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G86-792 Spiders

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Spiders

This NebGuide describes the most common species of spiders found in Nebraska, including the black widow and brown recluse, and how to control them.

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General Description and Habits

Spiders can be distinguished easily from insects. All spiders have two major body regions and four pair of legs; insects have three body regions and three pair of legs.

Spiders vary widely in color, shape, size, and habits. All produce venom that is poisonous to their normal prey. Few spiders are considered dangerous to humans, however. These animals are predaceous by nature and use their venom, which is injected through hollow fangs or chelicerae, to immobilize their prey. Spiders normally feed on insects and other small arthropods, but some large tropical species capture small mice, rats, birds, or fish. Spiders can only ingest liquids. Digestive fluids are either injected into the prey or regurgitated on to it. The spider then imbibes the liquified material.

Spiders are generally considered beneficial because they consume large numbers of insects and are of almost no importance as disease carriers. Unfortunately, they do not differentiate between beneficial and destructive insects in their diet.

Spiders produce silk, which is secreted as a liquid through the spinnerets and hardens on contact with air. Many different types and textures of silk are produced by various species. The silk is used to construct snares or webs, egg sacs, drag-lines, and ballooning threads. Many spiders produce web snares of various designs to trap prey, and all construct a silk sac in which to deposit their eggs. Some egg sacs are quite elaborate, with four or more distinct types and many layers of silk, while others have only a

few individual strands. Most species attach drag-lines of silk to the substrate at intervals wherever they go. This is why spiders always seems to have a silk thread to hang by if knocked from their perch. "Ballooning" is the term used to describe the habit of spiderlings of sailing through the air on wind currents. These young spiders climb to a high point and release silk strands until the drag from the wind is sufficient to support their weight. Then, they release their hold and sail away, sometimes for considerable distances. It is these ballooning threads (sometimes called "gossamer") that can fill the air on clear days as spiderlings disperse to new areas.

Life History

Spiders reproduce by laying eggs that hatch into spiderlings. For a spider to grow, it must shed or "molt" its rigid outer skin. The increase in size from one growth stage to the next occurs between the time the old skin is shed and the new one hardens. Most spiders live either one or two seasons, and molt from 4 to 12 times. Some tarantulas (not found in Nebraska) can live up to 20 years. Depending on the species, spiders over-winter as eggs, spiderlings in the egg sac, immature spiders living outside the egg sac, or as adults.

Common Non-Poisonous Spiders in Nebraska

Wolf Spiders. Wolf spiders are the largest spiders found in Nebraska. Their bodies are covered with short hairs in shades of brown, black, gray, white, yellow, or green. They do not construct web snares, but instead stalk their prey. Female wolf spiders often have bodies up to 1 1/2 inches long. Some species seek shelter under leaves or debris while others construct retreats in shallow tunnels or dig deep burrows.

Egg sacs of most wolf spiders are globular and are carried by the female attached to her spinnerets. Upon hatching, the spiderlings climb onto their mother's back and ride there for several days before dispersing.

Wolf spiders often alarm homeowners because of their large size and rapid movement. They are often a cause of concern to people in the late summer and fall when cooler temperatures prompt them to enter homes. In spite of this invasion, wolf spiders are not considered "house spiders" and generally do not become established in homes.

Garden Spiders. These spiders, sometimes referred to as argiopes, are the largest web-spinning spiders in Nebraska. Full-grown females of the common Nebraska species exceed one inch in body length; males are often much smaller. Argiopes construct beautiful, large "orb" webs in gardens and tall vegetation.

One common species, the black and yellow garden spider, has silver hairs on the back of its forward body section and a large abdomen marked, in black and bright yellow. Their egg sacs are spherical, narrowed at one end, up to one inch long, and covered with a tough, brown, paper-like silk. Another common species, the banded garden spider, is similar to the previous species in its habitat, web construction, and size, but the abdomen is marked with alternating thin, broken, horizontal silver and yellow lines on a black background.

Garden spiders often attract a great deal of attention due to their size, bright coloration, large orb web, and their habit of building webs in open areas near human habitations. Some people are uncomfortable working around such large spiders, but many gardeners welcome these attractive insect-eaters.

