SPIDERS

Integrated Pest Management In and Around the Home

Many people fear or dislike spiders but, for the most part, spiders are beneficial because of their role as predators of insects and other arthropods, and most cannot harm people. Spiders that might injure people—for example, black widows—generally spend most of their time hidden under furniture or boxes, or in woodpiles, corners, or crevices. The spiders commonly seen out in the open during the day are unlikely to bite people.

IDENTIFICATION

Spiders resemble insects and sometimes are confused with them, but they are arachnids, not insects. Spiders have eight legs and two body parts—a head region (cephalothorax) and an abdomen. They lack wings and antennae. Although spiders often are found on plants, they eat mainly insects, other spiders, and related arthropods, not plants. Most spiders have toxic venom, which they use to kill their prey. However, only those spiders whose venom typically causes a serious reaction in humans are called "poisonous" spiders.

Black Widow Spider

The black widow spider, *Latrodectus hesperus* (Fig. 1), is the most common harmful spider in California. Venom from its bite can cause reactions ranging from mild to painful and serious, but death is very unlikely and many symptoms can be alleviated if medical treatment is obtained. Anyone bitten by this spider should remain calm and promptly seek medical advice; it is helpful if the offending spider can be caught and saved for identification.

The typical adult female black widow has a shiny black body, slender black legs, and a red or orange mark in the shape of an hourglass on the underside of the large, round abdomen (Fig. 2). The body, excluding legs, is 5/16 to 5/8 inch long. The adult male black widow is one-half to two-thirds the length of the female, has a small abdomen, and is seldom noticed. The male black widow does possess venom, but its fangs are too small to break human skin. The top side of its abdomen is olive greenish gray with a pattern of cream-colored areas and one light-colored band going lengthwise down the middle. The hourglass mark on the underside of the abdomen typically is yellow or yellow-orange and broad-waisted. The legs are banded with alternating light and dark areas. Contrary to popular belief, the female black widow rarely eats the male after mating, but may do so if hungry. Like males, young female black widow spiders are patterned on the top side. In the early stages they greatly resemble males, but gradually acquire the typical female coloration with each shedding of the skin. In intermediate stages they have tan or cream-colored, olive gray, and orange markings on the top side of the abdomen, a yellowish orange hourglass mark on the underside, and banded legs. Only the larger immature female and adult female spiders are able to bite through a person's skin and inject enough venom to cause a painful reaction.

Webs and Egg Sacs. The web of the black widow is an irregular, tough-stranded, sticky cobweb mesh in which the spider hangs with its underside up. During the day it often hides under an object at the edge of the web or stays in a silken retreat in the center. The black widow may rush out of its hiding place when the web is disturbed, especially if egg sacs are present. The egg sacs are mostly spherical, about 1/2 inch long and 5/8 inch in diameter, creamy yellow to light tan in color, opaque, and tough and paperlike on the surface. A female may produce several egg sacs. Tiny, young black widows, which are nearly white in color, disperse to new locations by ballooning and infest new areas.

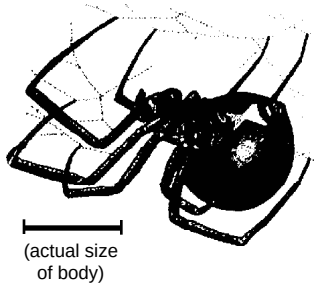

Figure 1. Adult black widow spider.

Where the Spiders Live. Black widow spiders occur in most parts of California. They and their associated webs usually are found in dark, dry, sheltered, relatively undisturbed places such as among piles of wood, rubbish, or stones; in culverts, hollow stumps, and old animal burrows; in garages, sheds, barns, crawl spaces, utility meter boxes, and outhouses; and sometimes among plants. People are most likely to be bitten when they disturb the spider while they are cleaning out or picking up items in such places. A sensible precaution is to always wear gloves and a longsleeved shirt when working in areas that have been undisturbed for a time and where there are good hiding places for spiders.

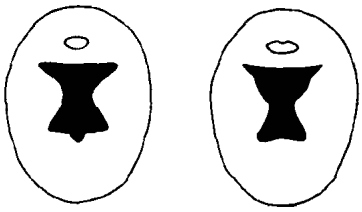

Figure 2. Two variations of hourglass markings of black widow spider.

