

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	Kamal Devkota
Project title	Snakes and their Conservation in Rupandehi District, Nepal
RSG reference	19206-1
Reporting period	April 2016 - April 2017
Amount of grant	£ 4989
Your email address	divyadarshandevkota70@gmail.com devkotakamal67@gmail.com
Date of this report	April 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
Inception workshop on Snake, Snake bite and Snake Conservation				We have conducted Inception workshop on snake, snake bite and snake conservation for the first time in project district, Rupandehi and probably for the first time in western Nepal. Shankarnagar Banbihar and Research Center, Kaligandaki Health Foundation and Biodiversity Conservancy Nepal supported us to conduct this workshop. Various members from different community forests, conservationists, different level of academicians (teachers and students), health personnel, media personnel from local and national newspapers, F.M. radio and TV and different community people participated in this workshop.
Diversity, distribution and habitat of snakes				We have conducted direct observation and opportunistic visual encounter survey methods in any suitable habitats at different sites in Rupandehi district. Thirteen different species of snakes belonging to eleven genera and four families (Typhlopidae, Boidae, Colubridae and Elapidae) were recorded. Five species which were found dead at roadside were unidentified due to severely damaged body parts. We have targeted to record around 30 species of snakes but we were able to record only 13 species. We realised that the 2 months for the field visit to find out diversity, distribution and habitat of snakes is not enough. And also during the same time (field visit time) we were getting more and more calls regarding snake rescue and conservation awareness programmes.
Questionnaire survey				From our previous research experiences, we found that most of the villagers felt difficult to give answers in English and hesitate to take part in questionnaire so

			we have produced questionnaires in Nepali language which helped a lot in collecting local people's opinions about snakes and their conservation. The study areas were divided into four different sites; Adarsha amawa, Dhakadhai, Bhagwanpur and Makrahar. Community surveys with questionnaires were conducted using random sampling method and standard questionnaire form to 200 locals (50 from each site) including students, teachers and various people in communities to find out the level of awareness among them.
Conservation awareness programs and educational workshops			We have achieved this objective fully as a result of which we are getting more and more calls regarding snake rescue, conservation awareness programmes and educational workshops. I have conducted conservation awareness programmes at 10 different schools/colleges and communities in Rupandehi district, Nepal. These programmes were highlighted by local and national newspapers, F.M. radios and TV.
Snake rescue			I kept my phone in silence mode during the workshops and awareness programmes so I missed some of the calls for rescue. Also, in some localities, due to the difficulties in transportation at night time, we could not reach for rescue on time. We have rescued 40 snakes with maximum care while handling including <i>Python molurus bivittatus</i> , <i>Amphiesma stolatum</i> , <i>Coelognathus helena</i> , <i>Lycodon aulicus</i> , <i>Oligodon arnensis</i> , <i>Ptyas mucosa</i> , <i>Xenochrophis piscator</i> and <i>Naja naja</i> .
Relocation of the rescued snakes			The relocations of the rescued snakes were carried out successfully. Most of the caught snakes were released into Shankarnagar, Ramnagar and Shivanagar community forest. Some of the <i>Python molurus bivittatus</i> (Burmese rock python) were handed to the Zoological Garden of Shankarnagar Banbihar and Research Center.

Educational materials			<p>This objective was fully achieved by the team. We have produced educational materials like photographs, posters, brochures, banners, pamphlets and calendars that were distributed to various people from different communities, teachers and students, conservationists, community forest groups, health personnel, media personnel etc. showing important facts about snakes and their conservation.</p> <p>We also showed video documentaries related to snakes and their conservation at different schools and communities.</p> <p>It is estimated that about 3,000 people have gained knowledge on the conservation of snakes directly through conservation awareness programmes; more than 10,000 people have gained knowledge through the educational materials like photographs, posters, brochures, banners, pamphlets and calendars and a huge amount of community people (ca.100,000) have gained knowledge through media; local and national newspapers, F.M. radio and TV with whom we coordinated.</p> <p>Shankarnagar Banbihar and Research Center, Kaligandaki Health Foundation and Biodiversity Conservancy Nepal supported us to distribute these educational materials. All these educational materials were distributed for free of cost.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

My assistant has been bitten by non-venomous snakes while rescuing and transporting the snakes for relocation. Fortunately, no any serious venomous snakebite happened to any of our team members. Nepal does not produce any anti-venom serum. There is always shortage of anti-venom serum in Nepal. So to minimise the risk of being bitten by venomous snakes, we have ordered and bought Midwest snake tongs for rescue and relocation of venomous snakes.

