

Happy to see you! We will be starting soon.



Welcome Gardening for Butterflies



- This event will be recorded for educational or promotional use by the University of California.
 - You will be muted throughout to prevent background noise.
- Please post your questions in the "Q&A." Questions will be addressed at the conclusion of each section.
- Use the "Chat" for non-question conversations or comments. Be sure to change the "to" if needed to ensure your Chat is sent to those who you want to send it to. Options:
 - "Private" if specific Chat only to an individual participant or speaker
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UC CE UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources UC Cooperative Extension

Who are the UCCE Stanislaus County Master Gardeners?



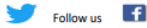
We extend research-based knowledge and information on home horticulture, pest management, and sustainable landscape practices.





Stanislaus County Residents: Contact Us!

Fill out a questions survey <http://ucanr.edu/ask/ucmstanislaus>



The Stanislaus Sprout blog: ucanr.edu/blogs/StanislausSprout
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Verify your address when you receive an email from us.

Gardening for Butterflies

Welcome!

Please type your name and city into the chat box.



UCCE Stanislaus County Master Gardener Program

Gardening to Attract Butterflies Stanislaus County 2021



All Photos by Ellen Zagory unless otherwise noted

Why Garden for Butterflies?

It will turn you into a fervent conservationist



- They are benign creatures that add color, beauty and grace to our landscapes.
- Enjoying and learning about the butterfly fauna will help you better understand the issues of environmental change and conservation.

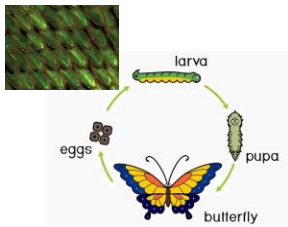
What makes butterflies different from other insects?

Order *Lepidoptera*

(along with the moths)

lepidō =scaly/ ptera=wing

- Undergo **complete metamorphosis**
- Only **adults** are **flower** visitors=pollinators
- Adults are mostly **nectar** eaters (more later)
- **Larva**, or caterpillars, eat **plants** (green leaves)



<https://biologydictionary.net/complete-metamorphosis/>

The Four Life Stages

Four Life Stages

Environmental requirements and hazards are different for each stage being eaten or parasitized is a hazard in all.



Zephyr angthwing on Ribes

- **Egg:** needs host plant for oviposition
- **Larval:** needs the correct host plant and enough leaves/food to grow to maturity
- **Pupal:** Needs a protected place to pupate and develop.
- **Adult:** Needs nectar for flight (and salts and minerals for nutrition)

Butterflies do not nest like bees

They overwinter (survive the cold season) in a number of different ways depending on species.

As eggs, or pupa or adults.

- Hairstreaks and coppers as *eggs*
- Sulfurs as *larvae*
- Whites and orange tips as *pupa*
- Monarchs as *adults*

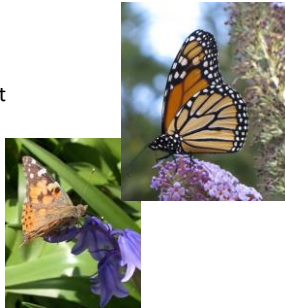


What about migration?

Another strategy for avoiding winter

The two we see most are

- Monarchs: Pacific population migrates south and west to coast to evergreen trees
- Painted ladies: Migrate to our area from the desert in late winter, early spring.



Seasonality

- Lifecycle is strongly seasonal
- Butterflies numbers start off scarce in spring
- Build up their numbers with successive generations
- **Butterfly season peaks in September and October**



Which butterflies will you see? It depends on....



