



Ohio State University Fact Sheet

Entomology

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Brown Recluse Spider

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The brown recluse spider is uncommon in Ohio. Nonetheless, OSU Extension receives numerous spider specimens that homeowners mistakenly suspect to be the brown recluse. Media attention and public fear contribute to these misdiagnoses.

The brown recluse belongs to a group of spiders that is officially known as the "recluse spiders" in the genus *Loxosceles* (pronounced lox-sos-a-leez). These spiders are also commonly referred to as "fiddleback" spiders or "violin" spiders because of the violin-shaped marking on the top surface of the cephalothorax (fused head and thorax). However, this feature can be very faint depending on the species of recluse spider, particularly those in the southwestern U.S., or how recently the spider has molted.

The common name, brown recluse spider, pertains to only one species, *Loxosceles reclusa*. The name refers to its color and habits. It is a reclusive creature that seeks and prefers seclusion.

Distribution

The brown recluse spider and ten additional species of *Loxosceles* are native to the United States. In addition, a few non-native species have become established in limited areas of the country. The brown recluse spider is found mainly in the central Midwestern states southward to the Gulf of Mexico (see map). Isolated cases in Ohio are likely attributable to this spider occasionally being transported in materials from other states. Although uncommon, there are more confirmed reports of *Loxosceles rufescens* (Mediterranean recluse) than the brown recluse in Ohio. It, too, is a human-associated species with similar habits and



not actual size

Common Name	Scientific Name
brown recluse spider	<i>Loxosceles reclusa</i>

probably similar venom risks (unverified).

Identification

In the mature brown recluse spider as well as some other species of recluse spiders, the dark violin marking is well defined, with the neck of the violin pointing toward the bulbous abdomen. The abdomen is uniformly colored, although the coloration can range from light tan to dark brown, and is covered with numerous fine hairs that provide a velvety appearance.



not actual size

Recluse spiders have six eyes that are arranged in pairs.

The long, thin, brown legs also

are covered with fine hairs, but not spines. Adult brown recluse spiders have a leg span about the size of a quarter. Their body is about $3/8$ inches long and about $3/16$ inches wide. Males are slightly smaller in body length than females, but males have proportionally longer legs. Both sexes are venomous. The immature stages closely resemble the adults except for size and a slightly lighter color. Whereas most spiders have eight eyes, recluse spiders have six eyes that are arranged in pairs in a semicircle on the forepart of the cephalothorax (see close-up view). A 10X hand lens or microscope is needed to see this diagnostic feature. In order to determine the exact species of *Loxosceles*, the spider's genitalia need to be examined under a high-power microscope. This requires the skills of a spider expert.

Life Cycle and Habits

Egg laying primarily occurs from May through July. The female lays about 50 eggs that are encased in an off-white silken sac that is about $2/3$ -inch diameter. Each female may produce several egg sacs over a period of several months. Spiderlings emerge from the egg sac in about a month or less. Their development is slow and is influenced by weather conditions and food availability. It takes an average of one year to reach the adult stage from time of egg deposit. Adult brown recluse spiders often live about one to two years. They can survive long periods of time (about 6 months) without food or water.

The brown recluse spider spins a loose, irregular web of very sticky, off-white to grayish threads. This web serves as the spider's daytime retreat, and it often is constructed in an undisturbed corner. This spider roams at night searching for insect prey. Recent research at the University of Kansas indicates that the brown recluse spider is largely a scavenger, preferring dead insects. Mature males also roam in search of females.

Brown recluse spiders generally occupy dark, undisturbed sites, and they can occur indoors or outdoors. In favorable habitats, their populations are usually dense. They thrive in human-altered environments. Indoors, they may be found in attics, basements, crawl spaces, cellars, closets, and ductwork or registers. They may seek shelter in storage boxes, shoes, clothing, folded linens, and behind furniture. They also may be found in outbuildings such as barns, storage sheds, and garages. Outdoors, brown recluse spiders may be found underneath logs, loose stones in rock piles, and stacks of lumber.

The brown recluse spider is not aggressive, and it normally bites only when crushed, handled or disturbed. Some people have been bitten in bed after inadvertently rolling over onto the spider. Others have been



bitten after accidentally touching the spider when cleaning storage areas. Some bites occur when people put on seldom used clothing or shoes inhabited by a brown recluse.

Bite Symptoms

The physical reaction to a brown recluse spider bite depends on the amount of venom injected and an individual's sensitivity to it. Some people are unaffected by a bite, whereas others experience immediate or delayed effects as the venom kills the tissues (necrosis) at the site of the bite. Many brown recluse bites cause just a little red mark that heals without event. The vast majority of brown recluse bites heal without severe scarring (<http://spiders.ucr.edu/avoidbites.html>).

Initially, the bite may feel like a pinprick or go unnoticed. Some may not be aware of the bite for 2 to 8 hours. Others feel a stinging sensation followed by intense pain. Infrequently, some victims experience general systemic reactions that may include restlessness, generalized itching, fever, chills, nausea, vomiting, or shock. A small white blister usually initially rises at the bite site surrounded by a swollen area. The affected area enlarges and becomes red, and the tissue is hard to the touch for some time. The lesion from a brown recluse spider bite is a dry, blue-gray or blue-white, irregular sinking patch with ragged edges and surrounding redness--termed the "red, white, and blue sign." The lesion usually is 1½ inches by 2¾ inches or smaller. Characteristics of a bite are further discussed at <http://www.amednews.com/free/hlsa0805>.

