

Long-term pollinator monitoring study in the Chihuahuan Desert at the Sevilleta LTER, New Mexico.



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Methods

Materials

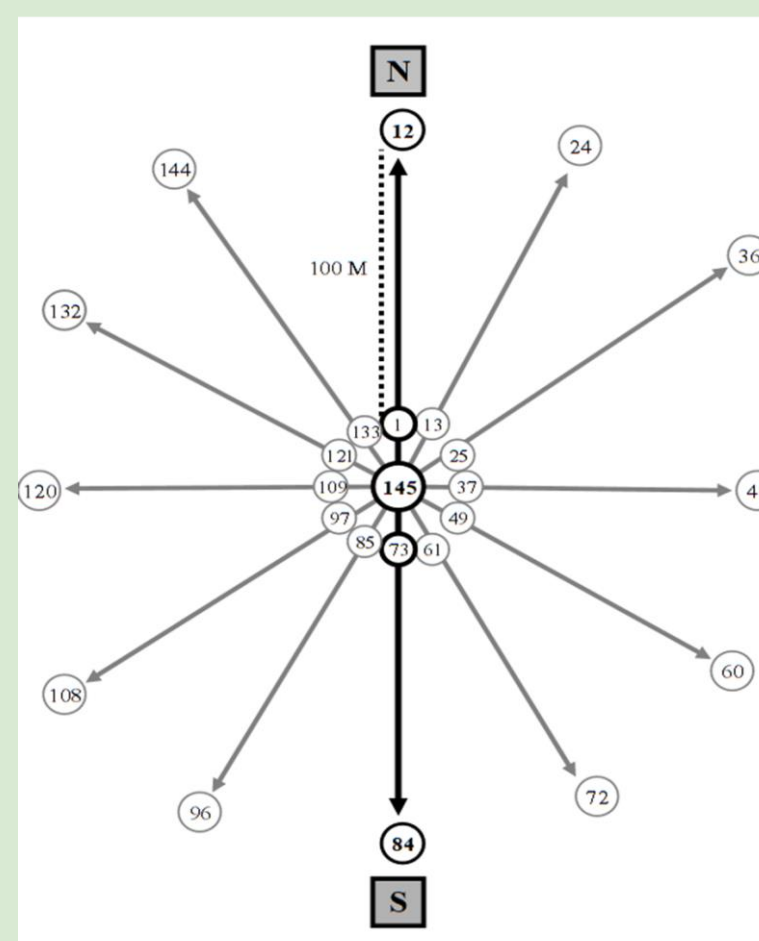
Paint cans, propylene glycol, funnels, spray paint, small platforms, chicken wire



Sample Design

There are three core sites at Sevilleta Wildlife Refuge each with five trapping webs that are bisected from north to south by a 200 meter long transect. Traps are installed 10 meters past the north and south ends of the 15 plant phenology transects, for a total of 30 traps. They are then set on a 1 1/2 ft tall platform and surrounded by a 2ft high chicken wire cage to prevent wildlife disturbance. Placed on the platform is a paint can of propylene glycol and a blue or yellow funnel totalling 15 of each color. Paint can lids are left in the cage to seal the traps when they are inactive.

Traps are opened and closed every 14 days from March to October. Specimens are collected at the end of each 14 days cycle.

