



All About Monarch Butterflies and how to garden for Monarch Habitat

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Cooperative Extension
Santa Clara County
Master Gardener Program



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Master Gardeners of Santa Clara County



- Ask questions using our website:
mgsantaclara.ucanr.edu



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Monarch Butterfly - *Danaus plexippus*

Male



Female



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About Monarchs

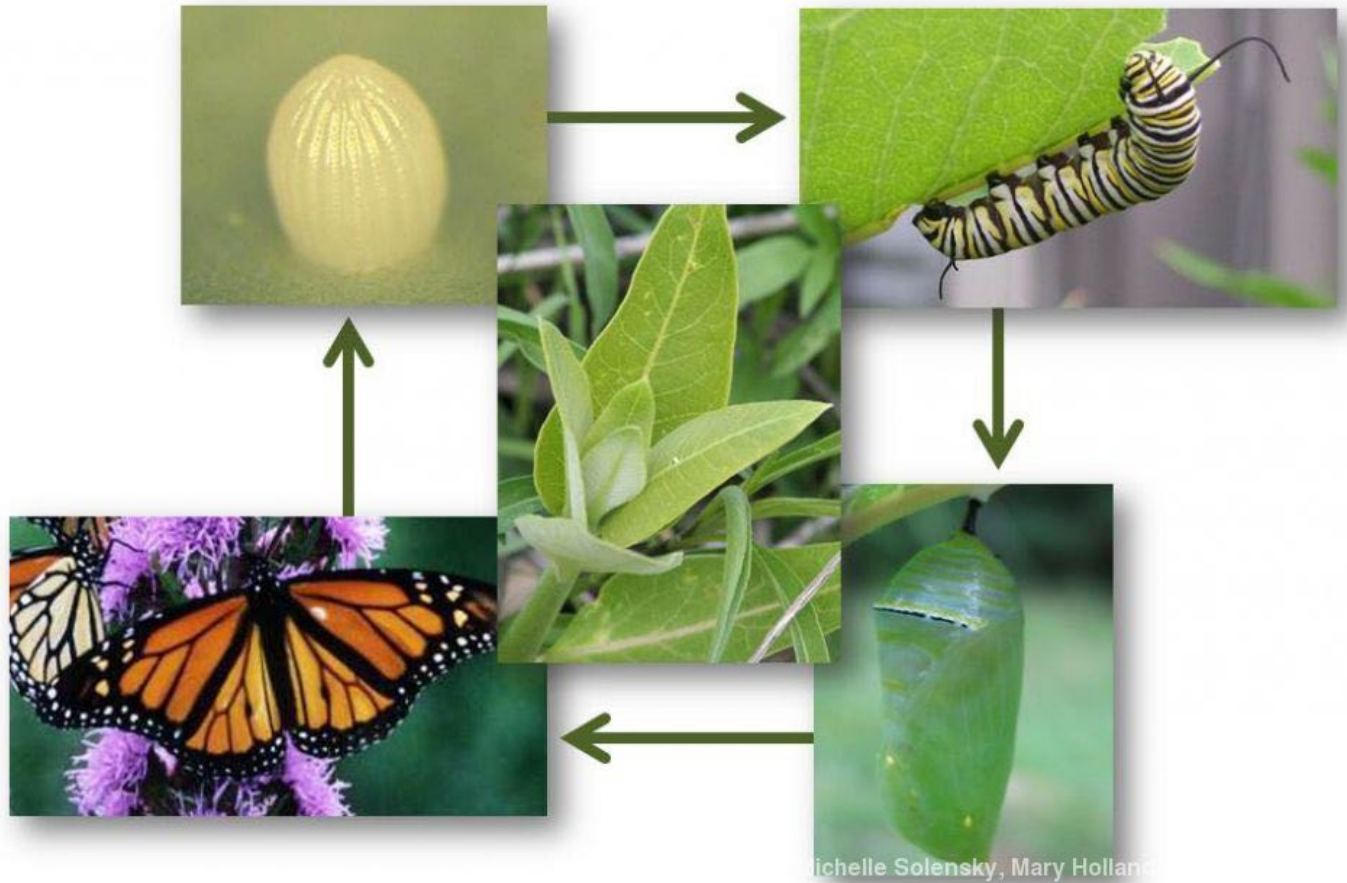
- Life Cycle
 - Egg
 - Larvae (5 instars)
 - Pupa
 - Adult
- Migration
- Habitat
- Threats
- Conservation



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Life Cycle



Life cycle (Photo: Dave Astin, Denny Brooks, Michelle Solensky, Mary Holland, Wendy Caldwell)



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Egg



© Siah St. Clair

Caterpillar ready to emerge from egg. The dark tip at the anterior of the egg is actually the 1st instar head. (Photo: Siah St. Clair)



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Larva



All 5 monarch larval instars (Photo: Monarch Lab)



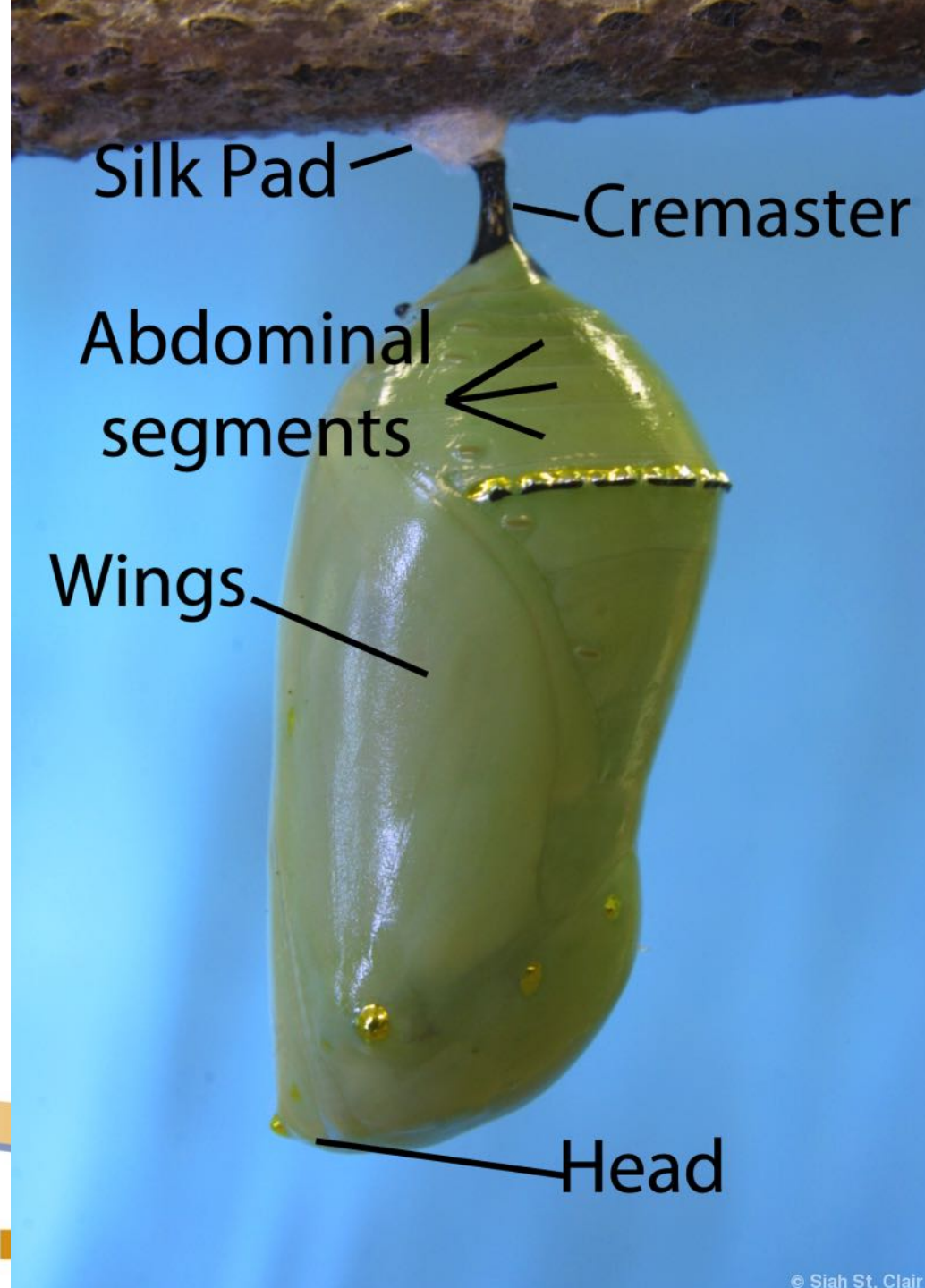
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Pupa

