

Final Project Evaluation Report

Your Details	
Full Name	Kanchan Parajuli
Project Title	Spatial-temporal variation in human-wildlife conflicts in Parsa National Park and its adjoining areas, Nepal
Application ID	23135-1
Grant Amount	£5000
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Date of this Report	25 September 2018

1. 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
Understanding the cause, extent, and pattern of human-wildlife conflicts				We examined the patterns of human injury and death, livestock depredation and crop raiding caused by wildlife during 2005 to 2018 using direct family/victim response and officials data.
Field surveys for road-killed animals				There was 45 road killed incidents total recorded during 40 days of survey including summer and winter seasons. The estimated number of road kill incidents per year along this 50 km transect of Mahindra highway was 411.
Workshop in human-wildlife conflicts				One-day workshop is organised at Nirmal Mabi, Bastipur. Workshop is primarily focused on the human-wildlife conflict in Parsa National Park. Students, researchers, local people and park officials were involved in the program. They share their knowledge and experiences about human-wildlife conflict.
Conducting awareness program				We organised programme in collages, school and community in Bufferzone area around Parsa National Park. Poster, Leaflets and banner were prepared. Awareness and training programme were given to the students of BSc Zoology from Makawanpur Multiple campus. School awareness programmes were conducted in altogether 14 schools. Essay writing competition was conducted on title "importance of wildlife".

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

Data collection in Thori VDC was so challenging. Some people were not so cooperative during questionnaire interview but we tackled it by being humble and

cooperative. There is a village named Sikaribas situated inside the national park. Village is fully dominated by poor illiterate ethnic group. Village is most prone area for human-wildlife conflict too. Some people were saying that working in Sikaribas is difficulty and challenging as people are facing conflict with wildlife frequently and have negative perception towards wildlife. We hired a local man Mr. Birendra who can understand and speak their language. Mr. Birendra helped us kindly during our survey around Sikaribas and Thori. Other assistant were also trained to do social survey and handle necessary equipment.

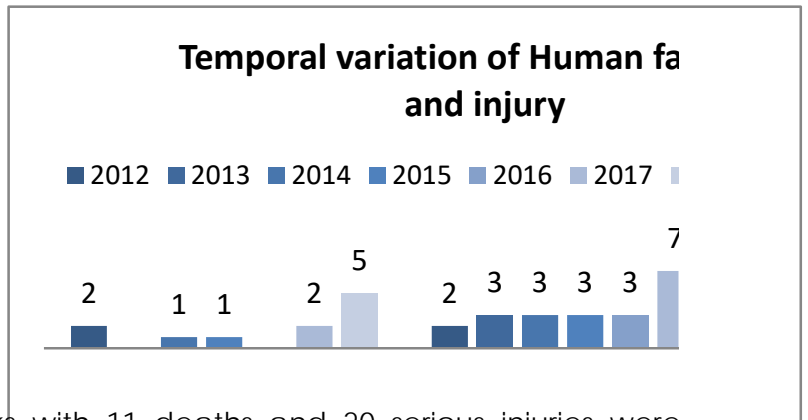
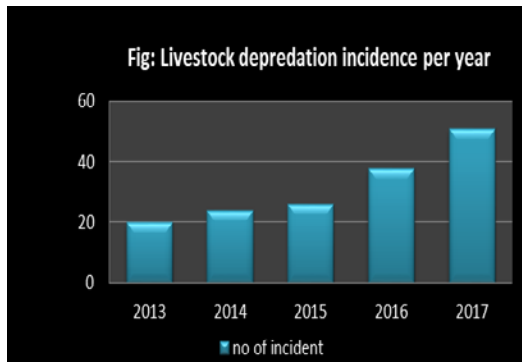
3. Briefly describe the three most important outcomes of your project.

a) Understanding the cause, extent, and pattern of human-wildlife conflicts:

We examined the patterns of human injury and death, livestock depredation and crop raiding caused by wildlife during 2005 to 2018 using direct family/victim response and officials data. 700 respondents were selected randomly. Conflict cases were mostly related to livestock depredation by tiger and leopard and crop raiding and house damage by elephant. Data related to wildlife damage relief support were also collected. People were not happy about the relief support. They told that it is very time consuming and lengthy procedure. Even many people are not aware about wildlife damage relief support.

Most of the attacks on humans were caused by elephant and tiger. Underprivileged ethnic communities were attacked by wildlife more frequently than expected. Tiger and leopard caused most of the livestock depredation. Tigers killed both large (cattle and buffalo) and medium sized (goat, sheep, pig) livestock but leopard mostly killed medium sized livestock. Elephant were largely involved in crop depredation and property damaged. Thori VDC of Parsa district and Ramauli Pratappur village of Manahari VDC were highly prone area for human-wildlife conflict. Each day, wildlife like elephant, tiger visit to these site and causes lot of loss. Local people are implementing some mitigation measure like noise, drumming, wire fencing, planting tall thorny cactus plant around the land.

