed. Tourism potential does not have adverse impact on Bengal Florican conservation.
4. Partnership among national and international organizations established and maintained.	• Bengal Florican is included as a key species during relevant trans-boundary meetings • All relevant organisations are aware about the latest developments • Working group established.	Government's trans-boundary meeting reports.	Bengal Florican is adopted as a priority species by all partners.

14. Five Year Budget of Bengal Florican Conservation Action Plan, NRs

Activities	Year I	Year II	Year III	Year IV	Year V	Total
1.1.1 Develop appropriate protocols for grassland management for PAs and outside PAs	100,000					100,000
1.1.2 Update PAs and District Forest management plans to include grassland management protocols	800,000					800,000
1.1.3 Implement the grassland management protocols in non-breeding as well as breeding habitat	1,000,000	1,800,000	1,800,000	1,800,000	1,800,000	8,200,000
1.2.1 Create grassland corridors to connect existing isolated grassland sites		500,000	500,000	500,000	500,000	2,000,000
1.2.2 Conduct community awareness and develop community stewardship for Bengal Florican conservation	500,000	500,000	500,000	50,000	500,000	2,050,000
1.3.1 Update and map previously known, current and potential grassland habitat	300,000	300,000				600,000
1.3.2 Manage habitat in previously known sites for Bengal Florican	500,000	1,000,000	1,000,000	1,000,000	1,000,000	4,500,000
1.4.1 Identify and map the wintering ground	200,000	200,000	200,000			600,000
1.4.2 Monitor the changes in land use and agricultural practices and infrastructure (eg roads, powerlines)	400,000	400,000	400,000	400,000		1,600,000
1.4.3 Encourage local community to protect wintering habitat at northern part of KTWR and eastern part of SWR and work with DOF for the possibility of establishing community managed grassland in these areas.	200,000	500,000	500,000	400,000	400,000	2,000,000
1.4 .4 Encourage and support local communities to manage and expand the grassland.	400,000				400,000	800,000
1.4.5 Identify the impact of grazing and make the local communities aware						-
2.1.1 Continue satellite tracking research at CNP	250,000	300,000	100,000			650,000
2.2.1 Continue and expand the ongoing grassland monitoring research.	350,000	350,000	350,000	350,000	350,000	1,750,000

Activities	Year I	Year II	Year III	Year IV	Year V	Total
2.3.1 Develop Bengal Florican monitoring protocol	200,000					200,000
2.3.2 Train PA staff and local communities on monitoring	250,000			300,000		550,000
2.4.1 Conduct regular Bengal Florican survey	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000
2.5.1 Conduct study on grazing pressure on Bengal Florican habitat	500,000	500,000	500,000			1,500,000
2.6.1 Establish and maintain the centralized database management system	100,000	100,000	100,000	100,000	100,000	500,000
3.1.1 Conduct capacity enhancement workshops /trainings for the PAs and DFO staff	300,000			200,000		500,000
3.1.2 Produce and disseminate Bengal Florican conservation awareness materials	250,000	250,000	250,000	250,000	200,000	1,200,000
3.1.3 Conduct conservation campaign for local communities	400,000	400,000	400,000	400,000	450,000	2,050,000
3.2.1 Conduct special awareness campaign to control disturbance during breeding season	150,000		150,000		150,000	450,000
3.4.1 Sensitize local community regarding Bengal Florican tourism	400,000	400,000	400,000	400,000	400,000	2,000,000
3.4.2 Incorporate Bengal Florican conservation in Tourism guide training	350,000					350,000
3.4.3 Promote home stay tourism		500,000	500,000	600,000		1,600,000
3.4.4 Establish and support community based Bengal Florican monitoring program	300,000	400,000	400,000	400,000	400,000	1,900,000
3.4.5 Explore and implement livelihood enhancement programs Including the potential for suitably managed tourism	700,000	700,000	700,000	1,600,000	1,600,000	5,300,000
4.1.1 Ensure the conservation needs of Bengal Florican are included in existing annual PA trans-boundary meetings	150,000	150,000	150,000	150,000	150,000	750,000
4.2.1 Establish national and international Bengal Florican working groups to bring together all key stakeholders	100,000	100,000	100,000	100,000	100,000	500,000
Total	**10,150,000**	**10,350,000**	**10,000,000**	**10,000,000**	**9,500,000**	**50,000,000**

Bengal Florican Conservation Action Plan 2016-2020 has been prepared in collaboration with Bird Conservation Nepal.

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