“The most dramatic changes that occur in the pupa are the growth of the wings and the development of flight muscles. These things could not occur in an active larva.” Monarch Lab - University of Minnesota

Labeled diagram of monarch pupa
(Photo: Siah St. Clair)





Adult

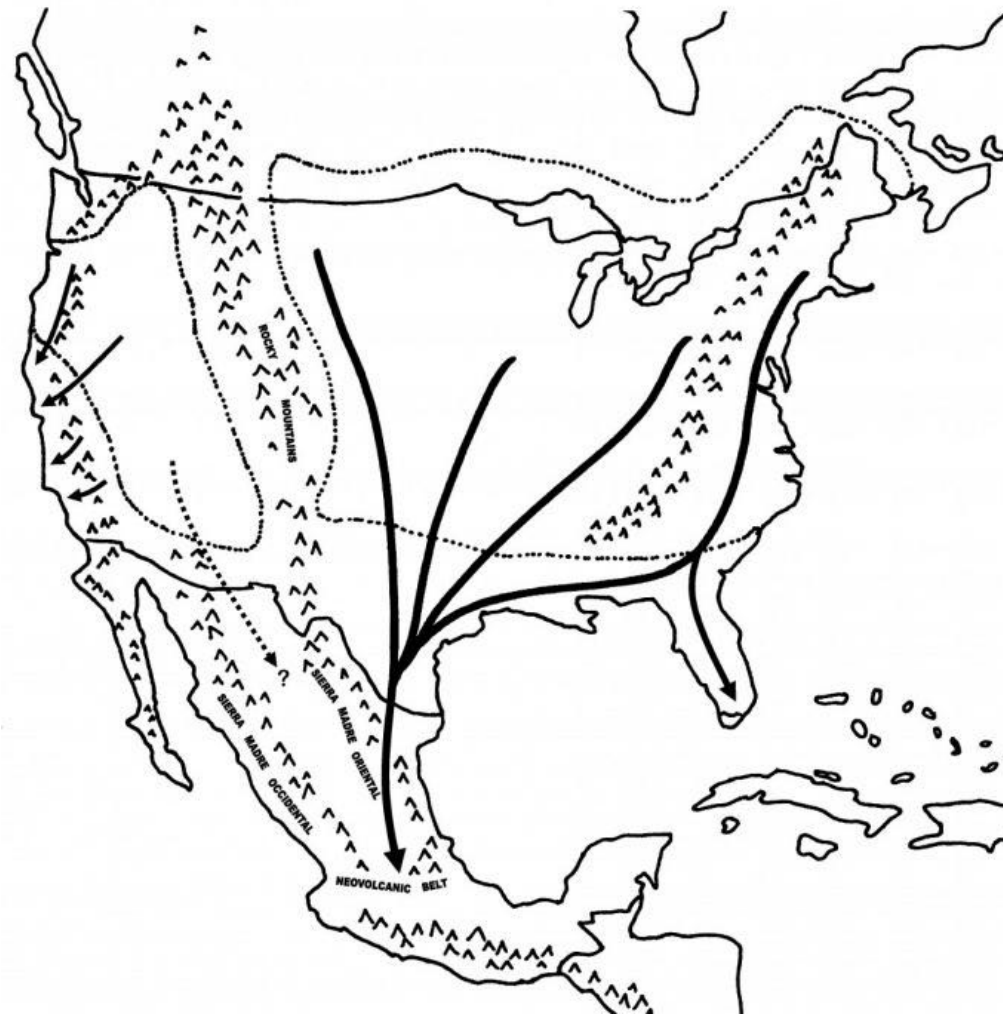


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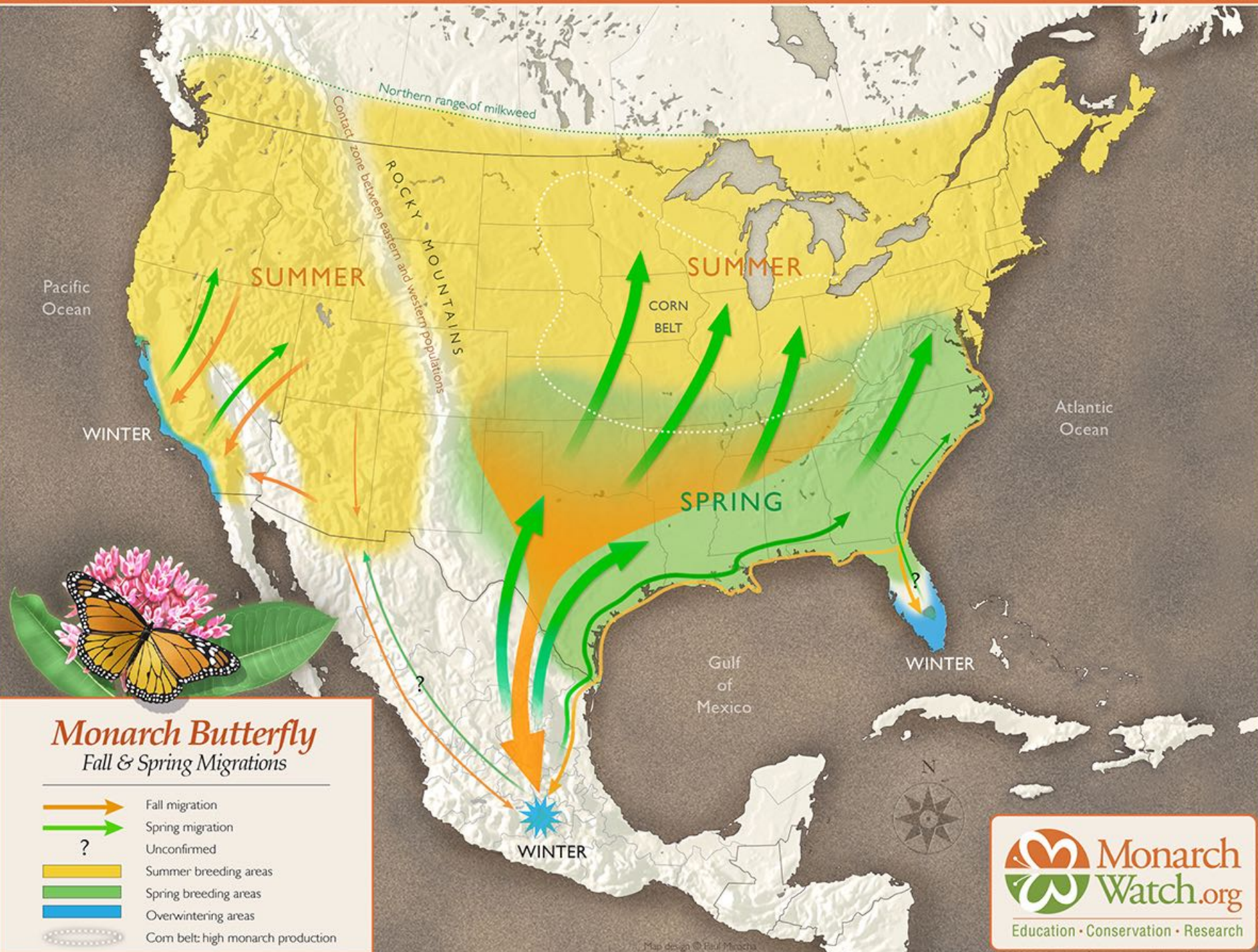
Migration

