

Final Project Evaluation Report

Your Details	
Full Name	Savi Merveille Koissi
Project Title	Ecology of Regeneration and Restoration of Natural Habitats of Garcinia kola and Cola nitida in Benin: Rural Community based Approach
Application ID	21717-2
Grant Amount	£5,000
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Date of this Report	28 Mars 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
1) Assessment of bank soil potential in the occurrence areas of the cola trees species				The assessment of the soil bank potential involved local communities' particularly young volunteers who were trained to collect soil samples and identify seedlings that emerged from the soil. This task took more time than previously announced in the project. Tree that emerged where mostly weed and because we suspected a competition between forest trees and weeds, they were frequently removed in front of University of Abomey-Calavi botanist who witnessed that forest tree juveniles were not removed. Fifteen volunteers were trained and are able to identify juveniles of forest seedlings.
2) Assessment of the light irradiation range and optimal for seed methods for germination.				Different shade houses were built to assess the light requirement and additional parameters were measured such as the temperature, the humidity, the breaking dormancy methods, the seed provenance and the soil status. This task involved local two local gardeners and 15 volunteers. Gardeners help to implement the most common breaking dormancy techniques while volunteers monitored the experiment. With a primary analysis revealed that both species has a shade phase during which leaves emerged and root systems developed. Such results may partly explain why even when the potential may exist in open canopies, seedlings of cola tree do not emerge. Furthermore, we trained four additional traditional healers who will impact back the community of the traditional healers.

			Understanding abiotic factors will substantially reduce the germination period since the majority of seed sown in shade houses emerged after 6 months which was not the case for the more open houses. Higher amount of light may be considered as a limiting factor for <i>Garcinia kola</i> and <i>Cola nitida</i> germination rate. However, this factor alone may not play the major role. Therefore, the interaction between this factors and the above mentioned should be explored while doing the in deep statistical analysis. This contribution will definitely lightened the best combination for the nursery of cola trees.
3) Habitat restoration.			During this phase of the project, the team constitutes by researchers, volunteers and traditional healers reforested approximatively 2 ha of open canopy in the Pahou forest. Most importantly, we kept track of the disseminated trees and we are hoping to collect additional data on the dynamics of those juveniles in the wild.
4) Awareness and take home meeting			The team organized a meeting where overall participants of the project were invited. During this meeting, participants evaluated failures and success of the project and prospects of new projects were elaborated.

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

The major unforeseen difficulty was the divergence of interest of participants (traditional healers) who wanted extra guaranties and revenues from the reforestation phase. In order to overcome this challenge, we consulted authorities of Pahou forest, who welcomed the reforestation activities.

Another challenge was the time took by experiments before completion. Those activities were supposed to last 6 months but took more than that. Unfortunately, we were obliged to wait for the complexion. Because local communities introduced the idea of land restauration our ambition to restore with native trees.

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

1. Our research team were able to train some volunteers in soil bank sampling, monitoring tree nursery, identify open canopies and reforest accordingly.
2. Approximately 2 ha of open canopies were reforested and volunteers are still monitoring the reforest places.
3. Thanks to the project, an initiative of traditional healers is ongoing. Trusty, their activities will help regrowth the part that was initially chosen by the project for the reforestation.

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

Volunteers were selected in the study areas and trained for a sustainable conservation of the environment. After been trained, they were involved in every activities undertook in the frame of this project. Volunteers received in addition to the training, monetary compensation and incentives. Along the project, traditional healers participated to different activities and four among them were trained in the dormancy breaking techniques. Further, they develop a NGO initiative dedicated to the protection and a creation of a cola orchid. Thanks to the last activities, the experiment first results were presented and opinions were collected about prospects of a new project.

5. Are there any plans to continue this work?

The performance of different provenance of seeds were relatively different. Some provenance seems to perform better with lower luminosity. However, in other shade houses the performance was not significantly different. Thus, abiotic and genetic factors was suspected as factors that may play important role in the germination of the species. Furthermore, the scarcity of cola tree seeds in the soil bank implies that there are some animal dispersers of seeds.

Based on our primary founding four majors axes need to be deepened:

Axe1: Phylogeny of cola trees species that will contribute to lighten the genetic affiliation of cola trees found in Benin.

Axe 2: Pale-ecology of pollen that will enable to retrace the historical pattern of cola trees in Benin.

Axe 3: Animal dispersers of the cola trees important to describe the ideal environment that need to be created for the success of the orchid project.

Axe 4: The dynamics of cola tree in Benin. This last one is supported by the fact that it was observed that the survival rate of the previous dissemination phase was close to

20%. The high mortality need to be monitored for a better comprehension of the factors that damped the survival of cola tree in wild.

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

The results of the current project will be put in the website of the partner institutions (Laboratoire d'Ecologie Appliquée, Centre de Recherche en Foresterie) which help trained volunteers and hosted for the final meeting. Furthermore, we are planning to share the outcomes of the current project with the scientific communities via a publications in peer review journals.

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

The fund from the RSG was used through Mars 2017 to September 2018. In addition, the funds helped the project team to carry out essential activities during the actual length of the project.

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
Equipment cost	832	850		
Shade house building and bed-net	450	500		
Monitoring of the plant nursery	200	200		
Incentive and monetary support	800	800		
T-shirt production for volunteers and production of the advertising tarpaulin	218	218		
Venue and refreshment during the meeting	1000	1000		
Operational cost	1500	1500		

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

As an important next step, the project will:

- i. Continue the monitoring of disseminated saplings and seedlings.
- ii. Continue the training of volunteer and motivate them to submit their own Rufford small grant project.

- iii. Technical support the initiative of traditional healer in their initiative to create an NGO oriented species and habitat conservation. Project that will end up with the orchid of cola tree.
- iv. Writing a publishable paper for a further submission in a peer review journal.

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 RSG logo was used on awareness T-shirt and advertising tarpaulin

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

Surname	First name	Role
Savi	M. Koissi	Project leader
Gbaguidi	Romeo	Research assistant
Djotan	Kevin	Volunteer
Kotin	Ange	Volunteer
Tohinnou	Charbel	Volunteer
Sourou	Arnaud	Volunteer
Amoussou	Samuel	Volunteer
Amoussou	Hubert	Volunteer
Noumon	Jéremie	Volunteer
Davakan	Romuald	Volunteer
Kotin	Justine	Volunteer
Togonou	Horace	Volunteer
Gbaguidi	Ange	Volunteer
Gbaguidi	Ricardo	Volunteer
Tossou	Hyradath	Volunteer
Hossou	Judicael	Volunteer
Sehoueto	Perpétue	Volunteer
Adjovi	Dieu-donné	Traditional healer
Capo-Chichi	Fructieux	Traditional healer
Landégbé	Rodrigue	Traditional healer
Gbaguidi	Germain	Traditional healer

12. Any other comments?

We are grateful of receiving this support that support habitat restauration. Thanks to this project 15 young volunteers was trained and they develop ambition to work for the reforestation of their forest. They are equally willing to support more through the project they will "win". Therefore, this project lighten some candles that need to be care for more sustainable conservations projects.

