

Final Evaluation Report

Your Details	
Full Name	Pema Khandu
Project Title	Roost Site Selection, Behaviour and Threat Assessment of Critically Endangered, White-bellied Heron (<i>Ardea insignis</i>) in Bhutan.
Application ID	29460-2
Grant Amount	£6,000
Email Address	pksey@gmail.com
Date of this Report	16 May 2021

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
Understanding roost site selection and behaviour.				During our entire fieldwork we have been able to record parameters of 53 trees including both roosting and non-roosting sites. Camera trapping has enabled us the better understand their cryptic roosting behaviours which were not possible before.
Assessing threats prevalent in the roosting habitat.				During our field trips, we have also recorded the threats and categorised them into different types and magnanimity. Due to Covid-19 protocols in place, we could not carry out face to face interviews. However, we had collected the information from the working groups through an online questionnaire, virtually.
Promotion of conservation of White-bellied Herons through advocacy.				We have carried out the advocacy programme for the conservation of the white-bellied heron to Class IX (Environmental Science) and Class XII (Biological Science) students of Wangbama Central School. Due to the pandemic, we could not carry out advocacy campaigns in the targeted communities. We have planned to do it when the situation gets better.
Publication of our findings through scientific journals.				We have published on the night roosting behaviour of the white-bellied herons in ISI journal "Biological Rhythms" to communicate our findings to the broader community. We have duly acknowledged the Rufford Foundation in our publication.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

Fixing camera traps on the tree nearest to the roosting tree was one of the most challenging tasks faced by the team. As the roost was mostly >15 m above the ground, the team faced the herculean task to climb up the tree impeded further by the strong wind. We could not do the task during one of the field trips and return without accomplishing the task. A day later we had to find an experienced tree climber from the locality, and we were lucky to find Mr Krishna who consented to our request. We had to make sure that he could properly fix the camera traps. Therefore, we had to give him fast training on handling camera traps. Every 2-3 weeks, we had to change the batteries and download the data. We hired Mr Krishna for this task and as we carried out our first downloading of the data, we were quite uncertain initially but as we quickly scanned through the images, we were astonished that Mr Krishna had carried out the task with complete perfection. We got better-angled images and we were assured that our few hours of training him did not go in vain. With the help of Mr Krishna from the local community, we were able to carry out the task successfully.

Spotting the roosting tree was another challenging task that we faced. First and foremost, we must find the white-bellied heron foraging. Day roosting usually occurred during the mid-day hours when the scorching sun would probably engage the white-bellied herons to roost on a nearby tree or on a cliff or rock. To accurately spot the night roosting tree we must make sure that eyes are accommodated to observe with the help of a pair of binoculars in low light conditions. We had to continuously follow the white-bellied herons before it leaves for roosting and it required a lot of patience and perseverance.

Pandemic has hindered our awareness campaigns and a couple of our fieldwork sessions. Since we were not allowed to make mass gatherings, we did in a small unit of a family. We had to reschedule our field trips when the travel bans were lifted. Although a few of the activities did not go as per the plan, however, we could finally do it by putting in extra effort while the situation became favourable for us to carry out our fieldwork.

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

Roost site selection is the most important outcome of our project. Through this project, we were able to learn about the roosting site selection and the need to conserve the sites for amalgamation of management and policy interventions for the conservation of the remaining sites for this very rare bird. We were also able to gain insights into its unknown roosting behaviour and ecology which helps to bridge a knowledge gap. Another significant milestone through this project is being able to ascertain the threats posed to the white-bellied herons. While there are numerous anthropogenic and natural threats, we were only able to streamline threat threats into various severity categories and degrees.

We are glad that we have already published our work on the night roosting behaviour of the white-bellied herons in a reputed international journal. This paper has already

received appreciation from the scientific community at home and abroad. We hope that it would guide policy change and management for the conservation of the white-bellied herons.

4. Briefly describe the involvement of local communities and how they have benefited from the project.

We have involved members of the local community in our project. We hired three residents as our field guides and involved three local white-bellied heron working groups from the local community as well. We stayed with the local community in our field visits and shared vital information on its basic ecology and emphasised more on the need to protect this rare bird. We have trained Mr Krishna Subba a resident on the use of camera traps.

5. Are there any plans to continue this work?

We would like to continue with our research and conservation works of white-bellied heron. Indeed, I have already discussed with my potential supervisor to take upon different aspects of white-bellied heron as my PhD thesis.

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

We are in the process of drafting a manuscript. We value the significance of publishing our work in a reputed journal to disseminate our scientific information. Besides, we would like to take the opportunity to speak to the youths, scientists, policymakers, and local community through common forums such as seminars, conferences, talks, and meetings.

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

The grant period was from 10th February 2020 to 10th February 2021.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
1. Binoculars	596	596		
2. Data Loggers	220	220		
3. Printer	210	210		

4. Camera	1,800	1,800		
5. Travel cost	700	700		
6. Vehicle Hiring	800	800		
7. Sustenance payment	648	848	+200	Adjusted from awareness talks
8. Food	576	576		
9. Awareness Talks	450	250	-200	Used for additional expenditure incurred for sustenance payment
Total	6000	6000		

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

Captive breeding and management of white-bellied heron is the most important step toward realising conservation of this rare species which is already in the pipeline by the Royal Society for the Protection of Nature. Nest predation and monitoring are some of the important aspects of the conservation of the white-bellied herons, which remains unknown to this day. Satellite tagging of the white-bellied heron to understanding its movement ecology and habitat use is necessary. Food abundance and density is an important factor to study.

10. 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?

We acknowledged and promoted the Rufford Foundation's grant support by using the logo for this project during our meetings with local community members, seminars, and social forums as well.

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

Dr. Sara Bumrungsri: Provided guidance and necessary expertise feedback to the project.

Dr. George A. Gale: Provided guidance and necessary expertise feedback to the project.

Mr. Krishna Subba: Field guide and research assistant.

Mr. Sherab Gyeltshen: Field guide and research assistant.

Mr. Pema Dorji: Field guide and research assistant.

Mr. Lhaba: Guide and driver to the project.

12. Any other comments?

White-bellied heron *Ardea insignis* is on the brink of extinction and one of the rarest birds in the whole world. Sound conservation interventions supported by ecological and biological research are imperative for its conservation sooner than later.