
EARWIGS

Integrated Pest Management for Home Gardeners and Landscape Professionals

Earwigs are among the most readily recognized insect pests in home gardens (Figure 1). Although earwigs can devastate seedling vegetables or annual flowers and often seriously damage maturing soft fruit or corn silks, they also have a beneficial role in the landscape and have been shown to be important predators of aphids.

Although several species occur, the most common in California gardens is the European earwig, *Forficula auricularia*, which was accidentally introduced into North America from Europe in the early 1900s. The striped earwig, *Labidura riparia*, occurs in Southern California and can annoy residents when it is attracted to lights. It has a very disagreeable odor when crushed. However, the striped earwig doesn't damage plants.

IDENTIFICATION

The adult earwig is readily identified by a pair of prominent appendages that resemble forceps at the tail end of its body. Used for defense, the forceps are somewhat curved in the male (Figure 2) but straighter in the female. The adult body is about 3/4 inch long and reddish brown. Most species have wings under short, hard wing covers, but they seldom fly. Immature earwigs look like adults except they are smaller and lack wings.

Contrary to popular myth and despite their ferocious appearance, earwigs generally don't attack humans, although they are capable of biting if trapped in clothing or sat upon.

LIFE CYCLE

Earwigs feed most actively at night and seek out dark, cool, moist places to hide during the day. Common hiding places are under loose clods of soil, boards,

or dense growth of vines or weeds or even within fruit damaged by other pests such as snails, birds, or cutworms.

Female earwigs dig cells in the ground in the fall and winter where they lay masses of 30 or more eggs. Eggs hatch into small, light brown nymphs and remain in the cell protected and fed by their mother until their first molt. Second-instar nymphs may forage at night but still return to the nest during the day. Third- and fourth-instar nymphs are darker and forage on their own. Generally there is one generation a year, but females produce two broods.

Part of the earwig population hibernates during the winter as pairs buried in cells in the soil. In the hotter parts of California, earwigs may be relatively inactive during the summer. In milder California climates, some remain active all year.

DAMAGE

European earwigs feed on a variety of dead and living organisms, including insects, mites, and growing shoots of plants. They are voracious feeders on soft-bodied insects such as aphids and insect eggs and can exert significant biological control under some circumstances. In yards that are planted to turf and contain mature ornamental plants, damage by earwigs is unlikely to be of concern.

European earwigs can cause substantial damage to seedling plants and soft fruit as well as to sweet corn. Damaged seedlings may be missing all or parts of their leaves and stem. Leaves on older plants, including fruit trees, have numerous irregular holes or are chewed around the edges (Figure 3).



Figure 1. Adult female European earwig.



Figure 2. Adult male earwig showing strongly curved forceps.



Figure 3. Crop damaged by European earwig.

This damage may resemble that caused by caterpillars. Look for webbing, frass (excrement), or pupae that would indicate the presence of caterpillars.

Earwigs may attack soft fruit such as apricots, strawberries, raspberries, or blackberries but don't harm hard fruit such as apples. On stone fruit, look for

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shallow gouges or holes that extend deeply into the fruit (Figure 4). On strawberries, distinguish earwig damage from that of snails and slugs by checking for the slime trails snails and slugs leave behind. On corn, earwigs feed on silks and prevent pollination, causing poor kernel development. Earwigs may also seriously damage flowers including zinnias, marigolds, and dahlias. To confirm that earwigs are causing the damage, go out at night with a flashlight to observe the pests in action.

Earwigs may seek refuge indoors when conditions outside are too dry, hot, or cold. Large accumulations of earwigs can be annoying but present no health hazards. Sweep or vacuum them up and seal entry points. Earwigs eventually die indoors because there is little for them to eat.

MANAGEMENT

Management of earwigs requires an integrated program that takes advantage of their habitat preferences. As moisture-loving insects, earwigs wouldn't normally thrive in California's arid climate without the moisture and shade provided by irrigated gardens. Where earwigs are a problem, consider reducing hiding places and surface moisture levels. Initiate a regular trapping program. If these measures are followed, insecticide treatments shouldn't be necessary. Baits are available for earwigs but often aren't very effective. Keep in mind that earwigs are omnivores and are beneficial in some situations, such as when they feed on aphids, and don't need to be managed in many situations.

