

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	Chhimi Namgyal							
Project title	Status and distribution of Asiatic wild dog(Cuon alpinus) in Jigme Dorji National Park, Bhutan							
RSG reference	18751-1							
Reporting period	January 2016-January 2017							
Amount of grant	£5000							
Your email address	Chhimi2010@gmail.com							
Date of this report	26 January 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 population status of dholes in Jigme Dorji National Park				A desired number of fresh scats of dholes could not be collected. As a result, adequate DNA sample could not gathered to make a meaningful analysis to arrive at a reliable estimate of population. Nevertheless, this endeavour will be pursued in the near future with rigorous tracking of dholes.
To know the factors determining dhole distribution.				A total of 41 tracks/footprints and 522 scats/faeces were observed, which was translated to sign encounter rate of 2.2 signs per km of trail walked. Based on this evidence, dhole distribution was known to be affected by vegetation types (highest in cool broadleaved forest), elevation, slope, aspect, and presence of different prey species.
Model its distribution pattern in the park				Using the MaxEnt model of species distribution, the dhole distribution pattern in Jigme Dorji National Park was modelled into high, moderate, and low probabilities. Dhole distribution was found to be heavily influenced by the variable 'distance from human settlement'. This study has discovered dhole occurrence at record high elevation of 4,620 m above sea level.
Publish scientific paper		~		The manuscript titled 'Distribution and habitat use of the endangered



		Dhole Cuon alpinus (Pallas, 1811) in Jigme Dorji National Park, Western Bhutan' is currently under review with the Journal of Threatened Taxa (ID: JOTT_3091)
Awareness education to		The local communities were made
field staffs and local		aware about the ecological
community		benefits and importance of dhole.

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

Unexpectedly, it was found that collecting fresh dhole scat from different localities is very difficult within a short study period with limited staff. As such, enough DNA sample required to conduct a meaningful analysis could not done to arrive at a reliable population figure. A rudimentary population figure could be deduced from number of scats, but it will be prone to errors of double-counting of individuals. Other than this, no major unforeseen difficulties were encountered. I would like to recommend that for DNA-based population estimation of dholes, there should be many scat collectors deployed in different locations in several field visits.

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

1. **Baseline information**: This project has established the baseline distribution of dholes in Jigme Dorji National Park (JDNP). This current distribution map can be used for future monitoring purposes. One important information to note is that dholes were found to be distributed close to human settlements, indicating higher risks of livestock depredation. This calls for proper livestock herd management in the park to minimise the incidences of livestock losses to dhole predation. Dhole are also known to occur in higher elevations where snow leopards occur, potentially indicating the likelihood of habitat overlap between these two endangered predators. In-depth future studies are recommended to investigate the ecological implications of such an overlap.

2. Drivers of dhole distribution: This study has revealed that dhole is largely a habitat generalist, occurring in wide gamut of environmental gradients. Particularly, dholes in JDNP were found to prefer cool broadleaved forests, areas between 1,468 and 4,620 m above sea level, slope range of 2 to 38 degrees, and north-east and north-west aspects.

3. Dietary selection of dholes: Analysis of dhole scats has yielded a new information on its dietary selection – its predation of blue sheep (*Pseudoisnayaur*) in higher



elevations. Now it is known that dholes in JDNP predate on a total of 11 prey species, including domestic yak and flying squirrels.

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

Until now, local communities were not fully aware of the ecological benefits of dholes – their control of wild pig population and subsequent reduction of crop damage. During the field data collection, local communities were engaged in scat collection, and awareness meetings were held in the major village centres. People are now aware of the ecological role of the dhole, and they have voiced their strong support for dhole conservation in their localities.

5. Are there any plans to continue this work?

I have learned a lot from this project. It has opened my eyes to new knowledge, and has strengthened my interest in dhole conservation initiative in JDNP as well as in Bhutan. Therefore, I will be very much interested to continue this work in other protected areas. I would like to now delve on the movement ecology of dholes in my next project.

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

I have submitted a manuscript to the international peer reviewed Journal of Threatened Taxa (JOTT). It is currently in review. Besides, I have made a short presentation of the research findings during a research symposium at the College of Natural Resources this year. I plan to present again at the upcoming relevant workshops, seminars, and symposiums within and outside Bhutan.

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

I had to make little adjustment with the time schedule and the activities

- 1. Procurement of survey materials February 2016.
- 2. Training of the field staffs February 2016.
- 3. Arrangement of field logistics March 2016.
- 4. Field work (survey and sample collection), April 2016 to September 2016.
- 5. Presentation of finding to target agencies, October to November 2016.
- 6. Final report writing and submission, December and January 2016.
- 7. Submission of manuscript to peer-review journals, December 2016 to January 2017.



However, there was no major deviation from the anticipated project duration.

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.

I have fully spent the budget as per the itemised budget submitted before. There was very insignificant differences between the budgeted and actual amount, and hence the differences were reflected as '0s'.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Training of field assistants	£500	£500	£O	The budget was used for training the field staff
Printing of Survey forms	£100	£100	£O	
Purchased of survey materials	£200	£200	£O	Sufficient budget
Transportation, (Potter and hiring of Vehicle) food expenses for field assistants DSA payment for supporting staffs	£3700	£3700	£O	
Public awareness meeting	£400	£400	£O	
Final report writing and publication	£100	£100	£O	
Total	£5000	£5000	£O	

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

My study indicates that the dhole is found in various habitat types and a wide elevation range from 1,468 m and 4,620 m. This is the highest elevation record of dhole occurrence in Bhutan and probably in its entire global distribution range. Dhole have also been observed to prey upon blue sheep, which is the principal prey of snow leopard in the Bhutan and in the Himalayas. There is a need of in-depth studies in future to ascertain this niche overlap between the two important predators. Moreover, I would like to study the movement ecology of dholes using satellite GPS collars or transmitters. This will reveal more information of how frequent



dholes move to higher elevations and how much they spend in each vegetation zones or habitat types.

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?

The Rufford Foundation logo was used for the manuscript submitted to JOTT. It was also used while presenting at the research symposium at the College of Natural Resources, Bhutan. The participants were encouraged to know that I was one of the grants recipients from your esteemed foundation, and they felt motivated to apply for similar projects in the near future.

11. Any other comments?

I would like to use this as an opportunity to express my heartfelt gratitude and appreciations to the esteemed Rufford Small Gants Foundation for providing the critical financial support necessary to complete the study project. This outcomes of this project have been very useful to the management of JDNP which will use the study results to enhance dhole conservation in the park. As I intend to submit another follow up project shortly I look forward to a similar support. It is my solemn request to the RSGF to continue supporting conservation research projects in Bhutan, which is a stronghold for conservation of many globally threatened taxa.