

Home and Horticultural



Brown Recluse Spiders

Brown recluse spiders (*Loxosceles reclusa*) are by far the most abundant poisonous species of the spiders in Kansas. The bite can cause a necrotic lesion, i.e., the skin and flesh around the bite die and erode, causing a nasty, open sore for several days, often leaving a scarred pit (typically $\frac{1}{2}$ inch in diameter) in the victim's flesh. In a small percentage of cases, poison from a brown recluse bite also causes life threatening systemic illness involving various internal organs.

Description

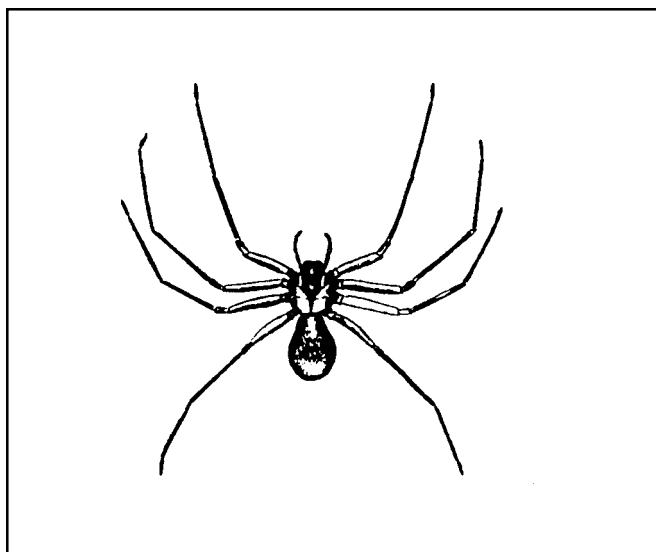
Brown recluse spiders vary in the color of their legs and abdomens. The legs of some (especially young ones that are not fully grown) are nearly straw-colored. Most have medium brown, cocoa-colored legs. There are no spots or different colored bands on a brown recluse's legs or abdomen. The abdomen of a brown recluse spider may be straw-colored, pinkish gray, pale- to medium-brown, or (in older individuals) nearly slate gray.

The unvarying identifying marker on all brown recluses, regardless of gender, age or size, is a dark, violin-shaped pattern on the front part of the back. The neck of the violin points toward the abdomen. The pattern stands out distinctly

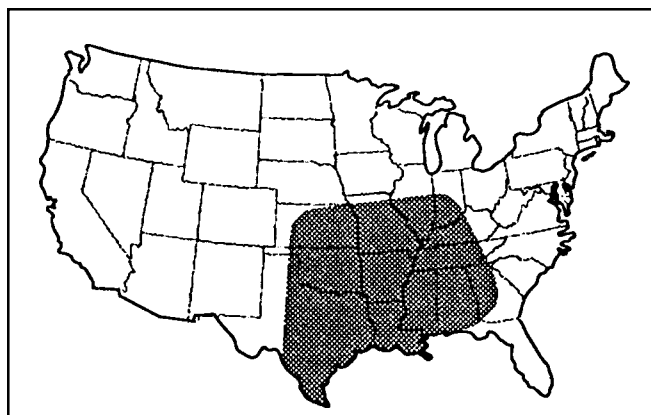
against the lighter-colored background that is nearly the same color as the legs on the same spider. The illustration below is about one and one-half times life size of a typical adult. The same identifying pattern enables you to identify even the juvenile that may have a "leg spread" of only about $\frac{1}{4}$ inch.

Distribution and habitat

The brown recluse spider's natural geographic distribution includes an area from the Gulf of Mexico northward covering the eastern two-thirds of Texas, Oklahoma, and Kansas, and an area eastward to southern Indiana, western Kentucky, Tennessee, and western Georgia. Probably most homes, many stores, and office buildings within the area of natural distribution are infested with brown recluse spiders. We have records of new homes with infestations—either the spiders were on building materials, invaded the home during construction, or were moved into the new home in boxes or furniture. Older buildings are often most heavily infested, especially where settling, swelling and shrinking of materials, or other influences of aging have created cracks and crevices, and where decades of living have resulted in accumulations of stored items and clutter.



Brown recluse, top view showing violin-shaped marking.



The shaded pattern shows areas where the brown recluse spider is well established. Reports of spiders outside these areas from as far north as Maine and Minnesota, and as far west as southern California are based on specimens known or presumed to be carried there by commerce.

