

Identification Guide to Common Spiders in Nebraska

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Figure 1. *Schizocosa avida*, a wolf spider, represents the general spider appearance with two body parts and eight legs.

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This Extension Circular provides information on identification and biology of common spiders in Nebraska, as well as two closely-related arthropod groups—harvestmen and windscorpions.

Spiders belong to a group of animals called **arthropods**, which all have an **exoskeleton** or thin shell that covers their segmented bodies and jointed legs. Spiders are also part of a subgroup within arthropods known as **arachnids**, because they have two main body parts and eight legs (Figure 1). It is estimated that there are over 200 species of spiders in Nebraska. Of these species, several dozen are common or much more easily noticed.

Spiders play an important role as predators of insects in the landscape. Many people appreciate their value, but they still are fearful and avoid them. This is probably because spiders are venomous and may bite when in defensive situations or when trapped against the skin. Indeed, bites can be painful, but only a few species can cause severe reactions in humans. It is, therefore, valuable to know how to readily identify spiders living in and around homes, buildings and in the surrounding landscape, and to differentiate the risks each spider species may pose.

This guide is designed to assist with identification of common spiders that live in Nebraska as well as two common spider-like arthropods—harvestmen and windscorpions. But the information in this publication is also broadly relevant, as the species represented occur geographically in much of the United States and southern Canada east of the Rocky Mountains.

External Anatomy of a Marbled Orb Weaver, *Araneus marmoreus*

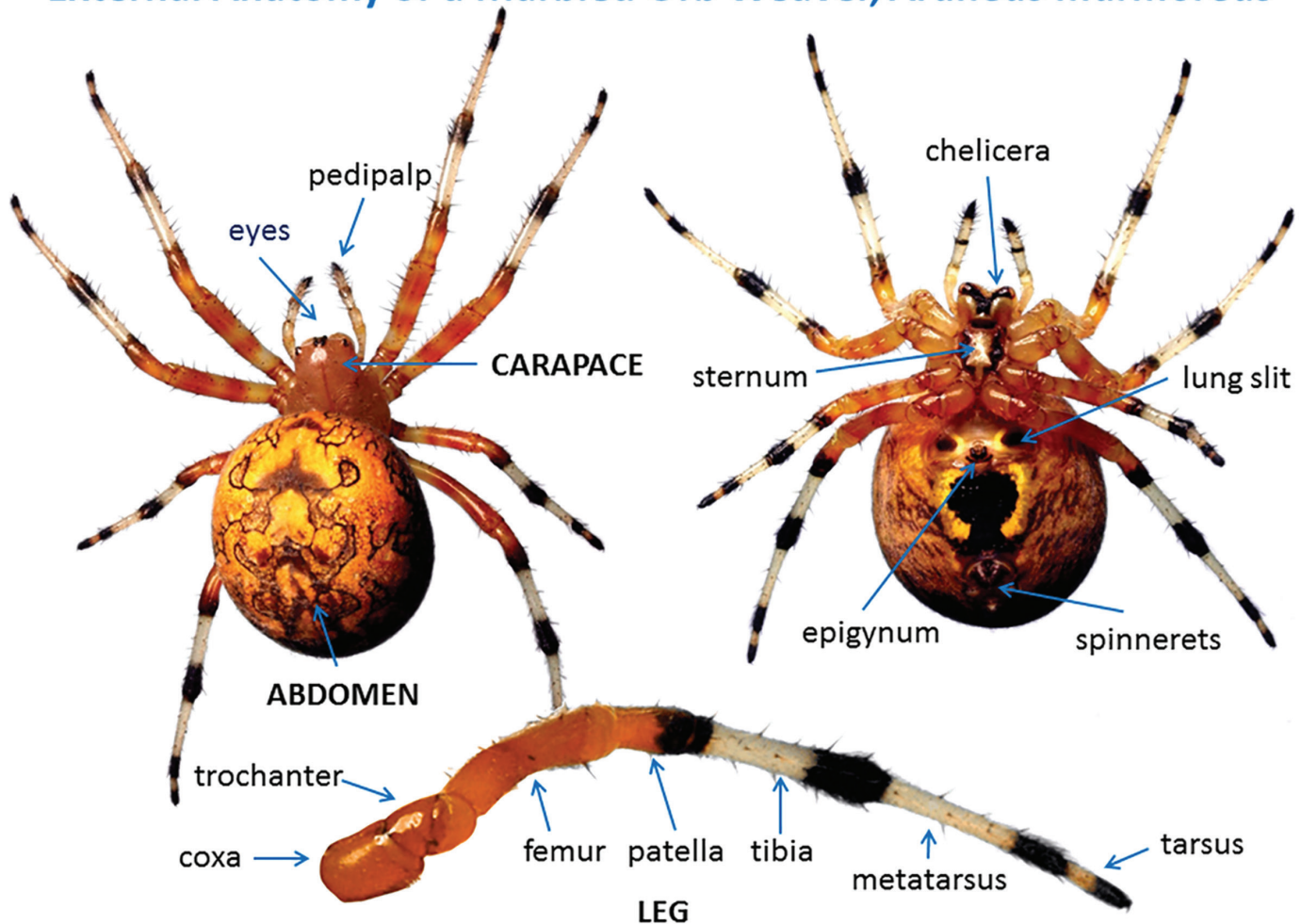


Figure 2. External anatomy of a marbled orbweaver, *Araneus marmoreus*.

Although identification requires observations of specific characteristics, this guide is not intended to be particularly technical. Important characteristics that are highlighted include body size, shape and posture; leg length, eye pattern, web structure, egg sac shape, general habitats, and behavior. It is helpful to have a magnifying glass and bright light to examine spiders closely, particularly their eye patterns.