Trapping

A key element of an earwig management program is trapping. Place numerous traps throughout the yard, hiding the traps near shrubbery and ground cover plantings or against fences. A low-sided can, such as a cat food or tuna fish can, with 1/2 inch of oil in the bottom makes an excellent trap (Figure 5). Fish oil such as tuna fish oil is very attractive to earwigs, or vegetable oil with a drop of bacon grease can be used. These traps are most effective

if sunk into the ground so the top of the can is at soil level. Dump captured earwigs and refill cans with oil.

Other common types of traps are a rolled-up newspaper, corrugated cardboard, bamboo tubes, or a short piece of hose. Place these traps on the soil near plants just before dark and shake accumulated earwigs out into a pail of soapy water in the morning. Earwigs can also be dropped into a sturdy plastic bag and crushed. Continue these procedures every day until you are no longer catching earwigs.

Sanitation and Other Controls

Complement the trapping program by removing refuge sites for earwigs, such as ivy, weeds, piles of rubbish, and leaves. Never allow heavy ground cover such as ivy to grow near vegetable gardens. Watch out for mulches; they often harbor earwigs. Natural enemies including toads, birds, and other predators may play an important role in some gardens. Chickens and ducks will consume many earwigs.

For fruit trees keep weeds, brush, and suckers away from the base of the trunk throughout the year, as this overgrowth provides refuge for earwigs. Monitor populations with folded newspapers or burlap bags placed at the base of trees. On the lower trunks of older fruit trees, carefully scrape off all loose bark. Trunks can be treated with Tanglefoot, a sticky substance that prevents earwigs from climbing up the trunks to reach ripening stone fruit. Also, keeping fruit trees properly pruned, thinning heavy crops, and picking fruit as soon as it ripens will help keep earwigs from becoming pests. Remember that earwigs can be beneficial in trees when they are feeding on aphids, so keeping them out isn't always recommended unless the tree produces soft fruit.

Chemical Control

Where insecticides are desired, those containing spinosad (e.g., SluggoPlus baits or spinosad sprays) are the most effective, environmentally sound prod-



Figure 4. Earwig feeding damage on an apricot.



Figure 5. A low-sided can sunk into the ground and filled with vegetable oil and a drop of fish oil makes a good earwig trap.

ucts. However, baits often aren't very effective where there are other attractive food sources. Sprinkle baits around susceptible plants before they become infested or around the foundation of the house where earwigs may be entering. Dampening the bait after application may soften it and make it more attractive. Once earwigs are in susceptible plants or in fruit trees with ripening fruit, baits are unlikely to control the problem. Other more toxic insecticides are available, including carbaryl, but aren't usually needed if the cultural practices above are followed.

For best effect and to protect bees, apply at night and before the infestation is severe, following all label directions and making sure the product is labeled for use around any plants that may be treated. Combine the use of insecticides with the trapping and sanitation procedures described above.

Inside the Home

Indoors, earwigs can be swept or vacuumed up; be sure to kill and dispose of them promptly so they won't reinvade. If earwigs are a regular problem in a

building, inspect the area to see how they are getting into the house and seal up cracks and entry points. Remove materials outside the perimeter of the building that could provide harborage, such as ivy growing up walls, ground cover, bark mulches, debris (especially leaves in gutters), wood piles, leaf litter, piles of newspapers, or other organic matter.

Also, keep water and moisture away from the structure by repairing drain spouts, grading the area so water drains away from the structure, and ventilating crawl spaces to minimize moisture. Insecticide treatments indoors aren't recommended, since they will do little to prevent invasions. If earwigs are attracted to outdoor

lighting, use yellow or sodium vapor lightbulbs, which are less attractive to these insects.

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WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original, labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Pesticides applied in your home and landscape can move and contaminate creeks, rivers, and oceans. Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash or pour pesticides down the sink or toilet. Either use the pesticide according to the label, or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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