Final Evaluation Report

Your Details	
Full Name	Enagnon Bruno Lokonon
Project Title	Participatory actions for conservation of the critically threatened multipurpose *Caesalpinia bonduc* (L.) Roxb in Southern Benin
Application ID	27773-1
Grant Amount	£5000
Email Address	brunolokonon@gmail.com
Date of this Report	31 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
Assess local knowledge, perception of the decline of the species and strategies for its conservation				An ethnobotanical survey was conducted with 602 people in 19 localities. Local knowledge, perception and strategies have been successfully accessed.
Gather new data on the remaining individuals of the species				Overall, 57 transects were established and 73 plots were installed through the study area. A total of 278 occurrences were recorded during the fieldwork and 78 were retained from GBIF database.
Model the suitable habitats of the species				Maximum Entropy (MaxEnt) modelling technique was used for modelling current and future distribution of the species using present-day combined with two future forecasts: low-RCP4.5 and high-RCP8.5 emission scenarios.
Train local people on plants production				Overall, 58 people have been trained on seed collection, choice of nursery site, site preparation, seed pre-treatment and germination, seedling potting, watering and planting.
Seedling planting				A total of 1500 seedlings have been planted. The total number of seedlings planned to be planted during the project (2000 plants) has not been reached. This is explained by the mobility restriction in some localities because of the coronavirus pandemic.

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

Some activities like seedling planting have been affected by the coronavirus pandemic due to the mobility restriction. The cost of travel has increased. Moreover, we bought hydroalcoholic solutions and masks to participants in order to prevent the disease. In those cases, we tried to adjust with the global budget.

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

- Occurrence data have been updated for the species in southern Benin. These data have been sent to open access portal GBIF (Global Biodiversity Information Facility) for making it available. Moreover, Maximum Entropy (MaxEnt) modelling technique was performed on the data for modelling current and future distribution of the species using present-day combined with two future forecasts: low-RCP4.5 and high-RCP8.5 emission scenarios. A manuscript entitled "*Modelling the current and future distribution of the critically threatened multipurpose Caesalpinia bonduc (L.) Roxb for its conservation in Southern Benin*" has been written and is currently under review in *Tropical Conservation Science* (peer-reviewed journal).

- Through Farmer Field School and training workshop, 58 people have been trained on seed collections, choice of nursery site, site preparation, seed pre-treatment and germination, seedling potting, watering and planting. A total of 1500 seedlings have been planted in home gardens and traditional agroforestry systems.

- Local knowledge, perception of the decline of the species and strategies for its conservation have been recorded. The species is widely used in traditional medicine. A total of 20 uses were described for the species by the informants. The species has been reported to treat among others prostate diseases, malaria and headache. About 79 % of the interview respondents think that the species has decreased in the wild while 18 % of them think that the species has disappeared. The main causes of disappearing and decreasing of the species are roots overexploitation, utilisation in pharmacopoeia and agricultural expansion. About 66 % and 31 % of the respondents think that there is respectively a very urgent and urgent need for conservation of the species. The most used strategies for conservation of the species are harvesting reduction, seeding planting and seedling protection in fields. A manuscript entitled "Use of local knowledge for contributing to the conservation of *Caesalpinia bonduc* (L.) Roxb in Southern Benin (West Africa)" has been written and is currently under review in *Forest ecology and management* (peer-reviewed journal).

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

The local communities were involved in this project during the field work of ethnobotany survey, Farmer Field School, training workshop and seedling planting.

Their full involvement in these stages of the project was a key element for our achievement. They involvement exceeded our expectation.

The activities carried out during this project have been new enrichment experiences for the participants. Moreover, they benefit from the project by receiving produced seedlings that they plant in their agroforestry systems and/or home gardens. Also, they were motivated by receiving a small participation fee.

5. Are there any plans to continue this work?

Obviously, we plan to continue this project. The first future plan will consist to take care of the established plants. We plan also to carry out similar activities in central and northern Benin. Since our activities have been published by local media, we received feedback from several responsible of local organisations from central and northern Benin who would like to participate in the training sessions and other activities.

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

- The results of this project will be published in scientific journals. Currently, two manuscripts are under review in peer-reviewed journals.
- Our activities have been published in the newspaper "Le Rural", the Benin's first weekly newspaper of agricultural and rural information.
- Occurrence data will be available on the open access portal GBIF (Global Biodiversity Information Facility).
- Pamphlets shared with local communities are currently available on our Rufford Small Grants web page.
- The summary of the activities and pictures are also shared through Facebook.
- We also plan to share the current findings with others through participation in scientific activities (workshops and conferences).

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 from July 2019 to August 2020 (13 months). The anticipated length of the project was 13 months. Most important activities planned have been completed during this period.

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
Room renting	150	150		Totally consumed
Accommodation and food	500	500		Totally consumed
Workshop transport per diem	200	250	+50	This is justified by increase in transport price than expected
Conception of pamphlets	200	200		Totally consumed
Tree nursery and planting cost	800	600	-200	1500 seedlings were planted instead of 2000 seedlings
Assistants for seeds nursery	500	500		Totally consumed
Guides (Ethnobotanical survey)	400	400		Totally consumed
Fuel for motorbike	800	800		Totally consumed
Motor-bike rental	600	600		Totally consumed
Travel to reach all research sites	500	600	+100	This is justified by increase in transport price than expected
Communication: internet, phone	150	150		Totally consumed
Questionnaire sheets and field guide	100	100		Totally consumed
Scientific literature	100	100		Totally consumed
Total	**5000**	**4950**	**-50**	

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

The next important steps will be to: (i) raise awareness local people to take care of the seedlings planted during the project; and (ii) carry out similar activities in central and northern Benin for the conservation of the species in Benin.

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?

Everywhere we presented the project through newspaper or Facebook, the Rufford Foundation Logo was used. In addition, during training activities, 300 pamphlets where logo was used were shared.

This financial support was also acknowledged in the scientific manuscripts that are currently under review.

The Rufford Foundation logo will still continue to be used through the continuation of the dissemination process we have started for this work.

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

Our team is different from the one we communicated during our application for RSG because the first identified members were not available to devote time to the activities.

Charlemagne, PhD, Assistant at the Laboratoire de Biomathématiques et d'Estimations Forestières, University of Abomey-Calavi. He is a specialist in biometry and forest modelling. He gave advice for modelling current and future distribution of *C. bonduc* and data processing.

Gafarou Agoundé, MSc. He is specialized in natural resources management. He was a field assistant and was involved in data collection.

Fabrice Sodoté, MSc. He was involved in nursery and plantation activities.
The non-governmental organization named "SOS Biodiversity" and its director Mr Sunday Kakpo were involved in all activities of the project.

12. Any other comments?

I would like to thank The Rufford Foundation for giving me the opportunity to implement this project. This work has reinforced my capacity to lead research team and to work with local communities.