

## Final Evaluation Report

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Your Details	
Full Name	Francis Ssenkuba
Project Title	INVENTORY OF THREATENED ODONATES IN TWO SELECTED AFROTROPICAL FORESTS IN THE ALBERTINE RIFT IN WESTERN UGANDA
Application ID	40777-1
Date of this Report	September, 2024

**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 document odonate assemblage in Bwindi and Bugoma forests with a unique focus on threatened odonates				A checklist for odonates in Bwindi impenetrable forest and Bugoma Forest has been developed highlighting their IUCN Red list status and their range restriction
To identify priority areas for odonate conservation in Bwindi and Bugoma forests				The odonate conservation priority areas have been mapped in Bwindi and Bugoma forests based on the presence of threatened species using the Threat-based score.
To investigate the physical, chemical parameters and physiographic factors influencing the distribution of Odonates in Bwindi and Bugoma Forests				Using the physical and chemical parameters and altitude, we have managed to cluster the odonate habitats into two distinct clusters using the Principal Component Analysis ordination.
To document anthropogenic and natural threats towards the conservation of odonates in Bugoma and Bwindi forests				A comprehensive report about the current and prospecting natural and anthropogenic threats towards odonate conservation has been documented in the detailed project report.
To provide a long-term and sustainable conservation impact for the odonates and their habitats.				Through community engagement, i.e working with resident citizen scientists, odonate conservation community awareness campaign and recruiting an undergraduate student on a team as a research assistant.

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

### **a) . Updating knowledge about the distribution of threatened odonates.**

*Neodythemis nyungwe* was previously believed to be endemic to Nyungwe forest in Rwanda but we recorded it for the first time in Uganda specifically in Bwindi Impenetrable National Park. We recorded *Neodythemis munyaga* two times, an endangered dragonfly on a global level and endemic to Bwindi impenetrable National park and critically endangered at a national level. We also recorded *Stenocypha molindica*, and *S. jacksoni* the Albertine endemics and Nearly threatened at a global level.

### **b) Odonate conservation priority area maps**

We have managed mapping areas of conservation concern for odonates based on the threat-based score derived from the IUCN global red list status of the sampled odonates in Bwindi impenetrable forest and Bugoma forest.

### **c) Capacity building**

In this project, we have trained two resident citizen scientists in odonate sampling, preliminary identification, and odonate conservation in general. This has changed these local community members' knowledge, attitudes, and perceptions towards odonate and forest conservation. Furthermore, we managed to reach out to 100 pupils and 10 teachers in Kisaaru Primary School close to the most degraded patch of Bugoma forest. We managed to change these future local community members' knowledge, attitudes, and perceptions towards odonate and forest conservation through an interesting, participatory awareness campaign spiced with quizzes and prizes. In this project, we recruited a bachelor's student as a project research assistant who was trained in odonate sampling, identification, forest and odonate conservation. He managed to attain enough data for his bachelor's research and scored a grade A in research.

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

### **Odonate species confirmation**

In the planning of this project, we underestimated the need for odonate specimen confirmation. Using the links I obtained through attending several conservation international field courses, I was able to get assistance from the Ugandan odonate expert doubling as an IUCN Ugandan odonate working group member, Dr. Perpetra Akite. Still, this came with an increase in expenditure.

### **Transport facilitation**

We underestimated the study area coverage, considering two forests that are stretched apart came with an increase in transport expenses. This was resolved by reducing the budget for the accommodation, and the driver to facilitate the transport.

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

In this project, we worked cordially with two resident citizen scientists one from Ruhija area in Bwindi Impenetrable National Park and another one from Wayiragaza village close to Bugoma Central Forest. These citizen scientists have been introduced to the ecosystem services offered by odonate, and trained in odonate identification, conservation, and forest conservation at large.

We held an odonate conservation awareness campaign in Kisaaru Primary School where we contributed significantly to pupils' and their teachers' knowledge, attitudes, and perceptions change towards the odonates and Bugoma forest conservation.

The learners and their teachers were encouraged to share this profound knowledge with their friends, and relatives in the community. The campaign participants assured us to act as odonate and the forest 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 our first project was a pilot survey using an odonate inventory, we managed to identify priority areas for conservation based on the presence of the threatened and endemic species and the habitat degradation threats. In our second phase, we plan to focus more on Bwindi Impenetrable National Park and Echuya Central Forest Reserve in the same ecological zone but under different management systems consequently different anthropogenic threats.

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

We shared our findings with the Kisaaru primary school pupils and teachers about the current conservation status of the odonates and Bugoma central forest reserve at large.

We have already developed a detailed project report to be shared on the Rufford website to make this information accessible globally.

Currently, we are done with data analysis and drafting a manuscript to be submitted to an open-access reputable journal to make it accessible to the scientific community.

We are also drafting a report to be shared with the National Forestry Authority and Uganda Wildlife Authority to update their checklists for Bugoma Central Forest Reserve and Bwindi Impenetrable National Park respectively.

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

Extensive field surveys will aid in resolving many of the misconceptions about endemism.

Also, extensive community engagements in habitat restoration and awareness campaigns to empower the local community in odonate conservation and forest protection.

Extensive engagements with the policy makers more so the forest managers to equip them with the forest and wildlife conservation attitude and information to inform policy formulation.

### **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 and the students as prizes for the odonate conservation quizzes. We

also used the Rufford logo on the odonate conservation poster which was used during the awareness campaign later given to the school administration. We also used the Rufford logo on all the project documents ie fieldwork budgets, accountabilities, consent form, the pre- and post-campaign questionnaires. 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.**

<b>Name</b>	<b>Role</b>	<b>University</b>
Francis Ssenkubas	Principal Investigator	Mbarara University of Science and Technology
Julius Tumusiime	Logistical arrangements, education campaign and fieldwork	Mbarara University of Science and Technology
Marie-Claire Dusabe	Odonata nymph identification	Justus Liebig University Giessen, Germany
Assoc. Prof. Christian Albrecht	Supervisor	Justus Liebig University Giessen, Germany
Prof. Grace Kagoro	Supervisor	Mbarara University of Science and Technology

**10. Any other comments?**

I am grateful for the support offered by the Rufford Foundation, this grant has contributed significantly to my research career growth by expounding my knowledge and capacity in Odonatology conservation, and taxonomy, and opening new links and collaborations in the Entomology Conservation field.