

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	D. G. Ashoka Ranjeewa
Project title	The Enigmatic Crop Raiders of Udawalawe: A First Step Towards Mitigating Human Elephant Conflict (HEC) in Sri Lanka
RSG reference	14052-1
Reporting period	One year
Amount of grant	£6000
Your email address	dga.ranjeewa@gmail.com
Date of this report	12 February 2015

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
Individual identification of elephants outside the park and comparing them with elephants inside the park.			Yes	For the first time in Sri Lanka, night vision camera traps were used to identify problem elephants in some selected bordering villages of the national park and the Dahaiyagala elephant corridor. I could identify 25 male elephants outside the park. Comparison of these elephants with the park elephants showed that some of them had been identified in the park during my previous study. This confirms the suspicion that some elephants travel in and out of the park and raid crops.
Find out the percent of crop raiders in the population and the crop varieties raided by elephants		Yes		The accurate percent of crop raiders in the population could not be determined because there are more unidentified elephants in the villages (cumulative number of crop raiders is still increasing). I hope to expand the number of night vision camera traps to capture all of them in the next year. On the other hand, almost all the crop varieties that were raided by elephants were identified and raided lands were marked with a GPS.
Find out the population structure of crop raiders			Yes	Population structure was planned to be determined using elephant dung piles assuming that chances would be rare to observe crop raiding elephants in the field. However, with the use of night vision camera traps, elephant observation was much easier and more accurate information on crop raiders could be drawn based on camera traps instead of elephant dung. It was interesting to find out that almost all the crop raiders were male elephants. In fact, the majority of the crop raiding elephants were mature adult and young males and they were frequently seen in male groups which is an important phenomenon to study further to understand dynamics of crop raiders in order to find solutions to the HEC. Neither females nor any calves were found in crop lands.

Finding habitat use patterns of elephants.		Yes		I was able to identify some forest patches which were used frequently by elephants in the villages by tracking elephants' footpaths and dung piles. I marked all the direct and indirect elephant sightings (such as footprints, dung, etc.) with a hand-held GPS. It seems elephants roam everywhere in the study villages but more data is needed to study the exact pattern of habitat use of the elephants.
Building a strong relationship with villagers and the authorities.			Yes	It was very difficult to reach the villagers at the beginning of the project but could persuade and work closely with them with time. The former Secretary of the Department of Wildlife Conservation, the Director of the Department of Wildlife Conservation, the Assistant Secretary to the former President, the Secretary of Ministry of Economic Development and the former Minister of Power and Energy were informed and educated regarding the HEC in the study area and some immediate measures to be taken for the safety of the people. As a result many small but effective solutions were taken to minimise the severity of the problem such as fixing street lamps and re-establishing the service of nightwatchmen at some spots which were frequent entry points of elephants.
Questionnaire survey to assess human dimension of the HEC			Yes	A questionnaire survey was conducted among 43 villagers to determine human dimension of the HEC. Villagers refused to answer the questionnaire in the early months of the project but gradually with good rapport built with the villagers, they agreed to participate in the survey.
Raise awareness among the villagers			Yes	It was very difficult to organise public awareness programmes for the villages as they were very rude to us due to the severity of HEC in the area. Therefore, the awareness work was mainly based on family and individual levels. I conducted face-to-face family-based discussions with over 50 families spending at least 1 hour with each of them. Apart from that I could address the villagers in the village temple in few occasions where I talked about mitigation of the HEC and value of team work in resolving HEC in the area. I could witness the success of these small scale awareness programmes through the changes of attitudes of many villagers.

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

The major unforeseen difficulty was the offensiveness and resistance of villagers. They were poorly educated and have been facing Human Elephant Conflict (HEC) for decades. These people have been experiencing a stressful life living in an animal-wildlife conflict area. Villagers barely get enough sleep or rest and have been helpless in protecting their families and crops from the raiding elephants. Most of the villagers were unhappy with the relevant government authorities saying that the authorities do not involve adequately in managing the HEC. Therefore, generally most of the villagers were hostile to anyone who comes to their village to work on elephants or HEC. They were not interested in any scientific research, participating in awareness or discussing possible solutions but only interested in stopping elephants by destroying their crops and expected fast results. People were absolutely antagonistic when talking about elephant conservation. Some people had been prepared to physically threaten me if I would come to their lands to see crop damages as I did not grant any compensation but just kept recording the damages. However, by patiently listening to the villagers' complaints, understanding their feelings, appreciation of their difficult life, joining public events of the village and letting them know that I am working for them worked wonders. A public awareness campaign was planned to be conducted in the villages to raise knowledge on wildlife and conservation. This task seemed very difficult to achieve as people were very hostile when they were in groups than on their own. Therefore, I conducted a family level awareness campaign spending more time with the family while doing the survey and recording crop raiding incidences.

