

## COMMON LANDSCAPE SPIDERS



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Common Names: Garden spiders (1), woodlice hunters (2), jumping spiders (3), nurseryweb spiders (4), wolf spiders (5), funnelweaver spiders (6) and crab spiders (7)

Scientific Names: See below

**Introduction.** Spiders are arthropods that belong to the class Arachnida and order Araneae. Spiders have two body regions (unlike insects, which have three): the cephalothorax (head fused with thorax) and abdomen (sac-like and unsegmented). Spiders have 8 legs (unlike insects, which have 6), a pair of jaws (chelicerae), a pair of feeler-like pedipalps, one on either side of the jaws, and either 8 eyes or, less commonly, 6 eyes. All spiders are predators and produce venom with which they subdue their prey and defend themselves. Over 37,000 species of spiders occur worldwide, including over 3,000 species in Europe and about 3,600 species in the United States and Canada.

Relatively few families of spiders commonly enter human structures in Missouri and those that do are usually not considered to be dangerous. Representative species of the five most commonly-encountered indoor (structure-invading) spider families are discussed here.

**Recognition.** Spiders are grouped into families on the basis of eye number (6 or 8), eye size and their arrangement on the cephalothorax. Other identifying features include the arrangement of the spinnerets (silk-producing organs – spigots from which liquid silk is extruded from the abdomen) and claws at the tips

of the legs. Species are distinguished on the basis of the visible genitalia or sex organs: the epigynum on the underside of the female's abdomen and the tibia (tip) of the male pedipalp, which is used to transfer sperm to the female.

In some spider families, the females are larger than the males and are colored differently. In other families, the males are larger (i.e., have longer legs) but spindly in comparison to the stocky females. In every case, the females have larger abdomens to accommodate the considerable ovaries and volume of eggs produced. Males, on the other hand, have characteristically enlarged tips (tibia) on their pedipalps, often giving the impression of wearing boxing gloves on these appendages.

### **Representative Invasive Species.**

1. Garden spiders and other orbweavers (families Araneidae and Argiopidae) measure 1/5 to 1 inch long (adult body) and have a leg span of 1/2 inch to 2 1/2 inches. Of the 3,500 species found worldwide, about 180 species are found in North America north of Mexico. Most species are yellowish-brown or pale gray with darker brown and whitish markings; however, some species have the abdomen colored yellow, orange, pink or red with white and/or black markings. The adult female abdomen is very large and rounded (e.g., flattened egg-shaped or roughly heart-shaped), partially covering the cephalothorax. The legs are usually banded with light and dark colors and sparsely covered with short spines. The males are much smaller than the females but similarly colored. The 8 eyes are small and grouped such that the side-most (anterior and posterior lateral) eyes are closely paired while the four central eyes (anterior and posterior median) are arranged in a square. Females construct characteristic orb webs. The bridge and radial strands are formed of non-sticky silk and are used as travel lines by the spider. The spiral webbing is formed of sticky silk and constitutes the prey-capturing area of the web. Following mating, males may share the webs with females, but not in close proximity. Males may be eaten by the females if prey is scarce. Each female produces a single spherical or disc-shaped egg sac (containing 200 to 500 eggs) in autumn and dies before winter. Eggs overwinter and the spiderlings emerge in April and May.

The garden spiders of the genus *Argiope* place themselves in the center of their webs, facing downward and usually spin a broad zig-zag pattern of sticky silk, called the mentum, downward and upward a few inches from the center of the web. Most orbweavers hide during the day in a crevice or spin an umbrella- or dome-shaped retreat of silk in an upper corner of the web (often formed from leaves stitched together). At night the females await prey while exposed on their webs or rebuild their webs if they have captured prey on them earlier in the day. Ohio's most recognizable orbweavers include the barn spider *Araneus cavaticus* (of *Charlotte's Web* fame), the shamrock spider, *Araneus trifolium*, the marbled spider, *Araneus marmoriatus*, and the cross spider, *Araneus diadematus*.

Orbweavers may deliver defensive bites when persons grasp them with their hands or make abrupt skin contact with them in their webs (especially children, running through webs among tall vegetation). In most cases, orbweaver / garden spider bites result in brief, local pain (e.g., pin-prick to bee

sting-like) and short-term soreness or sensitivity to touch. A mosquito bite-like welt may result.

