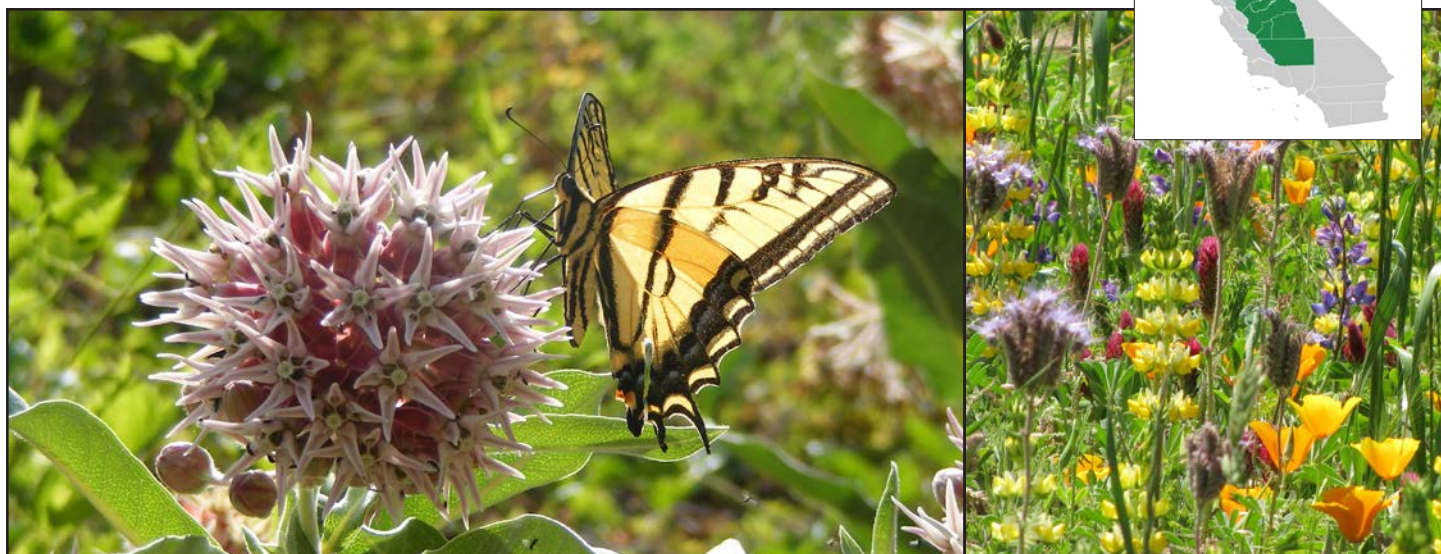
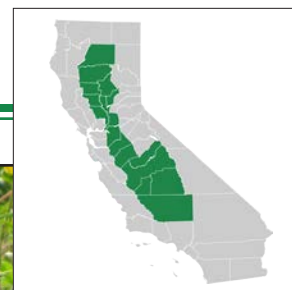


Recommended Plants & Seed Mixes FOR POLLINATORS & BENEFICIAL INSECTS *California Central Valley Region*



Western swallowtail butterfly on showy milkweed (right), and California native wildflowers in bloom (right). (Photographs courtesy of Claudia Street, Yuba-Sutter Farm Bureau.)

Plant Selection

The native wildflowers and shrubs on this list are recommended for use in pollinator habitat restoration and enhancement projects in agricultural landscapes. These species have been selected because they are attractive to a diversity of different bee species, and provide pollen and nectar resources throughout the season, provided that a minimum of three different plant species from each blooming period (early, mid, and late season) are selected. A majority of the plants recommended are drought tolerant, easy to establish, and don't serve as alternate hosts to crop pests or diseases, except when specifically indicated.

