Final Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF 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 – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please DO NOT fill in and submit this form until the project has been completed.

Complete the form in English. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	MIARISOA Jeanne Emma
Project Title	Taxonomy and Abundance Study of Mouse Lemurs: Conservation of Nocturnal Lemurs in the Ambalakida Forest, Northwestern Madagascar
Application ID	45437-2
Date of this Report	07-10-2025

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
1- Determine the distribution and relative abundance of nocturnal lemurs (*Microcebus* spp.) in the different sectors of the Ambalakida forest.				Nocturnal transects and capture–recapture surveys were conducted across all forest sectors during both wet and dry seasons. The sectors of Maromenabe, Ankoankala, and Andranotsiritra presented a higher number of individuals compared to the other surveyed sectors. This indicates that these areas may offer better habitat quality, food availability, or more favorable microclimatic conditions for mouse lemurs. These results highlight the ecological importance of these fragmented forest and suggest that they should be prioritized for future conservation and habitat restoration actions. Nocturnal transect and capture-recapture surveys conducted throughout all forest sub-units during the wet and dry seasons. 6 line transects were surveyed (Bekalahy - 2 transects; Andranotsiritra; Ambatomalama; Ankoankala; Maromenabe). As our research permit allowed, only 10 individuals could be captured in each transect, thus bringing our number of nocturnal lemurs surveyed to 62. Two species of mouse lemurs were identified (*Microcebus murinus*, and *Microcebus ravelobensis)*. Such results can enable us to assess the

				distribution and relative abundance of mouse lemurs across Ambalakida forest; preliminary analyses have completed and are now in further statistical modelling of abundance and habitat associations.
2- Identify the exact species of mouse lemurs (*Microcebus* spp.) present in the Ambalakida forest using morphometric and genetic analyses.				Both *Microcebus murinus* and *Microcebus ravelobensis* were identified and confirmed through morphometric analyses. Genetic analyses are still in progress at the Biogéosciences Laboratory (Dijon, France) to confirm species identity and evaluate genetic diversity among sectors. Ten traps were used per transect for installation done and kept in conformity to the specifications of the permission granted by the Ministry of Environment. While counting lemurs during nocturnal transects, 66 were sighted, out of which, only 41 individuals (16 males and 25 females) were caught. At this stage, 41 tissue samples (2 mm ear biopsies), 18 fecal samples and a hair sample were taken from the draws for future genetic and health studies. At this point, we cannot ascertain species identity without results from ongoing genetic analyses; however, here morphology and external morphological characteristics (fur coloration and body proportions)
3- Assess habitat quality and fragmentation across sectors to understand their effects on lemur populations.				Vegetation structure and forest fragmentation indices revealed that the Ambalakida forest is in a generally degraded state. Analysis of the 25 plots across five main sectors showed numerous

				illegal tree cuttings, particularly in Ankoankala (around 61), Maromenabe (50), Ampijoroa (44), Bekalahy (50), and Ambatomalama (35). Canopy cover analysis indicated that approximately 73% of the forest has a medium canopy density, 22% is closed, and only 5% is open, with most canopy height classified as medium (78%). These findings confirm ongoing degradation, mainly near forest edges due to agricultural expansion and wood extraction. Long-term monitoring and restoration initiatives are recommended to promote forest recovery and maintain habitat quality for nocturnal lemurs.
4- Develop conservation recommendations and engage local communities through awareness and capacity-building.				While there were two community workshops – with approximately 50 participations in all – there was one reforestation campaign organized by DREED near the Ambalakida forest. The reforestation activity involved voluntary local community members contributing to tree planting and maintenance efforts targeted at restoring degraded forest areas. The various awareness materials included pens, sweets, notebooks, flyers which were distributed to schools and local offices to facilitate awareness of both the children and adults with biodiversity and forest conservation messages. In total, 2 PhD students and 4 local guides were trained in

				ecological monitoring, data collection, and safe animal handling techniques. These trained participants then became major players in the project by taking part in the field surveys and data collection throughout the whole period of the project, acquiring from the experience both science and practical virtues. Collaboration with VOI FISAMIA and ACOBIO2D has further augmented the local level participation and ownership of conservation actions. Also, the Ambalakida Women's Association was trained in sustainable livelihood activities such as agroforestry, food processing, and cooking practices to develop long-lasting income sources while reducing pressure on forest resources and thus mitigating deforestation.