2. Woodlouse hunters, *Dysdera crocata* (family Dysderidae), typically measure 1/2 inch long (adult body). The males and females are similar in size and coloration. The 6 eyes are small and closely grouped. About 10 species of dysderid spiders are found in the United States and Canada but only the red and beige woodlouse hunter, *Dysdera crocata*, is common in Ohio. The cephalothorax and legs are glossy orangy-red and the abdomen is dirty white to beige colored. This species occasionally can be found indoors on floors, along outside / foundation walls, at ground level and below, and in garages; it is most commonly encountered under stones, logs, landscaping timbers, and other materials in contact with the ground. It also frequents the deep crevices that form in the soil and mulch adjacent to building foundations. Woodlouse hunters are active hunters and their primary prey are sowbugs and pillbugs, which frequent the sites described above. The jaws of these spiders are long and strong to enable them to penetrate the armor-like exoskeleton of their prey. Accidental bites by these spiders are rare and occur to the exposed skin of persons who are gardening or moving objects resting on the soil and accidentally come into contact with them. The bites are said to be similar to a bee sting, resulting in brief, local pain at the bite site.

3. Jumping spiders (family Salticidae) are about 1/8 to 3/4 inch long (adult body). They are robust and compact with relatively short, stocky legs. The front pair of legs often are thicker and somewhat longer than the other legs. Both the body and legs have a velvety or hairy appearance. The coloration is highly variable among species. The background color may be black, brown or gray with spots, patches, patterns or stripes of other colors. There may be iridescent coloration of the jaws and "face" area. Jumping spiders have excellent color and detail vision, unlike most other spiders. They have 8 eyes: The front-middle (anterior median) pair of eyes are very large; while the front outer (anterior lateral) set of eyes are somewhat smaller. The four remaining (posterior median and lateral) eyes are smaller still. There are about 300 species inhabit the continental U.S. and Canada. Jumping spiders are active hunters; they seek out and capture prey during the day. They move with quick, jerky movements and can use their hind pair of legs to jump/pounce on their unwary prey. Females are about 10% to 20% larger than males. Prior to mating, interested males engage in a courtship dance while facing the females. The male waves his front pair of legs in characteristic motion while he moves back and forth or side-to-side. If the female accepts his ritual advances, they mate without incident. If not, the male may be ignored or may have to retreat quickly to avoid becoming the female's next meal. Furthermore, he may be eaten right after mating if the female is not well-fed.

Jumping spiders rest in silken retreats beneath tree bark and in crevices at night. The retreats are also used for molting, hibernation and egg laying. The egg sacs are typically lens-shaped and suspended from the walls of the retreat.

Eggs are produced in June and July. The spiderlings grow through the summer and autumn and then overwinter as nearly mature juveniles. Maturation is completed the following spring and mating occurs in May. Adult females may be found May through October; while adult males live from April through July or August. Reports of accidental bites by jumping spiders are rare. The sensation is said to be pin-prick- or bee sting-like (depending on the species), occasionally with some lingering pain or soreness.

4. Wolf spiders (family Lycosidae) range widely in adult body length from 1/4 to 1 3/8 inch long, and the leg span may range from 1 to 3 inches among species. Both the body and legs of wolf spiders tend to be velvety or hairy in appearance. They may be yellowish-brown with darker brown and white markings or gray and brown or nearly solid dark brown in coloration. The 8 eyes are arranged such that the top middle pair of eyes (posterior median) are much larger than the other 6. Wolf spiders have fair vision and are active hunters. They are mostly nocturnal and rest under logs, among leaf litter, in burrows or crevices during the day. Females are slightly larger than males and are highly maternal, carrying their newly hatched spiderlings on their body until they can fend for themselves. Wolf spiders are commonly found on ground level and in basements and garages of homes and buildings located in wooded areas and newly constructed where farmland had just been developed. Wolf spider bites, although rare, are said to be painful due to the size of the jaws (bee sting-like). However, the venom is considered to be mild and presents no threat to humans, barring allergic reactions or secondary bacterial infection. About 2500 species of wolf spider are known worldwide, with over 258 species in the United States and Canada.

Large wolf spider females typically lay 100 to 135 (up to 600) eggs in June and July, wrapping them in an egg sac (1/2 inch across). The female carries her egg sac attached to her spinnerets until the eggs hatch; then she carries the young on her body for a week or so. The juveniles spend the winter about half-grown in protected sites, then complete development the next year. This species mates in the autumn and the females overwinter; whereas, the males die before winter. Females may live up to 3 years.

