

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	Prasun Ghimire
Project title	Mapping conflict hotspots to reduce human-wildlife conflict in Bardia National Park and its adjoining Khata Forest Corridor, Nepal.
RSG reference	20494-1
Reporting period	April 2017- October 2018
Amount of grant	4975
Your email address	prasunghimire150@gmail.com
Date of this report	1 st November 2018

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
<p>Identification of human wildlife conflict prone human settlements and conducting social surveys to determine extent of human wildlife conflict.</p>				<p>On the basis of interaction with Bardia National Park authority and buffer zone management committee we selected 10 villages affected by cases of human wildlife conflict. These villages are Thakurdwara, Newlapur, Karmala, Motipur, Suryapatuwa, Gola, Manau, Pathabhar, Khata and Patharboji. We conducted household surveys in 450 households and collected all the necessary information regarding the damages caused by wildlife (e.g. human casualties, injury, livestock depredation and crop raiding) over 5 years (2012-2017).</p>
<p>Field survey to collect the location of human casualties (Dead /Injured)</p>				<p>Taking the compensation payments records kept by Bardia National Park as a reference, we first listed all the known cases of human casualties caused by wildlife. We then visited all possible locations and measured geographic location using handheld GPS and measured associated site covariates (e.g., elevation, habitat type) A total of 135 wildlife caused human casualties were recorded in Bardia National Park over 20 years (1997-2017)</p>
<p>Awareness Campaigns</p>				<p>A total of 13 outreach programmes were conducted in schools to disseminate causes and consequences of human wildlife conflict and ways to mitigate the losses from wildlife. Around 800 students participated in the programmes. 10 of community-based discussion meetings were organised between park and buffer zone management authority, and local</p>

				communities to discuss about the potential of community led wildlife damage mitigation programmes.
Mapping human wildlife conflict hotspots to guide mitigation measures				We recorded a total of 135 wildlife caused human casualties from 1997-2017. Based on this information, human wildlife conflict hotspot maps are being prepared.

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

The social survey that we conducted in the village settlements was the toughest because many of our respondents thought we were park officials and we were there to provide compensation or some sort of monetary help which we were not. In some cases, the respondents were violent and very emotional while they narrated their losses. The collection of GPS points of places where human casualties happened was another tough job. Asking a father/mother where his/her son died and taking him/her to show the exact location was our need but the sentiments were very tough to handle. Since we were in the field for a long time, many villagers thought we were park officials and they had a lot of complaints regarding the compensation schemes that the government has. Everyone said the amount was too less and the procedure was very complex and time-consuming.

We aimed to map the human wildlife conflict hotspots, which required all the GPS points of the places where human casualties happened in the past. But since we had no such database, we had to take compensation payment records from the Bardia National park authority for identifying such places. The records of compensation only had records of people who entered the park legally. In many cases, locals who entered the jungle without any permission were attacked by wildlife and the cases were not recorded anywhere hence we were unable to collect the GPS locations of such cases. Also due to the lengthy process of compensation schemes many people didn't inform the park authorities about the incident. There was no track of such event anywhere that made us unable to locate those places as well.

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

- a. We found that in on average two people lost their life per year due to wildlife attack in Bardia National Park during 1997-2017. Similarly, five people got injured per year due to such attacks. Overall, we recorded 135 human casualties by four mammalian species, tiger, leopard, elephant and rhinoceros over 20 years (Table 1). Majority of death cases were due to elephant attack (84%) whereas least of people died due to leopard attack (0%) whereas tiger caused the death of below 1% of total cases, and rhino was responsible for (15%) of the total deaths (Fig.2). Highest percentage of (27%) attack (both injury and death) occurred in home of the people who either died or were injured, 17% of the total incident occurred at village areas

majorly on roads, 19% of the incident occurred in community forest areas, 16% in the farmlands and 21% of the attacks occurred in the park area.