A total of 126 incidents of livestock depredation were recorded in which 252 livestock were killed by wild animals. Carnivores (tiger and leopard) cause more than 90% of recorded livestock depredation. Tigers killed both large (cattle and buffalo) and medium sized (goat, sheep, pig) livestock but leopard mostly killed medium sized livestock. 73.01 % incidence of livestock killing was occurred in the jungle when people take their livestock for grazing. The overall trend shows that livestock depredation is increasing in recent years. According to victim's family report, there were losses of total N.rs.17, 67,000 from livestock depredation since last 5 years.



A total of 31 serious wildlife attacks with 11 deaths and 20 serious injuries were recorded between 2012 and 2018. Elephant and tiger were involved in human deaths. More human death (73%) was occurred by elephant attack compared to Tiger. Other wildlife involved in human injury were rhinoceroes, sloth bear, crocodile and wild boar. Average time period to receive the relief supports was 144 days.

b) Field surveys for road-killed animals:

There was 45 road killed incidents total recorded during 40 days of survey including summer and winter seasons. The estimated number of road kill incidents per year along this 50 km transect of Mahindra highway was 411. A total of 18 species were observed as road kills, of this, 10 mammals, four reptiles and four bird species. Two birds and one snake couldn't be positively identified due to being repeatedly run over.

The species most commonly involved in road kills were rhesus macaque (*Macaca mulatta*) with 12 road kill incident, following Terai grey langur (*Semnopithecus hector*) six incident, jungle cat (*Felis chaus*) five incident, Indian grey mongoose (*Herpestes edwardsii*) two incident, small Indian civet (*Viverricula indica*) two, large Indian civet (*Viverra zibetha*) one, masked palm civet (*Paguma Larvata*) one, spotted deer (*Axis axis*) one, rabbit (unidentified) two, rat (unidentified) two, rat snake (*Ptyas mucosa*) two, garden lizard (*Calotes versicolor*) one, lizard (unidentified) two, snake (Unidentified) two, owl one, raptor bird (unidentified) three. The temporal pattern of wildlife vehicle collision analysis demonstrated an increase of accident during night time with peak of accidents at dawn and dusk. Observed data revealed that most of the road killed animals were carnivore which become active during dawn and dusk and have high chance to collide with vehicle. During winter months, foggy and misty weather decrease the visibility which has increased risk of wildlife vehicle collision significantly and most of the road killed animals were observed in winter month.

c) Mass Awareness:

After examining the cause, associated conflicts and the pattern of conflict, an awareness outreach program is conducted in conflict hotspot area like Subarnapur, Nirmal Basti, and Manahari etc. We organized programme in collages, school and community in Bufferzone area around Parsa National Park. Poster, Leaflets and banner were prepared. Poster and leaflets were designed by including lot of information like causes, consequences and control measure of human-wildlife conflict, provision of relief support and necessary procedure to be taken to get relief

support. Awareness and training programme were given to the students of BSc Zoology from Makawanpur Multiple campus. School awareness programme were conducted in altogether 14 schools. Essay writing competition was conducted on title "importance of wildlife". Best writing were selected and awarded. Awareness programmes were also given to the vehicle drivers who drive through the park as well to try to reduce the animal road kills.

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

Local community has very important role in project sustainability. Community involvement is a key ingredient in the delivery of good planning outcomes. Entire field work was successfully accomplished with direct involvement and support from local communities and community forest user groups. Community assessment helps us in understanding their perception towards conservation, community's priorities and vision.

Local community were actively involved in group discussion, awareness programme and workshop. Furthermore they have assisted us kindly during questionnaire survey and group discussion. Their kind cooperation helps in acquiring lot of information about wildlife threats like retaliatory killing, hunting, snaring etc. Mr. Birendra Kumar Bhandari, a local ethnic, from Sikaribas Thori, Kamal Rai from Manahari village, Dilman Lama from Parsagadi, did a lot of assessment in our project. Furthermore, they were trained to conduct the field survey and questionnaire. They were taught about the importance of wildlife conservation, causes of human-wildlife conflict, mitigation measure to be taken and about the provision of compensation scheme. We hope that this kind of training and their involvement with us will definitely be beneficial for them. Our project helped them to understand more about the causes, consequences and control measure of human wildlife conflict. Furthermore we taught them about the provision of relief support and the procedure to apply for relief support if any loss from wildlife.

We believe that school targeted programme is more effective as today's youth are the leaders of tomorrows. So, school and college students have been trained about human-wildlife conflict. They were taught about causes, consequences and mitigation measure of human-wildlife conflict and the provision of compensation scheme.