Native Wildflowers for Pollinators and Beneficial Insects

	COMMON NAME	SCIENTIFIC NAME	LIFE CYCLE & MAX HEIGHT			NOTES
Early	Arroyo lupine	<i>Lupinus succulentus</i>	L	A	3'	
	Baby blue eyes	<i>Nemophila menziesii</i>	L	A	0.25'	
	Chinese houses	<i>Collinsia heterophylla</i>	M	A	0.5'	
	Common tidytips	<i>Layia platyglossa</i>	L	A	0.25'	Tolerates clay soils
	Fivespot	<i>Nemophila maculata</i>	M	A	1'	Tolerates clay soils
	Golden lupine	<i>Lupinus densiflorus</i> var. <i>aureus</i>	L	A	2.5'	
	Goldfields	<i>Lasthenia glabrata</i>	M-H	A	0.5'	Wetland-riparian
	Great Valley phacelia	<i>Phacelia ciliata</i>	L	A	0.25'	Tolerates clay soils
	Lacy phacelia	<i>Phacelia tanacetifolia</i>	L	A	3'	Can re-seed aggressively; tolerates clay soils

Native Wildflowers for Pollinators and Beneficial Insects *continued*

🌸	COMMON NAME	SCIENTIFIC NAME	💧	LIFE CYCLE ¹		MAX HEIGHT	NOTES
Early–Mid	California poppy	<i>Eschscholzia californica</i>	L	A, P	0.5'	Tolerates clay soils	
	Elegant clarkia	<i>Clarkia unguiculata</i>	L	A	0.5'		
	Fort Miller clarkia	<i>Clarkia williamsonii</i>	L	A	1'		
	Globe gilia	<i>Gilia capitata</i>	M	A, P	1'		
	Showy penstemon 🌱	<i>Penstemon spectabilis</i>	L	P	3'		
Mid	California buckwheat 🌱	<i>Eriogonum fasciculatum</i>	L	P	2.5'	Can be extremely drought-tolerant	
	California phacelia	<i>Phacelia californica</i>	L	P	1'	Tolerates clay soil; can re-seed aggressively	
	Cleveland sage 🌱	<i>Salvia clevelandii</i>	L	P	5'		
	Common woolly sunflower	<i>Eriophyllum lanatum</i>	L	P	2'	Can be extremely drought-tolerant	
	Coyote mint 🌱	<i>Monardella villosa</i>	L	P	2'	Requires good drainage	
	Showy milkweed 🌱🦋②	<i>Asclepias speciosa</i>	M	P	5'	Tolerates clay soils; tolerates wet or dry conditions	
	Summer lupine	<i>Lupinus formosus</i>	L	P	1.5'		
Mid–Late	Bolander's sunflower ③	<i>Helianthus bolanderi</i>	M	A	5'	Tolerates clay soils	
	California fuchsia 🌱	<i>Epilobium canum</i>	L	P	3'		
	Common madia	<i>Madia elegans</i>	L	A	7'		
	Common sunflower ③	<i>Helianthus annuus</i>	M	A	5'	Tolerates clay soils	
	Gumplant	<i>Grindelia camporum</i>	L	P	4'	Tolerates clay soils; can re-seed aggressively; tolerates wet or dry conditions	
	Hooker's evening primrose	<i>Oenothera elata</i>	M–H	P	5'	Wetland-riparian	
	Narrowleaf milkweed 🌱🦋	<i>Asclepias fascicularis</i>	M	P	1.5'	Tolerates clay soils; tolerates wet or dry conditions	
	Nettleleaf giant hyssop 🌱	<i>Agastache urticifolia</i>	M	P	4'	Tolerates clay soils	
	Woollypod milkweed 🌱🦋	<i>Asclepias eriocarpa</i>	M	P	2'	Tolerates clay soils; tolerates wet or dry conditions	
Late	California aster 🌱	<i>Symphotrichum chilense</i>	L	P	5'	Tolerates clay soils	
	Canada goldenrod 🌱	<i>Solidago canadensis</i>	M	P	3'	Tolerates wet or dry conditions	
	Vinegarweed	<i>Trichostema lanceolatum</i>	L	A	1'	Does not do well in seed mixes; sow seed individually; can be extremely drought-tolerant	
	Western goldentop	<i>Euthamia occidentalis</i>	H	P	2'	Wetland-riparian	

Native Wildflowers and Hedgerow Plants—Additional Notes:

- ① Life cycle: annual (A), perennial (P)
- ② Plant ONLY in Sacramento Valley, not in San Joaquin Valley
- ③ Do not plant within one mile of commercial sunflower fields
- ④ Dioecious—plant male plants to provide pollen and avoid unwanted seeding

KEY 🌸 Bloom time 💧 Water needs: low (L), medium (M), high (H) 🌱 Establishes better from transplant than seed 🦋 Monarch butterfly host plant



Pollinator meadow in bloom; dominant flowers are California poppies, baby blue eyes, Chinese houses, and golden lupine. (Photograph by Jessa Kay Cruz, The Xerces Society.)

