

Final Project Evaluation Report

Your Details	
Full Name	Muhammad Asad
Project Title	Subspecies Status and Distribution of Leopards in Pakistan
Application ID	24480-1
Grant Amount	£5000
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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
Conduct scientific research into leopard presence/absence and distribution (using track surveys and camera traps).				We successfully performed camera trap survey in Sawat, Malakand, Dir, Ayubia National Park, and surrounding reserves, and Guzara Forest, Muree Forest Division. Track survey data recently conducted by WWF-P at Margalla Hill National Park will also be used in our analysis.
Create awareness and build enthusiasm among school children and local communities for protecting 'their' resident leopards and improve co-existence of human and leopards in the region.				We successfully delivered 38 awareness sessions in schools and 14 community sessions in villages in close proximity to the observation area. More than 2000 children and 150 community members participated in those sessions.
Create strong Liaison between the stake –holders, i.e. wildlife department, NGOs and Local community for protecting leopards.				A collaborative initiative was undertaken with Khyber Pukhtunkhwa Wildlife Department, the local community and WWF-P to protect leopard

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

While measuring the presence/absence of leopards in Swat region (Beshigram), working with the staff of wildlife department, we had a situation where the local community opposed the installation of camera traps. The reason behind this was a previous conflict between the indigenous community and the Khyber Pukhtunkhwa Forest Department over a forest area. Recently, the forest department had demarcated the forest boundaries which created conflict between the forest department and the local community. The Khyber Pukhtunkhwa Wildlife Department staff informed the local police and District Nazim (Muhammad Shoaib) to clarify the misconception of the local people about our current camera trap project. The local community were briefed about the camera trap activity and the importance of leopards in the ecosystem. The community members were then satisfied and allowed us to install the camera traps after confirmation from the district Nazim and the police officers.

This was the first time that a camera trap study was performed in this area. The area was ruled by the Taliban nearly a decade ago. The leopard habitat is highly disrupted by the previous gunshots and current hunting practices.

Lesson Learned and the way forward: I would strongly recommend meeting with the head of the local community to brief them about the purpose of your activity prior to conducting your research.

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

- a) The project established a protocol for determining leopard presence/absence in different habitats. Leopard presence is confirmed for the Swat and Dir regions, despite the local wildlife department considering them absent from the area. However, the population is on the brink of extinction because of current hunting practices.
- b) We were able to raise awareness and build huge enthusiasm among the local schoolchildren for protecting 'their' resident leopards. Local students and the local community have a naive perception about leopards as they seldom distinguish between leopards, cheetahs, tigers and other big cats (personal observation). As a by-product of this research, we designed brochures and posters to differentiate the different cat species and highlight their importance in the ecosystem.
- c) We identified 33 hotspots and identified many leopards in the local population based on their unique rosette pattern and a CMR model. The data will be used by the local wildlife department to monitor those leopards in the future for long term survival.

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

1. A total of 25 community members and wildlife staff were trained for leopard monitoring, camera trapping and conducting awareness sessions regarding leopard importance. The trained members will be working together with the line department for future monitoring of those areas found to have leopards.
2. Local women, involved in fuelwood collection, were notified of leopard movement and mitigation measures were suggested, such as avoiding specific trails at specific times (dawn and dusk), and moving through some areas in groups.
3. School awareness sessions were conducted and are still ongoing in villages and schools in close proximity to the observation areas. A total of 38 awareness sessions in schools and 14 community sessions in villages were conducted during the reporting period. The 1-hour session began with differentiating the different cat species, highlighting their importance in the ecosystem followed

by the mitigation measures. More than 2000 children and 150 community members participated in those sessions.

5. Are there any plans to continue this work?

I will continue my conservation efforts using the same existing protocol for determining leopard presence/absence in other part of the country where the presence of leopard populations is ambiguous, on submission of my research thesis. I am intend to map the current existing range of leopards throughout the country in different habitats.

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

1. This research will be a major addition to the existing scientific knowledge about leopard distribution and status in a region (Pakistan) with little data. The data collected will be used by wildlife departments to focus their conservation efforts on the endangered leopard in Pakistan. Understanding local population demographics is an important step in conserving species.
2. Data on unique coat pattern in leopards will allow leopards to be monitored in the future for long-term survival, movement and other life history traits relevant to leopard conservation by the local wildlife departments.
3. As a by-product of the camera traps studies, we are also planning to design another brochure or leaflet and share our results of leopard unique coat patterns with local communities and motivate them for protecting their resident leopard.
4. Our result will be published in international journals and used as reference for future scientific work in the area.
5. Results will also be presented at conferences of the NZ Ecological Society, and Australasian Society for the Study of Animal Behaviour and other opportunities at Lincoln University and University of Canterbury.
6. We are also developing a video of our research activities which could be used as a guidance for future research.