Basic Spider Biology

Basic Anatomy

In North America, spiders are separated into groups according to their anatomy, particularly how many lungs they have and how their fangs work. The smallest group is the **Megalomorphs**, which consists of large ground spiders such as tarantulas, trapdoor spiders and purseweb spiders. They have four lungs and two fangs that are parallel to each other, like that of a snake. By far the largest group, the **Araneomorphs**, consists of the rest of the spiders, which have two lungs and fangs that oppose each other and close together like a pliers (*Figure 2*).

All spiders have two body parts and eight legs. The front body part is called the **carapace**, and the softer hind part is the **abdomen**. There is some variation in the structure of legs among spiders, which is helpful for accurate diagnosis. Most spiders have eight eyes on the front of the head, but a few have six eyes. Spiders also have **spinnerets** at the tip of the abdomen, and the shape and length of these structures vary. Even within the finer grouping of spiders to the family level, there are considerable differences in size, coloration and patterns on the body. These variations may be used to distinguish between different spider species. In addition, males and females have distinct differences. Male spiders are usually much smaller than females, and the pair of appendages close to the mouth, called **pedipalps**, are developed as special structures for inseminating females.

Extending from the mouth and between the pedipalps is a pair of sharp, muscular “fangs,” called **chelicerae** in the plural form. These grasp and penetrate the exoskeleton of the prey, and the fangs at the tips inject venom. The pedipalps help to hold and manipulate the prey while feeding. Chelicerae are also distinctive among spider families and used for identification.

Spider egg sacs also are very helpful in identifying a spider. In many cases, the shape, color and construction of egg sacs are distinctive for a species of spider.

Additionally, a few spider-like arthropod groups share some of the characteristics of spiders but have distinct differences. Among these are harvestmen (“daddy-long-legs”) and windscorpions (“sun spiders”). Information about these is given at the end of this publication.

Prey Capture Method and Feeding Habits

Some spiders are **web-builders**, using a variety of types of webs to ensnare their prey. Some are **passive hunters** and perch in one location, waiting for their prey to approach within striking distance. Finally, some spiders are **active hunters**, prowling about in search of prey.

All spiders are predators of insects and related arthropods, including pillbugs, millipedes, and even other spiders. Some larger spiders, especially in tropical regions, feed on small fish, amphibians, birds and rodents. Spiders do not have chewing mouthparts. They capture insects in various ways, after which they bite them with their chelicerae and inject **venom** and **enzymes**. Venom immobilizes their prey while enzymes break down the interior organs and tissues within the body so they can swallow the contents (*Figure 3*).



Figure 3. Jumping spider injecting venom into a house fly.

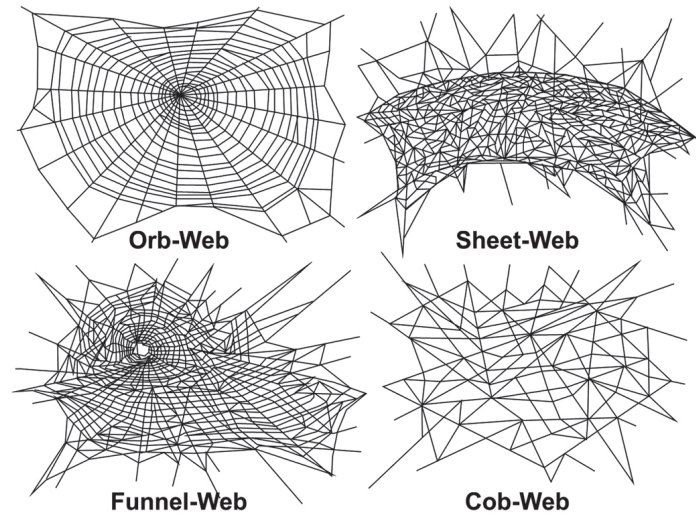


Figure 4. Kinds of spider web patterns.

Web Structure

Spiders have several distinct web patterns that they construct from strong, flexible silk, which they use to capture prey or to create secure resting areas (*Figure 4*). The **orb-web** pattern is the most recognizable. The webbing is usually attached to stable structures or plants in such a way that it is suspended vertically across an opening. Typically, insects that fly or jump become entangled in the flattened network of sticky silk filaments. An insect struggling in the web is immediately detected by a waiting spider that rushes out, wraps its victim with fine silk threads and bites it to paralyze it.

Other common patterns are **sheet-web**, **funnel-web** and **cob-web**. Sheet-webs are suspended in a horizontal fashion and may be flat, bowl or dome-shaped. Cob-webs have no recognizable pattern, but fill spaces with irregular tangles of webbing. Sheet-webs and cob-webs serve the same purpose as orb-webs to ensnare prey. However, the funnel-web generally is a dense, horizontal platform of silk with a “throat” or retreat in which the spider waits. When an insect momentarily lands on the web, the spider bursts from its retreat and in an instant seizes its prey with its venomous fangs and retreats into its lair to enjoy its meal.

A large number of spiders are active hunting spiders, prowling about on the ground, or among rocks, plants or trees. They do not construct webs to capture prey but commonly use silk to line the inside of a retreat where it provides some measure of protection.

