

Final Project Evaluation Report

Your Details	
Full Name	Mushagalusa Batumike Rodrigue
Project Title	Determining sustainable extraction rates of important timber and non-timber forest products in Lomami national park in DRC
Application ID	28377-2
Grant Amount	£ 5000
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Date of this Report	August, 2020

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
Determine which are the density and the population structure of key tree and liana species?				I noted that Lomami buffer zone hosts abundant mixed-species undisturbed old-growth forest and contains nine tree species of international conservation concern. Most species used by local communities (for food, medicine, firewood) are continuously recruiting, which suggests that current levels of exploitation are sustainable. I excluded liana in the analysis due to issues of identification. Note that this is the first botanical survey of Lomami NP.
Determine if there is enough natural regeneration?				I determined only regeneration in the core zone.
Identify which management recommendations will help ensure the long-term sustainable use of key tree species.				I noted that the management plan of the buffer zone should allow current extraction rates of firewood, poles, medicinal plants and edible fruits and nuts. But it should ban potential future timber/firewood commercial harvesting of all species of international conservation concern. Two permanent plots of 1 ha (all trees tagged and painted) were set up in the core zone which will allow for future forest monitoring.
Raise awareness of the park importance among school children in the area				I raised awareness of park's importance among 10 primary schools in the study area. During this awareness I distributed colouring pencils and a 1-page leaflet quiz about forest importance to children of primary 5-6 (CM1-CM2 in French school system). I also printed out posters which I also distributed to the headmasters of these primary schools.

Identify plant species which remained unidentified in the first field trip to Lomami (first Rufford Small Grant)				I identified most species and finished the publication about local perceptions of forest ecosystem services and useful trees, submitted to PlosOne.
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

I faced three major unforeseen difficulties. The first one was that from October-November 2019 it was not safe to travel to the central part of the park, due to rebel groups hiding in the forest. Therefore, I had to focus my work on the southern part of the park.

The second challenge was the terrible state of the roads around Lomami NP. It was challenging and expensive to find a motorbike driver willing to take me (my botanist, assistant and the provisions I had bought) through some of these roads, which are completely unpassable when it rains. This complicated my work.

The third challenge was that there is no reference botanical material for this park. As several plant samples collected had no flowers or fruits (typical in rainforests), they could not be easily identified. I went to the Herbarium of Yangambi to try to identify them (thanks to a small grant by Linnaean Society as the funds from Rufford were not enough to cover this unforeseen trip from Bukavu-Kisangani). Samples collected were deposited at Yangambi to facilitate future work.

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

- An understanding of forest composition of Lomami buffer zone: it hosts abundant mixed-species undisturbed old-growth forest and contains nine tree species of international conservation concern: *Autranella congolensis* (CR), *Entandrophragma angolense* (VU), *Garcinia kola* (VU), *Milicia excelsa* (NT), *Pterygota bequaertii* (VU), *Lepalea cedrata* (VU), *Pradosia spinosa* (NT), *Michelsonia microphylla* (VU) and *Guibourtia demeusei* (CITES appendix).
- Most preferred tree species for construction, firewood, medicine and edible fruits and nuts are relatively abundant and show a reverse-J size-class distribution, indicating a relatively stable population structure: no need for regulated extraction of these for now. But more research is needed for two non-abundant species (*Autranella congolensi*, *Michelsonia microphylla*).
- I raised awareness of the park's importance among school children in the area; I had produced a poster which describes the importance of Lomami National Park to surrounding communities. Children were very happy to participate in the activity as no one had ever done something like this before.

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

Local communities were a key player in this project. Before and after my field work I discussed with the Moahami (local chief of each village) and village elders about the importance of having a 'healthy' forest near the village and about how local people use and value the forest and how to harvest forest products sustainably. During plot establishment and measurement, I had at least one local guide and field assistant from each village I visited, with whom I discussed harvesting techniques and regeneration.

The headmasters of schools I visited were very happy with the materials I distributed to their children and promised to continue to raise awareness on the importance of conserving the forest of Lomami National Park and its endangered species.

5. Are there any plans to continue this work?

There is an urgent need to continue this work, and I plan to do so. I would like to help co-design and implement alternative livelihood activities for local communities in the nearby future, including non-timber forest product extraction (seeds, medicinal plants), and maybe promote rearing of animals such as rabbits whose meat can be smoked, to facilitate storage, transport, and also to copy the taste of bush meat. I am developing a proposal for a Booster Grant.

