

Natural Enemies

For more information on all of the featured predator and parasitoids, please visit <http://ipm.ucanr.edu/natural-enemies/natenemiespest.html>.

All photos and captions courtesy of the UC IPM Program.

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Damsel bug



Left to right: Adult damsel bug; Predaceous damsel bug adult (bottom left) and last-stage nymph; Damsel bug early stage nymph. (Photos by Jack Kelly Clark, UC IPM Program).

Assassin bug



Left to right: Adult assassin bug; Eggs of the leafhopper assassin bug; Assassin bug nymph. (Photos by Jack Kelly Clark, UC IPM Program)

Bigeyed bug



Left to right: The predaceous adult of a bigeyed bug; Bigeyed bug nymph feeding on an egg of tobacco budworm or tomato fruitworm; Bigeyed bug egg. (Photos by Jack Kelly Clark, UC IPM Program).

Minute pirate bug



Clockwise from top left: Adult minute pirate bug feeding on an aphid; Eggs of pirate bugs are inserted into leaf tissue. Only their white caps protrude. The yellow egg in this photo is a psyllid egg; Adult pirate bug feeding on a nymph of eucalyptus redgum lerp psyllid; Nymph of minute pirate bug. (Photos by Jack Kelly Clark, UC IPM Program).

Predaceous ground beetles (many species)



Clockwise from top left: Adult predaceous ground beetle, *Tanystoma* (=Agonum) *maculicolle*; Adult predaceous ground beetle, *Calosoma* sp.; Larva of a predatory ground beetle (lower right) and larvae of a masked chafer; Predatory ground beetle larva. (Photos by Jack Kelly Clark, UC IPM Program).

Lady beetles (multiple species)

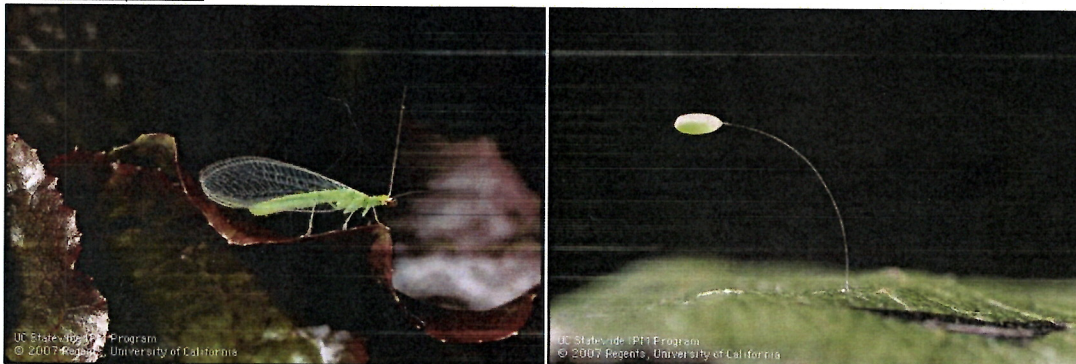


Top row, left to right: Adult convergent lady beetle feeding on an aphid; Larva of convergent lady beetle; Pupa of convergent lady beetle.

Middle row, left to right: Eggs of convergent lady beetle; Three color forms of adult multicolored Asian lady beetles; Larva of the multicolored Asian lady beetle.

Bottom row, left to right: Adult twicestabbed lady beetle feeding on walnut scale; Pupal case of twicestabbed lady beetle. (Photos by Jack Kelly Clark, UC IPM Program).