Spider Silk

Spider silk is made up of flexible but strong filaments extruded from spinnerets at the tip of the abdomen. The silk consists of **proteins** and **amino acids**. The spinnerets may not always be evident, but in some spiders, they are long and finger-like. In addition, spinnerets are capable of producing different kinds of silk on demand. For example, among the orbweaver spiders, thicker, stronger filaments are used to suspend and frame a web (*Figure 5*). Another kind is used to produce the lines that radiate outward from the center of the web, and even stickier filaments are used to create the spiral to capture and retain prey. Another kind is used to make the tough egg sac to protect the eggs. In addition, much finer filaments are used to wrap entangled prey or to line a retreat. Some spiders actually recycle their silk by eating it and breaking it down by their powerful digestive enzymes for reuse the next day.

Another amazing use of silk is for transporting newly hatched and tiny spider species to



Figure 5. Various types of silk in an orbweaver web.



Figure 6. Spiderling gossamer in a meadow in the autumn. (Dr. Africa Gómez, University of Hull, U.K.)

other locations via the forces of wind. This is called **ballooning**. This behavior is common among immature and adult sheet-web spiders. In the autumn, millions of newly hatched spiders, or **spiderlings**, shoot out fine threads that are captured by the wind and carry the spiders to new habitats. At times, phenomenal drape-like accumulations of silk, called **gossamer**, cover tall plants, trees, turfgrass, or hang down on fences and power lines (*Figure 6*).

Habitat

Spiders can be found in a wide variety of locations in the landscape, usually where there is significant insect activity. The habitat in which a spider lives often gives a clue about the kind of spider it is, because most of the species that share the same habitat preferences fall into a specific group. For example, some spiders prefer to inhabit protected structures such as houses, rocky crevices, caves or logs, and stones on the ground. Some prefer to reside in forested areas among leaf litter on the ground. Some spiders patiently wait for prey on flowers or prowl about on plant foliage. Some retreat beneath objects or into holes in the ground, emerging at nightfall to search for prey. And others prowl along shores of lakes or banks of rivers, seizing prey from the water.

Identification and Natural History of Spider Families

After grouping spiders by prey capture method, they may be further differentiated from each other by characteristics of their body structures, such as body size and shape, legs, eye pattern, length of spinnerets and egg sac appearance. In addition, habitats where spiders are found and the behaviors they display can help with identification.

Groups of spiders based on prey capture method:

Web-Building Spiders: Cellar Spiders, Orbweavers, Longjawed Orbweavers, Sheetweb Spiders, Cobweb Weavers, Funnel Weavers

Passive Hunting Spiders: Spitting Spiders, Brown Spiders, Crab Spiders

Active Hunting Spiders: Pillbug Hunter Spiders, Running Crab Spiders, Sac Spiders, Ground Spiders, Antmimic Spiders, Jumping Spiders, Nursery Web Spiders, Wolf Spiders

Web-Building Spiders

These spiders use webs they build to snare prey, which they readily seize and feed upon.

Cellar Spiders (Family Pholcidae)

Cellar Spiders are usually found in crawl spaces, cellars, basements, outbuildings and under fallen logs or objects on the ground (Figure 7). They spin an irregular tangle of webs from which they hang upside down (Figure 8). In protected areas such as crawl spaces, the masses of webs accumulate and can be very extensive. When an insect encounters a cobweb, the spider rapidly shakes the web to confuse and entrap its prey. The spider then covers it with silk to immobilize it. Typical prey are small flies, gnats, beetles and tiny wasps. Cellar spider females carry their spherical-shaped mass of eggs in their pedipalps until they hatch. They are sometimes confused with brown recluse spiders because of the dark marking on the carapace and unusual eye pattern (Figure 9).

Body: small (0.2–0.3 inch) with a cylindrical abdomen that is brown to cream-colored.

Legs: thin, thread-like, and very long (up to 2 inches).



Figure 7. Long-bodied cellar spider, *Pholcus phalangioides*.



Figure 8. Cellar spider webs. (Ron Seymour, Nebraska Extension)



Figure 9. Cellar spider eye pattern, *Pholcus sp.*



Figure 10. Common house spider, *Parasteatoda tepidariorum*.

Eyes: eight eyes, raised above the carapace on a “bump”; six eyes in two clusters, and most species with a pair of smaller middle eyes (*Figure 9*).

Web: network of irregular threads or tangled masses of fine silk (*Figure 8*).

Egg sac: spherical, almost bare, with very little silk; 20–30 eggs (*Figure 7*).

Habitat: dark spaces, cellars, caves or under leaf debris found on the ground.

Behavior: suspended upside down in web; crawls slowly and clumsily; shakes web when disturbed.

Cobweb Weaver Spiders (Family Theridiidae)

Cobweb weaver spiders are found outdoors among rocks, logs, piles of lumber, and in dense, low shrubs or among low plants on the ground. Several species live in structures as well, including the common house spider, *Parasteatoda tepidariorum* (*Figure 10*), widow spiders, *Latrodectus* spp. (*Figures 11 and 12*), and false widow spiders, *Steatoda* spp (*Figures 13 and 16*).



Figure 11. Western black widow, *Latrodectus hesperus*.



Figure 12. Western black widow pre-adult, *Latrodectus hesperus*.



Figure 13. Northern steatoda spider, *Steatoda borealis*, often has an ivory “T” shape in front of the abdomen.

