

## 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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<b>Grant Recipient Details</b>	
<b>Your name</b>	Tatiane Micheletti Ribeiro Silva
<b>Project title</b>	Management of invasive species in islands: The case of the rock cavy in Fernando de Noronha, Brazil
<b>RSG reference</b>	15896-1
<b>Reporting period</b>	Ago 2014 – Dec 2015
<b>Amount of grant</b>	£4977
<b>Your email address</b>	tati.micheletti@triade.org.br; tati.micheletti@gmail.com
<b>Date of this report</b>	14 <sup>th</sup> December 2015

**1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

<b>Objective</b>	<b>Not achieved</b>	<b>Partially achieved</b>	<b>Fully achieved</b>	<b>Comments</b>
Capture and marking of 40 rock cavy individuals for sample and information collection			X	
Investigate the structure and the dynamics of the invasive rock cavy population in Fernando de Noronha			X	Although a more comprehensive and proper model is still being developed for its analysis, the data collected already allowed us to access for the first time information on the rock cavy population structure and dynamics in Fernando de Noronha
Obtain data on rock cavy population health status		X (but will be fully achieved in the coming months)		Only five samples regarding health status were analysed so far (14%). The analysis of the remaining 31 samples will be carried out in the coming months.
Investigate rock cavy impacts on the native environment			X	Although the monitoring of native trees was not entirely successful due to loss of tags and regeneration of trees (explained below), the impacts of the rock cavy in the flora could still be well accessed.
Evaluate rock cavy social aspects in Fernando de Noronha		X		Due to lack of field assistants, only part of the interviews were performed. A total of 60 interviews (30% of the total of tourists and 15% of the total with local inhabitants) were performed.
Evaluate rock cavy economic aspects in Fernando de Noronha		X (but will be fully achieved in the coming months)		An analysis of the economic aspects of the rock cavy presence in Fernando de Noronha (i.e. costs of different management options) is being carried out considering all above objectives.

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

The analysis of diseases of the rock cavy is still being carried out. It was hoped that by the end of the current year all analysis would be ready, however it has taken more time than needed as these results belong in fact to a post doc project. Due to other priorities of the post doc project, the results of these analyses will be delivered only in around 3-4 months. Another problem was the lack of field assistants that compromised the number of interviews to be performed. Therefore, only 20% of the interviews were done. Although we do not believe this will jeopardise the current project development (as the answers are quite similar among the interviewees), a specific project to investigate more deeply the perception of the local community regarding this species should be performed, if possible. Due to a delay in the health analysis as well as the need of a more comprehensive and proper model for analysing population structure and dynamics, the completion of the economic valuation of different management options regarding the rock cavy had to be postponed. Still, we expect that the whole project with all results can be finalised by August 2016.

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

The first most important outcome of the project is that we managed to start raising awareness of the importance of monitoring and managing invasive species in island environments in Brazil, a practically non-existent topic before. This can be seen with actions like the inclusion of a specific round table regarding invasive species in islands during the *I Meeting of Fernando de Noronha, St. Peter and St. Paul and Rocas Atoll Research*, as well as the creation of a specific coordination office inside the ICMBio in Fernando de Noronha (the Brazilian Ministry of the Environment's administrative arm, which takes care of Conservation Units in Brazil). The second most relevant outcome of the project was the increase in the amount of new information about such an unknown species. All the information gathered has been extensively discussed with the local authorities and, although the analysis of the project are still being finished, it was already possible to inform the local authorities that managing the rock cavy should not be a priority in the island, as the financial resources for management are rare in Brazil, and need to be applied in the most urgent areas. A last important outcome of the project is related to the development of a comprehensive framework for working with invasive species in island environments. This framework will be published and available for other researchers and environmental managers, along with the analysed data on the rock cavy population in the island. These last are part of my PhD, which will be finished in approximately one year.

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

The local community not only participated and contributed to the project with information from their perspective, but also benefited from the new information acquired by the project. One important fact is that the rock cavy meat is appreciated by some locals, despite the

forbidden hunt of native animals in Brazil (even exotic ones, except for the invasive wild boar and some invasive fresh water fishes). We found out that the rock cavies are hosts of toxoplasmosis (first recording of this and still unpublished information), an important disease in Brazil. This, associated to the fact that people feed on this animals could be an important issue to public health in the island, where the rates of infection by toxoplasmosis are considerably high. Although more work is needed to identify if feeding on rock cavies can be related to the high number of infections by toxoplasma - or if this is actually due to the increase in the number of cats in the island, this possibility should not be discarded.

