

## 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	Roshan Kumar Thakur
Project title	Using honey bee as eco-deterrent for crop raiding elephants: Testing effectiveness, efficiency as a tool for Human Elephant conflict mitigation in Central Nepal.
RSG reference	21974-2
Reporting period	December , 2017
Amount of grant	£5000
Your email address	hroshanthakur@gmail.com
Date of this report	24th 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
Social Survey				Pre-intervention and post intervention survey was done to observe the change. We found positive change in attitude as well as other social factors. Acceptance of this new method after the deterrence activity was found positive.
Training on beekeeping				The motive of training was achieved because the farmers are now looking after the hives.
Crop Productivity increased				The mustard field yield increased by 25% from past year. This year, the farmers believed bees were responsible for increase in yield.
Effectiveness of using honey bee as eco-deterrent				We achieved our motive; elephant was found deterred twice out of three attempts. We still have to wait for maize season to make a bold statement.
Efficiency of honey eco-deterrent				£60 was spent for one beehives out of which famers had already earned £45 till now in consecutive three harvests. This has built their confidence and added some income. They asked us to add more bee hives which has both benefits.
Additional Income added				We harvested honey once in two months, and we obtained about 5 kg of honey per hive which was sold at Rs. 600(£4.60) per kg total earning about Rs. 3000(£23.07£) per hive.

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

Beside the security issues at firstly designated site Shikaribas, we had not any difficulty beside the election which misguided the people that we are supporters of some political party and supporting the campaign at Nijgadh Bara. People were not able to give time because of their election campaign so it was little bit difficult. We had to put a lot of effort as the program as well as national election coincided at

the same time. We interacted thrice just for one issue and then only we launched the program. We are happy; we did complete our motive successfully.

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

Three most important outcomes of my project are listed below.

- Training on beekeeping.
- Crop productivity increased and additional Income added.
- Effectiveness of honey bee as eco-deterrent for crop raiding elephants.



#### Results of Social Survey

Out of total respondents (n=12) only the farm holders with beehive had following statistics. 50% were illiterate, 25 % were educated up to primary, and 25% were below SLC 40% of respondents had occupation as agriculturists, while 28% livestock; 32% labour. They had 6.925 Katha land holdings. 52% of respondents used nearby forest as a source

of fuel wood, 39% used the forest for fodder collection and 9 % used it as place for animal husbandry. 25 % of respondents used fireball and drum beating as mitigation measure for human elephant conflict mitigation. While 30 % of respondents believed fence wire with no current can be used as elephant deterrence. 58% revealed that HEC trends at current time have decreased. 100% recommended that solar fencing is required to mitigate elephant intrudes. 57% of the respondents have observed elephants within 500 m during peak season while 29% say they have observed elephant in between the distance of 1 km from human settlements. All most all have heard about elephant conservation in Nepal and about 100% respondents believed that beehive fence method will work as deterrence.



**Training of Beekeeping-** To ensure the successful implementation of the project and to fulfil the trial two farming experimental model, the farm holders were trained. This training boosted the confidence of the farmers and fixed any issues regarding the beehive fence.



**Crop productivity increased and additional income added:**

The crop yield data increased by 20% this year. We compared the pre-intervention survey and the post intervention survey data. We found 20% increase in mustard production.

**Effectiveness of honey bee as eco-deterrent for crop raiding elephants:** Out of total three elephant visits till now, twice elephants were deterred by the beehive fence system. Once they passed through because the hive was empty. The cold this year killed all bees of three hives. Elephant broke the wire, entered the farm but soon the farmers chased it out their farms.

We did a thorough for the reason; this elephant came in off season this year. We found out they were attracted towards local home-made alcohol. We tracked the foot prints the next morning which led us to the particular house where local alcohol was stored. So we believe, alcohol plays a role as driving force for elephant into the human settlements near to elephant habitat and must be avoided.

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



Type 2 trial are researcher designed, farmer managed trials that rely on the collaboration and consultation during implementation and evaluation. Farmers remain responsible for all operations of the trails and researchers have a chance to assess both the farmer's reactions and the cost benefits of the technology. So this project had type 2 trails experimental model in plan of action so we not only included but consulted and shared our learning. Beside this, RRA (Rapid Rural Appraisal) framework during our site selection also included local communities. We also picked a local beekeeper as trainer to the farmers in consultation of the communities.



We included other people of the community in bee keeping training session who have farms nearby who has visions of possible expansion and adoption of this technology in their farms. So the local community were helped with 25 trees of litchi (*Litchi chinesis*) were planted with the help of local community in around their houses so that they can have sustain bees and also harvest good fruits. Also we have grafted 50 Indian plums which have high flowers during their flowering season to sustain bees in their hives. The plantation of flowers and high flowers trees were

not included in budget but it came during learning phase of the project and was hence planted. Also we are planning to help them plant some mango trees which came as out of box ideas.

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

Since this beehive fence method of elephant deterrence has shown positive signs of deterrence, I plan to extend this project in another site in central Nepal. Also a volunteer of this project is planning to extend this idea to western Nepal. The community who learned about this concept and its effectiveness will to have this system in their surrounding and so they have reached me. I have assured them of working with them which has both benefits alternative livelihood and deterrence.

