

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	Rebecca Garbett
Project title	Investigating sources of lead for vultures and wildlife: what will it take to sustain declining vulture populations?
RSG reference	19222-2
Reporting period	February 2016 – February 2017
Amount of grant	£4993
Your email address	vulturesinbots@hotmail.co.uk
Date of this report	10 th March 2017

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
Gather additional information on alternative sources of lead exposure for wild-ranging vultures other than spent ammunition in carcasses				Further water samples were collected from wider geographical locations around Botswana, with none showing signs of lead traces. No further opportunities for opportunistically testing wild ungulate and game species have been presented to date. This will be an ongoing activity. The testing of domestic cattle has been impeded by outbreaks of foot and mouth disease and subsequent quarantine periods for the periods and areas in which the research was planned to be carried out. We are still waiting for the 'all clear' to proceed with this.
Investigate whether current breeding vulture populations are able to sustain large losses attributed to poisoning				The past year of breeding surveys have been compared with data from previous years. This has uncovered interesting yet slightly discouraging results, with declines in numbers of successful nests seen over each year during the last 3 years. Although numbers of active nests remained stable over the past 2 years they declined from the previous year. This past year also saw an increase in the percentage of birds carrying GPS tags that successfully bred. VORTEX analyses to determine population viability is still being carried out and will be forwarded to Rufford once results have been obtained.
Education and Awareness				All results are fed into our community education programme as well as being disseminated through our attendance at conferences, workshops and in research forums.

				<p>We were attendees at the most recent Pan-African Vulture Summit where our results from this research were fed into a species action plan for African vultures. Our educational materials also integrate results from this research. This aspect of the wider project is always ongoing.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

We were unable to collect samples from domestic cattle due to foot and mouth outbreaks in the vicinity of the main feedlots that were to be used for sampling. We are still waiting for these feedlots to be cleared for resuming normal business and sampling.

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

- It is unlikely that water is a source of lead for vultures.
- Both numbers of breeding vultures and their productivity is declining. It is therefore unlikely that populations are able to recover from large losses by poisoning through reproduction.
- Results from our investigations into lead poisoning in vultures have now been fed into international action plans for African vultures which have initiated momentum to expand research activities/knowledge on this issue throughout Africa.

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

Our ongoing community education programme ensures the continuous engagement of local communities in our research activities and in working towards a more collaborative approach to conservation at a local level. It benefits communities by helping them to better understand the dynamics of the ecosystems in which they live and the impact of imbalances that occur within those systems.

5. Are there any plans to continue this work?

Yes. We are still to carry out sampling and testing of domestic cattle. Our collaborative work towards changing policy on the use of lead ammunition in Botswana is very much still in its preliminary stages. In addition to this, the impacts of lead on other scavenging species are yet to be investigated. We would like to address this in the future. Analyses on breeding data is still yet to be completed and vulture breeding surveys, we hope, will be continued over the next few years as a long-term monitoring effort, which can be expanded into other areas of Botswana.

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

All project results are shared with the Botswana Government Department of Wildlife and National Parks in the form of our quarterly reports required under the terms and conditions of our research permit. We also post regular updates of our work and findings on our social media platforms. As previously stated, our ongoing educational activities incorporate research findings and education relative to them. Initial findings have already been used in presentations to other researchers, local and international conservation NGOs and the general public. More specifically, at the Pan-African Vulture Summit in Senegal 2016 we presented our wider research project to inform other vulture researchers throughout Africa and Asia of our work and results to date. This information was also fed into a continent-wide vulture action plan proposal for the convention on migratory species. Results will also be published in a PhD thesis and reputable scientific journals.

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

As anticipated the project spanned 12 months and has run outside of this timeframe due to unforeseen circumstances. Data analyses (VORTEX) was not expected to reach completion within the stated timeframe. Budget remaining will be used for the stated activities once it is possible to undertake them.

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
Lead testing kits x 2	600	800	+200	Cost of kits increased
Veterinary Costs	900		-	Still being kept aside for cattle blood sampling when possible
Water test strips	190	190	-	
Camping equipment	280	375	+95	Expected cost of equipment was higher
Nest monitoring equipment	105	62	-43	Expected cost was lower
Travel	1700	500	-1200	Still to be used for cattle sampling
Subsistence	1518	1395	-123	Lesser amount was sufficient
TOTAL	5293	3322		

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

To further explore the importance of lead on a continental scale for wild-ranging vulture populations (e.g. through collaboration); and to continue momentum towards a national ban on lead ammunition, along with encouragement towards the use of monolithic ammunition instead. Besides its impact on vulture populations, environmental lead is available and detrimental to other wildlife and humans as well; therefore the eradication of man-made forms of lead in the environment will have wide reaching benefits. Furthermore, we still believe that its impact on vultures is underestimated and may be contributing significantly to their rapid decline.

The onus is on us to continue building and maintaining relationships with government, communities, and other conservation NGO's and researchers. In this way we generate greater action potential for our research findings and follow-on activities.

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 Rufford logo was used in all presentations and reports produced in relation to this research.

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

12. Any other comments?

The support of the Rufford Foundation has helped facilitate ground-breaking research which will form an intrinsic part of national and international conservation planning going forward.