Crab Spiders. Crab spiders are well named. The body is compressed (top to bottom), short, and broad. The first two pair of legs are larger than the last two and are held in crab-like fashion away from and in front of the body. Crab spiders are able to walk backwards and sideways as well as forwards. Most Nebraska species are small with body lengths of less than 1/2 inch. They depend on good eyesight, speed, and camouflage to detect and catch their prey.

Species that inhabit trees or hunt on the ground are usually colored in shades of gray, brown, or black. Those that frequent flowers are more often brightly colored in red, yellow, orange, white, and/or green. These spiders mimic the colors of the flowers upon which they rest to ambush their prey. Some species have the ability to alter their color to match the background. A few species commonly found on plants even mimic bird droppings.

Jumping Spiders. Jumping spiders are very common in Nebraska. They depend on their vision (the keenest of all spiders) and leaping ability (they can jump several times their own length) to capture their prey. Jumping spiders have a hairy, stocky appearance, hunt by day, and are common in sunny areas. Nebraska species are generally 1/2 inch long or less, and are gray, brown, or black with red, orange, or white markings.

Jumping spiders stalk their prey with a slow, irregular gait, covering the final distance by springing into the air and landing on their prey. Just before jumping, the spider attaches a drag-line to the substrate and extends its front legs in preparation for seizing its intended victim.

Funnel-Web Spiders. "Funnel weavers" are the spiders responsible for the large, flat, sheet-like webs that occasionally cover certain shrubs, such as junipers and yews, in the fall. Webs are also constructed in lawns, window wells, and numerous other locations. At one end of the web is a funnel that leads to the spider's retreat. The spider waits at this narrow end and detects insects by the vibrations made when the web is touched. The spider then runs out on the upper surface of the web, grabs the prey, and returns to the funnel to consume its meal. Nebraska species are nearly one inch long and are variously marked in shades of gray, brown, white, black, or dull yellow.

Poisonous Spiders

Spiders attempt to bite humans only as a last resort when threatened, injured, or trapped in clothing. They prefer to retreat rather than attack, and will generally avoid contact with humans. A large portion of the spiders commonly encountered cannot penetrate human skin with their tiny fangs. The majority of those capable of biting people produce a venom that has either a relatively low toxicity to humans or is injected in insufficient quantities to cause a serious reaction. The typical reaction to a spider bite consists of localized inflammation, swelling, and pain similar in intensity and duration to that resulting from a wasp or bee sting. Symptoms usually disappear in 12 to 24 hours. Only a few people suffer an allergic reaction to bites from spiders not considered poisonous to man. In general, children are more sensitive to spider bites than adults.

Of the hundreds of species of spiders that occur in Nebraska, only two are known to cause a significant toxic or poisonous reaction in humans--the black widow and the brown recluse. Persons most likely to suffer severe or prolonged effects from toxic bites are the very young, the aged, or people in poor health. Anyone who believes they have been bitten by either of these two spiders should see a physician immediately. If possible, capture and/or kill the spider (try not to crush it) and take it to the physician for a positive identification. If the medical personnel are unable to identify the specimen, take it to your local Extension office or place it in a crushproof container with a preservative, such as alcohol or vinegar, and send it to: Extension Entomology, 210 Plant Industry Bldg., P.O. Box 830816, University

of Nebraska, Lincoln, NE 68583-0816.

Black Widow. Black widows belong to a group of spiders known as "cobweb weavers," named for the erratic and sparse placement of silk strands in their snares. The name "black widow" refers to the female's color and her habit of occasionally eating the male after mating. Years ago, black widows were notorious residents of outdoor toilets and storm cellars. As the number of these facilities decreased, so did the incidence of black widow bites. This spider's preferred habitats now include dumps, trash piles, and isolated areas in and around houses.