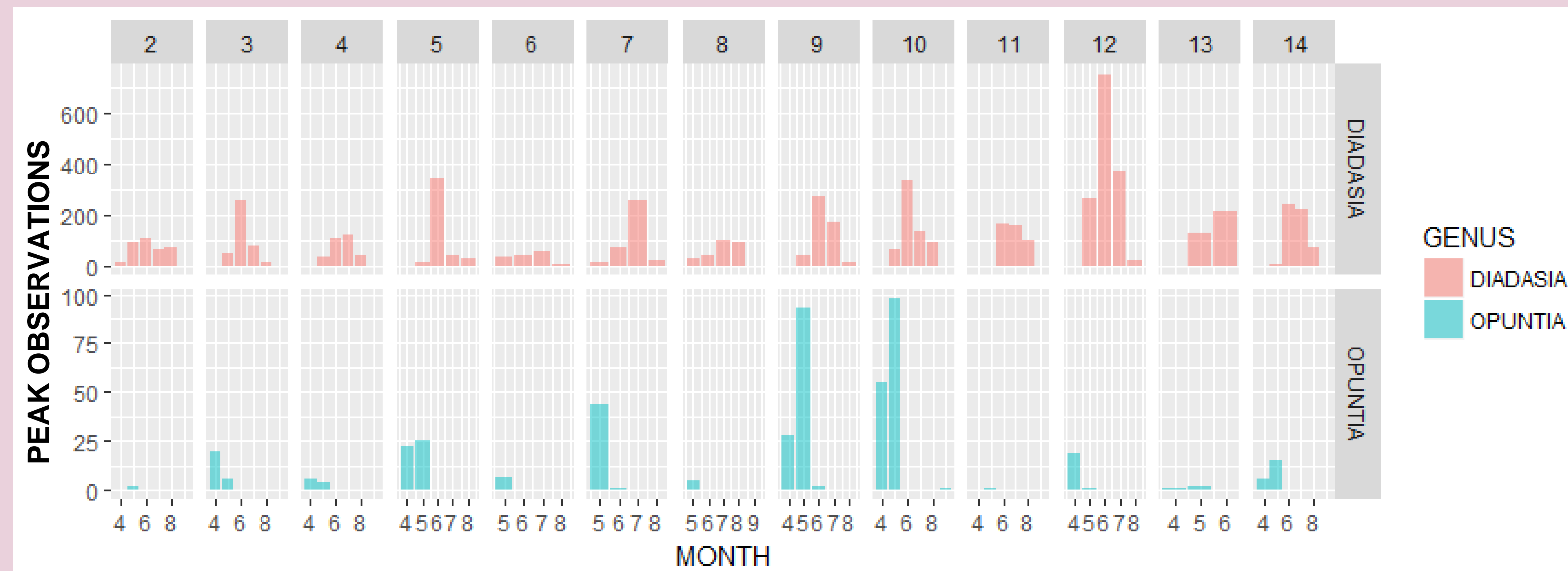


Specimen collection

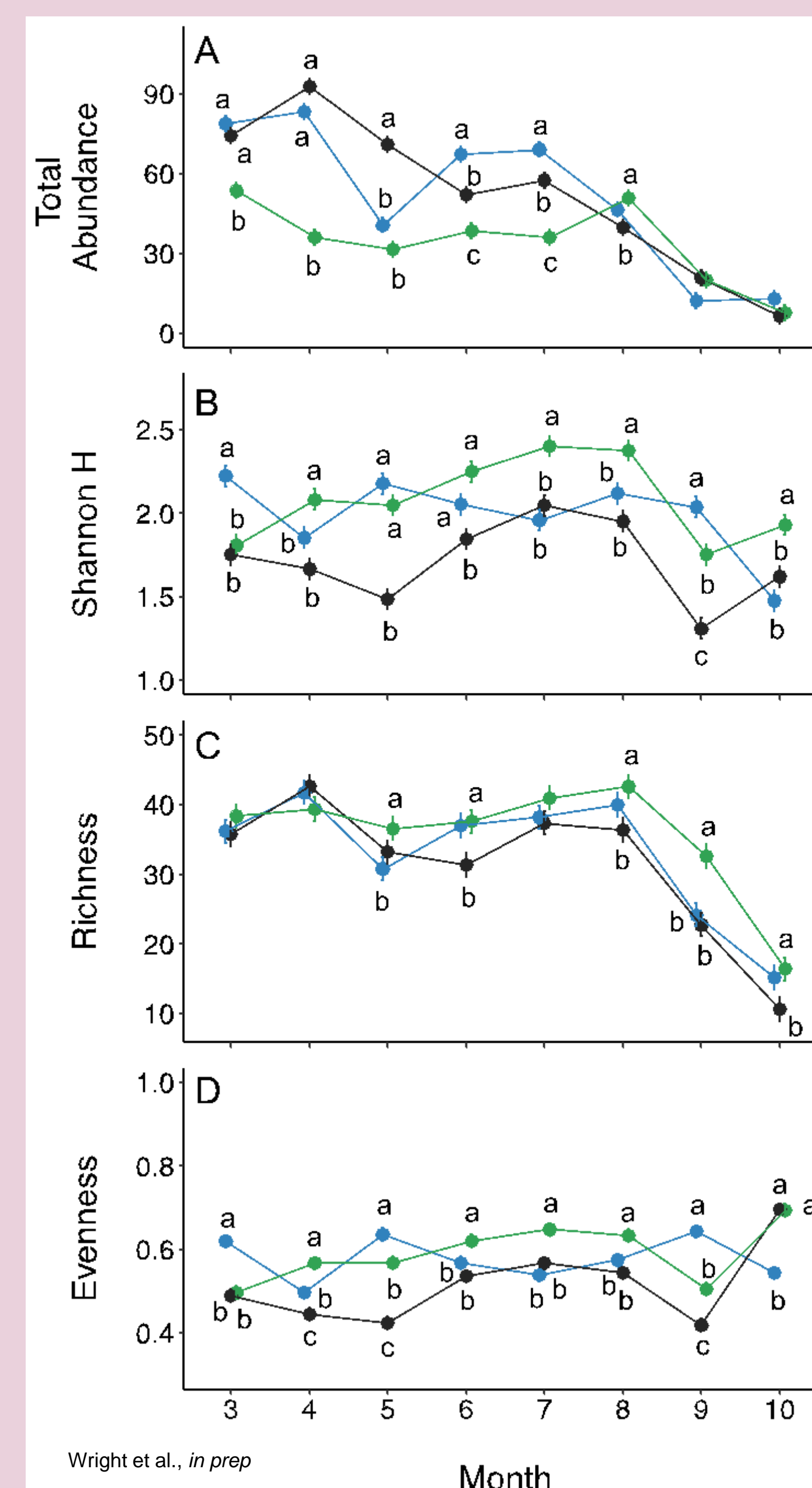
Specimens are collected after traps have been opened for the desired period of time by sieving the contents of the paint can and then placing the specimens into a labeled vial with 70% ethyl alcohol. Samples are then stored until processed.