Hairstreak larva by Allen Jones 2010

- Connectivity** of your habitat to surrounding landscapes
- Proximity to natural areas
 - Surrounding gardens and the plants in them
- Polyphagy and mobility**
- How wide a diet the butterfly species has (generalist or specialist)
 - Can it travel between habitat patches; some species rarely move but a few feet

The **quality** of garden and surrounding **habitat** is critical



- This is the fundamental **determinant** of variation in **abundance**
- The **management** of your **landscape as a resource for butterflies** is important
- Abundance of butterflies is determined by **food availability**

“The best you can do is provide them a good pub”

Miriam Rothschild, Butterfly Gardening

- Butterfly **abundance** is determined by **food availability**.
- Both **host plants** for caterpillars and **nectar** for adults.
- Adults eat nectar as fuel for flight, to mate and lay eggs.



Poll 1

How many life stages do butterflies have?

- Two
- Three
- Four

When is peak butterfly season?

- May and June
- July and August
- September and October

Questions??

Type them into the Q and A Section



Manage your landscape for butterflies

- Provide a **diversity of plants** (preferably native)
- Provide **egg laying sites:** host plants
- Maintain sheltered, undisturbed **places for hibernation and overwintering**
- Keep your landscape **free of poisonous chemicals**



“Leave the leaves” and some undisturbed sites for overwintering

- **Overwintering sites include:**
 - Leaf litter
 - Dense vegetation
 - Tree cavities, caves, rocks

Leave muddy puddles for sipping and extracting nutrients



Sulfur butterflies puddling
Astro/nature.guy CCBY-NC 2.0

Butterfly abundance and food availability



- Increase the number of host plant species and grow host and nectar plants in large patches
- Microclimate and slope of the site has an effect on temperature, moisture and suitability of habitat.
- Butterflies prefer sunny open areas to warm wings for flight.

Egg-Laying: Host Plants for Larva

- Our butterflies have adapted to our modified non-native landscapes
- About half of Central Valley depend on eating “weeds”
- Due to the conversion of wetlands to irrigated Ag



Some considerations for plant selection and design

- Use as many native plants as possible—they support 3x as many butterflies and moths as non-natives
- Plant density—use masses 3 feet in diameter or more.
- Include some grasses, as overwintering sites and host plants.
- Provide for blooming in spring, summer and fall.



Selecting plants



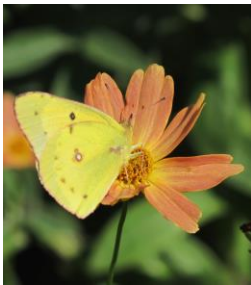
- Use plants from growers that do not use neonicotinoid pesticides.
- Select plants that are not highly hybridized, which may have less nectar or non-functional flower parts.

Some of our butterflies are introduced (non-natives)



- The European cabbage butterfly
- Larva eats wide variety of crops and weeds in the cabbage family.
- Often seen nectaring in our gardens

Some butterfly species have adapted to eat both native and **non-native** plants



- Orange Sulfur (Alfalfa butterfly) one of our most abundant butterflies.
- Larva can eat alfalfa but also native plants in the Legume family (Fabaceae)
- Like deerweed (*Lotus*)



What flowers attract butterflies?

- Plants with flowers that produce **nectar!**
- Butterfly adults have tubular straw-like mouth parts for sipping nectar that they use for flight fuel.
- Some also feed on sap, rotting fruit, dung, honeydew



Poll 2

What management practices are good for butterflies?

1. Have mostly lawn and keep it cut really short
2. Rake up all leaves and put them in the street.
3. Leave some leaves and piles for overwintering sites.
4. Never let puddles form.



Questions??

Type them into the Q and A.

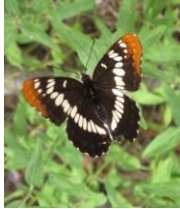
Some butterflies will only be seen if you live near native habitat



- Oak forests
- Riparian Areas
- Tule Marsh



Lets review some butterflies of our area



Lorquins Admiral

- Now scarce and local, once common
- Host: willow (*Salix*spp.)
- Riparian areas and wetlands

California Sister

- Likely to visit sap, bruised fruit, roadkill, dung.
- Host: oaks
- Common in Oak woodlands

Swallowtails: Pipevine (L) and Western Tiger Swallowtail (R)