Table 1: Table showing number of attacks (both injury and death) by wildlife species on people in and around Bardia National Park, Nepal annually during (1997-2017)

Year	Elephant <i>Elephas maximus</i>	Rhinoceros <i>Rhinoceros unicornis</i>	Tiger <i>Pantheratigris</i>	Leopard <i>Pantherapardus</i>	Total
1997	2	-	1	-	3
1998	-	-	-	-	-
1999	1	-	-	-	1
2000	5	-	-	-	5
2001	3	-	3	-	6
2002	-	-	-	-	-
2003	5	-	-	1	6
2004	6	-	1	-	7
2005	8	2	1	1	12
2006	15	-	-	-	15
2007	10	1	-	-	11
2008	14	1	-	-	15
2009	3	1	-	-	4
2010	4	1	-	-	5
2011	1	5	-	-	6
2012	2	1	1	-	4
2013	5	1	-	-	6
2014	4	1	-	1	6
2015	2	2	-	3	7
2016	7	5	-	-	12
2017	1	2	1	-	4
Total	98 (73%)	23 (17%)	8 (6%)	6 (4%)	135(100%)

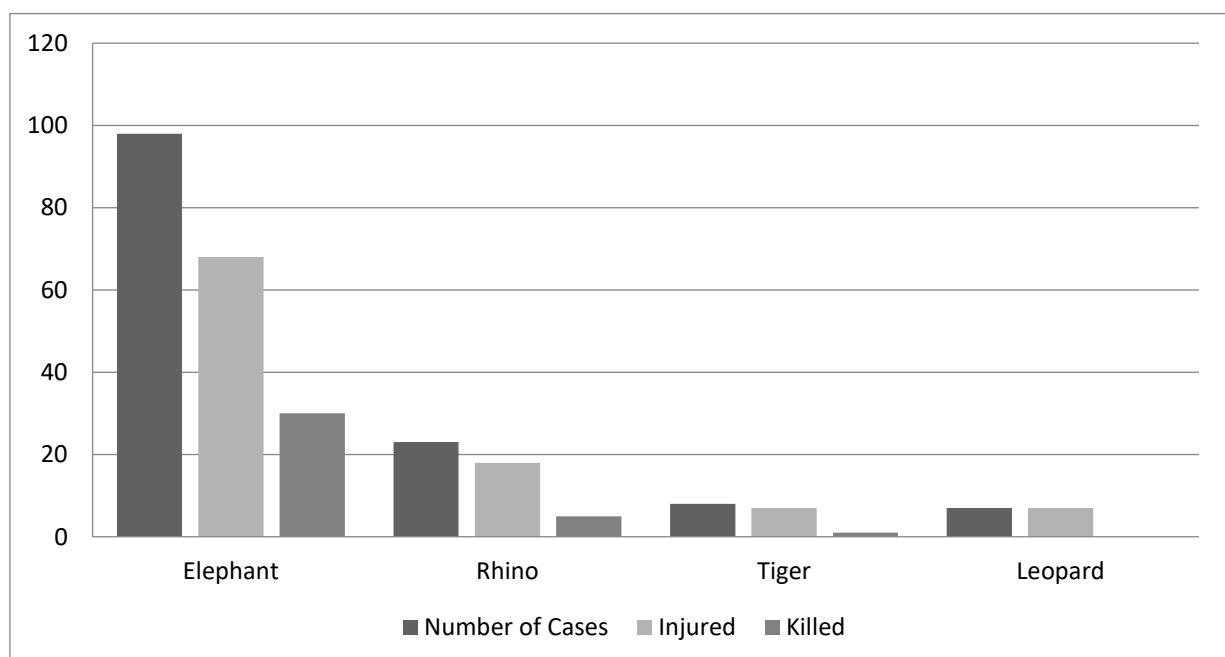


Figure 1: Chart illustrating number of human casualties or attacks caused due to major wildlife species