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

The planned activities of the project were initiated in February 2018 and completed in October 2018, although we are still conducting awareness session with the help of our trained communities' members and WWF-P Staff are using our promotional material.

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
Camera traps procurement	350	650	+300	We procured 4 camera traps instead of two to cover the area efficiently.
Alkaline AA battery (8 pairs per month per camera for 6 months for 14 camera traps)	672	807	+135	This difference is due to the price per unit.
Diary, pen, & marker	90	100	+10	The surplus were used in the development of awareness material
Development of awareness material (Banners, Brochures, and posters)	0	844	+844	We designed and printed 3000 copies brochures and posters for awareness purposes.
Organising meeting and Training workshop for wildlife and community member for field assistance	200	0	200	We conducted training for staff and community members in their allocated compartment and village while conducting track survey and camera trap installation.
Field assistance (Community member and wildlife staff)(Assistance in survey and conducting awareness sessions	1400	1400		25 community member and staff were involved in the data collection and awareness sessions
Christchurch-ISB-Christchurch airfare return	2,288	1712	-576	The surplus were used in development of awareness material
Total	5000	5513	513	

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

Our aim is to protect leopards in Pakistan. I will be using the same preliminary approach to determine leopard presence/absence in other parts of the country.

We have received a very positive response from the schoolchildren and community members about the clarity of the awareness material in understating leopard ecology

and importance. I would like to distribute these materials to other parts of the country where the leopard is present.

Local community members, particularly school students, are the main target of our project. We will build enthusiasm among the students to develop 'ownership' and conserve their resident leopards by performing a series of activities, e.g. spot recognition of leopards. We will also show camera trap images of the resident leopard to the schoolchildren and help them to identify individuals from their unique rosette pattern. Currently, local students and the local community throughout the country has a naive perception about leopards as they seldom distinguish between leopards, cheetahs, tigers and other big cats. The project has already designed material that could be used in other regions.

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?

The Rufford logo was used in all promotional material, i.e. brochures, posters, and banners. It is also used on the Lincoln University website. We will be using the logo in a video used for education purposes.

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

Muhammad Aasd: PhD candidate at Lincoln University and principal Investigator of the project.

Associate Professor Adrian Paterson: Supervising my PhD and project activities from Lincoln University Christchurch.

Dr James Ross: Supervising My PhD and providing technical assistance in conducting research.

Muhammad Waseem: External Advisor from WWF-Pakistan facilitate the implementation of project activities.

Trained Community members who were involved in the data collection and awareness campaigns: **Islam ud Din, Sajid Khan, Sartaj, Akbar Ali, Sher Zamin, Amjad Ali, Yousaf, Shahid, Wazir Khan, Sher Badher & Lal Zada.**

Wildlife Department staff Involved in the project activities **Kaleem, Sarbiland Khan, Muhammad Ilyas, Zahid, Asgher Khan, Mushtaq, Ameen, Mujahid, Aurangzeb, Sardar Ali, Rizwan, Najeeb Khan & Wajid Ali.**

WWF-Pakistan: **Gull Rukh & Sajid Hussain.**

12. Any other comments?

Despite being classified as critically endangered in Pakistan, there is little work on leopard protection. Once widely distributed in Pakistan, leopards are now sparsely distributed and documented by limited geographic information. Leopards are possibly extinct from many of their previously recorded habitats. The leopards were assumed to have a fairly stable population in the northern part of Pakistan that included the Swat and Dir areas. This study is the first known attempt to use camera traps, track surveys and information from indigenous people to confirm the presence of leopard in the area. The study confirmed the presence of leopard, although the local people and the line department believed the species has been eradicated from the area (Swat and Dir). There is no record of livestock depredation and retaliation in the villages in close vicinity to the forest area and they presumed the leopard are extinct from that region. However, interviewed herders confirmed depredation in summer seasons although they were unsure as to the actual cause of those killing. The attack events were described as similar to that of leopard predation (bite marks, dogs missing etc.). The herder community travelled from plains to hills during summer and kept the livestock under open sky overnight. We encounter leopards in one camera trap station and found two territorial markings on one track close to these grazing areas. The ultimate threat to leopards in this habitat is the extensive legal and illegal hunting. The wildlife department has issued huge number of licences to the locals for bird hunting as part of their revenue generation. If a person is reported for illegal hunting he was first fined a small amount of money and then issued with the licence. Once the licence is issued a person can hunt whatever they want as there are no checks and balances. Illegal hunting has created a traumatic situation for leopards that drive them away from this habitat. The other threats to leopards in this area are habitat degradation, unplanned development, encroachment by humans, and alarming depletion of the natural prey base.

I would strongly recommend researchers to further investigate their presence and population bottleneck across Pakistan.

Project Activities





School Awareness session



Illegal hunting activities recorded during the survey.



Interviews with herders communities regarding leopard predation.



Open grazing of the livestock in the forest.



