

Final Evaluation Report

Your Details	
Full Name	María Flavia Caruso
Project Title	Mammal population dynamics, connectivity, prevention and control of transboundary wildlife trade in the Yungas
Application ID	35644-D
Date of this Report	10-28-2022

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
i- To determine presence and quality of habitat for jaguars and its native prey in areas adjacent to CBBT				
ii- To develop a centralized digital platform for registration and identification of seizures, and				Our app is in the testing phase for both desktop and mobile phone versions. Local residents, park rangers, technicians and administrators of PAs have learned about its operation and are using it in their respective areas of action, with the possibility of uploading information offline and when they have internet access.
iii- Investigate possible sites of illegal wildlife trade in the transboundary area and raise awareness among local people on the importance of this species and the legal implications of the unlawful trade of jaguar body parts.				

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

a). In general, we recorded jaguar prey throughout the entire biological corridor and jaguars at six different sites along the Corridor Baritú-Tariquía (BTBC); at least three individuals were identified. In Bolivia, jaguars were recorded at five sites, all between BNP and TNR: a mountain range in the town of Cayotal; a site 1.5 km from Angosto de Alarachi (Fig. 1, #40); a site 1.5 km from Angosto de Alarachi, suggested by others authors as a potential jaguar border crossing 80 point (Fig. 1, #42; Plate); 1.8-2 km from TNR (Fig. 1, #78 and #76 respectively); and near Campo Grande village, ~3 km from Bermejo River (Fig. 1, #10). In Argentina, three jaguars were photographed: two by the same camera but 49 days apart, located 1.45 km from Bermejo River and 5 km from BNP (Fig. 1, #74, Plate 1b). A third individual was photographed was photographed, 800 m from Bermejo River (Fig. 1, #58).

