

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	Pietro de Oliveira Scarascia
Project title	Community structure of medium and large mammals in mosaic of fruit production, forestry and remaining Atlantic Forest
RSG reference	16844-1
Reporting period	05/2015 – 04/2016
Amount of grant	£3405
Your email address	pietro.muriqui@gmail.com
Date of this report	July 25, 2016

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
Highlight the importance of the mosaics for medium and large mammal species			X	
Check the permeability of existing matrix			X	
Determining the degree of species flexibility in the use of multiple habitats			X	
Identify temporal and spatial patterns in the use of different habitats for medium and large mammals			X	
Using the obtained data in implications for the medium and large mammal conservation on mosaic of habitat		X		Will be complete after the project's exposure to producers and discussion.
Preparation of a management plan with mitigating impact actions to the species that use these matrixes		X		Work in progress

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

In the data collection, we found difficulty with sand plot methodology during the rainy season (October to March). In these months the rains were very intense and frequent, destroying the tracks left by animals and often destroying the entire plot. Thus, the sampling of 4 days per month was impaired. On the other hand, sampling during the dry season (April to September) was efficient and generated the expected data about the fauna.

The use of camera traps made possible the continuity of collections in the rainy season, thus ensuring the continuity of the collection during 12 months, also allowing the seasonal analysis of mosaic use by mammals.

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

1. The use of the three methodologies allowed the identification of 20 species of medium and large wild mammals of the Elguero Farm, in production areas of plum, persimmon, pine and forest remnants. Are they: *Mazama* sp., *Tayassu pecari*, *Pecari tajacu*, *Tapirus terrestres*, *Eira barbara*, *Cerdocyon thous*, *Puma concolor*, *Puma yagouaroundi*, *Leopardus pardalis*, *Leopardus* sp. (*Leopardus gutulus* or *Leopardus wiedii*), *Procyon cancrivorus*, *Nasua nasua*, *Dasyopus* sp., *Cabassous tatouay*, *Myrmecophaga tridactyla*, *Cuniculus paca*, *Didelphis* sp., *Sapajus nigritus*, *Dasyprocta azarae* and *Coendou* sp. An exotic species has also been recorded: *Lepus europaeus*, present in all habitats, more frequent in plum, and two domestic species, *Felis catus* and *Canis familiaris*.

2. The tapir was the most common species in all methodologies and sampled habitats. The species showed higher relative abundance in the areas of persimmon, followed by plum, pine and forest. This pattern was obtained in all methodologies: sand plots, camera traps and interviews. The high abundance of the species in Elguero Farm may be related to the availability of resource that it provides. Another factor is its location, which is adjacent to the Carlos Botelho State Park, a Protected Area that appears to house a huge population of the species. Despite the high abundance of tapirs in fruit production areas - a factor that may favour the occurrence of wildlife-human conflicts - it was mentioned by the interviewees, that the damage in persimmons production is approximately 1%. This low percentage, according to respondents, does not result in significant financial losses to producers of Elguero Farm. However, it is a wide area of production and such an opinion does not represent the areas of family farming, whose losses can be significant due to the small size of production.

3. The camera trap was the most efficient methodology, enabling the recording of 85% of the richness found, while the sand plots accounted for 65% and the interviews 50%. The only species that was only recorded by interviews was *Coendou* sp., an arboreal mammal, which makes difficult his record by camera trap and sand plots. Thus, we consider that the combination of the three methodologies enabled a broad record of richness of medium and large mammals in the study area, on the different available habitats. Additionally, camera traps allowed the registration of small mammals and birds, generating additional relevant data.

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

This project allowed the involvement with production workers, community residents near to the farm - all in the buffer zone of Carlos Botelho State Park. The involvement

took place through two activities: the interviews, which aimed, in addition to the survey of the species in each production area, the identification of perception and expectation of the residents for the presence of wild animals in these areas; the hiring of local labour, which aimed to environmental education and the promotion of nature conservation for with the locals involved, whose which spread his learning.

The interview also allowed the opening of a door of communication between researcher and producer, favouring future dialogues that will arise after the preparation of the management plan. Moreover, the interviews and the involvement showed a certain importance of the species to these residents, raising their morale and aiding directly in conservation through improved interaction with these species - this for the simple fact they have been interviewed.

All interviewees contributed with information about the fauna and its relation to the production of fruits and resin extraction. Thus, we found that these people often harbour rich knowledge, assisting in the development of strategies that promote not only the conservation of the species, but also the harmony between wildlife and producers. With the completion of the project, a lecture will be held to explain the results achieved and to enable a discussion about the best alternative for the management of production.

