The Rufford Foundation
Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Razanamaro Onja
Project title	Conservation of two highly threatened mutualistic partners from Madagascar: baobab trees and their bat pollinators
RSG reference	ID: 26418-1
Reporting period	October 2018- October 2019
Amount of grant	£5000
Your email address	onjarh@gmail.com
Date of this report	12 October 2019

1. Please 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
Estimates of regeneration rates for better management			■	This study was conducted at four sites: Mahory forest, Ambilo, Beantely and Montaigne des Français. We identified that the germination rate of seeds in Mahory was high compared to other sites in this region (80% in Mahory forest and 20% in Beantely and Montaigne des Français). At the first stage of this study, we can conclude that Mahory is the most favourable site for *A. suarezensis*.
Capacity building and Awareness		■		The capacity building was partially undertaken because some parts of the project needs the result of the genetic analysis which will be done at RBG Kew starting in January 2020. However, the involvement of the local communities for this project was shown during our fieldtrip. They are totally involved during our fieldwork.
Scientific data base gathering provides additional scientific data			■	A total of 95 bark samples, 18 fruits, 88 young leaves and 143 pollen samples were collected.
Reintroduction trials of *A. suarezensis* and species conservation planning	■			These require scientific data from the genetic analysis, which will be part of a project starting in January 2020 at RBG Kew in London (UK).

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

During our project, three main obstacles were encountered during fieldwork:

- Phenology has changed due to climate change effect, affecting the availability of young shoots and fruits. According to our experience and the literature, baobab leaves appear generally at the end of October. However, a lack of leaves and mature fruits existed at the end of November. We will return to this region at the end of January. We will overcome this obstacle to not rent a car

during our field trip but use public transportation and walk to the sites. We combine also the local training part with the field sampling.
- Some unexpected expenses were not budgeted for. During our fieldwork, the hotel accommodation of the team for security and safety were needed. We must take a hotel in Ankarana for example instead of tent of camping for security reason. Indeed, fieldwork sampling was much more expensive than expected.
- Another obstacle during this project is related to pollen field sampling transported by bat species. The period of sampling must be simultaneous on the baobab flowering pics (July 10th to July 30th). We expected to collect the pollen from *Eidelon duperanum*; it is a big bat and the help of a bat expert was required. However, we found that *Rossettus madagascariensis*, a microbat, visited also a baobab species and maybe a potential pollinator of the baobab. The fieldwork was done by the help of a microbat expert, and we collected 50 samples from the body and 50 from the faecal. Besides, the field trip related to bats sampling is expensive and need to stay long time on the fieldwork sites (at least 15 days).

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

   - To assess the population genetic structure, 131 baobab trees from four different populations were samples taking account the degradation level of their habitat: in forest in Mahory, intermediate in Ambilo and degraded in Montaigne des Français and Beantely. We collected 95 bark samples from adult trees, 88 leaves, including 25 leaves from young trees and 90 seeds.

   - Pollen sampling was undertaken for two bat species, *Rossettus madagascariensis* and *Eidelon dupreanum.* A total of 143 samples from the body and bat faeces were collected from two sites near baobab population species, Ankarana and Bedera. A primary result of pollen identification shown that there are at least five different trees species. All details about pollen identification will give after completing all pollen samples.

   - Comparative ecological studies of the structure of Mahory forest and Beantely were initiated. Preliminary results show that 80% of seedlings germinated in Mahory forest compared to 20% in Beantely and Montaigne des Français.

Figure 01. Baobab sampling method. Figure 02: Wipe any visible pollen grains on bats body using cotton-tipped swabs (snout, head (above the eyes, top of the head), chest, upper wing surface and under wing surface).

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

During the implementation of the project we have established very good cooperation with the people from local communities such as the MNP local agency and the regional environment authorities which helped us with logistical issues during fieldwork. At least 12 local people from local communities were involved in this project, working as research technicians and guides.

5. Are there any plans to continue this work?

Yes, the genetic analysis part will be done in January 2020 at RBG Kew in London in the UK which is supported by Darwin Initiative fellowship Award. Population genetic data will inform conservation actions of the baobab.

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

A data collection report was already sent to the Ministry of Environment and sustainable development authorities to obtain the transport permits of all samples.

1. Publications in peer reviewed journals with data sources available as supplementary files. This will make the data, including the methods optimised in this project, available to the scientific community.

2. A public data repository such as NCBI (Genbank and SRA Sequence Read Archive) for genomic data. This data will be released just after the publication of the research papers.

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

The project was completed within the timeframe we planned (a year).

8. Budget: Please 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.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Transportation	1000£	474£	-526£	We need to use the public transportation (Taxi-brousse) instead of a 4X4 rent to cover the extra mission needed due to climate change. We use a Taxi-brousse when we visited the respective sites
Team food and hotel cost	3150£	3607£	+761£	An unexpected cost of hotel during the fieldwork: for the security reason, the team members must stay at hotel during the fieldwork instead of the tent camping.
Field materials: Bats harp trap	650£	454£	-291	As well as the bat trap is not available in Madagascar, we use a bat trap handmade locally and rent some materials from MAVOA association
Pollen laboratory	200£		+200£	Will be part of the next project
TOTAL	**5000£**	**4535£**	**-465£**	**Exchange rate:** 1£ = 4522 Ar
Additional costs				
Local cost guide		433£	+433£	Need two guides during the night for security reason
Overall Costs	**5000£**	**4968£**	**-32£**	

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

The impact of interspecific relationships in ecosystems are lacking in conservation genetic studies. Conservation genetics is a multidisciplinary approach that aims to provide genetic knowledge to enhance the conservation of biodiversity, which traditionally studied population level genetic diversity of endangered species and more recently identified priority species based on evolutionary distinctiveness methods. The main aim of this work is to develop population genetic results to inform conservation plans.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did The Rufford Foundation receive any publicity during the course of your work?

Yes. We used the Rufford logo on the report sent to the Ministry of Environment and sustainable development authorities. As well as, we will present our preliminary work on the International congress on baobab species in December 2020; we will put the Rufford logo on the oral presentation support.

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

Juan Viruel (Research Leader in Conservation Genetics, RBG Kew-London): Contributed on design and the implementation of the project.

Tahiana Andriaharimalala (senior researcher at CNRE): contributed on the permit facilitation part and helped on the planning and the implementation of the project, as well as in analysing the preliminary data.

Daudet Andriafidison (senior researcher at MaVoa Association): assists in the planning of the field work and has a role as a facilitator with regard to authorities in the regions. Train the team on bats sampling methods.

Harisoa Ravaomanalina (senior researcher – GSPBM association): responsible for financial management and logistics

Oliva Santarni Noroalintseheno Lalarivoniaina (*Rossetus madagascariensis*, bats expert): contributed on data collection during bats fieldwork sampling.

Stephano Andriamiadana (researcher assistant) was a responsible on data collection effort, permit preparation and assist on report writing.

Njato (technician) assisted on the data collection effort.

12. Any other comments?

We would like to thank RF for providing the funding support to us and permit to continue this project through the Darwin Initiative.