

Final Evaluation Report

Your Details	
Full Name	Tshepo Moatswi
Project Title	Recruitment rates, habitat selection and diet of springbok (<i>Antidorcas marsupialis</i>) in the southern Kalahari, Botswana
Application ID	23328-1
Grant Amount	£4958
Email Address	tshepomoatswi2@gmail.com
Date of this Report	06 December 2018

1. 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
Assessing seasonal changes in recruitment rates from herd composition counts and age ratios				Data collection and analysis completed. We are working on write-up of the chapter as part of a thesis
GPS collars to study springbok habitat selection				Some collars got lost in the importation process and it took time to recover them. We were unable to deploy collars on intended areas as some of the springbok could not let us close enough to them to dart. Malfunctioning of some collars led to a small sample size. We hope to continue with efforts to collar enough herds of springbok.
Springbok seasonal forage selection				Data analysis is ongoing and report expected within the next 6 months

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

Five satellite collars were deployed onto springbok, four inside the park and one outside. Efforts to deploy more collars outside the park were unsuccessful as the animals could not allow the team to get close enough for darting. We are exploring alternative methods to capture and collar the animals. The first two collars were deployed November 2017, the other three in February 2018. The movements of these animals have been fascinating to see. They demonstrated some importance of pans as habitats for the population. One of the collars sent a mortality signal, suggesting that the springbok died. We could not recover the collar or the animal. We suspect the animal may have been killed and the collar destroyed by carnivores. The other collars has stopped sending signal and efforts are ongoing to locate the animal, as we suspect the collar malfunctioned. The delays in the deployment of the other collars were due to late arrival during the importation process.

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

a). We have analysed the data looking at seasonal changes in recruitment rates of the population as a measure of young survival. The results show a high ratio of young to adult females in the wet season and a decline in the dry season. This indicates that the survival rate of the young springbok is low, and this could explain some of the springbok population decline. During the wet season when there was a high

proportion of young, we recorded a high number of black-backed jackals near or among the springbok herds. The jackals most likely prey on young lambs and this may contribute to the low survival of the lambs, and therefore the low population recruitment. Predation of lambs by jackals and low forage quality outside the raining seasons could be some of the factors contributing to this low rates.

b). Before this study it was not known how far the Kalahari springbok can move in the landscape and the extent they use non-pan vegetation type. Generally springbok were believed to be confined to one pan. The data from the collars show that springbok move between pans and they are confined to pans which is believed to provide a high level of forage productivity during wet seasons, and providing some safety against predation. However, we see Mpayathutlwa pan as an important habitat for springbok in the eastern Kgalagadi Transfrontier Park. The collared animals spent most of their time in Mpayatthutlwa pan despite the availability of different pans in the park. We would like to continue to monitor the collared springbok and those we intend to collar to maintain adequate sample size.

c). We are in the process of analysing vegetation data to identify the seasonal forage selection of springbok. Results will help us understand the characteristics of plant species that springbok prefer (or select), avoid and use. Following the recent study we did in the Central Kalahari Game Reserve, we would like to investigate the landscapes forage quality and quantity that could be driving the habitat and diet selection of the springbok and the other ungulates in the landscape. The results of the study will inform the development of sustainable integrated land use plans that protects key habitats for declining springbok populations.

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

The project community engagement team established initial relationships with the community in mid-2018. The community engaged in the area involved government departments, traditional and government leaders in Hukuntsi, Zutshwa and Ngwatle, schools in Zutshwa and Ngwatle. The community and stakeholders were made aware of the efforts to understand the ecology of the springbok area and determine factors that could contribute to the decline of the population. The engagement will continue throughout the study period with presentation of the outcome and suggested interventions. The project also employs local trackers to assist in the project execution.

5. Are there any plans to continue this work?

We plan to continue this work by investigating the springbok movement outside the reserve, predation rates of lambs by carnivore (especially jackals) and forage quality and quantity across the landscape will be considered as the study progresses. We will also continue to engage the community in determining and developing management intervention on the springbok population.

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

The research will also contribute to an MPhil thesis for a Botswana citizen. All findings will be shared with the Department of Wildlife and National Parks (DWNP) and other relevant non-governmental organisations and other authorities through policy briefs. Some articles will be published in popular magazines to reach and educate the general public. Our findings will also be shared with community education teams to provide outreach to communities around the country. We plan to publish our work in scientific journal articles and present in strategic conferences to share and disseminate information.

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

The grant was used for a year. We planned and anticipated to spend the funds in the 12 months, though the funds were finished a little earlier than expected due to high veterinary fees.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Veterinary costs	800	947		Contributed to vet fees
Vehicle fuel	1326	1326		Used it all
Camera	147			Contributed to veterinary fees as the expenses were too beyond our estimations
Collar data fees	1840	1840		Contributed to data fees
Skills development and information dissemination	845	845		Used on conferences and training
Total	4958	4958		

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

The main immediate output is the completion of the thesis writing and publish the results of the study. The next steps are to continue collaring springbok especially outside the reserve to understand their ranging and foraging patterns as well as engage other stakeholders in the study.

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

Rufford Foundation is acknowledged in all presentations of the project in workshops and conferences. As it is the custom of the KRC, Rufford will be duly acknowledged in all publication from this work. Where applicable logos will be strategically placed in such documentations and publications.

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

The study falls under Kalahari Research and Conservation Trust (KRC) as the Umbrella Organization, as well as the University of Botswana's Okavango Research Institute (ORI), both organizations with substantial, long-term histories of conducting successful research and conservation in the region.

Tshepo Moatswi- Lead investigator

Dr Emily Bennitt- The main academic supervisor, Herbivore ecologist, ORI

Prof Richard Reading- Co-supervisor, Independent Researcher

Dr Glyn Maude- Co-supervisor, KRC Executive Director and Researcher

Dr Moses Selebatso- Advisory role, KRC programs Director and Researcher

Oamogomotsa Cooper- Research assistant from the community

12. Any other comments?

The DWNP has outlined the work as a priority study to stop springbok populations from declining, therefore the results will be relevant to national conservation priorities. The information provided by the study will form the scientific basis for more practical conservation outputs in the form of government policies directed at recovering springbok populations in Botswana. The study will also help develop local capacity by educating a local citizen to MSc level as a wildlife scientist and conservationist.