Because people move from state to state, and transport goods continuously, an occasional home well outside this region becomes infested. These spiders survive the winters within this entire region, but they are relatively more abundant outdoors in the southern half of their range than they are in Kansas, Missouri, and Kentucky. One may infer from their distribution that these spiders do best in a warm, humid climate. However, within the warm, humid region where they naturally occur, they seem to select habitats that are especially warm and dry. For instance, in most homes there are more of them in attics and upstairs rooms on the south and west sides of the house than in basements or rooms on the north and east sides. They are most common indoors where air movement and light are reduced; hence, in closets, behind drawers, under and behind furniture; under, behind, or in boxes; or beneath dirty clothing or towels left lying on the floor. These spiders are active at any temperature between 40° and 110°F, probably most active between 70° and 100°F.

Places where brown recluse spiders occur outside the home or business structure characteristically are protected from wind, rain, and bright sunshine, and are relatively undisturbed by humans and other mammals. Hence, they may be found beneath loose bark on trees, in scrap piles and stacks of lumber, in rock piles and caves, and in barns, storage buildings, and garages.

Biology

Brown recluse spiders require from 8½ to 15 months to develop from egg to adulthood, averaging about 11 months. After becoming adults they typically live for 1 to 2½ years. Even in homes that are warm throughout the winter, these spiders are generally inactive from late September through March. (Insect prey is relatively scarce that time of year, so they don't waste energy looking for it.)

Adult brown recluses may mate as early as February, but most mate in May, June, or July. Over 80 percent of their eggs are laid during these months. Eggs are laid in egg sacs of webbing attached to a wall, cardboard box, or other surface. Often, the top of the egg sac is poorly formed and one can see the eggs through it. The number of eggs in a sac may range upward to nearly 100, but 40 or 50 are more typical. Some females may produce as many as five egg sacs in their lifetime, but two or three are more typical. Eggs hatch between 3½ and 6 weeks after being deposited, usually in about a month. Newly hatched spiderlings stay close to the "nest," and to the female who continues to guard them, for the first few weeks. Then, they begin to wander in all directions, still very tiny.

When a brown recluse spider rests in one site for several days, such as after feeding on prey or while preparing to lay eggs, it constructs an irregular jumble of webbing. Such webs are seldom seen because they are located in wall voids or other out-of-sight places, but they are sometimes found in closet corners, near the floor or ceiling, or inside or beneath furniture. They do not use their web to catch prey; rather, they hunt, away from their webs, at night. When members of this species are seen crawling in the daytime, it is usually because something has disturbed them.

Non-chemical control

The practices which must underlie any other efforts toward brown recluse control are good housekeeping, tight construction, and providing for good air circulation. Eliminate all clutter. Where possible, seal storage boxes and bags. Place stored items in stacks several inches apart and away from the wall. Louvered closet doors may be helpful. Frequent cleaning of all areas helps you locate and destroy spiders before they reproduce. Apply tightly fitting trim or caulking to eliminate any cracks or crevices through which spiders (or their insect prey) may enter a room interior from within the wall voids. Similarly, seal all cracks and crevices on the building's exterior.

In Kansas, the number of brown recluse spiders inside many homes is greater than the number in a similar-sized area outside. However, external caulking and repairing: (1) keeps out other kinds of spiders, (2) keeps out insect invaders that provide prey for indoor spiders, and (3) keeps outdoor populations of brown recluse spiders from reinfesting a building from which they have been (nearly?) eliminated.

Brown recluse spiders have a daily rhythm of activity. They are quiescent (often behind baseboards or other areas where they are difficult to find) from daylight until dark. About an hour or two after dark they can be most readily seen and usually have not yet moved far from their resting places. Thorough inspections of each room between 9:00 and 10:00 p.m. should be made. Use a flashlight to see in poorly lighted areas. Destroy any you see—swat or step on them, or use a quick acting household spray containing resmethrin, pyrethrin, or tetramethrin to knock them down—then destroy them physically. Wherever you see one, search the floor and wall within a few feet of that site to see if you can eliminate a hiding place or point of entrance.

Mouse glue traps may be purchased at many grocery, hardware, or general merchandise stores. Place them strategically on floors close to walls or corners in closets and cabinets, beneath sinks, or behind furniture. (Consider pets and small children in de-termining the use and placement of these.) Not only will they catch a lot of brown recluse spiders (and other crawling things), but the relative number of them caught from week to week will help you determine whether your overall control efforts are working.

Chemical control

Many insecticidal products have spiders listed on their labels, but recently compiled information suggests that they seldom kill any spiders that are not sprayed directly. In other words, even sprayed materials that leave residues effective against cockroaches or sowbugs for two or three weeks are seldom effective against brown recluse spiders once the spray has dried. As residual treatments, emulsifiable (or typical aerosol spray) materials are generally least effective. Wettable powders may be somewhat better and microencapsulated insecticides such as Empire 20 (microencapsulated chlorpyrifos) and KnoxOut (microencapsulated diazinon) are better, but probably still not highly effective. These materials are usually

available only through the services of a commercial pest control applicator.

