HOME & GARDEN

Western Widow Spider

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The "widow" spiders are a group of related spiders in the genus *Latrodectus*. Several species occur in the United States, but the western widow, *Latrodectus hesperus*, is the overwhelmingly dominant species throughout Colorado. (The "true" black widow, *Latrodectus mactans*, is more common in eastern and southern areas of the country.)

Quick Facts...

Widow spiders rarely, if ever, bite when not within a web. Bites may be more likely if the female is tending an egg sac in the web, which she will defend.

Widow spiders produce a toxin that affects the nervous system. Muscle and chest pain or tightness are some of the most common reactions to the widow toxin.

Widow spiders prefer to nest near the ground, in dark, undisturbed areas. Outdoor nest sites include holes produced by small animals or around construction openings and wood piles.

Identification

Figure 1. Western widow female in web.

Mature females of the western widow spider are generally round in form with a bulbous abdomen. They usually reach a length of 1/4 to 1/3 inch. Adult females are distinctively shiny and dark colored, generally black or occasionally dark-brown.

The distinguishing feature of all widows (*Latrodectus* spp.) is the presence of a red or red-orange "hourglass" pattern on the underside of the abdomen. However, this pattern can be highly variable with the western widow. The pattern may appear as two unconnected spots, as a roughly rectangular area, or be so faint as to be barely visible. The color of the "hourglass" may fade or intensify in color during the life of any individual widow spider.

The immature stages of both sexes and adult male widow spiders may have red or red-orange or yellow spots and stripes on the top of their abdomen. Immature females can be colored gray or pale brown, with banding patterns. Darker coloration increases as they get older. The presence of an "hourglass" pattern on the underside of the abdomen occurs throughout their development.

Males of the western widow are one-half to one-third the size of females, and they have a more elongate body form. (The body of the males typically range from 1/8 to 1/4-inch in length.) They are not usually black in overall color, instead appearing light brown or gray and banded. Male widows may have the characteristic hourglass pattern, but coloration is often more orange and sometimes yellow. When mature, they have large knob-like structures (pedipalps) originating from the cephalothorax, or first body segment. Aside from this last feature (conspicuous pedipalps) they are similar in appearance to immature females.

Figure 2. Western widow male.

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Figure 3. Underside of female western widow.

Figure 4. Male and female widow spider.

Widow spiders build sticky irregular mesh-type webs, typical of other spiders in the cobweb spider family (Theridiidae). Widow spiders often live in ready-made holes in dark, undisturbed sites. Therefore, widow spiders are most often found in abandoned rodent burrows, loose stone or wood piles, or the corners of rooms, garages, and outbuildings. They do not produce the symmetrical web typical of orb weaving spiders (Araneidae) or the distinctive dense and funnel patterned web of the common funnelweb spiders (Agelenidae).

Spiders of Similar Appearance. The *combination* of the dark black color, the irregular web shape, and the distinctive spherical abdomen are useful characteristics for separating widow spiders from other spider species. However, related, but harmless, combfooted/cob web spiders produce similar webs and are often the most common spiders found in homes.

These harmless cobweb spiders are the same general shape as widow spiders, but are smaller and are either mottled brown or are dark brown or black with a white band around the front of the abdomen. At quick glance one can confuse these with immature black widows, but they invariably lack the underside hourglass pattern or bright coloring of the immature and male widow spiders.

Cobweb spiders that are most easily confused with widows are in the genus *Steatoda*. These cob web spiders are similarly black and have the same enlarged abdomen as widow spiders. However, they lack the orange-red hourglass on the underside of the abdomen, have prominent white markings on the top of the abdomen, and often have a white band around the anterior edge of the abdomen.

Life History and Habits

Eggs of widow spiders are laid in an egg sac, attached to the web of the mother. Egg sacs produced by the western widow are pear shaped and light whitish yellow to brown. About 200 eggs may be laid per egg sac. Under favorable conditions, females may produce several egg sacs in their lifetime.

Eggs hatch in the egg sac about 2 weeks after they are laid. The newly hatched spiders, known as “spiderlings,” remain in the sac for several days and molt inside the egg sac. After this first molt, they leave the sac by cutting an opening with their fangs. Spiderlings may remain clustered near the female in or near her web until the yolk leftover from the egg stage is completely digested. At that time, they disperse and leave the egg sac, often by a process called “ballooning.” Ballooning spiderlings release small silk strands that allow them to catch wind currents and be carried in the air.

If young spiders find a suitable spot they begin to produce a web; however, the majority die before successfully producing a web. Survivors feed on insects that become trapped in the web. They grow, molting several times, with females typically becoming mature in about 4 to 6 months. Males develop more rapidly because they go through fewer developmental stages (instars) and molt fewer times than the females. Developmental rates are greatly influenced by temperature and the availability of food. In laboratory conditions, mature females can live over a year after becoming mature. Males typically live only a few weeks. Under optimum conditions, widow spiders can live two years or more. The normal life cycle is one year.

Black widows survive winter as either mature or immature forms. During cold weather, spider development outdoors ceases and the spiders seek refuge under stones or other cover. Black widows can develop year-round indoors and many move into homes by autumn for winter protection.

Figure 5. Male widow mating with female.

Mating

Although females of many spider species, including widow spiders, occasionally feed on males if the female is hungry, this cannibalistic behavior is not the norm despite the common misconception.

