Final Evaluation Report

Your Details	
Full Name	Rodrigo Barbosa Ferreira
Project Title	Integrating field research, citizen science and outreach to establish a conservation plan for threatened bromeliads and associated frogs in the Atlantic Forest
Application ID	31086-D
Grant Amount	£9920
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Date of this Report	07 March 2022

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
describing the morphology and genetics of the three new species (*Brachycephalus* sp., *Crossodactylodes* sp., and *Scinax* sp.) found during our ongoing fieldwork in remote hilltop forests				We have recently described two species from our study site (*Scinax pixinguinha, and Ischnocnema crassa)*. The manuscript of *Brachycephalus* has been rejected twice because we have only one exemplar. We have not found any new exemplar of this new species since 2012 despite massive sampling effort. The manuscript of *Crossodactylodes* sp., a bromeliad specialist, is under review in Zootaxa journal.
monitoring the composition, abundance and distribution of frogs and bromeliads in farmed areas through citizen science and in native forest using field techniques				This is an essential long-term objective. We have recorded six bromeliad-specialist frogs from 15 native forest sites between 2020 and 2021. Another ongoing sampling method is the autonomous audio recorders that have provided a valuable amount of data on species composition, abundance, and vocal activity from three native forests. The citizen science project has been very successful because many rural residents have engaged on taking pictures of bromeliad frogs and send to us.
studying habitat and microhabitat requirements of bromeliad frogs				Due to the rarity of some bromeliad frog species, we have been able to gather data for analysis on habitat requirements for three species so far. The manuscript of the new species of *Crossodactylodes* sp. has detailed description of habitat and microhabitat requirements. We have recently submitted another manuscript on habitat selection and acoustic activity by the bromeliad frog *Fritziana tonimi*. I have worked with Dr Richard Lethinen from Wooster University, Ohio to finish and publish a global-scale database on natural history of phytotelmata frogs.

determining the concentration of air-dispersed heavy metals in the rainwater accumulated in bromeliads and the effects on bromeliads and associated frogs				I had a master student that has recently presented the thesis reporting extremely high concentration of detrimental metals, that get accumulated in bromeliads after raining. Our conclusion is that bromeliads can be an ecological trap for frogs that use them in polluted areas. We have been working on the manuscript to publish these valuable data.
first screenings of bromeliad frogs for the deadly fungus (*Batrachochytrium dendrobatidis*)				Unfortunately, we were not able to make a partnership with a lab that runs this type of analysis. The lab we had partnered before switched to just run PCR for Covid samples.
investigating bromeliad trade at plant nurseries: number, origin, targeted species and associated organisms				This is an ongoing objective. We have interviewed 11 plant nursery owners to understand their bromeliad trade. Some nurseries were selling threatened species. We have worked on analysing these data. In addition, we have worked on identifying the bromeliads from farmer's gardens. Next phase, we plan on identifying the bromeliad species at local bromeliad nurseries and understand more details of the illegal trade. Our main goal regarding illegal trade is to organise courses and train rural women for producing and selling native bromeliads.
organizing the 2º research expedition to rediscover *Crossodactylodes pintoi*, an emblematic bromeliad frog that has not been seen since 1908				We were not able to get permits to access the park due to the Covid restrictions.
expanding our sampling design to Amazon and Caatinga ecoregions				Although we had setup partnership with two labs (Dr. Euvaldo Marciano Jr and Dra. Fernanda Werneck), we did not raise sufficient funds to conduct this goal.
engaging and training local citizen scientists to monitor bromeliad frogs around their houses in the farmed valleys				We have visited 22 families before the Covid breakout. Recently the Covid cases have going down, and then we have visited another 34 families following health safety protocols. Instead of entering their house, we have distributed educational materials and remained outside their homes to avoid direct

				contact. Since then, they have sent us photos of the bromeliad frogs and other organisms as well from their gardens. We plan on expanding this citizen science programme to include more local farmers and communities surrounding the reserves. Also, frequent visits to their homes are necessary to keep their engagement.
expanding outreach activities to remote local communities and elementary schools through science exposition with water-terrariums of live amphibians, poster presentations, and educational games				Unfortunately, this objective was not fully done due to Covid restrictions. Schools, community centres have been closed for any extra activity and event. Instead, we have distributed educational materials during our visits to their homes.
organizing the fourth local edition of the international event "Save the Frogs Day" at the local research institute				The local research institute has been closed since the Covid outbreak. Instead, we have celebrated the "Save the Frogs Day" through social media posts.
continuing the itinerant photographic exposition at farmer's markets, villages, elementary schools, and the local research institute				Unfortunately, this objective was prevented due to the Covid outbreak. Schools, community centres, and the research institute have been closed for any extra activity and event.
producing three short educational documentaries focused on bromeliads and frogs				We have produced short educational documentaries that have been used by some teachers in the regional elementary schools (see the project's YouTube page). They have also been used in the project´s members talks and presentations.
expanding the involvement on social media (Instagram and Facebook) and local newspapers				The Covid outbreak has prevented us from conducting in-person activities but we have invested in massive involvement on social media by weekly educational posts and games. In 2021, we published 47 posts on Instagram and Facebook focused on bromeliads and associated frogs.
training of an early-career scientist in developing a captive breeding program for bromeliad frogs				The training on captive breeding in the Smithsonian Tropical Institute in Panama was closed during the Covid outbreak.

engaging local artists in producing handcrafts of frogs and bromeliads to be distributed online and at scientific and educational events				We have contacted some local artists and we have been developing the products.

