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.

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

- **California Aster (Symphyotrichum californicum)**: Perennial that ranges from 3’ to 7’, tall, with clusters of tiny pink, white or yellow flowers. Fall blooming.
- **California Lilac (Syringa vulgaris)**: Shrub with gray-green, feathery, green foliage. Tiny, whitish flowers and small, greenish nectar bladders. Fall blooming.
- **California Sunflower (Helianthus californicus)**:Annual that ranges from 1.5’ to 9’, tall, with clusters of multiple small yellow flowers. Summer through fall.
- **Seaside Daisy / Fleabane (Erigeron glaucus)**: Shrub or perennial with gray-green, feathery, green foliage. Small, pale purple flowers. Summer through fall.
- **Slender Sunflower (Helianthus gracilentus)**: Annual that ranges from 3’ to 5’, tall, with clusters of multiple small flowers. Summer through fall.
- **Goldenrod (Solidago californica)**: Perennial with clusters of multiple small flowers. Summer through fall.

**Here is a list of some of the more commonly found in California gardens:**

- **Lilac**
- **Bumblebee+
- Nest,** **Syrphid Fly+
- Larva,** **Soldier Beetle,** **Parasitic Wasp**

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**EXPAND YOUR SEARCH!**

**BOOKS**


**WEBSITES**

- Bee Gardens
  [http://nature.berkeley.edu/urbanbeegardens](http://nature.berkeley.edu/urbanbeegardens)
- Bug Guide
  [ID, Images for Insects, Spiders & Their Kin](http://bugguide.net)
- Invasive Plants and Alternatives
  [www.cal-ipc.org](http://www.cal-ipc.org)
- Native Plants
  [www.nps.org](http://www.nps.org)
- Native Enemies Gallery from the University of California Statewide IPM Program
- Pesticide Alternatives
- Pesticide Hazards
  [www.beyondpesticides.org/gateway/index.htm](http://www.beyondpesticides.org/gateway/index.htm)

**CRIME SCENE INVESTIGATORS:**

- Dee J. Schmidt, Creative. Printed by GreenerPrinter. Reviewed by M.L. Flint, UC Statewide IPM Program.

**Mug shots approved for posting by:**

**Why You Want These Bugs in Custody**

Most insects found in your garden don’t harm plants. In fact, 97% of the insects you see fall into this category! Such insects are called *beneficials* because they actually benefit your garden by pollinating plants, improving soil, and eating the pests that really harm plants. These hard-working *beneficials* can be a gardener’s best friend by keeping problem pests under control naturally, without the use of harmful chemicals.

**Bringing in the FBi:**

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 nectar-rich plants. 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.

Most common garden plants suited to our Mediterranean climate attract beneficials, including oregano, alium, borago, dill, angelica, cosmo, tansy, calendula and rosemary.

**Making a Positive Identification**

Before you stamp 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 identify some of the most common beneficials (both adults and their larvae) you may find 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 covering bare earth with an organic mulch like leaves or straw. Remember to leave a small area of exposed soil to encourage solitary native 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 pests.
- **Crack Down on Crime:** Pesticides (particularly broad-spectrum pesticides that don’t target single pests) kill the beneficials as well as the true pests. Broad-spectrum pesticides that don’t target single pests (or ‘target pests) kill the beneficials as well as true pests (such as ladybugs, ladybugs, syrophid flies, tachinid flies, parasitic wasps, bees, butterflies and syrophid flies)

**Have 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.

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

- **California Aster (Symphyotrichum californicum)**: Perennial that ranges from 3’ to 7’, tall, with clusters of tiny pink, white or yellow flowers. Fall blooming.
- **California Sunflower (Helianthus californicus)**: Annual that ranges from 1.5’ to 9’, tall, with clusters of multiple small yellow flowers. Summer through fall.
- **Seaside Daisy / Fleabane (Erigeron glaucus)**: Shrub or perennial with gray-green, feathery, green foliage. Tiny, whitish flowers and small, greenish nectar bladders. Fall blooming.
- **Goldenrod (Solidago californica)**: Perennial with clusters of multiple small flowers. Summer through fall.
- **Slender Sunflower (Helianthus gracilentus)**: Annual that ranges from 3’ to 5’, tall, with clusters of multiple small flowers. Summer through fall.
- **California Aster (Symphyotrichum californicum)**: Perennial with clusters of multiple small flowers. Summer through fall.
Syrphus larva eating broccoli aphids

**Dronefly**

**Aliases:** Mosquito hawk, darter.

**Wanted for:** Preying on unsuspecting flying insects like mosquitoes, flies and fleas.

**Family History:** The dronefly's excellent eyesight, strong jaws and agile flight make it a deadly predator able to catch prey in mid-air. Dragonfly larvae (nymphs) live in water and are also efficient hunters eating mosquito larvae and other insects, snails and even small fish.