Almost all the villagers were Buddhists. People are usually very calm, relaxed and decent when they are in temples. I thought the village temple would be a good place to build good rapport with the villagers. I met with the chief incumbent and explained my intention. I joined public religious events and periodically made small donations. It was much easier to talk to people in the temple than in their houses. Slowly I could build up a good relationship with the villagers through joining religious events in the village.

My perseverance and patience has ultimately paid off and the people have accepted that HEC cannot be solved overnight and that long term team work is needed to find solutions. The level of acceptance may differ among people according to their level of understanding and exposure but it's far better than at the beginning of the project.

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

Preparing a photo catalogue of problem elephants (who break the park fence and enter the village) in the area is one of the most important outcomes of the project as this is the first time in Sri Lanka to have a photo catalogue of problem elephants. The photo catalogue will be helpful in future HEC mitigation actions and further scientific studies.

Fixing of three street lamps at main elephant footpaths at Dahaiyagala and Pokunuthanna villages and re-establishment of night guard duty at the entrance to the Dahaiyagala corridor were achieved. As a result of the petition signed by the villagers and reports submitted and discussions organised by the researcher with relevant authorities, the tasks were achieved. People feel safer when they travel passing the lighted elephant footpaths as elephants can be seen easily if there any. A significant reduction in elephants entering to the Dahaiyagala village through the public main road could be observed due to the street lamps and the re-functioning of the night guard watch room.

Training of 33 villagers as volunteer research assistants was another major outcome of the project. The villagers were trained to collect data on the crop raiding of their own farm and home gardens. Villagers were given an exercise book and a pen to note information such as date, time, number of crop raiding elephants, and chasing method of the elephants and damaged crops in the garden. Majority of volunteers were house wives and others were farmers and school children. These villagers were taught the necessity of scientific data collection in taking management actions in solving HEC they are facing. They also expressed an interest in learning basic ecology and behaviour of elephants. Therefore, training of these villagers as research assistants will have a high impact on the wildlife and conservation in the area.

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

Developing basic skills in wildlife research among the villagers and preparation of a group of wildlife lovers would be the most prominent involvement and benefit gained by the local community as mentioned above. Apart from that, other villagers also learnt some important skills such as documentation of HEC incidences and official letter writing and team work with the effect of my awareness campaign.

I could also be able to bring some political leaders to the villages and people got an opportunity to meet and inform them the HEC problem they have been facing for a long time. Villagers submitted a petition along with my scientific report to the relevant authorities. Both the activities – submitting a petition and meeting political leaders - helped to raise awareness and grab the attention of major stakeholders in the area.

Further, a local young boy was benefited working as a research assistant in the project. Many village shops were supported by buying most of food items from village shops during the field work. Some other villagers got financial benefits by providing accommodation and preparing meals to the research team.

5. Are there any plans to continue this work?

Yes, during the 1 year field work, I identified many areas which should address in the future to ameliorate conflict between the elephants and human in the area. Therefore, it will be very important to continue this work to save the elephant, other wildlife and the villagers in the area. It is really important to raise deeper awareness among the villages on how to adopt their lives to co-exist in an elephant dominating environment. In fact it is necessary to educate them on how to shift their traditional cultivation in a way which does not attract elephants which will be extremely challenging and will require more intense awareness and effort. For instance, cultivation of elephant non-palatable crops which generate high income may reduce elephant attraction and minimise economical losses due to crop raiding.

Furthermore, identifying the shortcomings of the electric fence which is the only barrier between elephants and villagers and how to overcome those problems is also extremely crucial. It is also important to understand how the knowledge of fence breaking and crop raiding are passed among the elephants to minimise the HEC at present as well as in the future. Without controlling the number of crop raiders and intensity of crop raiding occurrence, it will be very difficult to persuade villages on elephant conservation. Therefore, a proper study on the function and validity of the electric fence of the park is vital in mitigation of aforesaid problems in the area.

