

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 | Andressa Barbara Scabin |
| Project title | Effects of Hunting-Induced Defaunation on Carbon Storage in Amazonian Forests |
| RSG reference | 21911-1 |
| Reporting period | August 2017 to May 2019 |
| Amount of grant | £5,000 |
| Your email address | dedascabin@gmail.com |
| Date of this report | 10 May 2019 |

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 |
|--|--------------|--------------------|----------------|--|
| Establishment of 30 permanent plots of ¼ hectare for forest inventory and establishment of camera trapping grids. | | | | Before starting the floristic inventory, we established all the 30 tree plots along the hunting gradient by opening trails, marking the main trail with sticks, and tagging and measuring DBH of all trees and saplings inside the plots. At the same time, we opened trails for the camera trapping grid. This meant a change to our first work schedule, but this strategy facilitated the important step of the floristic inventory and camera trapping installation. |
| Floristic inventory on 30 permanent plots for trees, palms and saplings. | | | | The floristic inventory was undertaken with an experienced parobotanist, except for some species that could not be identified in the field, in which case we made plant collection as planned. This cost us extra time to have the botanist identification. However, this was a required strategy to ensure the accurate identification of some species and also to provide a voucher for the herbarium reference. In total, we sampled 13.386 of 907 different plant species. |
| Collection of plant vouchers to be deposited in the Instituto Nacional de Pesquisas da Amazônia (INPA) herbarium and for create a local herbarium at Universidade Estadual do Amazonas (UEA) Caruari campus. | | | | We made the collection and also exciccates of 250 specimens, but instead of deposit part of this material at UEA to create a local herbarium, we are going to deposit all at Instituto Federal do Amazonas (IFAM) herbarium in Manaus once we didn't find somebody and local financial source to keep this exciccates properly in UEA Caruari campus. |
| Collection of wood core and laboratory wood density | | | | We collected 700 wood core and estimated wood density for 250 plants species. |

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| measurements of the most abundant species. | | | | |
| Measurement of tree heights for aboveground biomass estimates | | | | We measured 505 tree heights. |
| Installation and monitoring of 30 camera-trapping grids for a minimum duration of 30 days. | | | | We had 10,211 records belonging to 74 species in a total effort of 21,798 trap-nights. |
| Complementary line-transect censuses targeting primarily arboreal mammals | | | | Because of time limitation we decided not do the complementary census, but use census data that already have been carried out in the same study area. |
| Lectures about the project at the UEA Carauari campus. | | | | In addition to lectures given at UEA we conducted a course of permanent plot installation and plant inventory for 22 undergraduate students enrolled in the biology course. |
| Selection and training of undergraduate students to be part of our field activities so they can experience the opportunity of developing their own research projects | | | | Five of the undergraduate students collaborated in field work activities and plant exciccates preparation. Two of them realised their final project at UEA with our research group. |
| Training of local field assistants | | | | We trained 20 locals in field work activities. Most of them were trained and worked at their own community, but two of these assistants worked closer to the research team. |
| Environmental education activities at local community schools about wildlife and conservation. | | | | We did some educational activities for children, but in a playful way more informal and not specifically science oriented. We want to keep going with educational activities at local schools with some themes related with sustainable use of natural resources. |
| Compile a large dataset on tree functional traits of species identified during floristic surveys, including seed | | | | This activity is being currently being conducted. |

| | | | | |
|---|--|--|--|--|
| dispersal mode, seed size, seed mass and fruit morphology | | | | |
|---|--|--|--|--|

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

Our project is being conducted in a remote region of western Brazilian Amazonia, with difficulty to access to some of the sites, a lengthily rainy season that limits fieldwork at some periods of year and also logistic dependency on fluvial transportation. Faced with this logistical complexity we had significant delays in our proposed timeline. In addition, unexpected events also contributed to the readjustment of schedules including breakage to the boat, and illness to my field assistant.

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

We are currently processing and analysing data, so we do not have the final results on our hypothesis tests. However, considering the development of the project so far, we can cite three important outcomes of the project.

- 1) The installation of 30 permanent 0.25 ha plots with a total of 13,386 trees targeted and identified. These plots are located in an understudied region of the Brazilian Amazon with respect its floristic resources. The database of the permanent plots will be included in large platforms of permanent plots like RAINFOR serving not only for the present project, but also will be baseline for many future projects.
- 2) The unique arboreal camera trapping sampling on Brazilian Amazon that generates until now 2100 records of 37 species.
- 3) The training of local field assistants and undergraduate student's added to educational activities helped strengthen our research group's relationship with the local communities. This favourable relationship not only provided us support on our current project, but lays the foundation for future field activities and also increases local motivation to discuss about management of natural resources at the protected areas.

