

# Natural Enemies in the Orchard Guide:

## *Key features to focus on for identification*

### Green Lacewings (Chrysopids)

**Genera:** *Chrysoperla* and *Chrysopa*

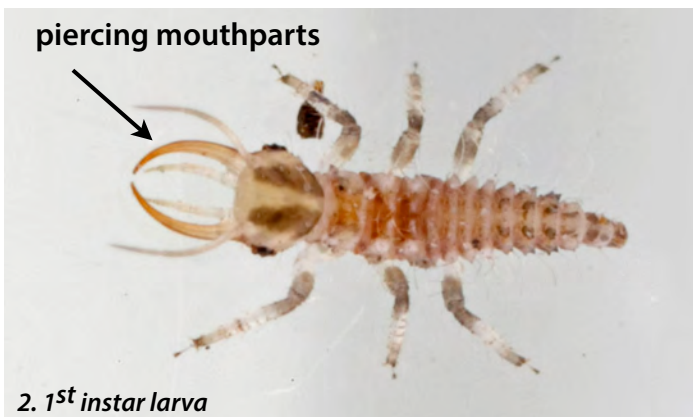
**Prey:** aphid, mealybugs and other soft bodied insects including caterpillars

**Eggs:** Eggs are oval and are attached to the plant by a thin stalk. They are pale green in color when first laid but may become greyish with age. They may be found alone or in groups.

**Larvae:** Lacewing larvae have an elongate “alligator-like” body. Newly hatched larvae are only about 1 mm in length, but grow to 8 mm long before spinning a spherical cocoon and pupating. The key distinguishing feature separating these from other larvae is the large pincher-like mouthparts used for piercing their prey.



1. Lacewing eggs



2. 1<sup>st</sup> instar larva



3. 4<sup>th</sup> instar larva



4. Adult green lacewing

**Adults:** Adults are pale green with lace-like wings and long slender antennae. The two predominate green lacewing in North America are *Chrysoperla* spp. and *Chrysopa* spp. In general, *Chrysoperla* species are smaller than *Chrysopa* species found in western orchards and have markings such as a yellow strip on their upper body just behind their head.

5. Lacewing pupa (adult already emerged)





# Syrphid Flies (Syrphidae)

**AKA:** *Hover fly, Flower fly, Bee fly*

**Prey:** aphids and small, soft-bodied insects

**Eggs:** (#6) Eggs are laid singly on their side near aphids or within aphid colonies. Each whitish to gray oblong egg is about 1 mm in length.

**Larvae:** (#7) There are 3 larval stages, all of which are predaceous. Syrphids are flies so the larvae are legless and maggot shaped. The color and pattern varies, but most have a yellow stripe down the back. Their size varies from 1 to 13 mm, depending on age and species. They are distinguishable from caterpillars by their tapered head, lack of legs, and opaque skin, making their organs visible. Pupae (#8) are pear-shaped and green to dark brown in color.

### Adults:

Often resemble bees with yellow or white markings on a black abdomen. Unlike bees, Syrphids only have two flight wings. Syrphid flies also have two very short antennae that extend from between their eyes. Several examples are shown below.



6. *Syrphid eggs with aphids*



7. *Larva feeding on aphid*



8. *Pupa*

9. *Eupeodes volucris*



Only 1 pair of flight wings.



10. *Eupeodes americanus*



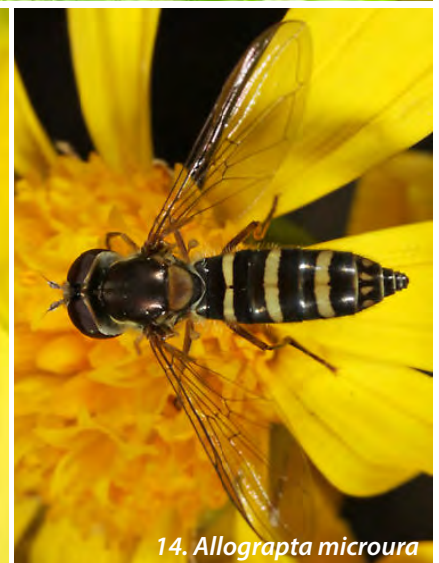
11. *Scaeva pyrastris*



12. *Toxomerus marginatus*



13. *Eupeodes volucris*



14. *Allograpta microua*



# Lady Bird Beetles (*Coccinellids*)

**Prey:** aphids, mealybugs, other small soft bodied insects; *Stethorus* spp. are known for eating spider mites.

**Eggs:** (#15) Spherical, yellow and laid in groups of 10-50 on plants near prey.

**Larvae:** (#16-17) Six-legged with elongate bodies, no obvious mouthparts, small heads. Newly hatched larvae are gray or black. Later stage larvae may be gray, black or dark blue and may have orange or yellow markings on their backs. Larvae pupate near feeding sites (18).