**Known Accomplices:** Often seen in the company of its relative, the damselfly, another insect predator. Don't be fooled: when at rest, dragonflies hold their wings outstretched while damselflies fold their wings closed over their bodies.

**Sightings:** Last seen near garden ponds, streams and other bodies of water.

**Bumblebee larva**

**Soldier Beetle**

**Aliases:** Green lacewing

**Wanted For:** Aggressively devouring aphids, thrips, mealbugs, scale, spider mites, leafhoppers and insect eggs.

**Family History:** Adult green lacewings feed on nectar, pollen, and honeydew – at dawn and dusk. Juveniles are voracious predators known to eat up to 20 or 30 aphids a day.

**Sightings:** Last seen around nectar-producing plants like sunflowers, tardy and buckwheat.

**Green Lacewing**

**Syrphid Fly**

**Syrphus**

**Larva eating broccoli aphids**

**Green Lacewing**

**Soldier Beetle**

**Sightings:**

**Warning:** Be on the lookout for a bumblebee look-alike: the spotted cucumber beetle! This green beetle with black spots feeds on crops and foliage.

**Sightings:** Known to loiter on nectar-rich flowers like yarrow, tansy, and clover.

**Ladybug**

**Aliases:** Ladybird, ladybird beetle, seven-spotted ladybug

**Wanted For:** Gorging on soft-bodied insects like aphids, scales, thrips, mealbugs and mites spiders.

**Family History:** Both adults and larvae eat large numbers of pests. It is believed that one ladybug can devour 5,000 aphids in its lifetime. Most common suspect is red with black spots – but watch for many other species in a variety of colors, with or without spots.

**Warning:** Be on the lookout for a ladybug look-alike: the spotted cucumber beetle! This green beetle with black spots feeds on crops and foliage.

**Sightings:** Known to loiter on nectar-rich flowers like yarrow, clover and tansy.

**Parasitic Wasp**

**Trichogramma**

**Bee**

**European honeybee**

**Bumblebee** (Also includes hundreds of native bee species including leafcutter and orchard bees.)

**Wanted For:** Pollinating the flowers of many of our ornamental, fruit and vegetable plants.

**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.

**Dronfly**

**Adult**

**Larva**

**Ground Beetle**

**Aliases:** Predacious ground beetle, and carabids, among others.

**Wanted For:** Conspiring 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 soil in one day. Not to be fooled: when at rest, dragonflies hold their wings outstretched while damselflies fold their wings closed over their bodies.

**Sightings:** Usually seen in the vicinity of flowers high in nectar and pollen including asters, sunflowers, mints, lavender, rosemary and sages.

**Parasitic Wasp**

**Family History:**

**Ichneumon, among others.**

**Larval**

**Egg**

**Spider**

**Aliases:** Funnel weavers, crab spiders, and golden orb spiders, among others.

**Wanted For:** Trapping and bugnapping a wide variety of insect pests.

**Family History:** The most deadly natural enemy of pests, spiders are skilled predators. They may hunt webs or track their victims on the ground and on plants. Can be identified as arachnids, with eight legs and two body parts.

**Sightings:** All over your garden, and on front porches near lights.

**Warning:** Spiders are thought of as fearsome creepy crawlers but very few have a bite that is harmful. Always wear gloves when cleaning garages, debris, woodpiles, storage areas or piles of clutter.

**Soldier Beetle**

**FAMILY HISTORY:**

**Ornamental,** fruit and vegetable plants.

**Soldier Beetle larva**

**Spider**

**Ground Beetle**

**Wanted For:** Attacking unsuspecting caterpillars and beetles.

**Family History:** Disguised as a hairy housefly, this parasitic insect lays its eggs on caterpillars, grubs and other insects. When the eggs hatch, the young (larva) tunnel into their victims and eat them.

**Sightings:** Often seen stealing the nectar and pollen of tansy, milkweed and Queen Anne’s lace.