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Final Evaluation Report

Your Details	
Full Name	John Erasto Sanare
Project Title	Human impact on elephant habitat and movement patterns in Kitendeni Wildlife Corridor, Tanzania
Application ID	30296-1
Grant Amount	£ 5,522
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Date of this Report	16 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
To identify and map the human-elephant conflicts hotspots areas in the Kitendeni Wildlife Corridor.				The areas for high occurrences of human-elephant hotspots areas have been identified and mapped.
To document the locations of agricultural activities and settlements that may affect elephant distribution patterns in Kitendeni Wildlife Corridor (KWC).				The land use/ landcover map for year 1989-2019 has been generated for Kitendeni Wildlife corridor (KWC).
To identify and rise elephant conservation awareness through education campaign.				Local communities' prerequisite mitigation approaches to minimise HEC and outreach programmes have been carried out. However, school outreach programmes were not conducted due to budget limitation resulting from increased fluctuation costs to some items.

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

I have not faced any major problems expect COVID-19 pandemic during the project implementation. But I have come across minor difficulties throughout which one would expect from being in the field. These problems include:

- An unusual amount of rain in the study area at the end of 2019 and beginning of 2020 - some study areas were inaccessible, consequently we faced difficulties in access due to poor road infrastructure to make field visits. In those areas we conducted phone interviews to obtain information required by the project objectives

- We experienced some delay in obtaining the research permit from the Tanzania Commission of Science and Technology (COSTEC), an authority responsible to issues research permits in the country. We tackled this by pushing the respective authority to release the permit in time in order to achieve the project objectives at the right time.

- Some of the research activities were delayed during the pandemic COVID - 19 time in 2020, specifically the fieldwork activities, which had to take place at KWC in Enduimet Wildlife Management Area (EWMA), were involving the direct interaction with the local community (local leaders and interviewees), WMA staff and field assistants. These activities were hard to carry on during the COVID-19 pandemic, Consequently, we had to delay before going back to collect this important dataset for implementation of our project.

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

From human-elephant conflicts (HECs) data analysed, we have been able to identify human-elephant conflict hotspot areas in the elephant migratory route such as Kitendeni wildlife corridor (Figure 1), further the other outcomes of our research project can be itemised as follow:

- We have identified the main threats facing elephant conservation and management in the KWC.

- After elephant conservation and awareness company local community have a better relationship with the wildlife management authorities managing the Kitendeni Wildlife Corridor and feel now their voices are being heard.

- We have identified that the communities need more conservation education to increase positive views and commitment towards mitigation measures and elephant conservation.
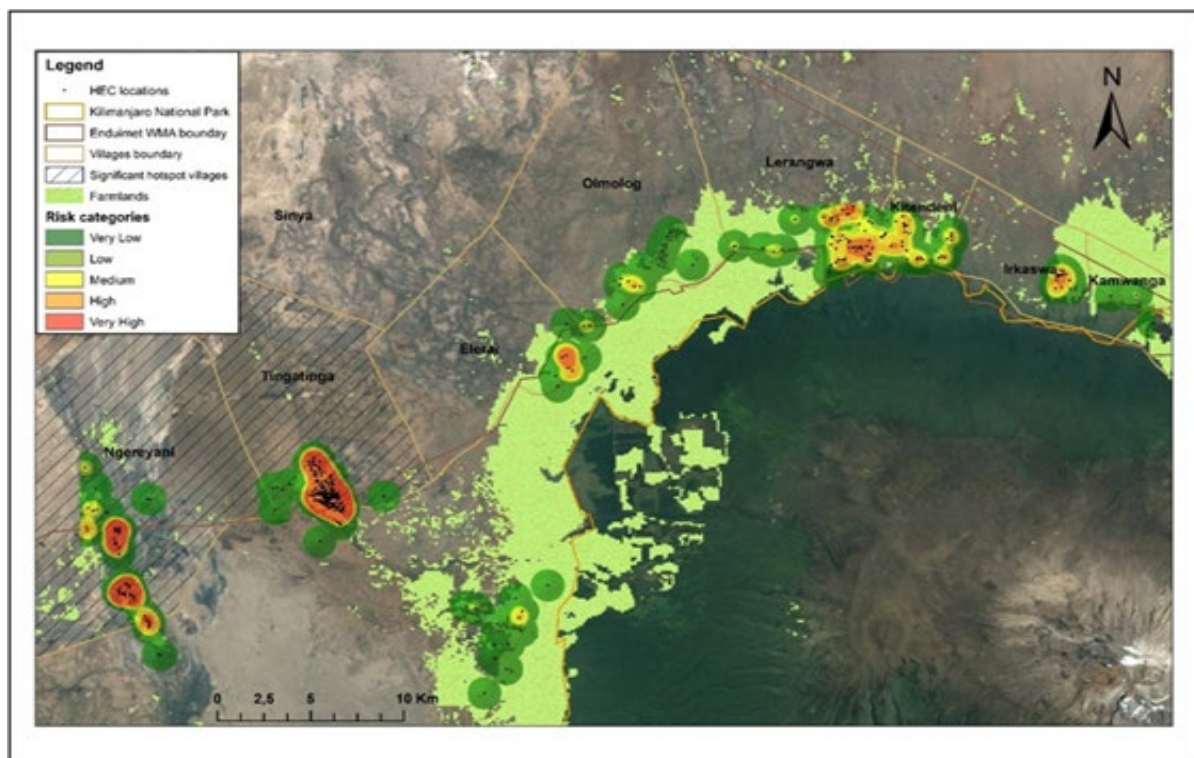