Native Hedgerow Plants for Pollinators and Beneficial Insects

☼	COMMON NAME	SCIENTIFIC NAME	💧	MAX HEIGHT		NOTES
Early	Bladderpod	<i>Cleome isomeris</i>	L	5'		Tolerates salinity
	California lilac	<i>Ceanothus 'Concha'</i>	L	4'		Tolerates clay soils
	Frosty blue california lilac	<i>Ceanothus 'Frosty Blue'</i>	L	8'		Tolerates clay soils
	McMinn manzanita	<i>Arctostaphylos 'McMinn'</i>	L	5'		Tolerates clay soils
	Narrowleaf willow	<i>Salix exigua</i>	H	10'		Wetland-semi riparian species
	Oregon grape	<i>Mahonia aquifolium</i>	L	5'		Drought-tolerant; also tolerates semi-riparian conditions
	Western redbud	<i>Cercis occidentalis</i>	L	15'		Drought-tolerant; also tolerates semi-riparian conditions
	Red willow	<i>Salix laevigata</i>	H	20'		Wetland-semi riparian species; tolerates clay soils
Early-Mid	Blue elderberry	<i>Sambucus nigra var. cerulea</i>	M	15'		Host plant for the endangered Valley Elderberry Longhorn Beetle; tolerates semi-riparian conditions
	California buckthorn	<i>Frangula californica</i>	L	5'		
	Mule's fat	<i>Baccharis salicifolia</i>	M	8'		Wetland-riparian to semi-riparian species
	Showy penstemon 🌿	<i>Penstemon spectabilis</i>	L	3'		
	Silver bush lupine	<i>Lupinus albifrons</i>	L	3'		Requires good drainage
	Toyon	<i>Heteromeles arbutifolia</i>	L	12'		Can be an alternate host of fire blight
Mid	California buckwheat 🌿	<i>Eriogonum fasciculatum</i>	L	2.5'		Extremely drought-tolerant
	California wildrose	<i>Rosa californica</i>	M	8'		Tolerates clay soils; drought-tolerant; also tolerates semi-riparian conditions; can be a host for spotted wing drosophila
	Cleveland sage 🌿	<i>Salvia clevelandii</i>	L	3'		Requires good drainage
	Coyote mint 🌿	<i>Monardella villosa</i>	L	2'		Requires good drainage
	Hollyleaf cherry	<i>Prunus ilicifolia</i>	M	15'		
	Showy milkweed 🌿🦋②	<i>Asclepias speciosa</i>	M	5'		Tolerates clay soils; tolerates wet or dry conditions
Mid-Late	Big saltbush	<i>Atriplex lentiformis</i>	L	20'		Tolerates clay soils; can be extremely drought-tolerant
	California fuchsia 🌿	<i>Epilobium canum</i>	L	3'		
	Common buttonbush	<i>Cephalanthus occidentalis</i>	M	15'		Wetland, riparian, or semi-riparian species; tolerates clay soils
	Gumplant	<i>Grindelia camporum</i>	L	4'		Tolerates wet or dry conditions
	Narrowleaf milkweed 🌿🦋	<i>Asclepias fascicularis</i>	M	1.5'		Tolerates clay soils; tolerates wet or dry conditions
	Nettleleaf giant hyssop 🌿	<i>Agastache urticifolia</i>	M	4'		Tolerates clay soils; tolerates wet conditions
Late	Woollypod milkweed 🌿🦋	<i>Asclepias eriocarpa</i>	M	2'		Tolerates clay soils; tolerates wet or dry conditions
	California aster 🌿	<i>Symphotrichum chilense</i>	L	5'		Tolerates clay soils; tolerates wet or dry conditions
	Canada goldenrod 🌿	<i>Solidago canadensis</i>	M	3'		Tolerates wet or dry conditions
	Coyotebrush ④	<i>Baccharis pilularis</i>	L	10'		Extremely drought-tolerant
	Dwarf coyotebrush ④	<i>Baccharis pilularis 'Pigeon Point'</i>	L	2'		Extremely drought-tolerant



Above, a pollinator planting with California poppies, California phacelia, McMinn manzanita, and coyotebrush. (Photograph by Jessa Kay Cruz, The Xerces Society.)