Data Use Examples



- Comparison of prickly pear cactus (*Opuntia*) and a cactus specialist pollinator (*Diadasia*) over time.
- The above graph utilizes both the Pollinator Monitoring data and the Plant Phenology data sets.
- Peak observations of *Opuntia* consistently predate *Diadasia* in almost every year recorded.



Wright et al., in prep

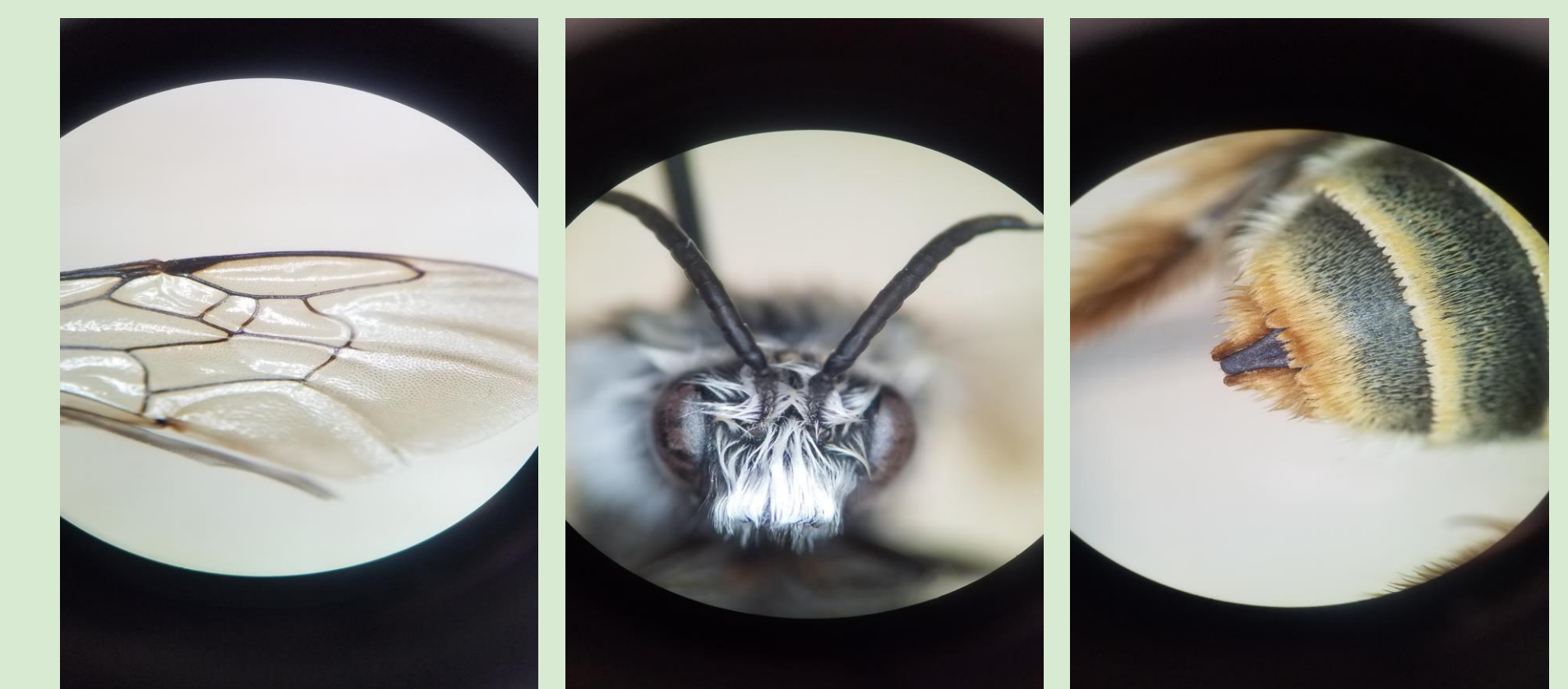


- Bee community abundance and diversity by month
- **Blue:** Great Plains grassland
- **Black:** Chihuahuan Desert grassland
- **Green:** Chihuahuan Desert shrubland
- Biomes labeled with different letters differed significantly from one another in the relevant diversity metric.

Methods cont.

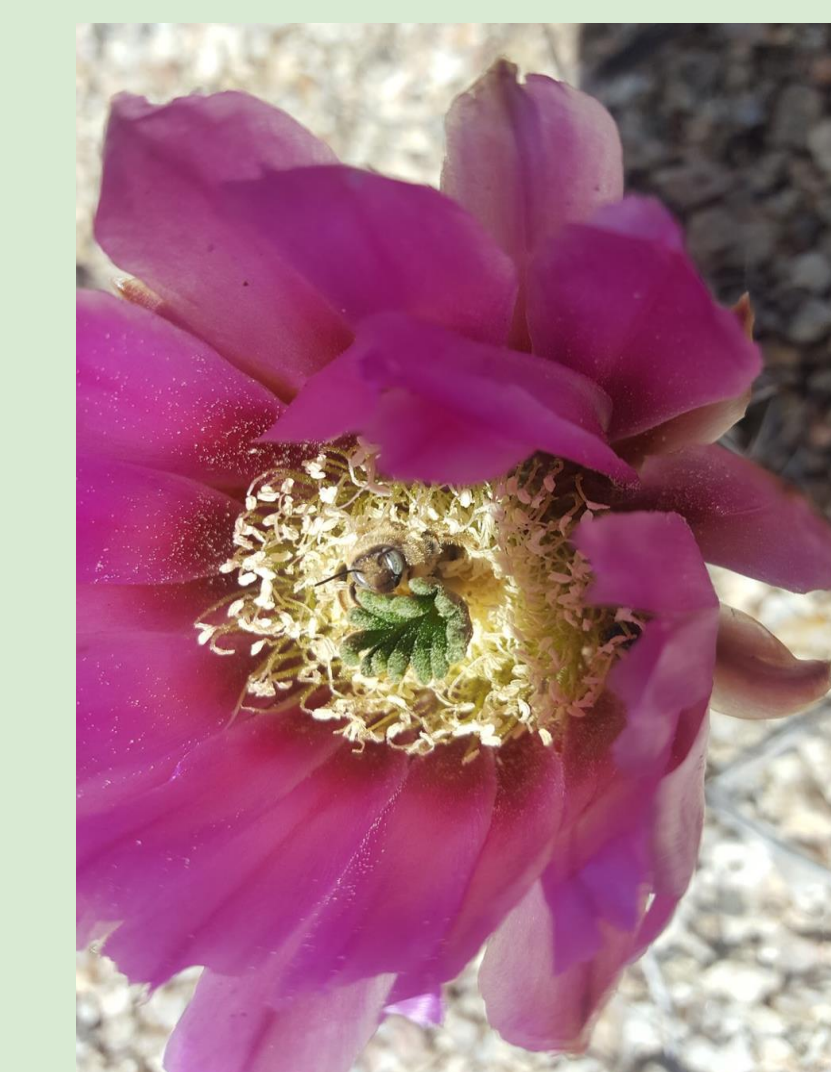
Lab processing and identification

Specimens are pinned, identified and labeled in the Arthropod Lab at the University of New Mexico. Individuals are identified to species and then labeled for museum curation.



Study area information

Bees are collected within three different ecosystem types at the Sevilleta National Wildlife Refuge. The Sevilleta is located at the confluence of a number of ecotones within the Chihuahuan Desert. The three ecosystem types are each defined by their dominant plant species: blue grama grass (*Bouteloua gracilis*), black grama grass (*Bouteloua eriopoda*), and creosote bush (*Larrea tridentata*).



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