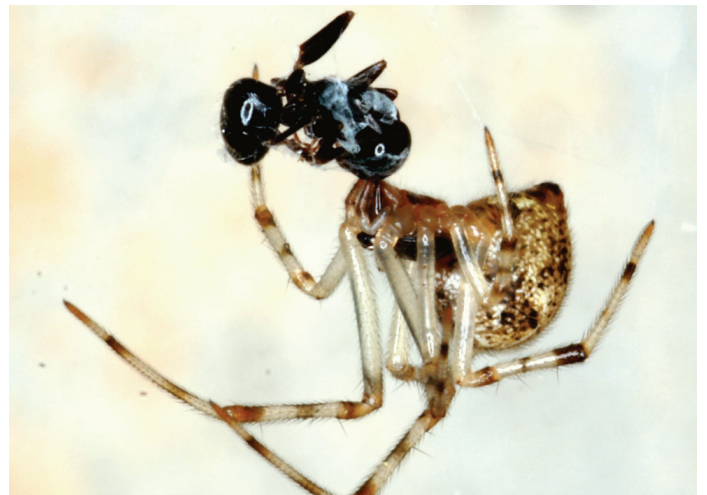


Figure 14. Common house spider, *Parasteatoda tepidariorum*, feeding on a field ant, *Formica argentea*.

Cobweb weaver spiders move slowly and are not aggressive. They are generally reclusive, waiting for insects to be caught in their irregular maze webs. Once prey is detected, these spiders use the combs on their hind legs to quickly wrap their prey with a film of fine silk drawn from spinnerets. The spider then bites its prey to inject venom to further immobilize it and predigest the interior of the body. Afterward, it feeds for a considerable time and then releases the carcass to the ground. The most common prey of cobweb weaver spiders are flies, moths, roaches, ants, crickets and millipedes (Figure 14). Those inside homes build webs in corners, crevices, shelves, overhangs, or in window wells.

Only the widow spiders in this group produce a neurotoxic venom potentially harmful to humans and animals. They should be avoided or eliminated from places where there is human activity. In Nebraska, the western black widow, *Latrodectus hesperus*, is most common (Figures 11 and 12) and the southern black widow, *Latrodectus mactans*, is occasionally found on freight and furniture transported from the southern United States.

Body: small to medium (0.1–0.6 inch) with a large globular abdomen.

Legs: relatively short; tips of hind legs have a fine comb of hairs.

Eyes: eight eyes arranged in two rows form an oblong circular pattern in the center of the face (Figure 15).

Web: irregular, scaffold-type webs with sticky strands attached to surfaces (Figure 11).

Egg sac: usually spherical with a tough, leathery silk covering; others with a cottony or fluffy surface (Figure 16).

Habitat: found in a variety of protected locations in landscapes and in and around structures.

Behavior: reclusive; hangs upside down motionlessly in web and not aggressive until prey is snared; retreats when disturbed.



Figure 15. Cobweb weaver eye pattern.



Figure 16. Checkered cobweb weaver, *Steatoda triangulosa*, with an egg sac.



Figure 17. Bowl and doily spider, *Frontinella communis*.



Figure 18. Web of the bowl and doily spider.



Figure 19. Sheetweb spider position under web.



Figure 20. Eye pattern of a sheetweb spider.

Sheetweb Spiders (Family Linyphiidae)

Sheetweb spiders belong to a large family of many small spider species. Some that live near the ground are so tiny that they are often not seen. Sheetweb spiders can be found in the landscape in ground litter and low vegetation, or among foliage and stems of bushes or tall grasses. They are one of the most common groups in agricultural fields. They also are active around structures in cellars, window wells, and in crawl spaces beneath homes. The loose webs consist of one or more horizontal sheets closely spaced and connected above and below with support lines of silk. They may be flat, dome-shaped or bowl-shaped.

The bowl and doily spider, *Frontinella communis* (Figure 17), is one of the more often observed species of sheetweb spiders. This spider creates a bowl-shaped web that measures about 6 inches across (Figure 18). The spider rests under the bottom of the bowl (Figure 19) and seizes insects that become entangled, and pulls them through the webbing to feed on them. The filmy dome spider, *Neriene radiata*, creates a dome-shaped web that measures 3–5 inches in diameter. This spider rests under the peak of the dome and also pulls entrapped insects through the web. Most species of sheetweb spiders feed on small insects such as spring-tails, tiny moths, leafhoppers, plant bugs and small flies.

Body: tiny to small (0.05–0.2 inch) with an ovoid abdomen.

Legs: relatively long.

Eyes: eight eyes arranged in two rows that form an oblong circular pattern in the center of the face (Figure 20).

Web: sheet-like, dome-shaped, bowl-shaped or irregular webs (2–8 inches in diameter), usually suspended horizontally like a trapeze net (*Figure 18*).

Egg sac: usually circular and flattened with a papery covering; attached away from webs just above the ground on plants, leaf litter, bark, logs or stones, or sometimes in the soil.

Habitat: gaps in dense shrubbery, on the ground among plant debris, and on low vegetation such as grasses and shrubs.

Behavior: cautious when suspended below the web; quickly retreats when disturbed. Drops depleted prey onto structural webbing or to the ground.

Orbweaver Spiders (Family Araneidae)

Orbweaver spiders (*Figures 21, 22, 23, 24, 25, 26, 27, and 28*) are found in a wide variety of locations either around buildings or in natural settings. They construct a flat, two-dimensional, symmetrical web suspended vertically across an opening to capture insects (*Figure 21*). Webs are often located where there are wind drafts or near lights that are left



Figure 21. Web of orbweaver, *Neoscona crucifera (hentzii)*.



Figure 22. Spotted orbweaver, *Neoscona domiciliorum*.



Figure 23. Marbled orbweaver, *Araneus marmoreus*.



Figure 24. Furrow orbweaver, *Larinioides cornutus*.



Figure 25. Yellow garden spider, *Argiope aurantia*.



Figure 26. Lined orbweaver, *Mangora gibberosa*. (Ivy Orellana, UNL Department of Entomology)



Figure 27. Banded garden spider, *Argiope trifasciata*.



