



Information

Bohart Museum of Entomology

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Beneficial Insects

Many insects are very useful to backyard gardeners. The benefits that insects provide include pollination and the reduction of unwanted insects through predation, parasitism, or competition.

Pollinators

Almost all fruit-bearing plants need to be pollinated by insects during the flowering stage. Popular garden plants such as tomatoes, peppers, cucumbers, beans, as well as orchard crops like peaches, apples, citrus, and almonds, all rely on insect pollination in order for healthy fruit to be produced.

Bees Domesticated European honey bees have been very effective for large scale and commercial pollination needs, but native bees such as bumble bees, leaf-cutter bees, orchard bees, alkali bees, miner bees, and sweat bees are very important to backyard gardeners (Order Hymenoptera, Superfamily Apoidea). Check your gardens for the familiar large, fuzzy bumblebees, shiny, black carpenter bees, and also the less familiar small, metallic-green sweat bees and medium-sized, blue-black orchard bees.

Butterflies and Moths There are about 250 species of butterflies in California (Order Lepidoptera). In addition to pollinating many familiar annual and perennial garden plants, they are a beautiful sight during the warm summer months. Many moth-pollinated flowers make a lovely addition to a garden and produce an attractive scent around dusk.

Predators

Predators are animals that consume many other animals during their lifetime. Many predators are useful in the garden because they eat other insects that we consider pests. Quite a few insects are predators as larvae, and may feed on nectar, or not at all, as adults. Other insects are predators their whole life.

Ladybugs These tiny predators are usually very welcome in gardens because ladybug larvae and adults eat aphids, mealybugs, and mites. Both adult and larval ladybugs (Order Coleoptera, Family Coccinellidae) are effective predators of garden pests. There are commercially available sources of ladybugs these days, but purchasing them has its drawbacks. Many of the commercial providers of ladybugs in the Central Valley collect the insects locally from the Sierra and the foothills during the cool fall months. However, these insects are "hardwired" to move west (downhill) as the growing season begins in the Central Valley. Therefore, if you release "packaged" ladybugs into your garden at the beginning of the season, you may find that they move westward during the first few weeks. Your neighbors to the west may thank you, but your own garden will be ladybug free. Try attracting ladybugs to your garden instead, by growing some of the plants indicated on the chart below.

Lacewings Adult lacewings (Order Neuroptera) are the familiar gauzy-winged green or brown insects. The grayish-brown larva, often called aphid lion, is 3/8 inch long, with sharp curved jaws that extend beyond its head. The larvae feed on aphids, scales, mealybugs, thrips, mites, and insect eggs. A single larva can eat 100 or more insects a day.

Predatory Flies Hover flies and robber flies (Order Diptera, family Syrphidae and family Asilidae) are medium sized flies that resemble bees, but don't sting. The adults are often found hovering over flowers. Larvae of most species feed on aphids and grasshoppers, as well as the young of social insects like termites and ants.

Beetles The family of ground beetles (Order Coleoptera, family Carabidae) contains hundreds of species. Though they differ in size, shape, and color, most are flat, dark and shiny. They hide under stones, logs, bark, and debris, and rarely fly, preferring to run on the ground surface. Most hide during the day and feed at night. Most ground beetles prey on insects (especially caterpillars of tree pests) or snails.

Parasitoids

Parasitoids are insects that typically feed on a single host during their lifetime (this is different from predators who consume many animals during their lifetime). Most parasitoids consume other animals during the larval stage. The vast majority of parasitoids are small-to-minute wasps that do not sting humans or other animals. In general, an adult parasitoid deposits one or more eggs into or onto the body of a host insect. The larva that hatches from each parasitoid egg feeds on the host insect. Most parasitoids are highly host-specific, laying their eggs on or into a single developmental stage of only one or a few closely related host species. Common agriculturally important parasitoids include members of the families Braconidae and Ichneumonidae (Order Hymenoptera).

Hints for attracting and keeping beneficial insects in your garden:

- Avoid spraying broad-spectrum pesticides. These will kill beneficial insects as well as the pests you are targeting.
- Don't keep your landscape too clean. Many immature stages of beneficial insects will develop in damp piles of decomposing leaf litter.
- Tolerate pest populations on some plants to encourage healthy predator populations.
- Plant beneficial-insect attracting plants.