Final Evaluation Report

Your Details	
Full Name	Nantenaina, Rindra Harilanto
Project Title	Plant-Galls-Lemur frugivore interactions
Application ID	31073-2
Date of this Report	August 25th 2022

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
Document the importance of galls in the diet of lemur frugivores			■	I successfully collected all the necessary field data and nutritional data to address this objective.
Characterize the role of galls in attracting lemur frugivores			■	I successfully collected the necessary data on gall traits which will be linked with the visit of lemur frugivores to infected trees during the entire observation, and this allows us to respond to this second objective.
Determine the influence of galls on the eventual seed dispersal of infected trees			■	I successfully collected all the necessary data on lemur seed dispersal event after feeding from healthy and infected trees to address this third objective.

2. Describe the three most important outcomes of your project.

a). Increased knowledge about lemur and plant ecology. My study provided new information about the importance of galls in lemur diet and the seed dispersal service they provide.

b). Improved professional skills, namely leadership, teamwork and project management. By leading a team of eight people during the fieldwork and implementing this project, I was able to enhance on my professional skills.

c). Increased knowledge about ecosystem function for the local communities.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

The execution of my fieldwork was affected by the impacts of the COVID-19 pandemic. Travel restrictions imposed by local authorities in Madagascar delayed the start of the fieldwork, but thankfully I was able to get a special authorisation to travel after attesting to the authorities of my plan and commitment to mitigate the spread of the virus by following established health protocols. So, I was able to start even earlier than expected.

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

During the implementation of this research project in Ihofa, local communities are involved in the project in several ways: (1) the VOI members (Vondron'Olona Ifotony, the association of local villagers that manage the forest in the site) reviewed my research proposal and discussed with me how to operate the research in the site. They also financially benefited from the monthly fee I paid during this hard period of Covid-19; (2) all local technicians/guides working with me were involved in collecting fieldwork data for 10 months. Their vast knowledge of the forest with its flora and fauna was greatly important and very helpful in the execution of this project. They received training in collecting different aspects of ecological data; such training improved their skills that would be important for them in finding employment on other projects in the future. They also benefited from the income they received on this project as this was their principal occupation during the implementation of this project; (3) other local villagers also engaged as food providers for the team. They sold local products like rice, fish, chicken, beans, vegetables, and fruits, and could benefit from having customers during those ten months.

5. Are there any plans to continue this work?

Yes, there are plans to continue this work. As this is the first research that explores the potential benefit from this interaction of plant-galls and frugivore lemurs in the tropical forest of Madagascar, this then can be extended, for example, in other types of forests, or to other animal species consuming plant galls, or to other angles of the macroevolution approach. I am especially interested to continue with this last approach.

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

I plan to publish the results as a scientific article in a peer-reviewed ecological or conservation journal. My publication will include an abstract in Malagasy.

As this project constitutes a big part of my PhD subject, at the end, the results will be then printed as a thesis book and will be available later at the university library and on the online Malagasy Thesis portal (at Thèses malgaches en ligne (univ-antananarivo.mg)).

I also plan to present the results of this project at regional/international conferences, for example annual meetings of ATBC (Association for Tropical Biology and Conservation), SCCS (Student Conference on Conservation Science) and BES (British Ecological Society).

I will also prepare a technical report for forest managers and decision-makers in Madagascar with recommendations for the conservation of *Varecia variegata* and its habitats.

Finally, I plan to share my findings to the public on my own webpage at www.rufford.org and on social media in Malagasy, French and English versions, to reach a wide range of audience.

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

I am currently performing the statistical analyses of the data and also started writing up a manuscript about this project with co-authors, so the important next steps are:

- Finalising the manuscript version with co-authors.
- Submitting it for publication in a peer-reviewed scientific journal.
- Presenting the findings to international conferences.
- Extending the project to the macroevolution approach.

8. 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 put the logo in my poster presentation at the annual meeting of BES (British Ecological Society) in Belfast in December 2019. It was also used during a couple of talk presentations, the first one during the online webinar of the celebration of the International Humboldt Day Madagascar in September 2020, the second during the in person regional talk of 'Doctoriales sur les plantes de Madagascar Edition 2020' in Antananarivo, Madagascar in December 2020.

I also shared with some Malagasy Master students who collaborated with me that my PhD project is funded by the Rufford Small Grant. I shared my past and current Rufford experiences with them, and some of them are currently working on their own project application to be sent to The Rufford Foundation.

9. Provide a full list of all the members of your team and their role in the project.

Dr. Onja Razafindratsima (University of California, Berkeley, USA): PhD Advisor. She has made intellectual contributions in the design and implementation of the project and provided guidance throughout the execution of this project.

Dr. Verohanitra Rafidison and Prof. Vonjison Rakotoarimanana (University of Antananarivo, Madagascar): PhD Academic Advisors. They have contributed to the design and development of the methods used for field data collection.

Dr. Mitchell Irwin (Northern Illinois University, USA): Research Collaborator. He also provided guidance for the field sampling relevant for the nutritional analysis part.

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 helped with data entry.

Evangeliste C. Randriamanantena, Sedraniaina M. Randriamanantena, Nirina J. Randrianantenaina, Mbeloson J.G. Rafaliarimanana, Elicien Lovasoniaina, Kotonandrasana Ndrenasoa: They worked as local research technicians/guides on the project and have made valuable contributions to data collection.

10. Any other comments?