

Final Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF 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 – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please DO NOT fill in and submit this form until the project has been completed.

Complete the form in English. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	Nikita Phuyal
Project Title	Population status, habitat use and conservation awareness of the critically endangered Bengal Florican in the grassland of Shuklaphanta National Park, Nepal
Application ID	46405-1
Date of this Report	March 2025-November 2025

1. 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>Updated information on the present population status of the Bengal Florican in the Shuklaphanta National Park</p>			√	<p>Data were collected through both population survey and habitat survey. The population survey was conducted over a period of approximately one month while the habitat survey was also carried out for a similar duration. To achieve the stated objective, the research team initially employed the sweep count method. However, this approach proved unsustainable due to its demand for extensive manpower and the potential risk of causing direct anthropogenic disturbances to the elusive Bengal Florican. Consequently, the team adopted the point count method, which allowed for prolonged observation periods with minimal disturbance. This method was employed across four grasslands (Shuklaphanta grassland, Kisan Community Forest, Radhapur grassland, Karaiya grassland), encompassing a total of 29</p>

			<p>survey points. An area of approximately 3,000 hectares was surveyed. Using this technique, two male and one female Bengal Florican were recorded. Although Shuklaphanta National Park (ShNP) is considered to support the largest population of Bengal Florican in Nepal, the present study documented only three individuals within the study area. This apparent decline may be attributed to uncontrolled grassland fires occurring during the species' breeding season. What has really happened to the eggs that were laid by the Bengal Florican during the breeding season remains uncertain and warrants further investigation. Future studies focusing on the Bengal Florican's transboundary movements through the application of satellite telemetry, during both breeding and non-breeding seasons, may yield more accurate and comprehensive data on its population dynamics within ShNP.</p> <p>Prior to the population survey, one key informant interview was conducted with five key conservation officials and five of National Trust for Nature Conservation personnel. These interviews help us to get an overview of the current distribution of Bengal Florican</p>
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				<p>across the grasslands of ShNP. Based on these interview research team decided to conduct population survey on Shuklaphanta grassland, Radhapur grassland, and Kisan Buffer Zone.</p>
<p>Spatial distribution map highlighting priority conservation areas</p>			√	<p>The GPS coordinates of Bengal Florican presence points recorded during the study were meticulously documented, and a habitat distribution map was prepared. To enhance the understanding of potential habitats, historical sighting locations were also mapped under the expert guidance of individuals previously involved in Bengal Florican surveys. This effort aimed to identify and delineate areas with high conservation value for the species. The resulting potential habitat map may serve as a valuable reference for future researchers and help guide site selection for Bengal Florican-focused studies and conservation initiatives.</p>
<p>Baseline information on the predetermined habitat variables influencing the occurrence of the Bengal Florican in the Shuklaphanta National Park</p>		√		<p>To conduct the habitat survey inside the Shuklaphanta grassland 15 blocks were generated inside the grassland. Each block encompassing an area of 1*1 square kilometer. 1 block was divided into six plots. Upon doing so, there were altogether 90 plots. All predetermined habitat variables</p>

				<p>(grass ground coverage, grass sward height, grazing pressure, burning pressure, predator sign, dominant plant species, habitat disturbances, distance to nearest water body) were systematically assessed across 90 plots within the Shuklaphanta grassland. While the initial research proposal aimed to employ a Generalized Linear Mixed Model (GLMM) to identify the probability of habitat factors influencing the distribution of Bengal Florican, the model could not be executed due to the extremely low number of sightings only three individuals were recorded during the study period. GLMMs require variation in the response variables to detect patterns and relationships with predictor variables. With only 3 presence points and 87 absences, the model becomes highly imbalanced making it statistically unstable. Despite this limitation, all predefined habitat variables were meticulously recorded and compiled in a structured dataset using Microsoft Excel, providing a valuable foundation for future analyses.</p>
<p>Increased awareness among local tharu community and school students</p>			√	<p>A total of six PowerPoint presentations were conducted among two indigenous rana tharu communities in Bhimdatta and Beldandi municipalities as</p>