- East Coast
 - Southeastern Canada, Eastern USA & Central Mexico
- West Coast
 - Southwestern Canada, Western USA



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

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Monarch Butterfly

Fall & Spring Migrations



-  Fall migration
-  Spring migration
-  Unconfirmed
-  Summer breeding areas
-  Spring breeding areas
-  Overwintering areas
-  Corn belt: high monarch production

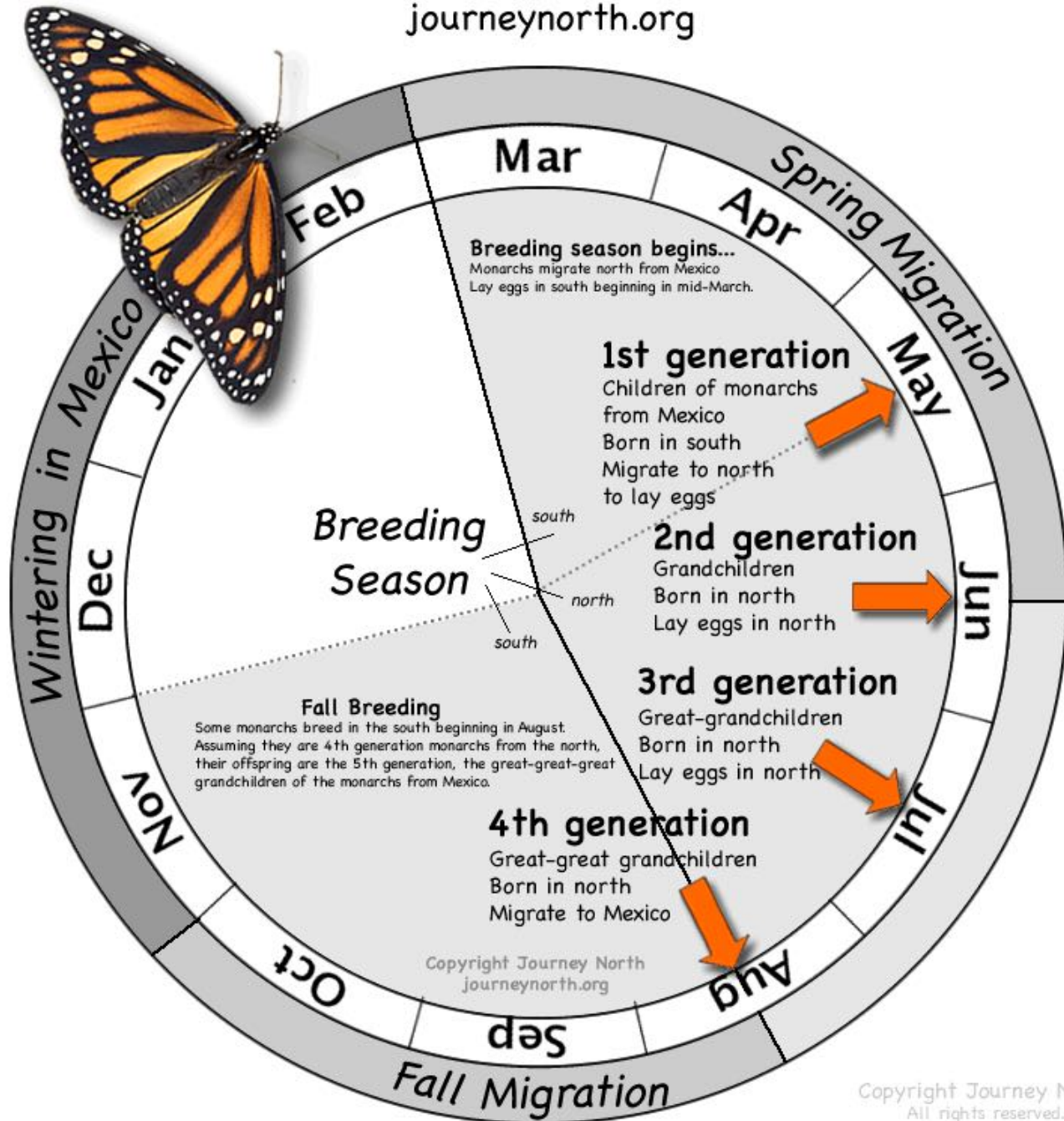


Monarch Watch.org
Education • Conservation • Research

Map design © Paul Miracha

Report Your Sightings!

journeynorth.org



California Sites



- Ardenwood Historic Farm, Fremont, CA
- Natural Bridges State Park, Santa Cruz, CA
- Lighthouse Field State Beach Monarch Grove, Santa Cruz, CA
- Point Lobos State Park, Carmel, CA
- Morro Bay State Park, Morro Bay, CA
- Pismo Beach Monarch Butterfly Grove, Oceano, CA
- Ellwood Mesa Open Space, Goleta, CA



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Habitat

- Food
 - Larvae = Milkweed
 - Adult = Nectar
- Shelter
 - Monterey Pine, Monterey Cypress & Eucalyptus
 - Moderate Weather Extremes
- Space
 - International



