Project Update: February 2016

Objectives & Achievements

1. Estimate activity and diet of the two species via behavioural observations to assess temporal niche partitioning and priority feeding trees for both species – Partially Achieved. The data collection will finish in July 2016 in order to collect one year of data. So far, around 110 observation hours have been collected on each species. This is in line with other studies on these genera. I collected 64 different feeding trees belonging to 29 species for *Avahi meridionalis* and 45 feeding trees belonging to 17 species for *Lepilemur fleuretae*. I collected and dried almost 90% of the food items eaten and I plan to collect the rest by the end of the study. A total of 15 tree species are in common between the two studies species. I collected the food intake for 7 tree species and I plan to collect more data on other species during the next months.

2. Determine differences in habitat requirements between the two species by recording ranging patterns, characteristics of sleeping trees, and species-specific use of canopy – Partially Achieved. As mentioned above, the data collection will finish in July 2016 in order to collect one year of data. I collected around 200 GPS points per each animal and I will calculate ranging patterns via Ranges 8 software at the end of the study. I collect one sleeping tree data per month on each animal.

3. Determine population densities via transects and group home-ranges – Partially Achieved. In 8 months of transects for determining primate densities, I walked 68.5 km during the day and 52.5 km at night. I will continue collecting data until the end of the study.

4. Estimate hunting pressure on lemurs via semi-structured interviews on local villagers – Not Achieved. I am still waiting for the Malagasy student to help me with this part of the study. I plan to do that in April 2016 since the student will probably come in March.

5. Train local assistants to support future research in the area – Fully Achieved. The two assistants were trained for collecting phenological and density data, and assisting during behavioural observations.

6. Initiate a programme to raise conservation awareness in the area by delivering presentations in Malagasy in five schools in villages close to Ampasy – Partially Achieved. I delivered four presentations (see point 4) and I plan to do other presentations by the end of the study.

Difficulties

The main problem encountered was that Qit Madagascar Minerals cannot have employees in the field station due to safety reasons. In fact, at the beginning of this year security procedures had been increased and they still have to guarantee a security plan for employees in Ampasy. For this reason, they can only guarantee logistic support until they will be able to make a security plan. Fortunately, this was not a big problem for my study since Asity Birdlife Madagascar helped me in choosing local assistants. The only side effect is represented by the higher costs I have to sustain in the field. In fact, I planned a per diem of around £3.50 at Ampasy based on my previous experience with Qit Madagascar Minerals, while now I am paying around £7 per diem. However, this will not be a problem since I can complete the study with the funds received.

Another problem is that the data collection had been difficult by the beginning of the rainy season since the area is particularly wet. As a consequence, the increasing of water level in rivers nearby the research station created problems in reaching the observation areas. This limited the observation hours in December 2015 and January 2016 and will probably be a problem for all the wet season.

This in a usual issue in rainforests and I plan to tackle it statistically (e.g. split the behavioural data seasonally and not monthly if it creates problems with the analysis).

Also, two animals, one *Avahi* and one *Lepilemur*, were killed by a predator, the fossa. The two animals were equipped with accelerometers (we equipped eight animals with accelerometers, please see the budget). For this reason, I plan to capture other two animals in February 2016 to have enough of a sample size. I applied for the permission to capture the two animals and a specialised team will do the captures.

Outcomes

Firstly, the ecological information collected on the Endangered *Avahi meridionalis* and the Critically Endangered *Lepilemur fleuretae* are novel and will be essential to plan long-term conservation actions (e.g. this study will allow estimating the size of the remaining populations of these two threatened lemurs which are essential for the IUCN listing). The acquisition of new data on these two target species will be also crucial for ex situ conservation and breeding me considering that these two genera do not survive in captivity and in view of a further reduction of their habitat.

This project is also pivotal to facilitate future research in the TGK area. This area represents one of the largest expansions of lowland rainforest in Madagascar but very little is known about its animal and plant community. Thus, data on this habitat will represent a significant contribution to understand the complexity of the Malagasy environment. The establishment of a permanent research station necessary for this long-term field project will also have the indirect but vital result of increasing the protection of the resident species. The importance of establishing a field station has been highlighted repeatedly as one of the few effective actions to increase animal protection in a given area.

Thirdly, this study is also important to provide essential biodiversity information in the area of TGK to ASITY Birdlife Madagascar, the organisation managing the area. ASITY in collaboration with Qit Madagascar Minerals (QMM) agreed to manage the area of Ampasy as one of the offset sites for the mining in the coastal region. This context thus represents a rare opportunity to implement the recommendations derived from our research. Offset sites have been selected to achieve a net positive conservation impact by private companies, but, without accurate estimates of animal populations over time, their effectiveness is unclear.

Local Involvement

I delivered four presentations (one each month from July to October 2015) to local teachers from four villages near the research station to give information about the importance of biodiversity, the animals, and the forest. This is particularly important to raise awareness in local communities, starting from children. I performed these training days with the collaboration of Asity Madagascar that is responsible for the management of the area. Also, we organised a special event for children for the World Lemur Day on 31st October 2016. The event was successful and attracted many people from the villages. We organised several games for children involving questions about the forest and lemurs. The training for the two local guides was successful and they are now able to work with me and other researchers, helping on behavioural observations and plants identification.

Local benefits are already evident since the installation of the field station brought to new job opportunities. In fact, apart from the assistants I hired, many other local people are working with me

(e.g. porters to bring food and equipment to the field station, people that helped in the installation of the field camp, people selling me food). I am confident that the benefits of the presence of the research station will decrease the impact of these people on the forest. Local people, in fact, had and effective impact on the forest before the installation of the research station, as demonstrated by the reports on the forest use made by Asity Birdlife Madagascar. Hunting pressure on lemurs has not been reported in the area since the installation of the research station. This is a good indication that the presence of researchers, with the creation of new job opportunities, is an effective way to decrease human pressure on the forest.

Timescale and Future Plans

I started the project at the end of April 2015 and I plan to finish the project in mid-July 2016. This timescale is in perfect time with the timescale proposed in the application.

I plan to do at least four publications on peer-reviewed journals. I also plan to deliver presentations at international congresses and at my University.

We plan to continue working on the study species in the area with other students from Oxford Brookes University. Another PhD student is planning to work on sensorial aspects of *Avahi* and *Lepilemur* after my study. The research station will be the priority field station of the Nocturnal Primate Group of Oxford Brookes University in Madagascar. We thus plan to facilitate the protection of the area in the future.

Firstly, it is vital that research will continue in the area for long time. It was important to build a new research station to give more job opportunities to local people and we hope it will help decreasing their impact on the forest. It is important to continue doing research in the area if we want to raise awareness on the importance of the forest. Thus, we are looking for local managers to manage the research station and facilitate the research from all the universities and not only from Oxford Brookes University.

Second, it is important to continue the study on *Avahi meridionalis* and *Lepilemur fleuretae* since these two species require further studies over a long time. Also, it is important to plan other studies on the lemurs present at Ampasy (*Hapalemur meridionalis, Eulemur collaris, Microcebus tanosy, Cheirogaleus major, Daubentonia madagascariensis*) since the biology of these species is almost unknown in the mountain and lowland rainforest.

Publicity

I used the RSGF logo during the presentation I delivered to American students at the Libanona ecological centre, in Fort Dauphin. I will certainly use the logo again after the end of the study for presentations and posters.

Lepilemur fleuretae

Avahi meridionalis