



Native Plant and Pollinator Interactions at the Pine Hill Preserve

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Rhamnus ilicifolia



Ceratina sp.

Study Site:

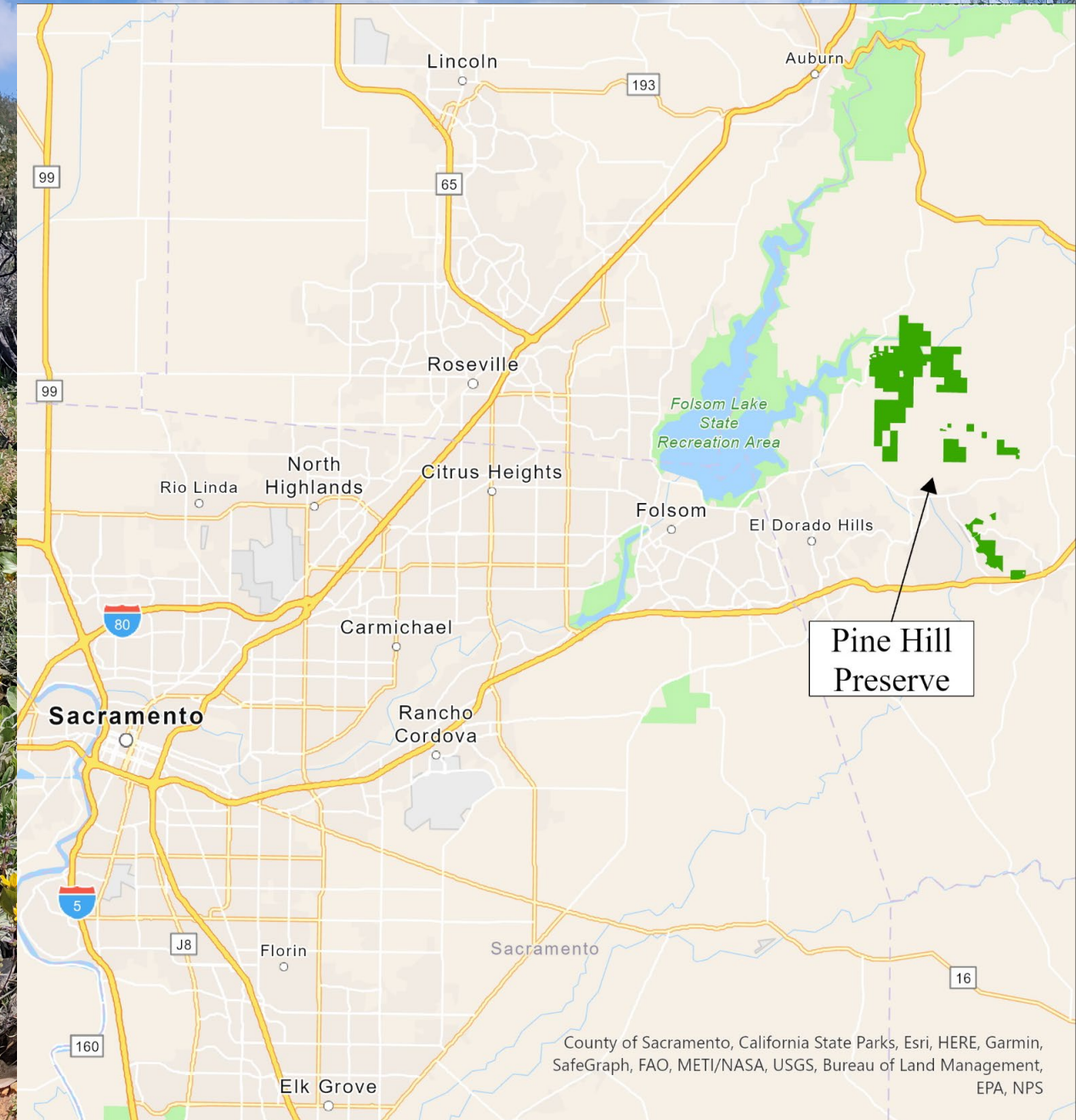
Pine Hill Preserve

- ~35 miles east of Sacramento
- ~5,000 acres of managed lands
- Cooperative conservation effort of 10 different agencies
- ~10% CA's native flora
- 8 rare plants
- Gabbro soils of the Rescue series
- Vegetation management for rare plants

Methods:

(2014-2023)

- Hand net → freeze → pin → label each specimen. Pinned and labeled specimens sent to taxonomists for ID.



