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	Abhishek Ghoshal
Project title	Towards participatory natural resource management and long-term awareness programme in the snow leopard habitat of the Indian Trans-Himalaya
RSG reference	15020-1
Reporting period	July 2014 – July 2015
Amount of grant	£5950
Your email address	abhishek@ncf-india.org
Date of this report	08 August, 2015

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
To understand the regional distribution of natural resource use in the snow leopard habitat.			X	The project team has been able to complete the field work in the Spiti sub-division and subsequent analyses of data on schedule.
To understand the drivers and dynamics of the dependence on natural resources by the local and immigrant communities.			X	The team successfully interacted with key informants. Our prior experience of working in the study area and involving local communities in ongoing conservation work facilitated acquiring reliable information.
To assess the local environmental and/or wildlife awareness among the immigrants, and key challenges that they face in the landscape.			X	The team's long-term presence in the study area and familiarity with most key informants helped us to interact with the stakeholder groups.
To develop a long-term campaign to integrate the local and immigrant communities into the formal conservation framework functioning in the landscape.			X	Support from local and immigrant communities, local administration and eminent religious personalities is helping us to develop the framework for a long-term campaign.

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

Initially, interacting with the immigrant labourers was found to be challenging, due to their busy schedule of daily work. Also, acquiring accurate information on resource use was challenging to begin with, as this is perceived to be a sensitive issue. We tackled these difficulties by repeatedly visiting the same individuals over a period of time. This helped us to get familiar with the key informants who eventually became comfortable to interact and share knowledge with the team.

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

A. Thanks to the Rufford Foundation's support, through this project we have been able to identify migratory livestock grazing as the most widespread and emerging conservation issue in the study area. During the course of fieldwork we understood the issue of migratory livestock grazing in details. We visited areas grazed by migratory livestock and interacted with the migratory herders. Based on the insights about the problem a follow-up study has been designed by the lead researcher to address ecological and social aspects of migratory livestock grazing in a part of the study area (See details on the work in Section 5 below).

B. With support from the foundation, this project paved the way toward: (i) formal recognition of the immigrant community (especially labourers) along with the contractors/employers as an important stakeholder group in the existing snow leopard conservation programme in the study area; (ii) generating baseline information on motivation, kinds of occupation and role of the immigrant community in local resource use and economy; and (iii) providing a platform for inclusion of the immigrant community and contractors/employers in the existing snow leopard conservation programme in the study area.

C. The support from the foundation helped us to bring together the stakeholder groups by organising meetings, discussions and a workshop. The focus was on awareness of wildlife laws and values and rules and regulations in wilderness areas. The workshop was attended by representatives from local and immigrant communities and various departments of the local administration. We are developing education/outreach materials for the stakeholders by back and forth exchange of ideas and draft materials with the concerned representatives of different stakeholder groups through multiple meetings and discussion to ensure effectiveness of the final materials.

Overall, the project served several mandates of the existing management plan (USL, 2011) under the national snow leopard conservation programme, the Project Snow Leopard, in the Spiti sub-division, by: (i) documenting natural resource use; (ii) identifying a key emerging threat in the landscape (migratory livestock grazing); and (iii) paving the way for future research and conservation efforts on impact of natural resource use on snow leopard habitat.

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

The local community in the Spiti sub-division has been a long-standing partner of the Nature Conservation Foundation (NCF) and the Himachal Pradesh Forest Department (Wildlife Wing). The team representing NCF also partnered and closely worked with the local community during this project. The key informants and the focus groups from villages including the village head (Pradhan), deputy village head (Upa-Pradhan) and other elderly individuals interacted freely with the project team during the surveys. As mentioned above, representatives from the local community actively

participated in the workshop and discussions conducted by the team. The local community is also involved in guiding us to come up with effective outreach/education materials.

