

Lepidoptera

Butterflies & Moths

Lepido = scale; ptera = wings

Lepidoptera

Butterflies & moths

- Scaly wings
- 2 pair of wings
 - both pairs covered in scales
- Chewing / sucking mouthparts
- Complete metamorphosis
- Pests



Imported cabbage worm
butterfly - lays its eggs
primarily on cole crops

Adult moths of many garden caterpillars

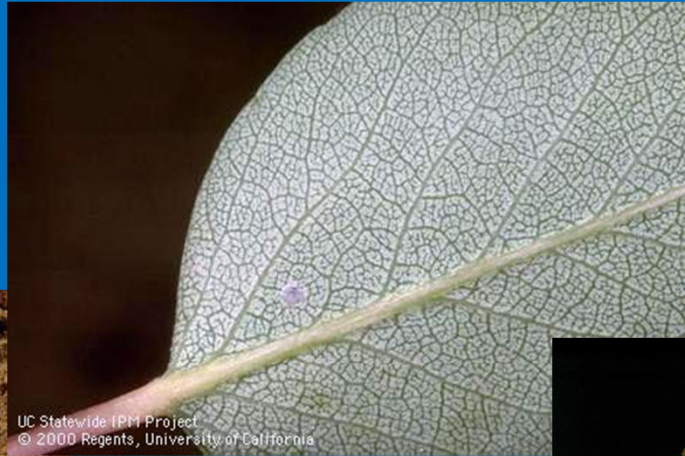


Codling moth

- Serious pest of apples, pears and walnuts



Overwinter as full grown larvae

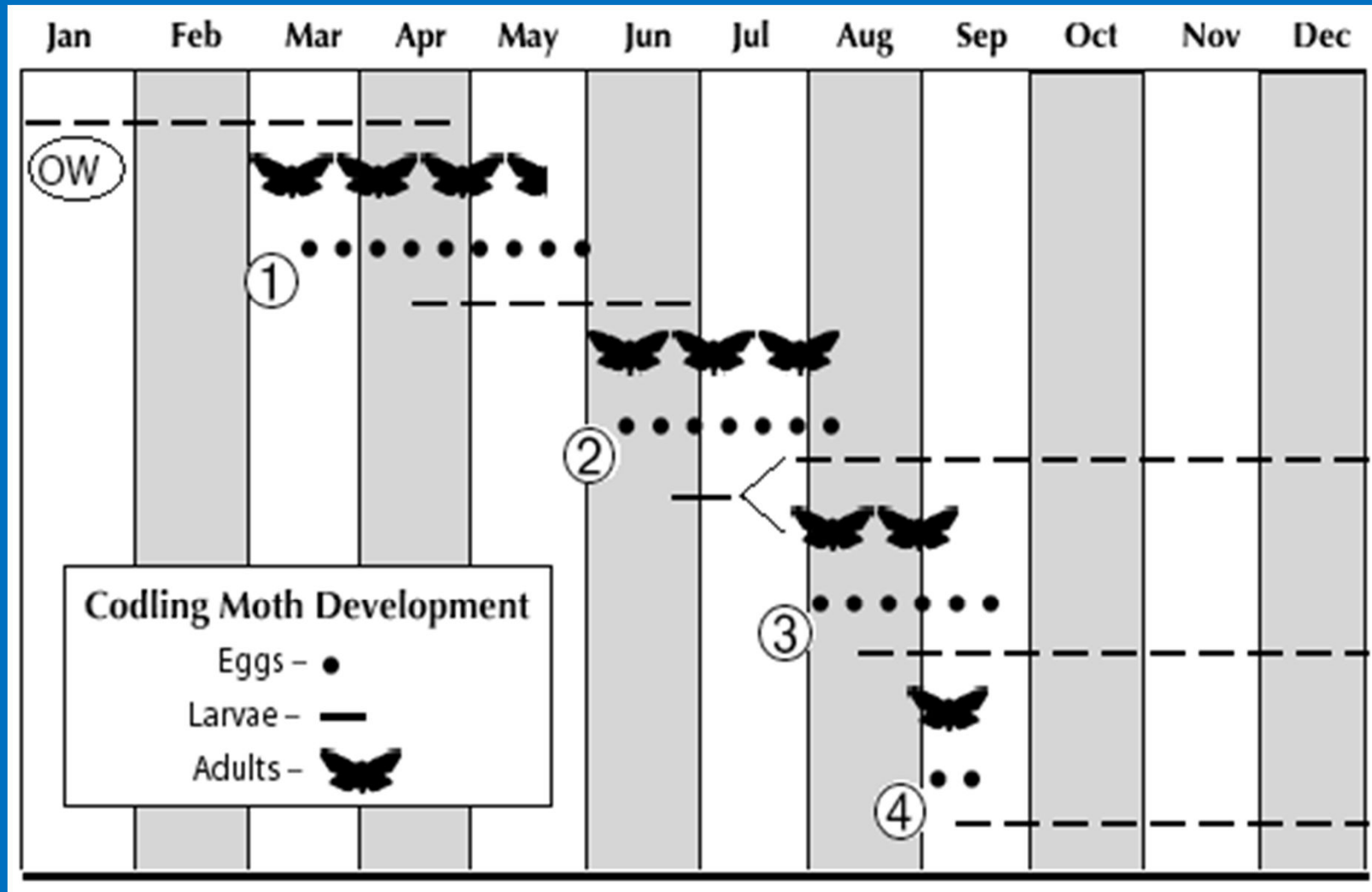


Pupate in soil or bark

Codling moths caught on a sticky trap



Several generations/year



Codling moth larva in apple

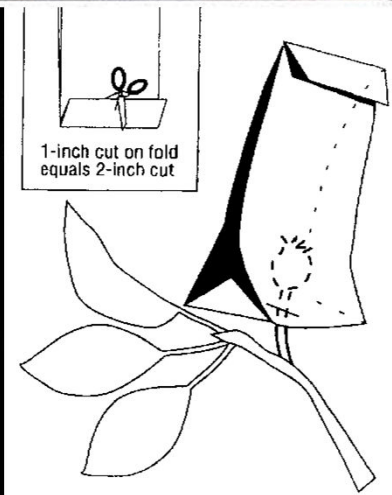
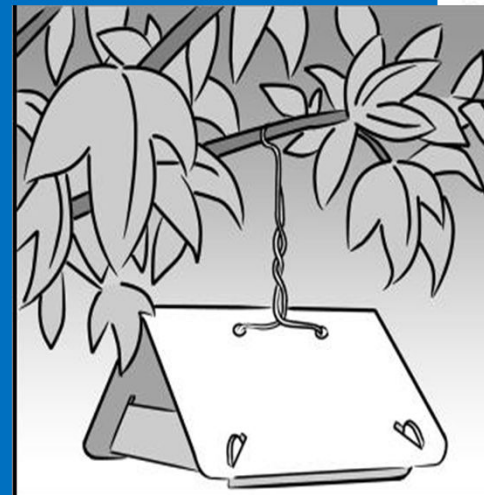


Codling moth larva in walnut



Codling moth management

- Select early maturing apples and pears
- Sanitation – remove infested fruits, clean up dropped fruits
- Mass trapping, trunk banding, fruit bagging
- Pruning trees



Codling moth management

- Insecticides: apply just before or during egg hatching
- Time sprays according to trap catches or degree days calculation
- Spinosad
- Carbaryl
- Oils
- UC IPM website



Hymenoptera

Sawflies, wasps, ants, & bees

Hymeno = god of marriage; ptera = wings

Hymenoptera

Sawflies, ants, wasps, and bees

- Union wings –hamuli: tiny hooks on the hind wings
- 2 pair of wings
 - both pair membranous
 - 2nd pair small
 - some wingless
- Narrow between thorax and abdomen
- Chewing / chewing mouthparts
- Complete metamorphosis
- Most beneficial, some plant feeders, human pests

