Spiders

Spiders are arachnids, a group of arthropods that also includes scorpions, harvestmen, mites, and ticks. Approximately 3,000 species occur in North America.

Spiders, like insects (another group of arthropods), have jointed legs and a hard external or outer skeleton. Spiders have four pair of legs, with a body divided into two regions (cephalothorax and abdomen), while insects have three pair of legs and the body divided into three regions: head, thorax, and abdomen. Spiders have no wings or antennae, but have enlarged, sharply pointed jaws called fangs (chelicerae).

All spiders are predators. They feed on a wide variety of insects and other soft-bodied invertebrate animals. Spiders attack and subdue their prey by biting with their fangs to inject a poison. As predators spiders are beneficial.

All spiders spin silk, but the silk is used in a wide variety of ways. Most spiders construct a silken case to protect their eggs, but not all spiders make a web. A few use silk threads much like a parachute to aid in dispersal on wind currents, e.g., balloon spiders.

Fig. 1. Black widow feeding on a fly.

Fig. 2. A female brown recluse or violin spider, so called because of the dark brown violin-shaped pattern on the cephalothorax.

Fig. 3. 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.
All spiders are poisonous, but fear of all spiders is unwarranted because most are either too small or possess poison that is too weak to harm humans. Only a few have bites that are dangerous to humans. However, the bite of these few species can cause serious medical problems and possible death under certain circumstances.

The most dangerous spiders to humans in North America are the widow spiders (usually known as black widows) (Fig. 1), the brown spiders (also known as the fiddlebacked spiders), the tarantulas, an innocuous-looking sac spider, and a funnel-web spider.

Problem Spiders

Widow Spiders (Family Theridiidae). Five species of widow spiders occur in North America. However, the single species occurring in Washington is the western black widow Latrodectus hesperus. The adult female is a velvety jet black, but males and immatures are striped with white or yellow. The underside of the abdomen of the adult female usually shows two reddish markings, often joined to resemble the shape of an hourglass. The back of the abdomen is usually entirely black, but may be marked with a broken stripe of white, red, or yellow spots.

An adult female, including legs, is 3–4 centimeters (about 1 1/2 inches) in diameter. This species is usually associated with dry, undisturbed piles of firewood, old lumber, dry crawl spaces, outbuildings, rock piles, or bales of hay. Poorly constructed wooden pit privies are favored haunts for these spiders. Widow webs are poorly defined, amorphous sheetings of very strong, fine silk.

The bite of the adult female is more toxic than that of juveniles or males. However, widows are shy, retiring spiders and bite only reluctantly, usually only when molested.

Widows are more aggressive when they are protecting an egg sac. The bite of the widow spider causes little immediate pain and may go unnoticed. Slight local swelling and reddening at the bite site are early signs, followed by intense muscular pain, rigidity of the abdomen and legs, difficulty in breathing, and nausea. There is little first aid advised other than cleaning the bite and calming the victim. Consult a physician as soon as possible. Pain can be relieved with injections of calcium gluconate. In untreated cases symptoms generally fade in 2–3 days. Widow bites are more dangerous if the victim is a small child or an elderly person.

Brown Spiders (Family Loxoscelidae). This common name refers only to spiders in the genus Loxosceles. Several species of Loxosceles occur in the United States, but only the brown recluse spider, L. reclusa, (Fig. 2), and another brown spider, L. laeta, introduced into California and Massachusetts from its normal range in western South America, are known to be dangerous.

The brown recluse spider is common in the southern states, but is sometimes introduced into other areas as a transient on objects or in motor vehicles. However, the brown recluse does not occur in the Pacific Northwest. The only specimen of the brown recluse ever collected in the Pacific Northwest was found in Prosser in 1978. This spider came from a trailer of household goods brought into the area from Kansas. No additional specimens have been collected (Fig. 3).

These spiders also are known as fiddlebacked or violin spiders, as they have a dark violin pattern on the front portion of the body. They have only three pair of eyes instead of four like most spiders. Their overall size is 2–3 centimeters (3/4–1 3/4 inches) in diameter. Brown recluse spiders vary in color from tan to dark brown. They readily enter human dwellings and hide during the daytime in baseboard or ceiling cracks, behind or in furniture, or in undisturbed piles of clothing.

The bite of the brown recluse spider either may go unnoticed with no aftereffects or may be followed by a severe localized reaction characterized by
scabbing, sloughing off of affected tissue (tissue necrosis), and very slow healing. Again, as with other suspected spider bites, consult a physician if pain and other discomfort follow the bite.

**Tarantulas (Family Theraphosidae).** These are the very large, hairy spiders, up to 15 centimeters or more in diameter (6 inches), frequently used in horror movies. A number of smaller, native species exist in the southern United States, but none occur naturally in Washington. However, tarantulas are sold and are kept as pets. Unfortunately, some of those sold as pets have extremely venomous body hairs (Fig. 4).

These spiders are normally nonaggressive, and they rarely bite. Even if they do, their bite is not usually considered to be dangerous and causes little lasting pain or few serious health problems.