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Pacific Wintering Habitat



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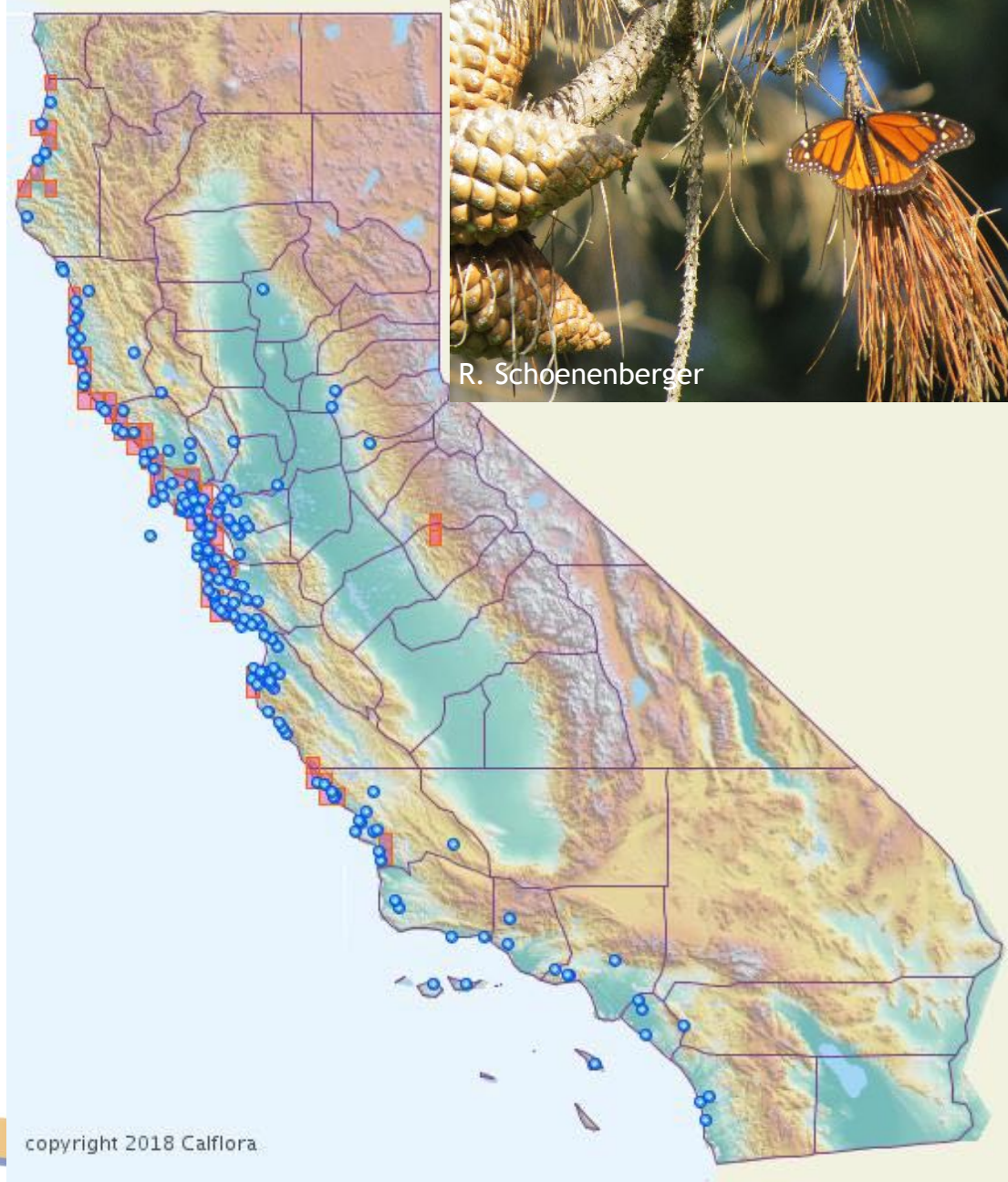


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Pinus radiata Monterey Pine

- Fast growing, but short lived.
- Limited Range
- Pitch Canker Disease
- Drought Stress
- Habitat Destruction / Encroachment



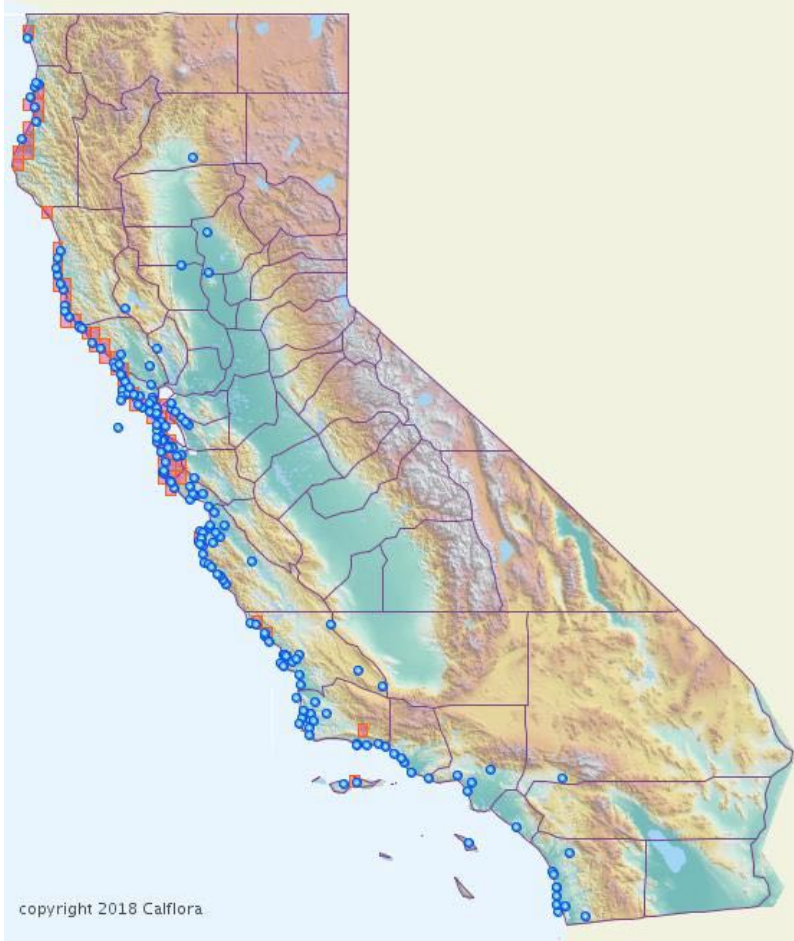
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Hesperocyparis macrocarpa Monterey Cypress



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Milkweed *Asclepias*

- Native Larval food for Monarchs
- Goes Winter dormant
- Contains cardenolide
 - Monarch larvae can eat
 - Makes Monarchs distasteful to predators



