The Rufford Foundation
Final Report

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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Aishwarya Maheshwari
Project title	War and Wildlife: Conservation of Kargil Himalayas Beyond International Boundaries and Protected Areas
RSG reference	17790-B
Reporting period	October, 2015 to July, 2017
Amount of grant	£9612
Your email address	aishwaryamaheshwari@gmail.com
Date of this report	August, 08, 2017

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
1. Support, strengthen and capacity building of front-line staff of Wildlife Department in Kargil			✓	Training programme for the staff of the Dept. of Wildlife Protection, Kargil, Jammu and Kashmir was organised and field kits were distributed for regular monitoring of snow leopard and associated wildlife and combat poaching in illegal wildlife trade.
2. Continue measures for mitigating large carnivore-human conflicts through predator proof livestock corrals			✓	A pilot model of community driven conservation programme was followed selected conflict hotspots villages in the Kargil district. The major emphasis of this programme has been to improve existing animal husbandry guarding practices to reduce livestock depredation.
3. Bridge gap between local communities and Wildlife Department to improve wildlife conservation and enforcement in Kargil			✓	Regular meetings with the local communities and generating wildlife conservation awareness in the remote locations of Kargil has helped in creating a environment of trust and more awareness about the issues related to wildlife and reducing human-wildlife conflicts.

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

Climatic conditions in the high altitude areas are always be challenging and particularly Kargil gets disconnected with the rest of the country during winters (December to April/ May; Zojila Pass) due to heavy snowfall. But this can't be referred as unforeseen difficulty! But extended winters impacted the fieldwork in 2016-17.

Since 2009, I've started working on mitigation of the human-wildlife conflicts in Kargil, Ladakh, local communities look forward to the support provided under the project. Kargil is extended over 14,000 km^2 and I've been able to cover 12 villages (identified as conflict hotspots in the previous studies) across 1,000 km^2 (Fig. 1). Kargil, being a neglected area for wildlife studies (due to proximity with the International border with Pakistan and war zone during late 1990s), the project activities received overwhelming response from the local communities and they have come forward to

share the cost of the predator proof corrals to protect their livestock. In addition, I've also requested the Department of Wildlife Protection, Government of Jammu and Kashmir to extend the support for wildlife damage, rescue and conflict cases.

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

1. Front-line staff of the Department of Wildlife Protection is now strengthened, trained and well equipped to monitor wildlife and collect baseline information. Field kits (tents, sleeping bags, trekking shoes, winter jacket, and rucksack) will help them to survive in the challenging high altitude environment.
2. Four livestock corrals are meaningfully contributing in mitigating the large carnivore-human conflicts in Kargil. In addition, they will also protect the livestock (major livelihood of the locals) from depredation. Eventually, it will reduce the retaliatory killing of snow leopard and Tibetan wolf.
3. Now, there is a bond of trust between the local communities and Department of Wildlife Protection, Kargil to ensure better survival of globally endangered wildlife.

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

Participatory approach is the first principal of my projects and local communities have always been an integral part of all my projects in the Himalaya. Similarly, the wildlife conservation awareness programmes, raised conservation education level amongst local communities. In addition, the field kits which were developed and distributed amongst the staff of the Department of Wildlife Protection, Kargil may also be used by the local communities to involve them in wildlife monitoring.

5. Are there any plans to continue this work?

In Kargil district, Zanskar has been identified as one big gap in the existing information on snow leopard and associated species. There have been anecdotal reports of livestock depredation and retaliatory killing of snow leopards, Himalayan brown bear and Tibetan wolf. Therefore, it is crucial to extend the work and repeat the success of Kargil model in Zanskar before it's too late to handle the retaliation and loosing the globally endangered species.

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

I've communicated scientific article based on the work and acknowledged the support from the Rufford Foundation. Once, the article is published, will be communicated to the Rufford Foundation. Moreover, interim and final results have been shared with the local communities, Officials and staff of the Department of Wildlife Protection Kargil, Jammu & Kashmir.

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

Continuous efforts are contributing meaningful results towards gathering baseline information on wildlife in Kargil and mitigating large carnivore-human conflicts. Current project was originated from a two-phase study supported by the Rufford Foundation. How Science can compliment conservation efforts, has been proven in a three-phase study in Kargil. Current phase of the project was approved in October, 2015 but the project initiation and field work was started in April, 2016, therefore, it took one year in accomplishing outcomes planned in the project.