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

People from Carauari, Itamaraty and 14 other communities where we carried out the field work were intensely involved in the project activities. In addition, we have developed a very important interaction with local organisations including ASPROC, AMARU, ICMBIO, OPAN, and SDS, whose support was essential for the realisation of our work. In Carauari we had more than 30 undergraduate students and teachers who attended the lectures and courses, and some of these students also worked in field activities and developed their own related project. In addition, three Carauari residents actively participated in most of the expeditions. In the communities we had

20 locals who were trained and worked in the field receiving payment that represented an important income for all field assistants, who live in a reality where financial resources are scarce. In addition, many children from the communities were involved in educational activities.

5. Are there any plans to continue this work?

Yes.

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

The projects results will be disseminated in different ways for different target audiences. We will publish articles in peer review periodic for the scientific community with our main contributions for ecology and conservation fields. For the residents of cities and protected areas in which the project was developed we plan to organise a workshop with other researchers who also work in this study area. For the workshop we intend to use a more accessible language and emphasise the practical application of the results regarding the management of natural resources. Finally, we intend to develop informative material in handbook and digital format with a more educational focus for the general public including children and also, we are producing a film documentary about the project.

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 Foundation grant was used during the first year of the project. The funding was mainly used for the first expedition to implement the permanent plots and install the first camera trapping grids. In this way, the only change that occurred in relation our original budget was that the resource that would be used to the parabolic payment was used for field assistant's payment in communities and also to purchase the required equipment for the permanent plots including PVC pipes, ink, tree tags, nails, hammers. As described in the breakdown budget followed bellow.

Although there were delays related with our field work activities, our timeline has largely followed the original proposal since we are currently conducting statistical analyses and manuscripts writing as proposed.



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 |
|--|-----------------|---------------|------------|---|
| Field Assistant | 2000 | 2000 | | |
| Highly skilled parobotanist | 1500 | | -1500 | We change our schedule for the first-year sort out the plots and plants identification were conducted at the second-year project. |
| Material for permanent plot installation (plant tags, PVC pipes, nails, hammers, spray ink) | | 500 | +500 | We included these costs because we decided to make our plots permanent. |
| Fuel (Gasoline) and oil | 500 | 1500 | +1000 | |
| AA Duracell batteries | 500 | 500 | | |
| Field work supplies | 500 | 500 | | |
| TOTALS | 5000 | 5000 | | |

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

At the first step we aim to publish the manuscripts, conduct the workshop, elaborate the handbook and finish the film documentary to give feedback on our project for both scientific public, local dwellers and partner organizations. In addition, we intend to include our data in a platform of permanent plots in tropical forests like RAINFOR, to make our plots database publically available.

In parallel we are interested in continuing the arboreal camera trapping, expanding the sampling areas to explore this forest strata, still so little known, and study if the arboreal fauna is already showing signs of impacts related to anthropic activities such as hunting.

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. All our project presentation at the universities and congress had the RF logo. Also all the field work team used T-shirts with the RF logo during the project activities. Furthermore, our pictures posts in our Instagram account expedicao_jurua was marked with #ruffordfoundation.

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

Professor Carlos Peres had an important role in the development and design of all Project aspects, especially in supporting the sample design and the theoretical basis of the scientific questions addressed. Professor Peres is also contributing immensely on statistical analysis and writing of the manuscripts.

João Victor Campos Silva made possible the partnership with the local organizations and the dialogue with the protected area dwellers. Joao Victor also assisted in the provision of transportation infrastructure, part of the field equipment and general guidelines on logistics issues that were crucial to conduct the field activities.

Paulo Assunção was the parobotanist responsible for trees, saplings and palms species identification in all permanent plots. In addition, he assisted in the collection and preparation of exciccates for later identification by botanists and for the preparation of vouchers to be sent to the IFAM Herbarium.

Joaquim Gomes de Lima played an essential role in the field data collection, since he was the field assistant who was present in all the expeditions and in all work stages. His activities included the establishment of permanent plots, boat driving, botanical and collections and arboreal camera trap installation.

Angelica Gloria de Paula was an UEA undergraduate student who developed her own project at the permanent plots installed on Riozinho site in the municipality of Carauari. Angélica assisted in the permanent plots' installation and plants collection for exciccates preparation.

Almir Rogerio Nascimento and **Raimunda Antonia Gomes de Souza** is a couple who worked on the expeditions by making possible our trips in the study area, driving the boat, preparing the meals of the team, taking care of the cleaning and organization of our work environment "Hiléia", which is our boat residence during the longest expeditions.

Laura Martins is a master student in Ecology at INPA who had an important role at conducting the lab analysis regarding to wood density that is going to be used at carbon storage estimation.

12. Any other comments?

We are extremely grateful to the Rufford Foundation for the grant provided. This grant was crucial to develop our project and therefore contributed for the elaboration of a huge database in plant and animals' data for an unstudied area of Brazilian Amazon. Beside that we would like to thank RF team for all support given us during the project time.