<p>about Bengal Florican conservation status, ecological importance and conservation measures</p>			<p>well as to four schools (Saraswati higher secondary school, Shree Siddhanath Secondary School, Shree Baijnath Primary School, and Shree Saraswati Secondary School) situated within the surrounding periphery of ShNP.</p> <p>Demonstration of pictorial PowerPoint presentations emphasizing the elusive behaviour of the species, along with its ecological and recreational significance, coupled with documentary screenings of the male Bengal Florican’s aerial display during the breeding season, and the inclusion of conservation-themed poems and songs conveying key conservation messages, proved highly effective in raising awareness and educating the target audience.</p> <p>To assess the effectiveness of the community awareness and school teaching programs pre and post campaign surveys were conducted using a structured follow-up questionnaire. Comparative analysis revealed that participants demonstrated greater confidence and understanding of the ecological importance and conservation status of the Bengal Florican during the post campaign assessment indicating a measurable increase in</p>
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				<p>knowledge of critical aspects of Bengal Florican.</p> <p>Despite photographs of the Bengal Florican were successfully captured during the study period, documentation of the male's aerial display was not possible. Therefore, relevant video footage was accessed from publicly available YouTube source and used during presentations to the target audiences.</p>
<p>Distribution of awareness materials among the community people and school students</p>			√	<p>187 conservation pamphlets highlighting key aspects of the Bengal Florican such as its distribution, ecological significance, major threats, and the urgent need for conservation were distributed among the target audiences to raise awareness. During the field survey, the research team documented several charismatic avian species through photography. These photographs, along with corresponding local names, were later compiled and showcased in a thematic photo exhibition as part of the awareness campaign. Additionally, to foster creativity and engagement among students, information boards were installed in schools (informational boards were installed in four schools, one information board in each school) where students could</p>

				display their conservation-themed poems and artwork, thereby encouraging participation and recognition.
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2. Describe the three most important outcomes of your project.

- a. Updated information on the current population status of the Bengal Florican in the Shuklaphanta National park. This information is expected to serve as a foundation for future research aimed at investigating underlying causes behind the sharply dwindling population of the Bengal Florican. Attached here is a photograph of the Bengal Florican taken during the population survey, along with a map indicating the locations of sighted male and female individuals within the study area.



Figure1: Photographic documentation of the iconic Bengal Florican captured during the population survey.



Figure 2: Map illustrating the recent spatial distribution of Bengal Florican recorded during the population survey within the Shuklaphanta grassland

- b. Spatial distribution map highlighting the critical habitat of Bengal Florican. This will eventually help the park authorities and other concerned conservation bodies in developing site-based action plans and conservation intervention in the long run. Attached is a map depicting the potential habitat of the Bengal Florican, developed based on recorded GPS locations of past sightings in the study site.

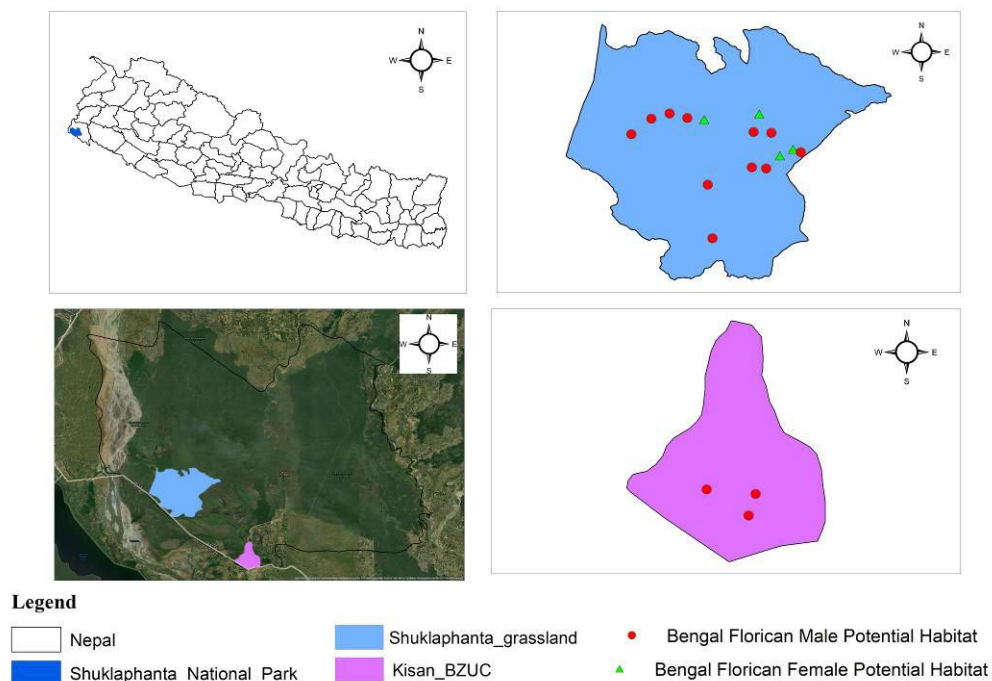


Figure 3: Map illustrating the potential habitat of the Bengal Florican based on recorded occurrence data.

