



## The Rufford Small Grants Foundation

### Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Kulbhushansingh Suryawanshi
<b>Project title</b>	When to kill livestock? Foraging decision making of snow leopard ( <i>Uncia uncia</i> ) along a gradient of wild prey and livestock abundance.
<b>RSG reference</b>	
<b>Reporting period</b>	April 2010 to May 2011
<b>Amount of grant</b>	£5750
<b>Your email address</b>	<a href="mailto:kulbhushan@conservation.in">kulbhushan@conservation.in</a>
<b>Date of this report</b>	23 March 2012

**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 estimate wild-herbivore population in multiple snow leopard areas			Yes	This objective was fully achieved and ibex and blue sheep densities estimated in seven sites of ~350 sq km each. The results are published in the scientific journal <i>Oecologia</i>
To estimate livestock killed by snow leopards through a door to door survey at multiple sites			Yes	We have successfully established a monitoring programme to follow the trends in livestock killed by snow leopards and other wild carnivores in 50 villages spread over 3000 km <sup>2</sup> . This will remain an ongoing activity and so far we have already recorded over 1200 livestock deaths, a third of which are due by wild carnivores
To assess the diet of the snow leopard at multiple sites			Yes	Snow leopard scats were collected from multiple (seven) sites, ranging in area from 200 to 400 km <sup>2</sup> . We standardised and used molecular genetics tools to confirm the identity of these scats as snow leopard scats. Diet of the snow leopard was studied by mounting the hair remains of the prey found in the scat samples and comparing with reference slides.

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

The primary difficulty when studying a carnivore such as the snow leopard is arranging the logistics. We were running a couple of months behind the time-line as our start was delayed due to bad weather. The difficulties with unpredictable mountain weather continued and a large flood delayed our work by a further 2 months. To deal with the delays we had to hire extra field staff to try and catch up with the proposed schedule.

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

The three most important outcomes are:

- I. Standardising a technique for estimating snow leopard prey abundance that can be used across the snow leopard's range in Central Asia; baseline data on mountain ungulate prey of the snow leopard for seven sites; and a continuing prey monitoring programme for five sites.
- II. Baseline data on the diet of the snow leopard for seven sites across Central Asia. Preliminary analysis suggests that contribution of livestock to snow leopard forage increases with livestock availability. But, detailed analysis of the foraging behaviour of the snow leopard is yet to be conducted.



III. Baseline data on the patterns of livestock damage for five sites and a continued monitoring program for the five sites

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

Members of the Kibber Youth Council actively participated in the project. Three of them were hired to work closely with the researchers on the project. Two of them were helped to develop basic computer skills such as using of Microsoft Office and the internet in day-to-day running of a field office. The larger community will benefit from the development of the understanding of livestock killing by the snow leopard. The information generated by the project, such as the distribution and abundance of wild-herbivores and distribution of human-carnivore conflicts, will help the management of the Livestock insurance scheme and the Village “no-grazing” Reserve. The project team has also been closely associated with the management planning for the Spiti Wildlife Division. The monitoring tools developed under this project are being institutionalised under the implementation of the management plan. Also, conflict patterns emerging from this study will guide the Himachal Pradesh Forest Department and Nature Conservation Foundation in identifying other important conflict mitigation sites.

**5. Are there any plans to continue this work?**

I aim to continue monitoring the populations of snow leopards and their mountain ungulate prey across five sites in the Indian Trans-Himalaya. I also aim to continue monitoring the trends in the livestock killing by snow leopards and other wild carnivores across these five sites. Using the scat samples already collected during the project we aim to use molecular techniques to estimate the population of the snow leopard across these five sites.

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

The results will be shared with the scientific community through publications in scientific journals. We have already shared our method of estimating the mountain ungulate prey of the snow leopard through publishing in the international peer-reviewed journal *Oecologia* (Berlin). The paper has been shared with the Snow Leopard Network, a global alliance of over 400 professionals and institutions involved in snow leopard research and conservation. Nature Conservation Foundation and The Snow Leopard Trust have adopted the method for continued monitoring of ungulate population in Spiti. A work shop explaining the method is planned with the Forest Department, local youth and volunteers in the year 2012. We have also actively assisted colleagues in Mongolia and Pakistan to improve monitoring efforts for wild prey of snow leopard in important snow leopard landscapes (Tost Mountains, Mongolia and Khunjerab Landscape, Pakistan). We hope to publish the other results soon. The results have been shared with a wider general audience through popular article in magazines. We have already published two such articles and hope to publish a few more in the near future. The results have been shared with the local communities through our long term engagement with the Kibber Youth Council.

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

The RSG was used between June 2010 and June 2011. The anticipated length of the project was between April 2010 and April 2011. The Project started two months behind schedule and ended two months later than planned.



**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
Local salaries (field assistants)	1080	1065	15	Exchange rate of 70.39 INR
Travel, Lodging meals	1610	1603	7	
Equipment	2250	2271	-21	
Expendables and supplies	810	810	0	
<b>TOTAL</b>	5750	<b>5749</b>		Exchange rate of 1 £ sterling = 70.39 INR

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

This project throws light on our understanding of the important aspects of human-snow leopard conflicts. The finding will be used to develop conflict resolution mechanisms. The involvement of our team in the management planning and implementation will help facilitate the process. The project has also helped us develop and sustain robust methods of prey monitoring. The long-term work of the Nature Conservation Foundation has developed a robust understanding of the socio-economic trends in the Trans-Himalayan region. But, our understanding of the basic ecology of the snow leopard ecology is still relatively weak. I think the important next steps would be to develop a robust understanding of the ecology of the snow leopard, its relationship with other native and non-native sympatric carnivores, and its interaction with the prey.

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

The RSG has been acknowledged in the scientific publication produced through this project (please see attachment). We will continue to acknowledge RSG with all our future publications. The results of this study have not yet been presented thus we haven't had an opportunity to use the RSGF logo, yet. I promise to acknowledge the RSG and use its logo in all the relevant outputs.

**11. Any other comments?**

I am very grateful to the RSGF for supporting my work. I will continue working towards the conservation of snow leopard and hope that RSGF will continue to support the conservation effort.