Project Update: July 2024

During our first field trip to start our Second Rufford Small Grant project, we visited areas where we had sampling sites for the First Rufford Small Grant project in the Bacalar region. This visit let us witness and document the landscape changes associated with the construction of the Tren Maya project. Notably, we observed modifications of the habitat (Figure 1) and obtained information about changes in land ownership. Whereas the construction has been concluded in some of the train segments, it is still undergoing in the Bacalar region. Thus, the start of our data collection has been delayed.



Figure 1. Tren Maya railroads construction in the Bacalar region.

During the first and following visits, we met land owners and local communities to tell them about the follow-up project (Figure 2). This was important to update them on the first project progress and reiterate our commitment to the project continuation. We also took steps to renew permission to access to private properties and community-owned areas.



Figure 2. A project member talking with a land owner in the Bacalar region. The land owner is pointing out potential forested areas on his land that we could explore for our study.

We strengthened our collaboration with the INIFAP (Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; Figure 3 and 4). INIFAP was an important ally during our First Rufford Small Grant project and will continue to be one of our main local contacts. The research institute manages a large forest under federal protection in the Bacalar region, allowing us to deploy our autonomous acoustic recording devices over extended distances in the field. The institute director has informed us of his willingness to organize a meeting with several community organizations that own large extension forested communal land for us to present our project and possibly secure more area to deploy our autonomous acoustic recording devices.



Figure 3. Two project members in a field meeting with the INIFAP director and forestry engineers.



Figure 4. A project member explaining to members of the local community of the Ejido San Felipe (in the Bacalar region) and INIFAP employees about our project on biodiversity acoustic monitoring.

Based on our previous experiences in the field, we improved our equipment and study design. We purchased the "Audiomoth Rainforest Connection Kit" (Figure 5), which includes an updated version of the acoustic recorder device, a large rechargeable Li-Ion battery, a larger memory card and a thicker protective bag, providing endurance in the highly humid environment. Additionally, we revised the configuration of the acoustic recording devices by changing the recording schedule to collect more data during a shorter period, thanks to the improved Li-Ion battery and the larger memory card. The new recording schedule allows us to keep the Audiomoth acoustic recording devices in the field for only 15 days at a time before downloading the data, so reducing exposure to high humidity and providing time for device maintenance, if needed. We deployed some Audiomoths in the field for testing during our field visits. They responded very well to the new recording schedule and study design. We have just received 25 new Audiomoth Rainforest Connection Kits, which we plan to deploy them during our next field visit.



Figure 5. Audiomoth Rainforest Connection Kit to be deployed in the field

As the area where we plan to carry out the study is larger than the one used for our First Rufford Small Grant project, we have developed a larger map with multiple land-use categories (Figure 6). We are in the process of verifying the accuracy of the map by collecting ground data on each land-use category with the assistance of local experts. The map will be use to select sites where to deploy the acoustic recording devices, in addition to those used for the First Rufford Small Grant project.



Figure 6. A preliminary version of the map to be used to identify relevant land-use categories in the unprotected area between the two key biodiversity protected areas of the Sian Ka'an Biosphere Reserve and the Calakmul Biosphere Reserve.

Back from the field, we participated in a graduate course at the Instituto de Neuroetología of the Universidad Veracruzana, where we gave a theoretical class on bioacoustics and a practical workshop on the use of new technologies, such as autonomous acoustic recording devices, for biodiversity monitoring through Passive Acoustic Monitoring (Figure 7).



Figure 7. Project members giving a class on the use of bioacoustics for biodiversity monitoring (left) and in the field showing students the equipment used for acoustic monitoring (right).