- c. Increased awareness among local tharu community and school students about Bengal Florican conservation status, ecological importance and conservation measures. These individuals now can advocate for Bengal Florican conservation which ensure continued conservation efforts beyond the project period.
- d. Key outcomes of the research were disseminated among bird experts, policy makers, and conservation practitioners through enthusiastic participation in the conservation workshop hosted by Nepal Ornithological Union. The workshop fostered extensive discussion on the types of research that are most urgently required for the long term conservation of threatened Bengal Florican in the impending future.



Figure 5: Photographic documentation of the result sharing during the Bengal Florican Conservation Workshop

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

- a. The study area where the research of Bengal Florican was conducted is considered to be the pristine habitat of so many potential predators, including the Royal Bengal Tiger (*Panthera tigris tigris*), One-horned Rhinoceros (*Rhinoceros unicornis*), and Wild Asiatic Elephant (*Elephas maximus*). Due to the potential risks posed by these species, conducting fieldwork on foot was deemed unsafe. To mitigate these safety concerns during the habitat survey, data collection was carried out from the back of a trained elephant. Furthermore, during the population survey, the research team decided to scan the birds through watch towers to entirely avoid the threat of encountering dangerous wildlife in the grassland.



Figure 6: Data collection carried out from the back of trained elephant



Figure 7: Royal Bengal Tiger encountered during the habitat survey

- b. Mobilizing community members for the conservation awareness programs posed a significant logistical challenge, as local participation was often contingent upon financial incentives, which were beyond the scope of this project. To address this limitation, the

research team coordinated with community leaders, requesting their support in assembling the targeted number of participants. As an alternative to monetary compensation, the team assured the provision of refreshments and emphasized delivering engaging and interactive sessions. This strategy proved effective in achieving the desired level of community participation.

- c. The study was conducted in a relatively unexplored national park of Nepal, which, despite being a highly suitable habitat for several charismatic species, remains understudied due to its extreme remoteness. This inaccessibility has resulted in limited research activities and lack of well-trained, experienced nature guides within the park. Consequently, recruiting a qualified and knowledgeable field assistant proved to be a significant challenge. To overcome this constraint, the research team decided to seek support from the National Trust for Nature Conservation (NTNC). The conservation officer at NTNC, upon being briefed on the study objectives, expressed strong support for the project. As a result, the team was able to engage an experienced NTNC staff member with substantial expertise in Bengal Florican monitoring, thereby ensuring methodological rigor and safety during field surveys.

4. Describe the involvement of local communities and how they have benefitted from the project.

Local communities were actively and enthusiastically engaged throughout my research. Community awareness activities were conducted in four communities targeting indigenous tharu community. At the very first, group discussion was conducted to investigate community people knowledge on the Bengal Florican conservation status globally and nationally, ecological importance, and conservation measures. After group discussion, pictorial information of Bengal Florican was demonstrated among the targeted audiences through power point presentations and documentary shows. Pamphlets containing significant information about the crucial aspects of Bengal Florican was distributed to the targeted audiences.

The community awareness activities carried out in four indigenous Tharu communities play a pivotal role in fostering long-term conservation success by addressing both knowledge gaps and attitudinal change. These awareness-raising efforts are expected to increase community ownership of conservation actions, reduce anthropogenic pressures on Bengal Florican habitats, and foster a conservation ethic rooted in local cultural values. The activities also lay the groundwork for future co-management initiatives, where community participation is essential for monitoring and protecting critical grassland habitats.

I would like to incorporate some pertinent photographs to demonstrate the active involvement of community members in my research.



Figure 8: Participants captured during the community awareness program conducted in Bhimdatta Municipality, Shuklaphanta National Park.



Figure 9: Presentation delivered on the critical conservation aspects of the Bengal Florican during the awareness program.



Figure 10: Conservation song presented by the local community from Bhimdatta Municipality



Figure 11: Dissemination of informational pamphlets to local community members residing in Beldadi Municipality.



