

## The Rufford Foundation

### Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
Your name	Bijaya Neupane
Project title	Situation of human elephant conflict (HEC) and approaches for mitigating HEC in surrounding VDCs of Jalthal forest in Jhapa district, Nepal
RSG reference	21161-1
Reporting period	March 2017- February 2018
Amount of grant	£4989
Your email address	<a href="mailto:bijneu@gmail.com">bijneu@gmail.com</a>
Date of this report	6 <sup>th</sup> March 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
Collect detail information on the incident of human casualty and injury by the attack of wild elephant from all victim's household				Based on the reported cases documented in District Forest Office (DFO) Jhapa, Nepal, we collected the addresses and went to each household who were the victims of human casualty and injury from the wild elephant's attack in the last 5 years. We found that there were altogether 10 human casualties and four seriously injured cases from the attack of wild elephants in different time periods till the time of our fieldwork. Through the informal interviews and discussions with victim's family members, we collected detailed information regarding where, when and how the incident took place followed by recording the GPS coordinates and capturing the photographs from all victim's houses.
Assess the crop and property damages information				After examining the file records (request letter for claiming the damage compensation of last 5 years) of the victims for crop and property losses by wild elephants from DFO, Jhapa, the most affected settlements (sites) around the Jalthal Forest were purposively selected and representative's households (samples) were randomly chosen from each sites for the household survey. The semi-structured questionnaires were prepared in Nepali language that focused on the socio-economic information of the respondents, their dependency on the forest, major crops grown, season and stage of crop damage, types of property

			<p>damage, monetary value of annual crop and property losses, mitigation measures practised as well as their perception about the existing government's compensation schemes. We found that 1457 households had filed the complaints for crop and property damages compensation in DFO, Jhapa. Among them, 760 households were found with repeated complains of wild elephant damage, so we chose 190 households out of 760 (25 % sampling intensity) for data collection and analysis. Similarly, 20 key informants' interviews were conducted representing the elite people of all affected sites for collecting site-specific detail information about causes, effects, yearly and seasonal damage trend and local mitigation measures adopted against HEC. In addition, 10 group discussions were conducted to triangulate the information collected from household survey and key informant interviews. We found that the most damaged crop in our study area was paddy and most damaged property types were house/hut. We also found that more than 70 % of the respondents had average annual crop damages up to 20,000 Nepali rupees or 191 US dollars. Some of the major findings (based on chi-square test of independence) of our study in the Jalthal forest area were:</p> <p>Among three categorised castes or ethnic groups, there was high dependency on forest resources by the indigenous group of people.</p> <p>Among different affected areas around Jalthal forest area in Jhapa district, the most affected area in terms of crop and property losses was Bhadrapur.</p>
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			<p>However, there was no any association between land holding size of households and monetary value of crop loss. Similarly, there were no differences in type of crop damage among different community forests users residing around the Jalthal forest areas. The full results will be mentioned in the detailed technical reports.</p>
<p>Conduct community outreach (awareness) programs to aware the local communities about the ecology and behaviour of wild elephants, existing situation of HEC (based on this project's preliminary findings) and recommend appropriate safety and mitigation measures</p>			<p>In order to share this project's preliminary findings and raise the existing issues of HEC, we conducted 1-day workshop with 60 participants including district forest officer, Jhapa, staffs of DFO and sector offices Jhapa, chairperson and representatives of different community forests of the affected sites, local elites, youths, bachelor level forestry students and other concerned local stakeholders. During the workshop, different issues of HEC were explored and discussed in one common platform and discussions were made concerning planning and implementing effective mitigation measures, policy amendment for existing government's relief/compensation schemes. Besides, speech context was conducted in two government schools within the affected sites to aware the students (youth) about the existing HEC and the effective mitigation measures. We also prepared the awareness and conservation education materials in Nepali language (brochures- 600 and posters-100) and distributed during the awareness programmes (group discussions, workshop and speech contexts) in all the affected sites.</p>
<p>Evaluate the effectiveness of solar-powered fence in mitigating HEC in</p>			<p>We collected the detailed information on HEC incidents (human casualty and injury, crop and property damage) before and</p>