Fuels, Fire, and Bees

Calystegia stebbinsii (CAST)

- Federally endangered
- Population flourishing in burned areas

Diadasia bituberculata -Morning glory pollen specialist

- Nests in bare soil within the *C. stebbinsii* population
- Males and females regularly contact sexual parts of flower



Fremontodendron decumbens (FRDE)

- Federally endangered
- Most prevalent in fuel break area
- Needs fire for germination
- Callanthidium illustre*, which made up roughly 9% of bee visitations from Boyd's previous research has not been detected in our surveys (Boyd, 1994)

Results

<i>Wyethia reticulata</i>	<i>Packera layneae</i>	<i>Ceanothus roderickii</i>	<i>Chlorogalum grandiflorum</i>	<i>Crocanthemum suffrutescens</i>	<i>Fremontodendron decumbens</i>	<i>Calystegia stebbinsii</i>
<i>Andrena pallidifovea</i>	<i>Andrena pallidifovea</i>	<i>Andrena chlorogaster</i>	<i>Apis mellifera</i>	<i>Ceratina nanula</i>	<i>Apis mellifera</i>	<i>Apis mellifera</i>
<i>Anthidium placitum</i>	<i>Ashmeadiella cubiceps</i>	<i>Andrena annectens</i>	<i>Bombus californicus</i>	<i>Dianthidium dubium</i>	<i>Eucera stretchii</i>	<i>Diadasia bituberculata</i>
<i>Anthidium utahense</i>	<i>Bombus vosnesenskii</i>	<i>Sphecodes sp.C</i>	<i>Bombus vandykei</i>	<i>Halictus tripartitus</i>	<i>Lasioglossum punctatoventre</i>	<i>Lasioglossum cyaneonotus</i>
<i>Anthophora urbana</i>	<i>Ceratina nanula</i>	<i>Halictus tripartitus</i>	<i>Bombus vosnesenskii</i>	<i>Lasioglossum nevadense</i>	<i>Lasioglossum sisymbrii</i>	<i>Lasioglossum mellipes</i>
<i>Anthophorula chionura</i>	<i>Halictus ligatus</i>	<i>Bombus vosnesenskii</i>	<i>Lasioglossum incompletum</i>	<i>Lasioglossum punctatoventre</i>	<i>Lasioglossum sp.D</i>	
<i>Apis mellifera</i>	<i>Hoplitis fulgida</i>	<i>Bombus melanopygus</i>	<i>Lasioglossum sp.A</i>	<i>Lasioglossum sp.E</i>	<i>Xylocopa tabaniformis</i>	
<i>Ashmeadiella aridula</i>	<i>Hylaeus sp.A</i>	<i>Panurginus sp.A</i>	<i>Lasioglossum sp.C</i>	<i>Megachile apicalis</i>		
<i>Bombus californicus</i>	<i>Lasioglossum nevadense</i>	<i>Lasioglossum sp.B</i>	<i>Lasioglossum sp.D</i>	<i>Melissodes communis</i>		
<i>Bombus vandykei</i>	<i>Megachile onobrychidis</i>	<i>Lasioglossum incompletum</i>	<i>Lasioglossum sp.E</i>			
<i>Bombus vosnesenskii</i>	<i>Megachile pseudonigra</i>	<i>Protosmia rubifloris</i>	<i>Megachile onobrychidis</i>			
<i>Ceratina nanula</i>	<i>Oreopasites vanduzeei</i>	<i>Andrena sp.K</i>	<i>Megachile sp.A</i>			
<i>Ceratina punctigena</i>	<i>Osmia coloradensis</i>	<i>Andrena sp.H</i>				
<i>Dianthidium pudicum</i>	<i>Osmia montana</i>					
<i>Halictus farinosus</i>						
<i>Halictus ligatus</i>						
<i>Hoplitis sambuci</i>						
<i>Lasioglossum incompletum</i>						
<i>Megachile apicalis</i>						
<i>Megachile fidelis</i>						
<i>Megachile frugalis</i>						
<i>Megachile montivaga</i>						
<i>Megachile parallela</i>						
<i>Megachile pseudonigra</i>						
<i>Megachile sp.A</i>						
<i>Melissodes communis</i>						
<i>Melissodes lupina</i>						
<i>Osmia aglaia</i>						
<i>Osmia californica</i>						
<i>Osmia cara</i>						
<i>Osmia coloradensis</i>						
<i>Osmia cyanella</i>						
<i>Osmia densa</i>						
<i>Osmia gabrielis</i>						
<i>Osmia gaudiosa</i>						
<i>Osmia montana</i>						
<i>Osmia nemoris</i>						
<i>Osmia regulina</i>						
<i>Triepeolus utahensis</i>						

65 plants surveyed
-60 native

Rare plants were
visited by 68 of 143
bee species

WYRE
-40 bee species

FRDE -One key
species from previous
research absent in
our surveys (Boyd
1994)

References

Boyd, R. S. 1994. Pollination Biology of the Rare Shrub *Fremontodendron decumbens* (Sterculiaceae) Madroño 41:277-289.

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