Figure 28. Spined micrathena, *Micrathena gracilis*.



Figure 29. Typical eye pattern of an orbweaver.



Figure 30. Longjawed orbweaver, *Tetragnatha laboriosa*, in web.

on at night. Spiders wait for their prey either at the edge or in the center of the web. Vibrations caused by a struggling insect that has become caught in the web signals the spider of its presence. The spider quickly locates its prey and wraps it in silk to immobilize it. Once this is accomplished, the spider bites and subsequently feeds on its victim. Common prey species include flies, moths, grasshoppers, beetles, bees, wasps and mayflies.

Body: small to large (0.2–1 inch) with a large globular abdomen; some species have thorny or rounded projections on the abdomen.

Legs: stout, often spiny; many species with banded legs.

Eyes: eight eyes of equal size arranged in two closely spaced rows; middle eyes widely separated from lateral eyes so that they appear as a cluster of four in the center of the face (*Figure 29*).

Web: orb-shaped, net-like, (10–32 inches diameter) vertically suspended between plants or structures (*Figure 21*).

Egg sac: shaped like a sphere, pear, cup, teardrop, or chained together like pearls; some attached to leaves in a fuzzy mass.

Habitat: found in forests, tall grasses, bushes, crop fields, and on structures.

Behavior: many species active at night, others during the day; generally at rest until prey is snared; spider shakes web or retreats when disturbed.

Longjawed Orbweaver Spiders (Family Tetragnathidae)

Longjawed orbweaver spiders spin an orb-shaped web (*Figure 30*) to capture prey, but they have distinct differences from orbweavers. The obvious characteristic is the very long pair of chelicerae or fangs (*Figure 31*). They also possess a long, slender abdomen and long, thin legs, with the first pair particularly long.

Depending on the species, the webs may be suspended vertically between grasses or shrubs or horizontally across vegetation over water. The webs are intricate and designed to intercept tiny flying insects such as midges, mosquitoes and other aquatic flies. These spiders, depending on the species, will rest either in the center of the web or at an edge as they wait for prey (*Figure 32*). When disturbed, they often drop quickly to the ground to hide.



Figure 31. Longjawed orbweaver head, *Tetragnatha* sp.

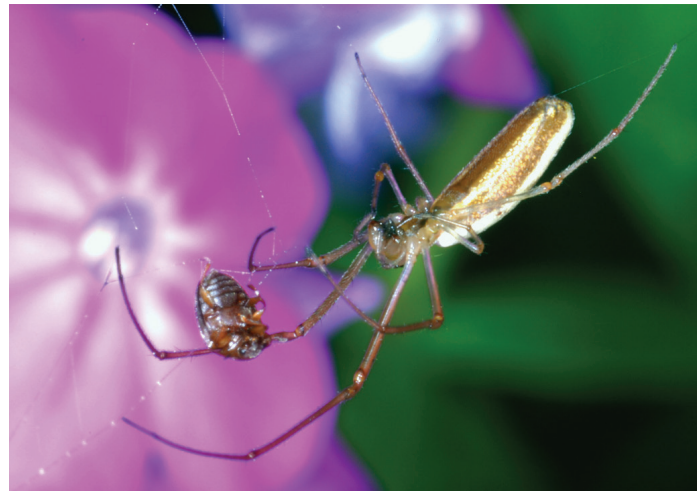


Figure 32. Longjawed orbweaver securing its prey.

Body: small to medium (0.2–0.35 inch); abdomen elongate with a silvery pattern on top in many species.

Legs: long and slender; front two pairs of legs much longer.

Eyes: eight eyes of equal size arranged in two closely spaced rows (*Figure 31*).

Chelicerae: conspicuously long and protruding slightly forward, bearing long, sharp fangs.

Web: small, orb-shaped, net-like; oriented vertically with an open hub (*Figure 30*).

Egg sac: fuzzy mass with projecting tufts of silk; attached to leaves, logs or twigs.

Habitat: found in meadows and in shrubs and tall grass, often near water.

Behavior: rest upside down at center of the web; forelegs stretched outward and used to sense entangled prey.

Funnel Weaver Spiders (Family Agelenidae)

Funnel weaver spiders generally live outdoors on dense vegetation, in open fields, in rock ledges and in or around buildings. They produce a non-sticky, dense platform of webbing to help them capture their prey. As the name indicates, a funnel weaver spider constructs a broad, horizontal web with the narrowed “throat” used as a retreat in which to hide (*Figures 33 and 34*). The spider waits for its prey to land on, or crawl across the web. The instant contact is made, the spider rushes out to capture its prey and swoops it back to its retreat (*Figure 34*). Common prey include a wide variety of flying and crawling insects, such as moths, crickets, beetles, flies and other kinds of spiders.

Grass spiders, *Agelenopsis* spp., (*Figure 35*) are quite common and found among plants and low-lying bushes. Around homes, they build webs on exterior walls, in window wells, near windows and outdoor lights, in crawl spaces and on decking.

The domestic house spider, *Tegenaria domestica*, (*Figure 36*) is common indoors and forms webs in corners, in window frames, among furniture, or near pipes. Its webs may be found at most any height, because the spiders can climb well. This species is smaller and less hairy than grass spiders and has much shorter spinnerets. Domestic house spiders, especially males, may be found wandering inside homes.

The hobo spider, *Eratigena agrestis*, (*Figure 37*) is found in the northwestern United States but not known to be in Nebraska yet. It resembles the domestic house spider and has been widely known as poisonous. However, recent investigations have shown that bite



Figure 33. Funnelweb from a grass spider, *Agelenopsis* sp.



