Roses are among the most intensively managed plants in many home gardens, parks, and landscapes. For some gardeners, this intensive management may include the application of pesticides to manage insects and mites. Other enthusiasts can maintain vigorous plants and produce high quality blooms with little or no use of insecticides.

The keys to avoiding pest problems are careful selection of varieties (which vary significantly in susceptibility to insect and disease problems), good attention to appropriate cultural practices, and occasional handpicking or water sprays to remove pests. Regularly monitor for pests and keep an eye out for rising populations of the natural enemies that often rapidly reduce the numbers of aphids, mites, and other pests.

For management of diseases see Pest Notes: Roses: Diseases and Abiotic Disorders, and for general tips on cultural practices and weed control, see Pest Notes: Roses: Cultural Practices and Weed Control.

IDENTIFICATION AND BIOLOGY

Aphids

Aphids are the most common insect pests on roses. Species include the rose aphid, Macrosiphum rosae, the potato aphid, Macrosiphum euphorbiae, and the cotton aphid, Aphis gossypii, among others.

Aphids (Figure 1) favor rapidly growing tissue such as buds and shoots. Low to moderate levels of aphids do little damage to plants, although some gardeners may be concerned by their very presence. Moderate to high populations can secrete copious amounts of honeydew, resulting in the growth of sooty mold, which blackens leaves. Very high numbers of aphids may distort or kill buds or reduce flower size.

In most areas of California aphids are only considered a major problem for about 6 weeks in spring and early summer before high summer temperatures reduce their numbers.

Aphids have many natural enemies including parasitic wasps, lady beetles, soldier beetles, and syrphid flies (see the section on Common Natural Enemies) that may rapidly reduce increasing populations. Ants protect aphids from natural enemies, so keeping them out of bushes with sticky barriers, baits, or traps may improve biological control.

Lady beetles often increase in number when aphid populations are high. The convergent lady beetle is sold at nurseries for release against aphids and may provide limited control when properly released. For more information on how to release them see UC IPM’s convergent lady beetle page in the Natural Enemies Gallery at ipm.ucanr.edu/PMG/NE/convergent_lady_beetle.html.

Releasing green lacewings against the rose aphid has not been shown to offer significant control in research trials. A naturally occurring fungal disease may control aphids when conditions are wet or humid.

In many landscape situations, knocking aphids off with a forceful stream or spray of water early in the day is all that is needed to supplement natural control. Insecticidal soaps or horticultural...
Insects and Mites that Cause Leaves to Stipple or Yellow

Spider mites, including twospotted spider mite, Pacific spider mite, and strawberry spider mite, all in the *Tetranychus* genus, feed on foliage, causing leaves to become stippled or bleached, and may cause leaves to dry up and fall (Figure 2). Some species produce webbing while others do not. Spider mites are tiny (about the size of the period at the end of this sentence) and are best seen with a magnifier.

Mites usually appear first on the undersides of leaves but may move to the upper surfaces as populations increase. High numbers are usually associated with dry, dusty conditions.

Spider mite numbers may greatly increase if their many natural enemies are killed by broad-spectrum insecticides applied against other pests. For instance, applications of carbaryl or pyrethroid insecticides (such as cyfluthrin and permethrin) to control insect pests are frequently followed by an increase in mite populations.

Conserving natural enemies, providing sufficient irrigation, and reducing dust may all help control mites. Overhead irrigation or periodic washing of leaves with water can be very effective in reducing mite numbers.

If chemical treatment is necessary, spider mites can be controlled with insecticidal soap or horticultural oil, and sprays should be targeted to ensure coverage of the undersides of the leaves.

Although spider mites may be listed on many insecticide labels, most insecticides are not very effective against them and can actually trigger mite flare-ups as mentioned above. For more information about spider mites, see Pest Notes: Spider Mites.

Rose leafhopper, *Edwardsiana rosae* (Figure 3), causes stippling damage that appears larger than mite stippling. Along with stippling, cast skins and the absence of webbing on the underside of leaves are good indications that these leafhoppers are present. Leafhoppers are not common problems in most areas; be sure to check for the insects themselves if suspect stippling is observed. Plants can tolerate moderate stippling. Knock leafhoppers off with a water spray or use an insecticidal soap on nymphs if an infestation is severe.

Insects that Distort or Discolor Blossoms

Thrips. Western flower thrips, *Frankliniella occidentalis*, and madrone thrips, *Thrips madroni*, primarily cause injury to rose flowers, causing blossom petals to streak with brown or become distorted (Figure 4). Damage may be severe if flowers are attacked early at the bud stage (Figure 5). The tiny yellow or black thrips insects can be found within the blossoms.

