

## 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. 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. 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	
Your name	José Neiva Mesquita Neto
Project title	Conservation of the relationship between bees and plants pollinated by vibration
RSG reference	17393-1
Reporting period	27.07.2015-27.07.2016
Amount of grant	£2932
Your email address	<a href="mailto:jneiva@ufmg.br">jneiva@ufmg.br</a>
Date of this report	12.08.2016

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
Characterise the spectrum of floral visitors and interactions with plants pollinated by vibration			X	We recorded more than 600 bees from 52 species visiting 12 plant species that has flowers with poricidal anthers in Rio Preto Park with about 900 hours of collection effort.
Election of the most important bees and plants for the maintenance of pollination services in the system. Support actions to conservation of plants and pollinators involved in buzz pollination, especially those threatened by extinction			X	We analysed about 620 interactions between bees and plants with poricidal anthers. This information was used to highlight the most frequent visitors, the most visited plants and which biological characteristics are more important maintenance of this system. We looked information about the threatened status of plants and bee species in official lists, but no bee and plant studied is listed in there.
Increase the Biological Collections of the Federal University of Minas Gerais (UFMG)			X	We added 16 plants vouchers on the UFMG Herbarium and 552 bee individuals to the Entomological Collection of UFMG.
Increase in living collections of the UFMG Botanic Garden		X		Seeds from the target plants and others species found in region was sent to the UFMG Botanic Garden to seedling cultivation in the nursery. This step just can be considerate completed when we move the young plants to visitation

				areas and/or to the living collections and they establish there. This lasted step is not concluded yet, same plants species need much more than some months to germinate by seeds restrictions or limitations (e.g. seed dormancy, high rates of seed predation).
Contribute to environmental education activities through the dissemination of studies on the flora and ecology of pollinators with the general public by the UFMG Botanic Garden		X		We promoted lectures to students from local schools (around the park area) and park staff. We did not conduct environmental education activities in the Botanic Garden how planned because we have depended from the seedlings produced in nursery garden.

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

We had not expected the seeds could have dormancy mechanism, because of this we did not estimate correctly time to have seedlings to distribute in environmental education activities. We now are looking for another financing support, which can support us to work around this unexpected barrier. This research was longer and expensive than expected by us.

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

(1) We indicated the most important plants and bees to maintain the buzz pollination. The bee species reported as efficient pollinators in this system are large and medium-sized bees from genera *Centris*, *Bumbus* and *Xylocopa*. Smaller bees was not efficient to promote pollen transfer. Plant with more pollen per flower are most visited by bees (Fabaceae and Melastomataceae). We disclose this information in lectures for students in schools close to Rio Preto Park. Furthermore, a scientific article has been done to report, in detailed way, this findings. We collected seeds from all plant species for seedling cultivation, especially the species more attractive to bees.

(2) We promoted the awareness of local communities about the importance of pollination services. We realised lectures to Rio Preto Park staff and local schools

focusing on the pollinators' role to reproduction of several plants species and the crucial importance of pollen to feed the offspring bees. The human impact on this mutualistic interaction was discussed, as well as the possible ways to reduce it in the local context. Students and park employees have demonstrated sensibility about the topic.

(3) We increase the biological collections of the UFMG, which are available for researchers and community. Seeds sent to UFMG Natural History Museum and Botanical Garden will be cultivate and part of the plants generated will be planted on the exposition garden area and added to the living collection. Plants on the exposition area will have labels with information about the scientific e popular names, distribution and biological importance. Plants vouchers were included in the herbarium collection and bees' exemplars are in UFMG Natural History Museum, both are available to public access.

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

The Rio Preto Park is very important to local community, after the service public; it is the largest employer in the region and has high esteem from the local community. All the questions involving the park has special interest. Therefore, the environmental education on the schools, close to the Rio Preto Park, was the major contribution to local community involvement.

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

Yes! We have an additional funding from a local foundation (FAPEMIG) to maintain part of this project until the end of 2017. Additionally, we are looking for other funds to provide the extra costs, which cannot be funded by FAPEMIG (eg. fuel, Vehicle rental).

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

We are preparing article to be published in international scientific journal.

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

The RGS was used during the fieldwork in Rio Preto Park, in three periods: (1) from 05.09.2015 up to 25.11.2015; (2) between 08.01.2016 and 16.01.2016; (3) between

20.02.2016 and 23.02.2016. We also used the RGS before go to the Rio Preto Park to buy field and laboratory material. We used the budget how scheduled.

**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 material	225	225	0	
Laboratory material	195	195	0	
Fuel	750	954	-204	There was a significant increase in gasoline prices in Brazil during the period of the fieldwork.
Macro lens	587	457	130	
Vehicle Rental	1175	1100	75	We used vehicle rental more times than the expected, but on the other hand, we found cheaper prices.
<b>TOTAL</b>	<b>2932</b>	<b>2931</b>		

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

The most important step to the future is cultivate more plants species to distribute an enough number of seedlings to participants in environmental education activities, at least one seedling per participant. Other crucial step is germinate seeds that have mechanisms that breaks physical or physiological dormancy. We should investigate what is causing the seed dormancy and how overcome this issue.

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

We have mentioned the RSGF during the lectures at target schools and we emphasise the importance of this donation to support own activities. We also thank the RSGF in all the presentations and lectures conferences that we have participated in Brazil.

**11. Any other comments?**

I am very gratefully for the Rufford Foundation contribution. Thank you very much for your kind support.

