University of California
Agriculture and Natural Resources

UCCE Master Gardener Program
San Luis Obispo County

MONARCHS AND MILKWEED

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The beautiful orange western monarch butterfly (*Danaus plexippus*) used to be a familiar sight in our gardens with an estimated population of 4.5 million in the 1980s. Since that time, the population has shown a severe decline to less than 30,000 in 2019. The causes of this decline have been attributed to a combination of habitat loss, pesticide use and possible climate factors. Understanding the monarch's life cycle and its needs can guide our efforts to restore their numbers.

Life of a Monarch

October-February: The western monarch overwinters along the western coast from Mendocino County to Baja, in areas within 1.5 miles of the ocean. This habitat offers high humidity, access to water as well as protection from freezing temperatures and wind. They aggregate in trees in a reproductive diapause (a pause in reproduction), with local movement for water and nectar. Fall and winter blooming nectar plants in the area provide needed resources.

February: Most will leave the coast to spread across western United States and continue their life cycle. Flowering nectar plants that bloom in late winter and early spring provide energy for their travels during this time when fewer plants are in bloom.

February/March-September: Breeding throughout the West. Adults lay eggs only on milkweed (Asclepias spp.). Monarch caterpillars only eat milkweed and will consume the leaves for food and a toxin, cardenolide, that protects them from predators. The caterpillars most often do not pupate on the milkweed, but travel some distance to choose a safe spot in a tree, vine, fence or other secure structure. Milkweed is critical for the successful development of the monarch caterpillar. Nectar plants are necessary to support the adult butterflies. Monarchs will have several generations during this time with the last generation returning to the overwintering coastal sites.

October: Monarchs return to overwintering sites. Fall blooming plants are needed for nectar.

How to Help Restore Monarch Population

- Support local and state actions to protect overwintering habitats- most of these sites are on public land and can be subject to overdevelopment and tree removal.

- Protect monarchs and their habitats from pesticides which include insecticide and herbicides. Of special note, do not use or buy plants pretreated with neonicotinoid insecticides which are especially toxic and persistent in the environment.

- Restore breeding habitat- plant nectar rich flowers which are needed by adult monarchs for the duration of their lives. Plants that flower in the late winter, early spring and fall are especially helpful to support their travels. Plant milkweed for monarch caterpillars to consume. **Do not** plant milkweed within 5 miles of the coast as milkweed does not naturally grow in these areas. In addition, milkweed planted too close to the overwintering coastal sites may interfere with monarch migration and their life cycle.

There are 15 species of milkweed that are native to California, and 4 species that occur naturally in SLO county.

1. ***Asclepias fasicularis*** (Narrow Leaf Milkweed) is the most common and readily available at nurseries. It is easy to grow once established, drought tolerant, and spreads by runners and seeds. Flowers summer and fall; 1.7-3.3 ft tall, 1 ft wide; winter deciduous, white, lavender flowers

2. ***Asclepias californica*** (California Milkweed) naturally occurs in higher SLO elevations, emerges early in the spring which may be helpful to Monarchs leaving the overwintering sites in February. Flowers spring and summer; 3 ft tall, 3 ft wide summer semi-deciduous, lavender, pink, white flowers. Not readily available in nurseries, may need to acquire seeds.

3. ***Asclepias eriocarpa*** (Kotolo, Indian, or Woolypod Milkweed) emerges early which may be helpful to Monarchs leaving early in the spring, not readily available as plants; may need to acquire seed. Flowers summer; 1.3-3 ft tall, 1 ft wide; deciduous, cream, pink and white flowers

4. **Asclepias vestita** (Wooly Milkweed) endemic to California but difficult to find plants or seeds. Flowers spring and summer. 1 ft tall stems bending on the ground; deciduous, cream to yellow flowers.

5. **Asclepias speciosa** (Showy Milkweed) although not considered native to SLO county it is native to much of the western US, is widely available and grows well in SLO county. Flowers summer; 4-6 ft tall, 4 ft wide; deciduous, white, purple and pink flowers. Emerges later in late spring to early summer and grows by runners (rhizomes).

Avoid planting A. curassavica (Tropical Milkweed, Bloodflower, Mexican Butterfly Weed) it is a pretty plant, widely available commercially, but is not native to the US and not recommended. A. curasaavica can interfere with monarch migration. A protozoan parasite, *Ophyryocystis elektroscirrha*, can build up on its leaves resulting in harm or death to monarchs. Replace this plant or cut back to the ground in November and keep it trimmed back during the winter. Discard clippings in trash not compost.

Milkweed Propagation and Care

- Milkweed can be propagated by seed or by digging up rhizomes. *A. speciosa* is best grown from rhizomes.
- Seeds may be sown directly into the ground in the fall or into peat pots to transplant directly into the ground. Transplants can be planted in spring or fall.
- Seeds of some species may require cold stratification (put in refrigerator for 1-2 months prior to propagation.
- Milkweed is drought tolerant but needs irrigation every 7-14 days for the first year and every 14 days for the second year or until established. Mulch to retain moisture.
- Small plants may need to be protected with a barrier of hardware cloth if pests such as rabbits or deer are a problem.
- Plants grow slowly the first year, then will flourish and with spreading invasive growth. Choose a location where they can spread or grow in pots.
- The bright yellow oleander aphid is the most common pest. Control early when few are present by handpicking or gently spraying off to avoid damage to any caterpillars or eggs. Do not apply insecticides as this will harm monarchs in any stage.

References and Resources

Pelton, Emma, Cheryl Schultz, et.al. Western Monarch Population Plummets: Status, Probable Causes, and Recommended Conservation Actions. Front. Ecol. Evol., 03 July 2019 https://doi.org/10.3389/fevo.2019.00258

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Western Monarch Biology: The Monarch Life Cycle. Western Monarch Milkweed Mapper. https://www.monarchmilkweedmapper.org/western-monarch-biology/#:~:text=During%20the%20spring%20and%20summer,living%20for%206%E2%80%939%20months.

For information of native plants, nectar plants and nurseries
Monarch Nectar Plants. Xerces.org.
https://xerces.org/sites/default/files/publications/19046_01_MonarchNectarPlants_California_web-4pg.pdf

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