5. Are there any plans to continue this work?

Yes, there are further plans to continue this research project in future. Conservation programmes need continuity in order to meet expected outcome. Parsa National Park is in serious threats from different developmental activities like Kathmandu-Terai fast tract, proposed East-west monorail, Petroleum pipeline from India, Nijgadh international airport etc. Huge area is going too destroyed if this developmental activities is lurching. The problems of human-wildlife conflict, habitat destruction, road accident may occur in disastrous manner. So there is a need of urgent research and appropriate recommendation from expert for the alternative of this developmental project and for the conservation of this important forest habitat of

some endangered flagship wildlife like Asian wild elephant, Bengal tiger, greater one-horned rhinoceros, gaur etc. so I have further plan to monitor and continue this project with proper vision and objective.

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

The result of this work is planned to share through local and national newspaper and media. The result will also be disseminated through social networking site like Facebook, LinkedIn, Academia.edu, Researchgate etc. Report of the project will be disseminated to the concerned authority like Park office, community forest, district forest and department of national park and wildlife conservation. I am working on the data right now and I will publish the outcome of this project in a scientific peer reviewed journal.

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

We used the grant for 12 months from September 2017 to September 2018. Although the grant was received in September 2017, field work was bit delayed and started from September last. The project is not finished. We are continuously monitoring and collecting data about human-wildlife conflict. This project has long lasting actions which we plan to continue even if grants are not with us. Not much variation was observed between anticipated and actual length of the project.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Local transportations	600	500	+100	Many terrain and remote part of the area were surveyed by on foot that decreased transportation cost.
Food and accommodation for research team	1950	2050	-100	Local guide took more money than expected
Field equipment	200	220	-20	GPS device cost more than expected
Printing awareness materials (Posters, banner and Leaflets)	700	750	-50	posters and leaflets were re-printed later
Bike hire for road survey		250	0	It was not included in proposal

				budget frame but later on it was realised to hire bike for road survey.
Awareness program for communities and school	300	300	0	
Workshop (stationary, hall charge, projector hire, Tea and lunch)	750	700	+50	Got discount
Health insurance and First-aid Kit for the research team	100	100	0	
Report preparation, publication and dissemination	150	150	0	
Data entry and analysis	250	200	+50	
Total	5000	5220		1 £ = Rs.130

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

Parsa National Park is in serious threats from developmental activities like Kathmandu-Terai fast tract, proposed east-west monorail, Petroleum pipeline from India, Nijgadh international airport etc. According to ministry of forest and environment, as many as 151,785 trees have to be chopped down to construct the Kathmandu-Terai fast track only. According to report of Environment and Social Impact Assessment (ESIA), more than 2.4 million small and large trees will have to be cut down to build the much ballyhooed modern international airport in Nijgadh, Bara. Construction of Raxual-Amlekhgunj petro pipeline with estimated 33.4 acres of land including Parsa, will destroy 25000 trees.

In this way there is increasing pressure in Parsa forest from everywhere. Wildlife of Parsa is in serious threats from habitat destruction, road accident and conflict with human. So there are lot of important issue regarding conservation around Parsa, which I have planned to raise in next steps in coming future.

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

Yes, the Rufford Foundation logo was used in all materials like posters, brochures, banner etc. produced during the project. I constantly acknowledged RSG during the project work. The logo will also be used in report which I will submit to the institution like district forest, Parsa national park headquarter, Department of National Park and Wildlife Conservation. I will acknowledge RF in all the scientific publications as well as international and national conferences.

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

Rajeev Acharya:

Rajeev is a student of B.Sc. from Makawanpur multiple campus. He assisted a lot in the project. His role in the project was doing questionnaire survey and community interaction. He was also a photographer in the project.

Bhagawan Adhikari:

Bhagawan is a student of agriculture from Janapriye technical college. He is a local resident of Manahari VDC. His role in the project was doing questionnaire survey and community interaction.

Prakash Dulal:

He is a lecturer from Hetauda School of Management and social science. His role in the project was doing road survey for vehicle-wildlife collision.

Birendra Kumar Bhandari:

Birendra is a local ethnic from Thori VDC. He guided us in the remote area of Thori village and assisted in social survey and community awareness.

Kamal Rai:

He is a local leader in Manahari VDC. He helped us while working in the remote village by providing lot of information about human-wildlife conflict scenario and historical background. Furthermore he helped us in questionnaire survey too.

Kanchan Parajuli:

Team leader.

12. Any other comments?

I am grateful to Rufford Foundation for supporting this project. My sincere thank goes to all the team members, government officials, and local stakeholders for cooperating in the project. With this beautiful experience and knowledge, I have planned to dedicate myself in conservation activities. Hope to get more support and positive vive in the field of conservation in coming future.



