

## Final Evaluation Report

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Your Details	
Full Name	Emmanuel Stephen Lekundayo
Project Title	Assessment of human elephant interaction, land cover, and land use changes and the potential need for citizen science around the Rukwa-Lwafi Game Reserve, Tanzania
Application ID	33228-1
Date of this Report	15/07/2022

**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
To evaluate possible human-elephant conflicts in the area and identify hotspots in association with the vegetation change analysis. Landsat images will be used to analyse land-cover changes in the RLGR for the years 1990, 2000 and 2020. Images with spatial resolution of 30 m will be downloaded from the US Geological Survey (USGS) Earth Explorer ( <a href="https://earthexplorer.usgs.gov">https://earthexplorer.usgs.gov</a> and <a href="https://glovis.usgs.gov/">https://glovis.usgs.gov/</a> ).				<p>We wanted to analyse LU and LUC at village villages (especially all villages bordering Rukwa and Lwafi GR) but most of the villages were new and have not yet been updated in the National Bureau of Statistics.</p> <p>We ended up using analysing the whole district which still gave good results, but it would have been useful if we did it at village level.</p> <p>And for us to get ample time for analysis and ground verification of the work we have done, we reduced the years of study from 5 to 3 and we got the results we expected.</p>
To gather information on forms and distribution of HEC, its relationship with land cover, land use change, and the social and economic effects of elephants' invasions on people's livelihoods and also the community willingness to participate in citizen science.				<p>This objective was fully achieved due to the effective team that we had in place and the local support received during the survey.</p> <p>The preliminary visit that we conducted helped us know areas to focus on and low priority areas to give it less focus. This maximised our effort in nine surveyed villages. We have received a very minimal resistance from the community and local authority as compared to other studies conducted. Previously the community used to refuse sharing human wildlife conflict information as they fear they might be relocated.</p>

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

This work has helped us deepen our understanding in HEC and being among the few recent HEC surveys in the area and has attracted attention from different stakeholders who are currently joining their efforts helping to develop an elephant booklet. This booklet is expected to expand elephant knowledge and views among the community and can be used anywhere in the country and beyond in all Swahili speaking countries.

**a).** The survey provided us with baseline information for human-elephant conflict that provided information on the status of HEC, priority areas and possible solutions to HEC in the surveyed areas.

**b).** We have identified the mitigation strategies that can be adopted and implemented to reduce human-elephant conflict and the threats facing elephant conservation and management around the area. We have also identified that the communities need more conservation education to increase positive views and commitment towards mitigation measures and elephant conservation and through this we have been able to produce two different educational brochures, booklet is currently under review and more educational activities are underway.

**c).** We have also identified that there is an increase in land use and land cover changes over years and it's the source of increasing human elephant conflicts in the area. There were no land use planning and this calls for an urgent attention to think of ways to address encroachment which is leading to more contact between people and wildlife specifically elephants.

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

Before the start of the project, we were supposed to acquire a research permit from the respective authorities. We delayed in obtaining the research permit to start our project. We were supposed to start the project around June, and we pushed it to September.

The data collected around Rukwa Game Reserve only involved three villages as other villages on the southern and eastern part of the reserve did not directly border the reserve. Many parts of the reserve were surrounded by forest reserves before reaching the villages and this led to almost zero incidences of human elephant conflicts, so we focused only in three villages which were Sitalike, Matandalani and Igongwe.

There were some villages which were not easily accessible by vehicle due to remoteness, and we will decide to ignore as some few members who were accessed through phone were unwilling to provide us with relevant information as they fear that the information we were collecting might results to their eviction. There were also some team members who changed due to being committed elsewhere and some school and we had few new faces to fill the gaps.

#### **4. Describe the involvement of local communities and how they have benefitted from the project.**

For us to obtain accurate information on the status of HEC around the two reserves, we strongly relied on the knowledge of the local community. They are the ones who provided information on the questionnaires. We also used them as a point of contact in every place visited, and all farm surveys conducted. But we also respected their views and contribution and to those who refused to give information on crop damage, we also respected their stand, and no one was discriminated.

The local community also benefited from the knowledge on HEC and mitigation approaches shared by our team. They also benefited from the informational materials produced by the team, and we've used Swahili language that both understand. We are also developing an elephant booklet which will be accessible to the community to further help them advance their knowledge in elephant ecology, behaviour and conflict mitigation approaches.

We are currently working to implement an awareness programme on ways to foster human-elephant coexistence and we will majorly involve locals and also as part of promoting our slogan 'locals leading and learning from the locals'. We will select Elephant Conservation Ambassadors (ECA) from the community, train them and will be point of contact and local elephant experts in their respective villages.

