



Arthropod Diversity in Long Beach

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Project Goal

The project was to identify the different species of arthropods in Long Beach to assess the biodiversity in different geographical regions.

Introduction

The purpose of the project was to determine how arthropod diversity is distributed in homes in Long Beach. This is important to know the effects urbanization has on the environment, whether they had adapted to the changing environment created by urbanization. Arthropods play a key role in the ecosystem because many are pollinators and/or decomposers. It is important to understand the effect urbanization has on them.

Research Question:

What is the distribution of household pests in Long Beach? Is that diversity correlated with distance from wild habitat types?

Materials & Methods

- Samples collected by having people put labeled glue traps in their homes and bringing them back after 2 weeks
- The labels make it possible to identify where each trap came from
- Locations were marked on a map
- The Silica DNA Isolation method was used to DNA barcode the samples

Results

The majority of the arthropods that were obtained were cave crickets. Centipedes and spiders were also common, which is interesting because they're both predators of house pests. These are all common and probably very well adapted to the indoor environment. Beetles were less common because they typically live outdoors under logs or rocks so they may have wandered into the house. Isopods were less common. They live under rocks and logs typically and the ones in the glue trap probably may have just happened to wander into the house (not actually their environment.) Only one flying arthropod was found which was successfully barcoded and found to be *Niditinea fuscella* (or European Housemoth) which is actually non-native (found in western Eurasia, Iceland, and recently Australia.)

Tables & Figures

Biodiversity Study					
Beetles	Isopods (Roly Polies)	Centipedes	Cave Crickets	Spiders	Flying Arthropods
3	3	8	15	7	4



This is the *Niditinea fuscella*, commonly called the European House Moth. They are commonly found in bird nests and non-native



This is the *Steadota triangulosa*, or called a triangulate cobweb spider. This spider has bad eyesight and relies on vibrations from its webs

Discussion

The results help answer the research question by demonstrating how certain arthropods are found in various areas around Long Beach. The arthropods were mostly found in Long Beach from people who were farther from the beach. 10 samples were barcoded but only 2-3 worked. One of the samples had many mismatches, which leads us to believe that it wasn't put in the database. One issue that occurred during the project was that some samples in a database known as DNA Subway didn't match the species the way they were labeled. This problem was solved by the corresponding the species with its correct sample. One mistake that took place during this experiment was the timing. When doing this project, the organisms were left too long in the houses and that could have interfered with the preservation of the organism.

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