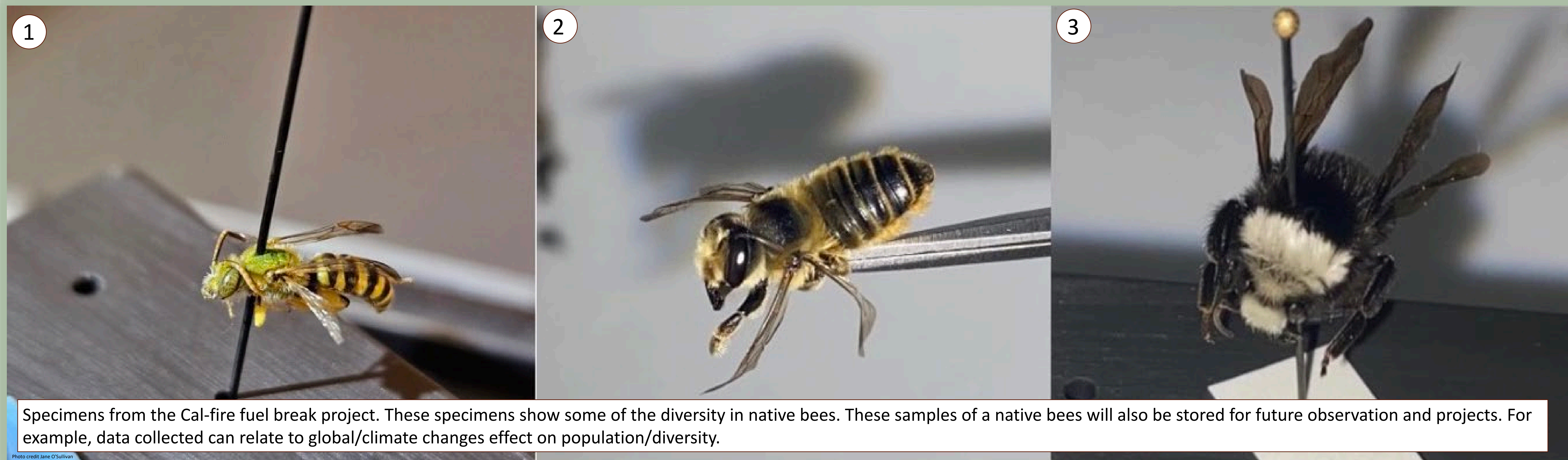


SPECIMEN COLLECTIONS: THE VALUE IN PRESERVING SPECIMENS FOR FUTURE SCIENTIFIC RESEARCH.

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Specimens from the Cal-fire fuel break project. These specimens show some of the diversity in native bees. These samples of a native bees will also be stored for future observation and projects. For example, data collected can relate to global/climate changes effect on population/diversity.

BACKGROUND

- Native bees play a crucial role in ensuring both the security of our food sources and the preservation of biodiversity.
- Specimen collections play a role in understanding how insects are responding to climate change. Past collections allow us to see the examination of long-term trends in insect distributions, change through seasons, morphology, and genetic variation in comparison to new ones.
- This project is using the collection of bee species to determine how beneficial fuel break treatments have been on native bee populations.
- All bees, wasps, and flies are collected then identified by an entomologist for data collection.
- Let's look into the process of pinning bees and other specimen!

METHODS

1. Insects collected from the field (as seen in Fig. 4 below) must be processed, pinned and labeled before the identification process.
2. First bees are separated from ethanol and all other bycatch (anything that is not a fly, wasp or bee, see Fig. 6).
3. Specimen are shaken in a container with warm soapy water then strained and rinsed.
4. Then shaken and rinsed with ethanol. Next strained and dried on paper towels.
5. Specimen are added to a jar with mesh lid and blow dried until dry and fluffy.
6. Specimen are sorted by size and assigned unique ID's . (Separating by size helps group bees into their different morphospecies; Characteristics like size, patterns and body shape can help with the initial sorting.)
7. They are then pinned through abdomen through top right corner of scutum (see Fig. 8) or glued to a pin if too small. (see Fig.7 for example of finished box)



Bees are collected in different traps, top left is a blue vane trap, top left netting, and bottom three are pan traps.



Tools necessary for pinning bees include jar with mesh lid, strainer, pins(assorted sizes), glue, pinning block, forceps, scissors, ethanol, blow dryer.



Bees are separated into different bags depending on what site and trap they came from. Once bees, flies, and wasps are separated, bycatch is returned to the bag.



Once bees have been washed, rinsed and dried, they are pinned. Each box is separated by site, and trap. This pinning method helps organize bee by morphospecies. Each box and trap has several morphospecies of native bees.



Bee habitat and a collection site for Cal-fire project.

RESULTS

The bee collection process is ongoing. Once all samples of bees have been collected and identified, samples will determine relation between fuel break treatments and the effect on native bee communities. Bees collected and pinned for this project will also be used for other bee data and other scientific research.

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Bee pinned at the top right corner of scutum, to the right of the bee's midline for easier identification. Pin also goes through the unique ID and is then transferred to box for holding (see figure 7)