STATUS OF BENGAL FLORICAN *HOUBAROPSIS BENGALENSIS* IN ROYAL BARDIA NATIONAL PARK, NEPAL[1]

(With two text-figures)

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A survey for the endangered Bengal florican (*Houbaropsis bengalensis*) was carried out in April-May 2000 in some grassland sites of the Royal Bardia National Park, Nepal. A total of 5 floricans (3 males and 2 females) were counted in 11 days. All the males had distinct territories. Though limited suitable florican habitat was available, the population seemed to be declining. To provide additional habitat for floricans, proper maintenance of grasslands in areas other than Bagaura and Lamkauli has been recommended.

INTRODUCTION

Bengal florican (*Houbaropsis bengalensis*), one of the three bustard species endemic to the Indian subcontinent, has undergone an alarming decline throughout its former range, as its grassland habitat has been lost to cultivation, afforestation or degraded by overgrazing (Rahmani *et al.* 1991). Its past distribution ranged from southern Uttaranchal (earlier northwestern Uttar Pradesh) to Upper Assam, through the Nepal terai, Bengal duars and Brahmaputra Valley (Ali and Ripley 1969, Rahmani *et al.* 1991). The known population of less than 300-400 individuals is at serious risk from further habitat loss, warranting its inclusion in the IUCN list of endangered species.

In Nepal, a preliminary study initiated by ICBP (now BirdLife International), in 1982, located 35-50 floricans distributed in five sites: Royal Chitwan National Park (RCNP), Royal Bardia National Park (RBNP), Royal Suklaphanta Wildlife Reserve (RSWR), Koshi Taapu Wildlife Reserve (KTWR) and an unprotected area near the Koshi barrage in east Nepal (Inskipp and Inskipp 1983). The Koshi barrage site appears to have lost its small population after 1980, following a change in the course of the Koshi river. There has been no record from KTWR since 1990.

The rapid population growth and urbanization in the Nepal *terai* has resulted in all unprotected grasslands being converted to cultivated land, with grasslands now existing only inside protected areas. Records from the past two decades indicate a decline in the population of the Bengal florican. Hunting does not seem to be the cause, since the species is well-protected, and punishment for poaching is severe. Decrease in the extent of grasslands and the improper management of some could be major causes for its decline. This paper aims to present the current information on the status and distribution of the Bengal florican in the Royal Bardia National Park.

STUDY AREA

The Royal Bardia National Park (28° 38' N and 81° 20' E) is located *c.* 450 km southwest of Kathmandu in southwestern Nepal, and occupies an area of 968 sq. km. It has a sub-tropical climate, with three seasons: the hot-dry from mid February to mid June, monsoon from mid June to late September and cool-dry from late September to mid February (Dinerstein

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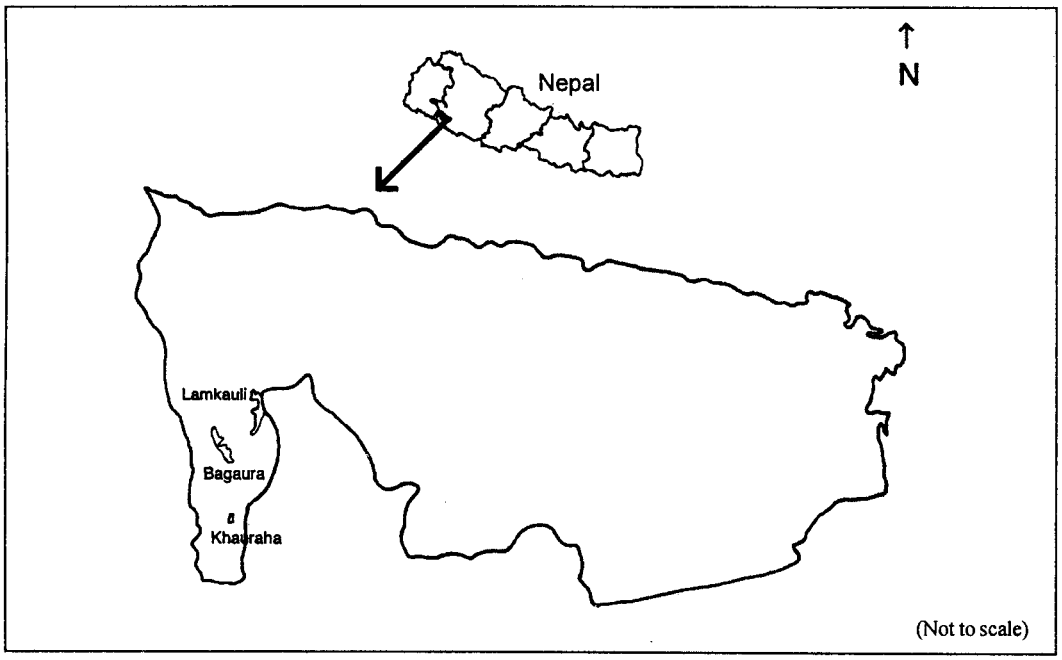

Fig. 1: Map of Royal Bardia National Park

1979a). About 80-90% of the total annual rainfall occurs during the four months period from June to September. The average annual rainfall of the Park is 2,168 mm.

