# Final Evaluation Report

| Your Details | |
|---|---|
| **Full Name** | Sofía María Alfonso Velasco |
| **Project Title** | Baseline for the Conservation of a 40-year restored Andean Forest: focal groups of flora and fauna in Farallones de Cali National Natural Park, Colombia. |
| **Application ID** | 39635-1 |
| **Date of this Report** | 07/18/2024 |

**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 generate biological data** on key species and their ecological roles within the Bachué Nature Reserve through four biological expeditions conducted during both rainy and dry seasons. | | | | We successfully generated biological data through four expeditions, including both rainy and dry seasons: expedition 1 (July 22-29, 2023; dry), expedition 2 (November 29 - December 5, 2023; rainy), expedition 3 (February 9-16, 2024; dry), and expedition 4 (March 30 - April 6, 2024; rainy). These were conducted with the Farallones Foundation, the Pontificia Universidad Javeriana-Cali, Colombian National Parks, and DAGMA, involving five working groups focused on seven biological groups. |
| **To compile a technical report** with the findings from these expeditions, which will be delivered to Colombian National Parks. | | | | We successfully compiled a technical report as planned. The final document, spanning 137 pages, details the methods, the species identified within each of the seven taxonomic groups studied, recording frequencies, sampling coverage, biological community structures, conservation-important species, natural history information for certain species, and management recommendations based on the collected data. The report includes maps, charts, tables and photographs. This comprehensive report has been delivered to Colombian National Parks. |
| **To disseminate the information obtained** to the scientific, local, and national community. | | | | We successfully produced the established dissemination products. These include five manuscripts of scientific articles that were submitted to peer-reviewed journals, a digital educational booklet and infographics, a two-stage interactive workshop with the local community, and regional and national disclosure through media. |

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

a) **Seven species lists and the number of records**, which correspond to each of the biological groups sampled in the Bachué Nature Reserve. This comprehensive inventory provides a valuable baseline for future research and conservation efforts.

b) **A detailed technical report for Colombian National Parks** with the findings from the expeditions. This information will be considered in the management plan for this area of the Farallones de Cali National Natural Park.

c) **Material for the dissemination of information on the species in this area**. This was divided into a) five scientific articles submitted for publication in peer-reviewed journals, which will serve as scientific support for further research, and b) infographic material with information of the species found in the area, mainly for the appropriation of knowledge by the local and national community.

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

The primary unforeseen challenges during the project were related to climatic factors, particularly heavy rainfall. Two of the four expeditions were scheduled for the rainy season, and during the final expedition, the rainfall was so severe that a subgroup collecting data in the highest part of the reserve had to descend to lower ground a few days earlier than planned for safety reasons, which we prioritised. The lost days of data collection were subsequently compensated for to ensure consistent sampling. Fortunately, despite the occasionally adverse weather conditions, the expeditions were successfully completed.

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

Following the acceptance of this project by the Rufford Foundation, we held a meeting with representatives from the Pance community to formalise their involvement in the now-approved initiative. From the outset, we engaged in a knowledge exchange with Mr. Darío Obando, a ranger from the Pance community who has been navigating these forests for over 30 years. His expertise has been crucial to the expeditions, and he has received training in monitoring, conservation actions, and data collection. As part of our project objectives, we aimed to disseminate the findings of the biological expedition through a two-stage workshop for the Pance community. This workshop, detailed further in Section 6 of this report, was conducted in partnership with the Emplumados Club. The Emplumados Club is a community group dedicated to conservation and eco-cultural engagement, fostering socio-environmental transformation in the Pance and El Otoño areas of Santiago de Cali municipality, Valle del Cauca. They promote birdwatching and educational opportunities related to biodiversity conservation within the local community. Through our collaboration with the Emplumados Club, we successfully engaged local children and their families in environmental protection. The workshop encouraged children to protect their local environment and aimed to instil a lasting connection with their natural surroundings from an early age.

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

Yes, we plan to continue this research by addressing the findings and needs identified. Our results reveal that the Bachué Nature Reserve is home to 21 species categorised as threatened, ranging from Near Threatened (NT) to Endangered (EN) according to the IUCN and local threat categories. These species and their IUCN threat categories are listed below.

