

## The Rufford Foundation

### Final Report

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Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Ritika Prasai
<b>Project title</b>	Analyzing Bengal Floricans' ( <i>Houbaropsis bengalensis</i> ) population distribution pattern in different grassland habitat in Koshi Tappu Wildlife Reserve, Nepal
<b>RSG reference</b>	25116-2
<b>Reporting period</b>	June 2018-July 2019
<b>Amount of grant</b>	£4990
<b>Your email address</b>	<a href="mailto:Ritikaprasai3@gmail.com">Ritikaprasai3@gmail.com</a>
<b>Date of this report</b>	12 July, 2019

**1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
<p>To monitor the grassland habitat condition of Bengal florican in 60 blocks of Koshi Tappu Wildlife Reserves of Nepal-20 in each conservation status i.e. Core Area (CA), Buffer Zone (BZ) and Outside Protected Area (OPA)</p>				<p>Block size was extended to 60 (30 previous) and habitat condition was monitored. There were 20 blocks each of 1 km<sup>2</sup> in each conservation status i.e. Core Area (CA), Buffer Zone (BZ) and Outside Protected Area (OPA) but due to flood in the region, we lost our one block of OPA and reduced our total block size to 57 for unbiased data for the monitoring purpose. We recorded independent variables like grass species, grass height, tree number, grass ground coverage, people's presence/absence, livestock's presence/absence in the permanent blocks. To monitor the grassland habitat condition, six plots were plotted inside each permanent blocks at a distance of 200 m. A 50 m radius circle was drawn inside each plot. Then habitat condition inside each 50 m radius circle was recorded and assumed as that was the habitat condition of that plot. Similar method was repeated in each plot to record their habitat condition.</p>
<p>To estimate Bengal florican's population in habitat monitored sites</p>				<p>Sweep count method was used to estimate the total florican population in the habitat monitored sites. In sweep count method, team members walked on foot in the grassland, each at 20 m apart, along the grassland habitat (one block at a time) to estimate the total population of Bengal florican. Male Bengal floricans were located through display characteristics shown by them to attract females during breeding season. The location of their display activity was assumed as their territory</p>

				as they are very territorial during breeding season as proved from the earlier studies. Population was estimated using equal sex ratio assumption 1:1 i.e. one female for one male as females were difficult to locate. To estimate the population, we visited the field in peak hour –in early morning (06:00 hrs-09:30 hrs) and later afternoon (15:30hrs-19:00 hrs) when the activity of this bird species peaks and the male Bengal florican displays actively. We estimated total 36 floricans (18 males sighted) in the monitored sites (confirmed from previous surveys, local bird watchers).
To conduct bird identification trainings in Sunsari and Chitwan of Nepal				Three days bird identification and photography (we incorporated photography session in the training though it was not mentioned in the proposal) training was conducted in Sunsari and Chitwan respectively in collaboration with the local agencies and government bodies. Local nature guides, local students, park staff and local people were included in the training.
To conduct conservation awareness program in Sunsari				Conservation awareness programmes were conducted along with the field visits twice, during breeding season and winter season. Community forest user group members, stakeholders, local students and local nature guides, local people were included in the awareness programme.

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

We lost one block of BZ (total 20) due to monsoon and flood and had to minimise our study area to 57 blocks -19 in each conservation status (CA, BZ, OPA)for the unbiased data.

