Final Project Evaluation Report

Your Details	
Full Name	Gbemavo Dossou Seblodo Judes Charlemagne
Project Title	*Milicia Excelsa* In Benin (West Africa): From Highly Threatened Status To Participative Conservation- Phase I
Application Id	23195-1
Grant Amount	£5,000
Email Address	Cgbemavo@Yahoo.Fr
Date Of This Report	30 November 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
Gather new data on the remaining individuals of the species;				Overall 53 plots were installed through the three bioclimatic zones in Benin (25 plots and 28 plots were installed respectively in forest and farmlands). Overall, 112 occurrences of *M. excelsa* were recorded. 91 individuals of the species are in good status and 31 have threats. Normal individuals are sacred or not. The principal threat observed is the attack of stem borers.
Model the suitable habitats for the species conservation;				Occurrences of *M. excelsa* were completed with additional data gathered from the Global Biodiversity Information Facility (GBIF). Overall, 117 records were gathered for *M. excelsa* of which 104 from our fieldwork and 13 occurrences were retained from GBIF database. The occurrences who are not retained from fieldwork are the very nearby occurrences to others.
Verify on-field adequacy of those areas selected by the model with local people				With the local people help, we discovered on the field that 90 % of arears selected by the model are in adequacy with the field observation.
Raise awareness of local people for Iroko's conservation, particularly involving timber processors, farmers and those involved in ritual ceremonies.				Following the results obtained from the study, we raised local people awareness on the different threats occurring on the species based on our findings. These sections took place in six project localities. It is important to note that the populations are favourable to conserve the currently existing remnant populations of the species, while contributing to its restoration if mans were available for on-field activities. For this to be effective, works need to be done on the silviculture of the species (seed collection, seeds treatment, nursery

				setting and follow-up and transplantation on field) to improve the current density of the populations of the species.

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

The study was planned to be conducted only in southern Benin. Unfortunately, the species was very rare in the initial study area. As a result, the number of occurrence points recorded in the initial study environment was very low for modelling the distribution of the species. For that, we decided to expand the environment study to the whole country (Benin). This allowed us to record more occurrences of the species for better prediction.

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

a). the actual density of the species in the whole country is know

Descriptive statistics showed that M. *excelsa* density range to 6.6 stems per ha to 23.36 stems per ha with an average of 9.6 stems per ha (± 4.83). The highest values were recorded for farms while the lowest values were recorded for forests.

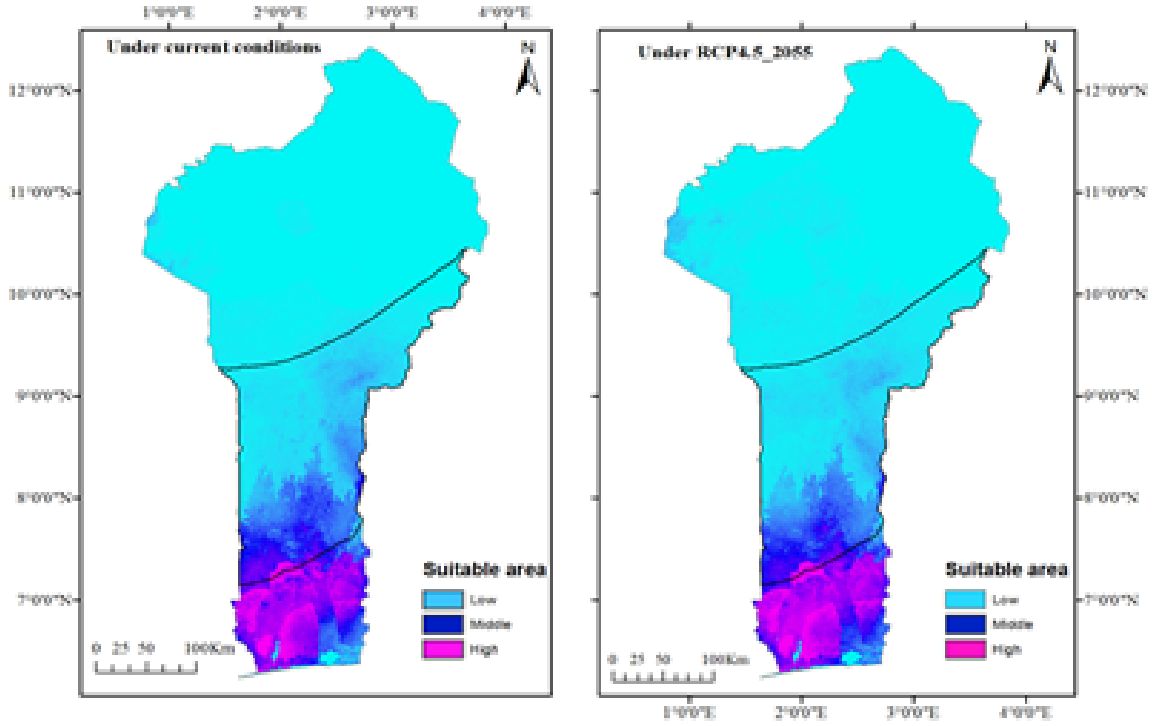

Figure 1: suitable areas for conservation of M. excelsa under present and future climate (RCP4.5_2055)

