# Beneficial Insects

University of Idaho Extension
Kootenai County
958 South Lochsa St
Post Falls, ID 83854

Phone: (208) 292-2525
FAX: (208) 292-2670
E-mail: kootenai@uidaho.edu
Web: uidaho.edu/kootenai

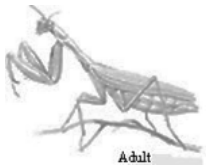
IDAHO master GARDENER
A UNIVERSITY OF IDAHO EXTENSION PROGRAM

Compiled by Mara, Certified Idaho Master Gardener

## Praying Mantis

MANTIDAE

Adult: 2 ½ inches

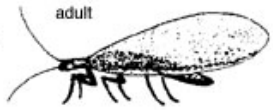



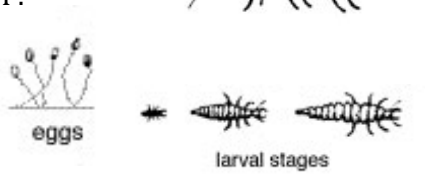

Feeding Habits: Nymphs and adults feed on aphids, beetles, bugs, leafhoppers, flies, bees and wasps, caterpillars, butterflies and each other.

## Green Lacewing

CHRYSOPA SPP.

Adult: ¾ inch




Feeding Habits: Many adults and larvae prey on aphids, various larvae, and the eggs of other insects.

## Ground Beetle, Fiery Searcher

CALOSOMA SCRUTATOR

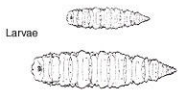
Adult: 1 inch


Feeding Habits: Adults feed at night on many soft-bodied larvae, including cankerworms and tent caterpillars.

## Flower Flies, Hover Flies

SYRPHIDAE

Adult: ½ inch



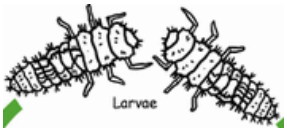


Feeding Habits: Adults feed on nectar. The larvae of most species feed on aphids, mealy-bugs, and other small insects.

## Lady Beetle, Ladybug

HIPPODAMIA CONVERGENS

Adult: ¼ inch





Feeding Habits: Adults and larvae are important predators of many aphids, and sometimes feed on mealybugs, scales, or other small insects.

## Braconid Wasps

BROCONIDAE

Adult: ¼ inch

Feeding Habits: Adults lay eggs on the larvae of various caterpillars or aphids. Larvae may feed within the hosts or on the surface. Often their brown cocoons are seen on the backs of hornworms and other caterpillars.

**Beneficial insects fall into three types: pollinators, predators and parasites**
**Short list of desired beneficial insects:**

- Lacewings: Adults need pollen, nectar and honeydew (secreted by aphids and other sucking insects), as well as water.
- Lady beetles: Adults feed on aphids, scale, thrips, whiteflies, spider mites, mealybugs, and other soft-bodied pests. They are attracted to nectar and pollen plants and will overwinter as adults in leaf litter, tree crevices, and homes.
- Parasitic Wasps: Eggs hatch and the larvae feed on their hosts' body fluids. Braconids and other parasitic wasps are most active in warm weather, and they like humid conditions. They are attracted by nectar in small flowers.