<p>Bahundangi VDC (now- Mechinagar Municipality-14), Jhapa district, Nepal</p>				<p>after the fence installation. Affected wards within Bahundangi VDC were purposively selected for households survey (N=100), consultations and group discussions (N=5) and participatory field observations. We encountered poor maintenance and care of the electric fence and in some places covered by grasses and climbers questioning its sustainability. In spite of it, the number of incidents of HEC sharply reduced to 96.13%. Before the fence (in 2014), the estimated economic loss per household per year in the VDC was 103 USD (crop=95 USD and property= 8 USD). Remarkably, there was reduction in economic loss of crop and property damage by 93% and 96% respectively. After the fence installation, only few elephants entered in some sites by breaking the solar fence and caused few incidents of crop and property damages (no human casualties and injuries). From the overall evaluation, solar fence was found effective in reducing HEC by protecting human lives, crops and properties.</p>
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

The study sites were scattered and we had to travel a lot during our field visits. There was also problem of public transport and accommodation places in the study sites. Only couple of buses were found moving from the city area (our accommodation place) to some stations of the study sites. However, we managed the travel by hiring motorbikes during the field visits. Similarly, many local people were busy due to the country's second local election. For the reformation of new government system, such local election was held after 20 years. Due to the election, our second field visits was postponed for about one and half month. Later, we completed our work during August and September 2017.

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

- I. We identified the sites or settlements that were severely affected by human elephant conflict (HEC) within the study area. Through the detailed discussions with the victim's families (human casualties and injuries by wild elephants), we knew the place, time, situation and other information of different incidents. For crop damage, we identified the mostly damaged crops and their stages, season, monetary value of annual crop damages and the sites. Similarly, for property damage, we identified the major types of property damage, time of damage and monetary value of annual property damage. This helped to identify the severely affected sites by different categories of HEC, which will aware the concerned authorities to plan and implement the suitable mitigation measure in the affected sites. We have also one good news to share that after we discussed with the concerned government officers of district forest office, Jhapa during 1-day workshop and other informal discussions during the project period, the district forest office, Jhapa has allocated 20 million Nepali rupees budget this fiscal year for constructing solar powered fence around the most affected areas nearby Jalthal forest similar to that of Bahundangi VDC, Jhapa, Nepal. We hope the construction work will start in near future after the necessary arrangements.
- II. We prepared the awareness materials (brochures and posters) with relevant photographs in Nepali language and distributed during the several community outreach programmes such as group discussions, workshop and speech contexts. Since the awareness materials contained several essential information such as ecology and behaviour of wild elephants, name and addresses of victims (casualties and injuries), safety measures against wild elephants, possible mitigation measures, we expect that such information have contributed in raising the awareness among local people including youths and thus minimize HEC particularly human casualty and injury from the attack of wild elephants.
- III. Another most important outcome of this project was we evaluated the effectiveness of 17 km solar powered fence in Bahundangi VDC that lies in north-eastern part of Jhapa district, Nepal. Though the fence contributed a lot by severely reducing HEC (caused by transboundary wild elephants), but in some places the fence was covered by grasses and climbers questioning its sustainability. Also during paddy and maize ripening seasons, the few wild elephants that came from Indian side broke the fences in some sites along the fence area and damaged some crop area. However, there were any no human attacks by transboundary wild elephants after the fence establishment.

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

Despite mobilising few forestry students of my institute, there were two local youths and two local field staffs from district forest office, Jhapa who supported us

throughout the project. Those local team members were benefited by receiving information about different categories of HEC, severely affected areas, existing mitigation measures and their effectiveness that could help in reporting the information to the concerned authorities for minimising HEC and contribute in human wild elephant coexistence. Besides, there was active participation of local communities including local youths and school students in different community outreach programmes that made them aware about the existing and potential HEC sites, ecology and behaviour of wild elephants and the safety or precaution measures against the wild elephant attacks, which can ultimately help to minimise human casualty and injury.