**Amphibians and reptiles**

- *Strabomantis ruizi* (EN)
- *Pristimantis calcaratus* (VU)
- *Anolis calimae* (EN)

**Birds**

- *Spizaetus isidori* (EN)
- *Buteogallus solitarius* (CR)
- *Penelope perspicax* (EN)
- *Chloropipo flavicapilla* (VU)
- *Dacnis hartlaubi* (VU)
- *Chlorochrysa nitidissima* (VU)
- *Contopus cooperi* (NT)
- *Andigena nigrirostris* (NE)
- *Psittacara wagleri* (NE)

**Diurnal butterflies**

- *Prepona praeneste* (VU)

**Mammals**

- *Odocoileus virginianus* (CR)
- *Leopardus tigrinus* (VU)
- *Lontra longicaudis* (VU)
- *Bassaricyon neblina* (VU)
- *Nasua olivacea* (NT)
- *Tremarctos ornatus* (VU)
- *Sylvilagus brasiliensis* (EN)
- *Aotus lemurinus* (VU)

The presence of a significant number of species in threatened categories within the area highlights both the success and importance of ongoing restoration efforts in this forest. It also underscores the urgent need for a deeper understanding of how to protect these species more effectively. We plan to focus on community-based participatory research to develop and implement effective conservation strategies for this area, as well as to monitor any potential declines in the populations of these threatened species.

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

We have disseminated our research results through two main strategies, aiming to reach both the scientific community and the non-scientific community, including the local community and stakeholders at the national level.

For the scientific community, we submitted a total of five scientific articles: two to international peer-reviewed journals and four written in Spanish, the national language. These articles address crucial issues related to the species found in Bachué Nature Reserve, as well as their biodiversity and conservation within Farallones de Cali National Natural Park. We are currently awaiting responses from the indexed journals to which they were submitted.

For the local community, we shared our main results through two key initiatives: a two-stage interactive workshop for children and a story contest titled "Guardians of the Park". The interactive workshop, as mentioned earlier, was conducted in collaboration with the Emplumados Club collective and included students from the main educational institutions in Pueblo Pance, primarily from Institución Educativa Pance. The workshop involved a total of 100 participants, of whom 70 were children. It was developed in two stages:

1. Fieldwork Experience: The first stage aimed to provide 20 children with hands-on fieldwork experience at the Bachué Nature Reserve. During this phase, the children learned how to set up camera traps, use mammal traps, and document their findings in field notebooks.
2. Recreational Activities: The second stage featured a series of engaging activities for 50 children at the "La Marteja eco-recreational camp," part of a local eco-recreational vacation initiative. Activities included a photo exhibition, an interactive gymkhana, and perception surveys conducted before and after the workshop to assess the children's understanding of local biodiversity.

In addition, the story contest "Guardians of the Park," organised in collaboration with the Cali Public Library Network, offered a platform for creative expression and environmental awareness among children, youth, and adults. This contest allowed participants to share their stories, fostering both literary creativity and a deeper understanding of the importance of the Farallones de Cali National Natural Park.

To share our results with stakeholders at the regional and national levels, we recognized the importance of reaching not only students and professionals in natural sciences but also the public across Cali, Valle del Cauca, and Colombia. To enhance accessibility and appeal, we focused on "conservation flagship species" from each of the seven biological groups, rather than covering all species. These flagship species serve as symbols to raise awareness and foster a sense of ownership of the region's biodiversity among the public. We designed two educational cubes, primarily for children, each featuring photographs and information about specific conservation flagship species. These cubes will be provided in digital format to the Secretaría de Cultura de Santiago de Cali for use as educational and outreach materials in the public library network of Cali. Additionally, we created a digital booklet, divided into chapters, which includes digital illustrations, descriptions, and ecological insights about select species, emphasising their importance to the ecosystem. The booklet covers topics such as natural history, ecology, habitat, threats,

conservation status, and protection recommendations, all presented in a clear and user-friendly format. This digital booklet is currently being uploaded to the foundation's website.

We as well shared the project and its main results through various regional and national channels. We presented our findings in local media outlets, including newspapers, magazines, and interviews, to communicate our results in an accessible and understandable manner. Additionally, we conducted outreach activities on digital platforms such as Instagram and our website, where we shared audiovisual material that highlights key aspects of our research interactively.

**Submitted scientific articles (five):**

Alfonso-Velasco SM, Vélez-Franco V, Rodríguez-Betancourt AF, Rodriguez Salazar GA, Rojas D (2024). First Record of the Ayala's Anole, *Anolis calimae* Ayala, Harris, & Williams 1983 (Squamata, Anolidae) in a National Natural Park: An Endangered Species in Farallones de Cali National Natural Park, Colombia. **Check List**

Loaiza-Pulido A, Morales-Romero S (2024). Diversidad taxonómica, funcional y filogenética de mamíferos de la Reserva Natural Bachué, Parque Nacional Natural Farallones de Cali. **Revista Mexicana de Biodiversidad**

