Final Evaluation Report

Your Details	
Full Name	Davidson Gomes Nogueira
Project Title	Interactions between fish, invertebrates and fruits in a karstic tropical stream
Application ID	27695-1
Grant Amount	£4,385
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Date of this Report	July 2020

1. 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
Experiments of fish distribution, fruit consumption, and macroconsumers exclusion.				The experiments of fish distribution and fruit consumption occurred according to plan. The experiment of macroconsumer exclusion was carried out; however, we did not use electromagnetic pulses to prevent macroconsumers from accessing patches. Rather, we used physical exclusion by using nets to prevent macroconsumer access to fruit patches.
Preparation of Audio-visual material				The initial objective was to prepare an informative video of the results that would encourage the preservation of riparian areas and aquatic fauna. We created a video of the Mastering Dissertation tethered to the project showing the research, the results, and the implications for conservation from these results (available at https://youtu.be/B9LbCjelxpY). We went ahead and created an Instagram that was regularly posted on the progression of the research and activities carried out during the project.
Presentation of the results in school				We were able to form a partnership with a school to present to students the research and the results of the research to school students. We set out with the intention of working with 70 students from fifth to ninth grades and were able to involve 130 students from the fifth to 12th grades. They were able to visit the study site and learn on the field the importance of riparian conservation to fauna preservation. They also learned how ecotourism can be profitable to their own community.

Website with the student's experiences				Unfortunately, we were not able to create a webpage with they experience because we could only take them to the field near final exams and summer holidays, and the students were all dispersed after that.
Citizen science kids				We did take the students to the field to evaluate the integrity of streams. However, we encountered the same difficulties for creating the website, since the students were at the end of the school term, and we could not manage other dates.
Submission of articles for publishing				We are still working on sending articles for publishing on peer reviewed journals, but we will not be able to have them approved before the final report is due. We did however send the research to an international congress giving an oral presentation (http://www.limnos2019.com.br/) and on the Rufford Conference in Uruguay.
Mastering dissertation				The dissertation was complete and presented in April 2020. (available at https://youtu.be/B9LbCjelxpY)
Minicourses for Teachers and local ecotourists.				We teamed up with another Rufford grant awarded (Isabel Melo Vasquez – Project: Threshold of Species Loss in the Cerrado Hotspot) to give this mini course. We Presented to them the results from our research and apportioned time to come up with ideas for local environmental conservation. Also showed and explained to them paths for funding projects such as those.
Dossiers with our results to stakeholders				We were finishing our results to prepare the dossier to deliver to stakeholders when the pandemic disease arrived, therefore, we could nether deliver the dossier nor schedule a meeting. Nevertheless, we are providing our results to local owners, NGO partner of the project, so that they can take actions towards preservation and contact stakeholders when times are better.

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

The biggest difficulty was the pandemic disease that made its way here before we could proceed to meetings with stakeholders. To overcome this, we are sending our results to local guides, professionals of environmental sectors, teachers, and local owners. We are also sending our findings for conservation via e-mail to stakeholders, but we are unable to schedule meetings.

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

The first is our indication that not only the riparian forest is important but single trees have its place on the structuring of the aquatic animal community both in space and time, especially fruit trees.

Second is the engagement of the students on the field activities. Students are usually eager for a field visit, but they showed an involvement on the activities with the lessons they saw during lectures and workshops and tried applying the lessons on the field when trying to evaluate streams' integrity.

And third, the local tour guides and teachers showed interest on learning from our results during the mini course, they participated and developed projects that are possibly going to become initiatives for local fauna and flora preservation.

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

Local tour guides started presenting the projects to tourists, presenting the main goal and the importance to local freshwater biodiversity conservation, and after learning about the results, they started presenting to tourists the importance of frugivorous trees to the freshwater community.

Many tour guides participated in the mini course and workshop we ministered, as well as environment professionals from the city's tour department.

The students that participated in the lectures, workshops and field visits soon shared the experience and other schools also wanted to participate. We could not attend them anymore, however, the owners and managers of the property we conducted our research and where we took our students, started a project of their own to bring students from the city to learn on the field the importance of ecotourism to environmental conservation.

5. Are there any plans to continue this work?

The work with the local community will continue, through the project the owner and managers of the touristic attraction started, showing and teaching to local teachers and students the importance of ecotourism to environmental conservation.

The tour guides intended to keep using our results to instruct tourists, and the touristic attractions now strongly encourage tour guides to do so.

The research I set out to do was concluded, however, through the behaviour we were able to observe, and the local characteristics that permitted to do so, other questions arouse and perhaps we will undertake another project during my doctoral studies.

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

We already shared the results to the local students, tour guides, and local owners. The defence of the MD thesis the project was linked to was recorded and transmitted on YouTube (https://youtu.be/B9LbCjelxpY). We intend to prepare a resumed (with a less technical language) version of the results to provide via e-mail to local owners and schools so they can help spread these results more efficiently where the results will have more impact.

