

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	Determining the impact of lead on the globally threatened White-backed Vulture.
RSG reference	16114-1
Reporting period	October 2014 – October 2015
Amount of grant	£4995.00
Your email address	vulturesinbots@hotmail.co.uk
Date of this report	6 th October 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
To gather information on the impact of lead on vultures			X	The results of this project have left us in no doubt that lead poses a significant threat to existing vulture populations with 33% of birds tested having high blood lead levels.
Identify geographic areas of concern		X	X	Results illustrate that vultures are much more susceptible to lead toxicity in active hunting areas and more generally, in unprotected farming areas within close vicinity to hunting farms. This is a very prevalent conservation factor due to the amount of time spent in these areas by vultures due to increased food availability.
Establish information on correlations to hunting activity			X	Increased numbers of vultures with elevated blood lead levels (BLLs) were found within the hunting season and also when analysed by location, were on hunting farms. This forms definitive links between elevated BLLs and hunting activity. When comparing data collected in 2013 (prior to hunting ban) to data collected post 2013 (after hunting ban) there was not a decrease in numbers of vultures with elevated BLLs after the hunting ban; in fact in 2014 the number of vultures found with elevated BLLs was almost double of those found in 2013. This is likely due to the continuance of hunting on privately owned game farms and subsequently possibly higher concentrations of vultures in these areas due to increased food availability.
Identify and quantify alternative sources of lead		X		A number of random water samples and blood samples taken opportunistically from both ungulate and carnivore species show that there are no other sources of environmental lead which may impact vultures and other scavengers; however we will need to gather additional and more widespread data on this to be able to reach to a definitive conclusion on

				<p>this. This process of elimination is highly necessary to give support to and gain acceptance of lead from hunter spent ammunition being the main threat to vultures. Particularly when we hope that legislation addressing the use of alternative ammunition such as copper will arise from our research.</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 conduct captures and therefore collect samples from a couple of the planned locations for a variety of reasons. Alternative and available locations were identified which still fitted within the remit of the research but as a result extra travel costs were incurred.

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

- Finding definitive links between hunting activity and elevated BLLs in vultures.
- Uncovering that it is unlikely that there are any other sources of environmental lead which would significantly impact vulture populations (still needs further investigation) therefore strengthening the hunting links further.
- We have increased general awareness of vulture conservation issues, specifically the issues surrounding lead poisoning; and have also generated considerable interest in and support of our moves towards introducing the idea of using alternative ammunition in Botswana.

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

In areas where we have conducted vulture captures to test for lead which have not been within the confines of a protected area, often members of the local community have been able to participate in these captures whilst still working within the guidelines of our research permit. These situations provide an opportunity for communities to have close interactions with vultures as well as learn about their importance. Where captures are conducted in communal areas, all field supplies and capture equipment are sourced within those areas, therefore contributing to the community revenues.

5. Are there any plans to continue this work?

Yes! Although we have now found solid links between lead toxicity in vultures and hunting activity, we still have a way to go with consolidating this research by extending our investigations into alternative sources of lead. We feel that this is necessary not only to support the argument for lead ammunition but also to identify any areas of concern for

other wildlife species and indeed humans. The possibility of high levels of lead in the environment is far more wide reaching than what this study has encompassed so far and we hope to lay a solid foundation of findings for further research to build upon in the future. We are just touching the surface on the impact of lead on wildlife populations in southern Africa and have generated a lot of interest from international conservation NGOs which we hope to collaborate with in the future. This project has enormous outreach potential and has already fed important novel information into the African wildlife conservation arena initiating new studies in other parts of Southern Africa. We also wish to continue captures for blood sampling until the end of 2015 which will then provide us with 3 solid years' worth of data. Education and collaborations with hunting farmers/organisations and the Botswana Department of Wildlife and National Parks (DWNP) will be an ongoing aspect of our work, as will working towards the introduction of monolithic ammunition.

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

Some of the project results have already been shared with the DWNP through inclusions in our quarterly reports. We have also posted progress reports on social media sites and on our project update mailing list. Findings have been used in our ongoing educational activities such as organised sports events and educational days within the local community. They have also been used in presentations to the local research community, general public and also at meetings held by the Botswana Wildlife Producers Association (BWPA) which hosted all of the game farmers in Botswana. Results will also be published in a PhD thesis and subsequent scientific journals and will be presented to other pertinent African vulture conservationists at the Pan African Ornithological and Vulture Conference in Senegal in 2017.

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 RSG was used for a period of 1 year. This year allowed for the majority of actual blood lead testing to be completed which will in all total a 3-year data collection period. At the end of 2015 sufficient timeframes/samples will have been achieved. The RSG has also provided funding to make good headway on investigations into alternative sources of lead in Botswana; however, in order for it to be as comprehensive as the BLL data collection, completion of this aspect of the study will run outside the timeframe of the RSG. In all this project is likely to continue for at least the next 2 years. The acceptance of lead ammunition as a direct threat to wildlife populations by the local hunting community will no doubt be a long process which will ultimately inhibit the use of monolithic ammunition in Botswana. The key lies in informing and working with the Botswana Government to introduce measures which will control/change the use of lead ammunition and also to develop conservation management plans which will incorporate guidelines surrounding the disposal/control of carcasses containing lead shot on private game/hunting farms.

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. £1 = BWP 15.9

Item	Budgeted Amount	Actual Amount	Difference	Comments
Bait for trap	269.00	180.00	-89.00	Some was kindly donated free of charge by farmers
Travel	1,210.00	2210.00	+1000.00	Planned capture locations changed incurring more fuel costs. Plus an additional vehicle was needed to travel on a few captures
Subsistence	2,420.00	1210.00	-1210.00	Only one person was required in the end
Consumables	34.00	86.70	+52.70	Unexpected costs
Patagial tags/ring	740.00	450.00	-290.00	Project aims with regards to number of birds to be wing tagged and banded in current study area changed.
Lead drop test kit	70.00	197.10	+127.10	Cheaper kit first identified was unsuitable for requirements of study.
Data processing/storage	161.00	250.00	+89.00	Specialist GIS assistance sought.
Presentation to decision makers	383.00	402.00	+19.00	
Report stationary	101.00	100.00	-1.00	
Advocacy materials	101.00	177.00	+76.00	Had t-shirts printed for an educational sports event linked to project.
Postage	17.00	0.00	0.00	Not required. Emailed and/or hand delivered.
Total	5506.00	5262.80		

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

The most important next step is to disseminate the current findings as widely as possible and to continue to engage key audiences (such as the BWPA) so that the move towards acceptance and change gets well under way. By doing this we also hope to enlist key people who will act as ambassadors within these areas which will in turn influence their peers. Those people we have already recruited in our plight will be crucial to the impact that we are able to have within these local arenas and so our continual work with them is key. Furthermore,

we will continue to work with other international and local conservation NGOs and the DWNP with the aim of securing avenues for our findings to evolve into conservation planning and further research priorities.

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?

The RSG logo was used in all reports produced as a result of this research which were sent to the DWNP, local safari companies and conservation NGOs who assisted us with our research. All presentations given featured the logo, as did social media postings.

11. Any other comments?

The RSG has made this crucial project possible. It has enabled us to make real headway on this important issue and has definitely raised the bar in this area of research in southern Africa. With all of the vultures in Botswana being up listed by the IUCN and BirdLife International to either Endangered or critically endangered by the end of this month (October 2015) we have really reached a “do or die” crisis! In this respect RSG has been the catalyst for pioneering research which will contribute to vulture conservation management planning across Africa. A huge thanks to RSG for having faith in our plight!