We found that some of the local people have faith that the rescued snake will come again to their home because they believe that the snake can take photographs with their eyes and will return to revenge and bite them. So at first, they did not allow

us to rescue and wanted to kill the snake. But later on we convinced them that there is no any scientific evidence of it and we will handover it to the Shankarnagar Banbihar and Research Center and they will take care of it.

At first we have estimated and printed only 5,000 copies of brochures and 2,000 copies of pamphlets, but due to request of school/colleges and communities for the workshops and awareness programs we added more 10,000 copies of brochures and 3,000 copies of pamphlets immediately.

During the questionnaire survey, some of the people (snake charmers) thought that we are there from the side of government to investigate and arrest them. So they tried to escape from us at beginning due to the fear. Later, we were not only able to convince them but able to make them participated in the questionnaire.

There were certain changes in the team members. K.B. Thapa and Sunil Sapkota were busy on their own works during my research work. So I replaced them as their wish by adding new members; Ashish Bashyal (M.Sc. Zoology) and Prakash Gyawali (snake rescuer from Shankarnagar Banbihar and Research Center).

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

Research:

- With the support of this project, we have obtained very important data on diversity, distribution and habitat of snakes. We recorded about 13 species of snakes belonging to 11 genera and four families (Typhlopidae, Boidae, Colubridae and Elapidae) in Rupandehi district within the 2 months of field visit. Also, five species which were found dead at roadside were unidentified due to severely damaged body parts.

Questionnaire Survey:

- From the questionnaire survey, we found that more than 80% people have fear of being bitten by snakes whether it is venomous or non-venomous.
- We asked them about 40 questions including 25 questions related to their traditional belief and superstitions like cobras can dance in tune of music, king cobras possess invaluable stone 'Mani' in their head, snakes can have rebirth, snakes can hypnotise, only single (male or female) snake should not be killed, if there are two snakes together, one of the survived snake take photograph and revenge against who killed its partner etc. etc. and many people (more than 70%) replied that they were unknown about the actual fact and reality or they replied wrong answers.
- Many people (about 75%) replied that they can distinguish venomous and non-venomous snakes and majority of people claimed of non-venomous snakes (like python, rat snakes, flying snakes, water snakes, sand boa etc.) as venomous snakes (like cobra, krait, king cobra, vipers, coral snake etc.) and vice-versa.
- We found that after bite, some of the people still depend on traditional healers and applying the incorrect first-aid treatments instead of reaching snakebite treatment centres and applying correct first-aid methods.

Workshops and Awareness programs:

- The Inception Workshop on Snake, Snakebite and Snake Conservation was possible to conduct due to the help of this project. Four snake conservation workshops were conducted in each site in Rupandehi district. There were about more than 150 participating including members of community forests, conservationists, academicians, health personnel, media personnel and local community people in the workshops. These programmes were highlighted by local and national newspapers, F.M. radios and televisions.
- Also, we have conducted conservation awareness programmes at 10 different school/colleges and communities in the Rupandehi district. It is estimated that about 3,000 people have gained knowledge on conservation of snakes directly through conservation awareness programmes, more than 10,000 people have gained knowledge through the educational materials like photographs, posters, brochures, banners, pamphlets and calendars and a huge amount of community people (approximately; more than 100,000) have gained knowledge through media; local and national newspapers, F.M. radios and TV.
- In these workshops and awareness programmes, we focused to make people aware on the recognition of venomous and non-venomous species, snakebite prevention, first aid treatments, misconception on snakes and the advantages of conservation of snakes to biodiversity.

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

Local community people including members of community forest, conservationists, academicians, health personnel and media personnel were involved in the workshops and awareness programmes of this project. They learnt about various snake-related information like; the recognition of venomous and non-venomous species, snakebite prevention, first aid treatments, misconception on snakes, the advantages of conservation of snakes to biodiversity and their role in nature conservation. Most of the local people were unaware about the information mentioned above and after these workshops and awareness programmes, they requested us to conduct these programmes in other localities of the district too which means they have benefitted and wanted to make more people aware. Our team has conducted four workshops one on each site and 10 awareness programmes in schools/colleges and communities. Through the detailed information given in the different educational materials, people contacted us to rescue the snakes, to run the workshop and awareness programmes and for counselling the snakebite victims. More than 100,000 people have benefitted from the workshops and awareness programmes of this project through different sources of educational materials and through media. The team members were interviewed several times in various local and national newspapers, radios and TV which have probably helped to make people aware regarding snake, snakebites and snake conservation. We were able to rescue 40 snakes from the different localities including the cases outside the study area and the relocation of the rescued snakes was carried out successfully with the help of local communities during the project period. The President Baburam Aryal and Secretary Khimlal Pandey from Shankarnagar Banbihar

and Research Center helped to involve more local communities in workshops and awareness programs.

