Final Evaluation Report

Your Details	
Full Name	Rindra Harilanto Nantenaina
Project Title	Exploring the benefit of galls on plants
Application ID	25325-1
Grant Amount	£ 5,000
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Date of this Report	October, 22nd 2019

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
Characterise how gall conspicuousness affect lemur frugivore attractions to infected plants				The lemur fed on galls only twice during the 90 days of survey, so we couldn't get enough data on the gall-lemur attractions.
Investigate the importance of galls in lemur frugivore diet				We could not quantify the nutritional value from galls because of small sample size as mentioned above.
Determine the ecological consequences of galls on plant fitness				The lemur fed on galls only twice per 90 surveys, so we could not determine the ecological consequences of galls.

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

The main difficulty we encountered was related to our ability to locate the group to follow each morning given that the lemurs were not radio collared. To tackle this issue, I increased the number of local guides working with me, so we could go in small teams searching for a group in different directions.

Additionally, following *Eulemur fulvus* was very difficult on the site because in addition to their characteristic as cathemeral lemur, they run very fast and we often had difficulty following them. Moreover, sometimes we also could not find any *E. fulvus* during the day. These situations resulted in just a handful of data from *E. fulvus* follows despite the team's best effort for about 30 days. Thus, I decided to stop follow of this species and instead focused our energy on following *Varecia variegata*.

There were also some unexpected expenses that were not budgeted for. To ensure that the project ran smoothly with the limited budget I had, I made changes to the allocation of funds in a way depending on the priority of each expense. For example, I lowered the fund allocated for transportation, and instead of renting a car, I often walked and took a bush taxi (taxi-brousse); even though this made the trip longer and a little bit difficult, the fare was cheaper. The difference in budgeted amount for the transport vs actual expenditure was reallocated to hire more people to work as local research technicians/guides on the project. Additionally, for fair compensation of the field team members, we all agreed to have only a subset of the meals covered during fieldwork and increase their compensation. Finally, since the other grant I applied to cover the materials and supplies did not come through, I used some of the funds to purchase these.

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

1- Increased knowledge in understanding the ecological roles of *Varecia variegata* in the fragmented forest of the complex Torotorofotsy Ihofa.
2- Personal development for myself in leading and managing a research project and in training local guides in collecting scientific data.
3- Increased awareness among the local community, engaging them to be more active in forest conservation and management.

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

I involved the local community in the execution project by consulting with the village leader and the president of the VOI (Vondron'Olona Ifotony, the association of local villagers who manage the forest in the site) on the possibility of conducting the research in their forest; they have given me permission to realise this project in the site. They have also provided advice and shared knowledge that were crucial for the project. In return, they gain economic benefit as I paid a fee to enter and work in the forest they manage; such fee will be used by the VOI in their activities relevant to forest management. Additionally, they will gain more ecological knowledge that could be used in developing strategies for the management of the forest as I share my research findings as well as my scientific knowledge of forest ecology with them.

I also involved local villagers to work on this project as research technicians/guides. Their vast knowledge of the forest and its fauna and flora has greatly helped in the execution of this project. On the other hand, they benefited from the training in various field techniques I provided them, such as behavioural observations of lemurs in their natural environment, characterising forest canopy cover, using tools like GPS units and camera. I also trained them in entering data into an Excel file. Their involvement in this project has also increased the experience in conducting field research. These skills and experience would be useful for their professional development, giving them more credentials to be competitive when looking for employment on other projects.

Besides their direct benefit from the project, these research technicians and guides also benefited from my help to build their CV in English, which would be useful for them when seeking employment with other projects.

Other people from the local communities, who were not working as field research technicians/guides, also benefited from this project through economic earning by selling their produce to my field team and/or by working as porters for the team to carry field equipment and supplies from town to the remote field site.

5. Are there any plans to continue this work?

Yes. I plan to continue this work.

As I mentioned above, I did not achieve completely all the objectives of the project. One of the main reasons for the lack of lemur feeding on galls could be the season;

this, I plan to continue the project to encompass different seasons. I will also improve on the research method used.

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

I plan to share the results on my work with the scientific community by publishing at least one scientific manuscript in a peer-reviewed ecology or conservation journal (e.g., Biotropica, Biological Conservation), and by presenting the results at local, national and international conferences (e.g., the annual meetings of the Malagasy Primatological Society, Association for Tropical Biology and Conservation, British Ecological Society, and Student Conference and Conservation in Science), even preliminary results, as a talk or poster presentations, to get feedback from senior scientists working in the same field. I have already presented part of my findings as a poster presentation in the 56th Annual Meeting of Association for Tropical Biology and Conservation this year in Madagascar.

Additionally, I will share my research findings through a technical report to forest managers. It will include a recommendation to give a comfortable habitat to *Varecia variegata,* which play important ecological roles in the fragmented forest.

I will also share the findings of my research to the local community through outreach activities that I will organise in the villagers. Such activities will include workshops about the important relationship between plant- frugivore-insect and the major role of frugivore lemurs in shaping the structure of their habitats. I have already conducted similar activities in the area to raise awareness on the important role of the forest, biodiversity in the forest and the service they provide for human wellbeing.

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 for the 12 months 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
Subsistence	657	193	-464	The length of my trip to Andasibe town was reduced, so my lodging expenses were also reduced.
Communication and	722	340	-382	I only spent that much to pay for

Miscellaneous				communication, fare during which I fixed my laptop broken at fieldwork and prices for the team for Christmas and the new year holidays to congratulate them for their good and hard work. The rest was re-allocated to pay for salary for additional research technicians and guides.
Salary & Perdiem	1184	2964	+1780	I increased the number of research technicians/guides working on this project to maximize data collection efforts in the field
Equipment	11	212	+201	The other grant I applied for to cover the materials and supplies did not come through, so I re-allocated some of the funds to purchase these
Camping food	1190	677	-513	The project only covered part of the meals for the team during fieldwork.
Transportation	1236	610	626	I ended up renting a car less for my trips to Andasibe town but instead went by bush taxi (Taxi-brousse) often.
Total	**5000**	**4996**	**-4**	**Exchange rate:** 1MGA = 4807, 74 GBP

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

Looking ahead, the important next steps are to do more fieldwork in other seasons and to improve on the methods to be used.

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 presented part of my research findings at the annual meeting of ATBC (Association for Tropical Biology and Conservation) in Antananarivo, Madagascar in July 2019 and put the Rufford Foundation logo in this poster.

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

Dr Onja Razafindratsima (South Dakota State University, United States of America): She has made intellectual contributions in the design and implementation of the project, as well as in analysing the preliminary data.

Andrianiaina F. Angelo (University of Antananarivo, Madagascar): Research Assistant. He provided valuable insights and ideas in the design of the project and in data collection efforts, and in data entry.

Evangeliste C. Randriamanantena, **Mamitiana Randrianandrasana**, **Sedraniaina M. Randriamanantena**, **Joseph Randrianantenaina**, **Faliniaina J. Randriambahiny**: They worked as local research technicians/guides on the project and have made valuable contributions to data collection.

12. Any other comments?

Being a Rufford grantee gave me the opportunity to gain experience in leading a research project, which plays a great role in my professional development to become an independent researcher. I would like to thank again Rufford Small Grant for funding my research and I hope I will receive the second round of the grant.