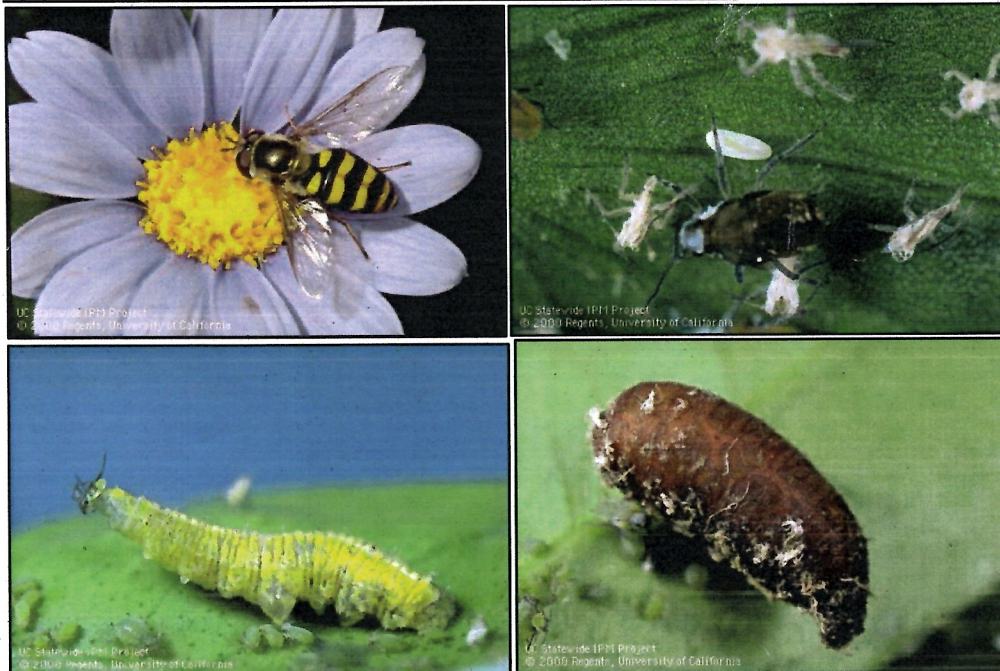
Green lacewings





Clockwise from top left: Green lacewing adult; Green lacewing eggs are laid on slender stalks; Cocoon of a green lacewing, with the pupa visible through thin silken strands; Larva of a green lacewing feeding on an aphid. (Photos by Jack Kelly Clark, UC IPM Program).

Syrphid fly (hover or flower flies, larvae are aphid predators)



Clockwise from top left: Adult syrphid fly; egg of syrphid fly laid near aphids; Pupa of syrphid fly; Syrphid larva preying on an aphid. (Photos by Jack Kelly Clark, UC IPM Program).

Mantids



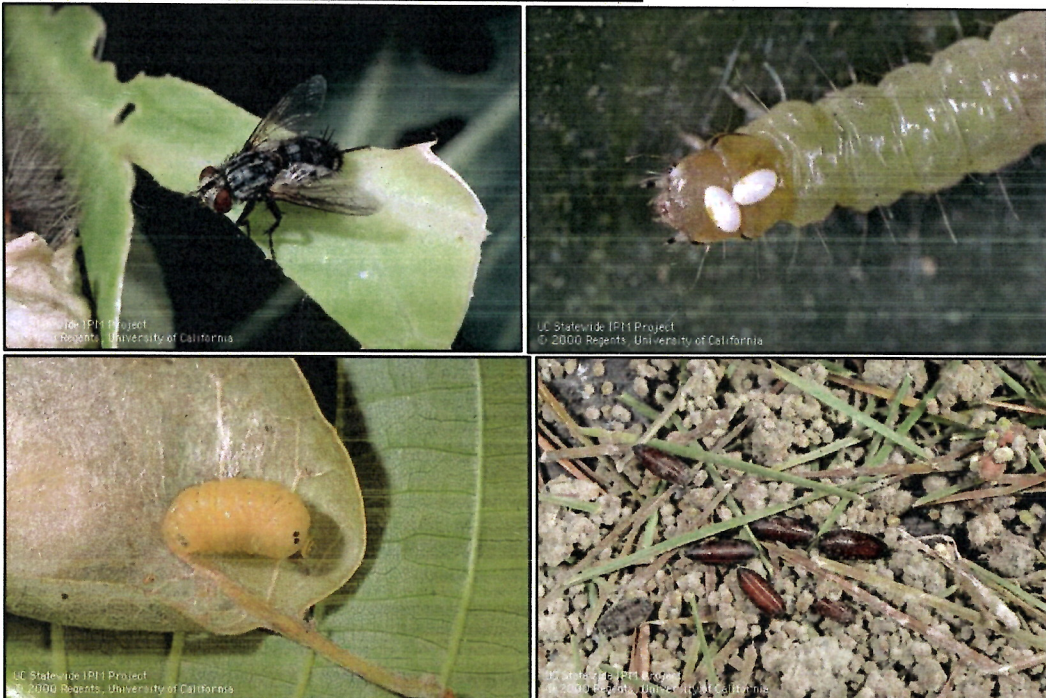
Left to right: Adult praying mantid; Praying mantis nymph on purple coneflower, eating a fly; Praying mantid egg case, or ootheca. (Photos by Jack Kelly Clark, UC IPM Program).

