

## Project Update: February 2024

Our study combines field observations of flower-foraging insects with DNA metabarcoding of their pollen loads to investigate plant-insect networks. This pilot study aims to explore the feasibility of evaluating the success of ecological restoration by monitoring changes in the diversity and structure of pollination network interactions in restored habitats, a reference ecosystem, and chronically perturbed habitats.

The project has achieved several significant milestones, including hosting an in-situ workshop, submitting a manuscript for publication, and initiating science communication efforts tailored for children. Below, we provide a detailed description of each activity:

1. We have completed the fieldwork, collecting a total of 200 samples of foraging insects and their pollen loads within the Sierra de Huautla Biosphere Reserve. These samples have been submitted for sequencing at the Next-Generation Sequencing (NGS) facility at the University of Wisconsin. I am pleased to inform you that the process has been successful, and we have obtained valuable data that will contribute significantly to our research objectives. The bioinformatic process has been started and by April 2024 we are aiming to obtain the identity of the insects and pollen collected. The analysis of this data will end up on the publication of a research paper aiming to look at the differences between visitation and transport networks and their implications for conservation.
2. Additionally, our paper called "Effects of dry forest restoration on flower-visitor networks" is under review at *Restoration Ecology Journal*. In our results we highlight that conserved habitats support robust communities with high connectivity and nestedness, while natural succession habitats show greater structural stability. The findings in this paper emphasise the complex relationship between habitat characteristics, flower density, and network attributes in dry forest plant-pollinator interactions, providing valuable insights for targeted restoration strategies aimed at biodiversity preservation and ecosystem resilience.
3. We are preparing a science outreach manuscript on the importance of pollinator networks for restoration practices. Said document will be submitted to *Inventio* magazine (<http://inventio.uaem.mx/index.php/inventio>).
4. In October 2023 we conducted a workshop with primary school students in Morelos; the goal was to teach students about the importance of interactions between plants

and animals in ecosystems, focusing on pollinators, seed dispersers, and the types of foods they consume.

1. We conducted a workshop with El Limón community, the main objective was to provide a theoretical framework on the use of flora in the area. We focused on collecting information about the use of plants in three different contexts: on the surround area, in the "corralito" or plot/garden, and in the store or "outside" the locality. Participants were asked what plants they consume, what parts of the plant they use, and when they collect them. It was also investigated which plants are used for firewood, animal feed, medicinal purposes and construction of fences or houses, and how often they are collected or purchased. The relative importance of each of these uses was discussed. Additionally, differences in the availability of food, firewood, fodder and medicine in each of these contexts were explored. The objective was to better understand the relationship between the community and its natural environment, as well as identify the needs and resources available in each area.

2. For the next, and final workshop in May 2024, we seek to generate a critical knowledge tool about the interactions between the community and its territory through community mapping. It is expected that this mapping could help understand the processes that threaten the territory and traditional practices of coexistence with the natural environment, thus laying the foundations for future workshops focused on monitoring the health of the ecosystem.