Figure 12: Presentation delivered focusing on the conservation recommendation for the recovery of the Bengal Florican targeting the indigenous tharu community in the Beldadi Municipality



Figure 13: Dissemination of informational pamphlets to local community members residing in Bhimdatta Municipality



Figure 15: Recitation of conservation song reflecting the message of necessity of Bengal Florican conservation in perpetuity



Figure 16: Distribution of Information board in Saraswati Higher Secondary School



Figure 17: Photographic documentation of avian species recorded during the field survey on the Bengal Florican, showcased as part of the research exhibition.

5. Are there any plans to continue this work?

This work will be further advanced through various innovative plans that are yet to be realized. This study primarily aims to generate baseline information on the current population status and habitat use of the iconic Bengal Florican in Shuklaphanta National Park (ShNP). For further and better understanding their habitat, ecological, behavioral, and genetic aspects, the studies based on application of drone technology, remote sensing, continuation of satellite telemetry, acoustic monitoring and non-invasive genetic analysis would help in conservation and recovery of Bengal Florican. Seasonal movement of Bengal Florican between breeding

and non-breeding sites through satellite tracking is yet to be studied. Furthermore, what has really happened to the eggs that were laid by the Bengal Florican during the breeding season has still remained as an unsolved enigma among the avian researchers. I am planning to conduct a research focused on the identification of preferred egg-laying sites within the grassland of ShNP to enhance the breeding success and the population viability of the Bengal Florican. All these critical aspects related to the Bengal Florican warrant rigorous scientific research in future research endeavors.

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

For the successful implementation of conservation outreach activities under the present project, I incorporated valuable technical inputs and recommendations from Bird Conservation Nepal. Furthermore, I disseminated the findings of my research to bird experts engaged in the research and conservation of bustard species since very long during the Bengal Florican Conservation Workshop organized by the Nepal Ornithological Union. My participation in this workshop was instrumental in developing a foundational understanding of the priority research directions and project frameworks required for the long-term conservation of the Bengal Florican, particularly in the context of ShNP.

I haven't yet collaborated directly with the Bengal Florican Conservation Project led by Aditya Pal. However, I am keen to establish collaboration and intend to reach out to him to share the data I have collected, jointly develop research ideas, and seek his expert guidance for potential future projects that I may lead in the field of Bengal Florican research and conservation.

a. Compilation and publication of Bengal Florican 'Presence Only data'

The research team collected all the presence data during the population survey in the ShNP. All these presence data will be systematically arranged in Microsoft excel sheet and will soon be available through USGS website for global sharing.

b. Final Technical Report

Final technical report will be soon shared via rufford small grant's website. The results will also be shared with the relevant stakeholders, conservation NGOs, government officials and wildlife managers.

First, the updated information on the current population status provides a robust baseline for long-term monitoring and population trend analysis. This baseline is critical for detecting future population changes and for designing targeted ecological studies to identify the underlying drivers of the observed population decline. Second, the spatial distribution maps identifying sightings of male and female individuals, along with the delineation of critical and potential habitats, offer spatially explicit insights for site-based conservation planning. Park authorities can use these maps to prioritize ecologically

sensitive and high-use areas for focused protection, regulate human activities during key breeding and display seasons, and integrate Florican habitat requirements into grassland management plans, including controlled burning, grazing regulation, and invasive species control. Finally, the enhanced awareness among the indigenous rana tharu community and school students represents an important social dimensions of conservation. By fostering local stewardship and advocacy, park management can leverage community participation in habitat protection and long term monitoring initiatives.

Overall, the integration of population data, spatial habitat mapping, and community awareness outcomes enables park management to adopt a more evidence based, participatory, and adaptive conservation framework for the long term conservation of Bengal Florican in ShNP.

c. Publication

We expect to publish this work on one of the peer reviewed journal. Critical information highlighting the conservation status, prevailing threats, ecological significance, and recommended conservation measures for the Bengal Florican will be disseminated through both local and national newspapers to raise awareness and inform broader conservation efforts. I am extremely privileged to attach my piece of writing expressing my profound emotional response when I got to witness the iconic Bengal Florican inside the wilderness of the ShNP.



Figure 18: An article published in the The Annapurna Express entitled “Bengal Florican: The Vanishing Spirits of the Grasslands”

d. Poster Presentation

I intend to further disseminate the research findings by actively participating in an international scientific conference through a poster presentation, thereby contributing to global knowledge exchange.