Figure 34. Grass spider, *Agelenopsis naevia*, in retreat.

symptoms have been exaggerated and that most skin wounds have been associated with other causes such as bacterial or fungal infections. In reality, cases of hobo spider bites to humans have been infrequent.

Body: small to medium (0.1–0.6 inch) with an oblong or tapered abdomen and long spinnerets.

Legs: relatively long and robust, often hairy and spiny, and darkly banded.

Eyes: eight eyes of similar size arranged in two rows that are strongly curved to the rear of the carapace (*Figure 38*).

Web: funnel-shaped with a flat open area of dense webbing at the front; often accumulates dirt, debris and dead insects over time (*Figure 33*).

Egg sac: flattened, irregular in shape and covered with fine, filmy webbing.

Habitat: found outside in a variety of places, as in tall grasses and dense shrubbery, and around structures in corners, window wells, under decks, and in basements and crawl spaces.

Behavior: hides in funnel-shaped lair; very evasive when disturbed, runs rapidly.



Figure 35. Grass spider, *Agelenopsis* sp.



Figure 36. Domestic house spider, *Tegenaria domestica*.



Figure 37. Hobo spider, *Eratigena agrestis*.



Figure 38. Funnel weaver spider head, *Agelenopsis* sp.

Passive Hunting Spiders

These spiders lurk about and situate themselves for attack, waiting for prey to approach.

Spitting Spiders (Family Scytodidae)

Spitting spiders (Figure 39) are unique among spiders because of their behavior of spitting strands of glue from their fangs to capture their prey. The spiders are nocturnal hunters that live under stones, in cracks of rocks, on leaves of plants and in buildings. Those that inhabit buildings are found resting in dark corners and closets. They may be noticed moving over walls and other surfaces in search of prey. Females can be observed carrying an egg sac under their jaws.

Body: small to medium (0.1–0.25 inch), globose shape with oval abdomen; body with fine, sparse hairs and covered with intricate, dark markings.

Legs: long and thin, held out from body and encircled with many dark bands.

Eyes: six eyes arranged in three pairs that form a strongly curved row (Figure 40).

Web: silk used only for lining a retreat.

Egg sac: bumpy-looking sphere of 20–30 eggs lightly covered with silk; carried in chelicerae.

Habitat: found in and around structures, some live on the ground, under rocks and within leaf litter.

Behavior: secretive; slowly approaches prey and when within range, raises its fangs and shoots out entangling strands composed of glue and venom.



Figure 39. Spitting spider, *Scytodes thoracica*. (André Karwath, Germany, Wikimedia.)



Figure 40. Spitting spider, *Scytodes thoracica*, eye pattern. (Fritz Geller-Grimm, Germany, Wikimedia)

Brown Spiders (Family Sicariidae)

Brown spiders, *Loxosceles spp.*, (Figure 41) are a family of mostly obscure species living outdoors in the southwestern United States under rocks and objects on the ground. However, the brown recluse, *Loxosceles reclusa*, is well known, because it has harmful venom and enters homes, apartments and other buildings where people are at risk of getting bitten. Ironically, it does not occur in southwestern states but is distributed regionally from Georgia west to Nebraska and south through Texas. Its range northward is limited by cold winters, and it is found primarily inside heated buildings, usually in undisturbed, protected areas.

Brown recluse spiders are nocturnal, hunting spiders that seize small insects. They are identified by a dark violin-shaped marking on the carapace (Figure 42). Females are not very active, and mostly males are captured with sticky traps (Figure 43). Silk is used copiously to line retreats to assure protection and may also help detain prey long enough to capture (Figure 41).

Brown recluse spiders are not aggressive and run when exposed. Bites most often occur when a spider gets pressed against a hand or body. This may happen when reaching into a cluttered storage cabinet, lifting furniture, or putting on clothing that was lying on the floor overnight. Bite reactions to venom vary and may result in a localized, necrotic wound on the skin (Figure 44) or cause severe systemic symptoms affecting the entire body. If bitten by



Figure 41. Brown recluse, *Loxosceles reclusa*.



Figure 42. Brown recluse eye pattern within "fiddle" marking.



Figure 43. Brown recluse adult males on sticky trap.



Figure 44. Wound on foot from brown recluse bite.

a brown recluse, try to capture the spider for proof of identity and get immediate medical attention.

Body: medium (0.3–0.5 inch), brown, with an oblong, unmarked, pale abdomen; carapace with a dark violin-shaped marking.

Legs: long, slender and finely hairy.

Eyes: six eyes arranged in three pairs that form a strongly curved row (*Figure 42*).

Web: silk fine and dense, used to line retreat and cover adjacent area (*Figure 41*).

Egg sac: flattened and disc-shaped, and attached to surfaces with webbing.

Habitat: heated structures—in protected areas such as corners, under furniture, in cabinets, and in cluttered storage areas; outdoors—in crevices, under rocks or objects on the ground.

Behavior: reclusive, but runs when exposed; nocturnal; cautiously bites prey, then backs away until venom immobilizes prey.

Crab Spiders (Family Thomisidae)

Crab spiders (*Figures 45, 46 and 47*) are found in landscapes on flowers and foliage of plants, in debris on the ground and on the bark of trees. They are passive hunters and will often be found perched on a flower waiting to pounce upon an insect visitor. The species that inhabit flowers are well camouflaged, with their coloration similar to that of the flower



Figure 45. Crab spider, *Mecaphesa celer*.



Figure 46. Whitebanded crab spider, *Misumenoides formosipes*.



Figure 47. Goldenrod crab spider, *Misumena vatia*.