Argentine ant feeding on honeydew



Wasp



Parasitic wasp



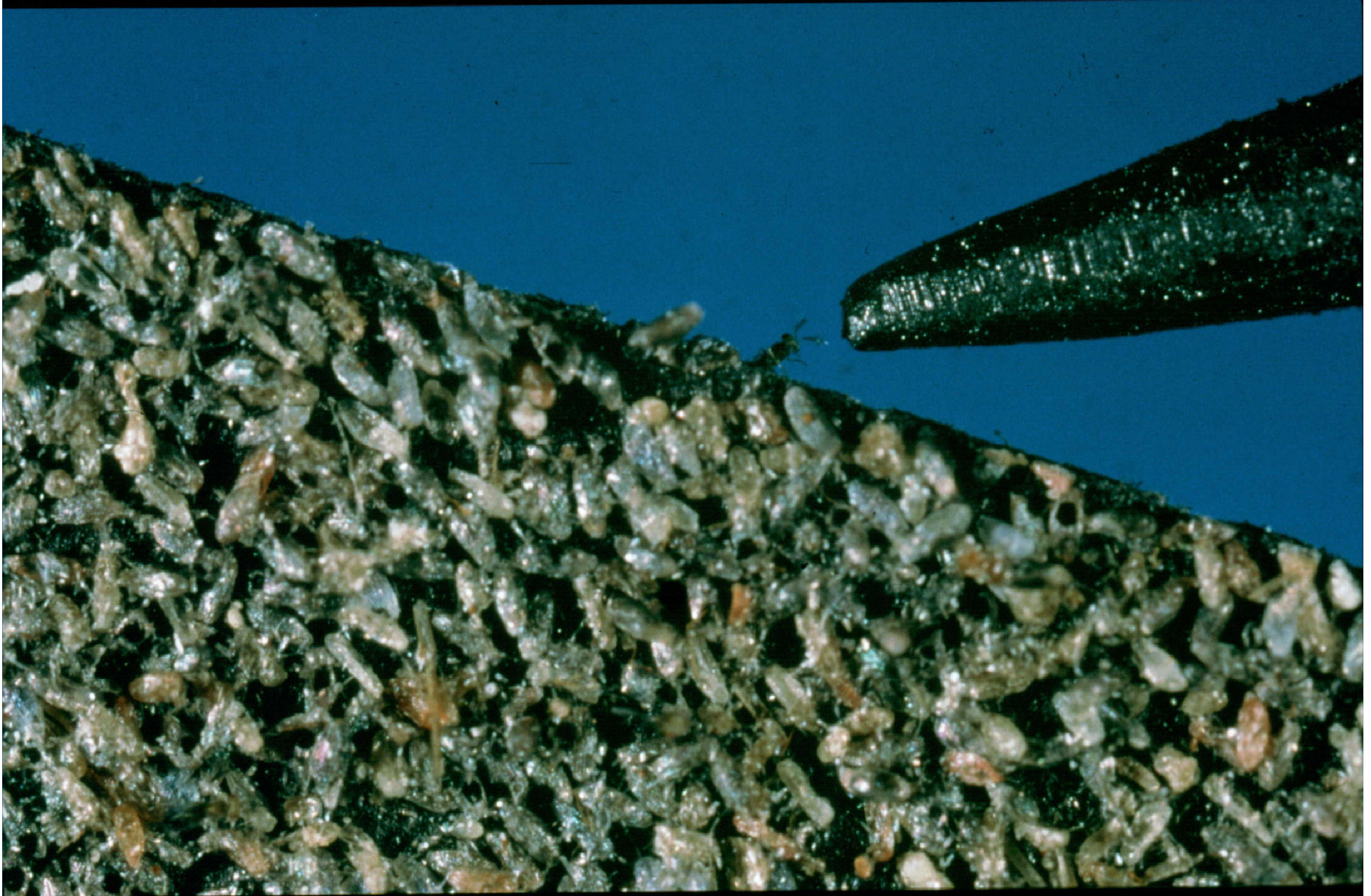
Parasitic wasp larva



Parasitic wasp pupa



Trichogramma parasitic wasp



Parasitic wasp laying an egg in California red scale



Parasitic wasp emergence holes







Adult parasitic wasp and emergence holes from mummified aphids



Resources

- UC IPM Website and its links
- Pest Notes
- MG Books – problems solving tables /diagnosis chapters
- Other books
- Other internet sites
- Entomological Society of America common names website

BROWN RECLUSE AND OTHER RECLUSE SPIDERS

Integrated Pest Management Around the Home and Landscape

If asked to name all the spiders with which they are familiar, most Californians would have a short list: tarantula, black widow, and brown recluse. Tarantulas are well known because of their large, intimidating size and their use in many movies as eight-legged villains. Black widows are very common throughout the state, causing potentially serious injury with their bite. The adult females are easily identifiable by their shiny black body color and red hourglass on the belly. The brown recluse, however, is an enigma: there are no populations of the brown recluse, *Loxosceles reclusa*, in the state and fewer than 20 verified specimens have been collected over several decades in California. Yet in California people frequently relate stories in which they or someone they know was supposedly bitten or they have had a physician diagnose them with a brown recluse spider bite. However, there are several other species of recluse spiders that can occur in southern areas of California and that can cause similar medical concerns. This publication was written to provide science-based information about the status of the brown recluse and other related spiders in California.

COMMON AND SCIENTIFIC

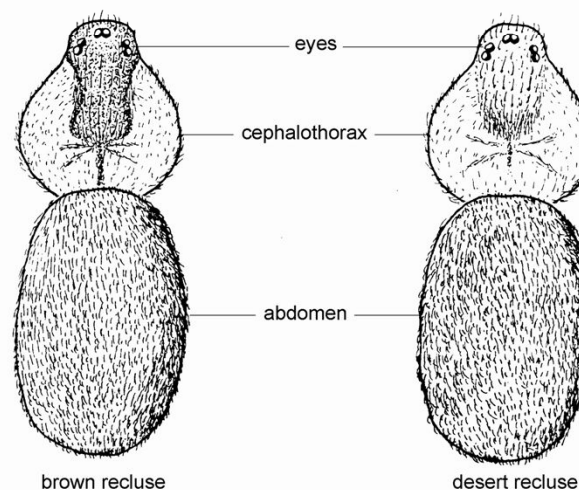


Figure 1. The head region (cephalothorax) and abdomen of a brown recluse, *Loxosceles reclusa* (left), and a desert recluse, *Loxosceles deserta* (right). Note the characteristic spacing of the six eyes arranged in three dyads. The violin marking is well defined on the brown recluse, but is very faint on the desert recluse.

and rhymes somewhat with “isosceles” as in the triangle. Whereas “isosceles” means equal legs, “loxosceles” means slanted legs, referring to the way the spiders hold their legs at rest. All known members of the group have a scientific name, and the more familiar members of this group also have common names (e.g., brown recluse, desert recluse, Arizona recluse).

with a space separating the dyads from one another.

Many publications refer to the violin marking on the dorsal (top) surface of the cephalothorax (head region) as the most important diagnostic feature. Although this marking is fairly consistent in mature brown recluses and Texan recluses (*Loxosceles devia*), it can vary in intensity and sometimes fades in pre-