The Park holds a great variety of flora and fauna. Some 32 large mammals (Dinerstein 1979b) and 235 bird species (Inskipp 1983) have been recorded. The vegetation of the Park was classified into six major types by Dinerstein (1979a), and modified by Jnawali and Wegge (1993) to seven major types. The vegetation types are *Shorea robusta* forest, *Acacia-Dalbergia* forest, woody grasslands, floodplain grassland and phantas. Phantas are previously cultivated fields, which have been restored to open grasslands after being included in the Park. The three phantas: Lamkauli, Bagaura and Khauraha were the main areas under study (Fig 1). These phantas are dominated by *Imperata cylindrica*, *Saccharum spontaneum* and *Narenga porphorycoma*. The Khauraha phanta has lost its open grasslands to succession by invading trees and bushes. Some grassy patches inside and outside the Park were also studied.

Methodology

Known florican habitats were visited during the breeding season (April-May), when the territorial males are easily seen during their aerial display. As Bengal floricans are most active in the early mornings and evenings (Ali and Ripley 1969), observations were carried out mainly in the early mornings (0630-1000 hrs) and late afternoon (1630-1900 hrs). Floricans are territorial during the breeding season when each individual male defends a patch of grassland (Ali and Rahmani 1982-84, Sankaran and Rahmani 1986), so the number of territories or display sites in an area indicates the population of adult male floricans. As hens are not easy to locate, the population estimates are based on the assumption

of equal sex ratio. Observations were made using binoculars from machans for a better view of the grasslands. Some areas were also covered on elephant back. The number of floricans seen, their sexes, activity, time, weather and time spent in each area were noted. Notes were taken on the general condition of the grasslands and disturbances.

Group discussions were held with the Park officials, game scouts and local people to gather information on the presence and conservation related issues of the Bengal florican.

Results

The present study recorded five floricans (3 males and 2 females). Two males and two females were recorded in Lamkauli phanta and one male was recorded in Bagaura phanta. Sub-adults, eggs and chicks were not recorded (Table 1). All the male floricans observed were occupying short grass patches, whereas the females observed in Lamkauli occupied the tall grass area by the side of the motorable road. Because the grass was short and the visibility good, the study assumes that all the floricans present were recorded.

There was no overlapping of territories between the males. All the male birds observed on the ground were also seen in flight, but the females were never seen flying.

Earlier studies suggested the presence of Bengal florican in Khauraha phanta (pers. comm., Park staff), but this survey was unable to record any. Successive changes have resulted in encroachment of grasslands by trees, bushes and tall grass species and this might have made the Khauraha habitat unsuitable for the floricans.

Table 1: Bengal florican recorded in Royal Bardia National Park, 2000

Site	Days spent	No. of visits	Male	Female	Sub-adult
Lamkauli	4	7	2	2	-
Bagaura	3	6	1	-	-
Khauraha	3	6	-	-	-
Other places	2	3	-	-	-
Total	11	22	3	2	-

Most of the small grass patches and probable florican habitats inside and outside the Park were surveyed, but no florican was seen.

The habitat in Bagaura and Lamkauli phanta seemed to be ideal for the florican. *Imperata cylindrica* among the short and *Saccharum* sp. among the tall grass species dominated both the phantas. Male floricans preferred the *Imperata* patch and females the *Saccharum* patch. Grass height ranged from 17-110 cm, and it provided sufficient cover and shelter. Khauraha could be an ideal habitat for Bengal florican, but needs rigorous management.

Inskipp (1983) reported 9-10 floricans (8-9 males and 1 female) in Bardia and Weaver (1991) reported 6 birds (5 males and 1 female). The current population of 3 males and 2 females when compared to the earlier records shows a decline in population.

