Monarchs and Milkweed

Of all the interactions between bugs and flowers, the best known may be the intimate relationship between the monarch butterfly (*Danaus* spp.) and the many species—72 in the U.S. and Canada—of milkweed (*Asclepias* spp.). This mutualistic relationship benefits the insect (receiving pollen and nectar for its offspring) and the plant (using the insect to transfer pollen from blossom to blossom).

We are growing milkweed (*Asclepias fascicularis*) in the pollinator garden at the Bridgeview Drive end of the Bridgeview Trail. The milkweed effort in the garden, started by our avid native plant nursery volunteer Betsy Moses, is only in its first year, but we already have a small scattering of flowering milkweed plants blooming at a time of year when California is dry and few flowers are open for business.

The pollinator garden has a few milkweeds in bloom. Check out the bee on the blossom on the left. And note that the stems have aphids feeding on the succulent growth.

We have observed a few monarchs visiting the blossoms. These late blossoms are attracting honeybees (not native) and lots of small butterflies. Maybe the monarchs will stop for lunch in future years and leave a few eggs.

It's not at all unusual for insects to have an absolute requirement for a particular plant. Flowering plants and flying insects both evolved at about the same time, with flowers using insects to carry their pollen, and insects using the plants for food, shelter, and nesting areas. The plants developed defenses against insect depredation, and the insects developed workarounds to get past the defenses. This co-evolutionary "arms race" has been going on for 400 million years. In the case of the monarch-milkweed interaction, scientists have found that monarchs are not actually the best pollinators for milkweeds. Bees, other butterflies and moths, true flies, beetles, and wasps also act as pollinators, with the larger, heavier insects accounting for the most pollination.

But the monarchs do need the milkweeds to reproduce. Butterflies have four life stages: egg, larva, pupa, and adult. The monarch female lays her eggs on the underside of the leaves. The eggs hatch into caterpillars. Her babies gorge on the juicy foliage, absorbing chemicals that give them bad taste and toxicity, defending them against their avian predators.

Eggs on the underside of milkweed leaves, and a caterpillar chewing on leaves. Photos courtesy of Xerces Society for Invertebrate Conservation

Our California monarchs migrate but not all the way to the famous Mexican overwintering spots. Most end up in Southern California or in Santa Cruz, with some finding other wintering sites along the coast. Monarchs sometimes overwinter in the East Bay. We saw them nectaring one year in the nursery demonstration garden, and for the past couple of years at least, they've been seen in Aquatic Park in Berkeley.

You can plant milkweed in your habitat garden. The narrow-leaf milkweed was easily propagated from a single plant growing in Betsy's front yard. Irrigated by a drip system, the mother plant sent out new shoots emerging several feet out. The new shoots were pulled and potted up. Once roots developed, the new plants were transplanted directly into the heavy clay soil at the pollinator garden. Betsy supported them with supplemental water, which she carried in gallon containers up to the garden. And it worked! Check it out in the pollinator garden. But hurry—they're not going to be in bloom for much longer.

Would you like more info? Check out these websites:

www.calflora.org — for photos of the milkweeds
www.cnplx.info — where to buy specific natives
www.xerces.org — Query their extensive website on monarchs and milkweed.

--Kathleen Harris