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

Bengal Florican being one of Nepal's nine protected species, and its being designated as Critically Endangered species with a national population of less than 50 individuals emphasizes the need for more stringent approaches to species recovery. Population census revealed Bengal Florican population is declining in Nepal. Bengal Florican have not been recorded in Bardiya National Park since 2012. Populations in Chitwan National Park and ShNP have also been sharply dwindling; limiting very small population. The inclusion of Bengal Florican as priority species for conservation by national and international policy and regulation implies Bengal Florican is threatened with extinction.

I personally feel, following steps need to be taken into severe consideration for the successful recovery of Bengal Florican in its natural habitat:

- a. Restore and manage breeding and non-breeding sites and habitat
- b. Explore the preferred egg-laying sites of the Bengal Florican and design grassland management interventions accordingly
- c. Increase science-based knowledge on habitat suitability and feeding ecology of Bengal Florican
- d. Increase Bengal Florican conservation awareness among all key stakeholders
- e. Establish and maintain partnership among national and international organizations
- f. Explore Bengal Florican conservation ex-situ practices in Nepal.

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

Yes, I used The Rufford Foundation Logo in all the conservation materials prepared in relation to this project. The Rufford Foundation Logo was used on conservation pamphlets. The logo was also used on banners and power point presentation designed during awareness programs. The logo will also be used in the reports to be disseminated in project sites among the conservation officers.

Yes, the foundation received ample publicity during the course of my work. While the conservation officers of Shuklaphanta National Park were already familiar with the Rufford Foundation and the types of research projects it supports, the local community members had little to no awareness of it. Therefore, the research team made a concerted effort to inform and educate them about the Foundation and its role in conservation. Additionally, I actively shared updates and findings from my research through platforms such as LinkedIn and Facebook, which I believe helped raise awareness among many young conservationists about the Rufford Foundation and the type of conservation projects it supports.

9. Provide a full list of all the members of your team and their role in the project.

- a. Simran Dhakal-** She provided invaluable support throughout the research project, ensuring its smooth execution in every possible aspect. Serving as my research assistant at the project site, she was actively involved in both the population status survey and the habitat assessment survey. Moreover, she played a vital role in the successful implementation of the conservation awareness programs professionally handling tasks ranging from coordinating with relevant authorities to designing effective awareness materials.
- b. Devraj Joshi-** He serves as a conservation staff member at the National Trust for Nature Conservation (NTNC) and contributed significantly to the project with a meticulous attention to detail. During the population status survey, he played a key role in guiding the research team by sharing his knowledge on the behavioral ecology of the Bengal Florican and advising on potential hotspots for sightings of this elusive species. Additionally, he demonstrated considerable innovation in the recording of pre-determined habitat variables during the habitat assessment survey. His involvement in both the population and habitat surveys was marked by a high level of professionalism and expertise.
- c. Mahananda Joshi-** He was the only experienced field guide in Shuklaphanta National Park with extensive expertise in Bengal Florican survey and monitoring. His knowledge of the species' habitat preferences was instrumental in guiding the research team to all potential Bengal Florican habitats within the park. He also played a significant role in the habitat assessment survey. Moreover, he provided valuable input in identifying target communities and schools where the conservation awareness programs would have the greatest impact. He further assisted the team in accessing key observation points, including watchtowers, where prolonged and systematic bird scanning often for up to three hours was conducted with great precision.
- d. Pashu Ram Rana-** He played a crucial role as the driver throughout the project. Following the guidance provided by the nature guides, he ensured timely and accurate transportation of the research team to all designated data collection sites. His support was

equally important during the conservation awareness programs, facilitating access to all targeted schools and communities, thereby contributing significantly to the smooth execution of the project's activities.

10. Any other comments?

I would like to express my sincere gratitude to the Rufford Small Grant Foundation for their financial support to carry out this innovative project in one of the unexplored national park of Nepal. I would like to extend my sincere thanks to National Trust for Nature Conservation for the necessary equipment arrangement during the field survey. I would like to extend my sincere gratitude to all the aforementioned team members for their significant contributions to the successful execution of this project. I am equally grateful to my referees for their invaluable guidance and support throughout the study. I also acknowledge the Department of National Parks and Wildlife Conservation, Kathmandu, for granting the necessary permissions to conduct field surveys essential to this research. I am also thankful to the targeted communities and schools within the study area for their enthusiastic engagement and active participation during the conservation awareness programs.

ANNEX – Financial Report

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