The main aim of this research was to bring a change in people's attitude towards snakes. After the workshops and awareness programmes, people understood that all snakes are not venomous and they will not kill the snakes on sight anymore. They also united to work on the conservation of snakes from which both the snakes and local people will get benefited directly and indirectly in long term which can play a vital role in conservation.

5. Are there any plans to continue this work?

I am committed to continue the research work on snakes and their conservation in Rupandehi district and all over the Nepal. The local communities where we were not able to conduct workshops and awareness programmes during this project period are requesting us to conduct these programs in their localities. There are more areas in western region and other lowlands of Nepal which have the similar issues so we are planning to continue the snake conservation and awareness programmes in these areas.

We have planned to make about 50 "hoarding boards" that will be installed in major areas of Rupandehi, Nawalparasi and Chitwan districts giving the important information related to snake, snakebite and snake conservation. We also have a plan to disseminate awareness through theatre and street drama and locally made snake related video documentaries for the conservation of snakes in near future.

We are also planning to apply 2nd Rufford Small Grant to continue this project.

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

Fortunately, our team has already been shared the related information of this research work with government bodies, conservationists, various experts and local community people.

At the beginning phase of our research work, we got a chance to present and share about our ongoing work in the snake conservation meeting "Snakes of Nepal" at National Trust for Nature Conservation (NTNC), Chitwan. This program was supported by WWF Nepal and Nepal Health Research Council (NHRC), in May 2016.

Dr Thapa and I have presented our research work on National Level Snakebite Management Training organised by Epidemiology and Disease Control Division (EDCD), Zoonosis Department, Kathamandu, Nepal at three different districts of Nepal, Rupandehi (Butwal), Makwanpur (Hetauda) and Morang (Biratnagar) in the month of December 2016 and January 2017.

Kaligandaki Health Foundation, Nawalparasi has hired the stalls at Kawasoti and at Chormara festivals (November 2016 and February 2017 respectively), and we have

conducted conservation awareness programs and also have shared our research work there.

We also have shared our research work on February 2017 in the meeting of Nepal Toxicology Association (NTA), newly established organisation to work on snake, snakebites and snake conservation related research works in Nepal.

We have showed photographs and video clips taken during our research work and shared related information in various awareness programmes.

The local and national newspapers, F.M. radios and TV broadcasted our interviews and also the information and awareness programmes which helped to disseminate our research work to millions of people.

I have planned to submit the report of this work to the District Forest Office, Rupandehi, Shankarnagar Banbihar and Research Center, Kaligandaki Health Foundation and Biodiversity Conservancy Nepal.

Also, we are writing papers on our research work and will publish the results of this work soon. The published results will be presented in national and international conferences.

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

After receiving the Rufford Small Grant from The Rufford Foundation, our team has started the various activities immediately from May 2016 and the research work, awareness programmes and rescue and relocation work continued throughout a year. Majority of the grants was used at the beginning phase for the printing of educational materials, workshops and awareness programmes, and during the field visit. All the activities were completed within the project period and their respective budgets were used at the allocated time.

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
Literature search and consultation with snake experts	100	100	0	
Equipment hires (GPS, Camera, Snake tong and hook, Projector)	500	200	+300	We bought two collapsible M1 40 inch snake tongs from Midwest tongs.com (USA). And we didn't

				hire camera. We have used one of the field assistant's camera. Other facilities were supported by Kalikagandaki Health Foundation and Biodiversity Conservancy Nepal.
Travel Cost including long and short distances using bus, taxi etc. (2 persons x 60 days and 2 persons x 15 days)	450	450	0	
Accommodation during field visit (2 persons x 60 days and 2 persons x 15 days)	650	650	0	
Food including breakfast, lunch and dinner during the field visit (2 persons x 60 days and 2 persons x 15 days)	1000	1000	0	
Educational materials (Photographs, posters, brochures, banners, pamphlets and calendars)	600	1200	-600	We have printed more copies of high quality of educational materials; Photographs (120 copies), posters (100 copies), brochures (15,000 copies), banners (4 copies), pamphlets (5,000 copies) and calendars (1,000 copies) because we have added six more Workshop and Awareness Programs due to the request of school/colleges and communities.
Workshop and Awareness Programs in each site (4 sites)	750	1100	-350	We have added six more Workshop and Awareness Programs due to the request of school/colleges and communities.
Questionnaires, Data sheets, Print, Photocopies and other stationeries	200	100	+100	We have used budgeted cost to print questionnaires only and other facilities were provided by Kaligandaki Health Foundation.
Data entry, Statistical analysis and Report writing	250	250	0	
Broadcast through media	300	100	+200	As I mentioned before, I have more than five years experience in the field of media and have a very good links with media personnel.

