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Common Name: **Yellow sac spiders (1), cobweb spiders (2), longbodied cellar spiders (3), wolf spiders (4), and funnelweaver spiders (5).**

Scientific Name: **See below**

COMMON INVASIVE SPIDERS



1



2



3



4

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

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of spiders occur worldwide, including over 3,000 species in Europe and about 3,600 species in the United States and Canada. Ohio is home to about 600 species.

Relatively few families of spiders commonly enter human structures in Ohio 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, one 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. The yellow sac spider, *Cheiracanthium mildei* and agrarian sac spider *Cheiracanthium inclusum* (family Miturgidae; formerly family Clubionidae) measure 1/4 to 5/16 inch long (adult body) and with legs extended, can reach across a quarter-sized coin. They are light yellow to pale green with brown chelicerae and pedipalp tips. The eyes are dark brown to black, equal-sized, and are arranged in two rows of 4. Young are produced in June and July.

These spiders are sometimes called yellow house spiders and the name running spider is sometimes used in connection with *Cheiracanthium inclusum*. Yellow sac spiders are active hunters and nocturnal. They readily enter structures and are active indoors all year round. It is believed that most actual incidents of spider bite occurring indoors in Ohio can be attributed to accidental encounters with these two spiders. Persons may be bitten in their sleep if their unconscious movements threaten harm to a spider that is wandering across bedding, sleepwear or the skin. Spiders in their silk retreats in recessed areas among folds of draperies, appliance and faucet handles, etc. may deliver defensive bites when persons grasp these sites with their hands. In most cases, yellow sac spider bites result in brief, local pain (e.g., pin-prick) and short-term soreness or sensitivity to touch. A mosquito bite-like welt may result.

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2. Cobweb spiders or comb-footed spiders (family Theridiidae) typically measure 1/8 to 3/8 inch long (adult body). The males are much smaller and more brightly colored than the females. The 8 eyes are small and grouped such that the side-most (anterior and posterior lateral) eyes are joined. About 2000 species are known worldwide, 230 species in the United States and Canada and 44 species in Ohio. Several species can be found indoors, in garages and outbuildings; but the most commonly encountered cobweb spider is the American or common house spider, *Achaearanea tepidariorum*. The female has a bulging, rounded abdomen that covers half of the cephalothorax when viewed from above. It is mostly yellowish-brown to dirty-white with many small dark brown markings. The legs are light brown with dark brown joints and mid-segmental bands. The female has a nickel to quarter-sized leg span. The American house spider, like other cobweb spiders, captures food by ensnarement. The female spins an irregular web (usually a cubic foot or less in size) in upper corners and rests in the uppermost corner or recess of her web. A female may temporarily share her web with a male, following mating, if he avoids being eaten. Females lay about 250 eggs (range 132 to 442) in a light brown, teardrop-shaped, papery silken sac that is suspended in the web. Up to 17 sacs may be produced by a female in her lifetime (usually one year). Some species overwinter as juveniles. Accidental bites by these spiders are rare and, except for a few notable exceptions involving the related genus *Latrodectus* (hourglass spiders), result in brief, local pain (pin-prick) at the bite site.

3. Longbodied cellar spiders, *Pholcus phalangioides* (family Pholcidae), are about 1/8 to 3/8 inch long (adult body). As with cobweb spiders, females are much larger than males. These spiders are light brown to gray with darker brown mottling on the rear half of the elongate abdomen. The legs are extremely long (up to 2 inches) for the size of the body and have dark brown joints. The 8 small eyes are arranged as two widely-spaced groups of three and two eyes in between. Females may live up to two years and produce up to 3 egg sacs containing 13 to 60 eggs each. The female holds her egg sac in her jaws (chelicerae), in a protective manner, until the spiderlings emerge. The large, irregular webs may span several feet and are commonly found among joists and corners in crawlspaces cellars and dark, damp, undisturbed areas of basements, garages and outbuildings. Longbodied cellar spiders hang upside down in their webs and, when disturbed, begins to shake its body rapidly in a rotary movement. This causes the web to vibrate enough to blur both the spider and the web, temporarily making the spider seem to disappear. Reports of accidental bites by this spider are rare. The sensation is said to be pin-prick-like with no lasting 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 Ohio 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

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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, over 258 species in the United States and Canada and 44 species in Ohio. Ohio's largest wolf spiders are *Hogna* (previously *Lycosa*) *helluo* (having a female body length of up to 7/8 inch and most commonly invades structures), *Hogna rabida*, (females up to 7/8 inch long), and *Hogna aspersa* (females up to 1 inch long).

These 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 following 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. 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 Ohio 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. Funnelweavers 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. The lifespan of most species is one year; a few 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 and 16 species in Ohio. Three of the most easily-recognized invasive funnelweaver spiders in Ohio are (1) the eastern grass spider,

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Agelenopsis pennsylvanica and the European house spiders, *Tegenaria domestica* and *T. saeva*, 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.

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) Longbodied cellar spiders are often called daddy-longlegs like their free-ranging counterparts the harvestmen (order Opiliones). However, harvestmen are not spiders, for they have three body regions broadly joined together, a segmented abdomen, a single pair of closely-spaced eyes on top of the head and are omnivorous, feeding on both prey and plant material.

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. Many spiders (e.g., sac spiders, wolf spiders, funnelweaver spiders and some cobweb spiders) spend the winter as hibernating juveniles or adults outdoors or remain active indoors; while others overwinter in the egg stage (e.g., orbweavers – see Common Landscape Spiders).

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 7th 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

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themselves. Similarly, nurseryweb spider females (discussed in Common Landscape Spiders) carry their egg sacs behind them, attached by a silken hitch, until the young emerge. Female sac 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., cobweb spiders, longbodied cellar spiders, funnelweaver spiders). Spiders that wander about searching for prey are active hunters (e.g., yellow sac spiders, wolf spiders). Finally, spiders that rely on stealth, waiting for prey to approach unawares, are passive hunters (e.g., crab spiders – discussed in Common Landscape 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 spiders 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, 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., cobweb spiders and 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 – discussed in Common Landscape Spiders) perform elaborate courtship “dances” for the females in order to be recognized and accepted for mating. Among other families (e.g., cobweb spiders), 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.

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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 Varmant Guard 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.



5A



5B