

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.

Thank you for your help.

Josh Cole

Grants Director

Grant Recipient Details

Your name	Bal Krishna Koirala
Project title	Study on Snakes Diversity Survey of Jigme Dorji National Park
RSG reference	15453-1
Reporting period	Final Report
Amount of grant	£ 5194
Your email address	bkelephu@gmail.com
Date of this report	4 th July, 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 survey and document all snake species of the study area			√	The diversity survey was completed covering the important habitats of the snakes in the project area which help documentation of the species.
To provide an updated checklist of snakes			√	14 different species of snake were recorded, of which five of them were identified as venomous. Snakes list produced.
To produce distribution map for habitats protection			√	Information on distribution pattern of snakes in the park was established.
To create awareness to park communities and educational institutions within park			√	People's understanding on snakes was promoted and there was positive change in attitude of people towards snakes and other local biodiversity.
Procurement of equipment for the project			√	All necessary field equipment procured.

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

To convince illiterate rural community about the project and its objectives was challenging because it appeared to be quite unique approach to the people at the beginning. Similarly, a few field staff were quite reluctant join the survey, because they might have considered it was quite risky to deal particularly with poisonous snakes. However, problems had been resolved through public awareness meeting and their involvement in the field inventory. During the awareness campaign, park residents as well as staff were made clear about the objectives of the project, non-invasive data collection techniques and importance of exploring the hidden kingdom of snakes, which is rarely concerned by many people.

In addition, exploration of reptile's world in Bhutan is a new journey, thus, identification of species at DNA level is quite difficult unless we consult with herpetologists outside Bhutan. Thus, identification was done at taxonomic level using best field guide books and close consultation with professors from Wildlife Institution of India and College of Natural Resources. Indeed, apart from these minor difficulties there were no problems in conducting the study.

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

1. Baseline information- Large numbers of reptile species are unknown to Bhutanese conservationists or they are never been studied adequately despite being 50% of country's geographical land is under protected areas. Thus, species list produced from this project will

be most reliable scientific information established and available to the management of Jigme Dorji National Park. The report produced from this project will be used by various research institutes and other scientific communities across the country as basic information to explore further about reptile's kingdom to achieve long term conservation goal of the nation.

2. Public awareness- many conservation approaches were not been successful in the past due to the failure in integrating rural communities at appropriate level. Considering the significance of public participation and their necessary support, the rural park residents were made aware of the importance of conserving local biodiversity. Now more people are willing support conservation programmes and they are more supportive even in rescuing reptiles and other wildlife, which indicate that people prospective had changed.
3. The reports and the list of snakes produced by this project will be used by the Royal Government of Bhutan and including the park managers, Divisional forest managers, NGOs, developmental agencies, students and teachers and interested people to increase their knowledge about snakes and help in implementation of any development programmes without compromising the welfare of this important taxa. In addition, field experience and knowledge of field staffs on this defined subject was enhanced. The field knowledge and experience are paramount aspects of human capacity to understand the nature in more scientific way and address the relative issues accordingly. Such field experience would indeed prepare author to conduct conservation work more effectively in near future.

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

Since purely scientific investigation was not a sole objective of the project, people from different community groups were invited during the awareness meeting and provided opportunity to discuss on their social and cultural beliefs, and their opinions on snakes that live in and around their villages. They were interviewed to gather information on identification of important sites of reptiles, accessibility of areas, and other relevant information on local biodiversity.

To make the programme more participatory we involved four park residents from Damji, Kabina and Rimchu during the field survey. As a result, local people had achieved basic knowledge about the harmful and harmless snakes that they encounter in their daily life and kind of species found in their locality. The local people who were involved in the project as a survey team and potters were given monetary support for their hard work. Indeed, the project had helped rural people in two ways:

- Local community gained important knowledge about types of snakes found in their villages and their significant role in agriculture as well as in ecology.
- Financial support which they got from the project as a payment for their work was an important contribution to their socio-economy.

5. Are there any plans to continue this work?

As I have gained good knowledge and experiences from the current project, I would like to continue the same work in future. The current project and previous study conducted in Bumdeling Wildlife Sanctuary exclusively cover reptiles of northern part of the country. But, we still have vast areas to be explored in southern Bhutan which are mostly characterised by sub-tropical forests and flat plain making favourable habitats for various reptile species. In Bhutan, very often, conservation

programmes are targeted in protected areas, whereby exploring biodiversity outside parks and wildlife sanctuaries are often not prioritised due to inadequate conservation fund. Thus, I feel it is necessary to explore all the potential areas whether or not they fall in protected areas. In addition, we do have relatively large population occupying southern plain where initiation of this kind of participatory project is vitally important to conserve and protect our ever depleting wildlife, including reptiles.

