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. 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	Mr. Promod Tandan
Project title	Monitoring diversity and conservation status of small mammals with special focus on pygmy hog in Babai Valley of Bardia National Park, Nepal
RSG reference	25.02.10
Reporting period	12 months
Amount of grant	£3784
Your email address	Promodtandan1@hotmail.com
Date of this report	August 2011

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
Small mammal's diversity monitoring with their local use			Yes	
Study on the feasible presence of Pygmy hog (*Porcula salvanius*)		Yes		The camera trap did not capture this species in the park area, but though there are other suspected signs like pellets which needs further scientific verification.
Assess the poaching status and potential threats to small mammals with the effect of annual burning management practice			Yes	

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

The main difficulties were the threat of wild elephant's herds in the study area, due to which the planned activities had to be changed frequently. The nighttime stay in the grassland, during the project period was not possible due to the threat from the wild elephant herds. Because of the lack of the proper national research guideline, issues arise in letting use of camera traps in the sensitive area of the Babai Valley, which delayed the start of the research. The increased in grass height, annual park management grassland burning and flooding of the Babai somehow disturbed in the efficiency of the field study, due to which we had to increase our field period and squeeze the trap nights a bit due to all these unexpected consequences.

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

The study was carried out during July 2010 and April- July 2011 in the two seasons with the help of extensive sign survey, camera trapping and social survey. The cameras used was Moultrie feeders, Model no. D-40 (IR Radiation, Global Point Products, Farmington, NY). In total 5 camera-trap units were used to complete the study.

The special focus of this study was to create the data list of small mammals with the poaching status and threats alongside with feasible presence of pygmy hog, in the Babai Valley. The study was mainly focused in the flood plains of the Babai River which start from Chepang (Kanti- highway) to Parewaodar (East-west highway).

<u>The outcomes of the projects are described as following:</u>

i. *Small Mammals Diversity:*
The most important outcome of the study was the diversity monitoring of small mammals in such a detail level in the study area for the first time. The total camera trap night for the whole study period was 300 days and since few species were trapped in the camera, therefore mostly signs of the small mammals were the basis for monitoring diversity. In total, 21 species of small mammals were

successfully identified from the Babai valley out of them according to the IUCN conservation status, 2 Endangered, 2 Vulnerable, 1 Near Threatened and remaining other 16 species were Least Concern.

The small mammal's species account is described as following:

S. No.	IUCN Conservation status	Species	Pellets	Pugmarks	Others			
					Body parts	Scars/ Digged area	Nest	Direct Sighting
1	Endangered	Hispid hare (*Caprolagus hispidus)*	■					
2	Least Concern	Indian hare (*Lepus nigricollis)*	■	■				■
3	Least Concern	Jungle cat (*Felis chaus*)	■	■				■
4	Least Concern	Asian palm civet (*Paradoxurus hermaphrodis)*	■	■				
5	Least Concern	Indian porcupine (*Hystrix indica)*	■	■	■			
6	Least Concern	Earth coloured mouse (*Mus terricolor)*	■					■
7	Vulnerable	Asian small clawed otter (*Aonyx amblonyx cinerea)*		■				
8	Least Concern	Malayan porcupine (*Hystrix brachyuran)*	■	■	■			■
9	Least Concern	House coloured mouse (*Mus domesticus)*	■	■				
10	Least Concern	Northern palm squirrel (*Funambulus pennanti)*						■
11	Near threatened	Terai grey langur (*Semnopithecus hectar)*						■
12	Least Concern	Spotted linsang (*Poriondon pardicolor)*		■				
13	Least Concern	Crab eating mongoose (*Herpestes urva)*		■				
14	Vulnerable	Smooth coat otter (*Lutrogale perspicillata)*		■				
15	Least Concern	Small Indian mongoose (*Herpestes auropunctatus)*		■				■
16	Least Concern	Indian bush rat (*Golunda ellioti)*					■	
17	Least Concern	Brown rat (*Rattus norvegicus)*	■					■
18	Least Concern	Yellow throated marten (*Martes flavigula)*						■
19	Endangered	Fishing cat (*Felis viverrina)*						■
20	Least Concern	Pygmy white toothed shrew (*Suncus estruscus)*						■
21	Least Concern	Rhesus macaque (*Macaca mulatta*)						■

ii. *Feasible Presence of Pygmy Hog*

With the outstanding effort, the pygmy hog was not trapped in the camera. Therefore, though the concrete evidence for the pygmy hog is still uncertain, but still the research provides the way for the further research. Some suspected signs like pellets are collected, which needs further verification.