The hazard of these spiders is a physiological fear because of their large size, and the risk of developing a hypersensitive or allergic response to their body hairs. When agitated or uneasy, tarantulas rake their abdomen with their hind legs to throw very fine abdominal hairs in the direction of danger. These hollow, needlelike, barbed hairs readily penetrate human skin to introduce a toxic material that can cause a serious skin rash, an allergic response, and possible anaphylactic shock. Anyone handling a pet tarantula should recognize these potential hazard problems.

**Funnel-web Spiders (Family Agelenidae).** The aggressive house spider, *Tegenaria agrestis*, (sometimes called the hobo spider) is a member of the family Agelenidae, commonly called the funnel-web spiders or funnel weavers. These spiders build funnel webs in dark, moist areas, often in basements, and sit in the mouth of the funnel waiting for prey. The funnel opens at both ends, and the web expands outward into a broad, slightly curved sheet. When prey, usually an insect, becomes entangled in the web, vibrations from its struggle alert the spider, which dashes out to bite the prey. The subdued prey is quickly carried into the funnel (Fig. 5).

In Europe, members of the genus *Tegenaria* are often called house spiders since they are common inhabitants of houses and adjacent vegetation. Only a single species of *Tegenaria*, *T. chiricahuae*, is native to the United States. It occurs in caves and other dark places in Arizona and New Mexico. The other six species of *Tegenaria* found in the United States are of European origin. They were probably introduced to this country very early through commerce. Three species occur in the Pacific Northwest.

*Tegenaria domestica*, the domestic house spider, is common in both the Northeast and the Northwest, while *Tegenaria gigantea*, the giant house spider, has been collected to date in the Pacific Northwest and in Winnipeg, Canada. Neither of these two species are known to cause serious bite reactions in humans (Fig. 6). *T. gigantea* has been encountered more frequently than *T. agrestis* in the last few years.

*Tegenaria agrestis*, the aggressive house spider, is one of the most common spiders found in houses in the Pacific Northwest. Although this spider was first reported from Seattle in 1930, it did not become common in the Pacific Northwest until the 1960s. In the Pullman—Moscow, Idaho area, it is clearly a prevalent spider in basements and in window wells of houses. It rarely climbs vertical surfaces and is usually found only on the ground or lower floors. We have called it the “aggressive house spider” because it bites with little provocation when cornered or threatened.

**Description.** *Tegenaria agrestis* is a relatively large, swift running spider. Mature adults range from 4–5 cm diameter (1 to 1 3/4 inches) including legs (Fig. 7). As with most spiders, males can be identified readily by the expanded, swollen tips of their palps.

Sexually mature males and females are abundant from mid-summer (July) through fall. During this period males tend to wander relatively long distances in search of females. Eggs are laid into a spherical silken sac spun by the female, usually
in September or October in the Pullman area. The sac is then placed within or adjacent to the funnel, usually on the underside of a rock or other object. This sac is usually covered with a thin layer of soil, wood chips, or other debris, including prey. The debris coated sac then is often covered with another layer of silk. Eggs hatch the following spring. Most *Tegenaria* molt about 10 times over a span of 2 years before reaching sexual maturity. Immatures are commonly found wandering in the spring searching for web sites.

Investigations of aggressive house spider bites show the venom produces skin injuries, or le-
sions, similar to those produced by the brown recluse. Therefore, ulcerating lesions of this type occurring on humans in Washington, Oregon, and Idaho are probably due to bites by the aggressive house spider. Surprisingly, males are somewhat more venomous than females.

Bites commonly occur as a spider is squeezed against the body when a homeowner picks up a firewood log with a spider on it or when a spider is located in an article of clothing and is squeezed when the clothing is put on.

Fig. 10. Sac spider, *Chiracanthium inclusum*.

Fig. 11. *Hololena* sp., a funnel-web spider common in eastern Washington.

Fig. 12. A comb-footed spider.

Fig. 13. A trapdoor spider.

Fig. 14. A wolf spider with young on her back.

Fig. 15. A jumping spider.
The initial bite is not painful. It has been described as producing a very slight prickling sensation. However, a small, insensitive, hard area appears within 30 minutes or less, and is surrounded by an expanding reddened area of 5–15 cm in diameter (2–6 inches) (Fig. 8).

Within 15 to 35 hours the area blisters. About 24 hours later the blisters usually break, and the wound oozes serum. A cratered ulcer crusts over to form a scab. Tissues beneath the scab may die and slough away. In some cases the loss of tissue may become so severe that surgical repair is needed. The fully developed lesion can vary from about 1/2 to 1 inch or more in diameter. Lesions may take several months to heal, and frequently leave a permanent scar (Fig. 9).

Systemic illness may or may not accompany the bite. However, the most common symptom is a severe headache, sometimes occurring within 30 minutes, usually within 10 hours, that does not respond to aspirin. The headache may persist for 2 to 7 days, and is sometimes accompanied by nausea, weakness, tiredness, temporary loss of memory, and vision impairment. The symptoms are similar to those experienced with migraine headaches. Bites by Tegenaria agrestis have not caused a death. In Europe, their area of origin, there are few records of bites by these spiders causing medical problems. However, a person bitten by one of these spiders should seek immediate medical treatment.