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

a). Successful field implementation and strong institutional support

Better scientific knowledge of nocturnal lemurs in the Ambalakida forest. Tracking and capturing mouse lemurs proved feasible, and the team training went smoothly. Research authorization was obtained on time, and both the Ministry of Environment and local authorities showed strong collaboration. The local community was highly cooperative, which greatly facilitated data collection and field logistics.
It confirmed the presence of 2 sympatric species *Microcebus murinus* and *Microcebus ravelobensis*, throughout the seven forest sectors by nocturnal transect surveys and morphometric analyses. These findings provided the first detailed distribution data for mouse lemurs in the Ambalakida forest and opened a primary gate toward understanding their ecology and conservation needs**.**

b). Valuable ecological insights into nocturnal lemurs and habitat conditions

Vegetation and habitat assessments revealed that the Ambalakida forest is moderately to severely degraded, with evidence of illegal logging across all sectors. However, the sectors of Maromenabe, Ankoankala, and Andranotsiritra hosted the highest number of mouse lemur individuals, indicating relatively better habitat quality. Our analyses allowed us to determine the overall ecological condition of the forest and will serve as a basis for planning targeted conservation and restoration strategies.
In addition, several plant species used by lemurs as sleeping or feeding supports were identified, along with a few plant species consumed directly by the lemurs, providing valuable ecological information for habitat management. These insights will help guide the selection of native tree species for future reforestation and habitat restoration programs, ensuring that restored areas maintain both structural and ecological relevance for nocturnal lemurs.

c). Raising awareness on biodiversity values and the importance of lemurs conservation

From our study areas, we realized that keeping lemurs in the Ambalakida forest was very critical. Although their habitat experienced degradation, nocturnal populations seemed richer and more diverse than diurnals, underlining the ecological significance of these species. The message was shared with villagers so that they can learn that their forest is very rich in biodiversity and that creating a conservation mechanism operates directly for their benefits.

While in the fieldwork, we were able to experience other animal taxa like snakes, birds, freshwater turtles, fish, amphibians, and many native and endemic plant species. The messages strengthened the truth that the Ambalakida forest holds exceptional biological value and that it must be preserved as a living heritage for our local people and future generations.

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

Various unforeseen problems affected the project, particularly in relation to climate constraints and research restrictions.

Heavy rains, a cyclone, and flooding disturbed several areas of the Ambalakida forest during the field season and created access problems to study sites and disruptions to fieldwork. The team decided to hold data collection until the weather improved in order to keep the field team safe and protect equipment from any damages due to bad weather.

Initially, we planned to set traps every 20 meters along each transect, but the research authorization issued by the Ministry of Environment limited us to 10 captures per transect, thus resulting in fewer captures than anticipated. However, we fully respected the conditions of our permit, ensuring that all animals were safely captured, measured, and released in accordance with ethical rules. Even after this limitation, all major field objectives were achieved without hassles.

There were needs that the local community presented that were beyond the financial scope of the project, such as the request for agricultural tools and kitchen

equipment for women's groups. Since these items could not be funded by our budget, we opted for a more constructive avenue by running practical workshops on agroforestry, food processing, and cooking techniques associated with sustainable livelihoods.

The class on awareness was conducted at the only primary school in the area, where approximately 50 children were taught about conservation regarding forests and biodiversity. This strengthened the trust and teamwork between the research team and the community in conserving these natural resources in the long run.

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

The local communities played a pivot role throughout the project and involved every step of the way-from site preparations through data collection and awareness activities-local guides took part in the surveys and received training in ecological monitoring skills which give them new scientific and practical capabilities.

We held two community workshops with our partners VOI FISAMIA and ACOBIO2D about the importance of forest and lemur conservation with sustainable land-use practices. The Ambalakida women's association was specially trained in agroforestry, food processing, and cooking methods, resulting in forming strong income-generating activities while also decreasing their forest resource dependence.