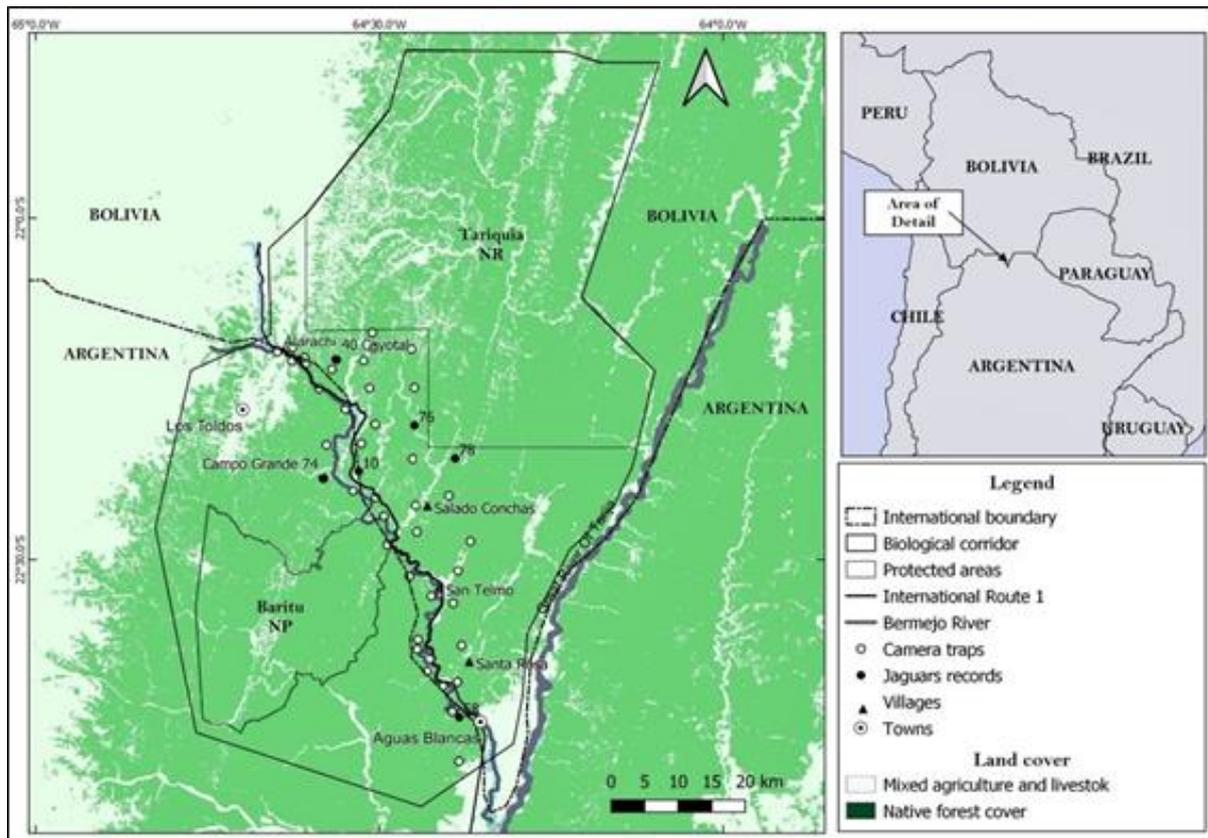


Figure 1. Baritú-Tariquía Biological Corridor joining Baritú National Park (Argentina) and Tariquía National Reserve (Bolivia), indicating the location of camera-traps (white circles) and jaguar records (black circles).

b). From our survey, we conclude that jaguars are present in the BTBC, and their occurrence in different sites and the presence of different individuals suggests that this is a functional corridor for this key jaguar population. The records reinforce the definition of this area as a Jaguar Conservation Unit (JCU Baritú-Calilegua), and the proposal to connect it with other jaguar populations in the Chaco and Great Chaco.

Confirmation of jaguars using this area between Argentina and Bolivia offers a strong argument for securing legal protection for the corridor, including the involvement of the local community in updating its management plan and demarcating strategic areas for sustainable management interventions necessary to maintain or restore connectivity.

c). Transboundary conservation is thus of paramount importance for jaguars and habitat connectivity but presents important challenges as cross-border collaborations can be complex, costly, and time consuming. As an example, proposed priority sites and actions resulting from our work are being discussed by a throng of institutions including Argentina's Administracion de Parques Nacionales, the provincial governments of Salta and Jujuy, Bolivia's Servicio Nacional de Areas Protegidas, the departmental government of Tarija-Bolivia, NGOs and local people. The implementation of cross-border conservation projects in the BTBC can deliver multiple benefits. But to achieve this, a set of conditions must be met, including

effective protected area management, recruiting, training and equipping rangers, and better funding for monitoring and field research.

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

1- During our first field expedition to set up camera traps in the Tariquía Flora and Fauna Reserve, the vehicle we were traveling in, with an automatic transmission, broke down.

We tried to resort to mechanics in Bolivian territory to solve the logistical problem, but the local mechanics could not find the problem. Without our vehicle, we could not continue traveling for several km, we needed to move camera traps, food, water, camping equipment, batteries, etc. We decided to request logistical support from other Bolivian PAs, but it was not possible since they did not have mobility available on those dates. Unfortunately, after losing 4 days of negotiations, we decided to return to Argentina, with our vehicle towed to the Pocitos-Salvador Masa border and once in Argentina, our team separated to return to the city of Salta, some by bus and the principal investigator returned in a tow truck with our vehicle.

2- Thus, we rescheduled the schedule of our project, and we had another difficulty: REPSOL found a new oil field in Bolivia within the Tariquía Fauna and Flora Reserve and President Evo Morales approved the exploration and drilling of wells in the hands of the state company YPFB Chaco, together with the Brazilian company PetroBras.

Thus began the most important line of social conflict that the Bolivian Government has faced throughout its 13 years of administration.

Community groups blocked the roads, the main city in the area, Tarija, stopped working for a day as a sign of defence of this natural area, which has been protected for approximately 30 years due to its biodiversity and its condition as a source of water for the region.

Faced with the protests and the repression by police forces, the Minister of Hydrocarbons, Luis Alberto Sánchez, assured that he will not stop the execution of a project that could give the country \$ 5 million, which "complies with all regulations", which will only affect to 0.008% of the 247,000 ha of the reserve and that has the support of the communities directly involved.

However, due to the social conflict generated by the exploration among the majority of the local inhabitants, from the Bolivian Service of Protected Areas, they recommended we not carry out the field work for the time being, or else we would put our safety and our resources at risk work elements.

Faced with this unexpected situation and after several team meetings, we saw in the disappointment a great possibility of expanding our study area and, in turn, the area of influence of the conservation actions proposed in our objectives.

From the Jaguars in the Fringe-Argentina Foundation, we contacted the NGO Nativa, Tarija-Bolivia to join efforts, sign a Binational Cooperation Agreement between both institutions and happily we carried out a great research work in the Chaco-Pantanal area.

This area is of great importance in terms of border conservation between Argentina, Bolivia and Paraguay and encompasses important ecosystems, however, it currently lacks studies and faces a variety of threats.

Thus, joining forces, we began a sampling with camera traps in the protected area "Ñembi Guasu" (name in the Guaraní language that means: Great hiding place or Great Refuge), with an area of 1,207,850 ha of very well preserved forests (Fig. 2). Its key geographic location between two national parks, Kaa Iya del Gran Chaco and Otuquis, ensures 6 million ha of continuous forest dedicated to conservation.