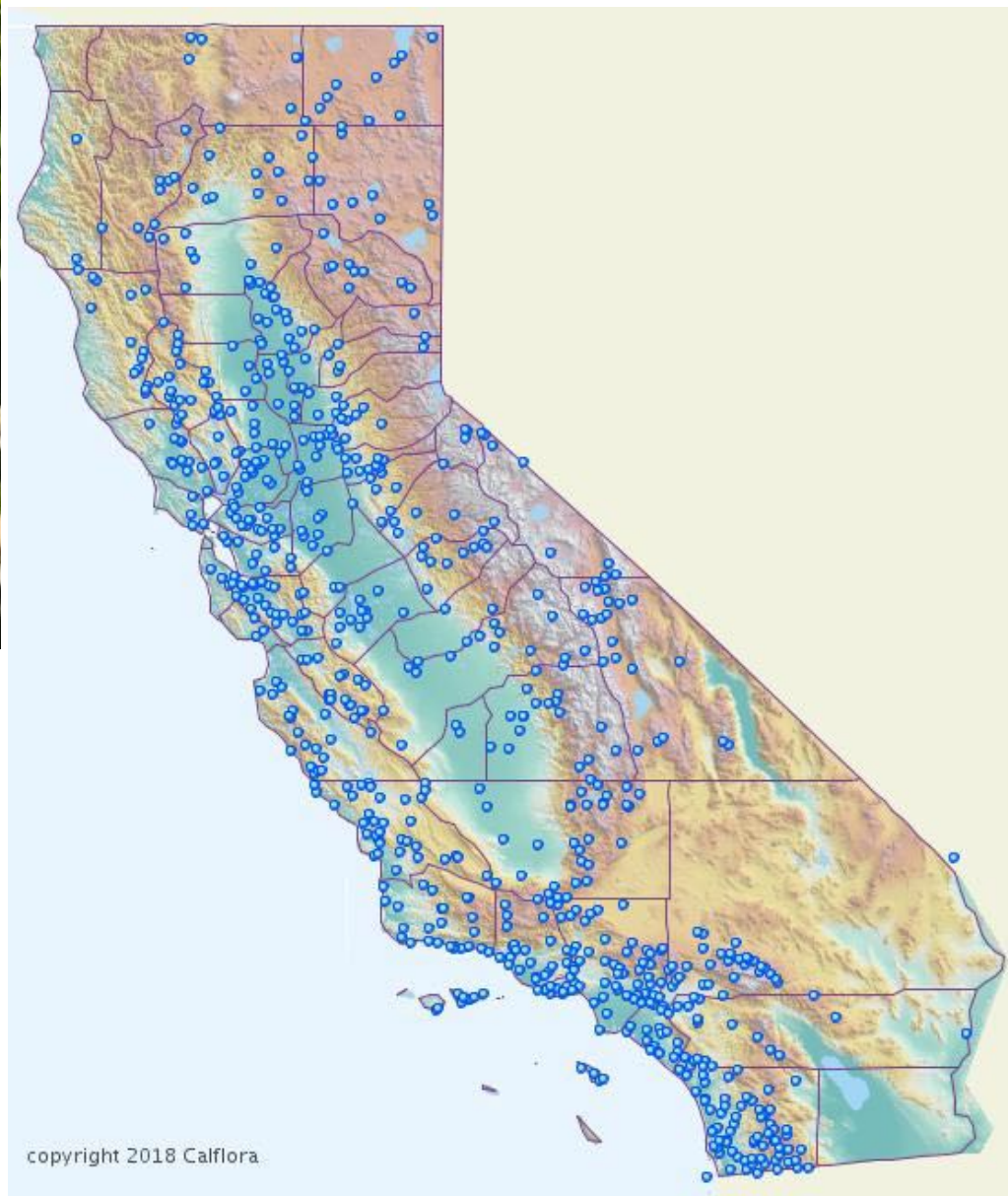
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Asclepias fascicularis Narrowleaf Milkweed



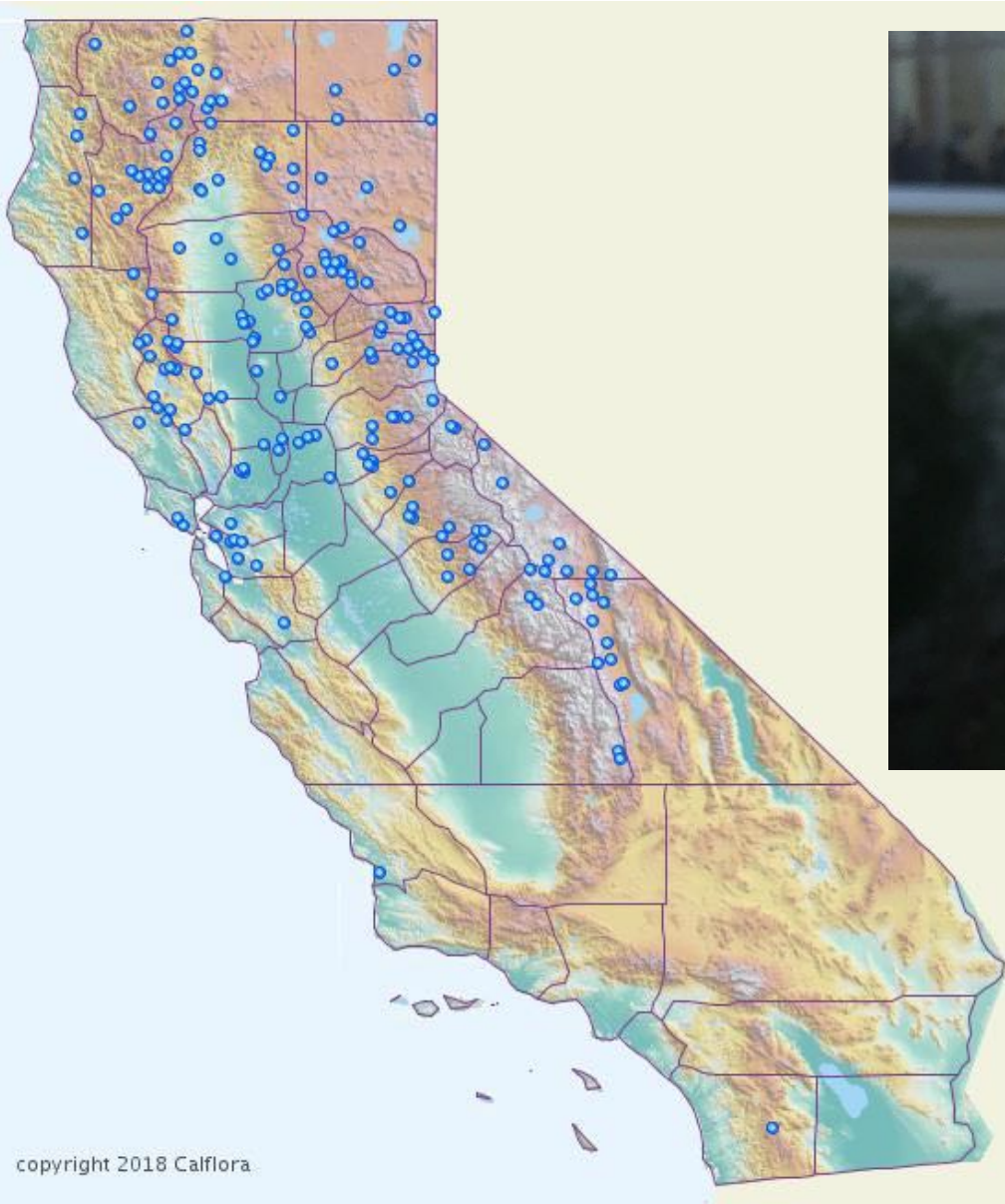
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Asclepias speciosa Showy Milkweed

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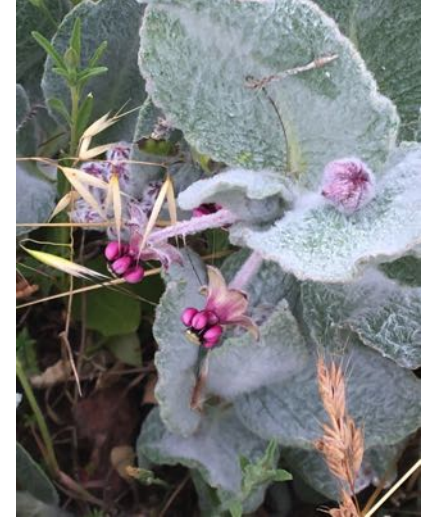
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Asclepias cordifolia
Heartless Milkweed