**Adults:** Oval to round body shape. Many common lady beetles are red to red-orange in color often with black spots but not always. Some common lady beetles in western orchards are shown below.

*Adalia bipunctata* (#19) Round, red species with two black spots on the wings.

*Hippodamia convergens* (#20) Wings have 0-13 black spots of various sizes. This species has two white lines that converge on the prothorax.

*Coccinella septempunctata* (#21) Very round beetle, generally larger in size than #19 & #21. There are 7 black spots on the wings, with 3 on each side and one larger spot at the top where the wings meet.



15. *Coccinellid* eggs



16. *Coccinellid* larvae hatching



18. Pupa (top) and empty pupal case (bottom)



17. Late instar larva



19. *Adalia bipunctata*, "twospotted lady beetle"

*Cycloneda polita* (#22) Round beetle, shiny red in color with no black spots. Circular white markings on pro-thorax.



20. *Hippodamia convergens*, "convergent lady beetle"



21. *Coccinella septempunctata*, "seven-spotted lady beetle"



22. *Cycloneda polita*, "Polished lady beetle"

white circle markings



## Black Lady Bird Beetles (Coccinellids)

**Genus:** *Stethorus*

**Prey:** aphid, mealybugs and other soft bodied insects including caterpillars

**Adult:** *Stethorus* spp. (“Spider mite destroyer,” #22) Very small lady beetle that specialize in preying on spider mites. Adults are all black with no spots and fine white hairs. Larvae also look different from your common lady beetle. They resemble a bottle brush with no visible legs.



## Parasitic wasp (*Trechnities*)

**Host:** pear psylla

**Mummies:** (#23) The wasp inserts an egg into a psylla. As the parasitic larva develops inside, the host appears bloated and stops feeding. Parasitized individuals are called mummies.

**Adults:** (#24) Adults are about 1 mm long and are predominately black with yellow legs and has a distinctive iridescent blue patch on its back.

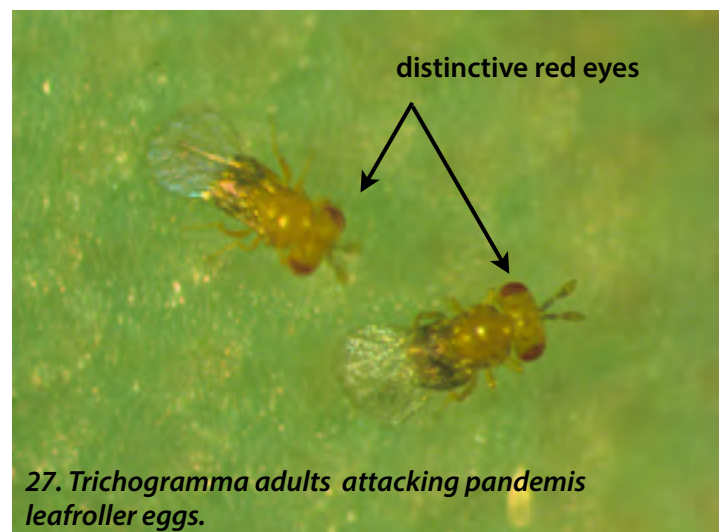


## Parasitic wasp (*Trichogrammids*)

**Host:** varies insect eggs, depending on wasp species

**Larvae:** Larvae and pupae develop within the host egg.

**Adults:** (#25) Adults are yellow with red eyes and are very tiny (1mm or smaller). The female deposits her egg into a host egg.



## True Bugs (Mirids)

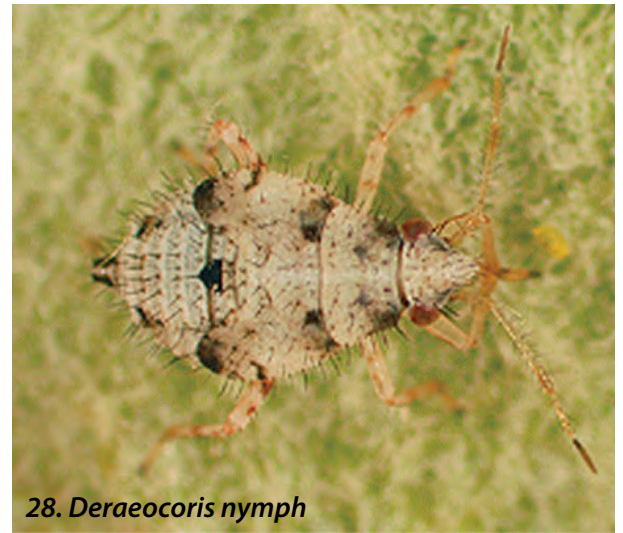
### *Deraeocoris brevis*

**Prey:** Adults and nymphs feed on many hosts including spider mites, aphids, leafhoppers, and scale insects.

**Eggs:** (not pictured) Eggs are elongate and inserted into plant tissue with only a small portion visible.

**Immature (nymph):** (#28) Nymphs are mottled whitish gray with long darker gray hairs on the thorax and abdomen. They have a cottony-looking secretion covering much of their body.