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. Exchange rate: Sterling £ 1 = Rupee ₹ 98.83

Item	Budgeted Amount	Actual Amount	Difference	Comments
Engagement of one Field Officer per month for 12 months	1000	1080	80	Additional funding raised by the PI
P.O.L. for one four wheel drive vehicle @ GBP 10 / day (for 100 days)	1000	1000	0	
Travelling expenditure 1000 for Principal Investigator	500	1000	500	Additional funding raised by the PI
Purchasing of one hand held camera, one GPS, one binocular	300	600	300	Additional funding raised by the PI
Purchasing of 20 field kits; winter jackets, trekking boots, back packs, tents for frontline staff	2450	4450	2000	Additional funding raised by the PI
Support for 04 predator proof livestock corrals	3750	5250	1500	Additional funding raised by the PI
Preparation of reports	0	500	500	Additional funding raised by the PI
Contingencies / unforeseen expenses	600	600	0	
Total	9600	14480	4880	Additional funding raised by the PI

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

Out of 12 conflict hotspots identified, livestock corrals have been implemented in four villages and produced promising results. To cover remaining eight villages and replicate the success of the previous work, I am currently exploring an innovative technology, which should be equally effective as the livestock corrals but more cost-effective. More importantly, it should be easy in installation and give instant results to protect livestock from large carnivore's depredation. Furthermore, Zanskar (another block headquarter in Kargil district) has been identified as one of the major gap from where, there is limited information available on wildlife and their interface with human. However, anecdotal records of large carnivore-human conflicts have been reported from Zanskar. Thus, along with using an advanced technology in the eight conflict hotspots, Zanskar will also be explored to determine status and distribution of snow leopard and associated species.

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

All the field kits distributed amongst the front-line staff have logo of the Rufford Foundation. All the banners used for wildlife conservation awareness workshops have the same logo. In addition, Rufford Foundation's Ms. Jane Raymond and Mr. Josh Cole have been particularly acknowledged in my PhD thesis on snow leopards. Moreover, Rufford Foundation support has been acknowledged in the publications (under review) and same will be communicated to the Rufford Foundation, once published.

11. Any other comments?

I really appreciate the support from the Rufford Foundation towards the conservation of wildlife in Kargil. Moreover, the local communities are also grateful to the Rufford Foundation and look forward to continuous support to conserve and mitigate wildlife-human conflicts in the Kargil district in Ladakh region.

War and Wildlife:

Kargil experienced severe armed conflict, therefore, it is necessary to consider how conservation efforts are contributing in restoring wildlife at the battlefield of India. With Rufford Foundation support, I've been able to manage the underlying factors responsible for large carnivore-human conflict, similarly, it is also crucial to understand how war had impacted the wildlife in the war zones, as it appears that wildlife is recovering in these zones. As of now, I am summarizing some of the initial findings:

India and Pakistan has been engaged in severe agitation and demonstration on the borders since late 1990s. The immediate and direct impact of such war on wildlife was devastating in Kargil, which have not been accounted, certainly be acute with large species. Large range species inhabiting in Trans-Himalayas such as snow leopard, would have been one of the most vulnerable species to such war and

related activities across its natural range in central and south Asia, as it requires large areas of suitable habitat, and so suffers from habitat loss. In the context of this widespread and profound impact of war, I've been attempting to evaluate the impacts of war on snow leopard and associated species in Kargil. A brief summary of surveys in the war zones is given below:

Table 1. Survey effort, snow leopard sign encounter rate and ibex sightings in the war-affected areas

Surveys	Snow leopard evidence	Total effort (km)	No obs. (Asiatic ibex)	n/L (per km)	CV (n/L)
2009	11	230	10	0.04	0.41

CV (n/L) = coefficient of variation for sign encounter rate (genetically identified scats, fresh pugmarks and scrapes per km)

Table 2. Occupancy models developed for snow leopard at war zones in Kargil using PRESENCE 2.0 software

Model	AIC	ΔAIC	AIC weight	Model likelihood
One group, constant p	23.91	0.00	0.867	1.000
Two groups, constant p	27.75	4.00	0.117	0.135
Three groups, constant p	55.23	8.00	0.016	0.018
One group, survey-specific p	65.82	38.07	0.000	0.000
Abundance-induced heterogeneity	86.45	39.22	0.000	0.000
Two groups, survey-specific p	131.27	107.36	0.000	0.000
Three groups, survey-specific p	186.00	138.77	0.000	0.000

P, detection probability; AIC, Akaike's Information Criterion; ΔAIC, difference between the AIC for a given model and the minimum AIC.

Figure 1. Study area: Kargil with project blocks.