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

The Covid outbreak had a serious disruption on our plans, especially regarding the engagement of students, and rural residents and mainly regarding the organisation of educational events. The local community centres, research institute, and elementary schools were closed in 2020 and 2021 for extra activities and events. To overcome this difficulty, we distributed educational materials, engaged massively on social media and published on local/regional newspapers.

Brazil's federal and states governments have dramatically cut the budget for education, research and environmental conservation. Several government grants had not opened for application in 2021. We worked on another proposal because we rely solely on grants from foreigner institutions to continue our research and education programmes.

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

- The discovery and description of new species (e.g., two described in 2021 and three under description) have been our priority in the last decade since the project's landscape has been under intense degradation. Especially during the Covid outbreak, people from urban areas have been moving to rural areas and then they cut the forest down for construction and agriculture. Therefore, we have sampled new and remote sites mainly areas under imminent deforestation.

- The outreach activities have always been our priority. However, due to the Covid outbreak the events have been replaced by the distribution of educational materials has been an important strategy to translate our scientific outcomes and engage the local farmers. We have also invested massively on engagement through social media with 42 posts in Instagram and Facebook and 15 videos in YouTube.

- Establishment of the citizen science programme by training and engaging local farmers to monitor bromeliad frogs in their gardens across the agricultural valleys surrounding the Augusto Ruschi Biological Reserve.

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

The local communities are fully involved in our educational programmes. It is worth mentioning the positive response we received from local villagers once we

presented ourselves as frog researchers. They have happily engaged in our citizen science programme by photographing bromeliad frogs in their gardens, and even recording their calls. The kids were happy when they received educational colouring booklets and a kit with many play items. The local farmers often thanked us for visiting them, for giving educational materials and for engaging them in outreach activities. This year, we also involved local residents during data collection of our project. Two local field assistants were hired, strengthening local capacity building and local cooperation. They received intensive training on sampling techniques, as well as learnt to complete worksheets, and conduct floristic surveys, becoming good professionals to assist further projects on biodiversity surveys. Local handcrafters have been developing products of frogs to be sold by our project. Rural women have been willing to take the future training on bromeliad production and trade. In addition, we have engaged with local people and general public through social media.

5. Are there any plans to continue this work?

Yes, and we are optimistic we are in a stronger position to collect invaluable data on the effects of environmental change on bromeliad frog communities, continue finding new species, as well as collect invaluable data on IUCN Data Deficient and threatened species. Our data has also been vital to help on conservation assessments of the Espirito Santo State Red List, where I coordinated the team evaluating amphibians. This is our recent major successful effort in improving environmental policies and management practices in the Atlantic rainforest. We thoroughly believe the research and educational components of this successful work should continue to assure long-time behavioural changes in the local community toward environmental protection.

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

The information obtained in the study has been disseminated throughout several approaches. For the scientific public, we have presented nine talks, helped with ecological data for updating the conservation assessments of many frog species for the State Red List, and produced eight publications in scientific journals in 2021. For the local communities, we have presented our results through home visits, distribution of educational materials, social media, and in a local newspaper. For the general public, we have published 42 posts on social media (Facebook and Instagram) to share news, research updates and fieldwork findings, posted 15 educational videos on YouTube, published 21 texts on newspapers and magazines, and provided two radio and nine TV show interviews.

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

We used the Rufford grant from January 2021 to January 2022 to accomplish our scientific and educational goals.

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
Gas (vehicle)	1560	1850	+290	
Car maintenance	830	960	+130	
Field assistants (3 people)	1950	1950		
Laboratory costs	1300	470	-830	We established a partnership with a lab that reduced the costs of DNA analysis.
Supplies for outreach	580	930	+350	Due to the covid outbreak, we invested more on educational materials.
Office supplies	160	160		
Promotional items (stickers, pen, mug, squeeze, Eco bag etc.)	205	570	+270	Due to the covid outbreak, we invested more on educational materials.
Fieldwork food	400	400		
Fieldwork supplies	700	700		
Informative booklets (1500 booklets)	840	840		
Field guide of bromeliad frogs	450		-450	We were not able to finish the field guide and then we transferred this amount to the "supplies for outreach" and "promotional items"
Headlamps (15) and batteries	300	540	+240	We purchased better quality headlamps than we previously planned.
Educational short-video documentaries (3 videos)	645	550		
TOTAL	**9920**	**9920**		

Notes to budget: We assumed currency conversion as £1 to R$6.64 on March 8th, 2022.

