

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	Chimmi Dorji
Project title	Distribution and abundance of the different diets and habitats and their threats of the Himalayan Black Bears in Pelgiri and Zongkha, Jigme Dorji National Park"
RSG reference	20733-2(1)
Reporting period	One year
Amount of grant	£ 5000
Your email address	cdorjirehab@gmail.com
Date of this report	October 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
Study the different kinds of wild fruits, acorns, nuts, shoots and vegetables that are the diet of the Himalayan Black Bears.				The objective is fully achieved. The wild vegetables that are eaten by the HBBs are fiddle head, mushrooms, elatostema, wild garlic and orchids. The wild fruits on which the HBBs feed are <i>Cornus</i> , <i>Rosa sericea</i> , <i>Fragaria spp</i> , <i>Rubus spp</i> , <i>Elaeagnus parvifolia</i> and <i>Phyllanthus emblica</i> . All the data were obtained through questionnaires survey.
Find out the different types of habitats of the Himalayan Black Bear and their threats.				The objective is achieved .A total of 31 different habitats are found made on oak trees, rock crevices, fallen trees/logs and stumps. The threats on the habitats are mainly due to the human activities like timber extraction and firewood collection.
Find out the different types of ungulates and their abundance in the study area				This objective is also fully achieved. There are 4 species of ungulates (Samber deer, Barking deer, Goral and Musk Deer) found in the study area.
Educate the general public on the importance of the diets of the bears to avoid the Human- Bear Conflict.				The objective is fully achieved by having conducted awareness campaign to different groups of people viz: student, park residents and Monks. Every member of the campaigns was fully convinced and they assured to help in the conservation of HBBs through any means.

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

Guided by well planned schedule of works, there were no major difficulties encountered. However, the unforeseen problems like the harsh weather condition and altitude sickness posed little problem during the course of the study. There was heavy down pour in the summer season like any other summer seasons in the past. However, it was an experience and a mesmerizing expedition.

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

Among the many, the three most important outcomes of my project are the documentation of the different diets, dietary pattern, different habitats and the threats to the habitats of the HBBs in my study areas and the four number of awareness campaigns on the ecological importance of the HBBs and Human- Bear Conflict.

The HBBs are generalist and they depend on different types of foods in different seasons. In my study areas, the bears are found feeding on wild vegetables like fiddle head, Mushrooms, elatostema, wild garlic and orchids. The most abundant wild vegetable in the two study areas is fiddle heads followed by mushroom and elatostema. The least found wild vegetable is the wild orchids. The majority of the respondents (10 respondents) collect the vegetables for all the four months of the summer season during which the vegetables grow. Six respondents collect the vegetables for three months and three respondents collect the vegetables for two months and there is not even a single respondent that collect the vegetables for one month. Therefore, it is very clear that the collection of the wild vegetables by the respondents is very heavy although 32% of the respondents know that the HBBs also feed on these vegetables. No respondents leave behind few vegetables back in the wild for the HBBs to feed.

The wild fruits like *Cornus*, *Rosa sericea*, *Frageris spp*, *Rubus spp*, *Elaeagnus parvifolia* and *Phyllanthus emblica* grow in Pelgiri and Zongkha. According to the respondents, the most abundant wild fruit that grow in these two areas is the *Elaeagnus parvifolia* followed by *phyllanthus emblica* and *Rosa sericea*. The others are not found in plenty. Like the wild vegetables, all the respondents collect these fruits and the most collected wild fruit is the *Cornus* and therefore, it looks very obvious for the HBBs to raid and look for some other easy foods as the least grown fruit is collected the most by the park residents

The HBBs have different diets for different seasons. This dietary pattern is seemed to be influenced by the availability of the foods in the wild in different seasons. The fecal analysis show that the HBBs feed on shoots/forbs and leaves in the spring, fruits and vegetables in the summer, Nuts and acorns in the autumn and in the winter season, the bears were found feeding on meats and tree barks. Only few fecal samples were available for collection in the winter season.

