

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	Andrea Larissa Boesing
Project title	Conservation of avian biodiversity and avian ecosystem services across dynamic farm-forest interfaces in the threatened Brazilian Atlantic Forest.
RSG reference	14223-1
Reporting period	January 2014 – January 2015
Amount of grant	£5,696
Your email address	lari.boesing@gmail.com
Date of this report	January 31st 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
(1) quantify how changing forest cover impacts avian diversity			X	<p>Was sampled 13 landscapes ranging from 5-60% of forest cover and 104 point counts (8 per landscape) sampled four times (n = 416 samples).</p> <p>We analysed just the first two replicates until now: was recorded 167 bird species in total, with a higher bird richness in forested environments (13.6 ± 5.19) and lower bird richness in the pasture matrix (7.44 ± 3.32).</p> <p>Bird forest-dependent has a strong relationship with the increase on forest cover ($r^2 = 0.66$; $p < 0.05$). Forest generalist species and non-forest species has no significant relationship with forest cover ($p > 0.05$).</p> <p>I need to finish the analysis including the last two replicates and then to include both species' traits and phylogeny to calculate the functional and phylogenetic diversity of bird communities.</p>
(2) if and how these changes translate into altered pest control values		X		<p>We performed the pilot experiment to test whether the method to obtain biological samples works; we also have tested about the effectiveness of mist nets in the matrix in May 2014.</p> <p>This objective was proposed to be performed between October 2014 and March 2015. This last year, a strong drought seems be affected the spittlebug populations which delayed this sampling. We are monitoring the pastures to chosen adequate places to perform this experiment next months.</p>
(3) Determine the overall impact of avian spittlebug predators on pasture quality and feeding preferences of bird predators.	X			<p>This experiment should be done after the execution of the objective 2 (where we could identify avian predators of spittlebugs. We expect to execute this objective until May 2015.</p> <p>In the original propose, we expect to perform this experiments between March and April 2015.</p>

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

The initial proposal was to sample 15 landscapes with which to estimate the effects of forest cover, while controlling for four key potentially confounding factors: landscape was constrained between 800 and 1200 m above sea level, was embedded in a cattle pasture matrix, and based upon either ferric red latosol or argisol soil. Using this approach, we got 13 landscapes following the forest cover gradient (5-60%) embedded in pasture matrices. The fieldwork proposed to achieve the first objective was totally finished in the time proposed. However, we didn't finish the final data analysis that is being performed currently.

Our study sites are inside the Cantareira region that is currently suffering a strong drought in the last 80 years. This uncommon climatic event seem have been impacted strongly the populations of our key insect-pest in pasture lands which delayed the field work of objectives 2 and 3. We are monitoring the spittlebug populations to choose good pastures the places to finish the experiments. Another unforeseen is related with the transportation to field sites. We needed to expand money in the payment of a car to get in the sample areas. This money was not included in the initial budget; this way, we used the money from objectives 2 and 3 to complete the achievement of the first objective, and the final samples are going to be performed with another financing (<http://projetointerfaceenglish.weebly.com/>) recently achieved.

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

We didn't finish the analysis data of the first objective yet, but some general assumptions can be arise: in general, we have i) very distinctive assemblages in forest and in the matrix; ii) forest dependent species has a strong relationship with forest cover; and iii) forest generalist and non-forest birds has no relationship with forest cover. Although the species richness seem be very similar between forest and pasture environment, the community composition is totally distinct. While an increase in bird richness following the increase on forest cover is observed for forest bird species, the richness of pasture assemblages is similar along the forest cover gradient. We should expect that the bird richness of pastures should decrease with the increase of forest cover, but it does not happen. In relationship to provision of pest control by birds, we need to finish the objectives 2 and 3, but our field observations on birds foraging in pastures shows that avian predators foraging on Spittlebugs are non-forest species.

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

The farmers and farm employees were involved directly during field work. All fieldwork is being performed within particular lands. They could follow the preliminary results by periodic informal talks. I always asking them about birds that they have seen in their properties and about birds that I was recording to involve them in the project; frequently they got very excited with the talks. Recently, we elaborate a folder explaining the main objectives of the project to deliver to landholders (see attached). When the entire field work finish, a set of meetings and workshops will be performed joining landholders and the local community.

5. Are there any plans to continue this work?

Yes. I need to finish the experiments proposed on objectives 2 and 3 and finish the analysis data of the objective 1 planned to be executed until April 2015 (in the Rufford project). And I have the deadline to finish all work on November 2016 (when I finish my PhD). Also, some questions are arriving and we hope to investigate deeper some of them, as for instance, how the landscape structure affects the cross-habitat spill over ability of forest bird species. Besides that, we have another projects being developed in the same studied site that are part of Project Interface, our research group project (more information on <http://projetointerfaceenglish.weebly.com/>)

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

Firstly, we expect to perform workshops and meetings with local landholders and the local communities as soon all field work and analysis data finish. Second, we aim to publish these results in important ecological journals that have interest in this approach of conciliating agriculture and biodiversity conservation. I recently presented an oral session in the 51st Annual Meeting of the Association for Tropical Biology and Conservation (ATBC) in Cairns, Australia with the preliminary data from the first objective (abstract attached). This year I expect to present more results in the 52nd ATBC (Honolulu, Hawaii).

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 Rufford grant was fundamental to the first step of data collection. It was planned to be used between January 2014 and May 2015. However, it ensured the achievement of all field work from objective 1 that was performed between October 2013 and November 2014). Although all money was dispend in the first objective (which required much more money they previously proposed because the rent of a car to get to areas), another grant was obtained to finish the data collection of objectives 2 and 3 that are going to be performed in this first semester of 2015. This grant is related with our Interface Lab's project (<http://projetointerfaceenglish.weebly.com/>).

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
Meals	1982	787.18	+1194.82	This difference is because was performed just the first objective. It refers to two researches.
Accommodation	1190	848.07	+341.93	This difference is because it was used just to the first objective and because the accommodation was more expensive than planned. It refers to two researches.
Transportation (Fuel + rent car)	2797	3963.75	-1166.75	This difference is because we needed to rent a car to get to the field and include this in the transportation

Consumable material	-	372.85	-372.85	We also need to buy some materials to perform the field work, as marking tape, machete, a microphone and radio talks to communication between researchers.
Total	5969	5971.99	-2.85	Local exchange rate: 1 Brazilian Real = 3.89 £ sterling

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

I have field work related with this project to be performed yet, need to finish the data analyses and publish the papers related. However, changes on bird communities following the habitat loss and how it affects the avian-mediated pest control services in agricultural landscapes have many gaps that need investigations. Understanding the trophic interactions in the landscape context and the dispersal ability of avian predator's remains understood. I am planning to keep working in this subject during my Post-doctoral research.

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?

Yes. I presented the oral session recently (ATBC 2014) in Cairns, Australia. In this event we received important feedbacks to the project from students and professional researchers from different parts of the world. We also include the logo in the Project Interface page (available at <http://projetointerfaceenglish.weebly.com/>) that is the Lab's Project. The logo of the RSGF was always included in the acknowledgements section of the presentations.

11. Any other comments?

We would like to thank the Rufford Small Grants Foundation team for supporting this project. It would be impossible to carry out this project without your support! Thanks for your great efforts to protect world's biodiversity!