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Effects of the Bite. The symptoms of a black widow bite are largely internal; little more than local redness and swelling may develop at the bite site. The internal effects may range from mild to severe. Pain tends to spread from the bite to other parts of the body and muscular spasms may develop. In severe cases the abdominal muscles may become quite rigid. Other effects can include profuse sweating, fever, increased blood pressure, difficulty breathing and speaking, restlessness, and nausea. Typically, the pain and other symptoms reach a maximum within a day of the bite, then gradually subside over the next 2 to 3 days. Most people who are bitten spend a few hours under observation by a physician but do not develop symptoms severe enough to require treatment. Small children, the elderly, and persons with health problems are likely to suffer some of the more severe consequences of the bite. Black widow bites are fairly common in California.

Yellow Sac Spider

The common house-dwelling agrarian sac or yellow sac spider, *Cheiracanthium inclusum*, is a small spider that spins a silken sac web in the corners of ceilings and walls, and behind shelves and pictures; it is also commonly found outdoors in shrubbery. This spider is light yellow and has a slightly darker stripe on the upper middle of the abdomen (Fig 3). The eight eyes of this spider are all about equal in size and arranged in two horizontal rows (Fig. 4).

Yellow sac spiders can be seen running on walls and ceilings at night and quickly drop to the floor to escape if they are disturbed. Bites usually occur when the spider becomes trapped against a person's skin in clothing or bedding. It is estimated that sac spiders are responsible for more bites on people than any other spider. Typical symptoms of a bite include initial pain, redness, and sometimes swelling. A small blister may form, often breaking, leaving a sore that heals over a period of several weeks. Soreness near the bite may last for a few days to several weeks or may not occur at all, depending on the individual.

Recluse Spiders

Recluse spiders of the genus *Loxosceles* include the well-known brown recluse spider, *L. reclusa*, which does not occur in California. While the brown recluse has occasionally been brought into California in household furnishings, firewood, and motor vehicles, it does not reside in the state. However, another recluse spider, the Chilean recluse spider *(L. laeta)*, was introduced into Los Angeles County in the late 1960s. In Chile, South America it is known to have a bite that is toxic to humans. The native recluse spider of California *(L. deserta)* is found in the desert regions of southern California and neighboring states. Its bite can cause problems, but it is not as toxic as that of the Chilean recluse. In any case, bites from either species are rare. Both the native desert recluse spider and the Chilean recluse spider occur principally in the drier areas of southern California.

Recluse spiders can have a violin-shaped mark (with the neck of the violin pointing backward) on the top side of the head region (cephalothorax). However, the mark is not always distinct, so it should not be used as an identifying character. A unique feature of recluse spiders is their six eyes, arranged in pairs in a semicircle (Fig. 4),

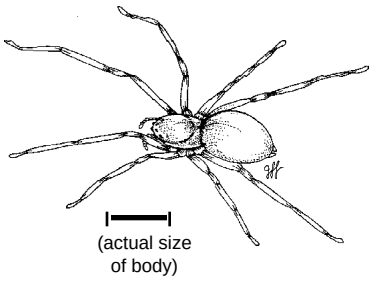

Figure 3. Adult yellow sac spider.

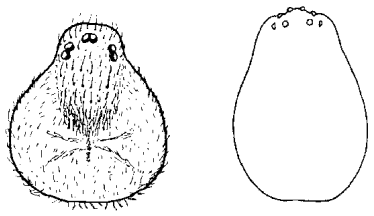

Figure 4. Head region of recluse spider *(left)* and yellow sac spider *(right)*. Note the arrangements of the eyes: the recluse spider has six eyes arranged in three pairs and the yellow sac spider has eight eyes arranged in two rows of four.

Spider Bites

Unlike mosquitoes, spiders do not seek people in order to bite them. Generally, a spider doesn't try to bite a person unless it has been squeezed, lain on, or similarly provoked to defend itself. Moreover, the jaws of most spiders are so small that the fangs cannot penetrate the skin of an adult person. Sometimes when a spider is disturbed in its web, it may bite instinctively because it mistakenly senses that an insect has been caught.

The severity of a spider bite depends on factors such as the kind of spider, the amount of venom injected, and the age and health of the person bitten. A spider bite might cause no reaction at all, or it might result in varying amounts of itching, redness, stiffness, swelling, and pain—at worst, usually no more severe than a bee sting. Typically the symptoms persist from a few minutes to a few hours. Like reactions to bee stings, however, people vary in their responses to spider bites, so if the bite of any spider causes an unusual or severe reaction, such as increasing pain or extreme swelling, contact a physician, hospital, or poison control center (in California, the number is 1-800-876-4766 or 1-800-8-POISON).

Sometimes a person may not be aware of having been bitten until pain and other symptoms begin to develop. Other species of arthropods whose bites or stings may be mistaken for that of a spider include ticks, fleas, bees, wasps, bedbugs, mosquitoes, the conenose (kissing) bug *(Triatoma protracta)*, deer flies, horse flies, and water bugs *(Lethocerus* spp.).