5. Nurseryweb spiders and fishing spiders (family Pisauridae) share with the wolf spiders the distinction of being the largest spiders in the region and have a form and appearance very similar to the wolf spiders. The adult female body length ranges from 1/2 to 1 inch long and the leg span may be 2 to 3+ inches. The body and legs have a fuzzy or velvety appearance. The body and leg background color ranges from yellow brown / beige to gray, depending on the species, and there may be paired white lateral stripes (along the sides) running the length of the body and/or a wide dark brown or black middle stripe (with or without small white spots) running the length of the body, or both the body and legs may be banded and mottled with gray, brown and beige. Males are 1/2 to 2/3 the size of the females and have more slender legs. The 8 eyes are

arranged such that the lower or front (anterior) 4 eyes are small and the upper or rear (posterior) 4 eyes are somewhat larger. Some members of this family are called fishing spiders and raft spiders due to their habit of waiting on cattail stems, water lily pads and other marshy vegetation, until tadpoles, minnow-sized fish and other prey come within seizing range. The name nurseryweb spider refers to the female's habit of carrying the round silken egg sac attached to her spinnerets until the spiderlings emerge. These spiders are alert both day and night and acquire prey as both passive and active hunters. The life cycle and seasonality of these spiders is similar to that of the wolf spiders. About 15 species of this family are found in North America north of Mexico and several species inhabit Missouri. The largest of these spiders commonly found in the midwest is the forest or woods nurseryweb spider, *Dolomedes tenebrosus*. Females are 1 inch long, have a 3+ inch leg span and are mottled with light gray and dark gray or beige/yellowish-brown and dark brown. They may be found resting and sunning themselves on tree trunks, logs, leaf litter and the outside surfaces of cabins and homes built in wooded and rustic settings. Bites are rare since human encounters with nursery web spiders are uncommon. Curious children and unwary adults are at highest risk for skin contact with these and other spiders. The pain is said to be similar to that of a bee sting and rarely results in more than short-term soreness and mild inflammation at the bite site.

6. Funnelweaver spiders (family Agelenidae) range widely in adult body length from 1/8 to 5/8 inch long and the leg span may range from 1/4 inch to 2 inches among Midwestern species. Both the body and legs of funnelweaver spiders tend to be velvety in appearance and the legs also have a spiny appearance up close. They are typically yellowish-brown with darker brown markings or gray and brown in coloration. Several species have a light middle stripe and light borders on the cephalothorax and repeating light and dark wavy or mottled patterns on the abdomen. A pair of elongated spinnerets protrude from the rear of the abdomen. The 8 equal-sized eyes are fairly evenly and closely spaced in an oval or D-shaped pattern. Funnel-weavers have poor vision and capture prey by ensnarement. Female and male spiders of this family are similar in size; however the males have slender abdomens. Funnelweaver spiders readily enter structures during summer and autumn and may live up to two years indoors. Outdoors, the females deposit a disc-shaped egg sac in a crevice and then dies. The webs of these spiders are partially sheet-like, with one corner narrowing and funneling into a tubular retreat. During the day, funnelweaver spiders wait in their retreats until a flying insect snags on the sticky sheet portion of the web. Within a split second, the spider will have reached the prey, sensed or tested the acceptability of the prey and envenomated it. In the next two seconds, the spider will have carried the subdued victim back into its retreat where it feeds at leisure. At sundown, funnelweaver spiders leave their retreats and wait for prey on the sheet portion of their webs, an inch or two from the funnel entrance to the retreat. This posture is maintained through the night and in darkened rooms and areas indoors. The webs are constructed among tall grass and vegetation (e.g., ivy and groundcover), dense shrubs (e.g., *Taxus*

yew), in basement and cellar window wells, door and window recesses, in foundation corners of crawlspaces, cellars, basements (particularly near sump pump pits), garages, outbuildings and stone walls.

Of the 600 species found worldwide, about 300 species are found in North America. Three of the most easily-recognized invasive funnelweaver spiders in the Midwest are (1) the eastern grass spider, *Agelenopsis pennsylvanica*, the European house spider, *Tegenaria domestica*, and the medicinal cora / funnelweaver, *Cora medicinalis*, all of which have an adult body length of about 1/2 inch. Accidental spider bites occur outdoors when persons are weeding or gardening, barehanded, among spider harborage sites. Indoors, bites occur when female spiders are leaned upon in crawl spaces, or relocating to a more favorable web-building site, or when males are wandering about seeking females with which to mate. The bite is said to feel similar to a pin-prick. However, the cytotoxic (cell-destroying) venom, in some cases, may result in an enlarging wound (necrosis) that heals slowly. Bites of this spider may be confused for that of the brown recluse spider (*Loxosceles reclusa*), even by healthcare professionals.

