



## Pollinators in your Garden

UCCE Stanislaus County  
Master Gardener Program

Special thanks to USDA & Xerces Society

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### The Importance of Pollination

More than 85% of flowering plants require an animal to move pollen.



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### Invertebrate pollinators

Butterflies, Moths, Flies, Beetles, Wasps & Bees



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Photos: Bryan E. Reynolds, J.J. Matthew Shephard, Xerces Society/Sarah Foltz Jordan, Xerces Society/Monica Vaughan

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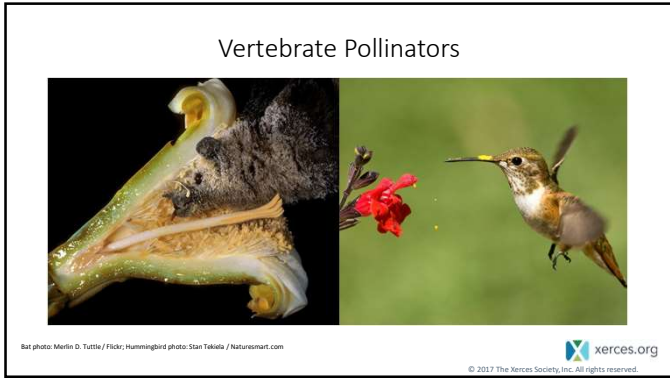
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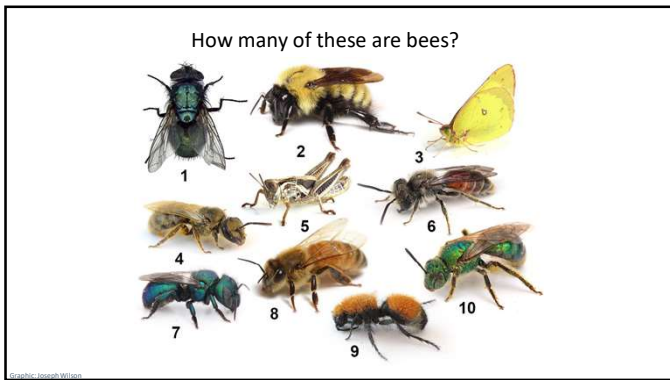
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Fuzzy-legged leafcutter bee (*Megachile metoehardi*) male, by Clay Bolt

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Metallic green sweat bee (*Agopostemon* sp.), by Clay Bolt

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Three Basic Types of Nesting

1. Ground Nesting (70%)

A composite image showing ground nesting. On the left, a close-up of a bee on sandy soil with sparse grass. On the right, a wider view of sandy soil with several circular entrance holes of varying sizes, some with small black caps or debris.

Photos: Corina Stalio, Katherine Gilman / Xerces Society © 2017 The Xerces Society, Inc. All rights reserved. xerces.org

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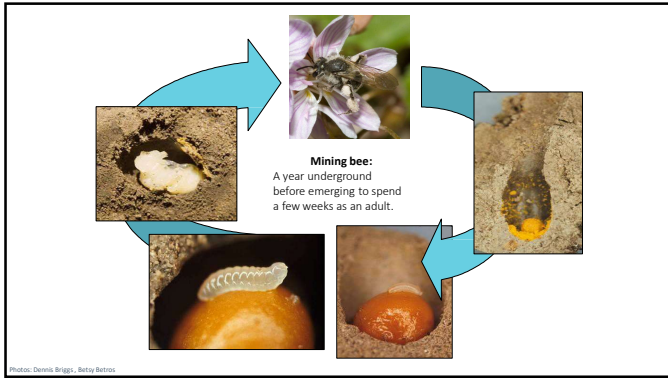
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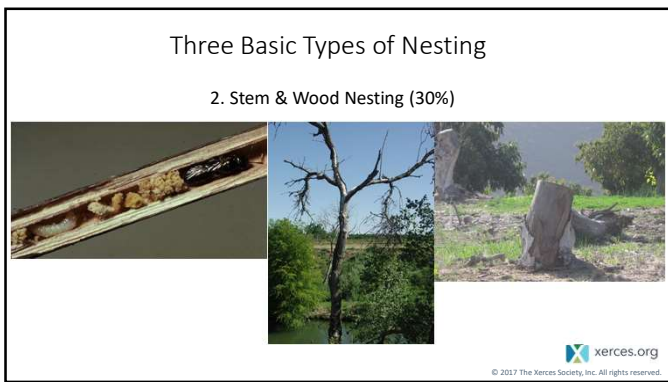
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### Three basic types of nesting