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

We plan to continue the work with invasive species in the archipelago of Fernando de Noronha, but now focusing on species we have realised are more deleterious to the native environment, and to the native and endemic species (i.e. feral and domestic cats, and the tegu lizard). Still, we plan to finish the project of the rock cavy with a workshop with the community where we will deliver all information we have collected, as well as discuss with them the priorities of management of invasive species in the island.

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

Besides the already cited workshop, that will share information on the rock cavy and other invasive species with the local community as well as local governmental managers, information to other researchers will be shared through the publication of scientific papers and conferences. The general public can also be aware of the project through interviews given in different media vehicles.

### **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 grant was used from AUG 2014 (buy supplies) until NOV 2015 (field trip). This was pretty much what was planned for the money use, which was supposed to be within 18 months.

### **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
Needles and syringes (hypodermic needles 13x4.5 and 20x5.5; Syringes 1, 3 and 5ml)	34	0	-34	Was not necessary as there were supplies available for use from the veterinarians in the island
Anaesthesia (Atropine 1%, Midazolam 5mg/ml, Ketamine 10%, Pethidine 50mg/ml, Xylazine 2%)	111	0	-111	Was changed for the capturing supplies as it was the same amount and the veterinarians provided all needed anaesthesia for the project
Supplies for animal capturing (Cloth bags for animal contention and Tomahawk live traps)	0	108	108	Was changed for the anaesthesia as it was the same amount and the veterinarians provided all needed anaesthesia for the project
Asepsis supplies (Alcohol 70%, Chlorhexidine, latex gloves, Povidone-iodine)	26	18.61	-7.39	
Supplies for samples conservation (thermic cooler, Potassium dichromate 2.5%, small ziplock bags)	27	34.34	7.34	
Supplies for sample storage (Slide cases, thermic bag size L)	55	27.89	-27.11	The thermic bags were more expensive than anticipated due to the fact that it was decided to use small individual bags (fire bags) because of the size of the animals and readiness to use in the field
Supplies for animal marking (ear tags and microchips)	197	104.74	-92.26	Microchips were bought in Europe, and therefore were cheaper than in Brazil
Supplies for sample collection (Eppendorf microtubes, gauze, blood sample slides)	33	14.86	-18.14	
Swabs for sample collection	27	15.39	-11.61	
First aid kit	11	0	-11	Was not necessary as the national park provided all needed first aid attention (not needed in the end)

Blood analysis supplies (capillary hematocrit tubes, Tips for micropipette)	39	80.62	41.62	A micropipette was needed, as the one normally used was not available for the field laboratory
1 Neubauer chamber for blood analysis	41	40.78	-0.22	
1 hand-driven tube centrifuge (Fisher Scientific) for blood analysis	131	32.63	-98.37	Was bought in eBay, used, so was considerably cheaper than anticipated
Food (2 ppl. x 28 days x 2 field trips)	1739	1300	-439	Food was slightly cheaper than expected
Air tickets (2ppl. x 2 field trips)	1555	1707.72	152.72	Flights were more expensive than foreseen
Vehicle renting (28 days x 2 field trips)	951	1498	547	The vehicle renting exceeded the amount calculated due to the high season and the increase in prices in the island from the first to the last field trip. However, as food was cheaper than expected, it was possible to pay for it
Total	4977	4983.58	6.58	<i>OBS.: 1R\$ = 0.27€; 1€ = 0.725€</i>

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

The next most important step is to finish all the analysis and the population model (which will give a better certainty of the population dynamics), the organisation of the workshop with the local community, when the other projects on invasive species will also have some important results, and publishing the results of this project.

### 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. The logo of Rufford Foundation was used as sponsor (funding) in the following presentations:

1. Micheletti et al., 2015. Increasing certainty of sparse datasets: advantages of integrated population models. Modeling in Population Dynamics and Ecology 2015, Niteroi, 24th – 28th August 2015. (Oral Presentation)
2. Micheletti et al., 2015. Avaliação do impacto e manejo do mocó (*K. rupestris*) em Fernando de Noronha – Resultados preliminares. I Encontro de Pesquisa de Fernando de Noronha, Atol das Rocas e São Pedro e São Paulo 2015, Fernando de Noronha, 31st August – 03rd September 2015. (Poster Presentation)

3. Presentations about the project to the general public in Fernando de Noronha within the daily presentation series that take place in TAMAR (15.02.15; 22.02.15; 01.03.2015; 02.11.15; 06.11.15), total of 5 presentations (Oral Presentation)

Rufford Foundation's logo is also in the Website of the Brazilian Institute for Conservation Medicine under the partnership/sponsorship of the projects developed by members of the institute (<http://www.triade.org.br/#!parcerias/camh>)

#### **11. Any other comments?**

Without Rufford Foundation's financial help, the realisation of this project would not have been possible. Thank you so much!!!