**Adult:** (#29) Adults are shiny black and are only 3-6 mm in length.



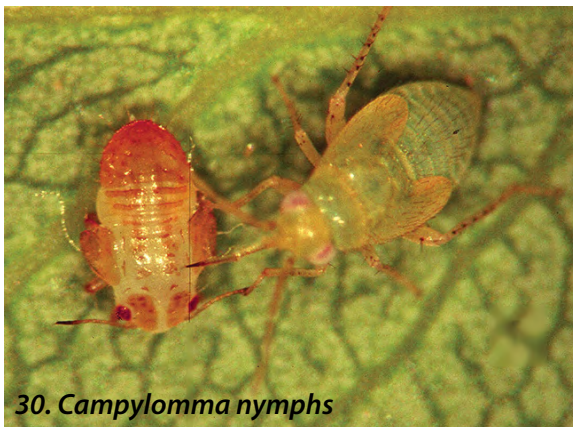
### *Campylomma verbasci* - "Mullein plant bug"

**Prey:** Although typically thought of as a pest, the adults and nymphs also prey on many pests such as aphids, mites and pear psylla.

**Eggs:** Eggs are under 1 mm long and sac-shaped, but only the top portion is visible sticking out of the plant tissue.

**Immature (nymph):** (#30) The nymphs are elongated ovals and are translucent upon hatching, gradually turning a pale green color.

**Adults:** (#31) Adults are green-brown in color and about 2.5 mm long. It has a dark spot on the first antennal segment, black spines on its legs and a dark horizontal line on the thorax.





# European Earwigs (*Forficula auricularia*)

**Prey:** generalist feeders

**Eggs:** Eggs are a pearly white and oval to ellipical in shape. They are usually deposited in the soil in a single cluster of 30 to 60 eggs.

**Immatures:** Ther are four nymphal stages and have the same general appearance as the adults. The body color gradually changes from grayish brown to dark brown.

**Adults:** There is only one generation per year with the adults overwintering. Adults protect the nymphs and tend their eggs.



---

## Image Credits

1. Lacewing eggs. WE Jones, WSU, Wenatchee, WA
2. Lacewing 1st instar larva. J. Berger, bugwood.com
3. Lacewing 3rd instar larva. A. Gadino, WSU, Wenatchee, WA.
4. Lacewing adult. C. Baker, WSU, Wenatchee, WA
5. Lacewing pupa. B. Higbee, UCIPM, bugwood.com
6. Syrphid eggs with aphids. KS Matz, bugguide.net
7. Syrphid larva. A. Gadino, WSU, Wenatchee, WA.
8. Syrphid pupa. B. Moisset, bugguide.net
9. Syrphid adult showing single wing pair
10. Syrphid: *Eupeopes americanus*
11. Syrphid: *Scava pyrastris*
12. Syrphid: *Toxomerus marginatus*
13. Syrphid: *Eupeodes volucris*
14. Syrphid: *Allograpta microura*
15. Coccinellid eggs on pear. WE Jones, WSU, Wenatchee, WA.
16. Coccinellid hatchlings. WE Jones, WSU, Wenatchee, WA.
17. *Coccinella septempunctata* late instar larva. R. Ottens, Univ. GA. bugwood.com
18. Coccinellid pupae. WE Jones, WSU, Wenatchee, WA.
19. *Adalia punctata*, “twospotted lady beetle.” E. Beers, WSU, Wenatchee, WA.
20. *Hippodamia convergens*, “convergent lady beetle”. WE Jones, WSU, Wenatchee, WA.
21. *Coccinella septempunctata*, “seven-spotted lady beetle.” WE Jones, WSU, Wenatchee, WA.
22. *Cycloneda polita*, “Polished lady beetle.” E. Beers, WSU, Wenaatchee, WA.
23. Stethorus larva. E. Beers, WSU, Wenaatchee, WA.
24. Stethorus adult. E. Beers, WSU, Wenaatchee, WA.
25. Pear psylla “mummy.” E. Beers, WSU, Wenaatchee, WA.
26. Trichnites adult. E. Beers, WSU, Wenaatchee, WA.
27. Trichogramma adults attacking pandemis eggs. E. Beers, WSU, Wenaatchee, WA.
28. Deraeocorus nymph. E. Beers, WSU, Wenaatchee, WA.
29. Deraeocorus adult. C. Baker, WSU, Wenaatchee, WA.
30. Campylomma nymphs. B. Higbee, UCIPM, bugwood.com
31. Campylomma adult. B. Higbee, UCIPM, bugwood.com
32. Adult and immature earwigs. JF Brunner, WSU, Wenaatchee, WA.
33. Adult earwig waiting to ambush prey. JF Brunner, WSU, Wenaatchee, WA.