The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants 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	Leonardo de Carvalho Oliveira
Project title	Ecology and behaviour of golden-headed lion tamarins in cabruca agroforest, Bahia state, Brazil.
RSG reference	11.11.2009
Reporting period	2010
Amount of grant	£6000
Your email address	leonardoco@gmail.com
Date of this report	09/22/2015

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
Identify the the key resources for the lion tamarins in cabruca		x		Although many resources such as jackfruit (*Artocarpus heterophylus*) showed to be very important for GHLTs as well as bromeliads, cabrucas are quite diverse within the geographic range of GHLTs and thus, our results may be restricted to the study area. However, plants of the Moraceae family showed to be very important to the GHLT's diet (see Oliveira et al. 2011)
Evaluate if bromeliads are important for the tamarins in cabruca as they have been reported for other habitas			x	Bromeliads showed to be very important foraging site for GHLTs. Different from other habitats, especially semi-deciduous forest where GHLTs eat bromeliads fruit quite frequently, in cabrucas, GHLTs use bromeliads almost only for forging animal prey. They can spend around 3 hours foraging and resting in large size bromeliads.
Estimate ecological parameters of GHLTs in cabruca agroforest			x	Data about diet, home range size and density in cabruca areas were collected. Those are new information about the species in such habitat type (see Oliveira et al. 2011)

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

Fieldwork involving captures of wild animals frequently presents difficulties related to the time spend (duration) to capture wild animals. This is can delay fieldwork. In our project, we increase the number of trap sets in order to maximise tamarin captures.

In addition, cabruca is quite diverse within the geographical range of GHLTs. Thus, despite very interesting results which came up from such period of my research, the application of results may be restricted (in terms of range) to my study area. We are now increasing the number of areas of cabruca and checking the presence of GHLTs using playbacks of the long calls (specific vocalisations of GHLTs). We will then, describe cabruca's vegetation structure, with and without GHLTs in order to evaluate if, there is any specific characteristics that are predictive for occurrence of GHLTs.

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

1) Golden headed-lion tamarins can not only live, but also reproduce with higher rates than in other habitat types (for more details, please check the article Oliveira *et al.*, 2011 attached).
2) Jackfruit (*Artocarpus heterophyllus*) is a key resource for GHLTs affecting their group characteristics and the use of space by them (for more details, please check the article Oliveira *et al.,* 2011 attached).
3) Despite being a suitable habitat for GHLTs, cabruca characteristics, such as lower canopy connectivity and lack of complex understory, GHLTs living in the cabruca studied are more exposed to predators than in other habitats. The rate of encounters with potential predators in cabruca is up to four times compare to other habitats (for more details, please check the article Oliveira & Dietz, 2011 attached)

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

I believe the most important non-academic result is the involvement of people linked to my project with conservation. The owner of the Almada's farm, where our headquarters is installed decide to create a Private Reserve and to reforest part of the farm on behalf of GHLTs. Other farmers we visit are now aware about the importance of GHLTs preservation and about the preservation of the environment *per se*. We start education programmes in some schools on the municipality of Una (pilot project) in order to promote awareness in terms of GHLTs and their habitat. A sanitary project aiming to evaluate the role of primates as sentinels to the arboviruses is ongoing. Some communities surrounding our study area were interviewed and the participants received sanitary and environmental information, including the importance to protect wild animals and the forests.

5. Are there any plans to continue this work?

This long-term project intend to be my career project. Some Masters and currently two PhD students are involved in my project and I am planning to continue addressing question related to matrix use, especially but not exclusively cabrucas, by GHLTs and how this affect their conservation. My ultimate goal is to use the information resulting from my project to provide criteria for a biodiversity friendly (or lion tamarin friendly) certification of cacao in Bahia Brazil. This goal, if reached, will not only help people to increase their stipend keeping a long lasting culture but also improve the conservation of cabrucas and all biodiversity that depends of a benefited by them, including of course, the golden-headed lion tamarins.

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

Results of this long-term project have been shared in many different ways. To the academic world, thorough the publication of manuscripts (see attached) and presentations in meetings and congress. To the non-academics through seminars in local communities, by workshops with presence of locals and government agencies employees. In addition, we are planning to produce education material to distribute in schools and villages surrounding our scope.

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

The money related to this report was used to collect data about behaviour and ecology of GHLTs in cabruca in 2010/2011. However, as we collected data in the field, we realise that more questions aroused. Thus, more money was necessary to address these questions and we started to raise more funds. Thus, RSG and other agencies supported my project over this period and they are continuing supporting it. As almost everything related to this project started with my first grant supported by RSG, I continue to acknowledge Rufford Foundation in the manuscripts as well in any type of information result sharing I use.

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.

The amount of money requested was used as proposed on the original budget. The differences on the original proposal in terms of information collected and data analysed/published was covered by other sources of funding.

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

There are important steps to be address in the current and next years, the most important are follow (not in order of importance):

1) Increasing the number of areas of cabruca sampled in order to confirm (or not) the presence of GHLTs. Then, describe the vegetation structure and landscape characteristics of such areas to identify if there is any structural characteristic that may predict the presence/possible absence of GHLTs in cabrucas.
2) We observed that bromeliads housed many species of invertebrates and some small vertebrates that provide protein to GHLTs. However, we do not know if they eat everything that is available in bromeliads. A genetic study evaluating the insect remains in the faecal samples of GHLTs will answer this question. This is important because despite the abundance of invertebrates (e.g. protein), such abundance (and richness) may give a wrong impression of resource availability in bromeliads as GHLTs may select just a few of them to eat. As bromeliads are key resource for animal prey foraging site, understand how they use such resource is very important for the species conservation.
3) Genetic studies in order to evaluate if cabrucas can connect populations of GHLTs living in a fragmented landscape. Although the results so far show that GHLTs can live in cabruca, the territorial behaviour of them may prevent movement between forest fragments.

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

Yes. The logo of Rufford foundation was present in all poster and oral presentations I made over the period of my project. Also, Rufford Small Grant was acknowledged in all publications of the results of my project (in attached).

11. Any other comments?

Please accept my apologies due to the delay of the final report.

Thank you for supporting my research, which produce a strong impact on GHLT´s conservation, or at least the information, produced will be applied in field action on behalf of the species.