Example Seed Mixes

These example seed mixes have been formulated for a one-acre area*, based on field trials and monitoring conducted by the Xerces Society, the NRCS, Hedgerow Farms, and the William's lab at UC–Davis, and are designed to provide permanent, high-quality foraging resources for a diversity of pollinators and other beneficial insects. None of the recommended species are known to serve as alternate hosts for any crop pests. In addition to pollinator attractiveness, species were selected for their ease of establishment, broad natural geographic range, and drought tolerance.

*To use this mix on larger or smaller areas, adjust rates accordingly. For more information on sourcing Xerces Society recommended seed mixes, please visit www.xerces.org/pollinator-seed/.

California Almond Orchard Understory Seed Mix

This seed mix consists of early-blooming annual native and non-native wildflowers which provide excellent forage for honey bees, early season solitary bees and natural enemies of crop pests in almond orchards, but can also be used in other orchard types, such as apples and stone fruits. The species in this mix are low in stature and should be easy to clear away before harvest. For best results (i.e., re-seeding next year), mow after all species have finished blooming. Do **NOT** till.

COMMON NAME	SCIENTIFIC NAME	LIFE CYCLE ^①	SEEDS/ FT ²	% OF MIX	
				(by seed count)	(by weight)
Baby blue eyes	<i>Nemophila menziesii</i>	A	5.29	18%	27.4%
California poppy	<i>Eschscholzia californica</i>	A, P	4.7	16%	19.7%
Chinese houses	<i>Collinsia heterophylla</i>	A	6.76	23%	21.7%
Great Valley phacelia	<i>Phacelia ciliata</i>	A	6.47	22%	24.5%
Sweet alyssum ^②	<i>Lobularia maritima</i>	A	6.17	21%	6.7%
TOTAL			29.4	100%	

Pollinator and Beneficial Insect Seed Mix for the Central Valley

This mix is comprised of native wildflowers and is appropriate for habitat restoration throughout California's Central Valley region. Native bunch grasses that provide nesting habitat for bumble bees and other beneficial insects may also be included at a low rate.

COMMON NAME	SCIENTIFIC NAME	LIFE CYCLE ^①	SEEDS/ FT ²	% OF MIX	
				(by seed count)	(by weight)
Bolander's sunflower ^③	<i>Helianthus bolanderi</i>	A	0.85	2%	4.7%
California phacelia	<i>Phacelia californica</i>	P	3.19	7.5%	6.1%
California poppy	<i>Eschscholzia californica</i>	A, P	4.46	10.5%	8.8%
Elegant clarkia	<i>Clarkia unguiculata</i>	A	12.75	30%	4.4%
Fort Miller clarkia	<i>Clarkia williamsonii</i>	A	7.65	18%	3.4%
Golden lupine	<i>Lupinus densiflorus</i> var. <i>aureus</i>	A	0.85	2%	54.5%
Great Valley phacelia	<i>Phacelia ciliata</i>	A	5.31	12.5%	9.5%
Gumplant	<i>Grindelia camporum</i>	P	3.19	7.5%	7.8%
Yarrow ^②	<i>Achillea millifolium</i>	P	4.25	10%	0.9%
TOTAL:			42.5	100%	

Example Seed Mixes—Additional Notes:

- ① Life cycle: annual (A), perennial (P)
- ② Included for its high value to beneficial insects (not known to be particularly attractive to pollinators).
- ③ Do not plant within one mile of commercial sunflower fields. Seed mix is available from seed producer without sunflower upon request.

Acknowledgements

These lists were first published in *Conservation Cover (327) for Pollinators: California Central Valley* and *Hedgerows (422) for Pollinators: California Central Valley*, thanks in large part to a USDA–NRCS California Conservation Innovation Grant. For more information on installing pollinator habitat, visit: www.xerces.org/pollinator-habitat-installation-guides. Photographs remain under the copyright of the photographers. California map vector courtesy of Thadius Miller, via Wikimedia Commons.