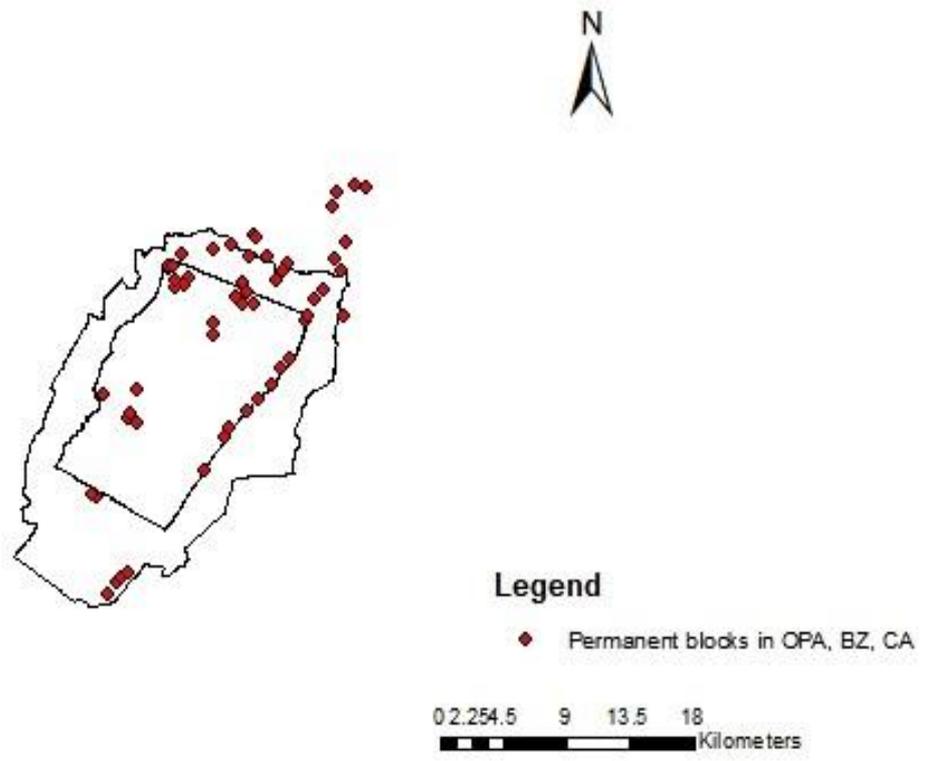


Figure 1: Map showing the permanent blocks in OPA, BZ and CA

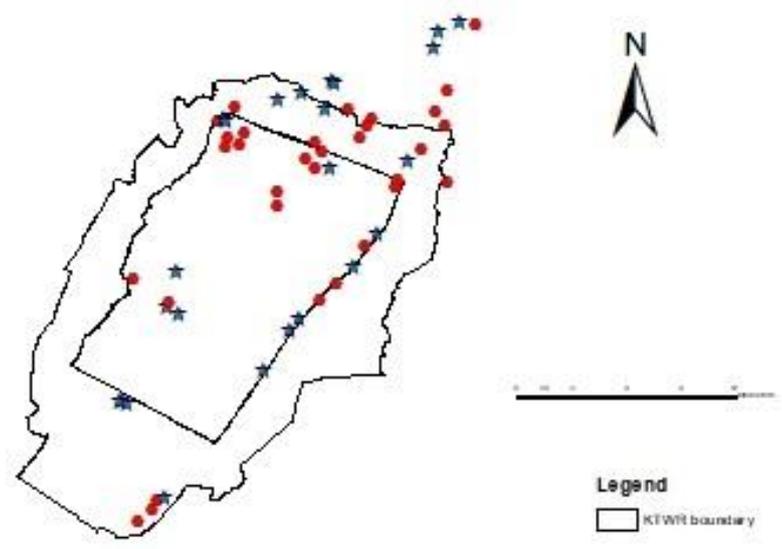


Figure 2: Map showing the location where Bengal floricans were sighted. \* Sign indicates the presence of Bengal florican in the site

### 3. Briefly describe the three most important outcomes of your project.

#### Outcome 1:

We recorded various independent habitat parameters like grass height, grass ground coverage, tree number, people's presence/absence and livestock's presence/absence in total study area and analysed the relation of those independent variables with the dependent variable i.e. Florican's presence /absence in the habitat monitored blocks.

We observed the distribution of Bengal florican in different level of habitat condition in Koshi Tappu Wildlife Reserve, Nepal. Male floricans were sighted from the tall grass of height 300-400 cm to the completely sandy (90% sand and 10% grass cluster) habitat with some small patches of grass species of height 8-10 cm. However, female floricans may prefer tall grass for the nesting purpose (Gray et al., 2009).

Logistic regression analysis was done to estimate their relation and we did not observe any significant relation of grass height to the florican's presence/absence ( $P > 0.05$ ). Also we found out the direct influence of the people's presence/absence in florican's presence/absence in the visited sites ( $p < 0.05$ ). Other specific bird species that were largely seen in association with Bengal florican sharing the same habitat were: black drongo (*Dicrurus macrocercus*), intermediate egret (*Mesophoyx intermedia*), little egret (*Egretta garzetta*), little heron (*Butorides striatus*), and Asian pied starling (*Gracupica contra*).