Discussion

In most studies conducted in Bardia, sub-adult floricans were not sighted. This may indicate some recruitment problem, either due to poor breeding or low survival rate of young; the availability of suitable habitat could be one of the main problems. The population of florican has declined over the past two decades, so it is important to address the problems related to grassland habitat to increase their population. We do not know the viable population size for long-term survival, but maintaining a healthy population in all the present habitats is crucial for the conservation of the species.

Grassland management is necessary to maintain the florican habitat. In Bardia, grasslands undergo annual controlled burning

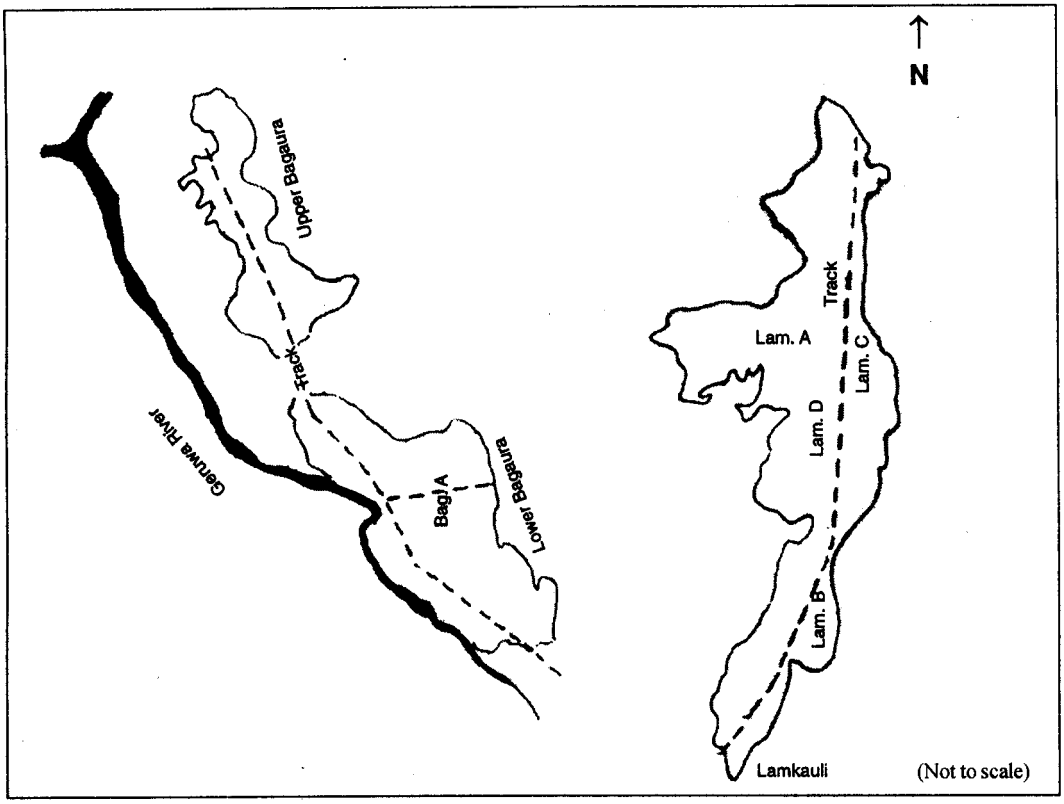

Fig. 2: Map of Bagaura and Lamkauli phanta showing distribution of Bengal florican

in January and February. In December, the local villagers are allowed to enter the protected areas and cut grass for thatch. Normally, January and February seems to be the correct time for the burning of grass in Bardia, but the record of a displaying male (Inskipp and Inskipp 1983) in December suggests that the breeding season should be avoided while burning or harvesting. If burning is carried out during the breeding season, it could destroy eggs or young birds. Ideally, burning should be done in small patches before the breeding season. All the patches should not be burned every year. Extensive dry season burning should be strictly avoided.

There was no hunting pressure as the species is listed and hunting is strictly prohibited. Grasslands near the Park and near human settlements were overgrazed, and also suffered from anthropogenic pressures.

The space needed for territory formation of a large population of floricans is currently lacking in Bardia.

Recommendations

1. Steps should be taken to prevent invasion by tree saplings. Burning and harvesting in grasslands should be strictly regulated.

2. Locals should be made aware of the different aspects of florican and grassland conservation.

3. Very little is known about the ecology of the Bengal florican outside its breeding season. Radiotelemetry should be used to study the movement of floricans outside the breeding season.

4. Healthy populations of wild ungulates, to some extent, help in maintaining grassland habitat. Interaction of Bengal florican with other grassland species could be studied, and the conservation strategy should protect all the grassland species originally found in the area.

5. Florican population in all prime habitats should be monitored annually.

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