Figure 1: Elephant crop foraging hotspot areas in the Enduimet Wildlife Management Area, Tanzania

4. What do you consider to be the most significant achievement of this work?

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

Our research project was intended to be participatory research project, intended to include all groups by mobilising the community towards some objectives intended to minimise human-elephant conflicts and then assessing the efficiency of the methods been used for reducing the problem. Participatory research empowers people to improve the issues in their community. In this way, coexistence between human and elephant had provided benefits to people living near the wildlife management area. Thus, crop raiding has significantly been decreased and people have a much better relationship with the wildlife management area authority operating in the area. Therefore, there is decreasing HEC. Furthermore, the local communities benefited by the provision of awareness towards elephant conservation, along with various methods that can be implemented and applied to reduce human-elephant conflict in the KWC. Lastly, the project engaged local farmers and livestock keepers who have been victims of human-elephant conflict. The local community have appeared enthusiastic about this project as it has allowed them to talk about the problems that they are facing.

6. Are there any plans to continue this work?

Yes. Based on the research finding we planning to continue with project, depending on matched funding, we are planning to continue monitoring human-elephant conflicts for 1 year. This will provide more data for better understanding of spatial and seasonal trends of HEC. Also, we would like to trial different early warning detection systems as a mitigation method for human-elephant conflicts by enhancing human and elephant co-existence through facilitation of community-owned projects that also diversify income generating. For example, establishing some bee fencing which approved to be effective way of reducing human-elephant conflict will help to reduce human-elephant conflicts in our study area.

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

Our findings have been shared through seminars, conferences and meetings, we are also continuing to share our results through work presentations, and social media. Moreover, we are hoping to submit a manuscript for publication in scientific journal by mid-March 2022 to inform the community, decision makers and public in general on the best way to manage the Kitendeni Wildlife corridor and elephant conservation. Additionally, we are planning to present our results in the upcoming 14th Tanzania Wildlife Research Institute (TAWIRI) scientific conference which will involves more than 300 scientists across the 30 countries.

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

We conducted this project for more than 18 months instead of the planned 12 months. Some activities were pushed forward because of seasonal changes such as

unusual rainfall in 2019 which affected the accessibility of some areas, also some activities were delayed due to outbreak of the pandemic disease the COVID-19 which interfered with our project implementation. Therefore, due to the unforeseen events mentioned above, there were changes in the timetable of the project.

