



Brown Recluse Spiders

Of all the spiders in Kansas, the brown recluse, *Loxosceles reclusa*, is the most publicized and the most feared. All spiders are venomous, but the brown recluse's venom is hemotoxic. It can produce a bleeding, ulcerous wound that takes a long time to heal and is prone to secondary infection.

The spider is a synanthrope, meaning it thrives in the same environments as humans and lives in and around human structures. Most homes in the brown recluse distribution area are infested. Brown recluse are native to and most common in the central United States — from Colorado to Ohio east to west, and from Nebraska and Iowa to the Gulf States north to south (Figure 1).



Figure 1. Geographic distribution of the largest brown recluse spider populations in the United States. (USDA leaflet no. 556)

Description and Biology

Brown recluse are medium-sized spiders, with adult bodies (not including legs) reaching $\frac{1}{4}$ inch in length. With legs, spiders are about the size of a quarter to a half-dollar (Figure 2). Leg and abdomen colors vary, deepening with age. Straw-colored legs of young spiders turn cocoa brown.



Figure 2. Size of an adult brown recluse spider compared to a U.S. quarter.

Abdomens start out light yellowish-brown to pinkish-gray in young spiders and turn dark brown or slate gray by the time they become adults. Brown recluse lack markings but are covered with short hairs. Although most spiders have eight eyes, the brown recluse has six — three pairs arranged in a semicircle (Figure 3), which may not be visible without magnification. The most distinguishing characteristic of the brown recluse, regardless of age or gender, is the dark-brown 'violin-shaped' marking on the top of its body (Figure 2) with the neck pointing toward the abdomen (rear). For identification, contact your local K-State Research and Extension office or a professional pest control operator.

Life Cycle

The brown recluse is a relatively durable, long-lived spider that requires eight to 15 months to develop from egg to adult, depending on temperatures. After reaching adulthood, spiders can live two to three more years. Females can construct up to five egg sacs (although two or three is more common), each containing 20 to 50 eggs. Composed of webbing, egg sacs can be found attached to walls or just about anything, including furniture, boxes, and plants. Spiderlings emerge in three to five weeks but remain in the web with the mother for two to three molts (skin sheddings) before dispersing in search of suitable habitats. Spiderlings molt six or seven times before reaching adulthood.



Figure 3. The brown recluse has six eyes, arranged as three pairs, in a semicircle.

Brown recluse are inactive from late fall to early spring (October through March) even in structures with relatively constant temperatures and lighting. When insect prey becomes scarce, spiders do not waste energy hunting. They can live without food or water for up to 10 months.

Feeding

Like other spiders, the brown recluse feeds on insects and other arthropods, including other spiders. They do not construct intricate webs for trapping but are quick and active hunters, moving around structures at night. As scavengers, they feed on dead prey and are known to bite and retreat, coming back to consume it later. Spiders may prefer dead prey, especially if it has been killed within 24 hours or if it is an insect that would be dangerous for the spider to attack. The brown recluse produces webbing for protection during the day. Gradually, irregular and messy-looking webs appear in corners or undisturbed areas (Figure 4). They resemble white cobwebs as they collect dust.

Habitat

True to their name, brown recluse spiders hide in dark, undisturbed areas — under boxes, piles of papers or books, and furniture. At night they roam in search of food. As daylight approaches, spiders look for dark hiding places, finding their way into shoes, toys, piles of clothing, or anything else laying on the floor. Spiders may be more common in older homes where natural aging and settling has created cracks and crevices for spiders and their prey to enter. They may also be more common in homes with considerable stored items and clutter. Brown recluse spiders are not restricted to older buildings. They may be transported into new buildings on construction materials or with items brought from another structure. Within the home, spiders search out warm, dry habitats with little light or air movement, such as an attic or upstairs rooms. Spiders normally remain out of sight and away from living spaces, unless it becomes too hot or food becomes scarce, causing spiders to relocate. Brown recluses also can be



Figure 4. A brown recluse spider in a typical web, usually irregular with a white 'cobweb' appearance.

found outdoors under rocks, behind tree bark, and in other protected, mostly dark cracks and crevices.

Danger to Humans

When threatened, the brown recluse may bite as a defense when trapped against the skin. Reactions to a brown recluse bite vary greatly, depending on the victim's health, the spider's size and age, bite location, and amount of venom injected. Tissues in the area around the bite typically break down and die, creating a slow-healing wound that may cause significant scarring. In rare cases, the poison may cause a life-threatening systemic illness. Even when the bite itself does not pose a serious health issue, secondary infection may cause pain and suffering. The bite may be painless, so the victim is not aware of being bitten until the wound becomes apparent. The bite wound may develop a pimple that progresses to a red, swollen area within six to 12 hours. Later a blister may develop, along with dying skin. If you suspect you have been bitten by a brown recluse, apply ice to the wound and contact your health provider immediately. While treatment varies, medical professionals agree that early diagnosis and treatment are important. If possible, carefully capture the spider that caused the bite to have it positively identified.

