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	Heloisa Dantas Brum
Project title	Ecological basis for sustainable extractivism in the Amazon
RSG reference	20859-B
Reporting period	Feb 2017 – Mar 2018
Amount of grant	£9988
Your email address	hdbrum@gmail.com
Date of this report	18 Apr 2018

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
Continue to monitor the production of fruits of açaí				We achieved this objective, but we intend to continue to monitor the fruit production.
Install experiment on açaí germination				We achieved this objective, but the experiment is still in progress.
Monitor the 4099 plants in the plots				We achieved this objective, but we intend to continue to monitor the plants.
Interview the inhabitants of the Reserve				Data are being analysed.
Obtained the environmental variables				Data are being analysed.

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

In addition to the difficulties we already knew about working in the Amazon, such as the difficulties involved in organising the logistics of field expeditions, the intensity of the rains and the flood pulse, there were no unforeseen events that would hamper the progress of work.

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

One of the important outcomes of this study is to understand the factors that affect the population dynamics of the açai, which is essential to assess the current and future management actions of the species. The ecological results of this study will tell us the differences in the resulting population dynamics of different environmental conditions and extraction intensities.

1. So far we are monitoring 5356 açai plants in lowland and terra firma areas (Figure 1). Data are still being organised for statistical analyses. But it is possible to observe some very interesting things. In the lowland areas, seedlings suffer a high mortality due to flooding. Only in years when the flood is lower than average, açai seedlings can survive from one year to another. This calls attention to the need to predict the possible impacts of climate change on the regeneration of native species in the Amazon.

2. We realised 55 interviews with local inhabitants and distributors, in order to characterise the extraction activity developed by local people. Residents and

distributors provided valuable information regarding the management of açaí in the region, the amount of acai marketed, the collection effort and the care of the beneficiation process. It will be possible to understand the intensity of açaí use, the destination of fruit (if for sale or subsistence), the ways handling, and evaluate the best way for this activity generates greater financial income for the locals. The Açai trade in the Amazonas state is still much smaller than the Açai trade in Pará state (which supplies the Brazilian and international consumer market). But it is a market that is growing very fast, and deserves attention. The acai trade in the state of Amazonas has grown more than 25% in the last year. Currently, 80% of the production comes from extractive management in areas of native forest, where this study is focused. The ecological data together with the data from the interviews will give us a more complete picture of this extractive activity so promising for the state.

3. We are still monitoring the productivity of açai fruits in 65 previously marked trees. In each month, two local residents record the presence or absence of reproductive structures in the trees. The objective of this stage is to quantify productivity over the years and to understand the pattern of fruiting of the species over the years in varzea and terra firma environments. Field observations indicate that the process of açai reproduction is long. Initial data suggests that the species begins to produce flowers from November, and its fruits are formed about 3 months later.

4. We installed 20 plots to evaluate the germination of açaí, and to estimate the probability of establishing a seedling from one year to the other. There were 10 plots in lowland and 10 plots on upland forest. Of these 10, five plots received the whole fruit, and five received the peeled fruit, to evaluate if the removal of the pericarp also affects the success in establishing the seedling. The plots were covered with a canvas to ensure that no other seed of seed will mix with the seeds sown. (Figure 1C and D).

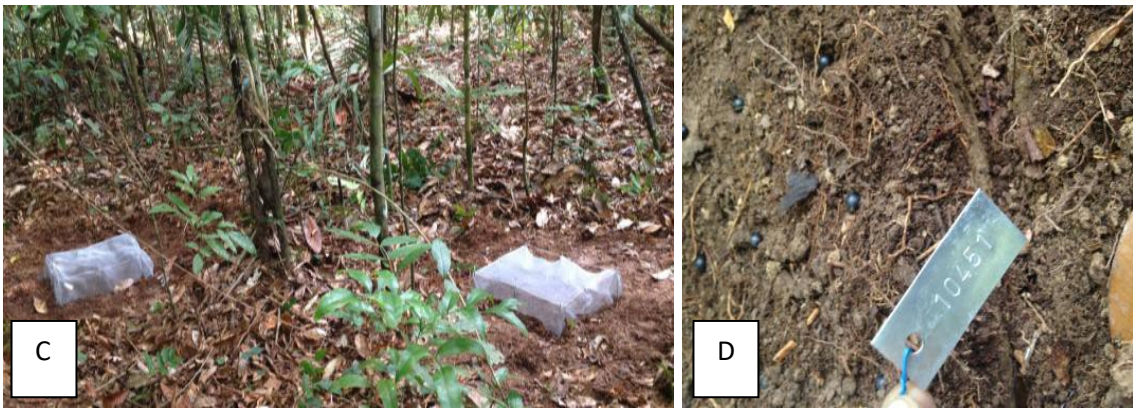

Figure 1. Stages of field work: A. plant monitoring, B. Areas of high density acai; C. and D. Germination experiments.

