

NATURAL ENEMIES OF AG/LANDSCAPE PESTS

Natural enemies account for a large amount of pest control, and include predators and parasites. In native habitats, natural enemies can regulate pest populations to prevent serious outbreaks. In agricultural situations, beneficials should be realized as one important role in IPM for managing pests. This article includes just a few examples of beneficials in Utah.

Encourage natural enemies by:

- planting sources of nectar and pollen
- spray pesticides only when necessary, and choose selective (rather than broad-spectrum) products
- increase plant diversity

Lady Beetles

Lady beetles (ladybugs, ladybird beetles) are important predators of mites and soft bodied insects such as aphids, scale crawlers, and mealybugs. Adults can consume 100 aphids per day. When prey is scarce, they survive on pollen, nectar, or insect honeydew.



lady
beetle
eggs



lady
beetle
larva

Most lady beetles overwinter as adults in protected sites, and the development of eggs to larvae to pupa to adults takes 3-6 weeks and occurs many times in one season.



lady
beetle
pupa



cream spotted
lady beetle, *Calvia
quatuordecimguttata*



multi-colored
Asian lady beetle,
Harmonia axyridis

Beneficial Insects, continued from previous page



Chilocorus
lady beetle
species

Lacewings

Lacewings (both brown and green) feed on mites, caterpillars, leafhoppers, aphids, mealybugs, psyllids, whiteflies, and insect eggs. The larval stage is the most predaceous, as adults also feed on nectar and pollen.



lacewing eggs



brown
lacewing
larva



adult
brown
lacewing

Syrphid Fly

Syrphid flies, also called hover flies, resemble honey bees in their coloring, but have only one pair of wings. Adults eat nectar and pollen, but larvae feed almost exclusively on insects, primarily aphids. They have several generations per season, but are not as abundant in very hot weather.

[Click here](#) to check out this video of a syrphid fly larva eating an aphid.



syrphid fly
larva eating
woolly apple
aphids



syrphid fly
adult

Minute Pirate Bug

Minute pirate bugs (genus *Orius*) are one of several true bugs (bigeyed bugs, assassin bugs) that feed on aphids, mites, thrips, small caterpillars, and insect eggs. They are most common



minute
pirate bug
adult

Beneficial Insects, continued from previous page

in field crops. This is one of the first predators to appear in spring. They are successful predators because the time from egg to adult is very quick—just 3 weeks—and they have many generations per season.



minute
pirate
bug
nymph
eating
a spider
mite

Praying Mantid

We all know what mantids look like: that alien head and those grasping (praying) forelegs. They have no discretion in their diet, feeding on beneficial insects as well as pests, and also eating each other. You may see them at flowers, waiting for visiting pollinators. They are not considered an important natural enemy in agricultural pest management.



mantid
egg
case



mantid adult

Predatory Thrips

Many species of thrips are pests of crops, but some are important predators of aphids, mites, and other thrips. The western flower thrips larvae, which can cause plant damage, also feed on spider mite eggs. Examples of other predatory thrips are the black hunter thrips and sixspotted thrips.



Banded thrips,
*Aeolothrips
fasciatus*

Predatory Mites

Several predatory mites help to prevent mite outbreaks in healthy ecosystems. Predaceous mites have long legs, and a shiny, pear-shaped body that is often translucent. They are easy to identify in that they move quickly through the prey colony. Spider mites are slow-moving, and have a rounder, smaller body.



The western
predatory mite
(*Typhlodromus
occidentalis*)
is one natural
enemy that is
effective when
released onto
outdoor crops.

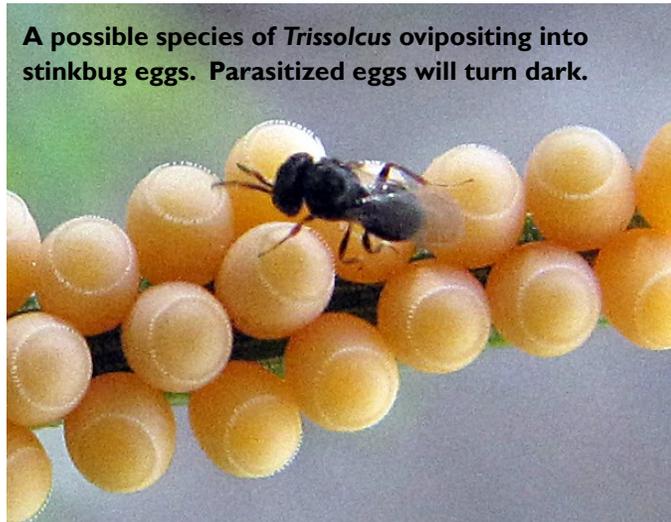


This *Balaustrum*
species of mite
is a generalist
predator.

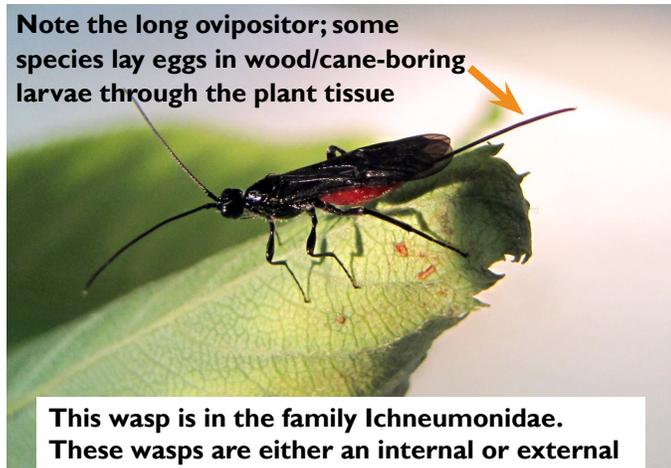
Beneficial Insects, continued from previous page

Parasitic Wasps

There are thousands of species of parasitic wasps, attacking eggs, larvae, and pupae of almost all species of insects. In general, the adult wasp lays her eggs inside or on the chosen insect's life stage, and the wasp develops to an adult, feeding on the host body. One of the most well known egg parasitoids is the tiny *Trichogramma*, which parasitizes eggs of hundreds of species of insects including moths and butterflies.



A possible species of *Trissolcus* ovipositing into stinkbug eggs. Parasitized eggs will turn dark.



Note the long ovipositor; some species lay eggs in wood/cane-boring larvae through the plant tissue

This wasp is in the family Ichneumonidae. These wasps are either an internal or external parasite of larvae or pupae of beetles, caterpillars, and other wasps.



A raspberry grower found several raspberry horntail larvae parasitized by both internal and external parasites. See arrows.

James Frisby, USU



Aphids that are big and puffy have been parasitized by a wasp that lays her eggs inside the living aphid. The adult wasp chews a hole through the "mummified" aphid to exit. Mummies can be black (parasitized by aphelinids) or tan (parasitized by aphidiids).

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