Control

Eliminating brown recluse spiders from a structure may be difficult, but it is possible by using tactics aimed primarily at eliminating the spider's habitat in an integrated approach. Begin by removing clutter, especially in low-traffic areas such as basements, attics, and upper rooms. Frequent cleaning, using a vacuum wand to reach between boxes and other tight spaces, will help eliminate spiders, egg sacs, and potential food sources before spiders emerge and reproduce. If possible, use tightly sealed storage containers that exclude spiders and avoid placing them close together or against walls. Sealing both interior and exterior cracks and crevices prevents spiders and insect prey from moving into and around the home. In an infested

home, reduce the chances of being bitten by shaking out shoes and clothing before putting them on, keeping bed sheets from touching the floor, and hanging clothes in closets rather than leaving them on the floor.

Sticky traps, or glue boards (Figure 5) can be used to effectively monitor brown recluse populations. In a recent study, K-State entomologists found that traps can help control or reduce established populations. Sticky traps may be purchased at hardware, grocery, and gardening stores. Although some are labeled specifically for spiders, any trap will work, including those marketed for control of other pests such as cockroaches or mice. Place them around the house in areas where spiders are likely to travel — under furniture and along walls, in attics, and closets. Monitor traps weekly to determine population levels to decide whether trapping is effectively reducing the population or if an insecticide application is warranted.

Effectiveness of insecticide use for brown recluse control has not been proven or tested extensively. Spider control using various fumigants and aerosols has not proven effective because they are often applied haphazardly and excessively. Results of many pesticide trials have been inconsistent, and a number of the chemicals considered 'somewhat' effective or 'effective' are restricted or banned in the United States. Although modern insecticides appear to be effective in killing spiders, they must be sprayed directly on them, which may not be practical. For good control, brown recluse spiders must come into direct contact with a treated surface still damp with the insecticide. In recent K-State efficacy trials, insecticide treatments were shown to be more effective on noncarpeted versus carpeted surfaces.

In previous experiments, researchers examined the effects of offering brown recluse insecticide-killed and treated prey. Results showed that even though spiders ate the treated prey, they did not die from secondary exposure to the chemical. Insecticide use, however, did reduce or eliminate arthropod prey, limiting resources available for brown recluse survival over time. Although this method may reduce populations and eventually eliminate spiders, homeowners must remain vigilant because brown recluse spiders will continue to reinfest from the various sources described in this fact sheet. Sticky traps, monitored weekly from March through October, are a good tool for detecting reinfestations. Because brown recluse spiderlings do not have the ability to 'balloon' as other spiderlings do, they only infest or re-infest by physically crawling into a structure or being introduced by human activities.

References

Gladney, W.J. 1973. Controlling the brown recluse spider. USDA leaflet no. 556.

Hite, J. M. 1966. *The biology of the brown recluse spider, *Loxosceles reclusa**. Ph.D. dissertation, Kansas State University, Kansas.

Sandidge, J. S. 2003. Scavenging in brown recluse spiders. *Nature* 426: 30.

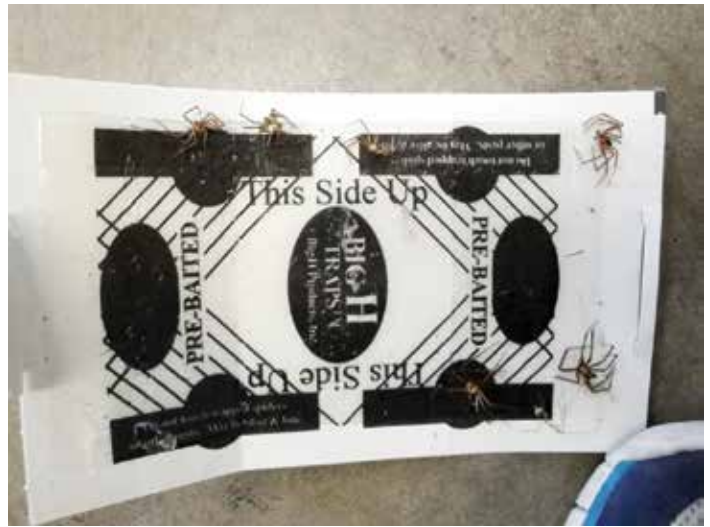


Figure 5. Glue traps can be used to monitor brown recluse populations and offer some control.

Sandidge, J. S., and J. L. Hopwood. 2005. Brown recluse spiders: a review of biology, life history and pest management. *Trans. Kansas Acad. Sci.* 108: 99-108.

Vetter, R. S. 2008. Spiders of the genus *Loxosceles* (Araneae, Sicariidae): a review of biological, medical, and psychological aspects regarding envenomations. *Amar. Arachar. Soc.* 36: 150-163.

Zurek, L. 2005. Spiders and Scorpions. Kansas State University, MF-771.

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