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	Dipesh K.C.
Project title	Land Use Land Cover Change and its Impacts on Human-Wildlife Conflicts in Suklaphanta Wildlife Reserve and its Buffer Zone, Nepal
RSG reference	18891-1
Reporting period	1st January 2016 to 1st January 2017
Amount of grant	£ 4950
Your email address	dipeshkc64@yahoo.com
Date of this report	29, March, 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
Analyse the rate of change of LULC and its impacts on wildlife habitat in SWR and BZ using RS and GIS techniques between 1989-2001 and 2001-2015			☑	• The satellite images of time period 1989, 2001 and 2015 were used for LULC change detection. • The rate of change also detected. The net gain or loss in different wildlife habitat between these time periods was detected. • Ground truthing was carried out with the help of GPS data collection for accuracy assessment.
Assess the nature, intensity and trends of visible and hidden human wildlife conflicts and map out the HWC interface using RS and GIS		☑		• The nature of problems was crop damage, human casualties, shelter and store grain destruction and livestock depredation recorded. • The problematic wild species responsible to crop damage were elephant, rhino, blue bull, spotted deer, monkeys, wild pig, porcupine and peacock. The trend of crop damage was found increasing. • Similarly, the tiger and common leopard were responsible for livestock depredation e.g. cow, goat, sheep, ox, domestic dog and buffalo. The trend of livestock depredation also found increasing. • The nature of human causalities was human death, normal and serious human injury. The tiger, leopard, wild pig and elephant

				• were the major problematic wildlife to cause human casualties. The trend of human casualties was found to be decreasing. • The wild elephant was the major animal to cause the shelter and store grain destruction and the trend of shelter and store grain destruction was found to be decreasing. • Lack of proper recording of human wildlife conflicts related data at park officials, BZUCs and local organization, difficult to map out human wildlife interface and trend analysis. Data were obtained only through social survey.
Determine the causes of LULC change and find out mitigation measures to reduce HWC				• The factors to cause LULC change were determined through questionnaire and interview survey. • The major problematic wildlife to cause conflicts were found. • The existing mitigation measures were documented and their effectiveness were analysed. • The effectiveness of mitigation measures also found vary from species to species.
Understand the attitude of local people and park authority toward HWC				• Most of the people have positive attitude towards wildlife conservation but some illiterate, poor and wildlife victims have negative attitude towards wildlife conservation.
Community Education and awareness programme				• The major results were distributed at Forest Research Institute, Dehradun, India among the students and teachers through

				presentation.
				• The major results also distributed to local people, students and buffer zone communities through posters and broachers.
				• The final report will be provided to the park officials, buffer zone user committees and local conservation organization.

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

I feel human-wildlife conflict is the most challenging issue of present day for wildlife conservation. Wildlife conservation is not possible without people participation but the buffer zone community are suffering from human causalities, crop damage, store grain destruction, house destruction and livestock depredation as a result retaliatory killing. People who were suffering from human-wildlife conflicts were aggressive and have negative attitude towards park authority; demands effective mitigation measures surrounding the park and appropriate compensation schemes for their losses and comments the lengthy and delay existing compensation process. Most of the people were illiterate and they felt hesitate to respond during interview and questionnaire survey. Most of the people were found poor and demand more livelihood programme and income generating activities and rarely participation in conservation education and awareness programme. The park authority, local NGOs (National Trust for Nature Conservation) and Suklaphanta Buffer Zone User Committee had lack of systematic data collection record related to human wildlife conflict. June-July is rainy season as well as paddy growing season; major crops of Nepalese for their livelihood and hence the social data collection was a little bit delay due to this. It is difficulty to meet the key informant such as buffer zone user committee president, teacher, and wildlife victims due to their busy schedule.

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

Baseline Information: The baseline information regarding the land use land cover change, causes of LULC change and nature, intensity and trend of human conflicts were properly documented. In addition, the attitude of local people and park authority towards human wildlife conflicts were understood. During this period (1989 to 2015), there was net gain in area of grassland, sand, waterbodies and other land. And there was net loss in area of forest, cultivated land, shrub land was found the rate of change of LULC between these periods was also predicted. The nature of problems was crop damage, human casualties, shelter and store grain destruction

and livestock depredation recorded. The major agricultural and cash crops that the buffer zone communities growing were paddy, wheat, maize, lentils and sugarcane. The problematic wild species responsible to crop damage were elephant, rhino, blue bull, spotted deer, monkeys, wild pig, porcupine and peacock. The trend of crop damage was found increasing. Similarly, the tiger and common leopard were responsible for livestock depredation e.g. cow, goat, sheep, ox, domestic dog and buffalo. The trend of livestock depredation also found increasing. The nature of human causalities was human death, normal and serious human injury. The tiger, leopard, wild pig and elephant were the major problematic wildlife to cause human casualties. The trend of human casualties was found to be decreasing. The wild elephant was the major animal to cause the shelter and store grain destruction and the trend of shelter and store grain destruction was found to be decreasing. Most of the people have positive attitude towards wildlife conservation but some illiterate, poor and wildlife victims have negative attitude towards wildlife conservation.