Host : California pipevine,
Aristolochia californica
Riparian: seen along waterways

Host plants: *Platanus* (sycamore),
Fraxinus (ash), *Populus* and *Salix*



Pipevine swallowtail eats only *Aristolochia* (monophagous)

- Pipevine swallowtail
- Eats only *Aristolochia californica*, California pipevine
- In other areas of US eats other native *Aristolochia*



Anise Swallowtail



wolffpix CC BY-ND 2.0

- Host plant: fennel, anise, various plants in carrot family (native *Angelica*, *Heracleum* and more)
- Osmeterium extended, emits foul odor



Johnevillia CC BY-NCSA 2.0

Lady butterflies

Painted lady

Vanessa cardui, painted lady

- **Many** various host plants, cosmopolitan (Borage Family, Aster family, Legume Family and more)
- Migrant from south to north sometimes in mass.



Vanessa annabella, West coast lady

- Host plants: Malvaceae (Malva, Malvella, Hollyhock, Lavatera)
- Our most common painted lady



More Vanessa butterflies



Red admiral
Vanessa atalanta
Host: Urticaceae, nettles

- American lady, *Vanessa virginensis*
- Least common
- White spot in forewing cell
- Hosts: Everlastings, *Gnaphalium*, *Anaphalis*.



If you plant a passionflower vine you will likely get Gulf Fritillaries: prolific mainly urban, non-native plant host, not cold hardy





Buckeye butterfly
Hosts: "Scrophulariaceae" (now divided into new groups)

Common here

- Snapdragons
- *Scrophularia californica*
- *Lippia nodiflora*
- *Plantago* Plantain (weed)
- *Kickxia* (weed)



Myliitta crescent

Hosts: weedy thistles, *Cirsium*, *Carduus*, *Silybum*



Skippers



- Small butterflies sometimes considered in their own family
- Ends of antennae are curved and flattened not club shaped
- Hosts: grasses, bermuda grass, salt grass

Other skippers



Common Checkered Skipper (abundant and widespread)
Hosts: weedy *Malva*, *Malvella leprosa*, *Akeia*, (*Abutilon theophrasti*?)



Mournful duskywing



- Common and widespread
- Host: oaks (*Quercus*) both deciduous and evergreen, native and introduced

Poll Question 3

Skippers are different from other butterflies in that

1. They are very large
2. Are scarce and hard to see
3. Have flattened ends on their antennae that curve.

Questions??

Type them into the Q and A.

Common Hairstreak



Common and general in disturbed habitats

- Perch on tall plants, highly mobile tails

Native hosts:

- turkey mullein *Eremocarpus setigerus*, Spanish lotus, *Lotus purshianus*

Non-native hosts

- Cheeseweed, hollyhock, Pea family, alfalfa, *Lotus*

Eastern tailed blue



Hosts: all Pea family, especially *Lotus purshianus* and *Lotus corniculatus*



Acmon blue

Hosts: Perennial buckwheats, prostrate knotweeds, Pea family esp. *Lotus*, many species



Non-native Woody Plants for Butterflies

- Butterfly bush (*Buddleia*)
- *Syringa* spp. Lilacs, (Red Admiral on *S. laciniata*)



Butterfly Bush now comes in dwarf sizes, seedless types and many colors



More plants for butterflies: lavenders



- *Lavandula xginginsii* 'Goodwin Creek Grey'
- many other lavenders also are good.



Perennial plants attractive to butterflies

- Best to use low water plants
 - Incorporate California natives
 - Provide summer and fall bloom is when butterflies are most abundant
- Perennials in the Daisy Family
- Asters
 - Goldenrods
 - Achillea (yarrow)



Common native plants for butterflies: buckwheats

- *Eriogonum grande* var. *rubescens*, pink buckwheat with Acmon blue
- *Eriogonum fasciculatum*, California buckwheat with California buckeye
- And other species



Native shrubs

- Coyote Brush, *Baccharis pilularis*
- Coffee berry, *Frangula californica*
- button willow, *Cephalanthus occidentalis* (needs moisture)



Milkweeds not only feed larva of Monarchs but also provide nectar for other insects

Local larval food plants for Monarchs

- *Asclepias fascicularis*
- *Asclepias speciosa*
- *Asclepias cordifolia*

Warning: may spread or need placement out of view.