The bite of the brown recluse spider can result in a painful, deep wound that takes a long time to heal. Fatalities are extremely rare, but bites are most dangerous to young children, the elderly, and those in poor physical condition. When there is a severe reaction to the bite, the site can erupt into a "volcano lesion" (a hole in the flesh due to damaged, gangrenous tissue). The open wound may range from the size of an adult's thumbnail to the span of a hand. The dead tissue gradually sloughs away, exposing underlying tissues. The sunken, ulcerating sore may heal slowly up to 6 to 8 weeks. Full recovery may take several months and scarring may remain.

It is difficult for a physician to accurately diagnose a "brown recluse bite" based simply on wound characteristics. It is absolutely necessary to have the spider for a positive identification. Necrotic wounds can result from a variety of agents such as bacteria (Staphylococcus, "flesh-eating" Streptococcus, etc.), viruses, fungi, and arthropods (non-recluse spiders, centipedes, mites, ticks, wasps, bedbugs, kissing bugs, biting flies, etc.). Necrotic conditions also can be caused by vascular and lymphatic disorders, drug reactions, underlying diseases states, and a variety of other agents. An annotated list of conditions that could be mistaken for a brown recluse spider bite is available at <http://www.ama-assn.org/amednews/2002/08/05/hlsa0805.htm>. Misdiagnosis of lesions as brown recluse bites can delay appropriate care.

First Aid

If bitten, remain calm, and immediately seek medical attention (contact your physician, hospital and/or poison control center). Apply an ice pack directly to the bite area to relieve swelling and pain. Collect the spider (even a mangled specimen has diagnostic value), if possible, for positive identification by a spider expert. A plastic bag, small jar, or pill vial is useful and no preservative is necessary, but rubbing alcohol helps to preserve the spider.

An effective commercial antivenin is not available. The surgical removal of tissue was once standard procedure, but now this is thought to slow down wound healing. Some physicians administer high doses of cortisone-type hormones to combat hemolysis and other systemic complications. Treatment with oral dapsone (an antibiotic used mainly for leprosy) has been suggested to reduce the degree of tissue damage.

However, an effective therapy has not yet been found in controlled studies.

Control

Control of indoor infestations of the brown recluse spider can take a long time (6 months or more) and can be difficult because humans have a very low tolerance for this pest, it tends to be widely dispersed within infested buildings, and it seeks secluded sites. Control of spiders, including the brown recluse, is best achieved by following an integrated pest management (IPM) approach. IPM involves using multiple approaches such as preventive measures, exclusion, sanitation, trapping, and chemical treatment when necessary.

Preventing spider bites

- Shake out clothing and shoes before getting dressed.
- Inspect bedding and towels before use.
- Wear gloves when handling firewood, lumber, and rocks (be sure to inspect the gloves for spiders before putting them on).
- Remove bedskirts and storage boxes from underneath beds. Move the bed away from the wall.
- Exercise care when handling cardboard boxes (recluse spiders often are found in the space under folded cardboard flaps).

Exclusion

- Install tight-fitting screens on windows and doors; also install door sweeps.
- Seal or caulk cracks and crevices where spiders can enter the house.
- Install yellow or sodium vapor light bulbs outdoors since these attract fewer insects for spiders to feed upon.
- Tape the edges of cardboard boxes to prevent spider entry.
- Use plastic bags (sealed) to store loose items in the garage, basement, and attic.

Sanitation

- Remove trash, old boxes, old clothing, wood piles, rock piles, and other unwanted items.
- Eliminate clutter in closets, basements, attics, garages, and outbuildings.
- Do not stack wood against the house.
- Clean up dead insects that the brown recluse spider can feed on.

Non-chemical control

- Use sticky traps or glueboards to capture spiders.
- Dust and vacuum thoroughly to remove spiders, webs, and egg sacs (dispose of the vacuum bag in a container outdoors).
- Use a rolled up newspaper or fly swatter to kill individual spiders.

Insecticides

There are many labeled pesticides for spider control. Some are labeled for homeowner use, while others are labeled only for the licensed, certified pesticide applicator. It would be prudent to enlist the services of a professional pest management company when dealing with an indoor infestation of the brown recluse

spider.

Research indicates that recently developed pyrethroids (e.g., cyfluthrin, cypermethrin, etc.) are particularly effective against brown recluse spiders. Wettable powders and microencapsulated "slow-release" formulations of these chemicals provide residual activity and are preferable to using emulsion-type sprays. Insecticide treatments should be applied so that the chemical contacts as many spiders and webs as possible. Residual liquid sprays should be applied to the outside perimeter of the home (including under eaves, patios, and decks; behind window shutters), baseboards, undisturbed corners, and other suspected spider harborages. Residual dusts should be applied to voids and inaccessible areas where spiders may hide. Aerosol flushing agents such as pyrethrins, though ineffective by themselves in providing control, can cause spiders to move about so that they contact treated surfaces.

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