Final Project Evaluation Report

Your Details	
Full Name	Nakiguli Fatumah
Project Title	Effect of seasonal weather and anthropogenic disturbances on Arbuscular Mycorrhiza Fungi (AMF) biodiversity in Mabira tropical rain forest, Central Uganda
Application ID	23729-1
Grant Amount	£5000
Email Address	nakigulifat@gmail.com
Date of this Report	October 25th, 2018

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
Stakeholder meeting				1 project induction stakeholder meeting was convened and was attended by representative from the local forest authorities government, forest authority and local conservationists took place at NaFFORI, Kifu-Uganda.
Baseline survey				Informative baseline survey was conducted in randomly selected communities within and around Mabira forest reserve, and was done using questionnaires, and key informative interviews.
Field experimentation for assessment of the Arbuscular Mycorrhiza Fungi (AMF)				Line transects will be laid down across the three management zones namely; nature reserve (i.e. strictly nature conservation area), recreation buffer and production zones following AMF disturbance.
Collection of Soil and root samples both in dry and rainy seasons for AMF analysis				Soil samples for physiochemical properties, AMF rhizosphere soil samples for spore density analysis and root samples from woody trees were collected from Mabira.
Data analyses				Laboratory analyses partially (65%) finished.
Dissemination and/ or reporting of results				Preliminary results shared with local stakeholders, and research article drafted for publication.

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

There was an unprecedented bureaucracy in acquiring study permits to access the different management zones of Mabira forest, the target sites. We recruited a local conservationist from the National Environment Management Body (NEMA) on the project team who knew the relevant authorities personality and was aware of all the prerequisite steps needed, and hence simplified the acquisition of the required study permits. The funding was limited to fully cover the laboratory costs which were too high than expected, we also used the recruited NEMA staff on the team, analysis of

the some root and soil samples were done at a subsidised cost in the NEMA microbiology lab.

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

a) Baseline survey report with stakeholder participated.
b) Research output report.
c). Manuscript drafted for publication in peer-review journal.

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

The four local village communities surrounding Mabira forest namely Kiyunga, Kasayi, Lugazi, and Kyetume as well as two staff from the local government authorities: NEMA and NaFORRI (National Forestry Resources Research Institute) were involved in interviews when conducting baseline survey. They were involved in ecosystems survey and collaborated in execution of the project activities, thus representative staff from NEMA and NaFORRI, and local conservationist were recruited as part of project team and participated in soil sampling, data collection and analysis. They gained skills in eco-geographical field experimentation, soil sampling, data collection and analysis for the threatened species, mainly AMF. Research results and output were shared with the aforementioned stakeholders.

5. Are there any plans to continue this work?

Yes, the process of analysis of soil and rhizosphere root samples for AMF spore density and genera richness is ongoing. There are also plans to continue analysis of AMF vulnerability in altered ecosystems in the major tropical rainforest reserves in central Uganda. Therefore, I am currently soliciting additional research funds to perform the aforementioned activities, since the AMF is one of the most highly vulnerable

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

I have already shared the research results in form of research summaries; baseline report and field report to the local stakeholders at NEMA and NaFORRI for consideration. The results explain the status of below-ground biodiversity, using AMF as a case study in different management zones of Mabira forest reserve. The draft manuscript is underway, and is also yet to be submitted for journal publication.

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

The project activities were started in December, 2017 and a major component of the data analysis was accomplished on October 10th, 2018. The pending lab activities are only limited by funding but nonetheless, the research results, data and report consisting of pertinent results are finished including a draft manuscript for publication. Therefore, the time taken to execute the project activities and/ or objectives compares well with the planned schedule of the major project activities.

Thus, the project inception and baseline survey activities were scheduled to take place from December 2017 whereas the final activities and reporting were schooled to be done by September 2018.

8. 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
Project setup	250	250	0	Spent as budgeted
Baseline survey	960	960	0	Spent as budgeted
Experiment setup for AMF density and richness Assessment	460	460	0	Spent as budgeted
data collection from study sites, and Laboratory analysis for AMF	2670	3200	530	Additional funds from other activities for lab
Feedback from the community and stakeholders awareness	340	130	210	Balance transferred to cover soil lab analysis
Monitoring and Evaluation	320	0	320	Activity not done

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

The next step is to publish the research results in a science index journal for access by the international community. The draft manuscript is ready and currently undergoing internal review by the project team members before being submitted. Another important step forward is to solicit additional funding to scale the projects to other vulnerable ecosystems mainly tropical rainforests in Uganda like Bwindi, Mpanga, Kasayi forests which are too facing unprecedented destruction. The below-ground ecosystems are extremely fragile in these forest ecosystems and huge biodiversity loss will occur if no data to back-up decision making for restoration is availed to the local stakeholders and forest management bodies.

10. 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, the Rufford Foundation logo was used on top left corner of the questionnaires used during the baseline surveys (the 1st project objective). The foundation also received publication during the stakeholder meetings and a report summary shared with local stakeholders, and was acknowledged as the funding organisation. But most importantly, with approval from the Rufford Foundation, the project team plans

to include the foundation logo or name on the prepared manuscript before being submitted for journal publication.

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

Name of Members	Affiliation	Duties and Responsibilities
Nakiguli Fatumah	Makerere University	Principal Investigator, leader
Namukasa Harriet	NaFORRI/NEMA	Field guide, and liaison officer
Mutebi Siraj	LC chairman	Stakeholder mobilisation officer
Nakakawa N. Fionah	Makerere University	Sample and Data analysis in lab
Sembatya M. Swaib	NM-AIST University	Field supervisor and manager

12. Any other comments?

The project team acknowledges support from the Rufford Foundation, and very thankful of the prestigious grant opportunity from the foundation. It is, therefore our prayers the Rufford Foundation continues to support similar projects in future so as to save our mother planet, Earth.