iii. *Threats and Conservation measures*

The questionnaire survey conducted in the adjoining villages of the Babai valley and the direct observation in the field study revealed the conservation status and threats to the small mammals. Disturbance and destruction of habitat by annual burning practice is the major problem for the conservation of small mammals in the study area. Forest fire was found to be the major threat to the small mammals, as they can't escape the fire and their nests, young ones and habitat get destructed. Beside this trapping of various small mammals for the sake of meat and different medicinal uses are other threats for small mammals. Though forest fire is regarded as one of the important forest management technique, but it has some negative impact on the small mammals. Therefore, mainly the grassland invasion by woody invasive plant species, uncontrolled park burning, poor park management, predation, flooding was found as the major threats to small mammal species. For which the strict and proper management by the park, proper research and awareness about these species, proper co-ordination was suggested as the solution to reduce these threats.

We tried to increase knowledge and change the attitude of local people towards small mammals and other wildlife conservation especially pygmy hog through informal sharing. It was observed that in most cases they misidentify pygmy hog with wild boar.

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

In this research project, two local people, one from the Bardiya Conservation Program, National Trust for Nature Conservation have been trained as field assistant as well as six staff/ game scouts from the National Park have been trained as field assistants in different spots of the study area. Those people will be available for the future work on small mammals and wildlife conservation and research. Besides those, it also raise conservation awareness about small mammals, specially pygmy hog, among locals around the National Park.

5. Are there any plans to continue this work?

There are plans to continue this work from the two angles: one outside the Bardia National Park and another inside the Bardia National Park. Considering the first case, the researcher is planning to conduct another research in Chitwan National Park focusing on hispid hare (*Caprolagus hispidus)*. Because after it only the country will get first nationwide data about hispid hare (n.b. its presence detected only in three national parks in Nepal, Bardia (Tandan, 2009) and Suklaphanta (Aryal, 2010) being the other two), which is one of the most endangered species. Whereas considering the study inside Bardia National park. Two studies are so far planned: one regarding to the awareness about small mammals in the adjoining villages of Babai valley and another focusing on the otter species of the Babai Valley, which was found to be facing high threats. But in each study pygmy hog will be one of the objectives. Because, due to the many consequences and limitations, i.e. technical or season problem feasibility study of pygmy hog was partially met, which will be done in the larger scale minimising the consequences and limitations.

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

The Final report of this research will be submitted to Department of National Park and Wildlife Conservation, Kathmandu, Bardia National Park, Central Department of Environmental Science/Zoology, Tribhuvan University. Further to it, the report of this research will be presented in the various seminars and programmes as well.

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

The RSG fund was used from June 2010 to July 2011 for 13 months time period, which was almost the anticipated 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 Preparation	30	30	0	
Field materials	500	652	+ 152	Rate of hiring the camera have increased and one extra camera was also hired which was not included in the budget
Transportation	64	150	+86	Increased in the market price and local transportation was not included as well as we have to hire elephants and raft frequently to cross the flooded Babai.
Remuneration for: Research assistant Field assistants	 420 460	 420 981	 0 + 521	Increase in remuneration drastically, as we have to take Game scouts of the National Park for easiness and the remuneration rate is fixed for them.
Accommodation	1560	1560	0	
Stationery and other logistic expenses	70	50	-20	
Photographic expense during camera trapping	50	200	+150	To buy dry cells for the camera-trap and GPS that was not included in our budget.
Printing and photocopy	45	20	-25	
Remuneration for supervisor	110	110	0	
Draft and Final Report preparation	35	0	-35	
Miscellaneous	500	0	-500	
Total	**3884**	**4173**	**+ 329**	**Managed from internal source**

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

From the local authority perspectives, the most important steps are to decrease the intervention in the park, increase the local awareness. Whereas from the researcher perspectives, there should be more research focusing small mammals in the area like Babai Valley which is ecologically rich and sensitive. Proper actions must be taken from the authority instantly to make annual burning with proper guidelines, curbing the poaching and fishing activity, cutting and uprooting of woody plant species and the proper allocation of park staffs in the Babai valley.

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?

No.

11. Any other comments?

I would like to acknowledge RSGF for providing me the opportunity to conduct this research, which for the first time revealed formally the presence of small mammals in the ecologically diversified and sensitive area, the Babai Valley. Miss Kabita Karki of special gratitude, who in my absence performed research successfully. Department of National Park, Kathmandu and Bardia National Park are of special gratitude for their kind permission for the research. Mr. Tika Ram Chaoudhary, Mr. Karan Bahadur Shah, Dr. Munmun Sharma, Dr. Mukesh K. Chalise, Mr. Jhamak Bahadur Karki, National Trust for Nature Conservation, Miss Tulsa Hamal and other field assistants, army staff of the Babai Valley and the local people of Babai valley have played crucial role for the successful conduct of this research.