Further, the baseline information regarding land use and land cover change will contribute to build management plan and land use planning of Suklaphanta Wildlife Reserve and its Buffer Zone. The baseline information regarding nature, intensity and trend of human wildlife conflicts will contribute the park authority to analyse the existing compensation policy. The baseline information regarding the mitigation measures and recorded problematic wild animals will help to adopt appropriate mitigation measures and finally, contribute for sustainable protected area management and create harmony and ensure park-people co-existence.

Adopted mitigation measures found out: The major problematic wildlife to cause conflicts were found. They were elephant, rhino, swamp deer, blue bull, spotted deer, rabbits, wild pig, porcupine, peacock and monkeys. The existing mitigation measures were documented and their effectiveness were analysed. The existing mitigation measures such as burning fires, scarecrows, live fence, making noise, wooden fence, clearing bushes, beating drum and guarding by dogs and humans were practiced by buffer zone communities in order to reduce the human wildlife conflicts. Making noise and guarding by humans were most effective among the existing mitigation measures. The mitigation measures also found vary from species to species. For example, burning fire is most effective for elephant whereas scarecrows are most effective for monkeys.

Conservation education and awareness: The conservation education and awareness programme such as school teaching programme, presentation and group discussion were conducted. The information was shared among the students, park authority, local NGOs, local people and other conservation stakeholders through extension materials such as slide show, posters and brochures. Further, the

results will be shared in national and international peer reviewed journals acknowledging RSG as a source of funding for the study.

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

The interview, questionnaire survey and key informant survey were conducted with the help of local people and the field observation was conducted with the help of park officials. Thus, the local people had participated and contributed in data collection and had shared their experiences regarding the human wildlife conflicts. Many conservation partners were involved during the tenure of this project, particularly park officials i.e. rangers, game scouts and foresters and local people.

The park warden had provided two game scouts and one field guide during field survey. They had helped during field observation. The two local people were selected as a research assistants during field survey and social data collection. The report will be published in national and international peer reviewed journals acknowledging them and given status as a co-authors during publication. The research assistants were benefited through cash incentives. They have learned basic knowledge regarding human-wildlife conflicts. The local field assistants had helped to get familiar with the local communities. The buffer zone communities had shared their local, traditional and indigenous knowledge and this knowledge were considered as valuable knowledge during data collection. The local people, conservation stakeholders, conservation groups and students were participated in conservation education and awareness programme. These people were educated and become aware for wildlife conservation. During the field survey, the researcher myself along with research assistants had stayed at home stay i.e. Rana Tharu Home Stay and hence they were benefited through cash incentives. During survey, the local people vehicles were used and hence, they have benefited through cash incentives. In addition, they have got an opportunity to promote the Rana Tharu cultural programmes i.e. cultural dance, songs, drama etc. during that time as well as received entry fees. Furthermore, the documented baseline information will help for preparation of management plan and land use planning which will contribute to mitigate human-wildlife conflicts.

5. Are there any plans to continue this work?

The baseline information regarding the land use land cover change, causes of LULC change, nature, intensity and trend of human wildlife conflicts, adopted mitigation measures and their effective mitigation measures were documented and analysed. The attitude of park authority and local people towards human-wildlife conflicts was understood. This information will be baseline information for further study. Most of the

people were illiterate and are living below poverty line. Thus, income generating activities, livelihood promotion activities and awareness programme are demanding to enhance the livelihood of local people and create awareness. The buffer zone communities have recommended appropriate mitigation measures to reduce human wildlife conflicts. The awareness programme is necessary to change the attitude and create awareness regarding existing compensation schemes among local peoples. The buffer zone communities have recommended mitigation measures such as dry stone walls, electric fence, solar fence, education and awareness programme, insurance and compensation schemes and promote alternative crops. Thus, particularly education and awareness programme and implementation of appropriate mitigation measures are urgent need to reduce human wildlife conflicts. The already established Community Based Anti-Poaching Unit (CBAPU) has not been well functioning and hence, strengthening the CBAPU will be a major program in coming days. In future, I have planned to conduct education and awareness programme, strength and promote the CBAPU through training, and analyse the effectiveness of buffer zone user communities recommended mitigation measures for replication.

