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	Suman Shree Neupane
Project Title	Landscape Genetic and Conservation of Himalayan Black Bear in Nepal
Application ID	39340-2
Date of this Report	01/05/2026

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
To study the genetic diversity of Himalayan Black Bears in Nepal			■	We carry out non- invasive genetic sampling to collect genetic information of the Black Bears in Nepal. We successfully collected the data from Western Nepal. Mostly from, Jumla district (around Rara National Park), Dhor Patan Hunting reserve, and Khaptad National Park. We had genetic information of the central and eastern regions from the first phase of the project. After the completion of Second phase, now we have information from Karnali province, Far- western and Western regions of Nepal. We collected more than 50 samples in field but only used 29 for further lab analysis. Very old and dried scat were removed from the analysis. We also observed pug mark, scratch marks in trees, bear nesting site, caves, were also observed. The field work was carried out from September 2020 to August 2024. We intensively surveyed and collected faecal samples mostly in September, October, November of each year in different locations.
Identify dietary component of the Bear		■		We have successfully identified major diet component of the Himalayan Black Bears. We were able to separate visually the human-linked vs natural dietary

				component from the fecal observation. The Himalayan Black Bears' diet primarily consisted of soft mast species (such as Prunus, Rubus, Machilus, and Ziziphus spina-christi), hard mast species (including Quercus, Pinus, Fagus, and Juglans), various green vegetation, and agricultural crops like maize, millet, and potatoes. They also consumed cultivated fruits such as pear, apple, and peach.
To Study the human black bear interactions				We assess people's experiences and attitudes towards black bear conservation and conflict through informal interviews with local people, forest offices, conservation agencies and protected areas. We interviewed people both formally and informally. We recorded the response of around 168 people. Of the total, 62.5% showed an increase in black bear population status population, 5.36% displayed a decrease, 14.88% remained unchanged, and 17.26% of the individuals were reported as unknown. People who stated the increased status of population of black bear also reported rise in number of interactions with human. People considered bear as a conservation important species and showed their level of awareness in black bear conservation. But frequent repeated black bear interactions are mostly accidental and some of them are in retaliation. We also conduct focus group discussion in most of the places to

				know local areas where most of the black bear incidents occurred, nearest black bear habitat, identify key informants in villages, conduct conservation awareness programs, etc. In addition to that we informally discussed conservation agencies and conservation officials while selecting study site.
To carry out conservation awareness programs to the local people				Local farmers, members of Buffer Zone Community Forest Users groups (BZCFUGs), Conservation Area Management Committees (CAMCs), aware about the conservation awareness of the Himalayan Black Bear in the conservation priority areas where human- black bear conflict is higher. We distributed around 200 brochures to school students living near black bear habitat, ground level staff of national park and conservation area who frequently interact with black bears on its conservation and dealing with accidental encounters.

2. Describe the three most important outcomes of your project.

a). <u>Genetic Data Base</u>

We successfully collected genetic samples of Himalayan Black Bears from protected sand outside protected areas spanning eastern to western Nepal, creating a comprehensive genetic database across the species' range. This marks the first-ever study to achieve such extensive fieldwork for Himalayan Black Bear conservation in Nepal. Building on the initial phase, which focused on eastern and central regions, this expanded effort now enables a broader comparison of genetic diversity and population structure throughout the country. These findings provide a critical foundation for developing evidence-based conservation policies and strategies for the long-term protection of Himalayan Black Bears in Nepal.

b). <u>Awareness Raising Programs on Black Bear Conservation</u>

In the second phase, we expanded our awareness programs to Rara National Park, Jumla District, and Dhorpatan Hunting Reserve. These areas were prioritized due to their ecological significance and reports of human–bear conflict. Additionally, we responded promptly to a critical incident in Lalitpur (Konjyosom), where Himalayan Black Bear skulls and body parts were discovered. In collaboration with the Division Forest Office in Lalitpur, we organized an emergency conservation and awareness program in the affected community. This rapid intervention aimed to educate residents on the importance of Himalayan Black Bear conservation and discourage illegal hunting practices. Overall, these efforts strengthened community engagement and addressed urgent conservation challenges in both high-conflict zones and areas of emerging threats.

c). Help or Hindrance? Human as range expanding or reducing forces for Himalayan Black Bears in Nepal?