Male spiders wander and seek females for mating. When a female is encountered, the male cautiously approaches the female, periodically vibrating the web in a species-specific manner. If the female is receptive, she will respond to the male's signals by sending her own vibrational signals. The male then approaches the female and may engage in contact courtship behavior. In successful matings, the male may finally reach the female in about 30 minutes. However, aggressive females, those that are particularly hungry, may charge the approaching male and cause him to delay or abandon his attempt.

Once touching the female, courtship begins as a tapping of the legs. The male then inseminates the female with sperm stored in his palps. At any time during the mating process, the female may interrupt and attack the male. However, males are rarely attacked and eaten if the female is well fed. Under natural conditions, the males often live around the periphery of the female web and may feed on food that she has captured. These males may live longer than those not associated with a female's web. If eaten by the female, the male spider provides a good source of nutrients, particularly proteins, which are used to help produce and mature eggs.

Widow spiders get their common name because they are shiny black when full grown, and black is a traditional color of mourning.

Widow Bites

All members of the genus *Latrodectus* are potentially harmful to humans. However, the western widow is not aggressive and bites are very infrequent even when large numbers of spiders occupy an area. The adult female spiders usually remain in their webs unless forced out by adverse temperatures or destruction of their web. They do not forage for food and the insects they eat are caught in the webs and eaten at the site. Widow spiders rarely, if ever, bite when not within a web. Bites may be more likely if the female is tending an egg sac in the web, which she will defend.

Widow bites are nearly always from female widows. Male widows, are less likely to be encountered than females. Being smaller than the females, they have smaller venom glands and smaller fangs; thus, it is unlikely that males, even if encountered, could penetrate the skin of an adult human. Even female spiders are timid and not likely to bite unless seriously provoked. Most bites occur when people inadvertently press down on a spider resting under a rock, under wood in a wood pile, or, in the days of outdoor privies, when people used the facilities and did not see a spider resting on or near the seat. Widow spiders have to be provoked in a highly specific manner in order to induce them to bite a human.

Widows, and other spiders, bite using a pair of fangs on their jaws, or chelicerae. The bite can go unnoticed, although it most often produces an immediate sharp, pin-prick pain. A slight swelling and redness may soon develop at the bite site.

Widow spiders produce a toxin that affects the nervous system (neurotoxin). Muscle and chest pain or tightness are some of the most common reactions to the widow toxin. The pain may also spread to the abdomen, producing stomach cramping and nausea. Other general symptoms include restlessness, anxiety, breathing and speech difficulty, and sweating. Swelling may be noticed in extremities and eyelids, but rarely at the bite site. A sense of burning in the soles of the feet is often noted.

Often there is a general sense of discomfort shortly after the bite, and acute symptoms increase in severity during the first day. Symptoms usually decline after 2 to 3 days but some may continue for several weeks up to a month after the bite.

Other mammals vary in their reaction to widow toxin. For example, horses are highly susceptible whereas rabbits are more resistant. Cats may be sensitive to a widow bite while dogs reportedly suffer only mild symptoms.

Management

Many insects prey on widow spiders including mud dauber wasps, other spider-hunting wasps, and other spiders. A species of frit fly (Chloropidae) and parasitic wasps develop on the eggs of the spider. Small rodents may feed on black widows, although the sticky silk that the spider produces often discourages these predators.

Periodically check areas in and around the home where widows may likely occur. Widow spiders prefer to nest near the ground, in dark, undisturbed areas. Nest sites are often near holes produced by small animals or around construction openings and wood piles. Low shrubs are also common sites for widows. Indoors, widows similarly occur in dark, undisturbed sites such as behind furniture or under desks. Undisturbed basement areas and crawl spaces of homes are also commonly colonized by widow spiders.

When discovered they can be most effectively destroyed by crushing or vacuuming the web and spider, using protective methods (e.g., wear heavy, leather gloves). Spiders can also be discouraged by increasing the lighting of darkened corners, such as by appropriate furniture arrangement or the use of artificial lighting. Encourage everyone in the family to learn about black widows so that they can be readily identified and avoided. It is also a good idea to wear gloves and a long-sleeved shirt when working in spider infested areas.

Insecticides can be useful for adult spider control but are not particularly effective against the eggsacs. Physical search and removal of widows is the most effective treatment. Insecticides can be used to reduce spider migrations into homes by spraying around the exterior foundation and lower story windows. This should be done before cold weather forces spiders (and many insects) into homes to seek shelter. However, the benefit from such treatment will be short-lived.

Presently, various pyrethroid insecticides (bifenthrin, cyfluthrin, permethrin, tetramethrin) are sold for general control of spiders around a home. These have some residual effectiveness of several weeks, particularly if not exposed to light and moisture. For control of the western widow these should be applied to specific areas most likely frequented by widows—dark, undisturbed sites where flying insect prey may occasionally pass. However, physical removal or killing of the adults and crushing or freezing eggsacs (leave in the freezer for several weeks) are more effective treatments.

A large number of controls are sometimes promoted for control of spiders, including widows. These include various chemical repellents (e.g., mock orange, garlic) or ultrasonic frequencies -- neither of which spiders perceive or respond to. Because of their complete lack of demonstrated effectiveness, the promotion for sale of such products is considered fraudulent and illegal under Colorado law.

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