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

a) Empower rural women by training on bromeliad production and trade.

b) Conduct sampling at remote sites expecting to harbour new populations and species of bromeliads and frogs, especially areas facing imminent deforestation.

c) Organise outreach activities in rural communities, local schools and research institute.

d) Expand the citizen science programme by engaging more local farmers and students.

e) Continue mentoring young students and biologists.

f) Produce three short video documentaries about natural history of organisms that use bromeliads.

g) Organise the 2023 world acclaimed "Save the Frogs Day".

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?

Rufford Foundation was exposed to our audience through banners, bumper stickers, booklets for kids, oral presentations, instructive pamphlets, social media posts, and scientific publications. Below, we provide some details of media and publicity:

a) The project's vehicle has a large bumper sticker of Rufford logo.

b) ~450 educational materials (stickers, booklets, pamphlets, and folders) distributed to the local villagers have Rufford logo.

c) 42 posts on social media (Facebook and Instagram) mention Rufford hashtag.

d) 9 oral talks presented at conferences have Rufford logo.

e) The project's website (www.imd.org.br/projetobromelias) has Rufford logo.

f) 15 educational videos on YouTube.

g) 21 texts on newspapers and magazines.

h) 8 scientific publications acknowledged Rufford Foundation. Rufford Foundation will be acknowledged in forthcoming publications.

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

MSc. Cassio Zocca Zandomenico from Instituto Nacional da Mata Atlântica. Cassio has worked with me since 2011, when I got the first Rufford support. Cassio finished the master in Ecology, and I was his advisor. Cassio is interested on inventorying the assemblages of bromeliad frogs across the landscape. Cassio became the key person to conduct the project's scientific and educational goals. Cassio has been working on several scientific publications.

MSc. Juliana Alves from the NGO Instituto Marcos Daniel has been the biologist responsible for the social media posts. She was my Master student investigating the concentration of air-dispersed heavy metals stored in the rainwater of bromeliads.

Dr. Cecilia Waichert from Universidade Vila Velha has contributed on identifying the invertebrates found inside bromeliads which may be predator, prey and/or competitor of bromeliad frogs.

Dr. João Victor Lacerda from Instituto Nacional da Mata Atlântica. João has a PhD in Zoology and is focused on taxonomy. Recently, João received a two-year scholarship from Instituto Nacional da Mata Atlântica. Thus, João is the key person to conduct the project's scientific and educational goals. João has led the description of the new species of frogs and the description of calls and tadpoles of several species. João has been monitoring the bromeliad frogs across the landscape. João is a valuable addition to the project's team.

