Final Evaluation Report

Your Details	
Full Name	Dedan Ngatia
Project Title	Protecting human and wildlife health during political upheaval: rabies and canine distemper in rural Kenya
Application ID	26962-B
Grant Amount	£9989
Email Address	Dedan.ngatia@gmail.com
Date of this Report	01/12/2020

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
Question1: Was the CDV epidemic in wild dogs accompanied by a concurrent epidemic in domestic dogs?				I was able to finally screen some of the samples locally- I never expected this to be a possibility. Some samples still need to be screened.
Question 2: Was the CDV epidemic in Wild dogs was accompanied by a concurrent epidemic in small carnivores?				We screened some samples at the International Livestock Research Institute in collaboration with other scientists. This made this goal achievable.
Question 3: Was the 2017 epidemic linked to the concurrent land invasions?				Reports, interviews and questionnaires were very helpful in answering this question.
Question 4: How best can human and wildlife health be protected in the face of political upheaval?				In collaboration with a team of modellers, we are almost done with this question with a goal of using this information to create a disease management plan for the African wild dogs.

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

The pandemic partly interfered with the final stages of this work although not in a big way. I was able to process most samples in good time as planned - after the end of the project.

Although I ended up being able to screen most of the samples locally, the initial idea was to export the samples to the UK and USA for screening, but this ended up being impossible.

Our vaccination campaign in 2019 was badly affected by severe weather. Laikipia received highest amounts of rainfall ever in October and November for the past 20 years. We ended up vaccinating 13,152 domestic dogs. Vaccinations have been part of each grant that I have applied through the RSG.

Capturing small carnivores ended up taking more time than anticipated and the capture success rate was low. Since we already had some pre-existing samples, this came in really handy and we finally managed to get enough samples.

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

In this work, I was able to confirm one of our main hypotheses. The relationship between the canine distemper outbreak in domestic dogs and the African wild dogs was very significant. In fact, most of the regions with massive deaths of African wild dogs had very high population of domestic dogs.

In support of above hypothesis, 90% of the domestic dogs that died during this period had canine distemper virus (CDV). Most of the pre-exposure samples from domestic dogs and African wild dogs tested negative for CDV, meaning that the virus was introduced later in the ecosystem and that CDV did not really persist in these populations.

As expected, my results showed that the CDV outbreak was linked to the concurrent land invasions happening during the period. Local pastoralists were moving their livestock, together with domestic dogs, into wildlife-occupied regions and this was the source of the outbreak.

These results will be really key in developing a local disease management plan.

In other news, I managed to publish my first paper from our rabies work - a copy will be attached with this report.

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

As always, all my projects involve communities from initial stages all way to the finalisations.

Here, local guides were hired for the vaccination work. A total of at least 50 community assistants were hired for at least 2 days each. Apart from this, one assistant for the project was hired permanently for the project period.

The communities still continue to benefit from the free mass domestic dog vaccinations. This continually reduces the burden of the local people in terms of consequences from rabies, which involves death.

Questionnaire administration, interviews and collection of reports were led by community assistants, through permission from the local leaders.

5. Are there any plans to continue this work?

Yes, I have drafted new proposal on measures to curbing the two main causes of deaths in the African wild dog local population: infectious disease and persecution by people.

This project will be submitted to RSG with a request for funding once this report is submitted.

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

During the project period, I was involved in development of a video series known as the 'wildlife warriors'. Here, some light is shone on local scientists contributing to the protection of very important species. Through this we were able to reach out to a lot of Kenyans and other international audience.

I plan on submitting an article very soon, and from this work, to the African Journal of Ecology.

Later on, we will also work on development of a disease management plan which will be shared with various stakeholders.

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

I started conducting grant work on 01/03/2019. Although I was expected to finish all activities by 01/3/2020, I had to extend the project for 2 months due to impacts of Covid-19.

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
Accommodation at Mpala for one month	382	512	+130	The director of Mpala facilitated my stay at Mpala
Transport facilitation for the community assistants	225	225		
Subsidized bench fees at Mpala Research Centre:	2016	2016		Amount paid in full to Mpala
Community Research Assistant payments	1440	1560	+120	This amount was recovered in other items of the budget
Purchase and printing of questionnaires	169	169		
Export permits	123		-123	Samples processed locally. Few samples exported were done under a different permit
Fuel	2100	2100		

Pharmaceutical supplies	304	323	+19	More gloves were needed
Drugs needed:	920	920		Paid to Kenya Wildlife Service
30 Tomahawk traps	2310	2310		NA
TOTAL	**9989**	**10135**	**+146**	Any extra amounts were covered by the Samburu Wild dog project. Exchange rate; I Sterling pound= Kshs 133.33

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

This work has proved that the interaction between people, livestock, domestic dogs and African wild dogs is key to understanding disease transmission between the groups. While this should be further studied, there's also a need to tackle other leading cause of deaths to the local African wild dog population

I aim to work, on the next phase, on directly putting on measures to help recover the local African wild dog population by directly addressing infectious diseases and persecution by people.

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?

Yes, I used Rufford Foundation logo in all outreach materials produced for this work including the rabies vaccination. The Rufford logo was also used on the questionnaire. Rufford Foundation is also acknowledged in the recently published rabies work**.**

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

Advisory roles and collaborators:
Dr. Adam Ferguson
Dr. Dino Martins

Main Research Assistants:
Mr. Peter Lokeny

Community project assistants:
6 members of the community hired through the chiefs.

Assistants for the rabies work:
Approximately 50 community assistants hired during the rabies project period. Each working for at least two days