Evaluating native bee response to fuel-reduction treatments in managed conifer forests

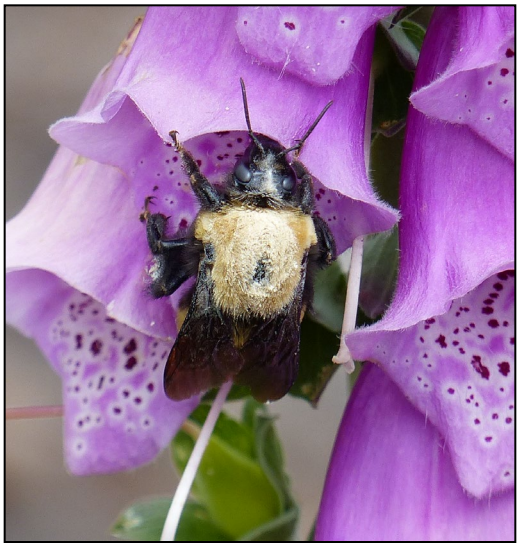
Project Objectives

- ***Quantify the native bee communities that use shaded fuel breaks and contrast them with bee communities in untreated reference areas.***
- ***Evaluate the extent to which local floral resources and the time since treatment influence native bee communities in shaded fuel breaks.***

Background

- Nearly 90% of the world's flowering plants and 35% of agricultural crops benefit from animal pollinators, especially native bees.
- Forests are home to many native bee species, but our understanding of how forest management influences bee communities is still in its infancy.
- Given the expanding footprint of wildfire in western North America, quantifying how bee communities respond to fuel-reduction treatments has become a research priority.

Insect pollinators – such as this native long-horned bee - are a critical element of biodiversity and provide key ecosystem functions, ultimately providing hundreds of billions in ecosystem services annually across the globe.



*Bumble bees (*Bombus *spp.) are often found in managed forests, and they were one of the more abundant groups that were captured within shaded fuel break sites in our study.*

Approach and Preliminary Findings

- We are sampling 26 shaded fuel break sites and 8 reference sites during the 2023-2024 bee flight seasons.
- We use passive traps and netting off flowers to quantify bee diversity, and we measure floral resources and habitat characteristics as study covariates.
- In 2023 alone we captured nearly 14,000 insect specimens, the majority of which were native bees. We captured > 4.3x more specimens, on average, in shaded fuel break sites relative to reference sites.
- Formal specimen identification will take place in fall 2024, yet preliminary observations indicate a wide diversity of bee families, genera, and species are present.

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