#### **5. Are there any plans to continue this work?**

By raising the issues of HEC extensively and through detailed consultations and discussions with concerned officers of district forest office, Jhapa, Nepal, the problem of HEC was prioritised and the budget has been allocated to construct the solar powered electric fence in most affected sites around Jalthal forest this year. In this regard, the overall credit of this success or initiation of required mitigation measures (solar powered electric fence) in the study area goes to the Rufford Foundation by raising the issues of HEC through this project. So, we hope the HEC problem will be minimized in near future in the study area. This is the case of HEC in eastern part of Nepal. However, we have found that there are emerging issues of HEC in the western part of Nepal too. In this scenario, we are interested to conduct similar research in the western part of Nepal too in near future.

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

After completing the detailed technical report, we will share it with different stakeholders including district forest office and sector forest offices in Jhapa district. Based on the findings of this project, two manuscripts (1<sup>st</sup> regarding situation of HEC and mitigation measures in Jalthal forest area, Jhapa and 2<sup>nd</sup> regarding effectiveness of solar powered fence in mitigating HEC in Bahundangi VDC, Jhapa) will be prepared and we have planned to submit in the peer-reviewed journals for publications. We have acknowledged the funds received from the Rufford Foundation in the workshop and awareness materials during the project period and will acknowledge in the future too for all publications, presentations, conferences and other outreach programmes.

#### **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 for the duration of 1 year (March 2017- February 2018) and the entire grant amount was used during that period. Although most of the purposed activities were completed as planned but due to local election in all places of Nepal, our second field visits was postponed for about one and half month. Later, we completed our works during August and September 2017.



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
Total DSA (Daily subsistence allowance) for all field visits including food and accommodation for entire team members	2885	2350	+ 535	Although the evening dinner was taken in the city area or the accommodation place (Birtamod city, Jhapa), but the food expenses (particularly lunch) taken in the rural villages or study sites was comparatively cheaper than that of city area that reduced the total expenses by £ 535.
Travel expenses	504	1200	- 696	Two motorbikes were hired during each field visits due to lack of public transportation from the city area or accommodation place (Birtamod city, Jhapa) to the study sites (Around Jalthal forest areas, Jhapa). The hiring costs and the fuel for 2 motorbikes increased travel expenses by £ 696.
Cost of preparing community outreach/awareness materials- brochures and posters (designing and colour/flex print expenses)	550	550	0	Instead of preparing the booklets, the budget was allocated for preparing the award and participating certificates for the students of 2 schools for speech contexts within the affected sites. Also, the remaining fund allocated for booklets was used by printing additional copies of brochures.
One-day field level workshop	750	649	+ 101	Most of the participants in the workshop managed their local travels themselves that substantially reduced the total workshop expenses by £ 101. That compensated the extra expenses of the travel category.
Miscellaneous expenses	300	240	+ 60	The GPS was borrowed from the



including printings, stationary materials, hiring GPS devices, batteries, communications and other consumables				district forest office, Jhapa that reduced the miscellaneous expenses by £ 60.
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**9. Looking ahead, what do you feel are the important next steps?**

From the 1 year experience of working in this project, we found that among different mitigation measures (beating drums, shouting, crop guarding from elephant watch tower, trenches, etc.), solar powered electric fence was the most effective mitigation measures. Though the fence has been effective in mitigating HEC (transboundary elephant’s damages) in Bahundangi area, Jhapa, but there was still severe problem of HEC due to resident wild elephants living in Jalthal forest. The government (District Forest Office, Jhapa) has allocated budget this year and planned to construct solar powered fence in most affected sites around Jalthal forest similar to Bahundangi area, but it might take some time period to complete construction in the future. However, government authorities should start the work soon. In addition, the Jalthal forest was found covered by the invasive species named *Micania micrantha* during the field visits and observations. So, despite the concept of solar powered fence, the habitat management within the Jalthal forest area should be initiated soon by removing the invasive species and planting the favourable plant species of wild elephants.

**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, we have used the Rufford Foundation logo in community outreach materials (brochures and posters), the banner of one-day field level workshop and in the award and participation certificates for the winners and participants of the speech contexts. During the project, the different community outreach programs were able to disseminate information about the contribution of the Rufford Foundation in supporting such essential project with funds.