7. Crab spiders (families Thomisidae and Philodromidae) are so-named for their characteristic stance in which the 1st, 2nd and 3rd pairs of legs are curved forward and the hind pair of legs backward or forward while at rest, in a crab-like manner. The adult body length ranges from 1/8 to 1/3 inch long and the coloration is highly variable, depending on the species. Males are somewhat smaller than females in body size but have legs of similar length. The 8 eyes are small, about equal in size and arranged in a flat oval pattern on the face. About 200 species of crab spiders can be found in North America north of Mexico and 40 species in Ohio. Some crab spiders are mottled with shades of gray, brown and beige while others are bright yellow with pink or red markings. Most are considered to be passive hunters and are alert to passing prey during the day; although some of the philodromid crab spiders are active hunters. Crab spiders that are mottled with subdued colors tend to rest and wait for prey on tree trunks and logs (e.g., *Xysticus* species and *Coriarachne* species of the family Thomisidae and *Philodromus* species of the family Philodromidae); while those having bright colors prefer to rest on blossoms and vegetation of the same color (e.g., *Misumena* species and *Misumenops* species of the family Thomisidae). Their success in capturing prey comes from their ability to blend in with their surroundings, making them nearly undetectable by the small flying and crawling insects they ambush. Accidental bites are rare and usually result from someone grasping an object or leaning on a surface occupied by a camouflaged spider. The sensation is pin prick-like and may or may not result in short-term soreness at the bite site.

**Similar Groups.** (1) Nurseryweb spiders, wolf spiders and funnelweaver spiders are somewhat similar in body form and coloration. However, funnelweaver spiders have a pair of elongated spinnerets protruding from the abdomen while the other two families do not. Also, wolf spiders have a pair of

large eyes (the top middle set or posterior median eyes) while the eyes of the other two families are similar in size. (2) Some slender, brown crab spiders of the family Philodromidae are similar to the more venomous brown spiders (family Loxoscelidae), such as the brown recluse, *Loxosceles reclusa* (discussed in Dangerous Spiders). However, the crab spiders in Ohio have 8 eyes while the brown spiders have 6 eyes arranged in 3 pairs, called diads (one pair in front and a pair on either side of the cephalothorax). (3) Mostly black jumping spiders of the genus *Phidippus* are sometimes mistaken for black widow spiders (*Latrodectus mactans* and *Latrodectus variolus* (family Theridiidae). However, jumping spiders are active hunters, stocky, short-legged, velvety or hairy-looking, and have a few variously-colored markings on top of the abdomen; whereas, black widow spiders are web-dwellers, have rounded abdomens, smooth, shiny bodies, longer spindly legs and have a red hourglass pattern on the underside of the abdomen.

**Biology.** Spiders exhibit gradual metamorphosis (growth) in which hatchlings are nearly identical to adults (e.g., yellow sac spiders, wolf spiders) except for some coloration differences among the species of some families (e.g., cobweb spiders). Spiders molt several times before reaching adulthood. Some spiders (e.g., sac spiders, wolf spiders, nurseryweb spiders and woodlouse hunters) spend the winter as hibernating juveniles or adults outdoors or remain active indoors; while others overwinter in the egg stage (e.g., garden spiders / orbweavers).

Spiders feed by injecting digestive enzymes through their hollow jaws (chelicerae) into their venom-subdued prey. The jaws are used to masticate or soften the prey and distribute the enzymes throughout the dinner guest. Much digestion occurs before the prey is consumed. The spider ingests by pumping the semi-liquefied prey into its mouth and esophagus.

Spiders generally require a season, or a summer and the following spring, to complete development. Spider longevity depends on the species, gender and environment. Most spiders live only one year in temperate climates. However, the life span may be extended under ideal circumstances, including availability of food, warmth and protection. Among tarantulas (hairy mygalomorphs of the family Theraphosidae), females can live into their 20's while males are fortunate to live past their 7<sup>th</sup> year. Depending on the species, females may produce one egg sac full of eggs or several egg sacs during the course of their adult lives. Wolf spiders are highly maternal: the female carries her young spiderlings on her backs until they are old enough to fend for themselves. Similarly, nurseryweb spider females carry their egg sacs behind them, attached by a silken hitch, until the young emerge. Female sac spiders (discussed in Common Invasive Spiders) often guard their eggs within the protective silken retreat until the young hatch.