Male Bengal florican



Team members in the grassland site

Table 1: Table showing the results obtained from Logistic Regression Analysis using R Programming

Deviance Residuals:					
	Min	1Q	Median	3Q	Max
	-1.54210	-0.19602	-0.06482	0.32997	2.38353
Coefficients:					
	Estimate	Std. Error	t value	Pr(>  t )	
(Intercept)	1.719227	0.246672	6.970	6.08e-09 ***	
Florican number:					
Grass	-0.003280	0.001968	-1.667	0.1017	
Trees	-0.046998	0.033295	-1.412	0.1641	
Sand	-0.189463	0.368619	-0.514	0.6095	
People1	-1.194741	0.307836	-3.881	0.0003 ***	
Livestock1	-0.295661	0.319326	-0.926	0.3589	
Signif. codes	0 '***'	0.001 '**'	0.01 '*'	0.05 '.'	0.1 ' ' 1

### Outcome 2:

We estimated total florican population in the habitat monitored sites using sweep count method and sighted total 18 floricans in the sites (confirmed from the previous surveys, local nature guides and reserves staff). A total of 36 floricans were estimated using the equal sex ratio method (1:1)-18 in CA, 12 in BZ and 6 in OPA.

### **Outcome 3: Conservation awareness campaigns**

#### ➤ Bird Identification + Photography Training Programme

Two bird identification training sessions were conducted in Sauraha and Chitwan respectively. Local stakeholders, NGOs, villagers, nature guides and students were included in both of the trainings. Representatives from Chitwan National Park, National Trust for Nature Conservation, NTNC, Chitwan, Koshi Tappu Wildlife Reserves, Nepal, National Trust for Nature Conservation, Koshi Tappu Wildlife Reserves, Nepal also participated in the training. Training was conducted for 3 days in both places though we mentioned to conduct the training for 2 days in the proposal and included photography session in the training courses. Senior bird expert Mr. Hathan Chaudhary and senior photography expert Mr. Bishal Gautam were hired for the training purpose. Instructors were provided with some salary for their involvement. Altogether 26 participants participated in Chitwan's bird identification's training (15 local nature guides, six local students and five local villagers) and 16 participants (five local students and 11 local nature guides) participated in Sunsari's bird identification training.



Bird Identification training in Sunsari

Success of the training programme was published on online news and link of the website is shared below:

[https://www.saurahaonline.com/2018/07/69578/#.W0gZM5bDb\\_E.twitter](https://www.saurahaonline.com/2018/07/69578/#.W0gZM5bDb_E.twitter)

#### ➤ One day Interaction Programme

One-day interaction programme with the stakeholders, Koshi Tappu Wildlife Reserve park staff, local villagers, community forest user groups and students was conducted so as to make a mutual agreement among these groups regarding wildlife conservation and habitat protection inside the reserve. Leaflets (n=70), and pamphlets (n=70) was distributed to the participants of the programme. Issues regarding human wildlife conflicts were discussed and importance of bird conservation was highlighted among the participants.



One day Interaction Program with local stakeholders, community forest user group members, students, and Koshi Tappu Wildlife Reserve's staffs

❖ **Other important outcomes of this research project:**

- Local people with interest in conservation were provided bird identification and photography training, materials support from local NGOs and some started working as a nature guide in the area.
- Local guides were included in the research project and they started keeping records of the important bird species of Koshi Tappu Wildlife Reserves and Chitwan National Park's periphery which helped to circulate the updated information on these species.
- Students participated in the training, field survey and developed a keen interest in the wildlife conservation field
- Park staff were also included in the training and they learnt the latest technology for the research and records.

**4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).**

Local communities were the integral part of our research project. Conservation is not possible without them and we included them in every conservation awareness campaigns and field data collection. All the team members were provided with some remuneration on a daily basis for their involvement in the research project they were also provided three days bird identification and photography training in order to encourage them to work as a local nature guide in the area.

**5. Are there any plans to continue this work?**

Yes. We would like to extend this research project to study about the nesting ecology of this bird species. Recording habitat condition of its nesting sites will help to make a detailed estimation about the habitat requirement of this bird species. As we have completed the detailed survey of its distribution habitat, we have been able to record the influence of some independent habitat factors like grass height, tree number, people presence/absence, livestock presence/absence on the presence/absence of this bird species. Another research project will add detailed information about the nesting environment and a comparison can be made between two habitats. In addition, conservation awareness camps on a regular basis will add strength to the conservation efforts of this species.

