

Who Are the Good Guys Anyway?

Part 2 of a 2 Part Series

by April LaLande

In last month's article we introduced you to the idea of Integrated Pest Management. In this issue we continue to take a look at pest management by examining the natural predators of some common pests.

When it comes to "good" insects, bees are always brought up – everyone knows the honey bee is a good bug; we wouldn't have much food without its work pollinating, not too mention honey and beeswax, but what about some other insects?

Although wasps can be a bit intimidating, most types rarely sting and they eat a *lot* of pests. Paper wasp nests are inhabited for just a short time, stay small, and rarely pose a danger although they are frequently seen on dwellings (they have exposed holes and sometimes look like an umbrella). Even the dreaded yellow jacket consumes a good number of bugs in its life and can't be considered all bad – although it *will sting* unprovoked, unlike its look-alike the paper wasp.



It is a good idea to use biological traps around houses and buildings if you have yellow jackets, to deter nesting; unlike paper wasps, their nests will get very large. If you put your traps out early, you may get lucky and catch the queen – no queen, no nest! Also, yellow jackets get hungrier as the season goes on and besides being very indiscriminate about whom they bite; they also fiercely protect their nests. Ground nests are particularly dangerous. But remember, please do not try to remove *any* nest during daylight hours. If you need to spray a nest, wait until night when the yellow jackets are all inside. This will help you to avoid getting stung. There are many effective, "environmental" sprays that will not harm soils or other creatures but are very effective on yellow jackets. At the end of this article are some great links to learn more about bees, hornets and wasps.

Late spring and summers brings the colorful dragonflies, along with many of the insects pictured below. There is a virtual army of bugs, just waiting for the right time to help around the yard – Happy bug watching!

Beneficial Insects

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In the grand scheme of things, most insects are beneficial in natural ecosystems. As we grow crops and plant gardens and ornamentals at home, we find that certain insects compete with us or feed on these plants and are thus deemed pests. There are several insects that prey on or parasitize these pest insects and these are the ones we will feature in this section. We have chosen the most common ones or featured an insect that closely resembles it.

Predators

Predatory insects can be general (feed on many species) or specific (feed on only one or a few species). Many of the most common ones are represented here.



Preying mantis

Preying mantis are general predators that catch and feed on moving insects. They are very interesting creatures to watch but probably play a minor role in controlling pest insects.



Big eyed bug

Big eyed bug adults are about 3/16" long and greyish brown. They feed with sucking mouthparts and consume the internal body organs of a variety of insect species. They get their name from large, kidney shaped, reddish brown eyes on the transverse head.



Big eyed bug nymph

Immature big eyed bugs look like the adults except they have no wings and are lighter with irregular spots or patterns on the back.



Damsel bug adult

These general predators are slender greyish or tan insects about 3/8" long. They have sucking mouthparts and feed on many different hosts. This insect is very common in Idaho and the Pacific Northwest. The head is elongated.



Damsel bug nymph

Young damsel bugs look like the adults. Wing pads develop and get larger as the immature approaches the adult stage.



Assassin bugs

There are many types of assassin bugs in Idaho and the Pacific Northwest. They are general feeders with sucking mouthparts. The head is very narrow and long and the beak is usually fairly pronounced and easy to see. The abdomen extends laterally beyond the wings. They will also readily bite people.



Minute pirate bug

These general predators have a distinct black color with a white triangle on each side of the wings. They are about 1/16" long and also have sucking mouthparts. These are effective predators on thrips and mites.



Minute pirate bug nymph

The immature stage of the minute pirate bug is orange to amber and dark body contents can be seen through the skin.



Two spotted stink bug adult

Several stink bugs are predatory and feed on insects with their sucking mouthparts. A common one in the Pacific Northwest, the two spotted stink bug feeds on larvae of the Colorado potato beetle. Nymphs are colored like adult stink bugs but are shaped like ladybeetle adults without wings.



Green lacewing adult

These adults are around 1/2 to 3/4" long with golden eyes. They are attracted to lights at night. Some green lacewing adults feed on aphid honeydew and plant liquids and others are predacious.



Brown lacewing adult

Smaller than the green lacewing, brown lacewings are also found in Idaho but are not as abundant. These adults will feed on aphids.



Lacewing eggs

Eggs of some lacewings are laid on threadlike stalks to prevent cannibalism among newly hatched larvae. They are usually laid in clusters and easily found on leaf surfaces. Some species lay single eggs without stalks.



Lacewing larva

Lacewing larvae pierce the skin of their prey with two large sickle shaped jaws. They use them to inject saliva and suck out liquified host body contents. Mature larvae are about 1/3" long. Aphids are the preferred food for lacewings. They will eat several hundred during their development.