The local community is facing certain issues from some of the immigrant labourers in certain villages, e.g. unauthorised extraction of natural resources, especially medicinal plants and fuelwood from village pastures; hunting of wildlife including wild ungulate (mostly bharal, occasionally ibex), birds (chough, rock pigeon) and small mammal (Himalayan woolly hare) and consuming sheep/goat of villagers (and attributing the disappearance of sheep/goat to snow leopard/wolf depredation). The issues continue to persist despite providing accommodation and food to the labourers by contractors/employers. Medicinal plants are crucial to the villagers for traditional treatment. Large amount of fuelwood is necessary for cooking and warming houses during winter. Being Buddhists, the local community avoids killing wildlife, and thus hunting by labourers appears to be against the local culture. By attributing sheep/goat disappearance to snow leopard/wolf depredation, the labourers appear to facilitate escalating perceived conflict between resident community and snow leopard/wolf in certain villages, which are carnivores of conservation importance in the landscape. Since this project is working towards involving the immigrant community (including labourers) in the formal snow leopard conservation framework, we believe the concerns of the local community will be duly addressed in the near future. Our efforts will continue to foster among the immigrant community and contractors/employers a sense of ownership of and responsibility towards the landscape and its domesticated and wild inhabitants.

5. Are there any plans to continue this work?

As mentioned earlier, through this work we have been able to identify migratory livestock grazing as the most widespread and emerging conservation issue in Spiti. Drawing on the insights from this project the lead researcher has designed and initiated a follow-up project titled "*Combating rangeland degradation and subsequent decline in wild-prey populations of snow leopard due to migratory livestock grazing in northern India*" to address the issue. The study site for this project is the Pin Valley National Park (32.004003 N; 77.946217 E) in the Spiti sub-division. The goal of the project is to mitigate impacts of migratory livestock grazing on snow leopard habitat through a combination of science, dialogue and participatory management. The main objectives are:

A. Evaluate effect of migratory livestock grazing on:
   (i) forage availability in rangelands; and
   (ii) relative abundance of wild-prey of snow leopard.

B. To assess the underlying drivers of the changes and future directions in migratory herding practices.

This project will result in improved understanding and recommendations towards addressing the impacts of migratory livestock grazing on wild prey of snow leopard and the snow leopard habitat in Spiti. Outcomes of this project will be:

A. Estimation of population density and young to adult female ratios of wild prey of snow leopard across the study sites.
B. Estimation of livestock stocking density across the study sites.
C. Quantifiable evidence of impacts of grazing on rangelands and wild prey.

The follow-up project has been awarded partial funding from an eminent global organisation supporting felid conservation. Field work for the project is being carried out by the lead researcher and is progressing on schedule. In the near future, we would like to seek your support for this project through the 2nd Rufford Small Grant.

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

We have shared our results and insights with the different stakeholder groups during the meetings and workshop. A semi-scientific article on the issue of migratory livestock grazing drafted by the lead researcher is in press with *Saevus* magazine, the premier natural history magazine in India. Upon publication of the article we will share it with the local administration and representatives of other stakeholder groups and the fraternity of conservation professionals working in the area. As stated above, we are preparing education/outreach materials in consultation with the stakeholder groups that will include relevant information from the results. Once finalised, we will share these with our partners and stakeholders during subsequent meetings and discussion. During every outreach/education activity and publication the foundation's support and contribution towards this work will be duly acknowledged.

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

The Rufford Foundation grant was used over a period of one year, between July, 2014 and July, 2015. This time period is consistent with the approved length of 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.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Field per diem for one researcher	360	360	NIL	
Hiring one field assistant for eight months	640	640	NIL	
Air travel (Bangalore – New Delhi) 2 trips	400	400	NIL	
Local travel (public transport)	100	100	NIL	

Vehicle hiring @ £ 25/day for ca. 90 days	2250	2250	NIL	
Hiring porters and pack animals	200	200	NIL	
Hiking and camping gear	500	500	NIL	
Rented accommodation	300	300	NIL	
Stationary, cells & field consumables	200	200	NIL	
Workshops	400	400	NIL	
Printing, education materials & communication	600	360	240	As mentioned earlier, we are in the process of finalizing some of the education / outreach materials. The remaining difference amount of £ 240 for this item will be utilised towards this purpose over the next month or so. We hope that is fine.
Total	5950	**5710**	240	

