

# Battlegrounds in your Backyard

## Conserving Beneficial Insects

*"When we kill off natural enemies of  
insects, we inherit their work"*

C.B. Huffaker

(pioneer in modern biological control)

**F**or almost every pest in Whatcom County, there is an insect that eats it. In fact, almost all of the insects in Whatcom County are either beneficial or benign; very few of the insects here are pests. Beneficial insects are predators and parasitoids of other insects. Utilizing these critters to deal with our pest problems is called **Biological Control**.

Pests are usually problems because they are so prolific and we make matters worse by feeding these pests with our landscape plants. In nature, insects sporadically become a problem because they are regulated by other insects through predation and parasitism. However, our back yards can be very different. Many of our gardening practices deter or even kill these good guys, resulting in a lot of pest problems. Beneficial insects can make our lives easier; let's help them by making their lives easier in return.

- **Use pesticides judiciously.** Only use pesticides when they are appropriate.
- **Use insecticides sparingly.** Target the pest problems and do not treat plants or areas that are pest-problem free. Many insecticides will kill beneficial insects too.
- **Use pesticide alternatives.** Try other management tactics to solve your pest problems such as handpicking pests and using pest-resistant plants.
- **Use 'soft' insecticides.** Some insecticides do less damage to beneficial insects, such as horticultural oils, insecticidal soaps, and *Bacillus thuringiensis* (Bt).
- **Decrease all pesticide usage.** Some fungicides (chemicals that kill plant diseases) and herbicides (chemicals that kill weeds) can be harmful to beneficial insects too.
- **Tolerate some pests.** Without anything to eat, all your beneficial insects will leave. Your plants can tolerate some pest damage, you can too!
- **Feed your beneficial insects.** Many beneficial insects require food from flower nectar and pollen. Provide a variety of flower sizes and colors throughout the whole growing season. Most of these bugs are tiny, so small flowers like umbels can be very attractive.
- **Grow healthy plants.** Did you know that a healthy plant actually recruits beneficial insects? When pests attack a healthy plant, the plant produces odors that are attractive to beneficial insects.
- **Know your enemies and allies.** Most importantly, learn how to recognize the insects in your yard. Become familiar with the good, the bad and the just plain bugly...

# Predators

Much like lions and wolves, insect predators eat a lot. Insect predators require multiple meals to complete their life cycle. Some predators only feed on insects in the immature stage and the adult feeds on pollen and nectar from flowers while some eat bugs through out their whole life. For example, lady beetles eat aphids in both stages while hover flies only eat aphids in the immature stages and the adults drink nectar. As with most predators, insect predators will eat just about anything and sometimes each other! Insect predators are considered 'generalists' meaning that anything that fits in their mouths are fair game.

## Predatory Mites

These guys are not insects but are closely related to spiders. Predatory mites are very tiny mites (1mm), usually found running swiftly around leaf surfaces. Their teardrop-shaped bodies are generally clear to cream to white in color. Predatory mites mainly target mites, but they will also feed on thrips, small insect larvae and eggs. Predatory mites can feed on flower pollen when spider mites are sparse. Select plant varieties that produce fine pollen in spring and mid-summer.



Photo courtesy E. Beers



Photo courtesy K. Grey

## Spiders

Spiders come in all shapes, sizes and colors. Some build webs, others hang out in flowers or on leaves. All spiders enjoy feeding on insects so tolerate webs and encourage spiders to stay where they will not bother you.

## Minute Pirate Bugs

Minute Pirate Bugs are very small (about 1/8") and fast moving. They are oval shaped and black with white triangles on the wings. Minute pirate bugs feed as adults and immatures by piercing prey with their needle like mouth and sucking the juices. Minute pirate bugs feed on thrips, spider mites, insect eggs, aphids, and small caterpillars.



Photo courtesy K. Grey



Photo courtesy K. Grey

## Damsel Bugs

Damsel bugs are slender and 1/4-1/2" long. Damsel bugs are generally tan to light brown and have a piercing-sucking mouthpart. Damsel bugs feed on caterpillars, soft insects, aphids, and insect eggs. They can be found in heads of flowers waiting for prey or on plant foliage.



### Big-Eyed Bugs

Just as their name implies, big-eyed bugs have large bulbous eyes. These bugs are small (about 3/16"), oval and have a broad head. As all true bugs, they feed with needle like mouths and suck the fluids from their prey. Prey include anything small and soft like insect eggs, small caterpillars, whiteflies, aphids and spider mites.

Photo courtesy K. Grey

### Lacewings

Lacewing larvae resemble little brown alligators with big sickle-like mouthparts. Adults have intricate veins in their wings and long thread-like antennae. Adult lacewings come in two different colors, green and brown. Brown lacewings are active in the spring and green are more common in summer. Both kinds feed on caterpillars and soft-bodied insects like aphids.



