

RESEARCH PROPOSAL

by Gene DeBons, Michelle Sarina, Jim Sarina

Rationale for conducting this research

- Study the propagation of Blue Orchard Bees (BOBs) in several different environments in Arizona.

Where will the study be conducted and why these sites were specifically chosen?

Four locations in the state of Arizona (chosen for):

1. Phoenix Metro Area, 1200 ft elevation; two sites: a lakeside residential site with a mixture of landscape and decorative plants; and a commercial orange orchard (different plant fauna).
2. Cottonwood, AZ, 3200 ft elevation; two sites: a 6-acre apple orchard and a 5-acre pear orchard (different bloom times).
3. Payson, AZ riparian region (on the East Verde River), 4600 ft elevation; two sites: a one acre, master garden located 1/8 mile from the river and two residential lots (totaling 1.5 acres) on the river with minimal plant coverage (plant density).
4. Sedona, AZ, 4350 ft elevation; master garden location(s); specific sites, approximately 1 acre each, to be determined upon visiting the sites (different plant fauna).

These sites provide a diversity of climate, elevation, bloom time, plant species, plant mixture and hydrology.

Methodology

- Several models of BOB housing nesting kits will be obtained from “Watts Solitary Bees” and placed as appropriate for each environment.
- The bees (roughly 1000 per acre/location) will be released on a timeline consistent with the flowering of plants in that area.
- The primary study methodology will be regular visual observation and data collection of bee activity and habitat and real-time environmental conditions.
- After the completion of season, the cocoons will be counted and evaluated for general quality (e.g., health, male/female ratio, size) by established BOB experts.

Who will conduct the study?

- The study will be organized and conducted by Gene DeBons, Michelle Sarina, and Jim Sarina. Gene has previously conducted a smaller scale, similar study in Gilbert, AZ in 2018.
- Expert advice will be provided by Jim Watts and Steve Peterson and other associates of the Orchard Bee Association on an as necessary basis.
- Regular, on-site inspection, review and documentation (photos, notes, videos) will be conducted by local personnel.

What outcomes are expected?

- Measurable and verifiable data collection methods and analytics within diverse Arizona environments to determine BOB behavior, ideal habitats and population sustainability.
- Understanding and development of best practices to insure BOB propagation in these diverse environments.

What deliverables will be provided?

Three deliverables:

- one: a thorough report in a publishable format encompassing all the activities of the study,
- two, a presentation that summarizes the results of the study to be delivered at the December meeting of the OBA,
- three, a website (<https://www.blueorchardbeesinaronaproject.com/>) which captures the week-to-week activities and results of the study for educational and reporting purposes.