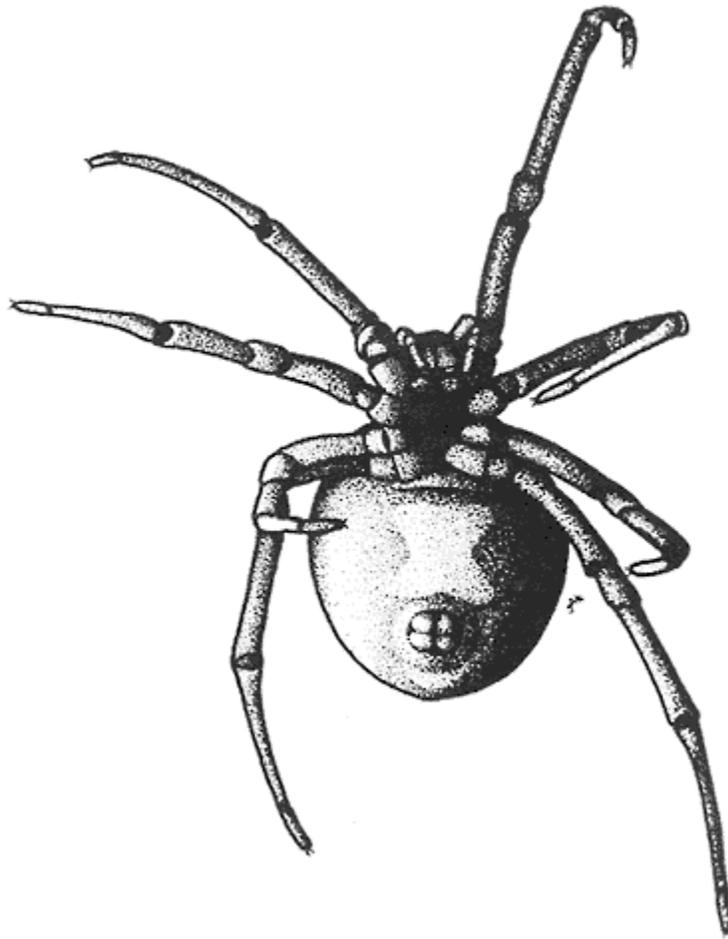


Figure 1. Female black widow.

Adult females have shiny, black, rounded abdomens, and are approximately 1/2 inch long, not including the legs. Most individuals have a reddish-orange hourglass-shaped mark on the underside of the abdomen (*Figure 1*), but there is considerable variation in this marking. Some specimens have a complete hourglass figure, while in others the mark is reduced to two spots or, in some cases, no markings at all. Coloration on the back of mature females ranges from completely black to black with red, white, or even yellowish markings. Adult males have smaller bodies, longer legs, generally more red and white markings, and do not feed or bite. Newly hatched spiderlings are predominantly white or yellowish-white, and gradually acquire more black and varying amounts of red and white with each molt.

Black widow venom is a nerve poison that is reported to be as much as 15 times more toxic to humans

(by volume) than that of the prairie rattlesnake. Fortunately, the amount of venom injected by the spider is relatively small. While there may be little initial pain associated with a black widow bite, severe localized pain usually occurs within 30 minutes and gradually spreads throughout the body. The most pronounced symptoms are severe abdominal and muscular pains. Other possible symptoms include profuse sweating, swollen eyelids, alternate salivation and dryness of the mouth, lack of localized swelling at the site of the bite, nausea, vomiting, development of a rash, and coma. Additional complications can occur due to infection of the bite. Symptoms usually diminish in several hours and are gone after several days.

A specific antivenom and other medications are available to reduce the pain. It should be emphasized that black widow bites are uncommon, and that serious long-term complications or death resulting from them are rare. Only four deaths were officially attributed to black widow bites in the United States for the period of 1960-69.

Brown Recluse. As the name implies, this spider is brown and rather shy. It weaves an irregular sheet-like web in sheltered locations outdoors and indoors in undisturbed dry areas such as basements, closets, farm buildings, and storage facilities. Clothing left hanging in such areas for long periods should be examined and shaken prior to wearing to dislodge any spiders that might be hiding inside.

The recluse, also known as the "brown" or "fiddle-back" spider, has body dimensions of approximately $\frac{3}{8}$ inch long by $\frac{3}{16}$ inch wide. Including its fully extended legs, a mature brown recluse would be slightly smaller than a fifty-cent piece. General body color varies from light gray-brown to reddish-brown. The most predominant marking is a dark brown violin- or fiddle-shaped mark located on the back, with the neck of the fiddle pointing toward the abdomen (rear) (*Figure 2*). Other spiders that may occur in and around structures can be confused with the brown recluse. Fortunately, the fiddle-shaped mark and the presence of only six eyes (arranged in three pairs on the front of the head region) should be sufficient to differentiate this spider from the harmless species that have no fiddle-shaped mark and eight eyes.