Asclepias cryptoceras
Humboldt mountains milkweed
© 2013 Mary Winter



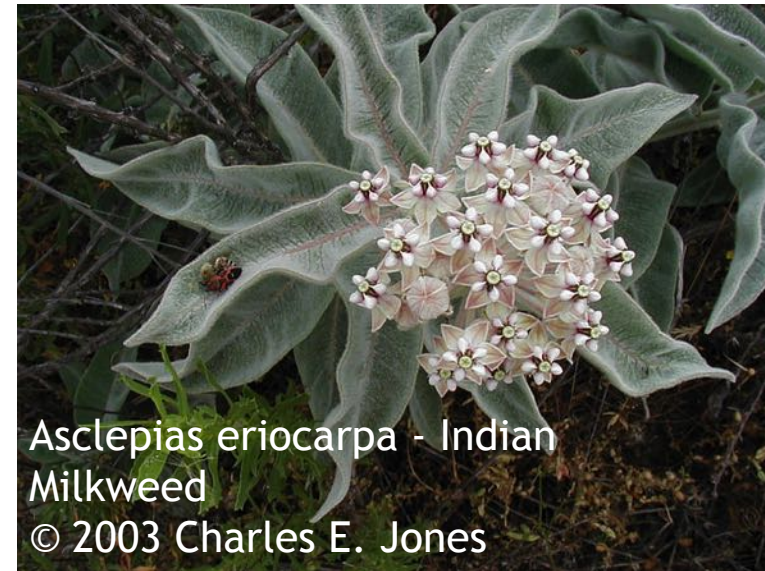
Asclepias californica
California Milkweed
© 2018 Naomi Goodman



Asclepias subulata - Alamete
© 2008 Aaron Schusteff



Asclepias erosa
Desert Milkweed
© 2003 James M. Andre



Asclepias eriocarpa - Indian
Milkweed
© 2003 Charles E. Jones



Gomphocarpus (*Asclepias*) *physocarpus*

- Balloon Plant
- Balloon Cotton-Bush
- Balloon Milkweed
- Bishop's Balls
- Elephant Balls
- Hairy Balls
- Monkey Balls
- Swan Plant
- Family Jewels Tree
- and many others

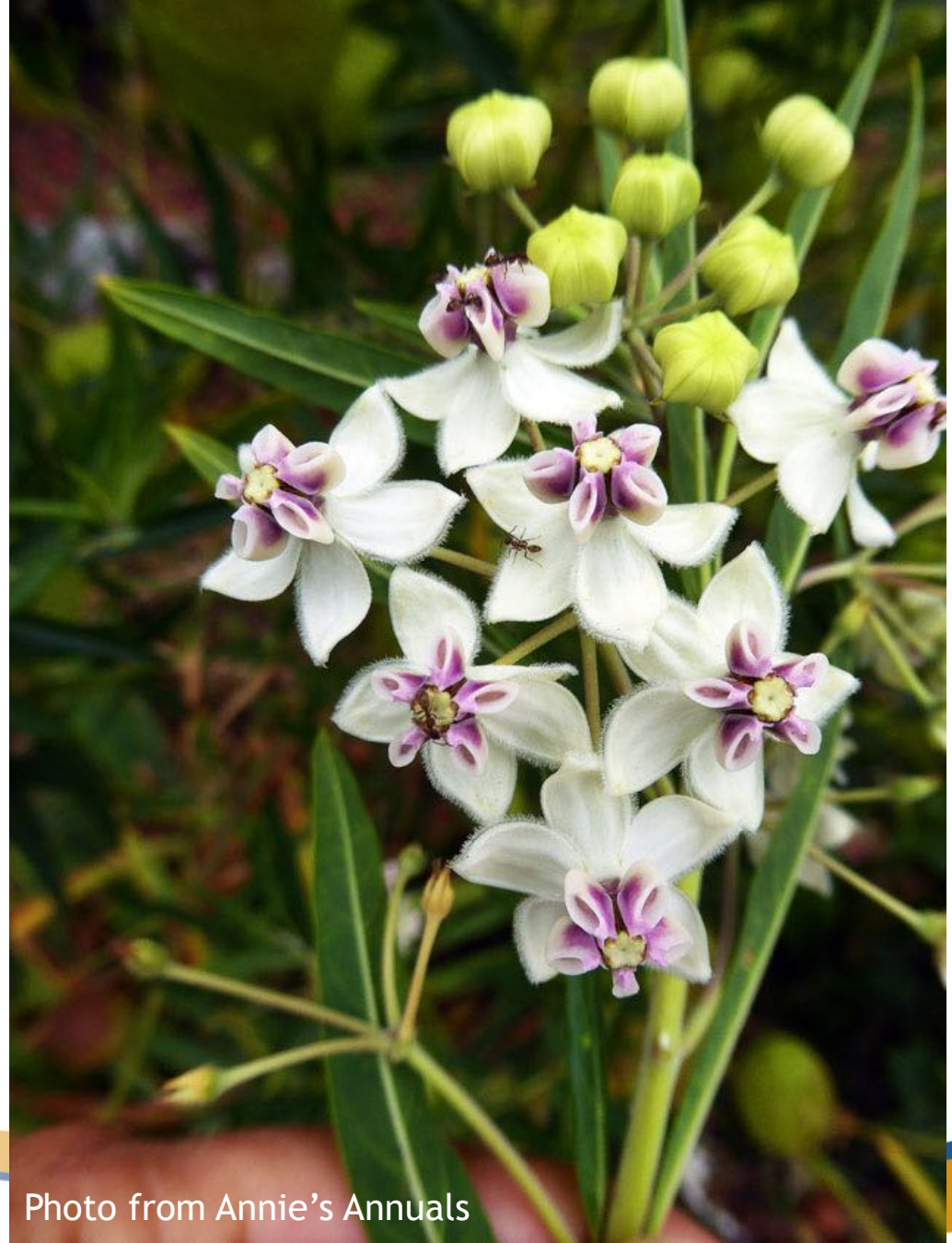


Photo from Annie's Annuals



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Gomphocarpus (Asclepias) fruticosus

- Less common in commercial trade
- Smaller stature than *G. physocarpus*
- Also called Ballon Plant or Swan Plant
- Origin: South Africa



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Oxypetalum caeruleum (*Tweedia caerulea*) Blue Flowered Milkweed

- Blue flowers
- Related to Milkweed
- Twining Perennial
- Origin: Brazil & Uruguay



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Creating Habitat - Nectar Plants

- Umbel = landing pad / resting area
- Long bloom season or repeated blooms
- Colorful
- Early & Late blooming is most important: Feb. - April & Sept. - Oct.



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Ornamental (non-Native) Plants for Butterflies

- Salvia - Sage
- Foeniculum vulgare - Fennel
- Zinnia - Zinnia
- Scabiosa - Pincushion Flowers
- Tagetes - Marigolds
- Dahlia - Dahlia
- Callistemon - Bottlebrush
- Lantana - Lantana
- Buddleja - Butterfly Bush
- Cosmos - Cosmos
- Echinacea - Coneflowers
- Erysimum - Wallflowers



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Achillea millefolium

Yarrow 'Island Pink'

California native plant; colorful pink flowers in spring, summer, and fall make good cut flowers; ferny green foliage will spread; flowers attract butterflies and beneficial insects.



