

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Romina Cardozo
<b>Project Title</b>	Birds under attack: the impacts of habitat loss and fragmentation in the Chaco
<b>Application ID</b>	28259-1
<b>Grant Amount</b>	4,344
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<b>Date of this Report</b>	13-September-2021

**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
Sampling forest fragments and continuous forest with acoustic recordings				The sampling is complete, totalling 34 points in the study area.
Sampling corridors with acoustic recordings				The sampling is complete, totalling 22 corridors in the study area. The field work was delayed due to Covid19 outbreak.
Quantifying vegetation structure and climate of the corridors.				Variables to analyse vegetation structure and climate on bird communities in the corridors have been collected.
Analysing ecological data for obtaining relevant associations between birds' communities and landscape variables				We organised the data in tables and did exploratory analyses with our data, but full statistical analyses and hypothesis testing will be conducted and finished this year during the final period of my PhD.

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

Difficulties during the project were related with Covid-19 pandemic mostly. My project schedule delayed due the lack of mobility as a consequence of social distancing, Paraguay remained in lockdown for 10 months with the impossibility to travel from Brazil. We finished the fieldwork and monitoring the corridors due to flexibility in quarantine rules in 2021.

During fieldwork, some acoustic recordings were damage between the points, unfortunately these points were lost, however did not affect the study sampling as a whole and were compensate in next fieldwork.

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

So far, we can conclude bird's community composition differs from fragmented habitat and continuous habitat, responding to landscape configuration, the arrange of landscape elements due to habitat loss is critical for birds in the Chaco.

These results will contribute to conservation planning in the region as well as to fill the lack of knowledge in the Paraguayan Chaco, one of the most threatened regions in the world due to land cover change.

Bird communities in corridors depend on habitat structure, temperature and humidity as a variable causing changes in communities' composition, which highlight the dependence on climate stability and vegetation regulation in a semi-arid area.

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

All landowners contacted received us with hospitality, and in some properties, they offered accommodation and food during the stay. They have received a report with the bird's species list found in their properties with photos showing the work and birds. In each property, we interact with the administrative workers to scan the property and a rancher went along with us during the journey, in all cases, they were very curious about the work and took pictures of it.

Some landowners were excited and very passionate about conservation and contact me after fieldwork to ask about bird conservation techniques. I am sure they are using our results to adequate to government environmental rules, as we highlight the importance of landscape connectivity for bird communities, including the importance of maintaining the corridors in their lands.

**5. Are there any plans to continue this work?**

As this is my PhD project, it has come to an end. However, the gap to fill in the Chaco region is huge, with great potential from an ecological point of view and necessary studies to identify how species are responding to habitat loss and their interactions with the environment, especially now that we are facing global environmental changes due climate change and biodiversity loss. I already have some questions coming out on my mind for future projects based on our results. Frequently, I see a global map in a scientific publication related with biodiversity and exist a lack of data in the Chaco region, we need to fill this gap.

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

I created a social media blog to sharing my fieldwork experienced. We planned to publish our results in scientific papers in the next years, as well as share it with society through the media, regarding recommendations for efficient landscape management, including corridors. We had planned to present the main results in local schools, but the pandemic ended with these plans.

Also, I already shared partial results in an online congress in December 2020, which give me the possibility to interact with other colleagues pretended to work in the region.

**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 grant for 2 years long instead of 1 due to Covid-19 pandemic. Thank to landowners covering some expenses during the fieldwork, some of the money were using for a second fieldwork and had to be converted in expenses with travel and equipment (acoustic recording). This allowed to adjust fieldwork calendar and to include the corridors in the study.

**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
Travel costs	383	766	+383	Travel to adjust fieldwork calendar, taking the amount from accommodation and meals.
Local transport - Gasoline	867	867		
AA batteries – memory cards	509	732	+223	Equipment added, taking the amount from meals-food.
Car maintenance	647	647		
Accommodation	686	333	-353	Item changed into travel expenses
Meals - Food	857	604	-253	Item changed into equipment and travel expenses
Administration	395	395		
<b>Total</b>	<b>4,344</b>	<b>4,344</b>		OBS: Local rate exchange used was 6530 Guaraníes (Paraguayan Guaraníes) to 1 Pound sterling

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

As an important first step we will share our conclusions in both the scientific media, and the general media. The results of the project focus on consequences of landscape configuration impacting bird communities, we will recommend for a landscape management and confronting the currently lack of policy for a sustainable development in the Paraguayan Chaco with guidelines in connectivity conservation facing habitat loss.

Although working with communities is more practical, population need to be a focus of study too, especially asking about consequences of habitat fragmentation on species.

**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?**

The logo was included in the congress presentation and was presented as a funding institution of the project in the University seminars. Also, RF was mentioned in the social media blog featuring the project. Of course, we will also acknowledge RF in all future published materials.

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

**Ing. Hugo del Castillo**, ornithologist senior in Paraguay, helped me with logistic and implementation of the fieldwork, he works in the NGO Association Guyra Paraguay (National bird authority of Birdlife International) since 1998 as a field ornithologist and administrator of the Biodiversity Database.

**Lic. Lucas Cañete**, graduate in Biology, he is a junior researcher, learned the monitoring techniques, while helping out as temporary field assistants.

**Prof. Dr. Ricardo B. Machado** is my advisor at the University of Brasilia.

**Prof. Dr. Tobias Kuemmerle** is my co-advisor at the Humboldt University zu Berlin.

**12. Any other comments?**

Without the Rufford Small Grant the project could not be possible. Funding for PhD projects is hard to come for Latin American countries, as scientific area is barely funding putting this opportunity is highly valuable. With project funding, we students are motivated and can carry out novelty fieldwork contributing with unexplored area of knowledge, and filling gaps in areas with great biodiversity and pressure, as well as we can improve a quality of work and contribute with gaps of knowledge promoting our own careers as future researchers.