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

The immediate next step is to carry out the follow-up project on impacts of migratory livestock grazing on rangelands and wild-prey of snow leopard in Spiti, as mentioned above. Currently, in certain areas of Spiti where wildlife conservation is the priority, 'livestock-free areas' have been created and maintained in collaboration with local community. Livestock-free areas are usually relatively small in comparison to the larger conservation needs in the snow leopard habitat. Such areas may also transfer the problem of livestock grazing from one area to the other, rather than providing a long-term solution. Due to scarcity of usable pastures in the Trans-Himalaya rotational use of pastures also appears to be not feasible.

A potentially reasonable (and perhaps important) alternative for long-term coexistence of migratory livestock grazing and wild prey (thus in turn persistence of a healthy population of snow leopard), is reducing livestock numbers considerably. The reduction in livestock numbers might need to be supplemented with innovative multi-faceted incentives to facilitate higher returns from comparatively lower livestock holding to herders. The incentives should be viable to at least maintain or increase income of the migratory herders. Based on results and insights from this follow-up project, we will explore such options for convergence of migratory livestock grazing practices with snow leopard conservation in a participatory framework through engaging with stakeholders at various administrative and management levels.

Additionally, as mentioned in the proposal, each year we would like to organise at least one awareness workshop in Spiti, involving representatives from the local and immigrant communities, primary contractors and employers of immigrant labourers. This will contribute towards sustaining the long-term campaign to integrate the stakeholder groups, especially the immigrant community and labourers and their contractors/employers into the ongoing snow leopard conservation program.

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?

While presenting findings during meetings and awareness workshop the contribution by the foundation was acknowledged. The logo of the foundation is included in the outreach/education materials (Annexure 1). The Rufford Foundation's support has been acknowledged in the semi-scientific article (in press) (Annexure 2). In subsequent outreach/education materials and publications relevant to this project the foundation's contribution will always be acknowledged and the logo will be used appropriately.

11. Any other comments?

The Nature Conservation Foundation and the project team are very grateful and honoured to have received the support of the Rufford Foundation. We sincerely look forward to continue working with the foundation. As mentioned earlier, we would like to apply for the 2nd Rufford Small Grant in the near future for funding towards the follow-up project on impact of migratory livestock grazing on rangelands and wild prey of snow leopard. Thanking you.

ANNEX 1

Do's and don'ts for contractors – labourers in Spiti, Himachal Pradesh

Don'ts

- Feeding wildlife *
- Harassing / chasing wildlife
- Trapping / capturing wildlife
- Hunting wildlife (for consumption)
- Poaching wildlife (for illegal trade)
- Collecting kill / carcass of wildlife
- Digging earth
- Cutting / clearing / lopping trees / plants / grass
- Collecting fuel wood / timber / medicinal plant
- Collecting fossil-rock / rock art
- Blocking / diverting streams
- Littering road / roadside /foot trail/pasture
- Casual disposal of waste / debris (e.g. plastic, brick, tar, vessels etc.)
- Casual disposal of garbage (food wastes, water bottles etc.)
- Off-road driving (tractor, car, motorcycle)
- Fire / smoke

As per the Wildlife (Protection) Act, 1972, any person committing / supporting / facilitating the above activities will be liable to heavy penalty along with possible criminal prosecution under the Indian Penal Code (IPC).