Therefore, I look forward for a similar grant from RSGF, however this time the grant will be utilised exclusively for the field works and payment for community involvement as I have already procured all necessary equipment from the first RSGF grant. The study will be conducted with similar objectives and I expect more number of species will be discovered and at the same time education outreach will promote understanding among different groups of people about the conservation of reptiles as well as local biodiversity.

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

As mentioned before the report of this project would be made available to various relevant research institutions such as Ugyen Wangchuk Institute for Conservation and Environment, College of Natural Resources, and National Biodiversity Centre. Similarly, the information established by this project will be used by NGOs and government agencies such as Department of Forest and Park Services, Wildlife Conservation Division, and National Environment Commission. In addition, the findings of this project will be made accessible to Park managers, foresters, schools, and mostly importantly to policy makers of the home country and abroad.

- I. One presentation was already made at the College of Natural Resources and next two presentations are scheduled take place at Damji Higher Secondary School and Goenshari primary schools soon after a re-opening of these schools after summer vacation. The details of project results will be disseminated in the form of power point presentation as a part of the knowledge and information sharing program of the project.
- II. The voucher specimens collected during the project period will be displayed in park laboratory and made accessible to park staff, school children, teachers, researchers, general public and any other interested individuals.

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

Although fund was received on time, I had to make little adjustment with proposed time scheduled and corresponding activities because the proposed time length was 18 months but time allocated by RSG was 12 months. Thus, some of the activities that were supposed to be carried out between the months of June to December 2015 were adjusted within time window approved by RSG. However, none of the planned activities were omitted while conducting the study.

1. Procurement of study equipment (July 2014).
2. Public awareness meeting (July 2014).
3. Training to field staff (July 2015).
4. Data collection (July 2014 to May, 2015).
5. Awareness meeting to educational institutions (September and October 2014).
6. Species identification (throughout the project period, simultaneously).
7. Specimens preparation (throughout project period, simultaneously).

8. Data analysis (March to May, 2015).
9. Report writing (May to June, 2015).

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 survey expenses, including payment for supporting staff, field guides, potters and hiring vehicle.	£ 2840	£ 2840	£ 0	The budgeted amount was sufficient.
Digital SLR camera, specimens jars and preservatives	£ 550	£ 620	-£ 80	The amount exceed because the cost of jars and preservatives was not included in proposed budget.
Procurement of field equipment, including tent, snakes tongs, venom defender, compass, GPS, torches and extension kits	£ 819	£ 819	£ 0	All equipment are vitally important for carrying out project
Public awareness meeting	£ 300	£ 300	£ 0	Includes food and refreshments
Awareness meeting to educational institutions	£ 300	£ 300	£ 0	Includes food and refreshments
Final report writing and publication	£ 385	£ 305	+£ 80	The allocated budget was more than enough
TOTAL	£ 5194	£ 5194	£ 0	The fund was sufficient

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

1. I feel next important steps would be the immediate documentation of reptiles and strengthening public understanding on snakes through participatory approach, particularly in southern Bhutan because of following reasons:
 - The previous studies on reptiles conducted in Bumdeling Wildlife Sanctuary and my recent project in Jigme Dorji National Park merely explore the reptiles/snakes of northern region of the country.
 - Southern Bhutan is characterised by sub-tropical lowland forests and hot climatic condition which favour varieties of reptile species. Therefore, there is good opportunity of discovering not only more numbers of species but also species new to science.
 - No adequate studies of reptiles/snakes had been conducted so far in this region.
 - Relatively high number of human casualties from snake bites and indiscriminate killing of snakes had been experienced from Sarpang and Samtse districts of southern Bhutan.

2. It is felt that such study should continue not only in protected areas but also in government reserved forests and areas near human settlements so that comprehensive scientific facts would be established to address the existing problems as well as in achieving long term conservation goal.

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?

RSGF logos were used while making presentations in colleges and schools. Staff, local people and participants were also informed about the support of RSGF for studying snakes in Jigme Dorji National Park. RSG has been prominently acknowledged in the reports submitted for publications.

11. Any other comments?

Indeed, I am very much thankful to Rufford Small Gants Foundation for being providing financial support to complete my project successfully. Although we may novel plan for protecting and conserving our fast depleting environment and its biological assets but lack of fund is major problem faced by individuals, groups or country particularly in developing nations. Considering the above fact, I truly appreciate the role the RSGF has been playing in nature conservation all over the world.

Since the RSGF support field oriented activities, the information generated by individuals and small groups would be most reliable resources to established scientific facts to address present problems as well as develop future biodiversity action plan.

Lastly, the support rendered to me has helped in establishing snakes diversity of Jigme Dorji National Park. The project has helped me in gaining incredible skill and knowledge in the field of herpetofauna which I believe is definitely a foundation step towards keeping my interest alive in studying herpetofauna more extensively across the country in immediate future.