For first aid treatment of a spider bite, wash the bite, apply an antiseptic to prevent infection, and use ice or ice water to reduce swelling and discomfort. If you receive a bite that causes an unusual or severe reaction, contact a physician. If you catch the critter in the act, capture it for identification, preserve it (or whatever parts of it remain), and take it to your county UC Cooperative Extension office. If no one there can identify it, ask that it be forwarded to a qualified arachnologist.

which can be seen with the use of a good hand lens. Most other spiders have eight eyes.

All recluse spiders make large, irregular, flattened, cobweb-type webs with thick strands extending in all directions. These spiders avoid light, are active at night, and tend to build their webs in out-of-the-way places. Chilean recluse spiders may be found indoors in boxes, in corners, behind pictures, in old clothing hanging undisturbed, and in other similar places. Desert recluse spiders appear outdoors where they may be found under rocks or wood.

A person bitten by a recluse spider may not be aware of having been bitten at the time of the bite. The first symptoms often appear several hours later. They consist of pain, formation of a small blister, redness, and swelling at the bite site. In the days following the initial bite, the tissue dies and sloughs off, exposing underlying flesh. The area develops into an open sore that is very slow to heal and may leave a sunken scar after healing. There may be accompanying flulike effects such as nausea, fever, chills, and restlessness. Bites from brown recluse spiders have never been confirmed in California. More detailed information on these spiders is available in *Pest Notes: Brown Recluse and Other Recluse Spiders*, listed in the "Suggested Reading" section.

Other Spiders

In addition to the species mentioned above, there are only a few other species of spiders in California that may on occasion bite humans. (Remember, if the bite of any spider causes an unusual or severe reaction, contact a physician.)

One kind of **red and black jumping spider**, *Phidippus johnsoni,* may bite if it is disturbed, but the bites are usually not serious. The female spiders are black with red on the top side of the abdomen whereas the males are all red. These spiders range in size from 1/4 to 1/2 inch long.

Tarantulas are long-lived spiders that occupy burrows in the ground during the day but often come out at night to hunt insects near the burrow. They commonly are feared because of their large size and hairy appearance. Some poisonous tarantulas occur in tropical parts of the world, but the bites of California tarantulas are not likely to be serious—at worst, they are similar to a bee sting.

The **hobo spider**, *Tegenaria agrestis*, also called the aggressive house spider, is a common spider in the Pacific Northwest. It builds funnel-shaped webs in dark, moist areas such as basements, window wells, wood piles, and around the perimeter of homes. It is a large (1 to 1 3/4 inch, including legs), fast-running brown spider with a herringbone or multiple chevron pattern on the top of the abdomen.

Bites most commonly occur when a person picks up firewood with a spider on it or when a spider finds its way into clothing or bedding. Reactions to bites of the hobo spider are similar to those caused by brown recluse spiders. The major difference between the two is that sometimes the bite of the hobo spider is accompanied by a severe headache that does not respond to aspirin. The hobo spider has not been documented in California, but it has been documented as expanding its range into other states that border Washington and Oregon.

One spider frequently found indoors is the **common house spider**, *Achaearanea tepidariorum* (Fig. 5), which makes a cobweb in corners of rooms, in windows, and in similar places. Another is the **marbled cellar spider**, *Holocnemus pluchei*, which was introduced into the state in the 1970s and has since displaced the once common l**ongbodied cellar spider**, *Pholcus phalangioides* (Fig. 6), a longlegged spider that resembles a daddy-longlegs. These spiders are incapable of biting humans because their fangs are too short to pierce people's skin; they primarily cause problems by producing messy cobwebs.

Various kinds of small hunting spiders may wander indoors and occasionally, rather large, hunting-type spiders are discovered in homes or garages. Often these are fully grown wolf spider or tarantula males that have reached maturity and are searching for females. When these spiders are wandering, one or more may accidentally get indoors. New houses and other structures in developments may be invaded by wolf spiders that have lost their usual outdoor living places. The more insects there are inside a building, the more likely it is to have spiders living there. Usually spiders are most abundant in fall following the first few rains of the season. Immature and adult female burrow-living spiders sometimes wander for a time during the rainy season if they have had to abandon wet burrows.

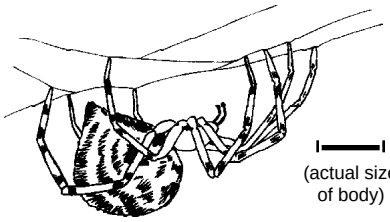

Figure 5. Adult common house spider.