Figure 48. Bark crab spider, *Bassaniana versicolor*. (Ivy Orellana, UNL Department of Entomology)



Figure 49. Crab spider eye pattern, *Xysticus* sp.

itself. In fact, coloration can range in various shades of white, yellow, pink and green. White and yellow crab spiders are more common, and some species such as the goldenrod crab spider (Figure 47) can gradually change color from white to yellow.

When an unsuspecting insect lands on a flower occupied by a crab spider, the spider ambushes it, quickly subduing it with its potent venom. Typical prey includes flies, bees, wasps and small butterflies.

Crab spider species that inhabit ground litter and bark are brownish to tan in color and often have dark bands or speckles on their bodies to blend in with their backgrounds (Figure 48). In contrast to their flower-inhabiting relatives, they actively wander about in search of insect prey.

Body: small to medium (0.2–0.5 inch) with a round, flattened abdomen; colorful and either plain or with markings.

Legs: front two pairs of legs long and stout, held out and appearing crab-like; hind pairs of legs short and thin.

Eyes: eight small eyes arranged in two separate transverse rows; slightly elevated on a ridge (Figure 49).

Web: silk produced only for protection of egg sac.

Egg sac: flattened and lens-like; attached to leaves or bark and covered with silk.

Habitat: found among plants outside, often on flowers, on the ground or on tree bark.

Behavior: perches with front legs spread on flowers, plants and branches of trees and remains still until prey is within reach.

Active Hunting Spiders

These spiders wander about in search of prey, or they stalk and capture them swiftly.

Woodlouse Spiders (Family Dysderidae)

The pillbug hunter, or woodlouse spider, *Dysdera crocata*, (Figure 50) is the only member of this family in the United States. It was accidentally introduced from Europe through trade and is widespread. Pillbug hunters actively search for pillbugs, sowbugs, woodlice, millipedes and insects that crawl on the ground. Their large, protruding chelicerae are used to extract pillbugs from crevices and to puncture their hard exoskeleton with their fangs. These spiders are usually found in landscapes in moist locations such as under logs, rocks, boards and other litter; also in or near buildings, in window wells and cellars. A small amount of webbing is used to line their retreats.

Body: medium size (0.3–0.6 inch) with an oblong, cream to gray abdomen; carapace orange-brown or mahogany in color; chelicerae quite long and protrude forward with sharp fangs at the tip.

Legs: orange-brown, long and agile.

Eyes: six eyes arranged in a nearly complete, transverse oval (Figure 51).

Web: silk used only to line retreats.

Egg sac: female deposits eggs in a dense, flattened retreat and covers the egg cluster with very thin silk.

Habitat: found in damp areas under leafy debris on the ground, near buildings and under logs and rocks.

Behavior: reclusive and ventures out from retreat to hunt.



Figure 50. Pillbug hunter, *Dysdera crocata*.



Figure 51. Pillbug hunter eye pattern.

Nursery Web Spiders (Family Pisauridae)

Nursery web spiders (Figure 52) are active hunting spiders that are usually found in landscapes near water. They look and behave much like wolf spiders. These spiders only use silk to construct a nursery web (Figure 53) to protect their brood for a few weeks until the spiderlings disperse. Nursery web spiders feed on crickets and other small insects. Species

in the genus *Dolomedes* (Figures 53 and 54) may be found at the edge of water where they prey upon aquatic insects and small fish. They are agile runners capable of running across the surface of water. They also may wander far away from water and enter buildings. Most are larger spiders, but they do not have venom harmful to humans.

Body: medium to large (0.4–1.0 inch) with ovoid abdomen; common species with a series of “W” marks on abdomen.

Legs: long, tapered and hairy; often with distinct bands; legs held out from body for running.

Eyes: eight eyes closely spaced in two rows; first row with smaller eyes (Figure 55).

Web: only produced to create a nursery web among leaves to protect egg sac and spiderlings until they disperse (Figure 53).

Egg sac: spherical and densely covered with silk; carried under female’s body (Figure 54).

Habitat: low-lying bushes and vegetation, on the ground, and along shorelines of lakes or banks of streams.

Behavior: actively running among foliage or on the ground. Sedentary only when protecting brood in nursery web.



Figure 52. Nursery web spider, *Pisaurina mira*.



Figure 53. Fisher spider, *Dolomedes scriptus*, with nursery web.



Figure 54. Fisher spider, *Dolomedes tenebrosus*, with egg sac held beneath body.



Figure 55. Fisher spider eye pattern.

Wolf Spiders (Family Lycosidae)

Wolf spiders are mostly nocturnal hunting spiders that run and seize their prey. They feed on crickets, cutworms, ground beetles and other similar-sized insects. They live outdoors in a variety of habitats, including forests, fields, grasslands and gardens.

Some wolf spiders retreat in crevices under rocks or excavate burrows in the ground (Figure 56). Burrows typically have a raised area of sticks and plant debris piled around the opening to create a perch called a turret. Wolf spiders do not make webs, but they use silk to line their retreats and burrows.

Some species occasionally enter buildings, frightening the occupants by their presence. While the spiders may be agitated, they are not aggressive nor considered to be harmful to humans.

The adult female wolf spider carries her egg sac under her abdomen (Figure 57) until her spiderlings hatch, at which time they crawl up and gather on her back (Figures 58). She will carry and protect them for a couple of weeks until they venture out on their own.

Some of the smaller species of wolf spiders (Figures 59 and 60) that have dark stripes on the carapace may resemble grass spiders in the funnel weaver family (Figure 35). The difference is that grass spiders have a much different eye pattern, they construct funnel-shaped webs, and they have obvious, long spinnerets at the tip of their tapered abdomen.