3. Hive Nesting (<1%)



Photos: Eian Evans, Marion Ellis

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### Hoverflies

- Many species mimic bees
- Wings are typically more translucent
- Typically generalist pollinators



Flies, clockwise from top left: A feather-legged fly (*Trichopoda pennipes*) on goldenrod (*Solidago* sp.), a tachinid fly (*Tachinidae* sp.) on milkweed (*Asclepias* sp.), a syrphid fly (*Syrphidae* sp.), and flower flies (*Toxomerus geminatus*) on Philadelphia fleabane (*Erigeron philadelphicus*). (Photos: John Beekman / Flickr Creative Commons 2.0, Xerces Society / Stephanie McKnight, Judy Gallagher / Flickr CC 2.0, Dan Mullen / Flickr CC 2.0)

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### Wasps

- Beneficial insects that control pest populations
- Limited pollination services
- Important predators of the insect world



Wasps, clockwise, from top left: A thread-waisted wasp (*Arrhenophila princeps*) on spotted beebalm (*Monarda punctata*), a braconid wasp, a paper wasp (*Polybia* sp.) on spotted beebalm, and a *Mutillidae* species on goldenrod (*Solidago* sp.). (Photos: Mary Keim / Flickr Creative Commons 2.0, Kaja Schulz / Flickr CC 2.0, Mary Keim / Flickr CC 2.0, Xerces Society / Emily May)

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A world with pollinators



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A world without pollinators



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A world with pollinators



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### A world without pollinators



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### Poll #3

- Why do you think insects & pollinators are in decline?  
(Choose all that apply)
  - pesticides
  - habitat loss due to farming and urbanization
  - climate change
  - pollution
  - invasive species

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New York Times Article

IN THE GARDEN

## How (and Why) to Use Native Plants

You know they support pollinators and native wildlife, but you may not have a meadow where they'll feel at home. Here's what to do.

By Margaret Roach  
May 15, 2020

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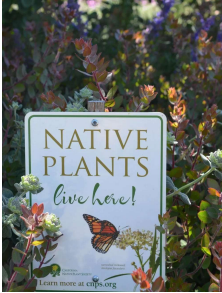
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### Overview of Native Plants

- At least 1/3 of our California natives are found nowhere else in the world.
  - These species are known as endemics.
- Native species provide specialized benefits for wildlife
  - Many nursery stock plants cannot provide that same benefit
- Not all flowers provide pollen & nectar, not all flowers with pollen & nectar are suitable for every pollinator.
- Important that pollinator habitat contains a diversity of natives that bloom throughout the growing season.

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### Importance of Flower Shape

<p>California is home to plant species with distinct flower shapes &amp; sizes</p>	<p>Flowers with tubular or funnel shapes</p>	<p>Flowers that are broad or cup-shaped</p>
<ul style="list-style-type: none"> <li>• These shapes cater to different insects &amp; pollinators</li> </ul>	<ul style="list-style-type: none"> <li>• Attractive to hummingbirds, butterflies, and moths</li> </ul>	<ul style="list-style-type: none"> <li>• Attractive to bees, hoverflies, and butterflies</li> </ul>