Ladybeetle eggs

Most ladybeetle eggs are in small clusters and can be found on the undersides of leaves. They are usually orange and stand upright from the leaf surface.



Convergent ladybeetle larva

Larvae of many lady beetles are alligator shaped, black and orange, and have chewing mouthparts. Aphids are the preferred food but they will consume other insects.



Scymnus ladybeetle larva

Not all ladybeetle larvae look like the common ones. Many are smaller, have coatings, etc. like this Scymnus larva. These ladybeetles often feed on mites, thrips, and prey other than aphids.



Ladybeetle pupa

Once the ladybeetle larvae mature they pupate like all beetles. Ladybeetle pupae generally attach to plant stems, posts, or other suitable place. They are commonly found in crops where large aphid populations once existed.



Lady beetle adults

There are about 80 species of lady beetles in Idaho. The more common ones in Idaho are the two spotted, seven spotted and convergent ladybeetles. The smaller black one is Scymnus and represents many of the not so obvious species.



Collops adult

Collops beetles are general predators with chewing mouthparts. The two spotted collops pictured here is common in Idaho and the Pacific Northwest.



Predacious ground beetle adult

There are many species of these fast moving ground beetles that prey on other insects. They are general predators and vary in size and color. Most are black and the head is narrower than the thorax which is narrower than the wings.



Predacious ground beetle larva

Immature ground beetles are generally black or reddish brown. They are characterized by having the chewing mouthparts sticking out in front of the head. Many have two flexible short tails on the posterior end.



Predacious mites

There are many species of mites that prey on pest spider mites. The beneficial mites are usually clear colored (red, yellow, etc.) and have large piercing mouthparts. Many can be purchased for release into field and home situations.



Syrphid fly adult

These common flies that hover over flowers are beneficial for pollination and the larvae feed on aphids. Many of these flies mimic wasps or bees.



Syrphid fly larva

Syrphid larvae are lumpy, greenish or tan maggots. They feed on aphids and can be found in trees and in crops.



Crab spider

Crab spiders are but one of several kinds of spiders found in fields and homes. Wolf and jumping spiders are also very common. They are general feeders and consume many harmful insects as well as good ones. See the spider section of these Insect I.D. guides for more spider pictures.

Parasitoids

Insects that develop in or on only one insect host are called parasitoids. Predators feed on and destroy several hosts during their development but parasitoids generally have one offspring develop in a single host insect. An adult parasitoid will seek out and lay eggs on or sting many single hosts, however.



Aphid parasites

Many wasps of the family Braconidae parasitize aphids. They are generally slender and 1/4" or less in size. Color of the adults can be quite variable.



Parasitized aphid

The larva of the wasp develops inside the aphid killing the aphid by consuming its internal organs. Parasitized aphids become immobile, change colors and are called "mummies".



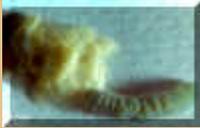
Aphid mummies

Mummies of parasitized aphids are generally bronze colored. They can also be brown, tan or black.



Caterpillar parasites

Many wasps like this one parasitize caterpillars. Many are host specific while others have several hosts.



Parasitized alfalfa caterpillar

In the field you can find alfalfa caterpillars with several yellow cocoons by them. The cocoons are those of the parasitic wasp.



Cocoon on leaf

Here you see a parasite cocoon on an alfalfa leaf.



Alfalfa weevil parasite adult

A common *braconid* parasite found in alfalfa fields is *Bathyplectes*. The adult lays an egg in the alfalfa weevil larva and the wasp larva consumes the organs of the weevil larva.



Alfalfa weevil pupa

The pupa of *Bathyplectes* is easy to tell from the pupae of the alfalfa weevil. The wasp pupa is reddish brown, football shaped, and has a white stripe around the middle.



Cereal leaf beetle parasite

Another wasp parasitizes larvae of cereal leaf beetle. This wasp has been introduced wherever the beetle is a pest and the wasp has successfully reduced beetle populations.



Tachinid fly

Many flies of the family *Tachinidae* parasitize pest insects. Caterpillars, beetle larvae, and sawflies are preferred hosts.



Tachinid eggs

Tachinid flies generally lay their eggs on the outside of the host. The egg hatches and the larva penetrates inside the host where it consumes the body contents.



Trichogramma

These minute wasps attack insect eggs. Moth eggs are common hosts. They lay their eggs in the moth egg and the wasp larva develops instead of the caterpillar. There are many species of *Trichogramma* and some prefer one host over another. Many are available to purchase.



Caterpillar egg mass

Here you see an egg mass of healthy caterpillar eggs.



Parasitized eggs

These caterpillar eggs have been parasitized by *Trichogramma*. The black color is typical of this type of attack.

