



Backyard Biodiversity

Protecting ecosystems at home and around the world is important for the preservation of biological diversity. Planting a butterfly and hummingbird garden is a great way to get involved in local conservation and learn about the diversity of plants, insects, and other life in your area. Nurturing a garden teaches students about our connection to the earth. Students learn a respect for all life and what is needed to support it as well as valuable lessons about working together.

Objective: learn about ecosystems and the diversity of life locally and globally.

Ages: Primary, Intermediate and Advanced

Materials: Additional teacher guides - *Exploring Rainforests* and *Ecosystems and Insects* available from CES.

Subject: Science

Resource:
California Native Plant Society
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California has about 1,500 endemic plants, more than any other state in the U.S.! There are also many wonderful butterflies found here. Adult butterflies need a source of nectar while their caterpillars often need a different species of plant to feed on. Native habitats along with the native foodplants which butterflies need to survive are disappearing rapidly. By using native plants in your backyard, school or community garden, you can perhaps create a haven for butterflies, birds and other creatures. The following lists will help you and your students get started as small scale conservationists.

Some Native California Nectar Sources for Butterflies

Plant Species

Achillea borealis var. *californica*
*Aesculus californica**
Asclepias spp.
(*A. speciosa*, *A. eriocarpa*, *A. fascicularis*)
Aster adscendens
Aster chilensis
*Ceanothus thyrsiflorus**
Cirsium spp.
Erigeron glaucus
Eriodictyon spp.
Eriogonum latifolium, *E. spp.*
Eriophyllum spp.
Helianthus gracilentus
Heliotropium convolvulaceum var. *californicum*
Heliotropium curassavicum
Heracleum lanatum
*Heteromeles arbutifolia**
Layia platyglossa
Lomatium spp.
Monardella antonii
Monardella villosa var. *neglecta*
*Salix lasiolepis**
Salvia mellifera (popular with many species)
Senecio spp.
Stachys pycnantha•
Stachys chamissonis•
Stachys bullata•
Trichostema lanatum
* denotes shrub or tree
• denotes plant that has urticating or irritating hairs

Common Name

Yarrow
California buckeye
Milkweed

Aster
Common California Aster
Blue Blossom, Wild lilac
Thistle
Seaside daisy
Yerba santa
Coast Eriogonum, Buckwheat
Woolly sunflower
Sunflower
Heliotrope
Heliotrope
Cow parsnip
Toyon
Tidy-tips
Lomatium
Mint
Coyote mint
Arroyo willow
Black sage
Senecio
Short spiked hedge nettle
Hedge nettle
Hedge nettle
Woolly bluecurls

Some non-native shrubs such as Lantana and Buddlea (Butterfly Bush) are valuable nectar sources for butterflies as well.