Do's

- Respect local sentiment / culture / beliefs
- Only observe wildlife
- Maintain distance from wildlife
- Release wildlife if accidentally trapped
- Report harassment / chasing / hunting / poaching of wildlife **
- Report collection of fuel wood / timber / medicinal plant / fossil-rock / rock art
- Avoid handling kill / carcass of wildlife ***
- Always drive along designated road / trail
- Avoid trampling vegetation

- Dispose wastes / debris (e.g. plastic, brick, tar, vessels etc.) in garbage dumps only
- Dispose garbage (food wastes, water bottles etc.) in garbage dumps only
- Extinguish accidental fire / smoke

***Wildlife includes both animal and plants. **Report any unauthorized / illegal activity to any one or all of the following officer / staff: Divisional Forest Officer (DFO), Kaza; Range Forest Officer (RFO), Kaza; Block Officers / Forest Guards / Beat Guards; Sub-divisional Magistrate (SDM), Kaza; Police Department, Kaza. ***Handling kills / carcasses of wildlife may be i**

ANNEX 2

Pastures for no one

Abhishek Ghoshal
Doctoral Scholar
Nature Conservation Foundation – Snow Leopard Trust
&
Wildlife Institute of India

Acknowledgements: I sincerely thank the Gaddi herders of Himachal Pradesh for the insightful discussions, enriching stays and journeys. I am grateful to the Himachal Pradesh Forest Department (Wildlife Wing), The Rufford Foundation (Rufford Small Grant) and Keidanren Nature Conservation Fund for their support.

Transhumance: where the pastures are greener

In the Shiwalik, the foothills of the Himalaya, it's nearly the end of winter by March end. The cold is gradually fading away, and the heat getting stronger. For Roop Singh, a *Gaddi* migratory herder from Bharmour in Himachal Pradesh, it's time to move with his flock of sheep and goat (*mal*), as the grass gets scanty and paler by the day.

The long journey, hence, begins. Through the vales and forests of the Shiwalik and Dhauladhar ranges, he moves, towards the higher ranges, where the pastures are greener. A brief stop at home, in between, somewhere in the picturesque Ravi Valley, to catch up with family, to look after their basic needs and to help prepare the agricultural fields for the forthcoming growing season.

The journey continues thereafter, through forests and then beyond the tree-line, with pre-determined halts at shelters amidst remote pastures (*thatch*/*kota*). Then finally, across snow-clad passes of the Pir Panjal Range, he descends into the rain-shadow of the Himalaya, the Trans-Himalaya.

There in the arid, cold-desert landscape, lay vast tracts of pastures. Lush from the melt snow, rich and nutritious, for the livestock to get rejuvenated through the summer, after the long journey. From one pasture to the other, Roop Singh and hundreds of other Gaddi herders like him, move, in about every two weeks, spending the nights in small make-shift camps. While the Gaddis live primarily on hand-made coarse *chapatis* and *daal* enriched with *ghee* derived from livestock's milk; the latter extract the Nature's bounties, as much as they can, ripping the fragile earth off its meagre produce.

In the Trans-Himalaya, by the end of August, the short summer of three months is at its end. The warmth is gradually fading away and the cold getting stronger. It's time for Roop Singh to move with his flock, as the grass gets scanty and paler by the day.

The long journey begins, yet again, through the snow-clad passes, towards the lower ranges, where the pastures are greener. A brief stop at home, in between, to catch up with family, to look after their basic needs and to help harvest the crops. The journey continues thereafter, across vales and forests of the Dhauladhar, into the scrub-forests of the Shiwalik, where the livestock will graze till the end of winter.

The transhumance, thus, continues. For centuries, tribes such as the Gaddi, are efficiently reaping the benefits of natural variation in availability of resources across space and time through transhumance.

The residents' dilemma: forage-depleted pastures

Imagine yourself stuck forever in a rugged terrain above 3,000m altitude by some complicated and poorly understood forces of evolution. Ambient temperature ranges between a maximum of 30º C in summer to a minimum of -40º C in winter, accompanied by fierce icy winds almost year round. Rocky outcrops, cliffs and precipitous slopes constitute your home, and you live primarily on grasses and a few other plants that are tough enough to grow in such conditions. Pregnant females in your kind have to live through the long and freezing winter months. They feed on whatever little vegetation makes way through the frozen ground or dig through the snow if need be, as long as energy permits, and then give birth during early spring. On top of all this, if you are a little bit unwary and miss the relative security of a cliff even by a whisker, you could end up serving yourself to a snow leopard on the prowl, the top-predator of the Himalayas. *You* are an ibex, a wild-goat of the arid high Central and South Asian Mountains.

