

## The Rufford Foundation Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Aluane Silva Ferreira
<b>Project title</b>	Do forest cover and management intensification influence the mammal community in shade cacao plantations in contrasting landscapes?
<b>RSG reference</b>	19666-1
<b>Reporting period</b>	May 2016 – May 2017
<b>Amount of grant</b>	£4945
<b>Your email address</b>	luaabio@gmail.com
<b>Date of this report</b>	26 May 2017

**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
Access the assemblage of medium sized mammals in shade cacao plantations in southern Bahia				Mammal samples were finished with the use of camera traps, allowing the identification of a rich assemblage in two landscapes (Una and Ilhéus). Our findings suggest that cacao agroforest play an important role in the conservation of mammals, including threatened and endemic species of southern Bahia, but some species were absent in the landscape with low forest cover.
Evaluate the response of medium sized mammals to agroforestry management intensification and variation in native forest cover surrounding the cacao agroforests				Through preliminary analyses we identified the importance of forest remnants at a regional scale (broader landscape) for conservation of forest specialist species in cacao plantations. For example, some species as agouti ( <i>Dasyprocta</i> sp.), collared peccary ( <i>Pecari tajacu</i> ), jaguarundi ( <i>Puma yagouaroundi</i> ) and south American coati ( <i>Nasua nasua</i> ) were only recorded in the region mainly composed by forest. Futures analysis will allow us to access the influence of management intensification and native forest cover around the cacao plantation over the sampled assemblage.
Share results with academic, organisations and local community in order to discuss the importance of sustainable production and conservation of cacao agroforests.				Preliminary results of the project were shared in two conferences: Rufford Foundation Conference, in Recife, Brazil, and Student Conference of Conservation Science, in Cambridge, UK). We have also presented the results of the project for 235 students of rural schools in

			<p>Una municipality. At this occasion, we showed photos of mammals found in the region, highlighting their importance of this group to ecosystem functioning. Furthermore, we are currently preparing folders with information on the conservation of cacao agroforest and its biodiversity in order to awareness the communities about the necessity of avoid hunting, logging and deforestation. We plan to publish two papers with the mainly results of this project.</p>
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

Some farm owners did not allow the sample of mammals in their properties, and we had some difficulty with access some farms due to the poor condition of the roads in raining periods, mainly in Una landscape.

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

1. Shaded cacao plantations have been used as habitat for a rich assemblage of mammals in southern Bahia, including species threatened as the golden-headed lion tamarin (*Leontopithecus chrysomelas*) and northern tiger cat (*Leopardus tigrinus*) and the endemic Wied's black-tufted-ear marmoset (*Callithrix kuhlii*).
2. The presence of native forest in the landscape (broader scale) is relevant to guarantee the presence of some forest specialist species in the region, for example agouti (*Dasyprocta* sp.), collared peccary (*Pecari tajacu*), jaguarundi (*Puma yagouaroundi*) and South American coati (*Nasua nasua*). These species can use the cacao plantations, nevertheless they suffer from hunting, which is likely to be more common in cacao plantations due to the high frequency of humans, and probably depends of resources found in forest remnants to survive. Agroforestry systems can sustain an important subset of regional mammal species pool, including species threatened with extinction, but do not replace large forest tracts.
3. We identified the presence of hunt and domestic dogs in landscapes studied and we think these aspects can influence the presence of mammals in native habitat and in shaded cacao agroforest. Being important to carry out environmental education work with the local community.

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

Local residents participated on the project as field assistants and received training on sampling techniques, becoming qualified to assist in future researches in the region. Besides, we have presented preliminary results to students and farmers, highlighting the importance of cacao agroforestry conservation and showing photos of sampled mammals in order to aware about the importance of their preservation. We developed activities in schools showing the importance of conserve the fauna and flora and avoid hunting, logging and deforestation.

**5. Are there any plans to continue this work?**

Yes. We know the necessity of understand more about the use of cacao agroforest for biodiversity in southern Bahia and we intend to provide information to government organizations in order to help building guidelines for the management of cacao plantations. The current study is part of a larger project within the Applied Ecology and Conservation Lab at Universidade Estadual de Santa Cruz, whose researchers have been involved on discussions of better practices to conciliate biodiversity conservation and land-use in the study region.

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

Preliminary results obtained in this project have already been shared in international conferences and in local schools. We will further share these results throughout publications in scientific journals and meetings, and we will keep working with local community, developing activities in schools and informal talks to farmers. We will produce an education material to distribute in villages surrounding our study sites. Furthermore, results of this research will form two chapters of Ferreira's PhD thesis at the Universidade Estadual de Santa Cruz.

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

We used RSG funds for mammal samplings in August 2016, February, March and April 2017 and for vegetation samplings in November 2016, April 2017. Recently, we decided to inserted native forest sites in our samples. This will allow us to compare with mammal assemblages between shaded cacao plantations and the interior of large forest remnants. We are also collecting data on the number of local residents around the studied sites. This data will be used as a proxy of hunting pressure (an explanatory variable) in further analyses of mammal assemblages. Given these changes in the project, we will continue field work until August 2017. The data analyses and paper writing will be finished in 2018.

**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
				Local exchange rate used (for all items): £1 = R\$4.91
Field assistant to conduct vegetation sample	255	479	224	We used more money for this item and others below because we increased the number of sampling. We planned to sample 30 cacao agroforest sites and are currently sampling 40 cacao agroforests plus 19 forest sites.
Field assistant to conduct mammal sample	850	1356	506	
Daily car rental	1020	1147	127	
Fuel (gasoline)	711	898	187	
Fieldwork food supplies	355	530	175	
AA Duracell Batteries (for camera-traps)	107	127	20	
Sardine and banana to bait	95	205	110	
Satellite images interpretation	1222	203	1019	The amount did not use in satellite images was used in others items above
Scientific event participation (registration, accommodation and alimentation, transportation)	330	0	330	The amount did not use in scientific event was used in others items above
	£4945	4954	0	

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

The important next steps are: (1) data analyses, (2) writing publications and PhD thesis and (3) further disseminating the results throughout education material. We think it is important provide as much information as possible to government and non-government organizations to help with the construction of guidelines for the management of cacao agroforests (*cabrucas*).

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

Yes. The logo of Rufford foundation was present in presentations performed in conferences (Student Conference of Conservation Science/UK and Conferência Rufford Foundation/Brazil) and at local schools. Rufford will be acknowledged in all future publications of the results of the project.

**11. Please provide a full list of all the members of your team and briefly what was their role in the project.**

The team was compound of:

- Dra. Camila Righetto Cassano, advisor that contributed with the organization of the project steps, correction of reports, assisting in all stages of the project.
- Two local field assistant (Rubens Lopes and Ivanildo) helped with data collection in mammal and vegetation sample.
- Two graduate students (Ana Paula and Sirleide Santos) were involved in field work and helped with the installation of camera traps in Ilhéus landscape and with identification of mammal species in photos.

**12. Any other comments?**

I am really grateful for Rufford Foundation support to this project and help with the conservation of mammals in cacao agroforest. I hope to share the results as soon as possible and I will send every produced material to you. Sorry for the delay of the final report sent.



Left: Talk about the importance of mammals in the cacao agroforests and forests in a school in Una, Brazil. Right: Photos' exhibition (mammals captured by the camera traps in the region) for students in a school in Una, Brazil.



Fig. 3: The yellow-breasted capuchin (*Sapajus xanthosternos*), an endemic primate, recorded in native forest sites in Una, Brazil.