

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	MOHAMED THANI IBOUROI
Project title	Deciphering lemur diversity and taxonomy of the last pristine forests in three understudied Inter River System (IRS) of North Eastern Madagascar
RSG reference	12973-1
Reporting period	Juil 2013-Sept 2014
Amount of grant	£5964
Your email address	halibathani@yahoo.fr
Date of this report	5th June 2015

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
To study lemur diversity (presence, density, distribution and taxonomy) in remote forests located in the three Inter River Systems (IRS) (Manambato-Manambery, Manambery-Fanambana, Fanambana-Bemarivo) that are almost unstudied.		X		Lemur presence and distribution were assessed, density and taxonomic data have been collected and are being analysed.
To provide the first primate diversity and population density estimates of this region (IRS)			X	The data yet needs to be published
To evaluate the effect of anthropogenic and natural factors on the most threatened lemurs species		X		The collected data needs to be analysed.
To Identify habitat characteristics that might influence the distribution of these target species		X		The collected data needs to be analysed.
Discuss the results in relation to existing data and try to explain the causes of population variations in the surveyed sites.		X		The data may only be discuss after analysis.
Provide a basic guiding and scientific field work to our local guides in each visited locality regarding sampling and scientific approaches. Such knowledge will be useful for a long-term monitoring based on these approaches.			X	Several guides, students, field technician and volunteers have been trained
Successful completion of my second Master thesis in France			X	

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

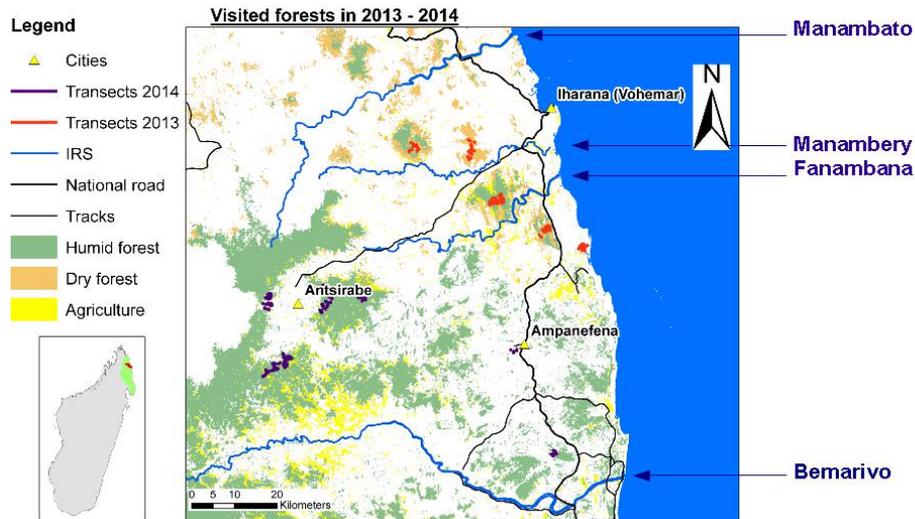
Field work in remote regions of Madagascar is always complicated. Roads to reach the field sites may be in very poor conditions and time to reach them may significantly differ from our expectations. Altogether, the fieldwork went very well but some locations were more difficult to reach than we expected. Also, in some forests we were very surprised to find that no individual of *Lepilemur* could be found. In fact we found that the local people we interviewed were not able to recognise the species when pictures were shown to them. Moreover, several of the forests identified on published maps and from satellites images were in some cases deeply deforested. In these cases we had to camp more deeply in the forests core which made more complex the transportation and field logistic as well as increased its cost. Despite these surprises, we did not meet major and unforeseen difficulties.

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

The first outcomes of this project relate to the educational and training aspect: Basic guiding, scientific field work, and basic conservation training have been provided to our local guides from all localities as well as a complete training for our Malagasy (Leja Rakotonirina) and Comorian (Dhurham Said Oussen) Masters students our volunteers (Helena Carreira, Alexandra Miller, Vivien Gabillaud, Simon Knoop) and our field assistants (Emmanuel Rasolondraibe, Tantely Nirina Ralantoharijaona). The training courses included techniques of animal capture and handling, morphometric analysis, population density estimate models, basic computing knowledge such as excel etc., computation of density estimates, basic statistics using the freely available R statistical language and simple Geographical Information System (GIS) tools. These courses were conducted by Jordi Salmona (software programmes and statistical methods), Barbara Le Pors (GIS tools) and allowed the Masters students to carry out and improve their data analyses.

We also carried out sampling for future DNA analyses. After laboratory analysis, the genetic data will help clarify the status of *Microcebus* and *Lepilemur* taxa in the regions that we sampled. These results will allow us to identify IRS impact in genetic story of that region.

