

Final Evaluation Report

Your Details	
Full Name	Luis Alfredo Guizada Duran
Project Title	Abundance and population trends of the Bolivian river dolphin (<i>Inia boliviensis</i>) in its main distribution area in Bolivia over a 20-year historical series
Application ID	35641-1
Date of this Report	3 rd January, 2024

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
To estimate the abundance of the Bolivian river dolphin in its main range in Bolivia (tributary rivers of the Mamoré and Iténez basins) using standardized visual methods				(80%) The abundance of the Bolivian river dolphin was estimated in the rivers of the Mamore River sub-basin (Ibare, Mamore, Apere, Yacuma), which are significant due to the increasing anthropogenic pressures. The rivers of the Itenez Basin could not be assessed due to socio-political effects in the country (explained later).
To investigate the population trend of the Bolivian river dolphin in its main range in Bolivia.				(100%) Using data collected over more than two decades in the Ibare-Mamoré-Tijamuchi rivers, a research study was conducted employing robust statistical models to assess population trends in these sites, which have the highest amount of available and comparable data. It was determined that there is a slight decreasing trend in dolphin populations. Even though it is subtle, it is crucial to monitor this trend.
To determine the state of the art of the Bolivian river dolphin ,geographic distribution, population size, and threats at the national level.				(60%) The review of the state of the art at the national level is currently under development. Significant progress has been made in reviewing genetic topics related to intrinsic threats to the species, resulting in the drafting of a manuscript for future publication. However, there is still a need to assess other pending issues, such as distribution, threats, and population size. The information related to these aspects has been updated thanks to the provided grant.
To evaluate the use of passive acoustic methods (PAM) as an alternative method for population studies				(85%) The initial work with a passive acoustic device was conducted as part of the project. An F-POD device from the Aqualie laboratory in Brazil was installed for this purpose. This device recorded continuously for a

			<p>total period of 12 months, 24/7, offering valuable new information. While more detailed analyses are pending, the preliminary results of the conducted surveys are presented.</p>
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2. Describe the three most important outcomes of your project.

a). The first attempt to assess the population trend of the Bolivian river dolphin at the national level was conducted. Using systematic, comparable, and recent information, a generalised linear model was developed to estimate a slight reduction trend in the species, utilising data from the most studied rivers in the distribution area (with information since 1998). This result is currently undergoing peer review for subsequent publication.





Figure 1. Technical support staff assisted in the fieldwork, specifically in the counting of pink river dolphins for population estimates during various campaigns conducted between 2022 and 2023.

b). The initial acoustic records (click-type) for the species have been obtained. This information will be crucial for regional efforts to classify sounds, differentiate them from other dolphins (such as *Sotalia fluviatilis* or *Inia geoffrensis*). It is expected to use this information in the future to analyse annual and population fluctuations.





Figure 2. I work with the F-POD, involving the installation and periodic inspection of the equipment. This device has been in place for almost a year, continuously recording information in the Pojije River, Beni, Bolivia.

c). Active participation from local communities in Bolivian river dolphin conservation work was achieved in two municipal protected areas (Ibare-Mamore and Gran Mojos). These communities contributed to the acoustic work, monitoring the device's presence to ensure its functionality and collaborating in surveys conducted for the counting and population estimation of Bolivian river dolphins.

The most significant achievement of this work lies in our comprehensive efforts to assess and address the conservation status of the Bolivian river dolphin at the national level. We conducted an evaluation of population trends to highlight the conservation status of the species. Considering an apparent decline, it is crucial to continue strengthening conservation efforts by exploring technological alternatives that allow us to be more efficient in determining population changes. This can be achieved through the use of acoustic devices that can operate 24/7 to enhance monitoring. The active participation of local communities in conservation activities, particularly in two municipal protected areas, demonstrates a tangible impact on species conservation.

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

In terms of population estimates using the conventional method, our focus was solely on part of the proposed rivers. We assessed rivers lacking previous information, such as the Apere River and the Yacuma River, contributing to the updating and validation of distribution analyses. Evaluating rivers from another watershed (Iténez)

was not possible due to socio-political implications in the country. Bolivia faced significant economic instability during these 2 years, affecting the availability of funds at certain times and leading to increased costs, especially for travel to the study area, which is distant from major cities serving as logistical hubs. Therefore, it was crucial to concentrate efforts on more accessible rivers that reinforce the study's thematic focus on trends. The unevaluated rivers will be considered in the future.

On the other hand, the second highlight of the project was the successful installation of the F-POD, which operated continuously for a significant period, nearly a year of recording. However, due to the lack of floating houses or other safer locations (as is the case in Colombia or Brazil), the device was inactive for a period (February 2023 to June 2023) as river levels were too high to support system installation.