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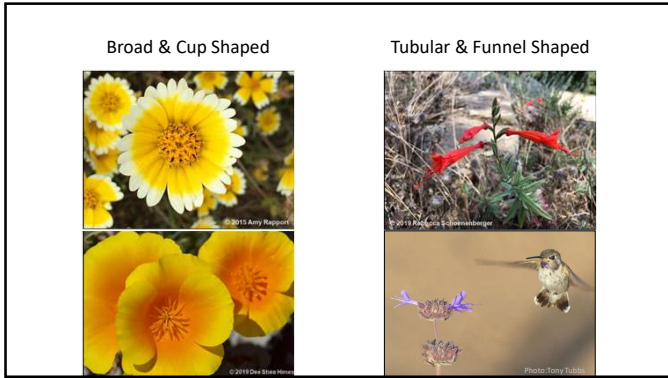
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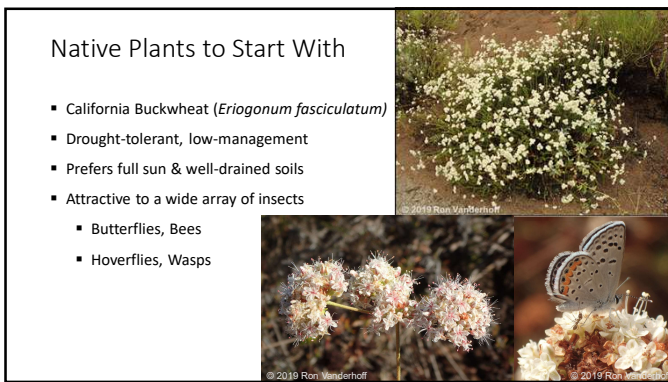
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### Native Plants to Start With

- Narrow leaf milkweed (*Asclepias fascicularis*)
- Host plant for the Monarch butterfly
- Many other native milkweeds
  - Limited geographic range
- \*Beware nursery labelling of milkweed\*
  - Tropical milkweed (*Asclepias curassavica*)
  - If you do have it, cut back during winter

Tarantula hawks on milkweed



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### Native Plants to Start With

- *Ceanothus* spp.
- Widely available in nurseries
  - Many hybrids & cultivars: "Ray Hartman, Concha, Valley Violet"
- Prefers full sun to partly shaded
- Large growing evergreen shrub
- Host plant to many species of butterfly



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### Annual Species

- Poppy
- Lupines
- Baby blue eyes
- Phacelia
- Clarkia
- Plant in Fall



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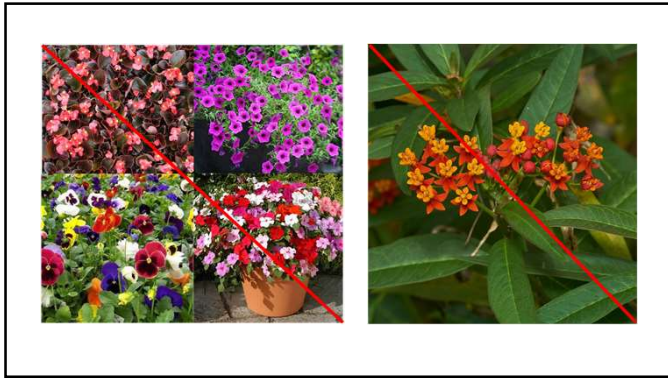
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You can use Xerces as a resource

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### Poll #4

- As a result of watching this webinar: (Choose all that apply)
- I know a lot more than I did before about native bees
- I'm excited to plant native plants for pollinators in my garden
- I'm planning to leave some bare ground in my garden for ground nesting bees.

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### Resources

- **Calflora:** <https://www.calflora.org/>

- A database for native plants, where they grow, and if they are commercially available.



- **California Native Plant Society**

- Information on native plant selections and gardening tips.
- Virtual Garden Tours
- Join a local chapter!




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### Key Takeaways

- How You Can Help:

1. Plant a diverse array of flowers, so that pollinators have plenty of forage & food sources year round.
2. Create nesting sites for bees.
3. Spread the word and create awareness around our pollinators.




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