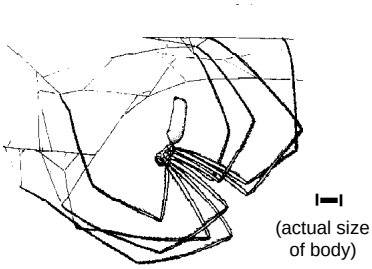

Figure 6. Adult longbodied cellar spider.

MANAGEMENT

Remember that spiders are primarily beneficial and their activities should be encouraged in the garden. Pesticide control is difficult and rarely necessary. The best approach to controlling spiders in and around the home is to remove hiding spots for reclusive spiders such as black widows and regularly clean webs off the house with brushes and vacuums.

Prevention and Nonchemical Control

Spiders may enter houses and other structures through cracks and other openings. They also may be carried in on items like plants, firewood, and boxes. Regular vacuuming or sweeping of windows, corners of rooms, storage areas, basements, and other seldomly used areas helps remove spiders and their webs. Vacuuming spiders can be

an effective control technique because their soft bodies usually do not survive this process. Indoors, a web on which dust has gathered is an old web that is no longer being used by a spider.

Individual spiders can also be removed from indoor areas by placing a jar over them and slipping a piece of paper under the jar that then seals off the opening of the jar when it is lifted up.

To prevent spiders from coming indoors, seal cracks in the foundation and other parts of the structure and gaps around windows and doors. Good screening not only will keep out many spiders but also will discourage them by keeping out insects that they must have for food.

In indoor storage areas, place boxes off the floor and away from walls, whenever possible, to help reduce their usefulness as a harborage for spiders. Sealing the boxes with tape will prevent spiders from taking up residence within. Clean up clutter in garages, sheds, basements, and other storage areas. Be sure to wear gloves to avoid accidental bites.

Outdoors, eliminate places for spiders to hide and build their webs by keeping the area next to the foundation free of trash, leaf litter, heavy vegetation, and other accumulations of materials. Trimming plant growth away from the house and other structures will discourage spiders from first taking up residence near the structure and then moving indoors. Outdoor lighting attracts insects, which in turn attracts spiders. If possible, keep lighting fixtures off structures and away from windows and doorways. Sweep, mop, hose, or vacuum webs and spiders off buildings regularly. Insecticides will not provide long-term control and should not generally be used against spiders outdoors.

Chemical Control

Typically pesticide control of spiders is difficult unless you actually see the spider and are able to spray it. There are various insecticides available in retail outlets labeled for spider control, including pyrethrins, resmethrin, allethrin, or combinations of these products. Avoid products containing chlorpyrifos or diazinon because they have been implicated in storm water contamination. If you spray a spider, it will be killed only if the spray lands directly on it; the spray residual does not have a long-lasting effect. This means a spider can walk over a sprayed surface a few days (and in many cases, a few hours) after treatment and not be affected. Control by spraying is only temporary unless accompanied by housekeeping. It is just as easy and much less toxic to crush the spider with a rolled up newspaper or your shoe or to vacuum it up.

Sorptive dusts containing amorphous silica gel (silica aerogel) and pyrethrins, which can be applied by professional pest control applicators only, may be useful in certain indoor situations. Particles of the dust affect the outer covering of spiders (and also insects) that have crawled over a treated surface, causing them to dry out. When applied as a dustlike film and left in place, a sorptive dust provides permanent protection against spiders. The dust is most advantageously used in cracks and crevices and in attics, wall voids, and other enclosed or unused places.

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Barr, B. A., G. W. Hickman, and C. S. Koehler. 1984. *Spiders*. Oakland: Univ. Calif. Div. Agric. Nat. Res. Leaflet 2531.

SUGGESTED READING

Akre, R. D., and E. P. Catts. 1992. *Spiders.* Pullman: Wash. State Univ., Cooperative Extension Publ. EB1548.

Hedges, S. A., and M. S. Lacey. 1995. *Field Guide for the Management of Urban Spiders.* Cleveland: Franzak and Foster Co.

Marer, P. 1991. *Residential, Industrial, and Institutional Pest Control.* Oakland: Univ. Calif. Div. Agric. Nat. Res. Publ. 3334.

Vetter, R. S. Jan. 2000. *Pest Notes: Brown Recluse and Other Recluse Spiders*. Oakland: Univ. Calif. Div. Agric. Nat. Res. Publ. 7468. Also available online at: *http://www.ipm.ucdavis.edu/PMG/selectnewpest.home.html*

For more information contact the University of California Cooperative Extension or agricultural commissioner's office in your county. See your phone book for addresses and phone numbers.

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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.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked.

Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse the containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. Never burn pesticide containers.