

Final Evaluation Report

Your Details	
Full Name	Ana Cecilia Ochoa
Project Title	"Implementing Long term Biodiversity Monitoring through RAPELD methodology in Central Argentina. Second step: Monitoring Medium and large sized mammal assemblages"
Application ID	37314-2
Date of this Report	December 30 th 2023

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
Consolidation of PPBio in Argentina				We managed to install two new RAPELD grids in different parts of Argentina and also share the method and philosophy of PPBio program with attendants to SAREM's (Sociedad Argentina para el Estudio de los Mamiferos) national meeting in Jujuy, and as we have done before, also with San Luis Biology students (UNSL). We also enhanced the articulation with other institutions including colleagues from national and international universities, landowners, NGOs (including WCS) and private reserves in San Luis Province.
Monitoring Medium size mammals in two National Parks in Central Argentina				We achieved the sampling of two RAPELD grids (30km ²) in two seasons each (wet/dry), including Sierra de las Quijadas National Park and Talampaya National Park. Having comparable data of assemblages of both parks (data was ordered and part of it has been published, other part is being analysed).
Developing Participative Monitoring with local Communities				We were able to work with two methodologies, one concerning the participative installation of camera traps (in northern San Luis and in Entre Rios fluvial islands in Uruguay river). We also interviewed inhabitants of different sites to be able to assess the perception and valuation of fauna by local communities and discover the biocultural importance of mammals for local communities in northern San Luis.
Designing, coordinating and Installing Artistic Trails in 4 Private Reserves in San Luis				We were able to coordinate with local private reserve owners and administrators and we designed in a participative manner the artistic trails (one in each reserve), according to local needs, capacities and the objectives of the reserve. Also, we coordinated with local artists, producing four mosaic pieces, five ceramic pieces and four illustrations referring to local fauna - we are still expecting six more art pieces (two mosaics, two illustrations and two wooden sculptures) and will be doing the

			installation and final setting of the trails during the summer and autumn of 2024. We will keep you updated of the progress.
Generating Training opportunities in RAPELD and PPBio methods and cooperative logics			We were able to organise several talks and workshops in different parts of Argentina, sharing with students and colleagues the RAPELD method, and the logics and collaborative proposal of PPBio. These activities included: two parcel installation courses, two participative monitoring experiences, two workshops with park rangers, and three experiences with undergraduate students.
Dissemination of native fauna through books, didactic material, courses, audiovisual and others			We were able to edit and print one story for children about native fauna. We were also able to create and print five different posters about native fauna in central San Lui. We created two audiovisuals and participated in three activities with children under 12 years and one activity with teenagers. These activities included games, storytelling, exhibition of sampling material and collection material, etc. They took place in San Luis, and in La Rioja provinces.
Publishing of Results in Journals and Scientific meetings			We presented in total 14 abstract regarding different research results and activities regarding mammals in Argentina. Four of these presentations were made to SAREM's meeting, Jornadas Argentinas de Mastozoologia (JAM) in 2022, and eight in the JAM 2023. We also presented two posters in the Argentinian National Ecology Meeting (RAE) in October 2023. We have published three articles in 2023 and have two accepted manuscripts (soon to be published). We also sent one more article in November 2023 that is currently being reviewed. We are preparing (discussing and reviewing in the group) four more articles of which at least two will be submitted in the first half of 2024.
Data availability			We were able to organise and complete the georeferenced database of all small mammals sampled by the project, with data of more than 1700 captures and 1200 individuals. We will soon be able to share and publish this database, once it has been adequately proved and reviewed. We are still working on its final edition.

Developing Precision Measuring Equipment			We were able to develop open source data loggers (two), that would be available at very low cost for scientists and local owners. These devices are still to be tested but the production and assemblage was made during this project, and materials partially funded with this grant. The next step is to try out the devices capacities and precision that will be done in the following months (during our field trips, in articulation with the physics department in San Luis University).
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2. Describe the three most important outcomes of your project (find details in attached document AA)