**Habits.** Spiders often are categorized on the basis of how they capture prey. Those which rely upon silken webs, capture prey by ensnarement (e.g., funnelweaver spiders and garden spiders / orbweavers,). Spiders that wander about searching for prey are active hunters (e.g., nurseryweb spiders, wolf

spiders and woodlice hunters). Finally, spiders that rely on stealth, waiting for prey to approach unawares, are passive hunters (e.g., crab spiders and sometimes nurseryweb spiders). Favorite prey include most soft-bodied insects, such as flies, moths, mayflies, crickets, cockroaches and silverfish, as well as other spiders. Larger spiders that are active and passive hunters (e.g., wolf spiders, nurseryweb and fishing spiders) readily capture tadpoles, small frogs and salamanders and minnow-size fish.

All spiders have spinnerets which produce silk; however, not all spiders spin webs. Some species, like the yellow sac spiders (discussed in Common Invasive Spiders), spin thin silk retreats in which to rest during the daytime. Thicker silk retreats are constructed in which to spend the winter or to house a batch of eggs, which, in turn, may be wrapped in a silken egg sac for protection. Some spiders line the burrows and cavities they occupy with silk. Many species spin a silken “dragline” as they move along surfaces, just in case they lose their footing or have to let go in order to escape danger or to descend to a lower level in order to continue their search for prey.

Spiders that capture prey by ensnarement spin characteristically functional webs that consist of non-sticky bridge and radius strands (used by the spider to move about) as well as sticky strands on which to capture prey. Silk may be used to wrap and suspend freshly caught prey until the spider decides to feed. The ability of spiders to traverse long distances may be attributed to the behavior called “ballooning”. In springtime, when spiderlings hatch from overwintered eggs (e.g., garden spiders and other orbweavers), they climb to an upper perch and spin out long strands of silk that are wafted by the breeze. When the strands are long enough for the wind to carry the spiderlings from their perches, they become airborne and “balloon” to new and promising web-building sites. In this way, spiderlings may be carried to the tops of tall buildings and natural formations. Spiders often construct webs near electric lights because flying insect prey is abundant at such locations through the night.

The males of some spider families (e.g., jumping spiders) perform elaborate courtship “dances” for the females in order to be recognized and accepted for mating. Among other families, males approach females with caution in order to mate; if accepted, they use their pedipalps to transfer sperm to the female epigynum. Once mating is completed, males may become a post-copulatory feast for the females, unless there is an abundance of prey in the vicinity and the females are well-fed.

**Cultural Control & Preventative Measures.** A noticeable reduction in spider invasion can be accomplished by: (1) pruning tree and shrub branches away from building surfaces to prevent bridging, (2) eliminating tall and dense vegetation close to the foundation which serve as harborage for spiders and their prey (e.g., vines, groundcover, juniper, uncut grass and weeds), (3) replacing white exterior lighting with amber-colored lamps (thereby attracting fewer night-flying insects to porches and garages, the abundance of which spiders favor, (4) excluding gaps under doors (by replacing or adding door sweeps), lower courses of siding (using silicone sealer), around utility penetrations (using builder’s putty)

and weep holes in brick veneer (by filling with copper gauze), (5) capturing wandering spiders on ground level, in basements and in attached garages by placing sticky traps (glue boards) indoors along walls behind furniture, washer, dryer, sump pump, water heater, furnace, commode, and storage (out of reach of children and pets), and (6) removal using a shop vacuum cleaner or household vacuum fitted with a hose attachment; this is useful for removing spider webs as well.

**Professional Control.** A Rottler technician will apply an exterior barrier treatment using residual liquid insecticide around the foundation perimeter, beneath lower siding, under eaves and porticos, along exterior molding/trim, thresholds, patio, deck and chimney attachments. Residual liquid insecticides may be use to treat mulch and landscaping features located close to the foundation, as well. A quarterly pest management service program may be required in cases where large populations of spiders are present and where landscaping conditions and locality are conducive to their propagation. Indoors, basement sillplates and perimeters, as well as the corners and edges of spider-infested rooms, can be lightly treated using an insecticide aerosol. Pest sticky monitors/traps will be placed strategically to help reduce indoor spider activity.



7A. Thomisid crab spider



7B Philodromid crab spider



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