Spiders



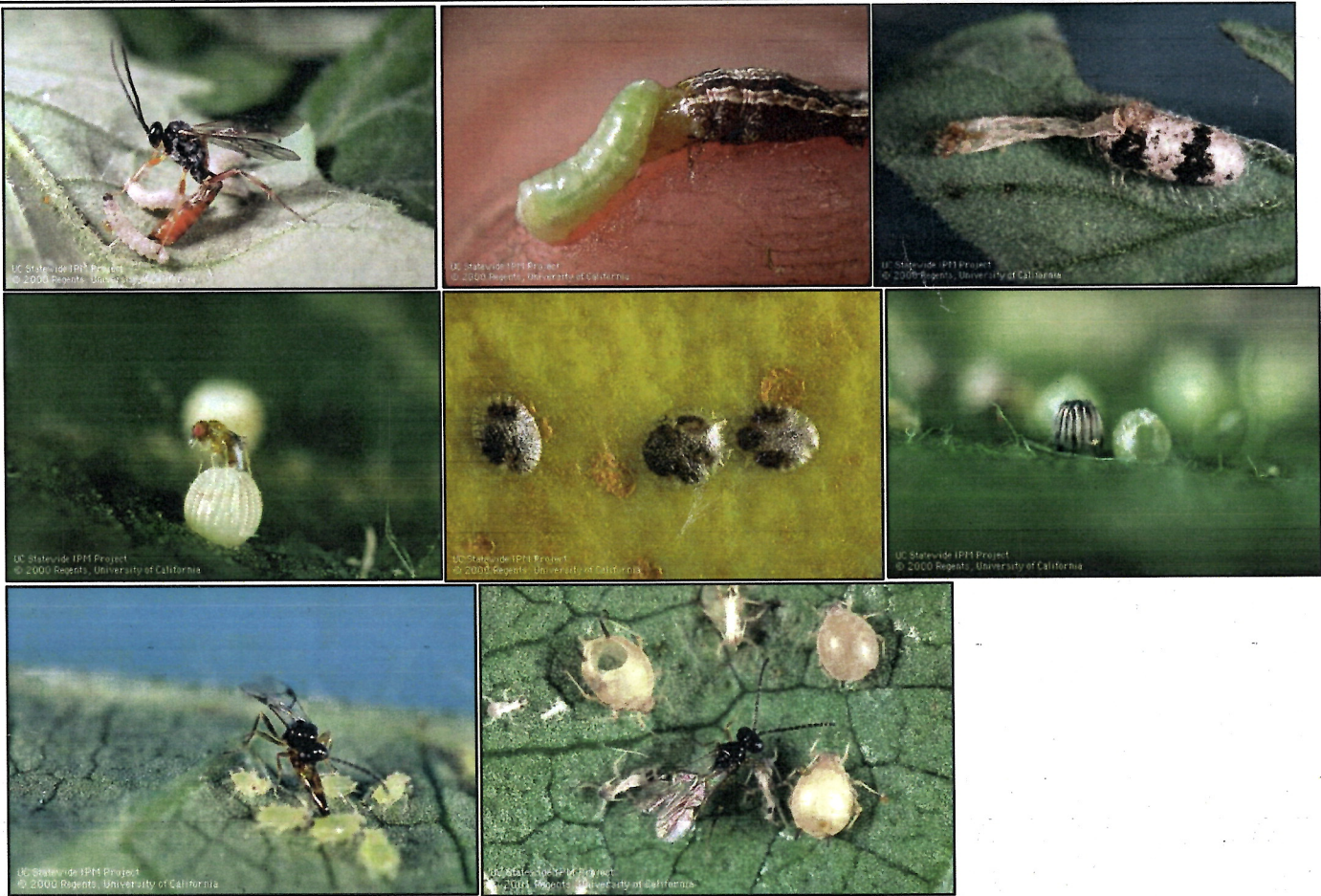
Clockwise from top left: Adult flower spider; Adult funnel weaver spider; Webbing of a cobweb weaver spider capturing adult greenhouse whiteflies; Adult jumping spider eating a fly. (Photos by Jack Kelly Clark, UC IPM Program).

Tachinid flies (parasitoids of caterpillars and beetles)



Clockwise from top left: Adult tachinid fly; Eggs of a tachinid fly that oviposits externally, here on the head of an western avocado leafroller larva; Pupae of a tachinid fly on the ground among pine needles and mold-covered frass (fecal pellets) of caterpillars; Last instar of an unidentified tachinid recently emerged from larva of a tent caterpillar that it parasitized and killed. (Photos by Jack Kelly Clark, UC IPM Program)

Parasitoid wasps (multiple species, some parasitize larvae, some eggs, and others adult hosts)



Top row, left to right: Adult wasp, *Hyposoter exiguae*, laying her egg in larva of beet armyworm; Larva of *Hyposoter* (left) parasitic wasp pulled from a western striped armyworm; Cocoon (right) of parasitoid wasp, *Hyposoter exiguae*, and the cuticle (skin) of caterpillar it killed.

Middle row, right to left: Adult *Trichogramma* parasitoid wasp laying her egg in an egg of corn earworm, also called bollworm or tomato fruitworm; Eggs of the codling moth blackened by *Trichogramma* parasitism. Oblong *Trichogramma platneri* are visible inside the eggs; An egg of corn earworm turned blackish because it was parasitized and killed by a *Trichogramma* wasp. The adjacent egg was not parasitized, as evidenced by its pale color and the ragged hole chewed by an emerging caterpillar.

Bottom row, left to right: Adult wasp, *Lysiphlebus testaceipes*, laying her egg in a cotton or melon aphid; Aphids killed by parasitoid wasps such as *Lysiphlebus testaceipes* (shown) become mummies, discolored and swollen with a crusty cuticle (skin). (Photos by Jack Kelly Clark, UC IPM Program).

Predatory mites



Left to right: Western predatory mites, *Galendromus* (= *Metaseiulus*) *occidentalis* (top and bottom), and a twospotted spider mite, *Tetranychus urticae* (center), and its eggs; Adult *Phytoseiulus persimilis* (center) feeding on an egg of twospotted spider mite, *Tetranychus urticae*. Adult *Amblyseius* (*Neoseiulus*) *californicus* predatory mite eating a plant-feeding mite egg. These predatory mites are VERY (~0.5 mm) small! Photos by Jack Kelly Clark.