In August 2015, a new species of thrips, the chilli thrips, *Scirtothrips dorsalis*, was found infesting roses in southern California. This species, which is native to Asia and about ¼ the size of western flower thrips, can severely distort plant growth. This species may be found on leaves, leaf litter, on the axils of leaves, in curled leaves, and under the calyces of flowers. Chilli thrips has a broad host range and, because of its habit of attacking leaves as well as flowers, has the potential to cause much more serious damage than other thrips species.

Thrips problems are more likely to be severe where many rose plants grown close together provide a continuously blooming habitat. Fragrant, light-colored, and white roses are most often attacked and can be severely damaged. Cultivars with sepals that remain tightly wrapped around the bud until blooms open have fewer thrips problems.

In most home garden and landscape situations, thrips can be tolerated. Frequent clipping and prompt disposal of spent blooms may reduce thrips problems. Control with insecticides is difficult because products are most oils (including neem oil) can also be used to suppress aphids with only moderate impact on natural enemies.

Soil-applied systemic insecticides, such as the neonicotinoid imidacloprid, are effective but are not usually necessary and may harm pollinators and natural enemies. Use of broadly toxic insecticides is not warranted in most gardens and landscapes. For more information on aphids see Pest Notes: Aphids.
effective on developing thrips, which usually feed deep within buds or flowers where pesticide applications cannot reach.

It should be noted that western flower thrips can sometimes be considered beneficial because they are predators of spider mites.

Insects that Chew Blossoms and/or Leaves

Fuller rose beetle. Adults of Fuller rose beetle (Figure 6), *Naupactus godmani*, chew flowers and foliage leaving notched or ragged edges. Adult beetles are pale brown weevils that are about ⅜ inch long. They are flightless and hide during the day, often on the undersides of leaves. Feeding takes place at night. The larvae are root feeders but do not feed on the roots of rose plants. There is only one generation a year and damage is usually confined to the 2- to 4-week period in late spring when adults are active.

Adult hoplia beetles can be handpicked or infested rose blooms removed. Insecticide sprays are not very effective and should not be necessary in a garden situation. For more information about hoplia beetle, see Pest Notes: Hoplia Beetle.

Hoplia beetles may be mistaken for Japanese beetles, *Popillia japonica*, serious pests in other areas of the United States, but Japanese beetles are about twice as long and are metallic green with coppery wing covers. Japanese beetles are not established in California. If you believe you have found a Japanese beetle in your landscape, contact the California Department of Food and Agriculture Hotline (1-800-491-1899; also see cdfa.ca.gov/plant/JB/).

Leafcutting bees, *Megachile* spp., cut semicircular holes in the margins of leaves and carry leaf material back to use in lining their nests (Figure 8). Bees are important pollinators and should not be killed. There are no effective controls.

Rose curculio, *Merhynchites bicolor*, is a reddish-black snout weevil about ¼ inch long that prefers yellow and white roses. Adults feed by drilling holes in flower buds that may kill the developing bud or result in ragged holes in blossoms when they open. If weevils are numerous, terminal shoots may be killed as well. Eggs are laid inside buds and larvae feed within, often killing buds before they open. When mature, larvae drop to the ground to overwinter and pupate in the soil, emerging as adults in spring. There is only one generation a year.

Hand pick adults off plants and destroy buds infested with larvae. Many beetles may be removed from heavily infested bushes by gently shaking plants over a bucket of soapy water. A broad-spectrum insecticide can be applied to kill adults if the infestation is severe.

Caterpillars such as orange tortrix, tussock moth, fruittree leafroller, tent caterpillar, and omnivorous looper may feed on rose leaves, flowers and buds (Figures 9 and 10). Some of these caterpillars may also tie leaves together with silk. Some caterpillars, like the tobacco budworm, may bore into flower buds. Look for the caterpillar or its frass inside. Hand pick caterpillars or prune out and promptly dispose of infested buds or rolled leaves (often hiding caterpillars within).

Damage is usually not severe and treatment with pesticides not generally necessary. Leaf-feeding caterpillars can be reduced with the microbial insecticide *Bacillus thuringiensis* or the insecticide spinosad. These materials...
will be most effective when caterpillars are small, and caterpillars within buds are unlikely to be killed. Damage may not be noticed until after caterpillars are full grown and no longer vulnerable to insecticide applications.

