

Final Evaluation Report

Your Details	
Full Name	Atila Ferreguetti
Project Title	Understanding the yellow fever impact on populations of four Primates species in the Vale Natural Reserve, Espirito Santo state, Brazil
Application ID	26925-2
Date of this Report	2022-08-03

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
<p>To estimate of the four species of Primates (i.e., the Crested Capuchin – <i>Sapajus robustus</i>; the Brown Howler – <i>Alouatta guariba</i>; the Atlantic Titi – <i>Callicebus personatus</i>; the Geoffroy's Tufted-ear Marmoset – <i>Callithrix geoffroyi</i>) that occur in the Vale Natural Reserve after the outbreak of yellow fever in the region.</p>				<p>We estimated density of the four species as predicted. These data will be available in a scientific paper. After we publish the results, we will give lectures on species conservation in the area.</p> <p>Two more years of estimates were provided with this new stage of funding after the yellow fever outbreak. Only the population of the brown howler <i>Alouatta guariba</i> was severely affected in the region, with a reduction of approximately 70% of its abundance in the years 2015 and 2016. It is important to continue monitoring to verify if the actions adopted for the conservation of the species and recovery of the population have had positive effects.</p>
<p>To understand if these populations were impacted after the outbreak of yellow fever in the region.</p>				<p>In addition to density, we estimated the group size for each primate species and the male/female ratio. Thus, it was possible to understand how these populations are structured.</p> <p>Again, only the population of the brown howler <i>Alouatta guariba</i> was severely affected in the region, with a reduction of approximately 70% of its abundance in the years 2015 and 2016. It is important to continue monitoring to verify if the actions adopted for the conservation of the species and recovery of the population have had positive effects.</p> <p>The other three primate species had no significant impacts on their populations.</p>

2. Describe the three most important outcomes of your project.

a). To be able to monitor the populations of the four primates over 2 years after one of the biggest yellow fever outbreaks in the region.

b). To be able to identify the impacts for the population of brown howler *Alouatta guariba* that was severely impacted by the yellow fever outbreak. This result was extremely important to adopt emergency actions for the conservation and recovery of the species population in the region. The species had a drastic reduction of approximately 70% of its abundance compared to the initial years.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

Without a doubt, the Covid-19 pandemic. The pandemic made our field activities difficult. We had to stop activities in 2020 due to quarantine. This certainly resulted in a delay in the progress of the project and in the achievement of results. It is also important to point out that this delay may have been even more detrimental to the recovery of the population of brown howler *Alouatta guariba* that were severely affected by the yellow fever outbreak. The delay in obtaining the results was unfortunately one of the biggest setbacks faced.

4. Describe the involvement of local communities and how they have benefited from the project.

The community was actively involved in the project in early 2019 through field trips and data collection. In addition, a huge amount of awareness raising work was carried out to prevent the population from killing the non-human primates targeted by this project. The population was initially blaming the outbreak of the disease (yellow fever) on primates. However, awareness was raised that primates were sentinels for the disease. As mentioned in the previous topic, the Covid-19 pandemic made our field activities difficult. We had to stop activities in 2020 due to quarantine. Activities with the population only resumed in mid-2021.

5. Are there any plans to continue this work?

Undoubtedly, the work must continue. The project is seen as hard work that must be continued over a long period of time. Mainly with the objective of continuing to have the active participation of the local community in the recovery of the population of brown howler *Alouatta guariba*. In addition, the region has a high rate of poaching and needs to continue a long and participatory process by the community to be able to mitigate the effect of poaching on populations of large land mammals and birds.

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

Results are available from local education and research centres. In addition, all results will be duly published in international journals and as reports to the local

community and decision makers. The project team has also publicised the project through lectures and environmental education courses.

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

The next steps should involve actions for the recovery of the population of brown howler *Alouatta guariba* through stimuli for reproduction. In addition, it is important to continue monitoring populations and estimating the negative effect of poaching on all mammal species. The entire process must be inclusive and rely on the local community to increasingly encourage conservation in this region, which is so important for several endangered species.

8. 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, every lecture and workshop had the Rufford Foundation logo. At every opportunity The Rufford Foundation was duly mentioned, and thanks are immense to the foundation for supporting our project. In addition, all material produced in the future will continue to bear the Rufford Foundation logo.

9. Provide a full list of all the members of your team and their role in the project.

Juliane Ribeiro, Fabiana Cassar, Pablo Bonfante Batista, Lenon Merlo, Yann Machado, Carolina Lacerda, Rayanne Gama Matos & Atilla Ferregueti.

10. Any other comments?

It's important to talk to government and local authority to promote and enhance forest protection of the Vale Natural Reserve and all fragments of Atlantic Forest in the area through better surveillance. The Linhares-Sooretama Block of Atlantic Forest which the Vale Natural Reserve constitutes about 40%, it represents a great portion of the unique and endemic flora and fauna of the Atlantic Forest.

We would like to thank The Rufford Foundation for the financial support. The grant has been essential to fund the monthly excursions to the Vale Natural Reserve, since currently Brazil does not have any money to assist students in their field trips, and there is no public transportation to the reserve. I am very proud to interact with the Rufford Foundation. Thank you for helping young researchers like me in their mission to contribute to the conservation of biodiversity around the world!