To a more scientific community, we will publish at least two articles from the results on pear reviewed journals; the first "The biases and gaps on studies about the importance of fruits: a comparison between aquatic and terrestrial environment" and the second "The fruit role on fish assemblage in a karst stream" (both temporary titles).

After presenting the research, I was offered a position on propagation and characterisation of regional biodiversity (in the Biota MS), this position also allows for divulgation of our results and is a link to regional government to share our results with them.

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

The activities mostly occurred during the first 6 months. It progressed with few changes in the timescale from what we proposed.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Printed material	100		-100	I was unable to print material to deliver due to the pandemic

Fruits	75	75		
Diving suit	100	248	+148	Original price was for black. I had to buy a camouflaged one
1 External HD	51	85	+34	Original price was for 1TB. I bought one of 4TB to guarantee storage for medias
2 Camera sets	730	769	+39	The price of the camera changed
Car Battery Recharger	53		-53	Did not use
6 Car Batteries 12v	342		-342	Did not use
Lodging + Food	2520	2456	-64	
Fuel (500 litres)	414	626	+212	
Insurance		126	+126	At the time of writing the proposal, I did not account for the insurance for the field experiments.
TOTAL	**4385**	**4385**		

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

To make sure that the results that were yet not presented to the local and scientific community are presented and provide support (scientific or through experience) to initiatives that arise in the near future aiming environmental conservation.
Start a new project while locals still taste the participation on this one.

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

Yes and yes, we used the Rufford Foundation's logo at the XVII Congresso Brasileiro de Limnologia e do II Congresso Ibero-Americano de Limnologia (an international congress of limnology, at the workshop for local tour guides, teachers, and environmental professionals we organised, and at the Rufford Conference in Uruguay. The logo also went on the MD presentation, that is available online, and the Instagram account created solely to present the progression of the project (https://www.instagram.com/ffi.interactions/) and the logo will appear on the material we will send to local schools and properties. The Rufford name shall appear in any published papers resulting from this research.

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

Davidson Gomes Nogueira – Fundação Universidade Federal de Mato Grosso do Sul – Project's leader;

Fábio de Oliveira Roque – Fundação Universidade Federal de Mato Grosso do Sul – MD advisor, scientific support and support on planning and writing;

Francisco Valente-Neto – Fundação Universidade Federal de Mato Grosso do Sul – MD advisor, scientific support and support on planning and writing;

Rudi Ricardo Laps – Fundação Universidade Federal de Mato Grosso do Sul – scientific support and support on planning and writing.

Alan P. Covich – University of Georgia – scientific support and support on planning and writing.

Franco Leandro de Souza – Fundação Universidade Federal de Mato Grosso do Sul – support on planning and writing;

José Sabino – Universidade Anhanguera-Uniderp – support on planning and writing.
Francisco Severo-Neto – Fundação Universidade Federal de Mato Grosso do Sul – scientific support;

Willian Nassar de Moreira Eduardo – Fundação Universidade Federal de Mato Grosso do Sul – technical support on field experiments, and support with the students' activities.

Vanessa Silva das Chagas – Fundação Universidade Federal de Mato Grosso do Sul – technical support on field experiments, and support with the students' activities.

Wesley Corrêa Arguelho – Colégio Dom Bosco – support with the students' activities.

Rose Mary Araújo – Wetlands International / Mupan (Mulheres em Ação no Pantanal) – financial managing support.

Áurea da Silva Garcia – Wetlands International / Mupan (Mulheres em Ação no Pantanal) – financial managing support.

12. Any other comments?

I would like to thank the Graduate Program in Ecology and Conservation for the scientific support during my MD studies and CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) for the scholarship.

We would like to thank the Grupo Rio da Prata, for the support on the research and with local students during our field activities, a special thanks to the owners Eduardo Coelho and Luiza Coelho and the manager Teodison Mano, as well as the local staff to receive us.

We would like to thank the Colégio Dom Bosco – Jardim, MS for the support with the students and embrace our project, a special thanks to the headmaster Floriana Franco Lozano and teacher Wesley Corrêa Arguelho.

We would like to thank Wetlands International / Mupan – Mulheres em Ação no Pantanal for the partnership financial managing support throughout the project, a special thanks to Áurea da Silva Garcia and Rose Mary Araújo.

We would like to thank the tour guides for helping spread our research to tourists, a special thanks to the tour guides Vanderson, Marcelo, Muller, Kennedy, and Senir that volunteered to guide the students during the field visits.

We would like to thank Sebrae Bonito, MS for assisting us during the workshop.

And finally, this team thanks The Rufford Foundation for the financial support, without which, this project would not have been possible.