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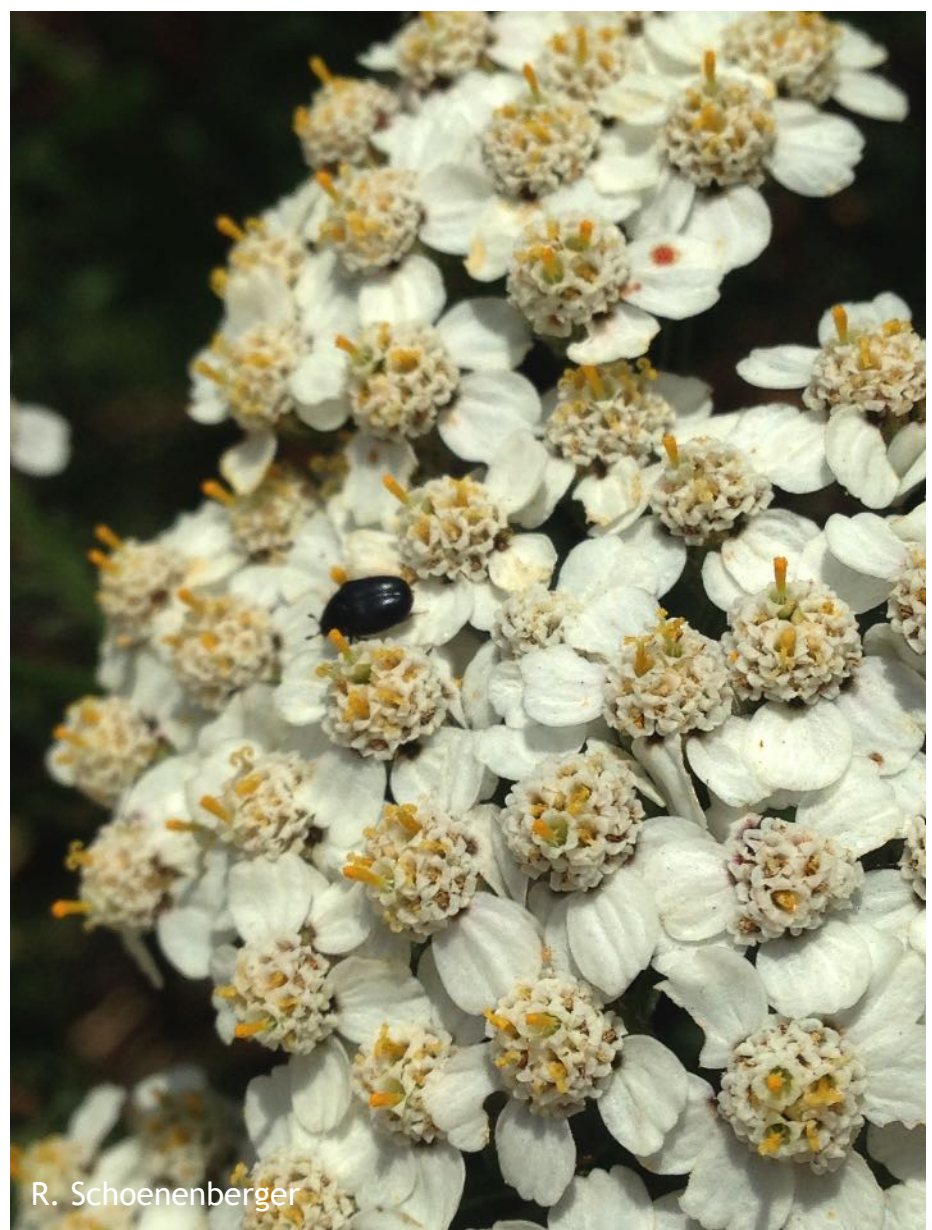


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Achillea millefolium

Yarrow



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Arctostaphylos densiflora Manzanita 'Howard McMinn'



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Ceanothus 'Concha'

Wild Lilac Selection



California native plant; one of the best California lilacs for the garden with dark-green leaves all year; showy, deep blue flowers with reddish bracts bloom in spring; attracts beneficial insects.



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Encelia californica

Coast Brittlebush

California native plant; golden daisies blossom from early spring until mid-fall among triangular-shaped green leaves; tolerates full sun or part shade and is low maintenance.



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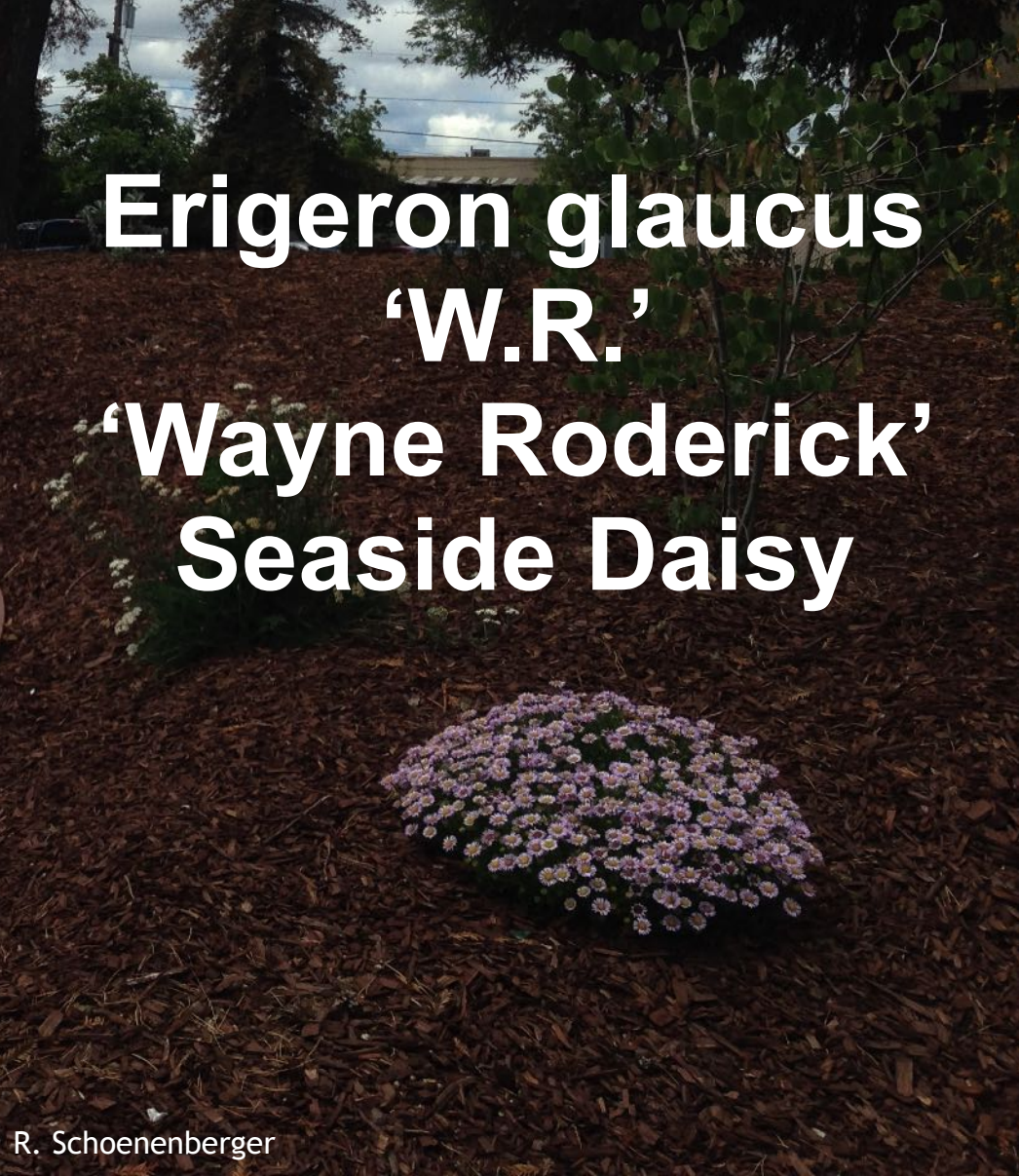
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Ericameria sp. Rabbitbrush



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Erigeron glaucus
'W.R.'
'Wayne Roderick'
Seaside Daisy

California native plant; flowers bloom through the spring, summer, and fall; long-blooming daisy for home gardens; attracts butterflies and beneficial insects.

