

Final Evaluation Report

Your Details	
Full Name	María Elisa Sandoval Serés
Project Title	Impact of interspecific competition on African wild dogs (<i>Lycaon pictus</i>) in an ecosystem with artificial perennial water provision
Application ID	37452-2
Date of this Report	24 th May 2023

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
1) To identify the level of diet competition between African wild dogs and larger predators.				100% - This is finished, the data have been collected and analysed, the manuscript is written. I am planning to submit it soon into a peer-review journal.
2) During the denning season when the pack faces a trade-off between time spent at the den and time spent away from the den while foraging, I will determine how den site selection factors, babysitting time, and foraging distance influence predation risk and herewith pup recruitment and survival.				50% - In 2021 and 2022 we set camera traps around den sites to collect information on predators' immediate presence around dens and to assess pup recruitment and survival. We (PDC staff) plan to set more camera traps at dens in 2023. I plan to analyse the full data set in September 2023.
3) I will determine the level of kleptoparasitism risk of African wild dogs' kills from lions and spotted hyaenas depending on different distances from waterholes; and assess the use of waterholes of predators and prey.				90%- I finished performing all playback experiments and setting up camera traps at waterholes to assess the use of waterholes by predators and prey. The data has been collected and partly analysed; the manuscript has partly been written. I expect to submit this manuscript in 2 months' time.
4) I will assess whether African wild dogs use proactive or reactive (after a previous risk assessment) coping behaviours to avoid interspecific competition with lions and spotted hyenas, what behaviours they use and whether these behaviours are affected				50% - I gathered enough data for a small communication paper, which I will write in August 2023. However, to increase the data set PDC staff continues to gather data for me until August 2023.

by the type of competing species and seasonality.				
5) Conclusion: I will recommend water management strategies to help African wild dogs' conservation within a semi-arid ecosystem with artificial water provision to potentially reduce the potential conflict between competing predators.				I plan to write this at the end of 2023.

2. Describe the three most important outcomes of your project.

- a) *African wild dog reproduction*: This aim is the one with the least data, as it is difficult to find African wild dog dens. However, we were able to find four dens, and gather camera trap data on three of those. We gathered around 1 month of camera trap data on two dens. It seems that spotted hyaenas were present close to the dens 56% of the times, but lions were only present close to the dens 30% of the time.
- b) *Kleptoparasitism risk*: The probability of dominant predators arriving at a wild dog kill does not depend on water distribution, however the number of dominant predators arriving at a wild dog kill is lower far from waterholes, and in areas with low waterhole densities.
- c) *Avoidance strategy*: It seems that African wild dogs when resting, killing and moving use a reactive strategy to avoid spotted hyaenas and a proactive strategy to avoid lions.

However, these are only preliminary results, as I still need to analyse part of the data and finalise my studies. Ultimately, my study will give insight in how competition with lions and spotted hyenas affects the fitness of the African wild dogs in Hwange National Park and the role water availability plays in intensifying the level of interspecific competition. All this with the goal to propose water management recommendations aimed at reducing competition and increasing fitness of the endangered African wild dog and support its conservation in Zimbabwe.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

As the African wild dog is an elusive species, it is difficult to study, track, follow and observe. In addition, it is even more difficult to find African wild dog dens and kill sites, and to be able to observe wild dogs for a long period of time inside Hwange National Park (HNP), as the vegetation is too dense and most of the times, we are unable to follow the packs off-road. Moreover, it is difficult to collar wild dogs inside HNP not only because of the difficulty to find any but also because there is a lack of veterinary personnel, and ZIMPARKS (the Zimbabwean government) requires us to

be accompanied by a veterinarian from the park whenever we want to collar a wild dog. This is why instead we focused on finalising all the playbacks experiments inside HNP and following an already collared wild dog pack outside HNP.