- Mud Dauber: Catch live insects for the young to eat in the mud nests and at least one type (the blue) is known to favor black widow spiders as food for its young. Adults eat primarily nectar and sap. Unlikely to sting despite their fierce appearance.
- Hover flies or syrphid flies: Adults are not predaceous, but the larvae prey on aphids, scale insects, and thrips. Syrphid fly larvae may quickly suppress aphid infestations, as each is capable of destroying hundreds of aphids during its development.
- Predatory bugs: Includes soldier bugs, which look like squash bugs but have sharp spines on their shoulders, and big-eyed bugs, which have large bulging eyes on the sides of their heads and no shoulder spines. Both types of predators eat leaf beetle larvae, small caterpillars, and many other insects. A third type of predatory bug, the one-fourth-inch-long, black-and-white minute pirate bug, feeds on thrips, mites, and insect eggs. As does another type, the damsel bug. Adults of all four species overwinter in perennial weeds or other yard debris.
- Predacious Ground beetles: Nearly all ground beetles are predaceous, feeding on other insects as well as other invertebrate animals, and are considered to be beneficial. They are most active at night and when disturbed during the day will usually move quickly to find cover rather than fly.
- Tachinid flies: Tachinids parasitize other insects. Extremely beneficial because of their diversity. Adults eat nectar. Grow plants with umbel-type flowers, including carrots, cilantro, dill, coriander, buckwheat, and sweet clover.
- Aphidus Wasps: The immature stage are endoparasites. The adult wasp lays her egg inside a live aphid nymph. The nymph goes about its business until the wasp egg hatches at which point the wasp larva begins to eat the aphid from the inside out. When the aphid nymph finally dies, it forms a mummy: swollen, brown, and hard. The wasp larva then attaches its mummified host to a leaf with a thread of silk, spins a cocoon, and pupates inside its dead host. It eventually leaves a hollowed out aphid mummy with a single exit hole behind.
- Spiders: They are beneficial predators and serve a significant role in keeping populations of many insect pests in check. Spiders are oftentimes the most important biological control of pests in and around homes, yards, gardens, and crops.
- Praying Mantids: They prey on moths, crickets, grasshoppers, aphids, flies… and pretty much anything else they can catch, beneficial insects included.
- Bumblebees: They visit twice as many flowers per minute as honeybees. Bumblebees are still active at relatively low temperatures and low light intensity levels. Even strong wind and drizzle will not keep them from doing their job.
- Orchard Mason Bees: A native North American pollinator that excels at pollinating fruit crops. While a honey bee typically pollinates about five percent of the flowers it visits in a day, it is estimated that a mason bee pollinates ninety five percent. The mason bee also visits more than twice as many flowers every day. You can help attract them by building them simple homes, with removeable nesting holes, in which they can lay their eggs.
- Dragonflies & Damselflies: Nymphs consume huge numbers of mosquitoes and other insects. They are considered beneficial insects as they reduce populations of pest insects in their surrounding environment.
- Butterflies: Butterflies pollinate a wide variety of flowers that open during the day. They frequent big, beautiful, brightly colored blooms. Caterpillars dine on leaves and tissues of host plants.

**Non-insect beneficials**

- Birds and hummingbirds eat a large amount if insects, habitat support is similar when supporting beneficials.
- Frogs/toads are voracious eaters and consume up to 10,000 pests during the garden season. Having frogs/toads take up residence in your garden is a testament that you are doing a good job of balancing

things and maintaining a healthy ecosystem. Avoid using chemicals if you want to attract them.

- Snakes: Eat rodents and other pests. Garter snakes, for example, are one of the major predators of slugs. They need a source of water and a place to hide. Avoid the use of chemicals in the garden.

**Create Habitat so beneficial insects to stay in your garden.**

- **Provide water** such as shallow saucer refilled every few days or with an emitter, a birdbath, a small pond
- **Plant** to provide nectar and pollen. Plant native grasses, forbes, shrubs, native wildflowers and trees.
- Research by a number of scientists across the country demonstrates that native plants support many times the number of native beneficial insects as non-native plants (Xerces Society, Habitat Planning for Beneficial Insects). Hedgerows, beetle banks, cover crops or insectary strips of host plants are beneficial in the landscape or garden. Create a bloom-time which continues throughout the season and incorporate a variety of flower types and shapes to accommodate different sized insects.
- **Provide** an undisturbed habitat area of the yard/garden for them to find shelter and overwinter in, leaf litter works well or an "unkept" area to provide space for hibernation and nesting. Consider Spring garden clean up instead of fall clean up.
- **Employ organic gardening practices** and avoid using all chemicals (organic and synthetic).

Beneficial insects can reduce the need for insecticides. Diverse beneficial insect populations act as insurance against pest outbreaks and the corresponding need for insecticides. With close monitoring of pest and beneficial insect numbers, insecticide use can be reduced, and more targeted insecticides can be used if necessary. Reducing organic and synthetic insecticides can contribute to safer garden ecosystem.

- **Aphid Control:** a strong spray of water to knock them off, invite ladybugs and larvae, lacewings and larvae, leafcutter bee larvae, and hummingbirds to your garden so they can eat the aphids for you.
- **Thrip Control:** Keep plants well irrigated, and avoid excessive applications of nitrogen fertilizer, which may promote higher populations of thrips.

**Increase your tolerance to insects in the garden.** Allow some pests to stay or you will have nothing for the beneficials to eat and no reason for them to take up residence in your garden. Rather than use chemicals to cut down on pests, utilize plants that help repel destructive pests.

**Provide plants for the entire lifecycle of beneficial insects and larvae**

Beneficial insects need nectar, pollen, nesting sites, larval feeding sources and overwintering sites. Many times, those needs are not met with one plant. Utilize some of these easy favorites in your spaces.