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

The project was primarily developed in the Ibare-Mamoré and Gran Mojos Municipal Protected Areas, involving over 20 local communities, mostly indigenous. All of them were informed about the work with the Bolivian river dolphin, and some collaborated by providing services such as drivers, guides, or renting their boats for the counts. Throughout the entire process, the technical team took on the task of explaining the biology, ecology, and natural history of the species, aiming for them to understand the reason why we are working to conserve it. The project benefited some individuals by providing them with economic income during fieldwork, recognising their valuable contribution. We aim to continue strengthening relationships and collaborating in the best possible way.

5. Are there any plans to continue this work?

The research and conservation of the Bolivian river dolphin in Bolivia have been ongoing efforts since 2009, assessing the Mamoré and Iténez rivers as financial resources allow. In line with this, the area remains of interest, and we are looking to explore rivers without previous information. Communities recognise us as allies in the conservation of the Bolivian river dolphin and its habitat. We expect to continue using new methods, technologies, and expanding our knowledge of the species.

Specifically, we want to monitor the populations of Bolivian river dolphins in the Ibare River following the construction and implementation of a government project that aims to extract water from the Ibare River for use as drinking water for the nearest city. We believe that this project will significantly impact the hydrobiological resources in the area, and the Bolivian river dolphin would serve as a good indicator to assess the response to the operation of this project. Having baseline data and conducting continuous, standardised monitoring will provide crucial control over the effects of projects of this nature on biodiversity.

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

Part of the results were presented at the IX National Congress of Mammalogy held in Bolivia in May 2023, where two oral presentations and a poster were delivered. The

publication on population trend titled "What do we know about the population trend of the Bolivian River Dolphin: A Population Analysis with long-term data" is currently under peer review.

The acoustic data is intended to be presented at the Latin American Congress of Mammalogy in Chile and also published scientifically.

Upon completion of this report, the grantee's website will be shared through our social media channels. Additionally, we plan to create informative digital materials about the main results once the publications are accepted.

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

As this project constitutes a doctoral thesis, the upcoming stages involve progressing with and finalising analyses (acoustics). Simultaneously, we will be compiling the conclusive thesis report. Following that, we will initiate the publication process for scientific articles presenting the outcomes of this project.

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, we produce informative content disseminated through our official Facebook channel. (link: https://www.facebook.com/GuardianesdelRio/?modal=focused_switcher_dialog). This material is designed to showcase some progress of the project and, primarily, to introduce people to the species.

The studies presented at the IX Bolivian Congress of Mammalogy prominently feature the logos of the Rufford Foundation as the sponsor. We share the disseminated materials:

<https://www.facebook.com/GuardianesdelRio/posts/pfbid02jiw1pDxihDaLvTEMbogW2RrXnRva7F2f3VBUSVLnmF1GCFudtE9hnEzuakpiPr7dl>

<https://www.facebook.com/GuardianesdelRio/posts/pfbid0r8FJpWxcapq5Ftt8tpZedxDga9SJBxXFSkv3K2hh1pAVsp7aNejrxcoB7fyWa4PNI>

We are attaching the presentations made at the IX Bolivian Congress of Mammalogy.

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

Alexandre Zerbini, Thesis Supervisor, serves as the guiding professor for planning the development of activities, provides guidance on data analysis, and supports the writing of the produced documents.

Mariana Paschoalini Frias, co-supervisor of the doctoral thesis work, played a crucial role in obtaining the F-POD for installation in Bolivia, handling the loan process. Simultaneously, she is responsible for providing continuous support in the

development of the thesis, contributing to the writing of research outputs, overseeing academic revisions, and guiding the analytical work.

Enzo Aliaga Rossel, our mentor in Bolivia, is a specialist in neotropical and aquatic mammals. Together, we secured all necessary permits for the research in Bolivia through local authorities, planned field entries, and collaborated during fieldwork. Enzo provides support and guidance in the writing, analysis, and discussion of results.

Many other persons also contributed to the project as volunteers and field guides, making consistent efforts to successfully carry out the work. They are mentioned without any particular order of importance: **Wilson Cespedes, Adhemar Bravo, Oscar Rivero, David Edinger, Lorena Zurita, Jesus Guasinave, Micaela Mendieta, Erick Guzman, Darios Rojas, Alberto Bravo.**

10. Any other comments?

The doctoral project is part of a comprehensive research and conservation programme for the Bolivian river dolphin at the national level. We are committed to continuing our efforts to preserve this species. Every year, we observe how the environment and rivers are increasingly affected by human activities. The fate of river dolphins is in jeopardy, and the Bolivian species is at a critical juncture to avoid facing the same future currently confronting other freshwater cetaceans. It is crucial to persist in our efforts in Bolivia to ensure the survival and well-being of these magnificent animals.