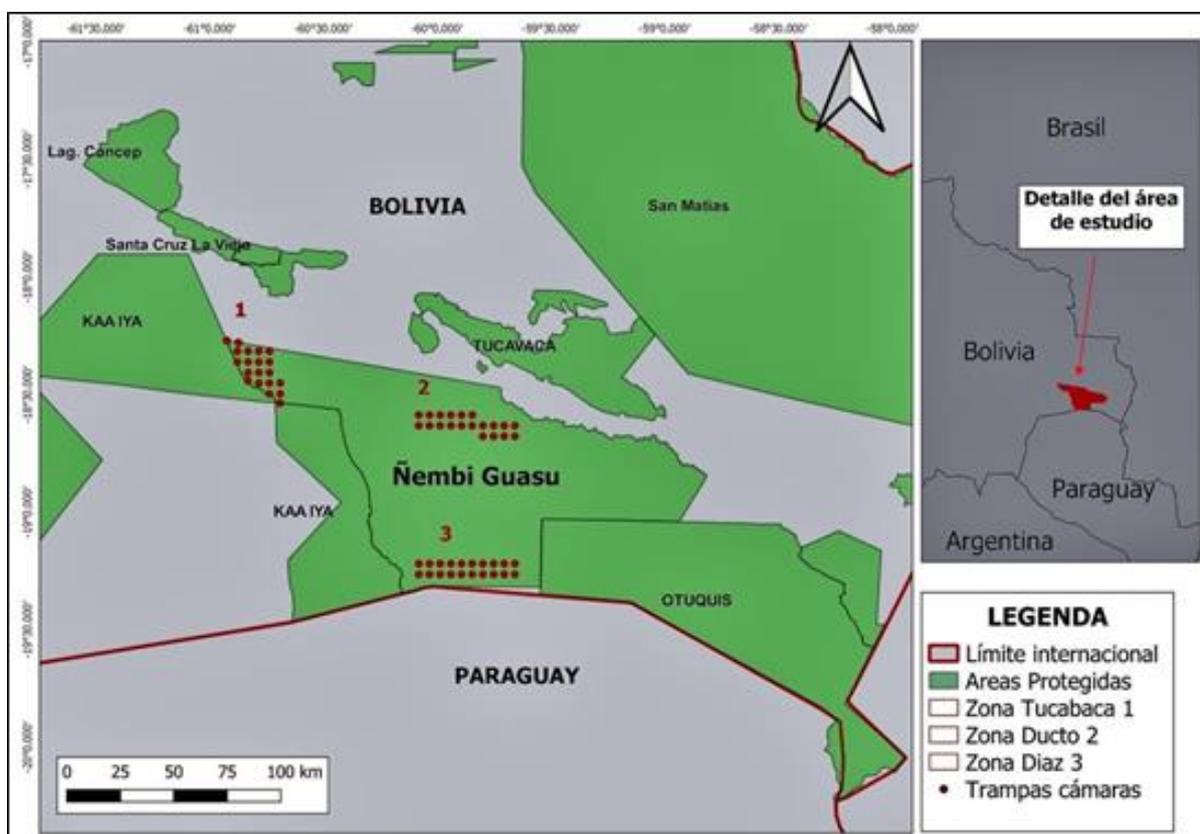


Figure 2. Sampling with camera traps in the protected area "Ñembi Guasu", Santa Cruz, Bolivia.

Note: The camera trap stations will be installed in the field until before the rainy season (December 2022), when they will be removed, to proceed with the ordering and data analysis.

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

Local communities have participated by responding to surveys and in workshops to raise awareness about the state of the populations of wild species and their risk situation due to the increase in trafficking and illegal internal trade in these species.

Together with their support, we organised educational fairs and we have been able to notice a positive change in attitude among residents of different ages (children, young, adults and older), women and men.

Although to date we have not had records of illegal wildlife trade and trafficking, we believe that it is necessary to continue organising these activities for two reasons: first, so that local communities become aware that it is a crime. And secondly, so that they can understand that the illegal trade in wildlife is directly associated with the undermining of investments in sustainable development, both for the future of the jaguar and its habitat, the well-being and sustainable development of the communities that reside in the jaguar landscapes.

We also have the participation of delegates from some institutions that exercise control over wildlife trade, such as: judicial institutions, departmental and municipal governments, in workshops held to socialise guidelines for administrative and legal procedures to facilitate work related to the wildlife trade. They were enthusiastic, collaborated and we are in permanent contact by exchanging information.

