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	Juan Francisco Herrera Cueva
Project Title	Effects of proximity to an active oil platform on the diversity of insectivorous birds and their primary food sources.
Application ID	43110-1
Date of this Report	24/11/2025

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
Determine the effect of proximity to an active oil platform over insectivorous bird diversity and their diet sources: flying insects and leaf litter macroinvertebrates.			X	Our research methodology allowed us to show a clear pattern of diversity reduction and transformation in the proximity of active oil platforms. I developed my study in three sites, one primary forest (El Edén and TBS), a matrix of farmland and forest patches (Loma del Tigre and San Jacinto), and a control site without gas flare influence (NPF and ECY). On each site I had two plots of nine sampling points (near vs. far). In total I had 54 sampling points. I obtained a total of 362 bird species identified with 804,444 singing events, during 10,800 minutes of passive audio. The identifications were done by the Artificial Intelligence of Merlin Soun ID, with the support of Cornell Lab of Ornithology. On the other hand, we collected 19,811 macroinvertebrates that belonged to 26 orders and three families. The identifications were done with the help of the entomologist Jamie Mora from the Zoology Museum of University of San Francisco de Quito. We reviewed previous research on oil platform impact over bird and macroinvertebrate diversity and oil company Environmental Impact

				Assessments in the Ecuadorian Amazon. Although the diversity decline is expected in most cases, gas flares have been associated with light attraction to birds and insects, increasing their abundance and mortality. It is clear that the diversity impact of oil platforms in the Amazon is still poorly understood, especially for macroinvertebrates, and future research is important to understand this phenomena.
Determine whether avian population declines are related to oil extraction activity.		X		We showed a clear pattern for diversity, but we did not reach population analysis. We did not achieve this goal because of time and budget constraints. Determining population numbers requires the estimation of densities and demography, which require more data collected, several replicas and repetitions.
Our long-term objective is to eliminate deleterious effects of oil platform activities in the area.	X			I am looking to do a PhD with Yale University to achieve this goal. I had established important links to local communities and civil organizations that support my project and are willing to continue collaborating. To achieve this objective, it requires broad political and social actions.

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

a) Near oil platforms and gas flares there is a reduction of insectivorous bird diversity and their primary food sources.

b) The diversity reduction occurs in primary forest, as well in forest patches in a farmland matrix.

c) The causality of diversity reduction is still unknown and requires future research.

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

The main problem I struggled with was inconsistencies in the collection permit from the Ministry of Environment. Initially, my team and I were supposed to be covered under a broader collection permit belonging to Tiputini Biodiversity Station (TBS). But later on, I realized that obtaining my own collection permit was required in order to influence local policies. The process to obtain the permit was slow and failed several times. Finally, when I obtained my permit, the list of taxa authorized for collection was incomplete or allowed lower numbers than what I actually collected in the field. I addressed this difficulty by combining both collection permits (my own and the broader one from TBS).
Another problem we faced was the use of Merlin Sound ID for bird diversity detection. This artificial intelligence tool does not provide open access to its codes or modeling process, preventing other researchers from replicating my research. One of my reviewers pointed out this issue and suggested replicating the analysis using BirdNET, an open-source AI. This problem has not been resolved yet; however, I am working on repeating the analysis with BirdNET next year.

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

Local communities were an active part of my fieldwork. I always included a socialization day with the community to explain my project and discuss the issues related to oil platforms and gas flares. 15 members of different communities participated in my fieldwork and received economic income through their involvement in the project.

Additionally, my research is currently being used as scientific evidence by the citizen organization UDAPT (Unión de Afectados por Texaco) in a legal case defending the rights of nature against the Government of Ecuador for the use of gas flares in the Amazon. I shared my results through one meeting and a official report.

5. Are there any plans to continue this work?

Yes, I am applying for a PhD program at Yale University with the support of TBS, John Blake and Bette Loiselle.

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

The present project was my thesis for my Masters degree program about Tropical Ecology and Conservation. I presented this work at the end of the degree and I graduated with this work.

I am making the last adjustments in the manuscript to submit it into a peer-reviewed scientific journal.

Also, I presented a poster about this project in the Student Conference on Conservation Science-New York. I am preparing applications for different conferences and congress to present this project.

Finally, I presented this project to local actors during my field work and I am planning a second visit to the local communities with my final results and future steps.

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

It is important to expand the research effort to more oil platforms and develop experiments to detect causality. Doing a PhD about this topic would be a great opportunity to dig into this problematic and find causalities and solutions

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?

I used Rufford Foundation Logo in every presentation, including my poster presented in New York City. Also, I acknowledge The Rufford Foundation in the scientific paper.

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

1. Dr. Gonzalo Rivas: Project advisor and director of TBS is an experienced ecologist and botanist from USFQ.
2. Dr. Bette Loiselle (Project coadvisor) and Dr. John Blake: Ornithologists from University of Florida with more than 30 years of experience in Neotropical bird monitoring and ecology studies.
3. Dr. Robin Verble and Theodore Sumnicht: Entomologists specialized in leaf-litter macroinvertebrates, with experience in the Amazon rainforest, from Missouri University of Science and Technology, currently working in TBS leaf-litter biodiversity.
4. Dr. Glenn Seeholzer: Ornithologist and curator of Macaulay Library, that develops Merlin Sound ID, with vast experience in bird sound recording, identification and management.
5. Dr. Ciara Wirth: Environmental and social researcher, with more than 15 years working with Waorani indigenous nationality in Yasuní Biosphere Reserve. She works in USFQ connecting academy with social justice and conservation.

6. Dr. Valeria Ochoa: Experienced researcher in soil and water quality studies from USFQ, with previous studies in the pollution effects of oil extraction in the Ecuadorian Amazon.

10. Any other comments?

The Rufford Grant Program allow me to become a Master in Tropical Ecology and Conservation while I build on a conservation project with long-term perspectives. I truly appreciate the valuable connection built with local communities and citizen organizations.

ANNEX – Financial Report

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