- a) **PPBio Argentina strengthening.** This was made possible by the integration and interaction with new colleagues and institutions, by the installation of modules and RAPELD Grids in new sites, and by the offer of training courses and participative activities that enhance collaborative locally adjusted methods and biodiversity monitoring, developing PPBio programme's philosophy.
- b) **Dissemination of native mammals and their importance.** This objective was achieved through several activities, involving different groups, including local inhabitants (interviews, facilitating posters and books, organising talks and the "diversity fair" to name some of them), park rangers (in Talampaya and Sierra de las Quijadas National Park), children (in Minimentes festival, organised by San Luis National University), teenagers (in a middle School in Pagancillo, La Rioja, near Talampaya) and students (from the Biology course at San Luis University and from environmental sciences students from La Rioja's Superior Education Institute).
- c) **Publication of results and data availability.** This objective was achieved by the group effort and focus on publishing results. We shared most of the results in scientific meetings (14 presentations in total) and we also published three papers, have two accepted manuscripts and one sent and being reviewed. We exceeded expectations and still have four more manuscripts being discussed and written by different members of our group. We also are in the final edition stage of the small mammal data base that will soon be published.

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

Argentina has had a very rough year in terms of inflation rate and so, as with all Argentinians, we suffered a strong devaluation of funds, which made it hard because, even if the grant is in pounds, as soon as it arrives in San Luis University's account it transforms to Argentinian currency (due to university policies). This meant a huge problem for us, especially for some items in the budget, as are perishable supplies and fuel, which are necessary for field trips. Luckily, we managed to buy all

the non-perishable items and the equipment as soon as the funds were liberated and so, the lacking budget for fuel and perishable items was afforded with donations and funds from our university project. This way we were able to achieve most of the activities. One of the things that we couldn't do was a PPBio meeting in San Luis (transportation costs escalated making it impossible), but we managed to meet with members of PPBio Mata Atlantica, PPBio Santiago del Estero and park rangers from Entre Rios in the Sarem meeting in Jujuy. We presented joint work (showing some of the results of analysing the small mammal database) and so enabled the informal reunion, which allowed many interchanges and future planning of collaborative activities.

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

We were able to develop several activities involving the communities, landowners and administrators of our different study sites.

In San Luis we are currently working with four private reserves, where we designed and co-created four artistic trails for the contemplation of nature. These trails are planned to be set for tourists, with stations that are based on a native fauna species, with a brief description and the treating of some ecological aspect or theme. These stations are "starred" by an artistic piece. These artistic pieces have been created by several artists from the region, including mosaic pieces, ceramic pieces, illustration and wooden sculptures.

We also undertook interviews at all these sites (and surroundings) and a participative workshop in one of these reserves and in two national parks (one in San Luis and one in La Rioja province, in central Argentina).

In La Rioja (besides activities developed in Talampaya National Park in La Rioja), we were able to visit one school and one technical superior education institute, and we coordinated a series of talks and the biodiversity fairs (including games, exhibition and some interactive activities regarding native fauna).

These activities were complemented with didactic material (posters, books, protocols) that were shared in the different places that we visited, to be exposed in local parks, reserves and schools.

In general, for locals and for private reserves in particular, the project represented an opportunity to articulate with a group of scientists and conservation initiatives, generating valuable interchanges and collaborating in the synthesis of information about each place's native fauna and cultural biodiversity.

Locals acquired and shared skills that will aid for the monitoring of biodiversity and for the valuation of our natural spaces and native fauna. The information acquired will also be of use for future development and evaluation of management of the land, especially for private reserves and areas that are "projected" as future reserves.

See attached the document "Details of the activities taken place during 2022-2023 Rufford Grant 2".

5. Are there any plans to continue this work?

We plan to continue expanding PPBio's collaborative initiative to other sites in Argentina, including projects in Carolina, Northern San Luis, setting up new parcels in La Florida and an adaptation of the method in Bariloche, Patagonia, Argentina. We also plan to continue monitoring biodiversity in La Florida and Talampaya, and start monitoring in Carolina, during the next year.

We have plans of integrating arthropod ecological information to analyses in the middle term and compare biodiversity information between sites.

As I stated above, we are preparing a series of manuscripts (four) to be sent during 2024, that are based on the findings of these experiments and the ones carried out with the first Rufford Grant.

We are very glad to inform that we will be preparing for the submission of a Rufford 1st Booster Grant in 2024, with the inclusion of some "sustainable" activities, planning to assess the feasibility and economical sustainability of some projects, developing a Sustainable strategy for the project, in order to generate incomes (see attached document: "Details of activities")

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

This answer has been given in previous responses, but I will add that in the future we will finish analysing and publishing results of each site, and then we will concentrate in comparative studies, and data publishing in worldwide public repositories (Data One, PPBio page).