Based on presence records collected during the first and second phases across Nepal, the project leader, Suman Shree Neupane, completed his master's thesis titled *"Help or Hindrance? Human as Range Expanding or Reducing Forces for Himalayan Black Bears in Nepal."* The study found that anthropogenic changes currently have a near net-neutral effect on the species' range: while natural forests remain highly suitable, human-modified landscapes still provide moderate suitability due to bears accessing crops and livestock. Unprotected areas cover larger proportion of the Himalayan black bear habitat than the protected areas. These findings highlight the urgent need for targeted conservation strategies to manage human–bear interactions and ensure coexistence

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

Quality of genetic samples

Collecting genetic samples using non-invasive methods proved challenging. Fresh black bear scat was often difficult to find, so most of the samples we collected were less than a week old. Revisiting the same locations multiple times was not feasible, and as a result, we obtained very few samples from Dhorpatan hunting reserve and Khaptad National Park. Most of the samples collected were concentrated on the Jumla District and Rara National Park. To improve sample quality, we also focused on gathering hair samples from bear resting sites and rub trees. But due to limited funds and resources, we couldn't do laboratory assessments of the hair samples.

We will analyze the hair samples in the future if we have availability of resources. They have been safely stored and maintained in needed temperature – 20 degrees Celsius.

Travelling Days

Black bears are primarily found at higher elevations, typically above 2,000 meters. Most of the samples we collected were from altitudes ranging between 2,200 and 3,300 meters. In many areas, reaching these sites required trekking for three to four days, which significantly extended our fieldwork duration. As a result, the time spent in the field was longer than initially anticipated.

Extended study area

Due to the limited quality and quantity of scat samples from the targeted protected areas, we extended our fieldwork to Jumla District and Dhorpatan Hunting Reserve. These areas were selected because they are known habitats of Himalayan black bears and have reported frequent human–bear interactions, making them critical for both genetic sampling and conflict mitigation studies. In addition to sample collection, we conducted conservation and awareness programs in these regions. We also organized similar activities in areas near Kathmandu Valley, where reports of human–bear conflict had been received.

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

In the second phase, local communities continued to play a vital role in the project. We supported team members in advancing their research on Black Bear conflict and distribution, while also engaging local people in field activities. Community members assisted in identifying forest areas, bear occurrence points, and suitable habitats, and provided logistical support during extended fieldwork. They helped collect scat and hair samples and shared valuable insights into bear ecology and human–bear interactions.

Additionally, we expanded our outreach to new regions, including Rara National Park, Jumla District, and Dhorpatan Hunting Reserve, where we conducted conservation and awareness programs. These efforts were complemented by rapid-response initiatives in Lalitpur (Konjyosom) following the discovery of Himalayan Black Bear skulls and body parts. In collaboration with the Division Forest Office, we organized emergency awareness sessions to discourage illegal hunting and promote coexistence.

Overall, through community workshops (3 community workshops in Jumla, Konjyosom, Dhorpatan), discussions, and individual interactions, we engaged more than 200 people during this phase, strengthening local capacity and fostering stewardship for Himalayan Black Bear conservation. We also carried out conservation awareness programs in Jyoti Bikash Secondary School (where 50 students participated Dhorpatan) and Shree Baleshwori Secondary School (where 40 students predicated Konjyosom Rural Municiaplity.

5. Are there any plans to continue this work?

Yes, we have clear plans to continue this work. With the completion of the second phase, we now have baseline genetic and ecological information for Himalayan Black Bears across their entire range in Nepal—from eastern to western regions. This achievement provides a strong foundation for future conservation planning.

Building on this progress, our next goal is to develop a Himalayan Black Bear Conservation Action Plan for Nepal, covering the species' full distribution range. This plan will integrate genetic research, habitat suitability analysis, and human–bear conflict mitigation strategies. In addition, we aim to implement targeted conservation and management programs in high-conflict zones, strengthen community engagement, and promote coexistence through education, communication, and participatory approaches.

These steps will ensure evidence-based decision-making and long-term protection of Himalayan Black Bears in Nepal.

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

We have already shared a significant portion of our findings in the public domain. The dissertations and theses produced during the project are available in university libraries for reference ("Help or Hindrance? Humans as a Range Expanding and Reducing Force for " by Suman Shree Neupane). We collaborated with other Rufford grantee Shreyashi Bista to work on a manuscript titled Ecological and social dimensions of Human- Bear coexistence in Nepal's Gaurishankar Conservation Area (Ecological and Social Dimensions of Human--Bear Coexistence in Nepal's Gaurishankar Conservation Area). Additionally, three manuscripts based on our research are currently in preparation and will soon be submitted to targeted peer-reviewed journals.

