

Final Evaluation Report

Your Details	
Full Name	Dayene Santiago Mendes
Project Title	Main sources and impacts of microplastic pollution on mangroves on the Brazilian Amazon coast
Application ID	30854-1
Date of this Report	05/09/2022

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
Quantify and identify the microplastic pollutants in the mangroves by analysing water and sediment of this ecosystem				All field trips were carried out and all the samples necessary to quantify the microplastics present in the research areas were obtained.
Quantify and identify the microplastics present in the mangrove crab				The results of this objective are in the process of data analysis.
Promote the diffusion of scientific knowledge and the traditional population in order to motivate the conservation mentality of one of the most productive ecosystems and adapted to the effects of environmental changes, considering the mangrove crab, <i>Ucides cordatus</i> , as a key species				This objective does not end with the project, as it is part of a constant and long-term process of democratising information and seeking to disseminate knowledge.
Extra: promote guidance on the treatment and proper disposal of plastic particles				Still at a preparatory stage.

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

a). Even though it is considered a preserved ecosystem, the mangrove swamp of the Ajuruteua-PA peninsula, on the Brazilian Amazon coast, is subject to plastic and microplastic pollution.

b). We established a partnership with the "Mangues da Amazônia" project to coordinate activities aimed at raising awareness and mitigating the negative impacts generated by plastic pollution, together with government organisations and the public sector of the city of Bragança. One of the most important activities was the coordination and active participation of cleaning activities in mangrove and beach areas. The Rufford Foundation has always been mentioned in the announcements and banners of these activities.

c). We got the attention of the media, with some interviews on social networks (Instagram), on journalistic sites (Interview: <https://www.modifica.com.br/amazonia-manguezais-clima/>) and on TV (classes on solid waste – plastic – in the mangrove).

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

The scenario generated by the Covid-19 pandemic was the main difficulty that arose during the execution of the project. This problem was overcome by postponing and rescheduling all field activities and actions with the communities, considering all the necessary care in the face of the effects of the pandemic, so that activities/actions took place in the best possible way.

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

It is always very important to have the participation of the local community in projects like ours, as their traditional knowledge of mangroves, crab fishing, and tidal dynamics allows us to choose the best periods to carry out fieldwork. In addition, through our activities, they participate more directly in the project and are more actively involved in the process of local environmental conservation, in addition to being always willing to learn more and more. Due to the great interest in the project's theme, some people have already started to adopt solid waste classification measures. However, additional work is still needed with estuarine-coastal communities, to implement good management practices regarding solid waste. The dissemination of this project was essential to disseminate the importance of fighting the problem of plastic pollution in the coastal zone.

5. Are there any plans to continue this work?

Yes, there is a growing need to understand more and more the distribution and sources of plastics and microplastics in estuarine-coastal environments. It is necessary to increase the frequency of sampling campaigns, as well as expand the area of action and involve different actors, in addition to the local community, such as governance, the scientific community, the third sector, and other social actors. The creation of new partnerships is a complementary strategy to better know and understand the current pollution scenario and try to find different ways to minimise the inappropriate disposal of solid waste. We believe that the next step is to assess the negative impact generated by anthropogenic marine litter on coastal ecosystems. Macroplastics and ghost fishing also need to be considered, as numerous marine species have already been recorded with death from entanglement, suffocation or ingestion of this material. The information generated is also essential as subsidies for raising public awareness about this serious problem. In addition, information on the impact of plastic pollution in coastal areas is still scarce and needs more attention, especially along the entire Brazilian Amazon coast.

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

We believe that works that generate this type of information should always reach as many people and types of social groups as possible. Therefore, our results will be shared through different means of dissemination, to serve the general public, from people who live in traditional communities to our peers in the scientific community.

- Traditional communities: use of newsletters, social networks (e.g., Instagram and LinkedIn), with simplified versions and appropriate language for the target audience. Furthermore, lectures and workshops with the active collaboration of NGOs are part of our plans for the democratisation of knowledge.
- Scientific community: through publication in scientific articles, scientific dissemination, and review in national and international scientific journals, in addition to participation in symposia, congresses, or similar meetings.

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

The Rufford Foundation plays a very important role in the lives of researchers at the beginning of their careers, helping small proposals to become viable projects in developing countries, such as Brazil. For me, it was an incredible experience, where the future steps are: i) to continue the line of research in conservation in the coastal marine biome; ii) to continue to democratize science; iii) to work on environmental education involving all possible sectors; iv) to increase the strengthened ties with local traditional communities, aiming at environmental conservation (especially in marine environments such as mangroves) and the wellbeing of human populations that depend on these resources; and v) to contribute to the development of a larger plan to highlight the importance of containing plastic pollution. In addition, the plan is also to continue to be involved in socio-environmental projects with the Mangrove Ecology Laboratory (LAMA) and the SARAMBUÍ Association, working on conservation and sustainable development on the Brazilian Amazon coast.

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, the Rufford Foundation logo was used in the banners of the public actions in which the project participated and in a printed and digital newsletter (see project reports for more information).

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

John Lennon (Mangues da Amazônia project): Contributed with logistical support.

Daniel Nobre: Contributed with laboratory support.

Colin Beasley: Contributed to improvements in the methodological approach and provided fieldwork material (dredge van venn).

Marcus Fernandes: Participated with supervision and corrections of reports and contributed with logistical support of fieldwork and laboratory activities.

In addition to the 6 people – **Emylle Paixão, Mayron Silva, Yan Gatinho, José Farias, José Moraes e Sebastião Silva** - who were extremely important during the fieldwork.

10. Any other comments?

All data is being analysed. The thesis and scientific articles are being prepared.

I would like to express my sincere gratitude and appreciation to The Rufford Foundation, as the present study would not have been possible without this funding. Your support is essential to our research efforts and gives us the direction to make a difference in terms of conservation. Therefore, I would also like to thank everyone who, directly or indirectly, was part of this project.

Definitely, this support and achievements throughout our career encourage us to continue working in this direction. I am very happy to have been part of The Rufford Foundation family and to have developed this project, so thank you very much indeed.