5. Are there any plans to continue this work?

The proposal is to expand to other areas of fruit production, such as bananas and grapes, also involving smaller properties, family farming - where size does not exceed 56 hectares. This continuity is part of a new project approved by The Rufford Foundation (Application ID: 19574-2), submitted by PhD Student Mariana Landis directed to the species with higher incidence of conflict, the lowland tapir.

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

The results of this study will be presented to the employees of Elguero Farm in the form of lecture and banners, in order to explain the importance of their collaboration in the interviews, and expose the rich biodiversity area is home. There will also be oral presentations at conferences and symposiums. Moreover, there will be two publications:

- (A) Scientific publication, which has been developed in partnership with the Federal University of São Carlos, through the PhD Roberta Valente Avena, Landscape Ecology expert;

(B) Preparation of the Management Plan, explaining the results of this work and means of coexistence / tolerance for the species most likely to conflict, such as the tapir.

In addition, data will also be shared with the Tapir Specialist Group (SSC / IUCN).

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 largest investment was in camera traps, which consumed 70% of all feature. The rest was used for the other field activities, necessary for data collection. Materials such as knife, tape measure, permanent marker, flagging tapes, GPS, etc. were used for opening transects, installation of sand plots and camera traps. There was a large volume of sand, because a lot has been lost during the rains. It was also necessary to acquire other materials such as books field, batteries, chargers and prints. The entire resource was worked to be used during the pilot and 12 months of data collection.

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
Carving Knife	13	13	0	
Tape measure	8	8	0	
Permanent marker	3	3	0	
Flagging tape	8	8	0	
Pens	2	2	0	
Fild notebooks	3	3	0	
GPS Garmin 62S	364	364	0	
Bushnell 8MP TrophyCam	2072	2362	-290	Price of the equipment increased after bid submission
Memory card 16GB	42	42	0	
Battery	78	78	0	
Sand	25	65	-40	More sand was needed for the plots, the rains destroyed many plots.

Print	3	3	0	
Paper	4	4	0	
Clipboard	2	2	0	
Fuel	250	220	30	Difference of £ 30 was used to buy sand
Field assistant daily	210	130	90	Difference £ 90 was used for the acquisition of camera traps
Feed	210	0	210	The total of £ 210 had to be reallocated to the purchase of camera traps
Rain cover	68	68	0	
Rubber boots	40	40	0	
Total	3405			

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

Considering the intense loss of forest areas and the growth of production areas, the next step should be the intensification of educational work for rural producers. Promote meetings and workshops to approach themes aimed the implementation of agricultural activities with low environmental impact, preventing damage and loss of wildlife, as well as facilitate dialogue between producers and researchers.

The data obtained in this project will subsidize this effort, by supporting the search for solutions to reduce damage to both: the production and the animals. Such action will favour the permanence of these animals without exposing them to hunting, diseases and other negative factors present in anthropic environments.

Good management of these areas can promote the harmonious relationship between wild animals and humans, ensuring the ecological function of the inserted forest remnants in this mosaic. Thus, wild animals help to keep farming, since farming depends on ecosystem resources for its maintenance.

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 logo of The Rufford Foundation was exposed in the Manacá Institute website since the beginning of the project; also in publications on the partial results of this study in the online blog of our institution, hyperlinked directed the official page of The Rufford Foundation.

This week, the logo of The Rufford Foundation will be published on facebook, elucidating the end of the project, as well as the next steps.

Follow the links:

www.institutomanaca.org.br/projetos.html

www.institutomanaca.org.br/blog/index.php/2015/07/17/instituto-manaca-busca-compreender-a-importancia-das-paisagens-agricolas-na-dinamica-de-comunidade-de-mamiferos/

<https://www.facebook.com/manacainstituto/?fref=ts>

11. Any other comments?

Many challenges were encountered during the execution of the project - especially in the maintenance of sand plots. But doors were opened, such as the involvement with the community and workers of Elguero Farm. Despite this report has not space for the full elucidation of the results, the data were analysed carefully, having been raised:

- The frequency of occurrence of species in different habitats;
- Temporal and spatial pattern of using mosaic by different species;
- Interference in the activities of production in mosaic Use the different species;
- Period of activity of species in different habitats.

Important to note that the Elguero Farm is an important ally in the conservation of nature. Such involvement is noted by the great riches of species it houses. This information is important as a model to be followed by other properties, showing that a harmonious coexistence of agricultural production and wild animals is possible. In addition, important to emphasize that scientific research for the conservation should be extended to these areas of production, and not be restricted to forest habitats and/or Protected Areas, since these tiles have become more common.

I greatly appreciate the support offered by The Rufford Foundation, which allowed the execution of this important project, the Manacá Institute team, involved in all stages of this project and Elguero Farm, for the interest in the study and local support.



Left: Interview with pinus worker. Right: Lowland tapir track in sand plot.



Left: Puppy tapir in pinus area. Right: Lowland tapir in persimmon.