

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants 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	Anna Songhurst
Project title	Human-Elephant Conflict in the Okavango Panhandle, an HEC hotspot in Botswana
RSG reference	37.09.09
Reporting period	January 2010 – February 2011
Amount of grant	£5,915
Your email address	anna.songhurst@hotmail.com
Date of this report	April 2011

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
Conduct two training workshops for enumerators			x	Enumerator training workshops were conducted for theory and practical techniques in monitoring HEC. Both were well attended and went well.
Deploy enumerators to monitor elephant crop raiding incidents			x	Enumerators were deployed from January to June and collected data throughout the crop season on elephant raiding incidents and then located non-raided fields at the end of the season.
Collect environmental and social data on raided and non-raided fields			x	The principal investigator visited every field (raided and non-raided) and verified data collection by enumerators and collected additional information on environmental and social variables as well geo-referencing every field.
Conduct a comparative survey of raided and non-raided fields using 3 years of data (2008-2010). Initially use univariate analysis using all variables			x	Data was entered during Jul-Aug and analysis commenced in September. Data analysis took longer than expected due to the presence of spatial autocorrelation in the data.
Conduct multivariate analysis using generalised linear models to explore a range of factors affecting (i) the susceptibility of farms to elephant crop raiding and (ii) the amount of crop damage once elephants had entered a field.			x	Multivariate analysis was conducted in Dec-Jan.

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

One of our enumerators sadly passed away from TB, so a new enumerator had to be recruited in Mogotho village.

Positive spatial autocorrelation (data collected at locations closer together are more similar) was an issue in the data, which can make parametric statistical tests too liberal and results may appear to be more significant than the data actually justify. To reduce this effect I conducted all my statistical analysis on all my data and then sub-sampled data at coarser spatial scales to remove the spatial autocorrelation and tested my statistical models on the sub-sampled data. This allowed me to identify robust key drivers of elephant crop-raiding.

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

- Robust key drivers of crop-raiding in the panhandle were distance of a field to an elephant pathway and the raiding history of the field. Fields situated close to elephant pathways or fields with a long history of elephant crop raiding are at higher risk of raiding in the future. Therefore, mitigation efforts can be targeted at fields with a higher risk of raiding, to try and reduce elephant crop-raiding in the future.
- Need to exercise caution and consider the effect that spatial autocorrelation may have on regression estimates and significance levels for wildlife crop raiding data when using generalized linear models (GLMs) to identify key drivers of crop raiding, and the spatial distribution of fields should be considered when choosing the spatial extent of analyses for wildlife crop-raiding studies.
- Community enumerators are effective for monitoring HEC incidents and can also become facilitators of information exchange between rural farmers and NGOs/researchers/Government officials.

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

Twelve community members were trained and employed for 12 months as community enumerators. One community member was trained and employed as a research assistant for 12 months. Farmers participated in the research and will be informed of the outcomes through presentations at village meetings and through community enumerators.

5. Are there any plans to continue this work?

Yes, funding has been received from the Conservation Trust Fund in the Government of Botswana to employ seven enumerators and conduct training workshops for farmers in community based conflict management (CBCM) and Conservation Agriculture (CA) techniques in seven of the twelve villages. We will continue to fundraise to be able to incorporate the remaining five villages in future work.

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

Once scientific manuscripts have been completed they will be published in peer reviewed journals for the scientific community to access. Such manuscripts will also be distributed to the Government of Botswana and donors of the project. To share results with the twelve communities that the project was working with, the principal investigator plans to present major findings at village (Kgotla) meetings with the assistance of the research assistant/translator.

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

The RSG was used over a period of 12 months, which was the expected period of the project, although, a further 2 months were required to complete data analysis.

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
Salaries for field staff & assistants	5060	5060	0	The wages were distributed according to the planned budget
Equipment	265	265	0	A GPS unit was purchased to replace a broken one. Enumerators were supplied with project t. shirts for uniforms. In addition overalls were donated for enumerators to protect their own clothes. Workshop equipment i.e. pens/notebooks/bags/umbrellas were purchased
Expendable supplies & materials	240	240	0	Maps and orthophotos were purchased from the Department of Mapping in Gaborone. The remaining funds were used for consumables such as postage, communications (cell phone credit), printing of field assessment forms and batteries for GPS units.
Workshop costs	250	200	50	The venue hire for the workshop was donated, so we used the left over funds for fuel.
Total	5915	5865	50	

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

I think the project needs to start focusing on mitigation strategies as well as monitoring now. We aim to train farmers in community based conflict management techniques, including the use of chilli pepper as a deterrent against elephants. Conservation Agriculture (CA) techniques have been introduced in Namibia and Zambia, to encourage farmers to plough smaller areas of crop whilst enhancing their yields. If farmers have smaller fields they will be able to protect their crops more easily from wildlife crop-raiders. We aim to introduce this concept into Botswana to encourage some interested farmers to trial CA methods and use CBCM techniques to protect these plots to try and reduce the amount of elephant crop-raiding occurring in the area.

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

An RSGF logo was displayed on the project vehicle at all times. We have put the logo on our project website, in power point presentations made to the Government, donor agencies and research institutes and on all documents produced for the project.

11. Any other comments?

This second RSG grant has been instrumental in continuing to involve the local community in this conservation project by providing funds to employ community enumerators. Thank you again for your continued support.