Medina-Gallo JA, Cassetta-Ortiz S, Chamorro J, Ramírez-Hernández M, Vélez-Franco V (2024). Revisión del rango de distribución del águila solitaria (*Buteogallus solitarius*) en el Valle del Cauca, Colombia. **Boletín SAO**

Ramirez- Hernández M, Viveros S, Espinosa-Salazar D, Giraldo- Herreño LI (2024). Mariposas (Lepidoptera: Papilionoidea y Hesperioidea) en la Reserva Natural Bachué, PNN Farallones de Cali. **Acta Biológica Colombiana**

Vallejo-Patiño, N, Trigueros Rueda, D (2024). Diversidad de aráceas (Alismatales: Araceae) y orquídeas (Asparagales: Orchidaceae) de la Reserva Natural Bachué, PNN Farallones de Cali, Colombia. **Acta Biológica Colombiana**

***Dissemination activities (one):***

- Part 1: https://www.instagram.com/reel/C9C0bJ8siR1/
- Part 2: https://www.instagram.com/reel/C9WTzT7tPpT/
- Part 3: https://www.instagram.com/reel/C9Z5AcVOuDd/

***Newspapers (two)***

- https://www.elpais.com.co/cultura/cuentos-para-la-conservacion-del-parque-nacional-natural-los-farallones-una-convocatoria-para-ninos-y-adultos-1445.html
- https://www.cali.gov.co/cultura/publicaciones/180342/red-de-bibliotecas-publicas-de-cali-premio-a-ninos-participantes-del-concurso-guardianes-del-parque/

***News website (three)***

- https://www.javerianacali.edu.co/noticias/estudiantes-y-egresados-de-biologia-en-la-fundacion-farallones-un-legado-de-conservacion
- https://www.fundacionfarallones.org/copia-de-birding-bachu%C3%A9-1

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

The important next steps involve securing funding to continue research in the area and building on the findings of this project. We plan to focus on species identified in the zone that are listed under various threat categories by the IUCN. Our goal is to prioritise conservation strategies for these species, focusing on their protection and addressing their specific needs based on the data collected.

**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, the Rufford Foundation logo was displayed in the materials produced for this project. Specifically, the logo appeared in the technical report submitted to Colombian National Parks, on the educational infographics about the species found in the area aimed at local community engagement, on the Farallones Foundation's Instagram page, and in the materials used for the environmental education in the interactive workshop. Additionally, the Rufford Foundation was acknowledged as the sponsor of this research project in all five scientific articles submitted.

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

| Name | Role | Qualifications | Location |
|---|---|---|---|
| Sofía María Alfonso Velasco | Project leader | M.Sc. student, BS. | Colombia |
| Danny Rojas Martin | Co-coordination and management of the project | PhD., M.Sc., BS. | Colombia |
| Valentina Vélez Franco | Project Coordinator and responsible for the Amphibians and Reptiles component | BS. | Colombia |
| Andrés Rodríguez Betancourt | Young researcher | BS. | Colombia |
| Juan Andrés Medina Gallo | Young researcher: coordinator responsible for the Birds component | BS. | Colombia |
| Shalom Alejandra Cassetta Ortiz | Young researcher | BS. student | Colombia |
| Santiago Nicolás Vallejo Patiño | Young researcher: coordinator in responsible for plant component | BS. | Colombia |
| Daniel Trigueros Rueda | Young researcher | BS. | Colombia |
| Carlos Mauricio Ramírez Hernández | Young researcher: coordinator responsible for the Butterflies component | BS. student | Colombia |
| Daniela Alejandra Espinosa Salazar | Young researcher | BS. | Colombia |
| Sebastian Viveros Zapata | Young researcher | BS. student | Colombia |
| Angelín Loaiza Pulido | Young researcher: coordinator responsible for the Mammals component | BS. student | Colombia |
| Samuel Morales Romero | Young researcher | BS. student | Colombia |
| Fernando Mejía Múnera | Director of the Farallones Foundation | - | Colombia |

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| Gustavo Adolfo Rodríguez | Monitoring professional from NNPC | BS. | Colombia |

**10. Any other comments?**

We are confident that these results lay the groundwork for regulating activities within the reserve, considering the needs of the species present. This research will contribute to the development of new research questions, enhance our understanding of these organisms' ecology, and inform strategies for conserving these ecosystems. Additionally, it will help increase the local community's sense of ownership over the basin's biodiversity. The project also engaged undergraduate students, providing them with comprehensive training in scientific research methodologies. Both researchers and local community groups extend their deepest gratitude to the Rufford Foundation for their unwavering support. Your contribution has been instrumental in making this work possible and advancing conservation efforts in the region. Thank you for your invaluable support.