

Final Evaluation Report

Your Details	
Full Name	Ezechiel Turikunkiko
Project Title	Identifying Felids ranging out park boundaries, assessing their impacts on community properties around Nyungwe National Park and proposing mitigation measures
Application ID	30113-1
Date of this Report	30th May, 2022

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
<p>To identify felid species that are found outside of Nyungwe National Park's boundaries</p>				<p>Two felid species (wildcat, <i>Felis lybica</i> and serval, <i>Leptailurus serval</i>) were recorded by camera traps, Reconyx throughout the study period, which ran from September 2020 to November 2021. As a result, 624 images of two felid species (559 pictures for wildcat and 64 pictures for Serval) in a total of 8473 images. The relative abundance of those two felid species is 7.4%. Using the RStudio unmarked package (in substitute of Program Presence), we discovered that occupancy for wildcat is 36%, with a detection probability of 30%, while occupancy for serval is 15% with detection probability of 0.05%. These findings led us to believe that these two felid species have a limited range outside of the park's limits.</p> <p>The differences in photographs recorded for wildcat were discovered during the study. This leads to assume that wildcat and domestic cat hybridisation is possible, even if this research indicated that the chance of co-occurrence is 10%, by running null model in RStudio-unmarked package for two species single season data, whereas the same model indicated that wildcat occupancy is 99% when a domestic cat is present, and 31% when domestic cat is not present. However, the hybridisation in both cats can be supported by a different in-depth investigation of the case.</p> <p>Although, prior community assumptions suggested that leopard and African golden cat species were present and among the carnivores' harming</p>

			<p>livestock around the Nyungwe National Park, no evidence found on their presence in the study area.</p> <p>Among other species recorded in this study include side striped jackal, feral/domestic dog, large-spotted genet, black-fronted duiker, olive baboon, mountain monkey, domestic cat, and livestock (goat, sheep, cow, pig and poultry).</p>
<p>To determine which predator species may be responsible for livestock deaths</p>			<p>We have printed and shown photographs of all key species captured by camera traps to help locals identify predators. 60 people answered the survey, with 96.6% confirming that carnivore species are to blame for livestock deaths, whereas 3.4% are accidents and natural causes. Goats, sheep, and pigs are most livestock attacked.</p> <p>From this study, the recorded felids species are serval and wildcat, which are not responsible for killing large mammal like goat, sheep and pig, but respondents have stated that they can bite or injure livestock because certain livestock are kept in huts at home, which can eventually lead to livestock death after being wounded.</p> <p>According to 93% of respondents for dogs and 43.3% of respondents for side striped jackals, a group of dogs and side striped jackals were seen attacking livestock in the nearby bushes and home place.</p> <p>According to an analysis of camera trap data in the RStudio, unmarked package, the occupancy and detection probability for the side striped jackal are 85% and 24%, respectively, while those estimates for the dog are 66% and 12%, respectively. Because of these large percentages of these two carnivores in the neighbourhood, livestock may be attacked frequently for food.</p> <p>On the other hand, this study has found 99% of co-occurrence of dog or side striped jackal with most attacked</p>

			livestock (goat, sheep).
To assess the protection techniques used by locals to avoid predator attacks on livestock			<p>56.7% of respondents agreed that livestock are attacked when released into the bushes to graze, while 43.3% stated that livestock attacks occur when they kept in shelters. Also, our field observations, have found that shelters are absent for some household, and 71.4% of the visited shelters are not well built to protect livestock from predators.</p> <p>For photographs taken by camera traps, livestock account for 61.4% of all photos, whereas wild animals account for 22.6% and feral dogs account for 16%. This indicates that livestock stray in farms than other animals.</p> <p>However, livestock protection methods are ineffective, and the possibility of livestock death is mostly a result of exposure to predators or a lack of enough ownership in the management of livestock on farmland and householders</p>
To make recommendations for how to deal with problem animals around Nyungwe National Park.			<p>Following the findings from this research project we recommend that park management and local leadership improve collaboration by ensuring continuous research and monitoring activities on livestock predation; live capturing and moving wild animals from outside park boundaries to the core forest; and deep engagement with the Special Grantees Fund in compensating damages to community properties and falling off the presence of feral dogs in community farmlands and dwellings.</p> <p>The local communities are advised to ensure the safety of their livestock by building strong shelters with durable materials, constantly guarding livestock, and prohibiting uncontrolled livestock release and grazing in bushes.</p> <p>These suggestions are supported up by community attitudes, with respondents</p>

