Kansas State University Agricultural Experiment Station and Cooperative Extension Service

KANSAS STRUCTURAL PESTS

K-STATE Research and Extension

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 its distribution area are infested. Native to the United States, the brown recluse is most common in the central region from Colorado to Ohio west to east and from Nebraska and Iowa to the Gulf States north to south (Figure 1).

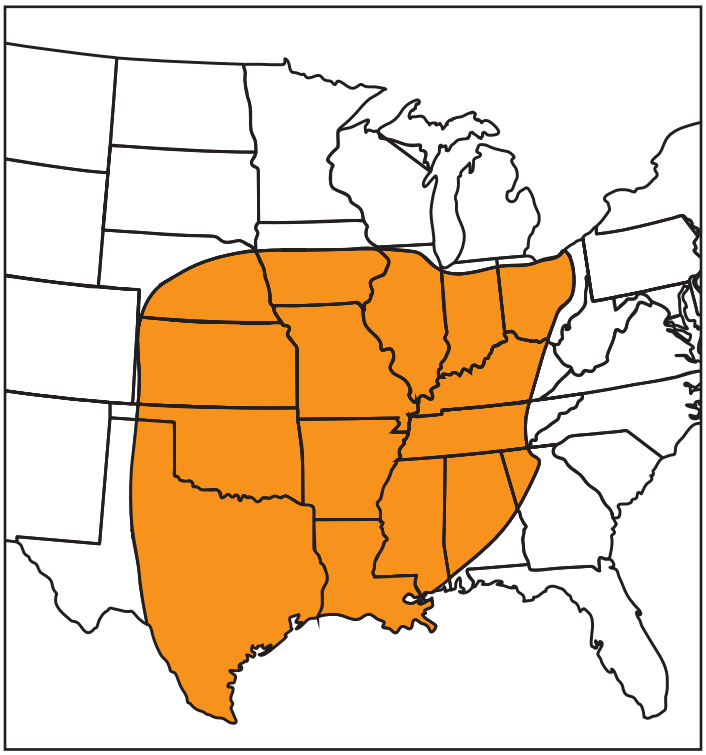

Figure 1. Geographic distribution of the largest brown recluse spider populations in the United States. (USDA leaflet no. 556)

Description and Biology

The brown recluse is medium-sized spider, with a body up to ¼-inch long, not including legs. With legs, this spider is about the size of a quarter to a half-dollar (Figure 2). Legs and abdomen vary in color and deepen with age. A young spider may have straw-colored legs that turn

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

cocoa brown and a light, yellowish-brown to pinkish-gray abdomen that turns to dark brown or slate gray by the time the spider is an adult. The brown recluse lacks markings but is 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 its 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 pest control professional.

Life Cycle

The brown recluse is a relatively durable, long-lived spider that develops from egg to adult in 8 to 15 months, depending on temperatures. After reaching adulthood, spiders can live 2 to 3 more years. Females construct up to five egg sacs, each containing 20 to 50 eggs, although two or three is more common. Eggs sacs made of webbing can be found attached to walls and other surfaces including furniture, boxes, and plants. Spiderlings emerge in 3 to 5 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.

Figure 4. The brown recluse spider's web is irregular with a white cobweb appearance.

The brown recluse is inactive from late fall to early spring (October through March) even in structures with relatively constant temperatures and lighting. When insect prey becomes scarce, the spider does not waste energy hunting. It 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. It does not construct intricate webs for trapping but is a quick and active hunter, moving around a structure at night. A scavenger, it feeds on dead prey and is known to bite and retreat, coming back to consume it later. This spider may prefer dead prey, especially if it has been killed within 24 hours or 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). Webs may resemble white cobwebs as they collect dust.

Habitat

True to its name, the brown recluse spider hides in dark, undisturbed areas under boxes, piles of papers or books, and furniture. At night it may roam in search of food. As daylight approaches, the spider looks for a dark hiding place, finding its way into shoes, toys, piles of clothing, or anything laying on the floor. This spider may be more common in older homes where natural aging and settling create cracks and crevices that allow spiders and prey to enter. The brown recluse may also be more common in homes with considerable stored items and clutter. It is not restricted to older buildings but may be transported into new buildings on construction materials or with items brought from another structure. Within the home, the brown recluse searches out warm, dry habitats with little light or air movement such as an attic or upstairs room. Spiders normally remain out of sight and away from living spaces, unless the structure becomes too hot or food becomes scarce, causing them to relocate. Brown recluse spiders may be 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 may break down and die, creating a slow-healing wound with significant scarring. In rare cases, the poisonous venom may cause a life-threatening systemic illness. Even when the bite itself does not pose a serious health issue, secondary infection may inflict pain and suffering. In other cases, the bite is painless and 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 6 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 using an integrated approach that emphasizes eliminating the spider's habitat. 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. To exclude spiders, use tightly sealed storage containers 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, you can reduce the chance 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 monitor brown recluse spider populations. In a recent study, K-State entomologists found that traps can also help control or reduce established populations. Look for sticky traps 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 traps 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. Observe whether trapping has been effective in reducing the population or if an insecticide application is warranted.