We have also had the support and work together with the staff of the PAs, during the development of the surveys and workshops with local residents.

PA staff played a critical role in reaching out to local key informants and building trust between local people and our team members.

5. Are there any plans to continue this work?

Of course, we will continue with this project based on the results obtained and the new alliances that we have achieved thanks to our dedication and commitment when dealing with setbacks: Our proposal will be to connect the jaguar population of the Yungas of Argentina and Bolivia with other populations of jaguars from the Gran Chaco (including three borders Argentina, Bolivia and Paraguay). Jaguar populations in the Yungas are believed to have lost contact with populations in the Gran Chaco due to habitat loss and landscape disconnection.

We learned that there is a need to deepen regional collaboration that will help scale up successful local efforts in conservation of the species and replicate them across the borders of jaguar range countries.

We will identify, test and implement innovative approaches. We are already expanding alliances between the government, the scientific sector and the private sector of the three countries. Such collaboration can serve as the foundation for a

strong and sustained regional effort to ensure the ecological health, landscape connectivity, and survival of the jaguar throughout its range.

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

The results of this work will be shared in meetings with the local communities located within the study area. They will also be published in official gazettes and newsletters of protected areas.

Scientific Articles: An article is being written now and we hope to publish it before July 2023.

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

Our team plans to take the following steps:

First: based on the National Conservation Plans for the species (in each of the three countries mentioned above) we will adapt a mechanism to assess conservation priorities and cross-border cooperation. Said plans reflect the local and national reality (i.e., deforestation trends, current threats faced by the species and prey species, illegal trade in jaguar parts, exploitation of minerals and hydrocarbons, connectivity systems between protected areas). Therefore, they will be the starting point of this project, through which interventions will be generated on the ground, necessary at a landscape or cross-border scale.

Second: generate a map of key actors that share space with the jaguar in the triple border between Argentina, Bolivia and Paraguay that involves:

- Local communities (ICCA networks).
- Agricultural producer groups.
- Oil companies.
- Departmental and municipal state institutions.
- NGOs.
- Universities, etc.

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, very material produced in this investigation had the RF logo. The logo was displayed on every public presentation and written material, and I intend to continue to do this in future works. I also promoted the RF logo at the presentations at the presentations I had to perform before a university public.

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

Our team members	Role
Caruso, María Flavia	Project leader
Perovic, Pablo Gaston	Research Advisor
Caruso, María Macarena	Lawyer. He brought to this project his extensive knowledge and experience on issues related to illegal wildlife trade, international regulations, and legal environmental auditing. He was in charge of the information and awareness workshops for local communities, delegates from some institutions that exercise control over wildlife trade, such as: judicial institutions, departmental and municipal governments, about the legal implications of their involvement in the illegal wildlife trade.
Museo de Historia Natural-Noel Kempff Mercado. Universidad Gabriel René Moreno (Bolivia)	Managed the necessary permits to carry out this research project. It also supported with institutional contacts and logistical support in the field.
Non-Governmental Organization PROMETA-Bolivia	Interaction with the local population and government agencies in Bolivia.
Non-Governmental Organization NATIVA-Bolivia	A key partner for his ten years of work experience in the Bolivia-Paraguay border area.
The Jaguars in the Fringe Foundation-Argentina team of researchers and conservationists	Technical and logistic assistance.
Other collaborators Students: <ul style="list-style-type: none"> • Alejandro Ezequiel Figueroa-Universidad Nacional de Salta. Argentina. • Céspedes Hochstätter, Andrea Vianca-Universidad Autónoma Gabriel René Moreno-Museo de Historia Natural Noel Kempff. Santa Cruz, Bolivia. • Pantoja Saavedra, Willian Sergio. Universidad Autónoma Gabriel René Moreno- Museo de Historia Natural Noel 	Several students from different universities in Argentina and Bolivia participated in this project as field assistants and two of them were recruited as interns who could join our team in the near future. The students received training and participated in the field activities, so the project contributed from the beginning to the professional development of young biologists.

<p>Kempff. Santa Cruz, Bolivia. Local people, friends of Jaguars in the Fringe:</p> <ul style="list-style-type: none">• Vicente Benítez• Gregorio Pantoja• Margarita Cruz• Williams• Maximiliano García	
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10. Any other comments?

We thank The Rufford Foundation for the support received, that allowed us to make significant contributions to the conservation of Jaguars and we will continue to do so considering the strong commitment and dedication of our team, having sufficient funding and support.

We attach with this report, an article accepted in *Oryx* journal, about the results obtained from this work.