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

The data we got till now is not sufficient to make a publication so we are still based at the trial fields with continuous data collection and monitoring with also helping the farmers to sustain bees. We expect this July, August when elephant becomes much problematic then other seasons would yield us good data. After collecting data of this year too, i.e. 2019, we plan to go for publication for scientific community. Also the results is planned to be published in local as well as national newspaper for nationals of Nepal.

#### **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 Rufford grant was used till January 2018. We are continuously monitoring and collecting data and standing for the community to deter elephant in case of intrusion at night so we cannot say this project is finished. This project has long lasting actions which we plan to continue even if grants are not with us. We have developed a good relation with the community so the team is not only working on the project but also helping the community when local forest officials and police back off in chasing elephant out of their farms. Although the project was planned to finish in December 2017, we could not because conservation actually never finishes. This was the thing I learned during my Kenya stay. Conservationists must adopt the community in their problems related to wildlife even if they have grant or not. Then only we can achieve success and full cooperation from the community. So we are still hanging on with them. We were delayed by 2 months for report submission.

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
Preliminary Visits	100	125	+25	
Project Leader Allowance	1000	1000	0	
Field Assistants Allowance	930	930	0	
Team Lodging \$ Foods	1440	1200	-200	
Travels	30	250	+220	This includes transportation of bee hives along with transportation of team members to field.
Bee Hives	800	1230	+430	Since at the time of buying
Accessories	400	200	+200	
Bee-Keeping Training	300	270	+30	
<b>Total</b>	<b>5000</b>	<b>5205</b>		<b>1 £ = Rs. 130</b>

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

Large scale trails must be done to make a bold statement so we are planning for that. Instant conflict resolution and compensation was a troublesome issue we were advised to deal with. Instant elephant deterrence methods are likely to act in case of Nepal because continuous confrontation of elephant and human for long time during nights results in some serious issues. Compensation policy biases the houses for none human killings as well as house destruction because they don't have the papers of land holding. They have settled in the past by clearing the forest so they are not able to get compensation. No policy has been made for these poor landless and homeless peoples. So we plan to address these issues. People were found nothing known about the insurance scheme of government of Nepal. I realise one-time monetary compensation as it exists now seems not so desirable and feasible in the long run. Rather, it would be better if the management could establish an insurance system for the people of vulnerable areas. Similarly, provision for (as and when needed) regular allowance and placement of the victims and victims' families in suitable jobs could be a more reasonable and practical approach to compensation for wildlife victims. So there are a lot of issues to address elephant conservation and human elephant conflict mitigation. I plan to act accordingly and work for elephant conservation seeing the need of the community.

**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?**

Rufford Foundation logo was printed on t-shirt which were distributed to farmer and the team members who volunteered in the project. We printed 100 t-shirts out of which 50 to the community members and team member. 50 t-shirts were used to raise funds for post project activities. The Rufford Foundation not only received publicity during the course of work but got acclaimed by the community members for supporting them with training skills and honey bee hives. Still, in publications and newspapers it is planned to acknowledge the financial support for this project. The results will be aired on local FM soon where acknowledgement of financial support for this will be done which is not listed on application. Each donated bee hive has Rufford logo printed on it.

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

**Lucy E King-** She guided me in the project helping me with regular guidance. She is helping me with data analysis and publishing paper in journal. She got

**Roshan Kumar Thakur-** I led and completed all the activities as planned and still monitoring activities and collecting data at the project site.

**Sonam Bhattarai-** She volunteered in the project and helped me to achieve my objectives. She was responsible for data collection of pre and post questionnaire survey, assisted me in installation of beehives, and during training sessions. She is a student of Bachelor major in forestry with great skills and interest in elephant conservation.

**Kiron Paudel-** She volunteered in the project and helped me to achieve my objectives. She was responsible for data collection of pre and post questionnaire survey, assisted me in installation of beehives, and during training sessions. She has almost completed bachelor student with major forestry with great skills and interest in wildlife conservation.

**Manoj Kumar Yadav-** He got a government job so he couldn't be with me in my field so I had to look for other person. He couldn't give time due to his job in government office.

**Sundar Chaudhary-** Although he was an appropriate candidate for bee keeping training, he was based in Kathmandu, and he was not available at every time for community members. After consultation of community members and seeing their spirit and involvement we got a reliable local beekeeper that was trained by national beekeeping training centre some years ago. And hence new trainer (Tika Ram Adhikari) was used and is still helping the community with problems raised.

**Tika Ram Adhikari-** After the recommendation of local community members, he worked with us as a trainer. He had good experience in beekeeping and also he has his own about 100 beehives. For past 20 years, he has been busy in beekeeping. He had great contact with beekeeping government offices which was very useful in future collaboration for the community members. The community members are now busy with making proposal in consultation of Tika Ram Adhikari to get some grant to expand their size i.e. to increase the number of beehives which comes with subsidy.

## 12. Any other comments?

I would like to thank The Rufford Foundation without which this project and its achievement would not have been possible. This new method adapted from Kenyan studies is itself an interesting project among the conservationist here which received great attention during 2018 RSG conference. And the preliminary results are promising. The community easily accepts this method as it has both component livelihood option as well as elephant conservation. Rufford has actually invested in the issues of conservationist vision which is highly appreciable. We have plans of expanding to new sites as well as other instant issues like supporting the family members with some livelihood opportunities as well build some instant elephant deterrent devices and I believe, Rufford Foundation is going to help us.

