

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	Izabela Menezes Barata
Project title	Monitoring the Effects of Climate Change of a Threatened Mountaintop Amphibian Population
RSG reference	15626-1
Reporting period	
Amount of grant	£4383
Your email address	izabela@biotropicos.org.br
Date of this report	01 December 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
Determinate detection probabilities and site occupancy of target species			X	Estimates were obtained using Unmarked package with R software and the amount of replication was enough to get good estimates of species occupancy and detection probabilities.
Implement a monitoring programme for target species			X	The proposed monitoring protocol was established successfully and will be repeated next year with minor modifications.
Investigate the influence of climate covariates on species occupancy			X	Covariates used in the occupancy models indicate that species is highly influenced by altitude but with high correlation with other variables. Future analysis will be necessary to investigate this further.
Model species distribution and search for new populations on mountaintops within the Espinhaço Range		X		The models were not satisfactory and will need more data to run, which means more sites with bromeliads occurrence need to be surveyed in the future. This will allow more precise areas in the models and better chances of finding new populations.
Improve environmental knowledge and get stakeholders involved to species conservation and habitat protection		X		After talks and presentations, park rangers and manager are fully involved in habitat management and species conservation. School kids have also attended to talks and movie exhibitions, improving their understanding in conserving this species. However, local communities still need attention in what concerns awareness on the importance of study area.
Other achievements				
Paper in preparation				A paper with research results is now being prepared.
Improved networking				More stakeholders are now involved in project's aims (NGO, local schools and tourist guides).

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

Awareness raising activities (especially movie exhibitions in local communities) were extremely dependent on park manager's support. We had to deal with several postponements due to lack of fuel and broken vehicles. We had almost no support or assistance to develop activities outside the park area (i.e., at surrounding communities). The movie exhibition was postponed for four times, and we ended up developing the activity at a local school, attended by children between 10-14 years old (which was not our initial plan).

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

1. Species monitoring

To our knowledge, this is the first long-term population monitoring scheme being developed at the Espinhaço Range. The data provided enabled us to improve the sampling design and give better estimates; making the results more robust and reliable for future comparisons. This first data sampled will serve as the baseline for monitoring population trends and evaluate, in future years, declines related with climate change, habitat use and/or ecosystem structure.

2. Species' distribution and extent of occurrence

With the data sampled on bromeliad density at study site we are able to estimate population size – which is valuable information for species and habitat management. The area occupied was also defined and the extent of occurrence now reflects a better approximation of the reality. Although we were not pleased with the distribution model (due to the lack of data), we can have an insight of the potential areas to be occupied by the species. Future data will improve distribution maps and will be used to search for new populations of target species.

3. Conservation status assessments

The amount of data sampled allowed us to have a better knowledge on the basic requirements for target species. Natural history observations and species' occurrence data are now ready to be used during IUCN evaluation of conservation status (which we plan to develop early next year, in collaboration with DICE postgraduates at University of Kent).

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

Several stakeholders were involved during the development of this project, especially park's team (manager and rangers). Besides all logistical constraints to develop awareness activities, team relationship with all employees was better than expected, and the staff was kind and helpful whenever necessary. This was mainly due to the acquisition and donation of the mule (which made all staff members very pleased and motivated). Park rangers received extra attention regarding the project aims to raise awareness on a project design and monitoring goals for the future. They understand the target species as the "thermometer" of park

success. School kids were also closely involved and they participate with enthusiasm of all activities. Tourist guides, residents close to the park, and also tourists visiting the area were quite interested in the research results, trying to be updated whenever they had the opportunity.

5. Are there any plans to continue this work?

Yes. In 2016, my team and I are repeating the same sampling procedure, to evaluate the trends in populations and get better estimates of occupancy and its correlation with climate change and habitat use. Also, new data from bromeliad occurrences will be included in the distribution model, which will give us a better approximation of potential areas to find new populations of the target species. Species evaluation status will be assessed in a near future.

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

Research results will be published in scientific international journals. Movie exhibitions showing the local videos produced will demonstrate to local communities the importance of the research project. Results will be also presented in a friendly way during environmental education activities at local schools (such as science fair). We are also planning to develop (together with park manager) pocket guides to distribute among visitors that explain how to behave and proceed when visiting the protected area and staying overnight/camping close to bromeliad sites.

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

15 months. Project was initially established to last 12 months, but 3 extra months were needed due to the delay in developing the movie exhibition and running the distribution models.

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
Batteries	280	330	+50	The difference was obtained from extra funding (Rede ComCerrado)
Notebooks	60	60	0	
Mule	640	962	+322	The mule was much more expensive than expected and the difference was obtained from the data loggers and

				awareness material
Field expenses (food and lodging)	1054	1216	+162	The difference was provided by previous funding from MBZ.
Camping equipment	33	33	0	
Video editing and supplies	330	330	0	
Meteorological station	81	81	0	
Data loggers	216	0	-216	Equipment was obtained through other funding. However this budget amount was relocated to purchase the mule
Awareness (food and lodging)	703	703	0	We had an external funding for this activity (additional 100), but since one of the visits to local communities failed, no extra resources was necessary
Awareness (material)	306	200	-106	The difference was applied to obtain the mule
Travelling expenses	680	1083	+403	Extra funding was provided by Rede ComCerrado (bus tickets had an unexpected increase)
Total	4383	4998	615	Difference was obtained through other funding and/or relocated
<i>All are in £ sterling and used exchange rate for local currency (Real Brasil BRL) to £ sterling (GBP) 1 GBP = 3,8035 BRL (in 15/09/2015)</i>				

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

Next steps: 1) continue the monitoring protocol is essential to evaluate the effects of climate change and habitat use; 2) gather more data and refine the distribution models and search for new populations of target species; and 3) bring people close to nature and make them understand the importance of the protected area where species is recorded.

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?

Regular posts were made at Instituto Biotrópicos' Facebook page, one digital article about the research was published at Save the Frogs Magazine (but the logo was not included). If

agreed, we can include the logo on the pocket guide that we are planning to print in the future.

11. Any other comments?

Research must go on and we are looking for extra funding and support for next years of fieldwork (funding is available until spring 2016).