**Roseslugs** include several species of sawflies that damage leaves on roses. Sawflies are wasps with plant-feeding larvae that resemble caterpillars (Figure 11). Young larvae skeletonize lower leaf surfaces while mature larvae chew large holes in leaves.

Roseslugs have many natural enemies that help keep their populations down. They may be washed off plants with strong streams of water or killed with insecticidal soap, horticultural oil, or spinosad. Insecticides containing *Bacillus thuringiensis* are not effective against roseslugs because they are not the larvae of butterflies or moths.

**Insects That Cause Canes to Die Back**

**Flatheaded borers**, *Chrysobothris* spp. (Figure 12), may kill canes or entire plants. Larvae are white and up to 1 inch long with enlarged heads. Adult beetles do not significantly damage roses.

Eggs tend to be laid on stressed rose plants, especially in bark wounds caused by sunburn or disease. Remove and destroy infested plant material and keep plants healthy by providing sufficient irrigation and avoiding excessive summer pruning.

**Raspberry horntail larvae**, *Hartigia cressoni*, are white, segmented larvae up to 1 inch long that feed within rose stems or canes (Figure 13). Adults are black or black and yellow wood wasps about ¾ inch long.

In the spring, horntail feeding can cause tips of canes to wilt and die in spring, reducing second-cycle rose blooms (Figure 14).

Inspect canes in spring (mid-April to mid-June) for egg-laying incisions or swellings caused by larvae feeding within and cut them off below the infestation. Prune down infested canes until a healthy cross section is found.

**Scale insects** that may attack roses include two species of armored scales: the rose scale, *Aulacaspis rosae*, and the San Jose scale, *Quadraspidiotus perniciosus* (Figure 15). These pests may cause cane decline or dieback when numbers are high. San Jose scale may spread by wind from nearby orchards, and so may be found on roses near urban-agricultural interfaces in California’s Central Valley and other fruit or nut tree production areas.

Armored scales can be observed on canes as small, grayish, round to oval encrustations, ranging in size from ⅛ to ¼ inch. These insects have no legs or antennae for most of their lives and are immobile.

In winter, cut back and destroy infested canes and apply insecticidal oil to any remaining infested canes if the scale population is high. Scales are attacked by many natural enemies. Look for exit holes in mature scale covers, indicating parasitization.

Other scale insects, including cottony cushion scale, *Icerya purchasi*, and several species of soft scales, such as black scale, *Saissetia oleae*, may also be found on roses. These insects produce honeydew, which may cause leaves to be sticky and will allow black sooty mold to colonize leaf surfaces. Washing plants with soap and water may reduce populations. Pruning and application of horticultural oil in winter for armored scales should provide sufficient control.

For more information about scale insects, see *Pest Notes: Scales*.

**Insects Seldom Found on California Roses**

**Mossy rose galls**, created by the gall wasp *Diplolepis rosae*, are spherical spined masses of plant tissue about an inch in diameter that form on year-old rose twigs (Figure 16). At first, the deformity resembles moss, but it becomes hardened as it enlarges.

Although mossy rose gall is most common, many kinds of galls can form on roses; most caused by different gall wasp species. They may occur on twigs, stems or leaves and have various shapes and textures. Galls are more common in cooler, northern parts of California than in the Central Valley. They are generally not damaging and pruning them out should provide sufficient control.

**Rose midge**, *Dasineura rhodophaga*, and...
were likely to see more.

Parasitic wasps are also important in the control of scale insects, caterpillars, and many other insect pests.

**Minute pirate bug.** Minute pirate bugs, *Orius tristicolor*, are tiny true bugs with black and white markings as adults. They are often among the first predators to appear in spring, and they feed on mites, insect and mite eggs, immature scales, and thrips.

**Lacewings.** Green lacewings in the genera *Chrysopa* and *Chrysoperla* are common natural enemies of aphids and other soft-bodied insects. The gray-green to brown alligator-shaped larvae are the predatory stage. The green lacy-winged adults feed on honeydew.

**Lady beetles.** Many different red and black lady beetle species are predators of aphids; the most common is the convergent lady beetle, *Hippodamia convergens*. Another common species in the garden is the Asian multicolored lady beetle, *Harmonia axyridis*. These lady beetles feed primarily on aphids and are predators in both the adult and larval stages. Look for the black, alligator-shaped larvae with orange dots and oblong, yellow lady beetle eggs that are laid on end in groups (Figure 18).