Also, our group is part of the Organisation Commission for next year's SAREM's annual meeting, the XXXV Jornadas Argentinas de Mastozoología, that will take place in San Luis, at the university, and will be a perfect environment to share the productions and repeat some of the activities elaborated during this project.

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

Important next steps include:

- Incorporating new sites and groups to RAPELD methodology and PPBio network in Argentina.
- Condition and order biological material collected in field trips, digitising data (including geographic data, in coordinates).
- Compare the data from different sites.
- Testing new developed devices for precision measuring of climatic factors.
- Develop sustainable activities that will help to generate incomes for the project and for local collaborators.

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?

We used the Rufford logo in all the material produced, including scientific posters, didactic material in general (posters, books), audiovisual material, and talks and presentations (see attached document with details of activities and files of the material produced).

We also acknowledged the Rufford Foundation support in all published scientific articles and informs.

Also, we gave four radio/streaming interviews and three journal interviews mentioning the Rufford Foundation support. I share some of the links:

http://www.noticias.unsl.edu.ar/28/07/2022/_trashed-7/

<http://www.noticias.unsl.edu.ar/30/05/2023/estudio-de-fauna-determino-la-existencia-de-nuevas-especies-en-quijadas/>

<http://www.noticias.unsl.edu.ar/08/06/2023/escriben-cuentos-infantiles-que-revalorizan-la-fauna-autoctona-de-san-luis/>

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

Ana Cecilia Ochoa: General coordination. Specialized in Small mammal Ecology.

Ailin Gatica: Research activities general coordination. Specialized in Mammal Ecology and behaviour.

Maria Clara Alvarez: Mammal Ecology Research activities (sampling, analyzing data, maps, writing). Specialized in Zooarqueology.

Juan Pablo de Rosas: Technological developing, construction and testing of Precision Measuring equipment. Specialized in Physics.

Franco Aguiar Sormani: Graphic design and Communication. Production and edition of Dissemination material.

Beatriz Nunez: Mammal Ecology Research activities (analyzing data, ordering data, reviewing). Specialized in mammal ecological physiology.

Lucia Martinez Retta: Mammal Ecology Research activities (sampling, analyzing data, maps, writing) and Design and production of Graphic material.

Maximiliano Pardo: Mammal Ecology Research activities (sampling, maps, writing), order, digitalization and maintenance of collection biological material and production of Graphic material.

Valentino Destefanis: Mammal Ecology Research activities (sampling, analyzing data, ordering data, maps, GIS).

Danila Puegher: Mammal Ecology Research activities (sampling, analyzing data, maps, writing) and Design, illustration and production of Graphic material.

Celina Carrizo: Mammal Ecology Research activities (analyzing data, maps, writing) and illustration of Graphic material.

Luciana Torres: Mammal Ecology Research activities (sampling, analyzing data, ordering data).

Georgina Lemanich: Mammal Ecology Research activities (sampling assistant), Illustration activities, production of graphic didactic material and Coordination of Dissemination activities for children.

Juan Calderon: Order, digitalization and maintenance of collection biological material and Design and production of protocols.

Carlos Espinosa: Design of didactic material. Scientific Communication and graphic designing of protocols.

Emilia Huerta: Illustration and collaboration in Dissemination materials elaboration.

David Jose de La Cruz Lopez: Creation of Audiovisual materials.

10. Any other comments?

The activities were done with the aid of many collaborators including colleagues from Cordoba National University: Daniela Tamburini, Ricardo Torres and Enzo Rossi; colleagues from Jujuy University (Miriam Morales, Belen Sumbaino), colleagues from Santiago del Estero University (Carla Rueda, Guadalupe Laitan) and Helena Bergallo from PPBio-Mata Atlantica, Rio de Janeiro, Brasil.

We also had the collaboration of local landowners and neighbours from La Florida (Angel Maluf, Andrea Galvan, Giuliana Lopez and family), La Siempre Viva Reserve (Daniela Pardo Mendez), San Francisco (neighbours from the Assembly and members of the Huarpe Original community), and Hernesto Mussano and family in El Medio Arte y Cultura Natural Reserve (all these localities are in the northern part of San Luis province).

Finally, we were assisted by park rangers of National Park Administration in Argentina, from both, Sierra de las Quijadas and Talampaya National Parks, in all our expeditions and activities made in schools and institutions surrounding the park, for which we are very grateful. We would like to mention the aid of Marina Vinas, Paula Cadaveira and Eduardo Elissondo.



Research in sierra de las quijadas- Guanaco- Lama guanicoe.