b). the present-day and the future distribution of the species is know

Geographically, present-day distribution model revealed that the highest suitable area for conservation were confined to the southern part of the study area and specifically located between 6°2' and 8°2' N. Highly suitable areas for *M. excelsa* fell within the Guineo-Congolean zone which is characterised by humid climate. Beyond latitude 8°2 N, the species habitat is less suitable and became unfavourable above latitude 10° N. Model results showed that distributions of *M. excelsa* will remain stable on the 2055-time horizon (Figure 1). A slight increase was noted from the present-day distribution to the future forecasts (4.71% and 6.95% respectively following the scenarios RCP4.5 and RCP8.5).

c). Local people are quite aware of the threats being encountered by the species and indicated that further activities should be implemented to improve the current density of the population of the species.

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

Local populations have been at the fronton for identifying the remnant populations of the species on-field. The project help them to know about the probable impact of the climate on the distribution of the species while raising awareness on the threats being encountered and asked for their collaboration for further successful actions.

5. Are there any plans to continue this work?

Yes, plans exist to continue this project. Few localities have been selected for awareness activities. Some additional localities need to be selected for extended activities and more impactful results if a second stage grant was offered to us. This second stage grant could also help to approach harvesting practices (for ethnobotanical uses), seed viability and tests vegetative propagation techniques of the species. This came from informal discussion with locals during awareness raising activities.

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

I plan to share the current findings with others through my participation in scientific activities (workshops and conferences) at main University and through work sections with the NGOs. I also plan to share my results through posters in my laboratory at the University of Abomey-Calavi. One publication is being prepared and will be submitted soon.

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

The grant was used during the period mentioned in the timescale. But due to the augmentation of the study area we have observed a slight increase in the period of

the data collection phase initially mentioned in the document. This have not impact on the length of the project as initially indicated (September 2017- 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
Workshops organization (hiring rooms + projectors + small equipment)	450	450	0	
Food and transport for participants to the workshop (per diem)	600	600	0	
Subsistence payments for local team	650	650	0	
Communications (telephone and internet)	400	400	0	
Motorbike hiring and fuel on field	800	800	0	
Scientific literature and sheets multiplication	400	400	0	
Battery for GPS	250	250	0	
Travel to reach all investigation sites	1,100	1,100	0	
Prior semi-structured exploratory fieldwork	350	350	0	
Totals:	**5000**	**5000**	**0**	

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

The scientific efforts must be oriented towards the control of the threats that exist on the species and also towards the development of vegetative propagation techniques of the species in favorable areas to its culture. So, it is important to:

- Continue to raise awareness local people about the conservation of the Species.
- Characterise the genetic material (seed) of the species of different zone.
- Evaluate the agronomic performance of the species' accessions (seed).
- Test the vegetative propagation techniques of the species.
- Train local people on the vegetative methods for the species propagation.

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?

The Rufford Foundation Logo was used in many instances: PowerPoint presentation, posters etc.

Yes, The Rufford Foundation received publicity directed to local people, students, researchers, NGOs, etc.

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

Orou Gaoue, PhD. Assistant Professor at the Department of Botany, University of Hawaii at Manoa. He is a visiting professor at the Faculty of Agronomy of the University of Parakou and Faculty of Agronomic Sciences of the University of Abomey-Calavi. He is specialist in plant population dynamics, social network and the ethnoecology of wild plants used by local people in various part of the world. He is also a specialist in Statistics with a focus on ecological modeling. He will give advice for ecological modeling and data processing. He provided data analysis in the project.

Lucrèce Atindehou, MSc. She is specialized in natural resources management. In the project she was a field assistant and has involved in gathering data for modelling, and writing the report.

Augustin Aoudji, PhD. He is an Agricultural economist and sociologist. He organized with us the awareness sessions in the project

12. Any other comments?

I would like to extend my gratitude to the Rufford Foundation which accepted to fund this research work on *M. exelsa* a highly endangered species in Benin. This opportunity also has reinforced my capacity to conduct research on forest species and help me to know more in ecological modelling (geostatistics and Species Distribution Modelling).