				So I requested and convinced them that we are working to make people aware from which a huge amount of community people will get benefited and also it helps in conservation of snakes. Some of the media personnel appreciated this work because this is going to happen for the first time in Rupandehi district and broadcasted information and awareness programs at minimum cost.
Miscellaneous	189	89	+100	We have used miscellaneous budgeted cost for rescue and relocation work and also for communication during research work.
Total	4989	5,239	-250	

It appears that we have overspent, but in actual this is affected by some of the factors. One of the factors is that, we have printed more copies of high quality of educational materials; and we have added six more workshop and awareness programmes due to the request of school/colleges and communities.

Another factor is the fluctuation of Pounds Sterling (£) exchange rate. The exchange rate was decreased during the grant receiving time as compared to the proposed time. Assumed exchange rate during proposed time: £ 1 = Nrs. 161

Exchange rate during grant receiving time: £ 1 = Nrs. 148

Additional cost was supported by Kalikagandaki Health Foundation, Biodiversity Conservancy Nepal and Shankarnagar Banbihar and Research Center.

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

From the questionnaire survey and from the workshops and awareness programmes of this project, we found that local people (even the educated people) have very poor knowledge about snake related issues so we feel the urgent need to conduct the awareness programs related to snake, snakebites and snake conservation in more communities of Rupandehi district. Also, to prepare a complete checklist and to find out the diversity, distribution and habitat of snake species, we need to do more research in Rupandehi district.

In most of the communities, people encounter mostly with cobras and kraits and killed them on sight due to the fear and lack of knowledge. So to increase the awareness about snakes, we plan to work with local communities which definitely help to change the attitude of people towards snakes.

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?

Yes, The Rufford Foundation logo was used in all the educational materials like posters (100 copies), brochures (15,000 copies), banners (four copies), pamphlets (5,000 copies) and calendars (1,000 copies). In these educational materials we have also used the logo of Shankarnagar Banbihar and Research Center, Kaligandaki Health Foundation and Biodiversity Conservancy Nepal (in brochures only). These are the organisations working on different aspects including snakes and their conservation and helped us in publishing extra copies of brochures and pamphlets. I also used The Rufford Foundation logo at the beginning and end of all the paper presentations mentioned above (point 6). The Rufford Foundation has received a good publicity through media; local and national newspapers, F.M. radios and TV. I gratefully acknowledged The Rufford Foundation in all the presentations, during the workshop and awareness programs and in my interviews too. The Rufford Foundation has been always acknowledged and recognised as the funding organisation for this project.

11. Any other comments?

I would like to express my gratitude to The Rufford Foundation for the opportunity to work on this project and help to start the conservation of snakes in Rupandehi district for the very first time. I am thankful to the District Forest Office, Rupandehi for giving me the permission to carry out this research work. I am grateful to the Shankarnagar Banbihar and Research Center, Kaligandaki Health Foundation and Biodiversity Conservancy Nepal for helping us from the beginning to the end of this project in many ways. I am also thankful to all of my referees for their adorable guidance and encouragement. I would like to express my sincere thanks to the media; local and national newspapers, F.M. radios and TV for disseminating our work to reach out millions of people not only in Rupandehi district, but also as a nationwide. I am very much thankful and want to dedicate this work to all the helping hands that supported me during this project directly and indirectly. I hope to receive similar support from The Rufford Foundation, Shankarnagar Banbihar and Research Center, Kaligandaki Health Foundation, Biodiversity Conservancy Nepal, media; local and national newspapers, F.M. radios and TV, school/colleges, communities and from other different bodies in near future.

This snake conservation project work was recognised as an important factor for biodiversity and nature conservation by various experts and came with a decision that there needs an organization to focus on snake, snakebite and snake conservation related research works all-over in Nepal. Hence, we registered our new organisation "Nepal Toxicology Association" (NTA), on February 2017. I believe that it will help and provide me a good opportunity to do more effective work in the field of snakes and their conservation.