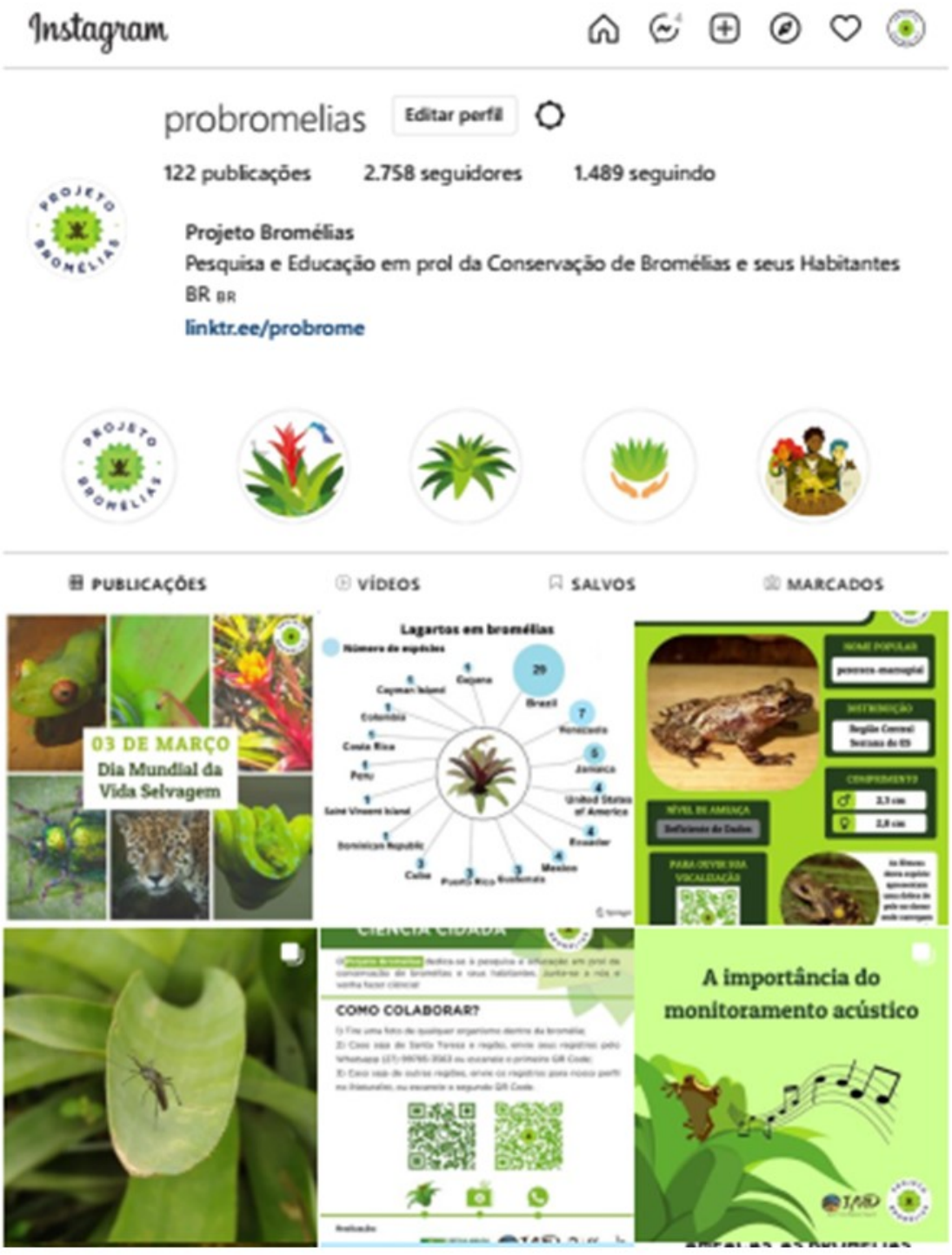
Dr. Karen Beard from Utah State University was my PhD advisor working with me on conservation of bromeliad frogs. She is well known on the field of conservation biology and helps on publications.

Dr. João Filipe R. Tonini from Harvard University has been developing research on bromeliad microbiome and leading publications on evolutionary aspects of the association between bromeliads and frogs.

12. Any other comments?

This project represents a key step in integrating scientific knowledge and local communities to implement sustainable management practices in private properties surrounding biological reserves at Santa Teresa, a biodiversity hotspot in Brazil's Atlantic Forest. This project's outcomes certainly would not have been possible without the generous support of The Rufford Foundation, for which we are extremely grateful. We have a plan on naming a new species of bromeliad frog as "Rufford…".


Fritziana tonimi
probromelias e imdbrasil
probromelias Hoje o Projeto Bromélias traz para vocês o primeiro card de 2022, e a espécie contemplada é a Fritziana tonimi!
Conhecida popularmente como pererecamarsupial, esta espécie apresenta uma dobra de pele no dorso com a finalidade de carregar seus ovos até a eclosão. Quando eclodidos, os girinos são depositados no tanque de água das
Ver insights
Curtido por inma.oficial e outras 97 pessoas
16 DE FEVEREIRO
Adicione um comentário...
Publicar


Instagram
probromelias
Editar perfil
122 publicações
2.758 seguidores
1.489 seguindo
Projeto Bromélias
Pesquisa e Educação em prol da Conservação de Bromélias e seus Habitantes
BR BR
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PUBLICAÇÕES
VÍDEOS
SALVOS
MARCADOS
03 DE MARÇO
Dia Mundial da Vida Selvagem
Lagartos em bromélias
COMO COLABORAR?
A importância do monitoramento acústico


probromelias e imdbrasil
CIÊNCIA CIDADÃ
O Projeto Bromélias dedica-se à pesquisa e educação em prol da conservação de bromélias e seus habitantes. Junte-se a nós e venha fazer ciência!
COMO COLABORAR?
1) Tire uma foto de qualquer organismo dentro da bromélia;
2) Caso seja de Santa Teresa e região, envie seus registros pelo Whatsapp (27) 99785-3563 ou escaneie o primeiro QR Code;
3) Caso seja de outras regiões, envie os registros para nosso perfil no iNaturalist, ou escaneie o segundo QR Code.
Realização:
https://www.imd.org.br/projeto-bromelias
probromelias Você conhece a iniciativa de ciência cidadã do Projeto Bromélias?!
Nossa iniciativa tem como objetivo promover o conhecimento sobre os organismos que habitam as bromélias por meio do engajamento comunitário. Os registros fornecidos pelos colaboradores podem ser úteis, ampliando nosso conhecimento sobre
Ver insights
Curtido por inma.oficial e outras 70 pessoas
2 DE FEVEREIRO
Adicione um comentário...
Publicar