4. Describe the involvement of local communities and how they have benefited from the project.

Every time I went tracking for African wild dogs, I would always be with at least one staff member from PDC who had full expertise of tracking wild dogs, together with one ranger from ZIMPARKS whenever we were inside Hwange National Park (HNP) and sometimes with students from ZIMPARKS and PDC. I trained another extra local tracker from Painted Dog Conservation to gather detailed behavioural data from wild dogs. I gave two presentations showing my preliminary results from my research to Main Camp and Sinamatella inside HNP, Zimbabwe. The audience of my presentation were private stakeholders around HNP, government stakeholders from ZIMPARKS, staff from PDC and students from ZIMPARKS and PDC.

5. Are there any plans to continue this work?

I still need to finish analysing my data and write up half of my thesis.

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

I intend to publish at least four to five peer-reviewed papers.

1. Level of competition by determining the diet overlap between African wild dogs and larger carnivores (manuscript already written, but still not submitted).
2. How den site selection factors, babysitting time, and foraging distance influence predation risk, pup recruitment and survival.
3. Kleptoparasitism risk of African wild dogs depending on distance from waterholes (draft of manuscript already written).
4. Reactive and proactive coping behaviours to avoid interspecific competition.
5. Water management recommendations for African wild dog conservation.

In addition, I have already submitted a report showing some preliminary results to the Government of Zimbabwe, both to Zimbabwe Parks and Wildlife Management Authority (ZIMPARKS) and the Research Council of Zimbabwe. I also presented my preliminary results to kids, students and stakeholders of Sinamatella and Main Camp in Hwange National Park, Zimbabwe. I also plan to participate in different wildlife conferences to show my results.

As an extra outcome, The Rufford Foundation was acknowledged in a short communication paper:

Sandoval-Serés et al. (2022) Long-distance African wild dog dispersal within the Kavango-Zambezi Transfrontier Conservation Area. African Journal of Ecology. Notes and records section.

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

- To finalise my DPhil thesis research. I need to finish analysing all my data and finish writing half of my thesis.
- Use the results obtained from this research to propose to the Zimbabwean Government water management solutions to decrease interspecific competition and help African wild dog conservation.

8. 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?

The Rufford Foundation logo was used for the report to the Research Council of Zimbabwe and to ZIMPARKS report, and at the presentations to the stakeholders of ZIMPARKS in Hwange National Park, Zimbabwe.

9. Provide a full list of all the members of your team and their role in the project.

Peter Blinston is the Executive Director of Painted Dog Conservation (PDC) (a non-profit organisation in Zimbabwe). He helped me with the logistics of fieldwork and deploying the GPS collars into the African wild dogs.

Hillary Madzikanda is the Director of Research and Conservation of PDC. He helped me with the logistics of fieldwork.

Washington Moyo and **Geshem Njamba** (PDC staff) were my main fieldwork assistants, and they will be co-authors for my papers.

My PhD supervisors are all assisting me with data analyses, write up and research planning:

Dr. Andrew Loveridge. He is my main supervisor of my DPhil. He is an Associate Professor and Senior Research Fellow at the Wildlife Conservation Unit (WildCRU), Oxford University.

Dr. Egil Drøge. He is a research staff at WildCRU, University of Oxford.

Dr. Marion Valeix. She has a permanent research position at the French National Centre for Scientific Research (CNRS).

Dr. Esther van der Meer. She is a Postdoctoral Research Associate of PDC.

10. Any other comments?

I would like to thank The Rufford Foundation for the opportunity to receive more funding for my second fieldwork season. I will acknowledge The Rufford Foundation in all my publications in relation to my fieldwork of this project.

Author's affiliation:



Wildlife Conservation Research Unit (WildCRU), Department of Zoology, University of Oxford, Oxford, UK. Recanati-Kaplan Centre, Tubney House, Abingdon Road, Tubney, UK. OX13 5QL.



Painted Dog Conservation (PDC), PO Box 72, Dete, Zimbabwe.

Area of study:

Hwange National Park (HNP), Zimbabwe.

Expected time required for completion of the study: 3 years.

The study started in May 2021, and I plan to complete the study in November 2023.