				stating that problem animals can be mitigated through compensation of damages at 88.3% of respondents; 56.6% for establishing park fence; and 91.7% for keeping livestock in households and shelters.
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2. Describe the three most important outcomes of your project.

a). Local communities improved their ability to detect predators that are generating issues on their properties, allowing them to determine which species should be reported to Special Guarantee Fund for compensation. Also, at the end of the project, local communities believed the absence of leopard and African golden cat, and they are no longer suspecting those carnivores in livestock killings.

b). Project findings (especially on animals located outside the park boundaries) are guiding Nyungwe National Park management, Rwanda Development and Local Government in making informed decisions for further management interventions. As a grant recipient, I highlighted that a similar research project may be performed in other national parks, which contain conflict cases comparable to those reported in Nyungwe National Park, to guide in human wildlife conflicts management.

c). The initiative assisted in the confirmation of the presence of a wildcat species that had not been seen in over 30 years. Furthermore, new photos have been taken of a new cat that is thought to be a hybrid of wild and domestic cats. This study has drawn attention to the further need of confirming wildcat-domestic cat hybridisation.

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

Young thieves have damaged two camera traps. The issue was brought to the attention of the local authorities and police station, who were asked for tightening security measures in camera trapping areas. The culprits were pursued through the process of criminal justice.

The periodic variations of Covid-19, as well as the steps necessary to prevent and control its spread, have hampered consistency and caused the work to be completed later than expected, in November 2021. The deadline has been pushed again to 2022.

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

From the beginning of the project to the end, local communities have been involved in project's activities. On the project inception step, more than 227 local residents have been invited in the awareness meeting for getting their ideas on the project. Their suggestions have been considered in the projects. Essential meeting costs like meals have been covered by the project.

13 people from community members received part time occupations including field data collection, carrying project materials, and safeguarding mounted camera traps in the field. 60 local people have participated to the interview and received a special congratulation for their efforts.

5. Are there any plans to continue this work?

Yes, there are still conflicts and problem animals in other protected areas in Rwanda, particularly in the newly established "Gishwati Mukura National Park, and Biosphere Reserve", where unknown carnivore species are allegedly killing livestock in the pastures and throughout the Gishwati Mukura landscape. The work needs to be continued in Gishwati Mukura National Park to properly respond to the situation, with a particular focus on assessing the effects of predator-prey on the utilisation of the Gishwati Mukura landscape.

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

The findings report will be shared with the Nyungwe National Park management, Rwanda Development Board and Local Authorities for the management of human wildlife conflicts. In addition, the results will be published in a peer-reviewed journal for public consumption.

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

The more important in next steps is to have positive results on any study that can be conducted on human and wildlife coexistence in and around protected areas where the rights of humans and animals do not hamper each other.

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?

No, the Rufford Foundation logo was not used in this study, but all people involved in the project in one or another way received enough explanation that the undertaken research was based on grant received from The Rufford Foundation.

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

Ezechiel Turikunkiko, Project Manager

Gratien Gatorano, Field Assistant

Gerad Nzabandora, Field Assistant

Philbert Ndahayo, Field Assistant

Innocent Ndikubwimana, Field Advisor

Norbert Karegire, Community Mobiliser

Felix Mulindahabi, Project Advisor

Pierre Nfihemuka, Project Supervisor

Mediatrice Bana, Project Supervisor and Coordinator

10. Any other comments?

The grant awarded to my research project was highly appreciated because it allowed me to contribute to biodiversity conservation and the resolution of human-wildlife conflicts.