Some Common California Butterflies & Their Food Plants

Butterfly	Native Larval Food Plants	Non-native Larval Food Plants
Brushfooted Butterflies - family Nymphalidae		
American Painted Lady (<i>Vanessa virginiensis</i>)	Everlasting (<i>Gnaphalium spp.</i> , <i>G. californicum</i> , <i>G. purpureum</i>), Pearly everlasting (<i>Anaphalis margaritacea</i>)	
Painted Lady (<i>Vanessa cardui</i>)	Cryptantha (<i>Cryptantha spp.</i>) fiddleneck (<i>Amsinkia spp.</i>), thistle (<i>Cirsium spp.</i>), lupine (<i>Lupinus succulentus</i>)	Mallow (<i>Malva spp.</i>)
West Coast Lady (<i>Vanessa annabella</i>)	Nettle (<i>Urtica holosericea</i>), checkerbloom (<i>Sidalcea malvaeflora</i>)	Mallow (<i>Malva parviflora</i>), Tree mallow (<i>Lavatera</i>), hollyhock (<i>Althaea rosea</i>)
Red Admiral (<i>Vanessa atalanta</i>)	Nettle (<i>Urtica holosericea</i>)	Baby tears (<i>Soleirolia soleirolii</i>)
Buckeye (<i>Junonia coenia</i>)	Monkey flower (<i>Mimulus spp.</i>), Owl's-clover (<i>Orthocarpus purpurascens</i>) brooklime (<i>Veronica americana</i>)	Plantain (<i>Plantago lanceolata</i>), snapdragon (<i>Antirrhinum majus</i>), foxglove (<i>Digitalis purpurea</i>)
California Sister (<i>Adelpha brewii californica</i>)	Oak (<i>Quercus spp.</i>)	
Lorquin's Admiral (<i>Basilarchia lorquini</i>)	Willow (<i>Salix spp.</i>), cherry (<i>Prunus spp.</i>)	
Mourning Cloak (<i>Nymphalis antiopa</i>)	Willow (<i>Salix</i>), Poplar (<i>Populus</i>) Elm (<i>Ulmus</i>)	English elm (<i>Ulmus procera</i>)
Chalcedon Checkerspot (<i>Euphydryas chalcedona</i>)	Sticky monkey flower (<i>Mimulus aurantiacus</i>), figwort (<i>Scophularia spp.</i>), Penstemon (<i>Penstemon spp.</i>)	
Satyr Anglewing (<i>Polygonia satyrus</i>) California Tortoiseshell (<i>Nymphalis californica</i>)	Nettle (<i>Urtica spp.</i>) California lilac (<i>Ceanothus ramulosus</i> , <i>C. thyrsifloris</i>)	
Mylitta Crescentspot (<i>Phyciodes mylitta</i>)	Native thistles (<i>Cirsium sp.</i>)	
Edith's Checkerspot (<i>Euphydryas editha</i>)	Indian paintbrush (<i>Castilleja</i>) owl's clover (<i>Orthocarpus</i>), lousework (<i>Pedicularis</i>)	Plantain (<i>Plantago spp.</i>)
Swallowtails and Parnassians - family Papilionidae		
Pipe Vine Swallowtail (<i>Battus philenor</i>)	Pipe Vine (<i>Aristolochia californica</i>)	
Anise Swallowtail (<i>Papilio zelicaon</i>)	Native Umbels (<i>Umbelaceae</i>), cow parsnip (<i>Heracleum lanatum</i>)	Fennel / Anise (<i>Foeniculum vulgare</i>)
Pale Swallowtail (<i>Pterourus eurymedon</i>)	Blueblossom / Wild lilac (<i>Ceanothus thyrsifloris</i>), Hollyleaf Cherry (<i>Prunus ilicifolia</i>), Coffeeberry (<i>Rhamnus californica</i>), Redberry (<i>Rhamnus crocea</i>)	
Western Tiger Swallowtail (<i>Pterourus rutulus</i>)	Sycamore (<i>Platanus</i>), Chokecherry (<i>Prunus virginiana</i>), Willow (<i>Salix sp.</i>)	
Gossamer Wings - family Lycaenidae		
Brown Elfin (<i>Incisalia augustinus</i>)	Blueblossom / Wild lilac (<i>Ceanothus thyrsifloris</i>)	
Echo Blue (<i>Celastrina ladon echo</i>)	Blueblossom / Wild lilac (<i>Ceanothus thyrsifloris</i>), Oak (<i>Quercus</i>)	
Common or Gray Hairstreak (<i>Strymon melinus</i>)	oak (<i>Quercus</i>), mint (<i>Lamiacea</i>), corn (<i>Zea mays</i>) and various legumes	Mallow (<i>Malva spp.</i>)
Silvery Blue (<i>Glaucopsyche lygdamus</i>)	Deer Weed (<i>Lotus scoparius</i>), lupine (<i>Lupinus spp.</i>), wild pea (<i>Lathyrus</i>), vetch (<i>Vicia</i>)	

Some Common California Butterflies & Their Food Plants (cont.)

Butterfly	Native Larval Food Plants
Gossamer Wings - family Lycaenidae (cont.)	
Acmon Blue (<i>Icaricia acmon</i>)	Buckwheat (<i>Erigeron latifolium</i>)
Gorgon Copper (<i>Gaeides gorgon</i>)	Buckwheat (<i>Erigeron latifolium</i>)
Great Purple Hairstreak (<i>Atlides halesus</i>)	mistletoe on oak and ash (<i>Phoradendron</i>)
Golden Hairstreak (<i>Habrodais grunus</i>)	Coast Live Oak (<i>Quercus agrifolia</i>)
Sylvan Hairstreak (<i>Satyrrium sylvinus</i>)	Willow (<i>Salix sp.</i>)
Whites and Sulphurs - family Pieridae	
Veined White (<i>Artogeia napi</i>)	Coast Rock Cress (<i>Arabis blephoraphylla</i>)
Creamy Marblewing (<i>Euchloe ausonides</i>)	Coast Rock Cress (<i>Arabis blephoraphylla</i>)
Common Sulphur (<i>Colias philodice</i>)	Clovers (<i>Trifolium</i>), lupine (<i>Lupinus spp.</i>)
Milkweed Butterflies - family Danaidae	
Monarch (<i>Danaus plexippus</i>)	Milkweed (<i>Asclepias spp.</i>)
Metalmarks - family Riodinidae	
Mormon Metalmark (<i>Apodemia mormo</i>)	Buckwheat (<i>Erigeron latifolium</i>)
Satyrs or Browns - family Satyridae	
California Ringlet (<i>Coenonympha califonia</i>)	native grasses (<i>Poaceae</i>)
Large Wood Nymph (<i>Cercyonis pegala</i>)	native grasses (<i>Poaceae</i>)
True Skippers - family Hesperidae	
Proterius Duskywing (<i>Erynnis proterius</i>)	Coast Live Oak (<i>Quercus agrifolia</i>)
Mournful Duskywing (<i>Erynnis tristis</i>)	oak (<i>Quercus spp.</i>)