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

I produced a non-academic report (in French) which I already shared back with the communities studied, and park managers (I shared the data of plots I established in the core and buffer zones). I have prepared two scientific publications, one on 'forest ecosystem services and important tree species' (submitted to PlosOne) and the second on 'Lomami Buffer Zone: forest composition, structure, and the sustainability of its use by local communities' (submitted to Biotropica). I have also given a presentation at my university on how to establish and measure forest plots, I showed other students my work and I hope I inspired them.

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

September 2019-August 2020, 12 months, as planned.

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
Flight local travel with Botanist Bukavu-Kindu (AR) data collection	480	860	-380	As the airport of my province has problem were forced to take flight in another province which is not mine
Go-Pass and Aero taxes data collection with botanist	60	30	-30	Government reduced price
Hostel at Kindu with botanist (4 days per day 20 £)	80	80		
Food for 45 days (6 £ per day for 4 persons)	1080	1080		
field assistant (2 people, for 45 day and 10 £ per day)	900	900		
botanist (1 people, for 45 days and 15 £ per day)	675	450	-225	As he is my colleague, I asked him to reduce the price
Local transport with field assistant and botanist by motorbike (2 motors, 300 £ per moto)	600	600		
Collation to the village chief (5 £ per village for 10 villages)	50	50		
Dbh meter (4 pieces)	40	40		
colouring pencils to children	140	100	-40	I bought it in local market
Tree tags (packed 1000)	150	150		
Paint hammer	150	100	-50	I bought it in local market
Plant identification	30	45	+15	There were more samples than I thought
Flight local travel Bukavu-Kindu (AR) dissemination preliminary results	250	360	+110	As the airport of my province has problem were forced to take flight in another province which is not mine
Go-Pass and Aero taxes	25	15	-10	Government reduced price

restitution preliminary results				
Meeting of restitution-collation	50	50		
Hostel-restitution (7 days per day 20 £)	140	140		
Printing leaflets to raise awareness about park importance among children	100	50	-50	I did in Rwanda which was cheaper
Total	5000	5100	+100	I paid the difference myself

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

In order to allow the co-existence of Lomami's important biodiversity and the surrounding communities which live in extreme poverty, more livelihood development projects and education in communities is needed as the living conditions of the populations depend on this biodiversity.

With regard to forest management, local communities are keen to be more involved in the design of conservation and livelihood development activities. We created an opportunity for dialogue between stakeholder groups, and this should be used to co-design appropriate interventions which help ensure the sustainable use of resources in the park buffer zone. I would like to help co-design and implement alternative livelihood activities in the nearby future, including non-timber forest product extraction (seeds, medicinal plants), and maybe promote rearing of animals such as rabbits which can be smoked, to facilitate storage, transport, and also to copy the taste of bushmeat.

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?

I acknowledged RF in any publication and presentation I made, including the poster I designed about forest importance to surrounding communities and the non-academic reports I distributed to local communities and project managers, and the two scientific publications I prepared. I also regularly share information on activities from RF with my fellow colleagues at the university.

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

Team Leader: **Mr Rodrigue Mushagalusa Batumike**

Botanist: **Mr John Kalume**

Field Assistant: **Placide Kinyama Masudi**

Rangers: **Fabien Changa Katopa** and **Uchudi Ndjedi**

Tracker: **Augustin Osuku Jamba**

Supervisor: **Dr Gerard Imani**, lecturer and researcher at the Department of Biology of the Université Officielle de Bukavu (UOB). He helped data analysis and publication writing, and he helped me link with park managers, as he has worked in Lomami before.

12. Any other comments?

This grant has been of key importance to develop my scientific and project management skills, but also it has significantly contributed to inform management interventions in the buffer zone of Lomami National Park. This allows better understanding of Lomami buffer zone forest composition, structure, and the sustainability of its use by local communities.

Many thanks to The Rufford Foundation.



Sampling tree diameter with a ladder, as many trees have buttress.



Measuring tree height using a laser (left) and setting up square plots using a compass and a meter (right).



Our camp site in the forest in the Core Zone (left) and my visit at Bueni primary school (right).



Teaching children at Bueni (left) and Lukunda (right) schools about the importance of forest conservation.