- b. We surveyed 450 households from 10 village settlements. The data that have been collected include the socio-economic status of the respondent; the cases of HWC faced which includes crop raiding, house damage, human casualties by elephants and rhinos, livestock depredation by tiger and leopards. Overall, we found that 84 % of respondent's family faced crop damage due to elephant and rhino, 63 % of family lost livestock to leopard and tiger over last 5 years (2012-2017). Elephant was involved in 98 % of the total attacks on human. 93 % of respondents reported that elephant crop raiding and attack on human is major human wildlife conflict problem in and around Bardia National Park.
- c. Through a series of awareness campaigns, we were able to sensitise local youths especially school students in three consecutive phases. The first session included interaction with them about their perception on conflict and wildlife conservation. The session gave us idea on how we should further conduct the programmes. The second session included giving them information about the conflict areas, human kills, conservation needs and information of our project. The third session was the painting competition themed wildlife, where we could see the emotions of the children, their love, affection, hate and anger towards the wildlife around them. We awarded the best three paintings under the facilitation of the school authority. We conducted meetings in nine VDCs with Buffer Zone User Groups (BFUGs) about the ways of being safe from HWC in first hand and then implementing ways to prevent HWC. The meetings were effective as it was two way of learning. We also collaborated with the CBAPUs of various villages and conducted a series of knowledge sharing interaction programmes. The meetings, social interaction contributed to sensitisation of the issue. We suggested the park authorities with the hotspot areas which require immediate attention with effective programmes. This information will obviously be useful for planning purposes. The interactions with 10 buffer zone user groups gave us ample information on severity of the conflict in those areas. Our report became an additional voice with figures to the park authorities for taking immediate relief and conflict mitigation measures. Moreover, the finding is a good overview to the elite groups in the VDCs so that they can disseminate knowledge to other villagers on where the risky areas are. The implementation of the planning with appropriate incorporation and consideration of the hotspot zones is expected in days to come. Likewise we also co-organised a wildlife photography workshop for youths in Bardia.

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

We involved local assistants (one for each of 10 human settlements areas) in the field work. Similarly, three members of Community Based Anti-Poaching Units (CBAPU) helped us in taking to different villages for rapport built up. This added to the ability building of the members in interaction with victims. The CBAPU members were involved in the awareness campaigns (rallies, painting competition, etc. in schools). This also helped in minimising the distances between the young students and the members for future coordination. The informal meetings and talks with the villagers during the survey helped them in better learning about procedures of claiming compensation.

Likewise, the wildlife photography workshop that we organised in the park helped many local naturalists and guides learn photographic skills. This may be one of the alternative income generating activities which also will ultimately keep them attached to wildlife conservation. As a whole, the project helped many locals and young students sensitised towards wildlife conservation making them aware about the HWC.

5. Are there any plans to continue this work?

Yes, certainly we are planning to continue our work in the very near future. Since the magnitude of HWC is extremely high in the study area; there is an immediate need for action-based researches and conservation awareness campaigns to reduce the effects of conflict. We will soon be planning and designing more research that will help lower the conflict and the damages caused by it. We will be focusing on the ecology of the species that causes the maximum problem. Also, we will plan other effective ways of disseminating knowledge of HWC to the locals.

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

Sharing research results is of utmost importance as the result will help in planning future researches and actions to address the HWC in our study area and in other sites as well. We are currently working on two major research manuscripts for publication in a peer-reviewed scientific journal. Once the article is published we will share it with the local park authorities, CBAPUs, Buffer Zone Management Committees, Department of National Park and Wildlife Conservation (DNPWC) and The Rufford Foundation itself. Apart from that, we will be sharing the results and the experiences from the field to the students and scholars so that they get an idea on conducting future researches in the topic of human-wildlife conflict.

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 project was approved in April 2017. Due to the local level elections and flood in 2017, we were unable to complete the research on time we've mentioned. Hence after having received the extension time from The Rufford Foundation, we have now successfully completed the entire research work by October 2018. The total duration of the project was almost 18 months.