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Eriogonum sp. Buckwheat



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Peritoma (Isomeris) arboreus Bladderpod

California native plant;
one of the only native
shrubs that blooms year
round; yellow flowers
attract beneficial insects
and hummingbirds to the
garden and then develop
into attractive seed pods.



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Ribes aureum Golden Currant

California native plant;
flowers have a light, spicy
fragrance; good choice
for planting under native
oaks; attracts butterflies
and beneficial insects.





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Salvia clevelandii 'Winefred Gilman' Cleveland Sage

California native plant;
evergreen shrub
produces maroon-
stemmed, blue-violet
flowers; heat and
drought tolerant;
attracts hummingbirds,
butterflies and beneficial
insects.



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Salvia Spathacea Hummingbird Sage

California native plant; leaves have a pleasant, fruity fragrance; excellent drought-tolerant groundcover for sun or partial shade; attracts hummingbirds.



Photo by Marie Haka



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Solidago californica 'Cascade Creek'

California Goldenrod

California native plant; bears bright yellow flowers in summer and fall that attract butterflies and beneficial insects; ideal for native grass meadow.



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Threats

- Habitat Loss & Degradation
 - Private Property
 - Pruning
- Pesticides
 - BT (a non-toxic, naturally occurring biological larvicide)
 - Neonicotinoids (a common class of insecticides derived from nicotine)
- Climate Change
 - ➔ Milkweed too toxic
 - ➔ Unknown ???

Plant tag indicating a plant has been treated with neonicotinoids. Photo: SDF





1980s monarch population
in California = 4.5 million.
Current human population in
Los Angeles = 4 million.



Current monarch population
in California = 28,429.
Current human population in
Monterey = 28,828.

To-scale version
of 28,429 vs. 4.5
million (compare
to leftmost photo).



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OE - *Ophryocystis elektroscirrha*

- Decreased larval survival
- Smaller wing span & lower body mass
- Decreased male reproductive success & Shorter Adult lifespan
- Less activity & weight among females
- Diminished Condition & Activity: Wings tattered & Scale loss



Photo by Dara Satterfield, Project Monarch Health.



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Conservation



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Action Items:

- Protect CA Winter Sites
- Restore Breeding & Migratory Habitat in CA
 - Native Milkweeds
 - Pollinator Gardens
- Protect Habitat from Pesticides - Practice IPM
- Restore Breeding & Migratory Habitat outside of CA
 - Regional Milkweeds
 - Pollinator Gardens
- More Research on how to best aid Monarchs



Citizen Science

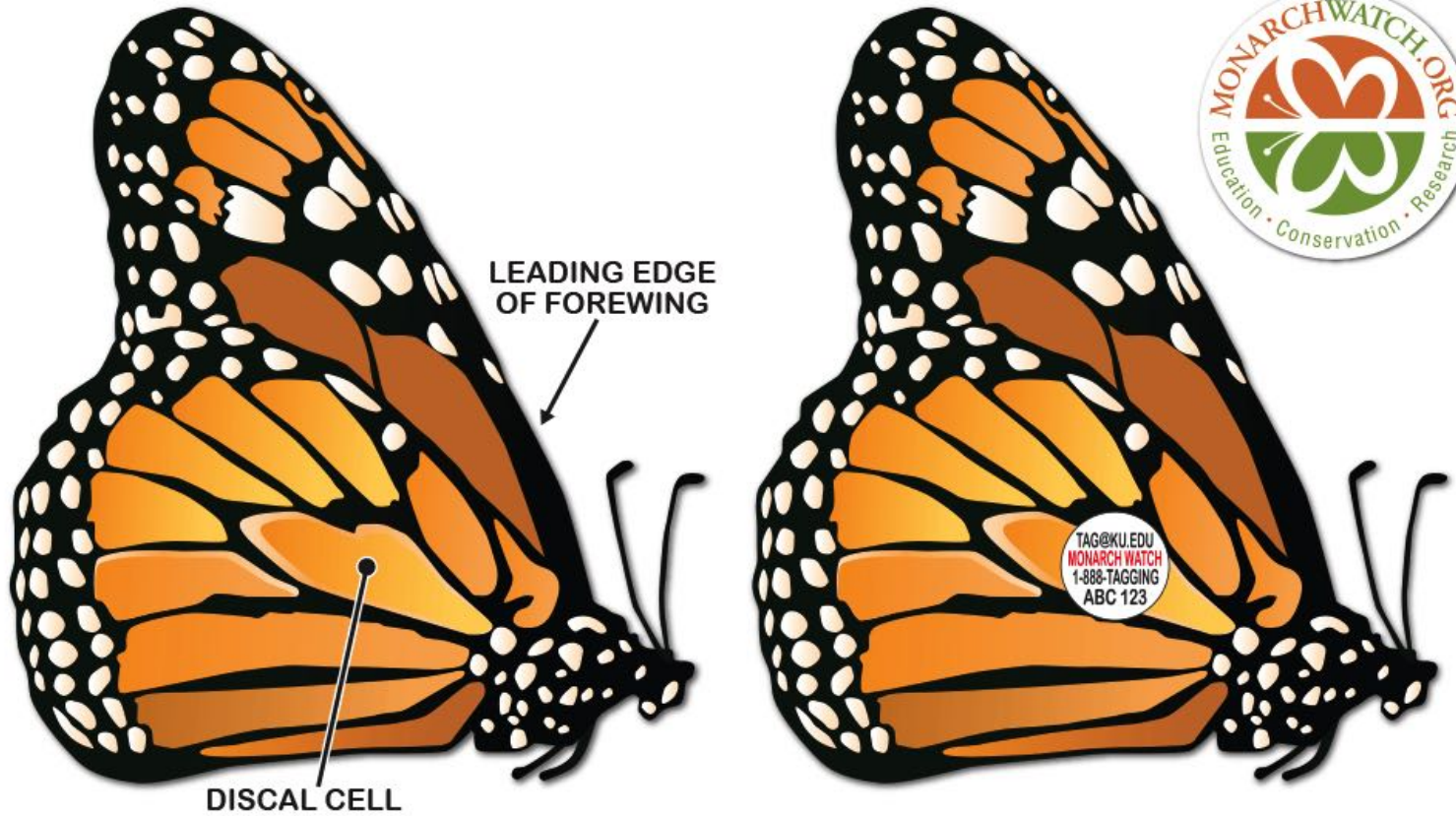


- The Monarch Larva Monitoring Project
- Tagging Monarchs
- Participate in Winter counts
- Raising Monarchs Responsibly



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PROPER PLACEMENT OF MONARCH WATCH TAGS

monarchwatch.org/tagging



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What you can do:

- Create diverse habitat.
 - Year round Nectar Sources
 - Colorful
- Pesticide-free
 - Use IPM
- Plant local Milkweed



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Thank



you!



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