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

The presentation was conducted at Forest Research Institute, Dehradun, India and had shared the major results of this project. The major results of this project had shared among the local people, park officials, conservation groups and conservation stakeholders through slide show, posters and brochures. The report will be available to the decision making bodies such as park authority, Department of National Parks and Wildlife Conservation, conservation groups (e.g. Community Based Anti-Poaching Unit), district forest offices, Buffer Zone User Committee, local NGOs and other conservation stakeholders for the necessary action. The final results will be published in national and international peer reviewed journals to reach maximum audiences with acknowledging RSGF.

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 pre-assumed time line period for project was from first of January 2016 to the first week of January, 2017. The Rufford Small Grants was used from last of February, 2016 to last of March, 2017. During the social survey, the survey was delayed due to rainy season and paddy growing season.

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
Orientation program	100	100	0	
Preliminary field visit	220	220	0	
Consultation meeting	80	80	0	
Interview and Questionnaire Survey	550	570	+20	The cost of interview and questionnaire materials produced was more than anticipated amount.
Transect Survey	1530	1530	0	
Awareness Program	800	800	0	
School teaching	100	100	0	
Publication	180	180	0	
Posters and Brochures	220	220	0	
Transportation	720	1020	+300	The cost of transportation were more than anticipated amount.
Data analysis and report preparation	140	140	0	
Miscellaneous	310	310	0	
TOTAL	4950	**5270**	320	Short in budget £ 320 was requested from National Trust for Nature Conservation (NTNC, Nepal).

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

Working with human-wildlife conflicts project over a year, I feel that human-wildlife conflict is the most challenging issue of present day for wildlife conservation. Wildlife conservation is not possible without people participation but the buffer zone community are suffering from human causalities, crop damage, store grain destruction, house destruction and livestock depredation as a result retaliatory killing. People who were suffering from human-wildlife conflicts were aggressive and have negative attitude towards park authority; demands effective mitigation measures surrounding the park and appropriate compensation schemes for their losses and comments the lengthy and delay existing compensation process. The

following would be an important next steps to reduce the human-wildlife conflicts and create harmony and ensure human-wildlife co-existence.

1.   Wildlife habitat conservation programmes within the protected areas.
2.   Promote conservation education and awareness programmes among the buffer zone user communities.
3.   Income generating and livelihood enhancement programmes to the buffer zone user communities. E.g. promotion of home stay, eco-tourism, alternative crops etc.
4.   Analyse on an effectiveness of buffer zone user communities recommended mitigation measures for replication.
5.   Strengthening the institutional capacity of Community Based Anti-Poaching Unit through training.
6.   The park office, buffer zone user committee, conservation groups and conservation organizations should have developed Management Information System and proper recording of human-wildlife conflicts data are necessary.
7.   Similar study is necessary in other protected area as well.
8.   Effectively implementation of existing compensation schemes to the local people.
9.   Provision of crop and livestock insurance.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did The Rufford Foundation receive any publicity during the course of your work?

Yes, Rufford Small Grant Foundation logo was used during presentation at Forest Research Institute, Dehradun, India and acknowledged as a source of funding for the project. The RSGF logo also used in posters and brochures during awareness programs. The Rufford Small Grants Foundation logo have been also used in final report as well.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

12. Any other comments?

Protected areas are established with the primary objective of conservation of endangered flora and fauna. The paradigm shifts for wildlife conservation from species to ecosystem, and ecosystem to landscape level. Thus, the present concept of wildlife conservation in our country is on the basis of landscape approach. The major objectives of landscape approach were people participation and livelihood enhancement of the local people. The concept of buffer zone was also come out in

order to participate local people in wildlife conservation through fourth amendment of National Park and Wildlife Conservation Act-1973. But the buffer zone community are suffering from human causalities, crop damage, store grain destruction, house destruction and livestock depredation as a result retaliatory killing. People who were suffering from human-wildlife conflicts were aggressive and have negative attitude towards park authority; demands effective mitigation measures surrounding the park and appropriate compensation schemes for their losses and comments the lengthy and delay existing compensation process. Thus, human wildlife conflict is one of the major challenging issue of present day for wildlife conservation. This study would not have possible without Rufford Small Grants. I would like to thank Rufford Foundation for continued support of the project and contribution to conserve the major endangered wild fauna.