Avoid tropical species, tend to be evergreen and spread disease.



Poll question 4

Some non-native plants that attract butterflies are:

1. Butterfly bush
2. Asian Lilacs
3. Lavenders
4. All of the above.

Questions??

Type them into the Q and A.

Other Perennial Garden Plants for Butterflies: try sedums

- Sedum 'Autumn Joy'
- Easy to grow
- Tons of new cultivars available to try



Sages are great for nectar



Lantana camara

- All varieties are not created equal
- Have been hybridized
- Weedy
- Get big, turn black in winter



Verbena bonariensis
Verbena lilacina 'De la Mina'



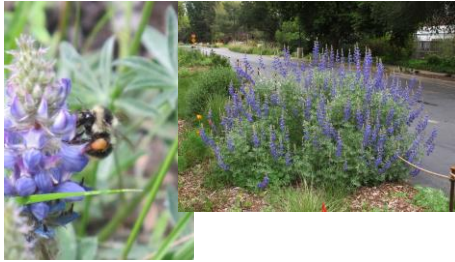
Make diverse plant choices for diverse butterfly support

- Butterflies need nectar for energy throughout the year
- Use plants that will bloom at various times of the year. (longer supply period)
- Check that California native plants are water compatible with your non-native plants



Plant lupines

Great for bees and both adult and larvae of butterflies
host to several blues, hairstreaks
(*Lupinus succulentus*, *Lupinus albifrons* in UCD Arboretum)



And a few annuals are butterfly magnets and worth growing
Zinnia and *Tithonia*



Why plant for butterflies?



- “There is no doubt that habitat loss and fragmentation are the biggest known threats to butterflies”
-Dr. Arthur Shapiro
- Creating habitat in you garden can help.

Planting a butterfly garden?

- Larger gardens can work to create a variety of habitats.
- A stand of milkweed can increase the number of butterfly visitors.
- Add plants for butterflies to your existing garden.
- Create a wonderful window into the diversity of the local environment.



Planting for butterflies



“Makes a small contribution to the continued existence of their small splendor”

-Jo Brewer

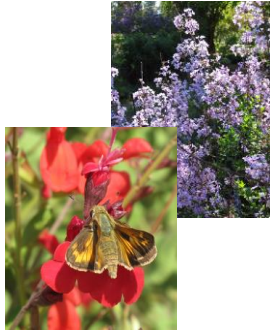
We can create resource rich landscapes



If butterfly plants are grown along roadsides they can become butterfly highways, a link between nature reserves, gardens and forests

Other plants to attract butterflies?

- For more plants to use go to **Art Shapiro's Butterfly Site** at <http://butterfly.ucdavis.edu/doc/garden/valley>
- See Anne Schellman's article at <http://cestanislauis.ucanr.edu/files/111734.pdf>
- Look up water needs <https://ucanr.edu/sites/WUCOLS/>



Wild creatures will thank you!



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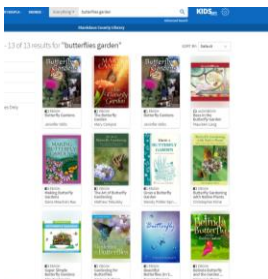
Poll 5

Which of the following steps can you take to bring butterflies to your garden?

- Plant milkweed.
- Leave piles of rocks and sticks.
- Select nectar rich flowering plants.
- All of the above.

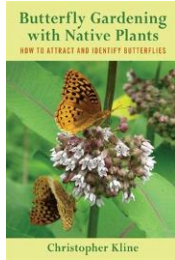
Questions??

Type them into the Q and A.



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