Final Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF format**. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please DO NOT fill in and submit this form until the project has been completed.

Complete the form in English. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	Emiliano Matias
Project Title	Extensive Livestock De-Intensification: A Collaborative Approach For Biodiversity Recovery In Arid Highlands Of Northwestern Argentina
Application ID	43982-1
Date of this Report	24 December, 2025

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
Evaluate the responses of biodiversity to livestock de-intensification in the region			x	We successfully sampled 9 sites (camera traps) and conducted all bird and plant transects. Although slightly fewer than the original 10 planned, the data quality is high: 54 cameras for ~55 days = ~2900 total camera-days Two of the nine sampling sites are located within livestock-exclusion areas, specifically inside Los Cardones National Park in Salta Province. We are currently in the process of identifying and mapping rewilding hotspot and coldspot areas. To date, Los Cardones National Park and its surroundings have been identified as a rewilding hotspot, as they harbor the only records of large groups of guanacos (Lama guanicoe) in the study area. We anticipate identifying further rewilding hotspots in areas below 3,000 m.a.s.l., specifically where the 'Monte de Sierras y Bolsones' ecoregion borders the Puna, where guanaco populations are more abundant. Additionally, we have identified the southern sector of our sampling area as another potential rewilding hotspot, where our camera traps recorded several groups of the

				collared peccary (Pecari tajacu). The presence of these species suggests that these sites are key areas for the recovery of native mammal assemblages.
Characterize the influence of different local and regional social-ecological attributes on ELD and biodiversity, to infer potential future trajectories of wild mammals populations under different social-ecological plausible scenarios in the studied system			x	We developed a functional dynamic model using Stella Architect representing the socio-ecosystem interactions (human population, livestock, and plant biomass) in the context of climate change.
Workshops with local stakeholders to enhance the created models, and jointly generate different conservation strategies for the identified hotspots and coldspots of passive rewilding.		x		A total of 120 individuals were interviewed across the Calchaquí Valley, specifically in the towns of Amaicha del Valle (Tucumán), Cachi (Salta), and Belén (Catamarca). Through these interviews, we identified the region's primary livelihoods, where subsistence livestock farming and agriculture remain vital sources of family income. Furthermore, our findings indicate that households still suffer significant losses due to interactions with wildlife. In most cases, communities face livestock depredation, which translates into lower tolerance or retaliation. These insights allow us to collaborate with local communities to address the underlying drivers of conflict, minimizing impacts on both people and fauna. Ultimately, this approach promotes

				coexistence and improves the effectiveness of future conservation strategies. Although the co-participatory workshop protocol was successfully designed, its implementation is delayed pending approval from the CONICET ethics committee.

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

a). Generation of a robust biodiversity baseline: We generated a database of 2900 camera-days to analyze the response of bird and mammal communities to livestock reduction and "greening" in the Calchaquí Valley. Partial results (presented at the XVII JIDE) indicate that native animal communities have not yet shown significant recovery. Conversely, shrub species have increased (verified via transects and satellite imagery). Our evidence suggests that high shrub cover might be acting as a physical or visual barrier for wildlife, rather than as a food resource, challenging the assumption that "greening" implies immediate faunal recovery.

Although no species currently categorized as globally threatened by the IUCN have been recorded to date, we have obtained significant records of species with critical regional and national conservation status. Specifically, our camera traps recorded groups of the Northwestern Argentine guanaco (*Lama guanicoe*) subpopulation, which is categorized as 'Endangered' at the regional level (cma.sarem.org.ar/es/especie-nativa/lama-guanicoe). Furthermore, we recorded the presence of the collared peccary (*Pecari tajacu*), a species considered 'Vulnerable' at the national level in Argentina (cma.sarem.org.ar/es/especie-nativa/pecari-tajacu).

b). Development of a Socio-Ecological Dynamic Model: Using the collected data, we built a dynamic model that describes the Calchaquí Valley socio-ecosystem. This model integrates interactions between human demographics, livestock density, and vegetative biomass within a climate change context. The model allows us to simulate and infer future trajectories of the system under different management scenarios.

c). Design of a Co-participatory Workshop Protocol: We developed a structured model for participatory workshops to work jointly with local inhabitants on future scenarios. This protocol was designed in accordance with the ethical standards of the National Scientific and Technical Research Council of Argentina (CONICET). Its structure allows it to be executed in various localities across the Calchaquí Valley in the next phase of our research.