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

Local people are collaborating with the data collection, and are key elements for the development of this project for their knowledge of the species, the areas of use and for accompanying us during field trips. In addition, the locals host us at their homes, collaborate with field logistics and assist in various activities during our time in the reserve. This involvement is an excellent indication that the project is being well received by local communities.

Our objective is that the information generated by this study, through the ecological, economic and social assessments of açai extraction, can be rewarded with an improvement in the açai productive chain, favouring a fairer trade between the local residents and the distributors of the nearby municipalities, who often pay very low values for forest products.

5. Are there any plans to continue this work?

Yes. This study is part of my PhD study, which will be completed in 2019. Even after this conclusion, we intend to continue monitoring the plants in the plots, since studies of population dynamics in the medium to long term are fundamental so that we can have more precise answers on the variation of the rates of growth, survival and reproduction of the species, even more in an environment with high seasonal variation such as the amazon (as a function of the pulse of flooding), even more in times of global climate change.

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

We intend to communicate the practical results of the project through a three-way strategy:

1. Production of an illustrated guide to sustainable harvest of açaí fruits in the Central Amazon. This guide, written in accessible language, will still contain the main ideas and figures obtained by the project, and will be made available to both managers and local communities.

2. Organisation of a 1-day workshop aimed at explaining the results of the ecological study, as well as the practical management implications for government managers and other NGO members working in the region. The workshop will be held in Manaus at the headquarters of the Secretary of Environment of the State of Amazonas. A video with the main talking points presented at the workshop will be made available in the Piagaçu website.

3. Organisation of a 1-day training course to explain in a more simplified way the ecological information and the practical management implications of the project to each of the local communities involved. The training is expected to prepare "multiplying agents" to distribute the information to other communities. The material will be presented in such a way that local dwellers understand the broad ecological processes involved in the açaí fruit extraction, as well as the practical guidelines that need to be followed in order to produce a sustainable harvest. We plan to offer three training courses. Courses will be based on the illustrated guide, which will then be distributed to the attendees. In addition, the study will be published in scientific journals of international scope.

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 used between January 2017 and February 2018. And it was essential for the development of field activities. Prior to this Booster grant, we had already received a grant from the foundation that allowed the start of the project and installation of plots, and the first year of monitoring.

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. 1 £ sterling = 4.44 Nuevo Sol

Item	Budgeted Amount	Actual Amount	Difference	Comments
Books	£188		£188	We prioritized the field activities and unfortunately it was not possible to buy the books
Fuel and oil	£2,229	£2,200	£29	The amount spend was similar to the expected.
Office supplies	£140		£140	We still had a lot of field material from other expeditions and other projects, so it was not necessary to buy more
Field supplies	£234	£237	-£3	The amount spend was similar to the expected.

Food and cleaning supplies	£1875	£1750	£125	The amount spend was similar to the expected.
Field assistant	£2,342	£4056	-£1714	We need to hire more research assistants to do the work in the time available. And besides, we need to rent a boat to carry out the activities
Maintenance	£562	£358	£204	Fortunately, we had no great need to spend money on equipment maintenance.
Freight material	£186		£186	It was not necessary to pay for freight of material. When we had a lot of material to load, we chose to rent a boat - and that was spent as a service.
Graphic services	£187		£187	We have not yet made the graphic materials that we would like. We hope to do this in a next stage of the project.
Airline tickets	£1,114	£854	£260	
Boat tickets	£300	£362	-£62	The amount spend was similar to the expected.
Taxi	£163	£1010	£63	The amount spend was similar to the expected.
Accommodation	£468		£468	There was no need to spend money on hotel accommodation
Fees		£70	-£70	Spent deducted by the bank at the moment of the resource deposit. It was not provided.
Total	£9988	£9988		

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

The data that we have so far are extremely important and give us a forecast of the sensitivity of this system in relation to the climatic variation and intensity of açaí extractivism. We believe that monitoring for a few more years may allow more accurate predictions, especially if extreme flood or drought events occur. We are finding interesting data on the regeneration of the species in the floodplain areas, where eventually, a great mortality of seedlings occurs, preventing the regeneration. Longer term study will allow us to understand the regeneration cycle occurring in the floodplain, and how the flood pulse affects population growth. Moreover, on the mainland, it will be interesting to evaluate the population for a longer time to understand how the species behaves in an apparently more stable environmental condition. It will be possible to access the amount of fruit that can be collected without harming the population growth in the future, including a possible scenario of climate change. In this way, it will be possible to contribute to the management of the conservation unit and suggest

management strategies with more precise data.

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?

So far no material has been produced. But in all the presentations I made about my project, at the reserve or at the University, I presented the Rufford Foundation as a funder of this study.

11. Any other comments?

Once again, I would like to thank the support of the Rufford Foundation, which has enabled the development of participatory research actions. Our intention is to reciprocate this support with a job well done and with results applicable to the conservation of forests and to the traditional populations.