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

The list of team members and their roles are:

Names	Role in the project
Bijaya Neupane	<ul style="list-style-type: none"> <li>• Team leader</li> <li>• Major responsibilities in all project activities from the starting to the end of the project</li> <li>• Updating the progress of the project to the Rufford Foundation</li> <li>• Coordination and cooperation with the professors and</li> </ul>

	<p>faculties of Tribhuvan University, Nepal and Hedmark University, Norway for the guidance and suggestions</p> <ul style="list-style-type: none"> <li>• Monitoring the project activities and taking accounts of the funds</li> <li>• Coordination and consultation with the local stakeholders including the government bodies for discussing the relevant issues and the findings of this project</li> <li>• Field work design, data collection and analysis, report and articles preparations and submissions</li> </ul>
Bishowdip Chaudhary	<ul style="list-style-type: none"> <li>• Helping in planning and arrangements of field works</li> <li>• Assisting throughout the fieldwork including questionnaire survey, group discussions, key informants interviews, workshop, community outreach programs, field observations (crop and property damages monitoring)</li> <li>• Coordinating with the staffs of district forest office, sector forest offices, Jhapa</li> </ul>
Sanjeev Subedi	<ul style="list-style-type: none"> <li>• Assisting in collecting information from each victim's households regarding human casualties and injuries</li> <li>• Assisting in other field works</li> <li>• Assisting in communicating with the team members and sharing the information</li> </ul>
Rajeev Upreti	<ul style="list-style-type: none"> <li>• Assisting in arranging food and accommodation places in the study area</li> <li>• Assisting in hiring motorbikes during field works and travels</li> <li>• Helping in data collection during fieldworks</li> <li>• Assisting in community outreach programs such as speech contexts, discussions</li> <li>• Assisting in taking photographs and other records of the study area</li> </ul>
Binod Khatiwada	<ul style="list-style-type: none"> <li>• Assisting in distributing brochures and posters</li> <li>• Assisting in workshop and group discussions</li> <li>• Assisting in speech contexts</li> <li>• Assisting in field observations and data collection</li> </ul>
Sweta Shrestha	<ul style="list-style-type: none"> <li>• Assisting in workshop</li> <li>• Assisting in data collection particularly in Bahundangi area</li> <li>• Assisting in group discussions</li> <li>• Assisting in capturing relevant photographs</li> </ul>
Niraj Babu Bhatta	<ul style="list-style-type: none"> <li>• Assisting in conducting group discussions and key informants survey</li> <li>• Assisting in monitoring the wild elephant's damages during field observations</li> </ul>
Bichit Singh	<ul style="list-style-type: none"> <li>• Assisting in preparing questionnaires and checklists for key informants survey and group discussions</li> <li>• Assisting in taking accounts of the funds</li> <li>• Assisting in communicating with the team members and sharing the information</li> </ul>

## 12. Any other comments?

With this single project, the local communities of two different study sites (Jalthal area and Bahundangi area, Jhapa) were benefited. To our knowledge, this project was the first study to evaluate the effectiveness of solar powered fence in Bahundangi VDC of Jhapa district. Also, constructing the solar powered fence around Jalthal forest area was one of the prioritised programme from the government side as the budget was allocated for constructing the fence this year. The government made such initiation after the detailed discussions and consultations in the 1-day local level workshop during our project period. All these contributions were possible only by the support of the Rufford Foundation. Besides, this project has contributed to enhance the research career of the team members as well as raising the issues of HEC among the local people and the concerned government bodies that helped to plan for further mitigation measures. So, we are very grateful towards the Rufford Foundation and hope for the continuous support in the future too. Finally, we would like to thank a lot for the Rufford Foundation for supporting this project.



Left: Trench constructed as one of the mitigation measures against wild elephant nearby Jalthal Forest but functionless due to lack of maintenance and care. Right: People started growing unpalatable crops of wild elephant (lemon) in large scale for commercial purposes in Bahundangi area.



Left: House (hut) damaged by wild elephant in the settlement nearby Jalthal Forest. Right: Discussion with local elite about the trend of wild elephant damages over several years © Bishowdip Chaudhary.