Good Bugs for Your Garden

Making a Positive Identification

Before you stomp on or spray any unfamiliar bugs in your garden, make sure you know the good guys from the bad guys. Remember that most insects go through several changes during their life cycle, so the young larva or nymph may look totally different from the adult. And, keep in mind, it is often the “young” of the insect that eats the most pests. This brochure will help you to identify some of the most common beneficials (both adults and the young) found in local gardens. Here are some tips for attracting and keeping beneficials in your garden:

- **Go Undercover:** Provide beneficials with shelter and over-wintering sites by creating bare ground with organic mulch or leaves. Beneficials need a small area of exposed soil to encourage native solitary bees that are “ground-nesters.”

- **Lure Them Out of Hiding:** Include a variety of different pollen and nectar-rich plants to provide beneficials with a food source — in addition to plants, they also consume other insects.

- **Crack Down on Crime:** Pesticides (particularly broad-spectrum pesticides that don’t target single pests) kill the beneficials as well as the true garden pests. Protect beneficial insects by not using pesticides! These chemicals can also run off gardens and lawns with rain and over-watering, entering storm drains — a direct route to local creeks and other bodies of water — where they can harm water quality and wildlife. For information on pesticide alternatives, go to www.OurWaterOurWorld.org.

### Bringing in the FBs

**Flowers for Beneficial Insects**

Most beneficial insects need to supplement their diets with pollen and nectar. You can attract them to your garden, and encourage them to stay and hunt for pests, by offering them a variety of pollen and nectar-rich flowers. Plants with daisy-like flowers or plants with clusters of multiple small flowers are especially attractive to beneficials. Choose a diversity of plants that bloom at different times so that the beneficials can feed throughout the year. Many common garden plants suited to our Mediterranean climate will attract beneficials, including oregano, alium, borage, dill, angelica, cosmo, tansy, calendula and rosemary.

Here are some California native plants guaranteed to draw in many of the 10 most wanted... 

### Having a Good Defense

Many native plants have developed natural defenses to ward off insect pests and diseases. These defenses can eliminate the need for pesticides and reduce maintenance costs. Because native plants have adapted to grow in our specific climate, they often require very little care once established and are generally more tolerant of drought. The diversity of natives available offers gardeners great choices for both fragrant flowers and beautiful foliage — and provides food and habitat for our native birds, wildlife, butterflies, and beneficial insects.

Early Fall is an ideal time to plant natives. The cool weather and rainfall will help young plants establish a healthy root system before colorful Spring blooms emerge.

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- www.plantright.org (FlaAgilet Program)
- Native Plants www.cnp.org (CA Native Plant Society)
- www.milpitas.org/psguide.htm (Milpitas Native Nursery)
- Native Plants of California Statewide IPM Program www.ipm.ucdavis.edu/IPM/NE/index.html
- Pesticide Hazards (Beyond Pesticides) www.beyondpesticides.org/gateway/index.htm

**EXPAND YOUR SEARCH!**

**WEBSITES**

- Bee Gardens http://nature.berkeley.edu/urbanbeegardens
- Invasive Plants and Alternatives www-cal-ipc.org (CA Invasive Plants Council)
- www.plantright.org (FlaAgilet Program)
- Native Plants www.cnp.org (CA Native Plant Society)
- www.milpitas.org/psguide.htm (Milpitas Native Nursery)
- Native Plants of California Statewide IPM Program www.ipm.ucdavis.edu/IPM/NE/index.html
- Native Plants www.cnp.org (CA Native Plant Society)
- www.beekeepers.org (Bees)
Syrphus larva eating broccoli aphids
Parasitoid wasp cocoons on caterpillar
Sightings:
Last seen near nectar-producing plants
Known Accomplices: aphids, scale, mealybugs and other pests, for pollinating plants
Wanted For: Paralyzing the eggs of cutworms, cucumber beetles, leaf miners, and other pests
Family History: parasitic insect that lays its eggs on caterpillars, or "aphid mummies,-" the dry, mummified husks of aphids stuck to a leaf.
Sightings: Suspected of foraging for nectar on tiny flowers like alium, yarrow, tansy, and clover.

Hoverfly, flower fly
Larvae are usually found under leaves in the company of aphids. Adults have been seen lurking around coneflowers, sunflowers, feverfew and other nectar-rich flowers.

Master of disguise: With yellow and black strips the adults appear to be bees. They have only one set of wings and can't sting. The larva looks like fat, legless caterpillars.

Aphid wolf, aphid lion.
Attacking and feeding on aphids and other pests, and for pollinating plants.
Family History:This tiny, notorious wasps lay their eggs on or inside of pests or insect eggs and the larva eat the pest. Can be tracked by the tell-tale signs they leave behind, like tiny, white cocoons on caterpillars, or "aphid mummies," - the dry, mummified husks of aphids stuck to a leaf.
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Aphid leaves

Hoverfly larva eating broccoli aphids

The dragonfly's excellent eyesight, and fast-moving predator, armed with their bite-sized jaws. Generally dark brown or black with shiny, hard front wing covers with a metallic sheen. Usually hunts at night. Reported to be able to consume its body weight in food each day. Larva also feed on soil insects.
Sightings: Usually sighted hiding in soil or under rocks, dried leaves and mulch.

Family History: Adults are known to be important pollinators. The larvae suck the juices out of their victims. A single larva can consume hundreds of victims a month.

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Parasitic Wasp
Aliases: Trichogramma, Braconid, Hypoositer and Ichneumon, among others.
Wanted For:Parasitizing the eggs of cutworms, cabbage loopers, codling moths, tomato hornworms, aphids, whiteflies, scales and other pests.
Family History:These tiny, notorious wasps lay their eggs on or inside of pests or insect eggs and the larva eat the pest. Can be tracked by the tell-tale signs they leave behind, like tiny, white cocoons on caterpillars, or "aphid mummies," - the dry, mummified husks of aphids stuck to a leaf.
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Green lacewing
Aliases: Aphid wolf, aphid lion.
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Ground Beetle
Aliases: Predacious ground beetle, and carabids, among others.
Wanted For:Consuming to eat many soil-dwelling pests like slugs, snails, cutworms and root maggots.
Family History: Fast-moving predator, armed with strong jaws. Generally dark brown or black with long legs and shiny, hard front wing covers that sometimes have a metallic sheen. Usually hunts at night. Reported to be able to consume its body weight in food each day. Larva also feed on soil insects.
Sightings: Usually sighted hiding in soil or under rocks, dried leaves and mulch.

Soldier Beetle
Aliases: Leatherwing.
Wanted For: Attacking and feeding on aphids and other soft-bodied insects.
Family History:Adults feed on pollen and insect pests on plants. The larva (or "young") hunt for pests in leaf litter and soil.

Sightings: Known to feed on the pollen of flowers like goldenrod and milkweed while waiting for its prey. Reports of sightings appear in early spring, shortly after aphids begin hatching.

Family History: Adults are known to be important pollinators. The larvae suck the juices out of their victims. A single larva can consume hundreds of victims a month.

Sightings: Larvae are usually found under leaves in the company of aphids. Adults have been seen lurking around coneflowers, sunflowers, feverfew and other nectar-rich flowers.

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