Photo courtesy K. Grey



### Lady Beetles

Adult lady beetles are circular to oval beetles. Ladybugs range from red to orange to black with spots. Ladybug larvae look like tiny alligators with six legs. Many times they are colored with black or dark purple and white/yellow or orange stripes. Both adults and immatures feed on any soft-bodied insect or egg that can fit into their mouths such as aphids, scales, adelgids, insect eggs, and small caterpillars. In a lady beetles lifetime, one may consume more than a thousand aphids!



Photo courtesy K. Grey

### Rove Beetles

Rove beetles are slender, fast moving beetles. Their most distinguishing character is the short wing covers. Rove beetles are predacious as larvae and adults. These beetles are effective at searching and eating insects that dwell in ground cover and soil.



Photo courtesy K. Grey



Photo courtesy K. Grey

### **Predacious Ground Beetles**

Adult ground beetles are very fast moving, with slender legs and can be seen foraging in ground litter and lawns. Ground beetles are generally shiny to metallic in color with large, intimidating mouthparts. Larvae are long and worm-like with six legs and an armored body. Ground beetles feed on any insect items that are in the soil or at ground level. Some species here even feed on slugs!

### **Hover Flies**

Adult hover flies look very similar to bees and wasps with yellow and black stripes. As with all flies, hover flies can be distinguished from bees by having only one pair of wings and no stinger. Larvae of hover flies look much like the maggots you find in your garbage, but usually colored bright green and yellow.

Slow moving and soft-bodied insects like aphids are the prey of hover fly larvae. Maggots can be found feeding in aphid colonies on the undersides of leaves. Adult hover flies feed on aphid honeydew and flower nectar.



Photo courtesy K. Grey (top) T. Murray (Bottom)

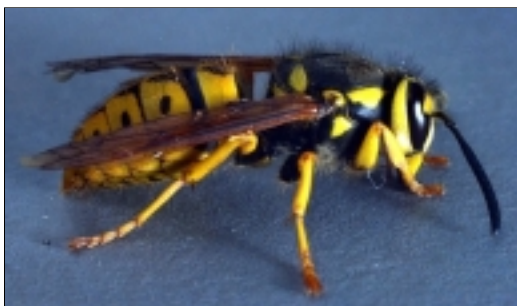


Photo courtesy K. Grey

### **Yellow Jackets**

Yellow jackets generally have the typical warning colors of a stinging insect, yellow and black striped along their body. Yellow jackets have 2 pairs of wings and a 'stinger' at the end of the abdomen. Wasps are voracious predators of beetles, grubs, crane flies, and caterpillars. A nest near your garden can assure you of bug free vegetables! Tolerate a nest if it is not causing a threat to you or your family.

# Parasitoids

Adult parasitoids feed on nectar although there are a few that act as predators and eat insects. Adults insert an egg into or on their host. The egg hatches and the young larvae start to feed on the host until it is entirely consumed. Many times, the larva will pupate inside the host, causing the host to become 'mummified.' The adult will emerge from the pupa and do the whole thing over again. Parasitoids are different than predators because they generally only kill one insect in their lifetime. Each parasitoid species is very specific in the kinds of insects they will attack. Additionally, parasitoids usually require a specific host stage to lay their eggs in. Parasitoids are considered 'specialists' meaning that they can only attack a certain kind of insect host.

## Tachinid Flies

Tachinid flies look much like a common house fly but very hairy and bristly. Tachinid fly larvae are common parasitoids of caterpillars. Adult flies can be found frequenting flowers.



Photo courtesy K. Grey



Photo courtesy K. Grey

## Aphid Wasps

Aphid wasps are very small, gnat-like insects that parasitize aphids. The presence of aphid mummies (see picture) is a great sign that you have aphid wasps. Adult aphid wasps feed on nectar and honeydew and are attracted to small flowers.

## Trichogramma Wasps

These wasps are extremely small, most are less than a millimeter. Even though they are small, they still look like a wasp with two pairs of wings and a stinger used to deposit eggs in other insect eggs. Like other parasitoid wasps, Trichogramma adults feed on nectar.



Photo courtesy K. Breedveld



Photo courtesy K. Grey

## Ichneumonid Wasps

Ichneumonid wasps are generally dark colored but can be red or tan. These wasps range in size from 1/2" to 1 1/2". There are many kinds of Ichneumonid wasps and they attack many kinds of insect groups such as caterpillars, beetle grubs, fly maggots and grasshoppers.



Photo courtesy S. Fitzpatrick

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