Releases of commercially available convergent lady beetles can reduce aphid numbers. However, large numbers must be released on each individual rose plant. Mist lady beetles with a water spray before release. Make releases in the evening at dusk by placing beetles on canes at the base of plants. Wet plants first with a fine spray of water.

Expect 90% of the lady beetles to fly away in the first 24 hours. The remaining lady beetles are unlikely to lay eggs and will fly away once aphid populations have been substantially reduced.

**Leatherwings or soldier beetles.** These moderate to large-sized beetles in the cantharid family have leathery dark wings and orange or red heads and thoraxes (Figure 19). Several

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**COMMON NATURAL ENEMIES**

**Aphid parasites.** Tiny parasitic wasps are very important in the control of aphids on roses. Adults lay their eggs within the aphid and developing wasp larvae feeding within rapidly immobilize the aphids. Eventually, the parasites kill the aphids and turn them into bronze or black crusty, bloated mummies. The parasitic wasp larva pupates within the mummy and then cuts a neat, round hole and emerges as a full-grown wasp (Figure 17). Once you see one mummy in the aphid colony, you
species feed on aphids and are very common on roses.

Many people mistake soldier beetles for pests, but they can be important predators. Sometimes the beetles, which may feed on pollen and nectar as well as aphids, leave dark splotches of excrement on leaves. Soldier beetle larvae are also predaceous but live in the soil, feeding on soil-dwelling invertebrates.

**Syrphid flies.** Syrphids, sometimes called flower flies or hover flies, are important predators of aphids and are very common on roses. Syrphids superficially resemble honey bees or wasps, feed on nectar and pollen before reproducing, and are often seen hovering above flowers. There are many species of hover flies in California.

The aphid-feeding larvae, often found within aphid colonies, are legless and maggot-shaped (Figure 20) and vary in color from dull brown or yellow to bright green; some species have a stripe down their backs. Don’t mistake them for moth or butterfly caterpillars, which have legs and chew holes in leaves.

**Predaceous mites.** A number of predatory mites feed on spider mites, often keeping them at tolerable levels. Predatory mites can be distinguished from the plant-feeding spider mites by the absence of the two spots on either side of the body, their pear shape, and their more active habits.

Compared to the plant-feeding species of mites, which remain in one location feeding, predatory mites move rapidly around the leaf when looking for prey.

Because they are so small, a hand lens is helpful in viewing them.

**Thrips.** Sixspotted thrips, *Eotetranychus sexmaculatus*, feeds on spider mites. Western flower thrips are plant feeders but also feed on spider mites. While thrips damage may not be tolerated within commercial production, in landscape settings thrips may provide benefits outweighing the limited damage they cause.

**Spiders.** All spiders are predators and many contribute significantly to biological control. Many types of spiders including crab spiders, jumping spiders, cobweb spiders, and orbweavers occur in landscapes.

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**REFERENCES**

[ipm.ucanr.edu/PMG/PESTNOTES/pn7429.html](ipm.ucanr.edu/PMG/PESTNOTES/pn7429.html)

[ipm.ucanr.edu/IPMPROJECT/ADS/manual_landscape.html](ipm.ucanr.edu/IPMPROJECT/ADS/manual_landscape.html)

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[ipm.ucanr.edu/PMG/PESTNOTES/pn7499.html](ipm.ucanr.edu/PMG/PESTNOTES/pn7499.html)
WARNING ON THE USE OF PESTICIDES

Pesticides are poisonous. Some pesticides are more toxic than others and present higher risks to people, nontarget organisms, and the environment. A pesticide is any material (natural, organic, or synthetic) used to control, prevent, kill, suppress, or repel pests. “Pesticide” is a broad term that includes insecticides, herbicides (weed or plant killers), fungicides, rodenticides, miticides (mite control), molluscicides (for snails and slugs), and other materials like growth regulators or antimicrobial products such as bleach and sanitary wipes that kill bacteria.

Always read and carefully follow all precautions and directions provided on the container label. The label is the law and failure to follow label instructions is an illegal use of the pesticide. 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, and animals. Never place pesticides in food or drink containers. Consult the pesticide label to determine active ingredients, correct locations for use, signal words, and personal protective equipment you should wear to protect yourself from exposure when applying the material.

Pesticides applied in your garden and landscape can move through water or with soil away from where they were applied, resulting in contamination of creeks, lakes, rivers, and the ocean. Confine pesticides to the property being treated and never allow them to get into drains or creeks. Avoid getting pesticide onto neighboring properties (called drift), especially onto gardens containing fruits or vegetables ready to be picked.

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