Apart from that, the area sustains a high potential to promote sustainable eco-tourism as the high biological diversity of the area is a potential source of high income generation. If the villagers have the opportunity to earn from wildlife watching, they may learn to appreciate and tolerate wildlife in the area so that co-existence will emerge with time.

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

I will be sharing results of the work with the department of wildlife conservation and other local administrative authorities in Sri Lanka by submitting reports. I already submitted periodical progress reports to the department of wildlife conservation of the country. I will share my project experience and results with the general public through newspaper articles (which will be published in the near future) and power point presentations. The findings will be published in international scientific journals after collecting data for one more year. I also hope to do an oral presentation in a local or an international research symposium.

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 grant was used over a period of 13 months though the anticipated period was 12 months. The project took one extra month to complete the field work as heavy rains precluded field work by flooding and damaging roads badly. However, the full time period intended to collect data was completed.

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
Food expenses for the researcher, assistant and wildlife guard	1152	1125.35	26.65	
Accommodation for the researcher and an assistant	720	718.30	1.7	
Assistant's wages	480	550.70	-70.7	I had to pay little more than I expected as the field work was very difficult and tiresome.
Tips for wildlife guard	288	22.53	265.47	A wildlife guard accompanied only the first month and the rest of the field work was done on our own.
Transport (jeep rental)	2160	2154.92	5.08	
Night vision digital camera	750	973.27	-223.27	Since night vision camera traps were very useful for capturing crop raiding elephants, I bought four night vision camera traps to maximise the individual identification of elephants and

				one night vision binocular apart from the digital camera. I used the extra money received due to the depreciation of Sri Lankan Rupee to purchase the extra items which enhanced the capacity of the project.
Hand held GPS	125	139.53	-14.53	The price had gone up than it was when preparing the budget.
Heavy duty rechargeable hand held torch	50	43.23	6.77	
Pocket PC PDA	25	0	25	Did not buy the item as the price was too expensive than expected
Stationary	250	266.95	-16.95	Expenses including digital maps, field ID photo catalogue, note books, pens, printouts and photocopies for the survey, a printer and an external hard drive.
Total	6000	5994.78	5.22	

Local exchange rate was 1 £ sterling = 213

Especial note: due to the depreciation of the Sri Lankan Rupee, I received extra money. Due to that I could purchase more night vision camera traps and worked three more extra field dates than previously scheduled.

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

It is essential to study the shortcomings of the park electric fence to enhance the function of the electric fence as it is the only barrier between the crop raiding elephants and villagers. At the same time, it is essential to understand how elephants break the electric fence, and how the knowledge of fence breaking and crop raiding spread among the male elephants to take precautionary actions to prevent extending the problem further. Therefore, a scientific experiment is needed to study effectiveness of the park electric fence and learning strategies of the crop raiding elephant. Apart from that, deeper awareness is needed to change villagers' attitude to introduce alternative and sustainable income generation methods such as cultivation of elephant non-palatable crops and eco tourism activities to co-exist both the wildlife and the people in the future. If it is impractical to give an intense awareness to all the villagers at first, at least more approachable and enthusiastic people should be targeted first let the others be gradually educated through them.

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

Yes, I used the Rufford logo in the project poster which I displayed in awareness campaigns held at the villages.

Yes, the project got a media coverage by one of the most popular national English newspapers. The paper article will be published in the near future and a copy will be submitted as well as the link of the newspaper once it released. Apart from that I have widely mentioned that I was funded by the Rufford small grant to work on HEC research project in any formal and informal as well as scientific and non-scientific discussions held among the stakeholders, colleagues and academics and friends.

11. Any other comments?

The project is one of the most compelling studies conducted in the country and many scientists and wildlife enthusiast encouraged the work in the future as well. This momentous study could not be done without the support of Rufford small grant. Receiving the grant was a huge step forward to a scientist like me who was starting off on his own for the first time. Therefore, I greatly appreciate the trust shown in me by providing monetary support by the Rufford foundation. I would like to thank Dr Matthew Linkie and Ms Jane Raymond for conducting a wonderful workshop on grant proposal writing at the Association for Tropical Biology and Conservation (ATBC) chapter meeting held in Banda Aceh in 2013. Without participating in that workshop, I would not have been able to write a competitive grant proposal and receive Rufford small grant. Further, I greatly appreciate the pleasant cooperativeness of the Trust Administrator Ms Jane Raymond.