Insecticidal dusts probably provide the best control of spiders, including the brown recluse. They should not be applied within living areas, but commercial pest control operators can inject dusts forcefully into cracks and crevices that for any reason cannot be sealed. (Drilling into walls to inject dust is expensive, causes need for repair and redecorating, and is seldom feasible.) Dusts which are expected to provide the best brown recluse control include Diazinon 2D, Dri-Die or Drione Dust, and Tempo Dust.

Glue traps, such as discussed under Non-chemical control, should be used before, and for a few weeks after, chemical treatments to help determine whether the treatments were effective.

Additional tips for living in “brown recluse country”

Bites from the brown recluse most commonly occur when they have found refuge in a garment that someone puts on. Some bites occur when a spider crawls onto a bed while hunting prey and is squeezed by a person rolling or turning in his or her sleep. Despite implementing all reasonable non-chemical and chemical efforts to destroy brown recluse spiders, some may survive. Without becoming unduly “psyched up” about them, the chances of family members being bitten can be reduced by routinely employing certain habits:

- Pull cribs and beds away from the wall; check them and their surroundings (including ceiling) before any one gets into bed.
- Keep bedclothes from hanging all the way to the floor.
- Look on both sides of the towel before drying with it.
- Look into and “bang out” shoes before putting them on.
- Shake clothing (especially anything that has been hanging for a long time or that has been, for even a day or two, in a closet) and look down the sleeves and legs before putting them on.

First-aid

If bitten, try to save the spider (even if it is somewhat smashed) and have it identified by the doctor. County agricultural agents can usually identify this species of spider if the doctor cannot. Apply an ice pack to the bitten area and go to the doctor immediately. **Do not** apply camphor, phenol, or other household disinfectants. Doctors differ as to which procedures to employ to minimize the effects of brown recluse bites, but they all agree that getting to the doctor early helps in diagnosis; and starting treatment early is important.

Diagnostic problems

About 50 other species of *Loxosceles* inhabit South America and Central America. *L. unicolor* occurs throughout the southwestern United States, *L. devia* in southern Texas and New Mexico, *L. arizonica* in Arizona and portions of adjacent states, and *L. rufescens* has been found in several places from Illinois to New York and southward. All of these species resemble the brown recluse and their bites cause similar effects. In northwestern states such necrotic bites are more commonly caused by an entirely unrelated species, *Tegenaria agrestis*, commonly known as the aggressive house spider. In various parts of the United States, Europe, and Japan, members of the spider genus *Chiracanthium* are also known to cause necrotic bites. *Chiracanthium mildei*, a small, yellow spider has been reported in Kansas homes and *Chiracanthium inclusum* may also occur here. Just as brown recluse spiders are occasionally transported out of their natural range, some of these other spiders may possibly be encountered in Kansas or other unexpected places. Other species of spiders that seldom bite people occasionally do so. The prognosis of bites from many species has not been studied, but among them there may be some which cause tissue necrosis.

The initial pain response and later development of tissue reaction are not always the same. Victims may have no reaction at first, or may immediately feel a stinging and painful sensation. Intense pain may last from two to eight hours. The amount of venom injected by the spider and the victim's sensitivity are both factors in determining the seriousness of the bite. A small blister often forms at the bite and a large area around the bite becomes red and swollen. Some victims experience nausea, stomach cramps, stiffness of joints and fever. Tissue in the infected area often peels away, resulting in an ulcerous sore that gradually fills with scar tissue. Wounds are slow to heal, sometimes taking six to eight weeks.

In the event that a bite occurs and one has not seen the spider, examine the bite mark closely. If it is a spider bite, two separate “fang” marks should be visible about $\frac{1}{16}$ inch apart. If only one puncture is present, the bite was more likely made by a biting fly (deer fly, stable fly), a bedbug or bloodsucking conenose (kissing bug), or some other insect. Or it may be a sting, or a thorn puncture. These possibilities should be considered in diagnosing a possible brown recluse bite and in following the response to treatment.

Several skin conditions may resemble the sloughing, ulcerous stage of a brown recluse bite. These include a fungal infection from a thorn (sporotrichosis), impetigo, infected acne, unusual reaction to some other biting arthropod, and outward signs of serious ailments such as kidney trouble or diabetes. The bite victim who **knows** the cause was a brown recluse can at least rule out some other unpleasant possibilities.

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF1158

July 1994

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File code: Entomology 4