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	RAFALINIRINA Andry Herman
Project title	Nutritional status, diet and incidence of infectious disease in the family of Cheirogaleidae at Ranomafana National Park, southeast Madagascar.
RSG reference	17311-1
Reporting period	12 months
Amount of grant	£ 5000
Your email address	Rafaherman01@gmail.com
Date of this report	January 17th, 2017

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
Conduct live-trapping for dwarf lemur and mouse lemur on trails and transect in the site				We have captured and chipped 204 individual's mouse lemurs and 60 dwarf lemurs in three different sites of Ranomafana National Park.
Collect morphometric data and establish estimation of body condition to confirm nutritional status for each species				Every lemur captured was weighed and measured. We have estimated indices of body condition by using the scaled mass index from the relation of body weight and the linear size.
Collect foraging information (food item and time feeding) to determine feeding activity				We have put three radio collars on two females and one male of subject animal in three different sites at Ranomafana National Park. We followed animal every week, from 6 pm to 2 am to allow feeding and activities observation, we collected the type and the food species eaten by the focal animal.
Conduct food biochemical analysis and biochemical indices from blood to establish a nutrition composition				We have collected one sixteenth blood samples from all captured animals, which is not very representative for all population. Also the date of arrival of the equipment to track the animal was late due to the long process in shipping. So we have focused on habituation the animal and observe their feeding activities
Collect endoparasite and ectoparasite to confirm the risk of				Investigation of gastrointestinal and ectoparasite of mouse lemur and dwarf lemur have been done during

infectious disease				the breeding season (time in which the Cheirogaleidae family are very active). We have examine the prevalence of the infection and determine the new case of infestation in one period, which give the incidence of infection

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

Overall the project did well. The main difficulty that we met was trapping dwarf lemur. For the first session of capture, we set up Sherman and tomahawk traps for 6 days a week and used slice of banana as bait. We caught only the mouse lemur, that's why the result of capture between two species was unbalanced. We tried other bait from local fruit, the result was the same. We have decided to do a night walk just to check around if there is dwarf lemur, or if some could approach our traps. We found out that this species was not attracted by the smell of banana or because it has no habit to attract by this bait. The next session, I bought water-melon from the capital and I mixed it with sugar and used as bait. The first night of capture we caught 2 individual dwarf lemurs, both male. The day after, the number of individual dwarf lemur captured increased.

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

1. Research and parasitological:
Through our lemur field work, we presented and investigated a first comparison on parasite gastrointestinal of the two sympatric species of Cheirogaleidae family in Ranomafana National Park during the international conference of primatologist in Chicago (IPS 2016): Parasites lost: Canopy lemurs may have less intestinal parasites.

2. Feeding activities:
We are the first who investigated on feeding activities of the two sympatric nocturnal species in their natural habitat. And from our study we could provide to Madagascar National Park the home range of mouse and dwarf lemur for the first time.

3. Result of captures:
We are the first researchers who captured 60 dwarf lemurs in Ranomafana National Park. One researcher before us on 2008 to 2012 who study about reproduction of the Cheirogaleidae family in this park caught 15 individuals in a 3-year study.

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

We introduced our project to the local stakeholders; we gave jobs to the local people as porters, guides during the field work. Because our project used the telemetry technology, we taught the local guides, even the porters, about how to used GPS and the telemetry system to track an animal with radio collar. In addition, through the investigation of gastrointestinal parasite, we have explained to our local guide the risk of zoonosis between human and non-human primate, and its importance in conservation.

5. Are there any plans to continue this work?

A 1-year project is not enough to reach our goal. As we have mentioned, this is the first study of gastrointestinal parasite and nutritional status on nocturnal lemur in Ranomafana National Park. So it is very important to study a long term evolution of that parameter in Cheirogaleidae family to guarantee healthy and viable population. Also, this family of lemur contribute very well in forest regeneration as they are seed dispersers; thus knowledge on their health is a key on conservation management.

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

We have already presented a publication of our result during the IPS 2016 in Chicago, and this year we are plan to publish an article on synergic effect of socio-ecological factor and parasite infestation in Cheirogaleidae family.

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

Start date: September 2015 and end date: December 2016. We achieved the first and second phases of the research and will submit our result to the scientific committee so that we can defend our thesis this 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
Travel cost : Transportation	200	200	0	The cost for transportation didn't change and we have respect the 8 days for travelling (4 trips to field for 2 years).
Field materials	2225	2500	-275	The majority of materials were bought abroad so the cost includes shipping and handling charge. It needs also international document fees. In addition the found arrived in MICET account in ariary (Malagasy currency) so when we used to pay the material, we have to convert the money into foreign currency which need to pay more, so the budget was more than the planned at the proposal.
Station fees, and Technician fees at Centre Valbio Ranomafana	2250	2050	+200	This budget is less than written at the proposal because sometimes (2 weeks every season) we have to camp outside of Centre Valbio hall. So we have only paid the technician fees.
Laboratory fees	325	250	+75	Some of our activities could be done in the forest so we didn't too much use the lab except for gastrointestinal analysis and for blood chemical analysis.
TOTAL	**5000**	**5000**	**0**	

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

During our study we found that our species are heavy parasitised by gastro-intestinal parasites during the breeding season. We couldn't investigate the presence of those gastro-intestinal parasites for all season. But the Cheirogaleidae family is only known primate doing torpor akin to hibernation. So, one important question is if the hibernation activities could kill or reduce the infestation.

In addition, we discovered different phenotype of dwarf and mouse lemur, so we wonder if our captured animals are belong to the same species or just a variation diachronic of the character?

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

I used the RSGF logo in all materials produced in relation to this project including poster, conferences, during my thesis defence. I'll also acknowledge the RSGF in our publication. Some of Malagasy student from my University and some of African people that I met during my training in Kenya asked me how we get funding from the RSGF and more information about the RSGF including the criteria and eligibility.

11. Any other comments?

The RSGF was the first proposal that I wrote for an academic long-term project on Cheirogaleidae lemur species in Ranomafana National Park. It was a great experience. In addition through this grant i was able to conduct the first study on activities and feeding observation of the Cheirogaleidae in Ranomafana and this is the first study using telemetry technology on nocturnal species in this Park.