The effectiveness of insecticides for brown recluse control has not been proven or tested extensively. Use of fumigants and aerosols to control spiders has not proven effective because products are often applied haphazardly and excessively. Many pesticide trials have yielded inconsistent results, 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, spiders must be sprayed directly, which may not be practical. For good control, brown recluse spiders must come into contact with a damp, treated surface. In recent K-State efficacy trials, insecticide treatments were more effective on noncarpeted than on carpeted surfaces.

In previous experiments, researchers examined the effects of offering brown recluse insecticide-killed and treated prey. Results showed that spiders that ate treated prey did not die from secondary exposure to the chemical. However, insecticide use reduced or eliminated 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 spiders will continue to reinfest from sources previously mentioned. 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', moving through the air on a strand of silk as other spiderlings do, they can only infest or reinfest 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.

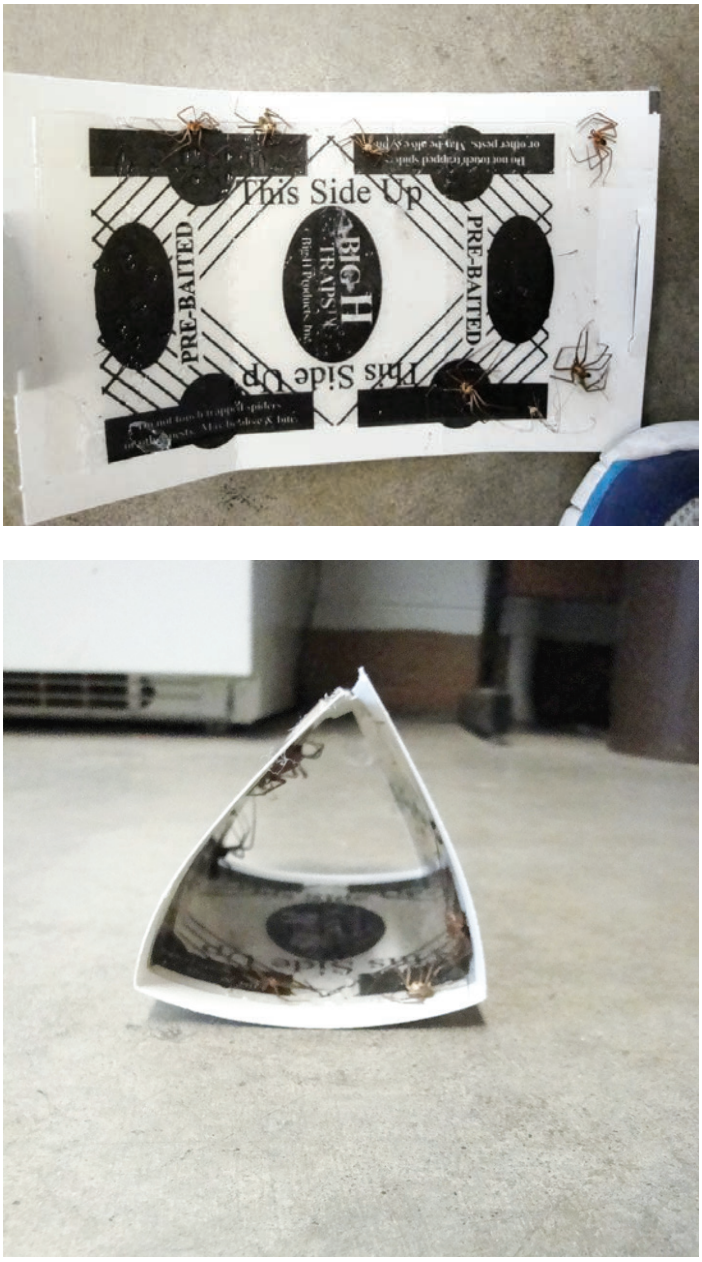

Figure 5. Glue traps can be used to monitor brown recluse spider populations and offer some control.

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

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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