**6. How do you plan to share the results of your work with others?**

We are preparing our research report to submit to Department of National Parks and Wildlife Reserves, Nepal, Koshi Tappu Wildlife Reserve, Nepal, Koshi Bird Society and some other local NGOs. We will also submit the research outcomes in a peer reviewed research journal soon and share our research outcomes to wider audience through Journal websites, Research Gate and Rufford Foundation websites.

**7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?**

Grants was used as proposed in the proposal. Majority of the grant was used for the field data collection. Remaining budget was used for the training and conservation campaigns and research materials. Grant was used for the 13 months to conduct field survey and different conservation related trainings and programs.

**8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Food and Accommodation 1. Principal Investigator 2. Field Assistants	2800	2000	-800	We were provided free food and accommodation for 3 weeks from Koshi Tappu Wildlife Reserve, Nepal
Allowance to the Field Assistants(Local people+ local nature guides + eco club members)	1400	2800	+1400	Allowance amount increased due to more number of Field Assistants and Team members included for the field survey (10)
Two Bird Identification training (3 days each) at Chitwan and Sunsari respectively	200	600	+400	We extended the days of the training from two days to three days and included photography session in the training courses to make training more effective and cover all the essential topics and hence expenses increased but that was compensated from the support of National Trust for Nature Conservation, NTNC, Chitwan, Koshi Tappu Wildlife Reserve, Nepal and local NGOs of Sunsari and Chitwan respectively.
Conservation School Program at Sunsari	300	300		
Transportation	290	450	+160	We had to hire a jeep for the field visit due to more number of Team members
<b>Total</b>	<b>4990</b>	<b>6150</b>	<b>+1160</b>	Extra expenses was covered from the support of National Trust for Nature Conservation (NTNC) Chitwan, Koshi Tappu Wildlife Reserves, Nepal and local organizations

Notes to the budget: All the conversion has been at the conversion rate of 1£ = 148.095 Nepalese Rupees. Decimal values has been neglected.

**9. Looking ahead, what do you feel are the important next steps?**

Understanding the nesting habitat ecology of this bird species is extremely important for the in depth knowledge of habitat requirements of this bird species. Comparison between nesting habitat and foraging habitat can be used for the preservation of remaining population of this species. In addition, involving local people directly in its habitat conservation will help to conserve the species in the long run.

**10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did The Rufford Foundation receive any publicity during the course of your work?**

Yes, Rufford Foundation's logo was used during the conservation awareness campaigns, bird identification training, leaflets and pamphlets distribution. Logo was also used in the banners and social media. In addition the logo will be used in every reported documents and research articles prepared for the promotion of research outcomes.

**11. Please provide a full list of all the members of your team and briefly what was their role in the project.**

NAME	POSITION	
Ritika Prasai	Researcher (PI)	
Anish Timsina 	Field Assistant	Mr. Anish Timsina has been working as a local nature guide in Sunsari from almost 20 years. He assisted in the Bengal florican's research project since 2017. He was involved in designing the research project to conducting field survey, trainings and writing report.
Prem Adhikari 	Field Assistant	Mr. Prem Adhikari is a local villager who is interested in conservation activities. We included him in our team from 2017 so as to make the participation of a concerned villager towards the conservation activities of targeted species.
Swosthi Thapa 	Field Assistant	Ms. Swosthi Thapa is a forestry science graduate, with major interest in wildlife conservation and research. She actively participated in field works of this research project, writing report and conducting trainings from 2017.
Pratistha Shrestha	Field Assistant	Ms. Pratistha Shrestha is a forestry science graduate. Her role was to

		arrange the field equipment and help in data entry, analysis and assist in writing scientific paper of the research outcomes.
Indira Karki	Team member	Other team members were involved in field data collection and bird identification training.
Dinesh Ghimire	Team member	
Jeewan B.K.	Team member	
Saroj Prasad Acharya	Team member	
Binisha Karki	Team member	
Sabitri Bhattarai	Team member	

## 12. Any other comments?

This research project would not have been possible without the support of Rufford Foundation. We would like to extend our heartfelt thanks to Department of National Parks and Wildlife Reserves and Koshi Tappu Wildlife Reserves, Nepal for providing permit to conduct the research. In addition, we are indebted to the technical and financial support provided by the local organisations of Nepal for the successful completion of the research project. We would also like to express our gratitude to our partner organization Katie Adamson Conservation Fund, USA, and thank IDEA WILD for supporting with the equipments like binoculars, GPS.



Left: Male Bengal Florican. Right: Banner of the training. ©Ritika Prasai



Team members in the site. ©Ritika Prasai