

## The Rufford Foundation Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Hemanta Kumar Yadav
<b>Project title</b>	Population structure, nutritional ecology, movement, interaction patterns of swamp deer with tiger and other predators in the western landscape, Nepal.
<b>RSG reference</b>	14051-1
<b>Reporting period</b>	January 2014 to June 10, 2015
<b>Amount of grant</b>	£6000
<b>Your email address</b>	yadavhemanta@gmail.com
<b>Date of this report</b>	7 <sup>th</sup> June, 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 estimate the population and seasonal dynamics of social structure of swamp deer in Shuklaphanta Wildlife Reserve			✓	
To explore the seasonal food habit of swamp deer and interaction with other sympatric ungulates specifically hog deer and spotted deer (diet overlap)			✓	Initially we tried to explore the food habit of ungulates using bite count method but later we found out that species wise bite count will be very difficult in monsoon and post monsoon season because due to height of grass (more than 2 m). Later the food habit and diet overlap of these three species were studied using micro-histological analysis of pellets.
To study the nutritional ecology of feeding plants of swamp deer.		✓		The samples of feeding plant materials are already collected for two seasons (monsoon and hot dry season). The nutrient analysis of monsoon season sample is completed but hot dry season samples are still in the lab. The fund for nutrient analysis was inadequate to do complete analysis.
To study the seasonal movement of swamp deer in Shuklaphanta Wildlife Reserve		✓		Enough tranquilising drugs were purchased for capturing swamp deer. The darting operation was done in the month of March 2015 but later we realised that alternative capture method must be employed. So, we used net to capture the animals and we were able to capture four swamp deer (three female, one male) in May 2015 and they were collared with Telonics (MOD 500-1) VHF collars. Some more (around nine individuals) animals will be captured in June 2015 for collaring. Now, we need funds to track these animals and take the habitat data for

				exploring their habitat preference and seasonal movement for 1 year (from June 2015 to May 2016).
To study the seasonal predation of swamp deer in Shuklaphanta Wildlife Reserve		✓		From this project, 240 scats of tiger and around 80 scats of common leopard were collected. The samples are ready for micro-histological analysis. Need fund for laboratory work to do micro-histological analysis.
To raise conservation awareness on swamp deer conservation.			✓	General conservation awareness classes on biodiversity conservation focussing on swamp deer were operated in the buffer zone schools and community user groups.

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

We faced mainly two problems while conducting the field work. The bite count method did not suit well for studying the food habit of ungulates because the animals are shy in nature and species wise bite count was not possible to count. Apart from this, in post monsoon and monsoon season the height of grasses was too tall to count the bites. Darting of swamp deer seemed nearly impossible in wild condition. We spent February and March 2015 in this darting operation but could not succeed and later we employed net method to capture the swamp deer for collaring.

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

- a) This project will give the information on population structure and seasonal dynamics of social structure of swamp deer in Shuklaphanta Wildlife Reserve.
- b) The seasonal food habit of swamp deer along with seasonal diet overlap among sympatric ungulates (hog deer and spotted deer) is another important outcome of this project.
- c) For the the first time, swamp deer is collared in Nepal for its ecological study. The seasonal food habit and seasonal habitat preference will be another very important outcome of this project.
- d) The seasonal food habit of tiger with emphasis on swamp deer predation is also important outcome of this project.

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

The elephant staff who are all local people around Shuklaphanta Wildlife Reserve were involved in this project during the whole project period. The local staff of National Trust for Nature Conservation were also involved during whole project period. The conservation

education classes on swamp deer conservation in local schools and user groups of the buffer zone area of Shuklaphanta Wildlife Reserve also benefitted from this project.

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

As this project is a part of my PhD study, I must continue this project. Now the emphasis is on tracking radio-collared animal during 1-year period to study the seasonal movement and seasonal habitat preference of swamp deer. It is also planned to study the genetic diversity of different groups of swamp deer in Shuklaphanta Wildlife Reserve and between Shuklaphanta and Bardia population. The small population of Bardia (less than 110 individuals) is not performing well in terms of population increment and this study will provide a basis to take management decision on translocation of some individuals from Shuklaphanta to Bardia.

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

Recently I am writing the manuscript of this project. The result will be shared with Department of National Park and Wildlife Conservation and Shuklaphanta Wildlife Reserve Office. A part from these, I will publish four papers in peer reviewed journals to share the outcome in scientific community internationally.

**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 from January 2014 to June 2015 as planned. The total project period was for 17 months.

**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 received £ sterling 5995 on December 18, 2013, which is equivalent to Nepali rupees (NRs) 960219.15 @ 1 £ sterling = NRs 160.17

Item	Budgeted Amount	Actual Amount	Difference	Comments
Equipment and materials	130	111	19	One Garmin 72H GPS was purchased only from this heading.
Mobility cost (domestic airfare, vehicle hire, fuel etc)	500	523	-23	The cost of vehicle hire (9 days @ £ 31 = 279) and air fare of technician from Kathmandu to Dhangadhi (two

				way two times @ 61 = £244) is charged. The vehicle was hire during the counting swamp deer in two years at two times.
Training for field technicians	200	200	0	11 technicians (5 from NTNC and 6 from SWR) were trained during the field work including elephant staffs.
Field cost for project leader and technicians (lodging, camping, food and snacks)	1600	3500	-1900	The expected fund from other source could be managed. The field cost for collecting the samples, population estimation, and data on seasonal group dynamics was far more than expected. Remarkable fund was consumed during operation the capturing operation of swamp deer.
Scat and pellet analysis cost including chemical reagents	500	400	100	Pellet analysis is completed. The scat analysis still to be done.
Feeding plants nutrient analysis cost	2200	596	1604	The nutrient analysis for one season (monsoon) is completed. The sample for hot dry season is already collected and ready to send in lab.
Result sharing interaction programme (field and central level)	450	250	200	Field level sharing is completed. Central level sharing will be done after the preparation of manuscripts
School programme for swamp deer conservation	420	420	0	School level conservation education classes were operated in two areas just adjoining the swamp deer habitat area. This comprised 10 schools, 2 user committees and 20 user groups of buffer zone of Shuklaphanta.
<b>Total</b>	6000	6000	0	

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

In next step, I will try to secure fund for the remaining work of swamp deer ecological study. I am writing the manuscript and preparing the journal papers of the works which are completed. I will also apply 2nd grant of Rufford for completing the tracking works of radio-collared animals and for genetics work of swamp deer.

**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?**

I had prepared power point presentation for conservation education of swamp deer in schools and community and logo of The Rufford Foundation was used and wherever needed the foundation was fully acknowledged.

**11. Any other comments?**

I want to thank The Rufford Foundation for granting fund to start the research on swamp deer ecology. Most of the fieldwork is already completed and now needs some more funds for tracking of radio-collared swamp deer during the next year to generate the data on seasonal movement and habitat preference of this species. Similarly, some laboratory works are also on the way. I am expecting your kind support for 2nd grant to do the remaining work of my PhD study.

Thanks Rufford foundation for your kind support.