Suman Shree Neupane, Rajesh Kumar Rai, Susmita Satyal, Barsha Tripathi: Local Peoples Willingness to Pay to Participate in Community Based Insurance Scheme to Mitigate Human-Wildlife Conflict in Gaurishankar Conservation Area, a High Mountain Protected Area in Central Nepal (submitted and under review).

Suman Shree Neupane, Giorgia Auteri, Rabin KC, Rajan Paudel: Help or Hindrance? Human as niche expanding or reducing force for Himalayan Black Bears in Nepal (Under review with coauthors and targeted to submit to Journal of Ecology and Evolution).

Suman Shree Neupane and Giorgia Auteri: Genetic diversity of Himalayan Black Bears in Nepal (Developing phase)

Beyond publications, we have strengthened collaborations with other researchers and extended our partnerships with local communities to promote Himalayan Black Bear conservation and protection.

We have added management recommendations to prioritize conservation sites for black bears in both inside and outside protected areas. We found that two thirds of the suitable habitat estimated from species distribution model lies outside protected areas. So, conservation priorities for black bears should be in those areas too.
For now, we have not thought of sharing to IUCN SSC Bear Specialist groups but we will definitely share our findings once we analyze all our data.

7. Looking ahead, what do you feel are the important next steps?
With the completion of the second phase, we now have a comprehensive genetic and ecological baseline for Himalayan Black Bears across Nepal, including both protected and non-protected areas. Building on this foundation, the next critical steps are:

- Develop a National Himalayan Black Bear Conservation Action Plan
  Using the genetic database and habitat information collected from eastern to western Nepal, we aim to design an evidence-based action plan that

addresses species conservation, habitat management, and conflict mitigation across the entire range.

- Expand Research on Human–Bear Conflict and Mitigation Strategies
  Our findings show that human-modified landscapes still provide moderate suitability for bears, and unprotected areas cover a larger proportion of their habitat. Therefore, detailed studies on conflict patterns and community-based mitigation strategies are essential to promote coexistence.

- Strengthen Community Engagement and Education
  Continue awareness programs in high-conflict zones and emerging threat areas, focusing on local solutions, rapid response mechanisms, and partnerships with local governments and conservation agencies.

- Publish and Disseminate Findings Widely
  Two manuscripts are under preparation for submission to peer-reviewed journals. We will also share results through conferences, workshops, and digital platforms to reach both scientific and local communities.

- Long-Term Monitoring and Policy Integration
  Establish a monitoring framework for population genetics, habitat changes, and conflict trends, and integrate these findings into national wildlife conservation policies.

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, we used Rufford Logo on our flex, posters, and oral presentations. We will also acknowledge The Rufford Foundation in our future publication and conference participation for their assistance and financial support.

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

S. No.	Name of Members	Role
1.	Barsha Tripathi	Team Member (Sagarmatha National Park)
2.	Pooja Basnet	Team Member (Kanchenjunga Conservation Area)
3.	Laal Bahadur Khatri	Local Resource Person (Gaurishankar Conservation Area)
4.	Lakpa Tinthi Sherpa	Local Guide (Gaurishankar Conservation Area)
5.	Geli Sherpa	Local Guide (Gaurishankar Conservation Area)
6.	Badi Tamang	Local Guide (Gaurishankar Conservation Area)
7.	Taashi Dale Sherpa	Local Guide (Kanchenjunga Conservation Area)

8.	Dawa Jagnbu Sherpa	Local Guide (Sagarmatha National Park)
9.	Kami Nuru Sherpa	Local Guide (Sagarmatha National Park)
10.	Sher Bahadur	Loca guide (Jumla District)
11.	Nanda Jaishi	Local guide (Jumla District)
11.	Rabin Bahadur KC	Team Member (Jumla district and Rara National Park)
12.	Sandesh Lamichhane	Team Member (Lalitpur, Konjoyosom)
13.	Giorgia Auteri	Collaborator and Supervisor

10. Any other comments?

We are grateful to The Rufford Foundation for their support for research and conservation of biodiversity

ANNEX – Financial Report

[Intentionally removed]