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
Traveling cost-To and from project sites, within project site and hiring vehicle for traveling to field	350	350	-	-
Filed gears (sleeping bags, camping equipment like tents and other)	275	120	-155	A local resort named as Tharu Home Resort helped us in accommodation resulting the less money spent in field gears
Wages to 2 helper and 1 guide for 120 days	500	750	+250	Since the time was extended we spent more time in the field resulting in higher wages
Maps, satellite images and GIS service	250	250	-	-
Stipends to 2 research Assistants	500	800	+300	In the extended time we had to conduct the survey for more duration than planned
Food and lodging (cooking utensils and food stuffs)	450	300	-150	Our food expense was also reduced due to the owner of Tharu Home Resort who partially supported our accommodation and logistics
Awareness Campaigns (Workshops, Meetings, Interactions, Rally)	1250	1250	-	-
Outreach materials (Conservation awareness materials, posters, brochures)	645	400	-245	We did not print the posters and brochures instead gave the schools and authorities the presentations. We only printed banners and other necessary stationery items required for campaigns
Communications-Phone /Email / Internet	85	85	-	-
Buy and Hire Research equipment (GPS, Projector, Compass, Camera Batteries)	245	245	-	-
Results presentation, disseminations and stakeholders meetings	275	275	-	-
Publications (reports, questionnaire forms) and administration	150	150	-	-
Total	4975	4975	-	-

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

After having been in the field for almost half a year we have found that the magnitude of the problem created by elephant is very high in comparison to other species in terms of human casualties and economic loss. This severity in human-elephant conflict (HEC) can be verified directly by analysing the compensation records of Bardia National Park. The locals have been affected by elephants on a regular basis for a long time now and this has adversely affected their perception towards the species. If no immediate actions are taken the interaction between human and elephant can be more dangerous to the species as the local might harm the elephants. Thus, there is an urgent need for ecological study of elephants to analyse their behavioral changes that trigger the HEC. Also, in order to foster elephant conservation community involvement is a must. And awareness campaigns play a vital role in attaining positive perception towards the species.

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, the logo of Rufford Foundation was used in all the banners while conducting awareness campaigns and workshops. All the presentations we gave on HWC we have used the logo of Rufford foundation. We will also use the logo of Rufford Foundation in all the risk maps created that will be shared among various stakeholders and used in hoarding boards. We have already acknowledged RF in a preliminary report submitted to Bardia National Park. And will do that in all the reports and manuscripts that will be published in near future.

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

Sima Khanal (B.Sc. Forestry):

Worked as a co-ordinator of outreach campaigns.

Naresh Khanal (B.Sc. Forestry):

Worked as a research assistant throughout the project.

Bhumi Tharu (B.Sc. Forestry):

Co-ordinated all the meetings with the local stakeholders.

Rajan Chaudhary (Senior Guide):

Helped in conducting interviews during household surveys.

Mohan Lal Chaudhary (Local Villager):

Managed all our logistic part including accommodation and food.

Deepak Rajbashi (CBAPU):

Local youth helped by co-ordinating CBAPUs in all the VDCs.

12. Any other comments?

I'm sincerely thankful to The Rufford Foundation for trusting me and my team with this grant. This opportunity has helped us grow as researchers as well as have helped us excel our managerial capacity. We were able to find the realities from the field that was totally different from what it is said. We found that there is an immediate need for generating ideas from various stakeholders to mitigate HWC. We aim to further conduct researches and hope that Rufford Foundation trusts us with such help.



Interaction with Pathabhar Buffer Zone User Group



Failure of Human Wildlife Conflict in buffer zone area



Students participating in HWC awareness campaign



Left: Local Women from Khata Corridor showing her wound, she was attacked by leopard in the forest recently. Right: An OX killed by a tiger in the buffer zone forest of Bardiya National Park



Student creating the art in the drawing competition



Art by one of the students who participated in the drawing competition