In the study areas, a total of 31 different habitats are found. There are 18 habitats made on the oak trees (eleven at Pelgiri and seven at Zongkha), seven rock crevices habitats (four at Pelgiri and three at Zongkha) and six habitats made in hollow trees/fallen logs and stumps (two at Pelgiri and four at Zongkha). The t-test shows the p value 0.4 and therefore, the difference in the number of habitats in the two study areas is not significant. The average disturbance and destruction to the HBB habitats in the two study areas is very high. 78% of the habitats are found disturbed and destructed due to the human activities. Only 22% of the habitats are found undisturbed. The destruction rate for the habitats made on fallen logs is very

high (66.70%) followed by the habitats made on oak trees (11.10%). The fallen logs were found converted to timber and some used as fire wood.

The awareness and educational campaigns saw multi age group, sex and works. The participants include monks, students and local park residents. The campaigns were very fruitful with participants engaging in very educative discussion, presentations and opinion sharing. At the end of the campaigns, the participants were seen fully convinced and motivated towards the importance and conservation of HBBs in the eco-system.

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

The local communities especially the park residents were involved from the start till the end of the project. The park residents were not only wise but actively participated in the social survey, awareness campaign and the identification and selection of the survey plots. They were very much familiar with the places in which the HBBs dwell and roam. Some of the benefits that the local communities gained from the project are making public relations with the park officials and survey team, beneficiaries of the awareness campaigns. To make it very short and concise, the local communities will enjoy a conflict free co-existence of Human and Bear in a positive interaction through the outcomes of this study.

5. Are there any plans to continue this work?

The continuation of my study on the Himalayan Black Bears will purely depend on the generous financial help from the RSG. My past two phases of the project were very successful due to the generous help from the RSG. Had the RSG rejected my proposal, the proposal would still be in my laptop. I am very much thankful and grateful to the RSG for the funds for my projects till now and i would look forward for the same in my next project too. There is a lot to study on the Himalayan Black Bears in Bhutan as there are only few individuals who take the risk of frisking the Bear habitats and forest to study about them.

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

My findings on the current project would be made available to the general public and other interested individuals through the Rufford website and other journals. I will be submitting a copy of my paper to Rufford along with this report. Anyone interested can have a copy of my paper on this project by contacting me personally through telephone calls and email.

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 grant was used as per the submitted timescale within a period of one year. There were no major changes in the scheduled timeline except for few dates during

the sign survey on habitats. Due to heavy down pour, the dates were rescheduled to later dates.

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. 1 £ sterling = 4.44 Nuevo Sol

Item	Budgeted Amount	Actual Amount	Difference	Comments
Field survey payment for the survey staffs (5 men x 3 months x 30 days x £ 7.5	3375	3600	225	Due to the heavy down pour, the survey activities were halt for 2 days, which gave rise to the payment of extra 2 days for all the 5 surveyors.
Safety kids for survey staffs(Field boots 5 pairs @ £ 35 and 5 rain coat @ £ 12	235	235	0	
Educational outreach program (Group catering to 150 students and 300 local communities)	500	500	0	
Educational outreach materials (Banners, charts, sign boards, pamphlets	390	390	0	
Educational outreach programs (Shirts and caps with bear catching their natural diet stickers)	500	500	0	

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

The important next step that i foresee is the study of the population status of the Himalayan Black Bears. Till now, their basic ecology is studied and now, it's time for us to study their number, abundance and home range. For this radio collaring of Himalayan Black Bears are required and through this activity, we would be able to not only understand their home range but also we would be able to see their movement pattern, hibernation period and some other ecology like resting and activity pattern to correlate with the earlier findings through camera traps.

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?

In the awareness campaigns conducted so far, the Rufford Foundation Logo is used in all the Banners, sign boards and the caps and shirts distributed to the participants



during the awareness campaign. The Rufford Foundation logo will also be used in the cover page of my paper on this project.

11. Any other comments?

The conservation activities in Bhutan require a lot of financial help from other donors and donors like RSG since Bhutan is not well off to make expenses on the research activities since Bhutan is an under developed country. Bhutan has lots of areas to spend on the basic infrastructures and spending on research activities is her secondary option. Therefore, Bhutan mainly depends on external donors to promote the research activities with other socio-economic activities. On behalf of Bhutan and on my own behalf, i would like to express my thanks, appreciation and gratitude to Rufford foundation for your prestigious fund on my project.