The work I carried out was part of a larger project in which L Chikhi and J Salmona were involved. This project help support my field work by providing financial support beyond the support of the Rufford Small Grant. Thanks to the joint support the project gathered data from various IRS (Inter-River Systems): Manambato / Manambery, Manambery / Fanambana and Fanambana / Bemarivo.



No scientific paper has been submitted to an international journal yet but several papers about lemurs' distribution and taxonomy might come out in the next few years.

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

During our missions, local guides were hired to help carry out the fieldwork. These guides benefitted from courses in which we provided basic and theoretical training on lemur populations monitoring, including line transect techniques, and basic environmental data collection. At the same time we tried to favour exchange with the guides so as to better understand how they view their environment. These sessions had positive consequences for us. We realised that we had as much to learn from the guides as we had tried to teach technical skills.

An association "Hazo Tokana Tsy Mba Ala" (HTTMA, meaning literally, "a single tree does not make a forest", from a Malagasy proverb) for the monitoring and conservation of biodiversity in this area has been created by several members of the team and includes researchers, local people, Malagasy master students and graduates. This association aims at raising awareness among local populations on the importance of forest and biodiversity conservation. It has currently no funding but its objective is to minimize forest disturbance, improve forest management, reforestation and wildlife conservation in the Northern region of Madagascar. We identified two potential forests where the association participate in cooperative forest management project.

5. Are there any plans to continue this work?

The work that I carried out is part of a larger project involving my supervisors. More specifically, my project was realised in collaboration with the Population and Conservation

Genetics Group (Lounes Chikhi, Head of the PCG, and Jordi Salmons, PhD student of L Chikhi).

They are very interested in exploring further the northern and north-eastern regions of Madagascar because these regions have been very poorly studied and sampled and they are increasingly endangered by habitat loss and fragmentation. They will thus continue their density and population size estimation projects together with their sampling activities to monitor the genetic diversity and distinctiveness of northern taxa. Their work is carried out in collaboration with the Mahajanga and Antsiranana Universities and involves the training of students.

Thanks to the experience gained in the last few years and the support of the Rufford Grant and of my supervisors, I received an IDB (Islamic Development Bank) Merit Scholarship to pursue a PhD in the conservation of the Livingstone's flying fox (*Pteropus livingstonii*). This is an endangered bat species from the Comoros Islands. While working on my PhD project I plan to finish my data analysis and publish the results in a near future.

The fieldwork that I carried out and that is carried out by the PCG will continue to explore the north and north-eastern IRS of Madagascar.

In addition, we identified two forests (Analalava and Ambohitrandrina) where association HTTMA could start to work as concerted management helper association.

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

A large part of this project was published through my Master thesis submitted and defended in the Paul Sabatier University in France. This final Masters report is a part of the knowledge sharing. Moreover, to offer the findings of the study to a larger audience, we are preparing a scientific paper and this will be communicated to an international peer-review journal very soon. Moreover, information of project activities are communicated to some acquainted people through informal discussions. Personal communication will thus be a mode of sharing of the final results. Pictures of the study (mostly taken in the field) are also shared on the Facebook page of the team:

<https://www.facebook.com/population.conservation.genetics.madagascar> which page was created during the project and is managed by most of the field members of the project.

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 RSG was used from July 2013 to December 2014.

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	Budget Amount	Actual Amount	Difference	Comments
Field Laptop netbook	600	650	-50	Higher costs than was anticipated
Field materials	204	164	+40	Obtained support and material from PCG
Field Allowance for personals (guide and students)	1840	1840	0	
Bike	120	0	+120	Transport by bus was more easy than bike
Travels from Locality to locality	300	400	-100	
Food 15 month	1350	1400	-50	Some foods had higher costs than was previously estimated
Sampling material	100	100	0	
Genetic analysis reagents	800	800	0	
Research permits and travel from Mahajanga to Sambava	150	110	+40	Not much travel from Mahajanga to Sambava
TOTAL	5964	5964	0	

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

1: The next steps regarding myself, I would like to use the combination of different methods and experiences I acquired from this project (Line and Point transect Distance sampling, and the GIS tools) with other methods such as Multivariate Analysis, Maximum Entropy, population dynamic modelling to develop robust and efficient monitoring of other threatened species in other areas of the world where I can apply knowledge in biodiversity conservation.

2: Regarding this project, as I noted above it is part of a larger project in which I was involved. I know that the other team members (Lounes Chikhi and Jordi Salmona, Barbara Le

Pors) will pursue the investigation and research on lemur genetic diversity in this area. They will visit other forests as northern Madagascar remains a poorly studied region.

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?

The RSGF logo has been used during my Master presentation in France and my final master reports have RSGF logo on the cover page. The Rufford Foundation support will also be acknowledged in scientific reports and papers.