Although most members of the community were interested in receiving agricultural and kitchen equipment, this kind of support was not within the very small budget we had. We instead focused on knowledge transfer and capacity-building through practical demonstrations and awareness sessions.

We undertook educational activities in the local school on the environment introducing children to value biodiversity and the need to protect their forest. Such actions fortified communities with ownership and pride in their environment. Thus, local leaders and residents have become more motivated to engage in conservation initiatives and protect the forest of Ambalakida as a shared natural heritage.

Provisions were made for a local veterinarian to assist the team on the first day by providing demonstrations of proper animal handling techniques. After the initial training, all animal handling and sampling were done by the research team in accordance with ethical guidelines approved by the Ministry of Environment.

5. Are there any plans to continue this work?

Yes, this work will definitely continue.
This project, alongside the two previous Rufford Small Grant, aims at expanding the activities carried out in the Ambalakida forest, thereby enhancing scientific knowledge and practical conservation. The next stage will be to rehabilitate disturbed forested areas and eventually initiate a long-term lemur population and habitat monitoring program.

This work will be conducted in close collaboration with local communities, authorities, associations, and conservation partners, including the regional environmental offices and other nearby protected areas. This collaborative effort will establish pilot programs addressing reforestation under agroforestry schemes with environmental education programs using native species recognized for their significance to lemurs.

Continuation of this work shall convert the scientific findings obtained on lemur ecology into conservation actions; it will thus ensure long-term protection of biodiversity while also supporting the sustainable development of the surrounding communities.

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

The fieldwork team shares the preliminary results with the local community-groups and authorities via informal meetings and awareness sessions conducted through the villagers. This raised some awareness on the protection of lemurs and forests.

By the end of the project, however, we aim to organize a feedback workshop in the Ambalakida region to present final results to all stakeholders, such as community members, local associations, regional environmental authorities, and partner institutions.

The scientific results will be published in an international peer-reviewed journal on ecology and conservation of the nocturnal lemurs. Some communication materials will be prepared in Malagasy and French for use in schools and local organization activities such posters, simplified summaries, and educational leaflets.

Also, we intend to disseminate the research findings at local, national, and international conferences to share the experience with the international scientific and conservation communities. The results and awareness messages will be disseminated through social media and institutional websites to reach a wider audience and promote the effort for the conservation of biodiversity in northwestern Madagascar.

The ACOBIO2D and Divacoop Facebook pages, as well as the personal Facebook and LinkedIn accounts of the project leader, have shared the project activities and achievements. Fieldwork updates and awareness campaign activities are regularly posted here: https://web.facebook.com/jeanneemma.miarisoa
https://web.facebook.com/profile.php?id=100064082825735
https://www.linkedin.com/feed/update/urn:li:activity:7394264567121338368/

We had intended to attend the lemur festival this year; however, due to political developments in Madagascar, the event was postponed. We hope to join the next edition to present our results while fostering community engagement in lemur conservation.

When the final results arrive, they will be disseminated to the IUCN SSC Primate Specialist Group via direct communication and publication updates, all contributing to the broader picture of lemur conservation efforts in Madagascar.

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

The most critical next steps would be towards consolidation and sustainability of the achievements from this project. The most prioritized actions include:

Establish a system of permanent ecological monitoring of lemur populations and forest regeneration in Ambalakida, which involves local guides, students, and community members who are trained.

Restore and connect forest patches through community-led initiatives in reforestation and agroforestry prototypes which will emphasize native species that will provide food and shelter to lemurs in terms of restoration.

Increase knowledge in environmental education and capacity-building especially among the youth and women, in order to create an enabling environment for sustaining awareness and engagement of local people in conservation.

Joint partnership with relevant regional conservation programs, universities, and government authorities to mainstream Ambalakida into a wider landscape conservation strategy.

This will ensure that all projects initiated through the Rufford will evolve into a self-sustaining conservation program through scientific inquiry, community participation, and habitat restoration for assuming that Madagascar's rare biological diversity will enjoy lifetime protection benefits.

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?

Yes, The Rufford Foundation logo was used and acknowledged in all materials and activities related to the project. The Foundation was publicly recognized throughout the implementation phase.