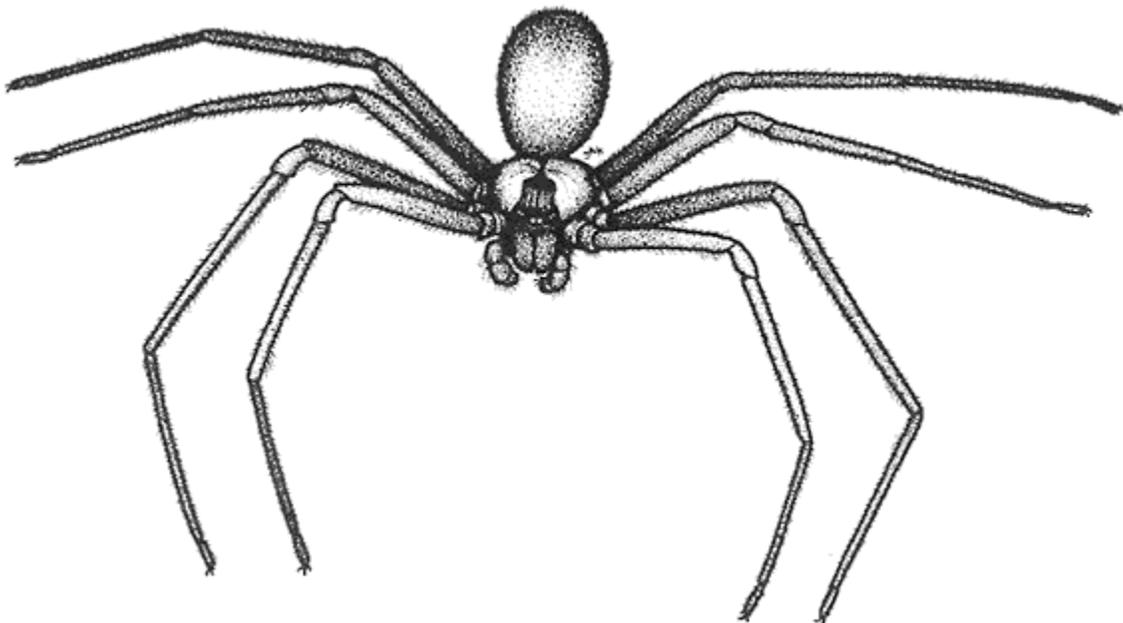


Figure 2. Brown recluse.

Individual susceptibility to brown recluse venom varies considerably and may range from almost no reaction to severe complications or even death. However, as with the black widow, fatalities are extremely rare (six deaths nationwide from 1960-69). Typically there is little or no initial pain associated with a recluse bite, and more than an hour may pass before the individual realizes something is wrong. An intense localized pain generally develops, followed by inflammation of the area and the appearance of a white or mottled blister at the site of the wound. The bite area becomes hard to the touch and often necrosis (tissue death) becomes evident within a few days as the tissue begins to loosen or slough off. The toxin is more active on the underlying tissues than on the skin, which causes the center of the bite area to sink and the surrounding area to raise slightly. An ulcerating sore develops which may continue to increase in size and, as the toxin remains in the underlying tissues for a considerable period of time, may take several months to heal. Various systemic reactions may also occur while the ulcer is present.

No specific antivenom is available for brown recluse toxin, but various other treatments are used with some success. Early diagnosis and treatment are essential to alleviate pain, speed healing of ulcerated tissue, reduce the probability of systemic reaction, and to prevent infection.

Control

The consistent presence of spiders in structures is often a sign of insect infestation as the spiders could not survive long periods without food. If this is the case, control efforts directed at the insects should eventually decrease or eliminate the spiders as well.

Removing spider webs and egg sacs along with frequent cleaning of closets, attics, basements, and other storage areas will discourage the establishment of spiders.

Insecticides applied directly to spiders, webs, and areas frequented by spiders should control existing infestations. Insecticides available for spider control in and around structures include chlorpyrifos, diazinon, malathion, propoxur, pyrethrins, and resmethrin. These insecticides are registered under various brand names and in different formulations. Reinvasion from outdoors or the hatching of hidden eggs will make additional treatments necessary. Do not contaminate food, water, utensils, or food handling and preparation areas with insecticides. Follow all label directions, do not allow spray applications to puddle, and keep people and pets away from treated areas until liquid spray material has dried.

Illustrations: Jim Kalisch, UNL Entomology

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