

Second Progress Report – Rufford Small Grants

Title of Application: A multi-method One Health study focused on primate coexistence through community collaboration in an urban biocultural hotspot in Mexico

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1. Summary

Since the submission of the first progress report, the project has successfully completed the fieldwork phase corresponding to Objectives 1 and 2. Fieldwork involved systematic observation, accumulating 715 hours in the field, distributed over 12,690 scan samples conducted on three groups and a solitary male of *Alouatta pigra* inhabiting different areas of the urban landscape of Palenque. These sectors represent a gradient of contrasting urbanization, which will allow us to evaluate differences in space use, behavior, and diet of the individuals.

Simultaneously, fecal sample collection from the individuals in the study groups was completed. A total of 28 samples were collected, now secured and undergoing parasitological analysis at the Instituto de Ecología, A.C., through our Rufford project collaborator, Andrés Mauricio López Pérez. These analyses are being conducted from a One Health perspective, allowing us to explore parasite transmission interfaces among primates, domestic dogs, and humans in urbanized contexts, generating key evidence on the potential effects of urbanization on primate health and conservation.

2. Progress Achieved

2.1 Consolidation of Behavioral and Spatial Data (Objective 1)

All data generated during fieldwork were compiled and organized into a unified database. Specifically, the following activities were carried out:

- Systematic observations of the behavior of three groups and a solitary male black howler monkey throughout the study period.
- Identification and mapping of high-risk areas, including locations with heavy vehicle traffic, exposed power lines, and reduced canopy connectivity.
- Collection of fecal samples from all individuals in each group and the solitary male.
- Spatial documentation of movement routes and habitat use, contributing to a better understanding of how monkeys navigate the urban matrix.

2.2 Parasitological Component (Objective 2)

Fecal samples collected during the field phase were properly cataloged and processed for parasitological analysis. Feces from each member of the three groups and the solitary male were successfully collected.

3. Next Steps

3.1 Landscape Characterization and GIS Work (Objectives 1B and 1D)

The phase of urban landscape characterization of Palenque will begin using Geographic Information Systems (QGIS), including:

- Delimitation of the study area.
- Preparation and cleaning of spatial layers representing green components (vegetation cover, isolated trees, forest patches) and gray components (urban infrastructure such as streets, buildings, and wiring).
- Organization of spatial information to allow the generation of multiscale buffer zones around usage areas and movement routes.

This phase is essential to understand the influence of the urban landscape on space use, diet, and human–monkey interactions, allowing assessment of effects at different spatial scales.

3.2 Parasitological Component (Objective 2)

- Continue collecting human and dog excreta samples for comparative analysis. For this, we are still awaiting ethics committee approval for human sample collection.
 - Continue and complete parasitological analyses.
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4. Preparation for Community Participation Workshops (Objective 3)

Based on fieldwork and constant interaction with local residents, knowledge gaps were identified that need attention to improve understanding of black howler monkeys' presence in the city.

- A master's thesis was completed (collaborator: Bárbara Cabanillas) focused on designing a serious game, piloted in Palenque to strengthen knowledge, perception, and coexistence practices with urban howler monkeys.
- In response, a series of workshops and participatory activities are planned between March and June, designed from a “planning for coexistence” perspective and aimed at engaging key stakeholders.

- Activities will include environmental education workshops, focus groups with university students, and educational talks for children and the hospitality sector, aiming to raise awareness about the ecological importance of urban howler monkeys, risks associated with urban infrastructure, and actions that various sectors can take to reduce human–wildlife conflicts.

These activities are a crucial component of the project, aiming to translate scientific findings into local conservation and coexistence actions.

5. Use of Budget

During this period, approximately 60–70% of Rufford funding was used to cover essential logistical needs associated with completing fieldwork and organizing the data, including lodging, food, and transportation. Resources have also begun to be allocated to support the implementation of community workshops, covering materials and local coordination.

6. Challenges Encountered

- During fieldwork, it was not possible to formally involve students due to internal administrative processes of local educational institutions, unrelated to the project.
 - Although students were not involved in formal monitoring activities or training programs, continuous contact was maintained with students and faculty, who participated in the serious game pilot and remain in communication for involvement in later project phases.
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7. Unexpected Findings and Conservation Concerns for Local Black Howler Monkey Groups

During fieldwork, several accidents were observed and documented:

- Two cases of electrocution associated with exposed electrical infrastructure.
- Two cases of vehicle collisions in areas frequently used by monkeys for movement.

These events highlight the severity of anthropogenic threats faced by urban howler monkey populations and underscore the urgency of implementing mitigation measures. Documenting these incidents represents an important project outcome, providing concrete evidence to support management actions.

7.1 Management Actions and Mitigation Efforts

As a direct response to the recorded vehicle collisions, immediate actions were taken:

- Communication with the biologist responsible for wildlife in the Municipality of urban Palenque.
- Initiation of communication to request the installation of a wildlife crossing bridge from the municipal president.
- Development of a project aimed at evaluating monkey movement routes within the urban area, as well as learning processes and potential use of new wildlife bridges, through monitoring with camera traps.

Additionally, in response to electrocution events and together with other primatologists, geographic coordinates of electrocution sites were incorporated into a collaborative map of incidents across the country, which was submitted to the Federal Electricity Commission (CFE) as urgent cases. A first technical visit by CFE is scheduled for February to review Palenque's electrical wiring.

Finally, a list of native tree species was shared with the Centro de Estudios Profesionales de Grijalva (CEPROG), which hosts a monkey group on its campus. This action arose from the university's interest in reforesting key areas to improve connectivity and resource availability for the monkeys.