Final Evaluation Report

Your Details	
Full Name	Tutilo Mudumba
Project Title	Who are the living dead? the cost of non-lethal injuries to wildlife in Murchison Falls National Park, Uganda
Application ID	31152-2
Grant Amount	£ 5,991
Email Address	tmudumba@gmail.com
Date of this Report	14 Feb. 22

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
Study design and pilot				This was conducted successfully. Four Uganda Wildlife rangers and four research assistants were trained.
Identifying individuals				A database was compiled and includes identities and other relevant biodata on 14 lions (eight died during course of the study), seven elephants and 10 giraffes.
Tracking individuals				The death of eight lions for unknown reasons affected our sample size. We were also hampered by movement restrictions during the total lockdown which broke the consistency we were hoping to achieve during the study
Preliminary assessment				This was conducted and enabled us to put in place proper logistics in the face of Covid restrictions.
Final reports and publication				Two progress reports were shared with stakeholders. The study is extended to be able to take advantage of current advances in technology but also findings from Zambia about the inclusion of forensic evidence. No publication has been submitted yet.

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

Our movement between the three northern districts of our study sites were limited due to total lockdown Covid 19 restrictions. For 4 months this restriction disabled our field camp because we could not get adequate supplies to support a full camp. We were also limited by the number of rangers availed to us when the wildlife authority reduced on the workforce due to closure of the tourism sector.

We resolved this by breaking our camp into two and positioning them semi permanently in different travel restricted zones. We worked closely with the Uganda wildlife authority to schedule ranger time in advance so that we had he trained rangers with us most of the time.

We also lost some study animals to unknown deaths during the hiatus brought by the travel restrictions. Despite every effort, we could neither ascertain what killed eight lions nor retrace three elephants and four giraffes.

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

We have brought to the front the issue of non-lethal snare injuries to wildlife. Just last week a study was published in Frontiers in Conservation Science about the impacts of wire-snares and shotgun pellets on lions and leopards in Zambia. This forensic study brought a new technique to identifying recoveries from wire-snares by looking at bones.

We have generated a database of injured giraffe, lion, and elephant. We continue to update this database during our routine wildlife monitoring of large mammals in partnership with Uganda Wildlife Authority in Murchison Falls National Park. Given the importance of understanding the impact of snares to wildlife in Uganda, we hope to expand this monitoring framework to Kidepo Valley National Park, Lake Mburo National Park, Pian Upe Wildlife Reserve and Queen Elizabeth National Park.

We have also been able to recruit and train rangers in Murchison Falls National Park and locals to be able to conduct field data collection on wildlife morphology using laser-tagged photographs. This is an important skill for any field biologist dealing with the sorts of problems we have in Uganda. The method is cheap and thus accessible, it is also non-invasive, and has got a gentle slope learning curve.

We believe that as we gather more data from the field, we will be able to conclusively determine the impact of snare injury to the health of individuals and how that translates to the general population. We are pleased with our performance for setting a good baseline despite the hardships associated with the study period.

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

The study relied on locally recruited assistants as drivers, trainee research assistants, and data entrants. We made it a point to take three local leaders and two youth representatives to the field with us as soon as travel restrictions were lifted. We have shared our proposals with institutions around the park including the tourism police, wildlife managers, snares to wares initiative youth groups and secondary schools to foster local interest and understanding of the issues within their area.

5. Are there any plans to continue this work?

The study is continuing albeit with fewer staff dedicated to it. We have shared photo IDs of the individuals in our database the wildlife managers who continue to inform us whenever they encounter them. We typically respond by verifying the information and then tracking the animals for either addition or to document he body condition. We closely partner with the Giraffe Conservation Foundation who sponsor some of

our regular snare sweeps in the study area. This partnership also includes joint veterinary interventions to release or remove snares from large mammals.

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

We plan to publish this work in peer reviewed journal. We will also generate a comprehensive report for all stake holders

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

The funds where initially meant to be spent up to March 2021. However, due to severe restrictions on movement, we could not conduct some of the fieldwork within that period and only resumed when the government opened travel. Therefore, the funds were spent until August 2021.

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
Batteries (50*10,000)	106	106		Purchased in bulk
Allowance to rangers (3*7*12*10,000)	536	536		Standard rate across the organisation.
Meals (5*300*10,000)	3191	3632	+441	Restrictions on travel drove food prices up. We relied on covid relief funds to cater for the extra costs.
Printing services (reports, posters etc)	1064	1040	-24	Extra monies utilized for meals
Meeting allowance (50*50,000)	532	532		Standard rates
Communication (Internet and calls; 12*220,000)	562	575	+13	Following Uganda's general elections, the internet and call services were suspended and were erratic when they resumed. Once switched off, often we were asked to pay fresh monthly charges for services. We used covid relief funds and other

				sources to pay for the difference
TOTAL	**5991**	**6421**	**+430**	

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

The next step is focusing on intensifying our field work to be able to have a viable data set for these three species. Then we will analyse and subject our work to peer review. Thereafter, we will use our published work to recommend interventionist strategies that manage snared individuals considering their biological role in the population.

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?

We used the logo on our furniture and vehicle during the grant. We did not have any opportunity to present our study before the time of this report. However, we will continue to acknowledge the support and funding that came from this grant throughout the lifetime of the project whenever we will report about this work.

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

Willen Tumusiime
UWA ranger was attached to the project and participated in most aspects of our work. First as a trainee and later as data collector, data entrant and photographer.

Patience Ariho
Patience is a project research assistant and collected data and mentored interns as well as trainees.

Sophia Jingo
Sophia managed logistics but also the data collection of the project.

Peter Luhonda and **Nasulu Muzanganda**
Peter and Nasulu are project drivers. Peter also doubles as the camp manager for our base camp at the students while Nasulu manages our Wangkwar outstation in the north-eastern part of the study site.

Robert Montgomery, Ph.D.
Dr Montgomery is the Co- PI of this project and was the overseer of the technical workings of the data collection protocol and adherence to scientific process.

12. Any other comments?

We are very grateful for the support of The Rufford Foundation. We look forward to more support.