

## Final Evaluation Report

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Your Details	
Full Name	William Luwaga
Project Title	Evaluating the efficacy of solar fences in mitigating human-elephant conflicts around the northern boundary of Murchison Falls National Park in Uganda
Application ID	43250 -1
Date of this Report	May 26, 2025

**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 assess the local communities' perceptions on the implementation and effectiveness of the fences at reducing human-elephant conflicts				A number of community perceptions and attitudes have been documented through community interviews
To explore practical solutions reinforcing the electric fence effectiveness in managing human-elephant conflicts				Through fence visits together with the local communities, various practices were explored and tested in regard to reinforce the electric fence
To raise awareness about elephant conservation among communities residing in and near elephant habitats				Target of 700 learners not achieved due to overestimated student population in the local schools not tallying with the actual population
To map the spatial distribution of human-elephant conflicts around the northern boundary of Murchison Falls National Park				A hotspot map has been developed showing the spatial distribution of human-elephant conflicts

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

**a) There are several key factors driving the efficacy of electric fences**

- I. The effectiveness of electric fences largely depends on the extent to which local communities understand and support their implementation. The project emphasized that sustained community sensitization and awareness campaigns are essential for building local ownership and trust in the intervention.

- II. Active involvement of community members in the management and maintenance of the electric fences emerged as a pivotal factor. When communities are directly engaged through patrols, maintenance, and reporting breakdowns, they develop a sense of responsibility that enhances the functionality and longevity of the fence systems.
- III. The project found that electric fences offer a more reliable and scalable solution for mitigating HEC compared to traditional deterrent methods such as crop guarding, drumming, or elephant trenches. Fences can cover wide areas, making them particularly effective in deterring elephants from entering community farmlands. Moreover, their efficacy is significantly enhanced when integrated with complementary measures such as bee-hive fences.

**b) Practical solutions to strengthen the fence**

The project identified several practical and community-informed strategies to improve the durability and effectiveness of the electric fence system. These recommendations were drawn from both field observations and feedback collected during community surveys and fence inspections. Key practices include:

- I. Replacing wooden poles with more resilient composite (plastic) or metallic alternatives was recommended to prevent deterioration caused by termites, rot, and weathering. This shift enhances the longevity of the fence and significantly reduces long-term maintenance costs.
- II. Creating fire lines along the fence either by regular slashing or controlled use of herbicides helps to minimize the risk of wildfires. This practice also prevents vegetation from triggering short circuits, which are a common cause of fence malfunction.
- III. The project addressed vulnerabilities by identifying and filling previously unfenced sections along the park boundary. Ensuring the continuity of the electric barrier is critical to preventing elephants from exploiting weak points and entering community farmlands.
- IV. The importance of routine patrols by trained personnel or community volunteers was emphasized. These patrols help detect faults early, discourage vandalism or poaching-related damage, and ensure timely reporting and repairs.
- V. In select areas, the project piloted the introduction of beehive fences adjacent to the electric fence. This eco-friendly deterrent not only supports elephant avoidance behaviour but also provides additional livelihood benefits through honey production thus linking conservation with community incentives.

**c) There is hope for harmonious living between communities and elephants**

Through targeted elephant conservation campaigns, the project demonstrated that harmonious coexistence between local communities and elephants is achievable. Community sensitization and awareness efforts proved instrumental in reshaping perceptions toward wildlife and conservation initiatives.

By engaging residents in dialogue, sharing knowledge about elephant behaviour, and highlighting the long-term benefits of conservation, these campaigns fostered more positive attitudes toward elephants and conservation efforts. Importantly, they also helped to reduce fear, resentment, and retaliatory behaviours that often stem from human-elephant conflict.

The project found that when communities are meaningfully involved, informed, and empowered, they are more likely to support conservation measures, tolerate occasional wildlife encounters, and adopt protective behaviours.

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

The project had proposed to build capacity of 4 wildlife rangers in both theoretical and practical techniques in monitoring HEC, ground-truthing and GPS skills. However, there were setbacks due to time bound and this training was not conducted. Instead, we focused on training four community-based enumerators in data collection techniques.

During the first phase of field data collection, broken bridges along roads connecting the two project sites significantly disrupted movement. This forced us to cover longer distances via alternative routes, which led to higher fuel consumption than originally budgeted. To address this challenge and reduce costs, we adopted lodging closer to the field sites, thus minimizing travel time and ensuring continued progress in data collection.

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

The project trained four locals in conducting community surveys and these received allowances for their service they did for the project.

270 locals participated in the community surveys and the invaluable information they provided is going to inform decision making in regards to managing HEC using electric fences by the conservation managers. They are direct beneficiaries of the project.

We held an elephant conservation awareness campaign in Wii Anaka Primary School where we contributed significantly to pupils' and their teachers' knowledge, attitudes, and perceptions change towards elephant conservation and co-existence with Murchison Falls National Park. The learners and their teachers were encouraged to be wildlife ambassadors by sharing this profound knowledge with their friends, and relatives in the community. The campaign participants assured us to act as elephant conservation ambassadors and not to allow this important message go to waste.

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

We plan to continue this work, given that the first phase of the project was a baseline study looking into how effective the installed electric fences are managing the escalating human-elephant conflicts among communities living adjacent the northern boundary of Murchison Falls National Park. A number practical solutions were explored and tested but this was done for a short period of time and at a small scale which is not sustainable in the long run. Therefore, we plan to continue this

work with a focus on empowering local communities through building their capacity in long-term management of human-elephant conflicts.

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

A detailed project report is being shared on the Rufford website to make this information accessible globally. Currently, we are drafting a manuscript to be submitted to a reputable peer review journal to make it accessible to the masses. A final report has been shared with the Uganda Wildlife Authority. Project updates were shared on Rufford Foundation website but also on my LinkedIn account.

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

Redesigning the distances from the fence gates to the nearby communities as a significant number of interviewed locals raised a concern about women and girls moving long distances to access resources from the park. Continued community engagements and awareness campaigns especially in schools needs to be conducted.

**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?**

We used the Rufford logo on the T-shirts which were given to the research team, school teachers during community surveys and elephant conservation quizzes respectively. We also used the Rufford logo on the elephant conservation education materials which were used during the awareness campaign later given to the school administration. The Rufford logo appeared on all the project documents including research questionnaires, payment forms, and consent form. We plan to acknowledge Rufford Foundation funding in the publication from this work under drafting.

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

NAME	ROLE	INSTITUTION
William Luwaga	Principal Investigator	Makerere University
Mastulah Nakitende	Data entrant	Makerere University
Isma Kasule	Project driver	Innovation for Conservation
Richard Anywar	Research assistant	Uganda Wildlife Authority
Christine Acio	Research assistant	Uganda Wildlife Authority

Mr. Samuel Mutebi	Logistical arrangement	Centre for Strategic Ecological Practices
Mr. Bernard Matovu	Academic supervisor	Makerere University
Dr. Herbert Kasozi	Academic supervisor	Makerere University

**10. Any other comments?**

I sincerely thank the Rufford Foundation for providing me this opportunity to conduct this work. This grant has contributed to my research career growth by expounding my knowledge and capacity in human-wildlife conflict management and co-existence between humans and wildlife.