This is only a partial list and some of these butterflies have patchy distributions. You may wish to check a local field guide for further information on the distribution of specific species. Natural history museums are also good resources for information on local species.

Native California plants are not always easy to find in a nursery. Try calling or writing a local arboretum or native plant society. They will often have plant sales of their own and should be able to tell you where to buy or order California natives. The office in Sacramento puts out a newsletter - Native Plant Society of California Bulletin - which lists native plant sales around the state (their address is on page 1).

How insects fit in:

Kingdom: Animalia
 Phylum: Arthropoda
 Class: Arachnida (mites, spiders, ticks, scorpions)
 Class: Crustacea (crabs, lobsters, shrimp...)

 Class: Diplopoda (millipedes)
 Class: **Insecta** (insects including butterflies)
 Class: Chilopoda (centipedes)
 Phylum: Chordata
 Class: Mammalia (humans...)
 Class: Aves (birds)

To thrive, hummingbirds need an abundance of flowers in bloom throughout the year with copious nectar. They fiercely defend a territory so they need shrubs, trees and other natural barriers to separate territories and provide perching sites. A water source is also necessary. In addition to nectar, they eat small insects which are a source of protein. Hummingbirds use spider webs to build their nests.

Three hummingbird species are common in California:
Anna’s Hummingbird: male with green back and red crown
Allen’s Hummingbird: male with green crown and red throat
Rufous Hummingbird: male with rufous back and red throat

Hummingbird Food Plants for California Landscapes

SHRUBS

Autumn Sage	<i>Salvia gregii</i>
Butterfly Bush	<i>Buddleia davidii</i>
Bottlebrush	<i>Callistemon spp.</i>
California Rhododendron	<i>Rhododendron californica</i>
Cleveland Sage	<i>Salvia clevelandii</i>
Common Monkey Flower	<i>Mimulus cardinalis</i>
Fuchsia-Flowering Gooseberry	<i>Ribes speciosum</i>
Manzinita	<i>Arctostaphylos spp.</i>
Pineapple Sage	<i>Salvia elegans</i>
Penstemon	<i>Penstemon cordifolius</i>
Red Flowering Currant	<i>Ribes sanguineum</i>
Sticky Monkey Flower	<i>Diplacus aurantiacus</i>
Scarlet Monkey Flower	<i>Mimulus cardinalis</i>

TREES

California Buckeye	<i>Aesculus californica</i>
Citrus	<i>Citrus spp.</i>
Madrone	<i>Arbutus menziesii</i>

HERBACEOUS PERENNIALS

Agapanthus	<i>Agapanthus</i>
California Fuschia	<i>Zauschneria californica</i>
Columbine	<i>Aquilegia formosa</i>
Delphinium	<i>Delphinium sp.</i>
Island Bush Snapdragon	<i>Galvezia speciosa</i>

VINES

Bougainvillea	<i>Bougainvillea spp.</i>
Cape Honeysuckle	<i>Tecomaria capensis</i>
Chilean Jasmine	<i>Mandevilla laxa</i>
Clematis	<i>Clematis lasiantha & C. ligustifolia</i>
Honeysuckle	<i>Lonicera ciliosa & several other species</i>
Star Glory	<i>Pomoea coccinea & other species</i>
Wisteria	<i>Wisteria spp.</i>

BOLD type designates native California plants.

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 Butterflies of North America. Scott. 1986.
 "City Butterflies", by B.K. Moran, San Francisco Magazine, April 1982.
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 A Hummingbird Garden Plant List, A Supplement to the Hummingbird Garden Design, Coyote Point Museum for Environmental Education, San Mateo, California. Prepared by The Hillsborough Garden Club.
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