Jujuy RAPELD course.



Participative activities in La Florida with landowners and Ecology Students (UNSL)2.

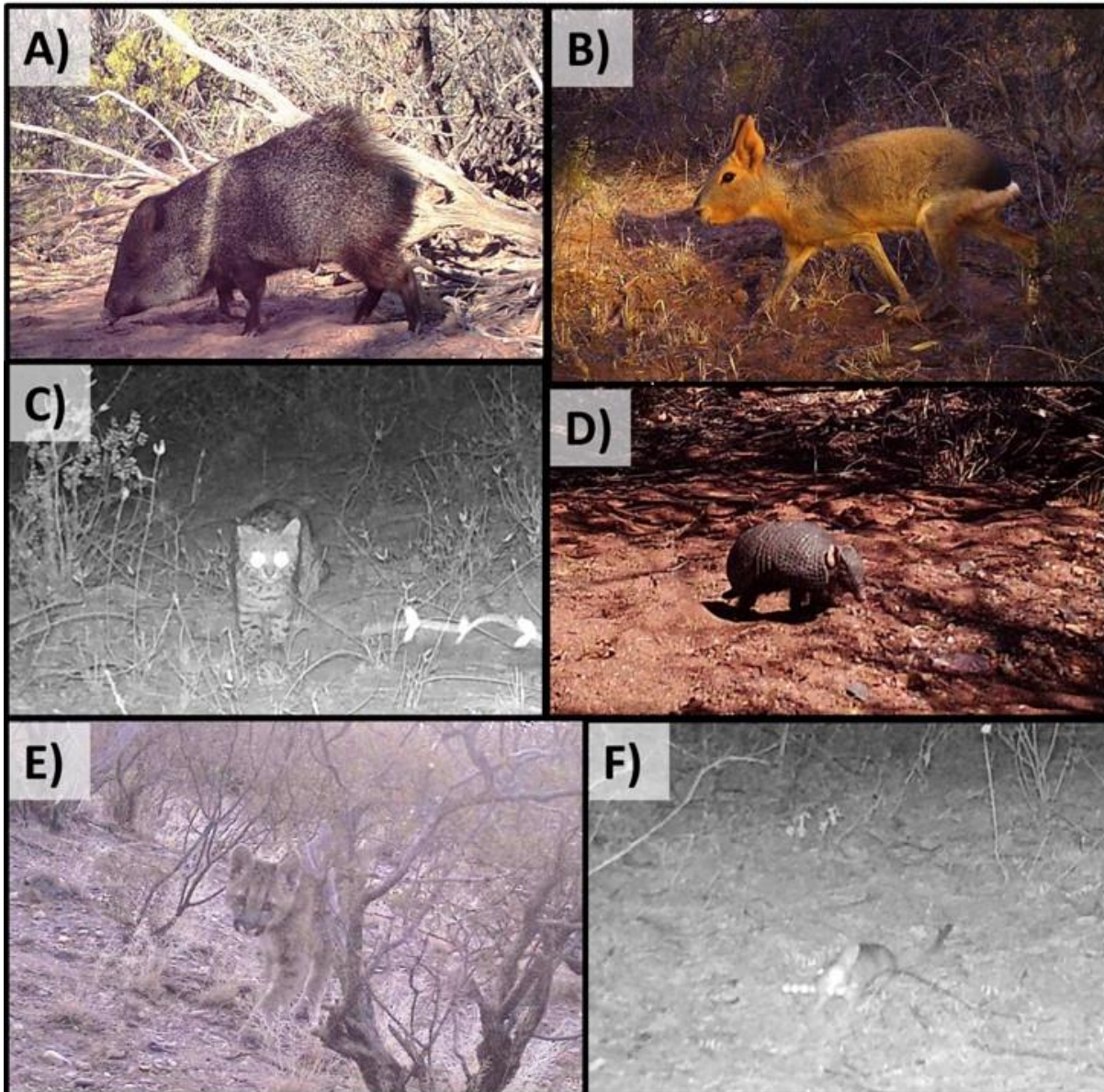


Figure of some of the native mammal species registered using camera traps in Sierra de las Quijadas National Park. A: Pecari de collar, Pecari tajacu; B: Mara, *Dolichotis patagonum*; C: Gat montes, *Leopardus geoffroyii*; D: Mataco bola, *Tolypeutes mataco*; E: Pume, *Puma concolor* & F: Roedor, Fam. Cricetidae.