- Calendula
- Chervil
- Cilantro
- Lovage
- Cosmos
- Dill (one of our favorites)
- Fennel
- Lavender
- Mexican sunflower
- Parsley

**Mulch and hand weed instead of using herbicides to cut down on weed pests**

Using an organic mulch will help build your soil tilth, maintain moisture and keep weeds down when applied to the correct depth (mulch with a layer at least 3" deep for weed prevention).

Organic Mulch

- Bark: Natural bark mulch insulates roots and holds in water and helps increase soil fertility as it breaks down.
- Coco Bean Hulls: They smell good but must be replaced yearly due to rapid decomposition. DO NOT USE IF YOU HAVE DOGS. Coco bean hulls are not safe for dogs if they consume them.
- Leaf Mulch: Leaves contain around 80% of the tree's nutrients including carbon, potassium, and phosphorus which will nourish the soil as the mulch breaks down. Shred leaves before using them to avoid compaction/matting and starving the soil of oxygen.
- Grass Clippings: Do not use grass clippings treated with any weed killers or pesticides. Do not put down in a thick layer or it will mold and decay.

- Newspaper: Use only the matte finish pages, not the slick glossy ones.
- Straw Mulch: Purchase straw from cereal grains to avoid getting unwanted seeds. Straw mulch helps regulate soil temperature. It can attract unwanted rodents to take up residence. Do not purchase Certified Weed Free Straw which could pass along persistent herbicides to your garden.
- Compost: Compost mulch has benefits of regular mulch as well as extra nutrients for your soil. As the mulch layer breaks down, it introduces structure, nutrients and microorganisms to the soil.

Inorganic Mulch

- Pea gravel: It stifles weed growth and holds moisture, but unlike organic mulches, it does not decompose. Pea gravel is useful in pathways and around containers, trees, and garden beds.
- Pumice rock: Unlike other types of stone mulch, it retains moisture well. Pumice allows plant roots the space they need and will not break down, compress, or decay. It is useful around flower and other perennial garden beds.
- Rubber shreds or pellets (NOT RECOMMENDED): It can actually remain in the soil indefinitely. The heavy metals and other chemicals found in rubber can potentially harm the soil. Rubber mulch is not fire safe. This type of mulch will actually deter beneficials from taking up residence in your garden.

**Idaho Master Gardeners' personal plant favorites that attract beneficials to our garden:**

- Roses
- Penstemons
- Snapdragons
- Oriental lilies
- Milkweed (native for our area)
- Violets
- Veronica
- Fuchsia
- Lavender
- Lobelia
- Scabiosa
- Echinacea (the native variety is best)
- Decorative alliums
- Dill
- Thyme
- Yarrow (the native variety is best)
- Muscari (food source in the spring)
- Nemesia
- Butterfly bush
- Fruit trees
- Lilac
- Japanese silverbell tree
- Rudbeckia
- Raspberries
- Strawberries
- Parsley
- Mint (contained in a planter set on a concrete patio as mint is invasive)
- Hummingbird mint
- Heuchera
- Kinnikinnick (evergreen)
- Aster (fall bloomer)
- Gaillardia
- Oregon grape
- California poppy
- Goldenrod

Always research plants before adding them to your landscape to make sure you have selected the right plant for the right place.

**Helpful books and sources**


Attracting Butterflies & Hummingbirds to Your Backyard: Watch Your Garden Come Alive With Beauty on the Wing (A Rodale Organic Gardening Book) Paperback – October 24, 2002, Sally Roth

Attracting Beneficial Bugs to Your Garden – January 28, 2014, Jessica Walliser

Attracting Native Pollinators: Protecting North America's Bees and Butterflies – Feb 28, 2011, The Xerces Society and Marla Spivak

The Bees in Your Backyard: A Guide to North America's Bees – Nov 24, 2015, Joseph S. Wilson and Olivia J. Messinger Carril

The Organic Gardener's Handbook of Natural Pest and Disease Control: A Complete Guide to Maintaining a Healthy Garden – Feb 2, 2010, Fern Marshall Bradley, Barbara W. Ellis, and Deborah L. Martin

The Ultimate Guide to Backyard Bugs: Garden Insects of North America, Whitney Cranshaw

Habitat Planning for Beneficial Insects, Xerces Society
https://www.xerces.org/wp-content/uploads/2016/10/Habitat-Planning-Beneficial-Insects_Feb2017_web.pdf