9. 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
GPS batteries 46@2	92	100	+8	I needed more pieces of batteries than budgeted
TAWIRI conference presentation fee 1*200	200	241	+41	High cost for conferences participation
Outreach program in 4 villages @321.6	1286	1456	+170	More printing cost than budgeted
Flyers printing 150 pcs@0.66		99	+99	
Publication in peer reviewed journal 1 paper approx. @150	150	152	+2	high price for publication than budgeted
Poster printing 10pcs@11.66	117	117		
Printing T-shirt with Rufford logo for publicity (20 pcs @ £6.65)	133	133		
Refreshment during Interview in 4 villages@40	160	160		
Refreshment during Interview in 4 villages@25	100	100		
Transport allowance for 5 key informants' interviews @20	100	100		
Subsistence allowance for 2 Rangers during household questionnaire @16 for 20days	640	640		
Subsistence allowance for Assistant Researchers during interview and focus group discussion 6days*1p*11.67	70	70		
Fees for carrying out research inside the park lump sum	67	70	+3	Due to fuel fluctuation
Supervisor travelling cost from Nelson Mandela to study site5*@26.67	133	130	-3	more visiting trips for supervisor

Fuel during field work (Expects to travel about 400 km)	375	369	-6	fluctuation in fuel cost in Tanzania
Car hire and maintenance for field work 20 days@20.33	407	800	+393	high car hire cost
Bus fares from Arusha-Kilimanjaro transport during actual data collection 1person*13.33*2	27	27		
Fuel during reconnaissance survey (travel about 300 km)	267	267		
Car hire and maintenance for 7 field days@20.33	142	142		
Printing papers 30 pcs @1.1	33	33		
Notebooks, marker pens for project team members (12 pcs @£1.17)	14	14		
Pencils and pens to be used in data collection (20 pcs @£0.26)	5	5		
Photocopying questionnaires (estimated cost £74)	74	74		
Camera traps for HECs hotspots areas 10 pcs @200		1650	+1650	We got a quality camera with low cost
Printer machine 1pcs @50	50	50		
GPS Garmin 64s1pcs @326	326	256	-70	low cost in some areas
Camera Nikon and Camera batteries 1pcs @333	333	220	-113	low cost in some areas
Raincoat	20	20		
Gumboots	15	15		
Topographic maps from National Bureau (NBS)	166	90	-76	we have got for low price
First aid kit 1 pcs@20	20	21	+-1	
Totals:	**5522**	**7621**	**+2099**	**Note:** The exchange rate used was 1 sterling = 3,048.54Tanzanian Shillings

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

From initial observations, comparing current data with data from 2016-2022, it appears that human-elephant conflict has increased in the Kitendeni wildlife corridor in Enduimet wildlife management area. Thus, 1 year of additional HEC monitoring is required for a better understanding and analysis of the data specifically by comparing the dry and wet season. Once this activity is performed, a better recommendation can be made as to where conflict management should be targeted.

11. 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, all of our posters, fliers, brochures, posters, presentations, and t-shirts had a Rufford logo as it increased the publicly of the foundation. We will also acknowledge the financial support of Rufford Foundation in our manuscript for publication.

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

Oshumu Laizer: Attended field activities and assisted in the villager's interview.

Joel Efraim: Assisted in data analysis.

Kimani Saibulu: Assisted as a ranger in Kitendeni wildlife corridor.

Kizito Paulo: Supported the project as a field research assistant.

Rehema Maliaki: Supported the project as a field research assistant.

John Erasto Sanare: Conducted most of research activities including data collection, data analysis, presentations, results disseminating and outreach activities.

Prof. Minnick Tamera: Assisted in designing the methodology for data collection.

Dr Richard Alward: Checked all field activities and co-supervised

Prof. Anna Treydte: My immediate supervisor monitored the progress of each stage of the research.

13. Any other comments?

First and foremost, on behalf of team we worked on this project, I would like to take this opportunity to thank Rufford Foundation for awarding me this grant. I am extremely grateful as, without this support, I would not have been able to carry out this project, with fund from Rufford I was able to accomplish our research project successfully, I feel that not only have the local communities benefited from this project, but I have too. This project has been a significant learning experience and has enabled me to grow as a conservation scientist as I have developed invaluable skills in project management, community engagement and analytical skills. Lastly, human-elephant conflict is growing and worsening in many areas. It is very imperative to understand the drivers of this conflict in order to appropriately manage it. I feel that the findings of this project, which Rufford Foundation have made possible, will be of significant practical use in not only advancing the study of human-elephant conflict, but in also helping to better manage the elephants in the Kitendeni wildlife corridor.