Sac Spider (Family Clubionidae). Chi- racantha inclusum is a small (ca. 5 mm or 1/4 inch), whitish spider common around the Tri-Cities and in the Columbia Basin (Fig. 10). They live in flat, tubular nests that are open at both ends, under bark or in rolled leaves. They are seldom found in houses. Their bite is venomous to humans, but bites are unusual because the species occurs only in relatively nonpopulated areas. The bite produces local pain, nausea, and severe muscular discomfort lasting several hours. There is one recorded instance of tissue necrosis around the bite site.

Other Common Spiders

Some of the more common spiders found in Washington include:

Other Funnel-Web Spiders. Species of Hololea and several other funnel-web spiders are common house invaders in eastern Washington (Fig. 11). Adults are commonly found in bathtubs and sinks throughout the fall and winter. These are nonaggressive spiders that pose no threat to humans. However, they could be confused with the aggressive house spider so note the abdominal markings carefully. This species lacks the chevron pattern found on the aggressive house spider.

Other Comb-footed or Cobweb Spiders. These very common spiders hang upside down in an irregular, somewhat amorphous web. They tend to be drab brown, but several species are white with red markings. They are common in basements, abandoned buildings, and piles of wood, stone, or debris. Their bodies are globular like widow spiders, but their bite is not dangerous (Fig. 12).

Folding Trapdoor or False Trap Door Spiders (Family Antrodiaetidae). These large, primitive spiders are excellent burrowers. At the top of their silk-lined burrows is a collapsible collar that serves as a door. The spider then disguises the entrance with plant debris and sits at the entrance at dusk to capture passing insects (Fig. 13).

Wolf Spiders (Family Lycosidae). These are large, dark, and somewhat hairy spiders that hunt by running down prey on the ground. They often wander into homes in the cool autumn. They have a superficial resemblance to the house spider (Fig. 14).

Jumping Spiders (Family Salticidae). These compact, active, and usually colorful spiders often are found on window sills and ceilings where they stalk and pounce on unsuspecting flies and gnats (Fig. 15).
Orb Weaving Spiders (Family Araneidae). These belong to the largest family of spiders. All construct the circular, flat, wheel-like web in which they trap flying insects. The very large black and yellow garden spider is a typical example (Fig. 16).

Crab Spiders (Family Thomisidae). These colorful spiders, have a crablike appearance. They generally appear on blossoms, where they blend with their background and pounce on prey that visits flowers (Fig. 17).

Sheetweb Spiders (Family Linyphiidae). These small, drab spiders engineer dew speckled webbing that enshrouds fields and forest in the early morning. Their populations may reach many thousands per acre. They are very elusive and readily drop to the ground to escape danger (Fig. 18).

Hackled Band Weavers (Family Amaurobiidae). A robust spider, Callobius severus (19mm or 3/4” diam), is a common crawl-space inhabitant of houses in western Washington. These large, impressive spiders pose no threat to humans or pets (Fig. 19).

Spider Identification

Anyone suspecting a spider to be dangerous should collect it carefully (without crushing) and send it for identification in a leakproof vial of alcohol (any type) to the Plant Diagnostic Clinic, WSU Puyallup, 7612 Pioneer Way, Puyallup, WA 98371-4998.

Control

Spiders are far more beneficial than they are dangerous. The benefits we realize from spiders preying on insects, mites, and other spiders far outweigh the low potential health hazard to humans.

Most spider problems can be solved without the use of chemicals. The first, and perhaps best, suggested controls are mechanical. Inspect door and window casings in the house for closeness of fit. Repair holes large enough to admit spiders. Other areas to inspect include entry points of water pipes and electrical lines. Caulk any cracks and other small openings.

Before bringing firewood into your home, inspect it for spiders or their egg sacs. In addition, keep woodpiles and other debris away from the house. Use a good vacuum that will readily remove all spiders and webs from corners and nooks. Crush spiders by stepping on them as they run across floors, or capture them with your vacuum; they will die rapidly in the dry, enclosed bag. Depending on the type of vacuum used, it might be best to dispose of the vacuum bag immediately after capture so the spider will not escape.

If spiders are numerous and constantly entering the house, you may want to use an effective insecticide to kill the unwanted intruders. Chemical controls for these pests are not included here because products in the marketplace and registration status thereof change too frequently. Chemical recommendations can be obtained from the Pacific Northwest Insect Control Handbook which is revised annually. Information from this book is available from field representatives, County Extension Agents, and your regional Plant Diagnostic clinics (located in Prosser and Puyallup). Do not exceed the recommended dosage given on the label. Materials are probably best applied only along baseboards, door casements, and corners, and only where spiders are present.

Fig. 16. Garden spider in her web.

Fig. 17. A crab spider that matches the color of the flowers on which she rests.

Fig. 18. A sheetweb spider.

Fig. 19. A hackled band weaver.

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