The growing season is so short here (just about four months) and forage availability naturally so meagre, that even the wild-ungulates occur in patches and at very low densities. After the lean winter, just when summer brings the long-awaited greenery to the snow-covered mountains, you encounter an uninvited huge bunch of livestock, guided by a few men, accompanied by fearsome dogs.

The livestock sweeps through the treasured scanty vegetation. You watch silently from the cliffs, still largely under snow. You try the next valley; it's the same. You go further to the next valley; nothing changes. You even venture to a valley where you have never been before, searching frantically for some undisturbed forage that can replenish the health of your herd members after the lean winter, especially mothers and infants. Yet, your efforts go largely unrewarded. A few adult males, driven by hunger, ventured towards the lush vegetation near the human camps, to never return. The parent's witness many of the infants succumb to the misery. A few elderly individuals succumb as well.

There's simply not enough forage for all. What's left of the vegetation even after the livestock grazing period are largely unpalatable, and there's hardly fresh growth anytime other than summer in the cold-desert. The death, thus, continues.

The pastures are important not only to livestock of the transhumant tribes and wild-ungulates, but also to resident peoples. Fuel-wood to keep people warm through the winters, winter-fodder for resident livestock, medicinal plants for ailment of health problems and fencing material to prevent livestock depredation by carnivores and crop-raiding by wild-ungulates, are all provided by the pastures.

Exploring the future: Pastures for all

'Change' is widely accepted as the only 'constant' amidst the constantly changing world. The same applies to the transhumant tribes like Gaddi and their herding practices. Their flexibility has allowed them to not only persist with migratory form of lifestyle, that today can easily be termed 'medieval', but flourish, even amidst globalization and modernization. They have been resilient and responding (changing) aptly to the various socio-economic and geo-political transitions, especially following India's independence.

Additionally, to cater to the ever-increasing demand for milk, wool and meat, the transhumant tribes, such as Gaddi, have apparently been increasing livestock holding. Thus, rendering the low-productivity high-altitude pastures, especially in the arid Trans-Himalaya, vulnerable to overgrazing. The pastures that supported grazing for centuries, or even for millennia, are now potentially suffering from degradation. Livestock production itself might decline due to poor pasture quality.

To fulfil the needs of the ever increasing livestock herds, the Gaddis are penetrating deep into the heart of prime areas of snow leopard, the 'flagship' for conservation of the Indian Himalaya, in search for new pastures. But, for how long will the pastures of these new areas support excessive grazing pressures? Which direction will they be heading to, next?

In some areas, where wildlife conservation is the priority, livestock-free areas have been created and maintained. While livestock-free areas are usually too small with respect to the larger conservation needs, it also may transfer the problem from one area to the other, rather than providing a long-term solution. Rotational use of pastures is also not feasible in the Trans-Himalaya due to scarcity of usable pastures. A reasonable (and perhaps very important) option, it appears, for a win-win scenario, i.e. the long-term sustenance of transhumance as well as persistence of native wild-ungulates (and thus snow leopard), is reducing livestock numbers. The reduction in livestock numbers may be complemented with innovative multi-pronged incentives for higher returns to the herders. The incentives have to strive to maintain or increase herders' income through better values and/or marketing for 'wildlife friendly' produce, improve quality of livestock products and possibly provide alternate employment opportunities.

The current scenario calls for a balanced management strategy to address the issue of transhumance in areas where wildlife conservation is the priority. A thorough evaluation of the impacts of transhumance on pastures and native wildlife, and the future prospects of the herding practices,

backed by science, is crucial, to better inform the long-standing socio-politically-motivated approach.

Till then, transhumants and wild-ungulates, the latter being comprehensively outnumbered by livestock of the former, continue to 'cling on fingernails' for survival, to a single, scarce and increasingly depleting resource, the pastures.