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

Economic Instability & Strategic Adaptation: During the project's execution, Argentina faced a volatile economic context marked by severe inflation, which increased operational costs, particularly fuel and logistics. Simultaneously, we identified a methodological challenge: building genuine trust with local communities required more frequent, personalized contact rather than the single large-scale workshops originally planned. **Solution:** We turned these challenges into an opportunity to intensify our field presence. Since the 2 computers originally budgeted were acquired through other institutional projects, we reallocated those funds to cover the increased transportation costs. This allowed us to prioritize essential fieldwork, increasing our effort from the originally planned 10 field trips to 15 campaigns. These additional expeditions focused on biodiversity sampling and semi-structured interviews across an expanded range, including Belén (Catamarca) and Cachi (Salta), in addition to Talapazo (Tucumán).

Administrative Hurdles & Final Phase Coordination: We encountered administrative delays in coordinating the final workshop, which required more steps than initially anticipated, specifically regarding the approval from the **Ethics Committee** at the National Scientific and Technical Research Council of Argentina (CONICET) and confirming availability with the communities in Talapazo and Cachi. Therefore, the current delay is strictly related to the execution of this final wrap-up event.

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

Local communities were an inherent component of this project. Their participation was fundamental for accessing lands, selecting sampling sites, and deploying/maintaining camera traps during active periods. The continuous contact through interviews and visits fostered a strong relationship, which was crucial for the design of the co-participatory workshop protocols. They have benefited by being active partners in generating knowledge about their territory, rather than passive subjects of study.

5. Are there any plans to continue this work?

Yes. For the upcoming year, we plan to expand the number of biodiversity sampling sites to increase statistical power. We also aim to consolidate our bond with the communities by executing the designed co-participatory workshops in different locations of the Calchaquí Valley and surrounding areas, validating our dynamic models with their local knowledge.

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

Scientific Publications:

Publications: We aim to publish the collected data in 3 potential papers on international scientific journals:

1. **Ecological responses:** A study analyzing the spatiotemporal patterns of animal and plant communities and their relationship with livestock in the context of global climate change
2. **Socio-Ecological Modeling:** A paper presenting the dynamic model of the Calchaquí Valley, exploring possible system states under different future scenarios (e.g., varying levels of livestock decline, rural outmigration, and changes in rainfall patterns).
3. **Social Dimensions:** A descriptive analysis of the participatory workshops, detailing the mechanisms and response strategies to the stressors faced by local residents to improve the adaptive management of these socio-ecosystems.

Academic Events: Presentations at internal institutional seminars (Faculty/Institute) and submission of abstracts to national and international congresses in 2026.

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

The most critical next steps are to increase the sampling effort (more biodiversity sites) to confirm if the lack of faunal recovery is a permanent state or a lag effect. Additionally, implementing the participatory workshops is crucial to integrate the social narrative with our biological data.

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 printed stickers with the foundation logo to label our field equipment. Also, the logo was used in internal presentations and will be included in all upcoming conference posters and publications resulting from this grant.

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

- Matias, Emiliano: Project Leader / Ph.D. Fellow (fieldwork, biodiversity sampling and analysis)
- Dip Yordanoff, Ana Lucia: Ph.D. Fellow (social dimension, community engagement, co-participatory workshops coordination)
- Saravia, Alejandro: Ph.D. Fellow (data analysis, dynamic modeling development)
- Macchi, Leandro: Researcher / Co-director (fieldwork, biodiversity sampling and analysis)
- Nanni, Ana Sofia: Researcher (social dimension, human-wildlife conflicts mediation, co-participatory workshops supervision)
- Marinaro, Sofia: Researcher (social dimension, co-participatory workshops supervision)

- Grau, Hector Ricardo: (General supervision, landscape ecology)

10. Any other comments?

No other comments.

Photos

Left: Trekking through Larrea shrubland on the way to set up camera traps in the high Monte desert. Credit: Rocio Gonzalez. **Right:** Setting up camera traps in the Monte ecoregion of Catamarca, Argentina. Working alongside local residents to monitor medium and large-sized mammals. Credit: Rocio Gonzalez.

A group of guanacos (Lama guanicoe) observed in the distance within Los Cardones National Park, Salta Province, Argentina. Credit: Priscila Powell

ANNEX – Financial Report

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