The Rufford Foundation was promoted on social media, including LinkedIn and Facebook, for its support in the conservation of nocturnal lemurs in Ambalakida forest. The logo was used in all research permits, collaboration documents, awareness materials, and educational posters for outreach in communities and schools.

Moreover, two Master's students who did their thesis work as part of this project acknowledged The Rufford Foundation in their dissertation cover pages and included that in their presentations.

The logo was also presented during awareness sessions with villagers, schools, and women's associations, thus ensuring visibility and appreciation for the Foundation's contributions by both the local population and the academic community.

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

MIARISOA Jeanne Emma

Project Manager and Lead Researcher
Skills relevant to project: As project manager, Miarisoa Jeanne Emma coordinated all project activities, managed communications with partners, and ensured the attainment of scientific, educational, and conservation objectives. He led community training sessions, ecological analyses, and the preparation of scientific publications. Her leadership guaranteed the smooth implementation of the project and its feedback to the scientific world and local conservation efforts.

Pr. RASOLOHARIJAONA Solofonirina

Professor in Primatology and Director of the Doctoral School of Natural Ecosystems, Mahajanga University. He offered institutional and scientific support during each stage of the project. As Director of the Doctoral School, he facilitated the approval of mission orders and research authorizations, thereby ensuring the project had complied with both academic and ethical standards. His knowledge of primatology and long-standing leadership in natural ecosystems research added much weight for the credibility and coordination of the project.

Dr. RAKOTONDRAVONY Romule

Fieldwork Coordinator: Dr. Romule coordinated the preparation of the fieldwork, managed students, and contributed to assuring data quality. His strong background in field research and collaboration with international institutions fortified the methodological rigor of the project.

Dr. COUETTE Sébastien

Morphometric Data and Genetic Analysis Supervisor
Skills relevant to project: Dr. Couette supervised the collection of morphometric data and tissue samples for genetic analysis. He performed statistical testing, validated the results, and contributed to co-authorship. As the Ph.D. co-supervisor of the project leader, he amassed a wealth of expertise in the undertaking of the morphometric-genetic approach and data interpretation.

Dr. RANDRIAMAHATANTSOA Bernard

Field Team Leader and Training Coordinator
Skills relevant to project: Dr. Bernard was in charge of running the field teams, conducting training for team members and local guides, and engaging in community outreach. His field experience and knowledge of the fauna of Madagascar ensured excellent coordination and community engagement.

BEZANDRY Nicolas

Ph.D. Student, Field Research Assistant
Skills relevant to project: Nicolas fully participated in data collection and awareness activities within Ambalakida forest. His knowledge of local condition and experiences with field logistics greatly aided in securing data and in conveying information to local communities.

RABEMAROSOA Jean Christophe

Ph.D. Student, Field Research Assistant
Skills relevant to project: As a Ph.D. student at the University of Mahajanga, Jean Christophe assisted in species observation, data collection, and community sensitization. His participation offered invaluable academic backup and strengthened field research-related work with conservation awareness.

MANANOZATRA Jean Claude

Master's Student Research Assistant
Skills relevant to project: Jean Claude helped in field data collection and analysis as part of his Master's research. His academic training and previous fieldwork experience added value to the accuracy and completeness of the datasets used in the project.

10. Any other comments?

We are most grateful to The Rufford Foundation for the confidence and financial support given in funding these second Small Grants that made this research and conservation work possible in the Ambalakida forest. These have not only enhanced a scientific understanding of the nocturnal lemurs, but also built robust relationships with local communities and authorities in creating awareness and participation for biodiversity conservation.

This project has engaged students and young researchers in training, thus building local capacity for ecological research and community-based conservation. Collaboration with local stakeholders, schools and associations would then lead to building a solid foundation of long-term environmental continuity for the region.

During field work, local communities repeatedly expressed deep concern over the forest's future and earnestly requested for further support in its protection and that of its biodiversity. They are proving with strong motivation and a true willingness to be involved with future conservation and restoration activities.

We look forward to continuing this collaboration into future conservation and restoration initiatives and to sharing the positive impacts of this work more widely so as to inspire similar actions across Madagascar.

ANNEX – Financial Report

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