#### **5. Are there any plans to continue this work?**

Yes. I have a plan to continue with my work of enhancing human elephant coexistence in the remote landscape of western Tanzania. My next plan is to widely share results of this project through different approaches; radio sessions, conducting public awareness through community meetings and film night sessions, introducing elephant deterrents among most affected farmers groups in three main villages of Sitalike, Matandalani and Igongwe. We are also working to improve results of the initial surveys conducted to public the work in peer review journals. We have started developing an elephant awareness booklet entitled 'development a Swahili booklet 'Elephant Conflict Mitigation Workshop and Training for advancing awareness on elephant ecology, behaviour and conflict mitigation. For this project work to successfully continue, we will undoubtedly need financial support and so far, we have secured grant from US Department of State (Alumni Engagement Innovation Fund) to cover some elephant education and awareness programmes, but we will also need additional support from The Rufford Foundation to achieve all components of this project which include erecting a section of beehive fence to some areas of the village which has high human elephant conflict. We will also introduce community groups – local elephant monitors who will be trained and will help the community in management of human elephant and other wildlife conflict.

I have also developed an event book for gathering HEC information and will be distributed to some willing farmers and we will be collecting the information on monthly basis to further update our HEC database. I have already shared with eight farmers, and we will start gathering information from the start of August 2022.

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

We had shared the project results of this project with the local community in form of public presentations, film night show presentations and development informational elephant brochure and shared it among the local communities. We have also conducted two radio interviews to share results of our survey and recommendations and still expecting five more radio sessions.

Also, our final report of the findings will be shared with local, regional and national conservation authorities, local and international communities. We also plan to publish the results of this project in a peer-reviewed journal once the refined reported is produced.

We are currently developing, and elephant booklet and some components of our results will be highlighted in the booklet. I am also working with a newspaper editor to write a Swahili article on the findings of this project.

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

There is a huge need to help the affected communities in finding ways to mitigate elephant conflict. The problem has not been successfully solved and it is very important to that we invest in identifying applicable solutions to conflict mitigation.

We have started producing educational and awareness materials; brochures and a booklet is currently under review. This will provide the community with basic approaches to conflict mitigation and the next phase will involve seeking funds to establish a chili and beehive fence (most common applicable technique to this area) in three mostly affected villages of Sitalike, Igongwe and Matandalani as we have enough of local resources to implement this idea.

There is also an urgent need to establish a continuous educational programme through radio outreach, conservation film shows and weekly road shows to build capacity of the locals on the importance reducing encroachment as a measure to preserve elephant habitats and also reduce conflict as it is noticed that increasing conflict is directly related to increasing human activities along the wildlife areas.

Understanding the temporal and spatial distribution of human elephant conflict requires a multi-year study and through this we are working with the communities to design an event book that will help us monitor elephant activity in our project area.

**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?**

Yes, I have used the Rufford Foundation logo on educational materials that I have produced; brochures and posters produced through this project for dissemination of results and promote elephant awareness in the target communities. The Rufford Foundation had certainly received publicity during my project work and even part of my team members and other conservation experts in the area have shown

interest to develop their projects and seek fund from The Rufford Foundation. Also, the new materials that are being produced to will contain Rufford Foundation logos.

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

My project work was successful as a result of strong support from the following team.

**Emmanuel Stephen Lekundayo (Project leader)** - Emmanuel was responsible for overseeing entirety of the project and has been responsible for guiding and coordinating the team as well as delivery of all output. He has also been working to ensure all the project requirements are met, and that project progress is adequately reported.

**Solomon Jeremiah (GIS expert)** - He has an experience of working on elephant ecology, mapping and vegetation analysis. He was responsible assisting in developing landcover and land use changes maps. He assisted in acquiring Landsat images online and analysed to produce the required results. He is the one who assisted in all the development of all the LC and LUC maps.

**Ms. Happiness Jackson (youth program assistant)** – assisted in field data collection, data entry and supported the conservation awareness program in schools around the project area.

**Bahati Hillary (Driver and field assistant)** - He majorly assisted in delivering the team to the field and was responsible for managing all project logistics. He also participated in education and awareness components of this project and partly in data collection in some villages.

**Ms. Belinda Mligo (Field assistant)**- Served as the field assistant and also largely used her strong commitment and experience in data analysis.

**Moi Amon (Field assistant)**- Mr. Amon served as the field assistant participating and supporting in organising for the field logistics and field data collection.

**Ms. Christina Meja and Mr. Leonard** – are village game scouts and partly assisted us in guiding and escorting us on areas with HEC incidences in villages around Rukwa GR.

**10. Any other comments?**

We thank The Rufford Foundation for supporting this project, and we hope to continue supporting us into our future projects to help the local communities to reduce human-elephant conflict and conserve biodiversity.