Body: Medium to large (0.3–1.2 inches), densely hairy, and gray, tan, brown or nearly black in color; abdomen ovoid to elongate and variously patterned; large, hairy chelicerae.

Legs: long, stout and hairy, usually with some spines; adapted for running.

Eyes: eight eyes in three rows; first row with four small, closely spaced eyes; middle row with two large eyes; third row with two large eyes positioned farther back on the sides of the carapace (Figure 61).

Web: used to line retreat.

Egg sac: spherical and densely covered with silk; carried under female's body, usually the abdomen (Figure 57).

Habitat: found crawling on the ground in fields and forests, hiding under rocks and logs, or in vertical burrows in the ground; occasionally enters houses and other structures.

Behavior: mostly nocturnal, rapidly running about in search of prey; keen eyesight aids with detection of movement; less active when carrying egg sac or spiderlings.



Figure 56. Carolina wolf spider, *Hogna carolinensis*, in burrow.



Figure 57. Wolf spider, *Hogna aspersa*, with egg sac.



Figure 58. Wolf spider female, *Hogna aspersa*, with spiderlings on its back.



Figure 59. Wolf spider, *Schizocosa avida*.



Figure 60. Rabid wolf spider, *Rabidosa rabida*.



Figure 61. Wolf spider, *Hogna carolinensis*, eye pattern.

Prowling Spiders (Family Miturgidae)

Prowling spiders are found outdoors, but a few species commonly invade structures. The agrarian sac spider, *Cheiracanthium inclusum*, and its close relative, the yellow sac spider, *C. mildei*, (Figure 62) are by far the most common. These spiders formerly were members of the Sac Spider family, Clubionidae, and they retain their common names. Prowling spiders are mostly nocturnal hunters of flies, moths, crickets and insect larvae. They use webbing only to construct tubular retreats on plant foliage, in rolled up leaves, and beneath loose bark. Those species that invade homes construct retreats in wall corners near the ceiling, or around night-lights (Figure 63).

Yellow sac spiders found indoors have been known to bite when they become trapped next to the skin; for example, if a spider crawls near a sleeping person who rolls over it and is bitten. The venom generally induces mild bite reactions such as brief pain, swelling and nausea, but some humans have suffered more intense symptoms.

Body: small to medium (0.1–0.4 inch) with a narrower, pointed, oblong abdomen and projecting conical shaped spinnerets of equal length; very pale, colored with ivory, green, tan or yellow.

Legs: front legs much longer than the others; legs with spines, held out from body for running.

Eyes: two rows of four eyes gently curved inward toward each other at the sides, nearly touching (*Figure 64*).

Web: silk used to line a sac-like, tubular retreat when the spider is at rest.

Egg sac: within retreat; eggs loosely bound with a thin covering of silk.

Habitat: found on plants, shrubs and in gardens; sometimes in buildings on walls and ceilings, along with sacs in corners.

Behavior: mostly nocturnal and actively prowl about on plants for insects; construct tubular sacs in which to rest.



Figure 62. Yellow sac spider, *Cheiracanthium mildei*.



Figure 63. Yellow sac spider and sac-like retreat.



Figure 64. Yellow sac spider eye pattern.



Figure 65. Parson spider, *Herpyllus ecclesiasticus*.

Ground Spiders (Family Gnaphosidae)

Ground spiders are small, nocturnal hunting spiders that live in the landscape. They are usually found under stones and other objects on the ground, under bark, among dead leaves and in forests and pastures. Most are dark brown or various tones of brown so they blend in with the ground, but a few species have carapaces that are orange to red. Several species are ant-like in form and are active during the day. Ground spiders rest in a web-lined, tubular retreat from which they emerge to prowl for prey.

Parson spiders, *Herpyllus ecclesiasticus*, (Figure 65) are one species in this family that may inhabit homes and hunt for small insects at night. They have distinctive markings to readily identify them, such as the broad, pinkish band along the center line of the carapace and abdomen. Occasionally, they may be discovered on walls, floors or ceilings in the morning. Humans sometimes are bitten at night, but symptoms generally are mild, involving temporary localized swelling and pain.

Body: small to medium (0.2–0.6 inch) with oblong, silky abdomen and projecting, cylindrical spinnerets; body dark brown to black with a broad, pink band on carapace and abdomen.

Legs: moderate length, with fine spines; positioned for running.

Eyes: two parallel, lightly curved rows, each having four small eyes (Figure 66).

Web: silk used to line a tubular retreat under stones, logs or in curled leaves.

Egg sac: white, circular and flat; held beneath spider's legs in its retreat.

Habitat: in leaf litter; beneath bark, rocks and objects on the ground.

Behavior: nocturnal; runs rapidly when discovered and hides under objects.



Figure 66. Parson spider eye pattern.



Figure 67. Antmimic spider, *Castianeira occidentis*.

Antmimic Spiders (Family Corinnidae)

Antmimic spiders (Figure 67) generally have an appearance similar to that of ants. Species with bright red or orange warning coloration are thought to mimic velvet ants or wasps to discourage predators (Figures 68 and 69). Those spider species associated with ant nests also mimic ant behavior, making detection by worker ants difficult. Antmimic spiders are generally found outdoors, but a few, such as the bullheaded sac spider, *Trachelas tranquillus*, (Figure 70) often enter and inhabit structures. This species has been noted as one that can cause severe bite reactions in some people, such as temporary pain and swelling around the bite site, accompanied by nausea and body aches. This group of spiders recently was separated from the sac spider family Clubionidae and has similar characteristics.

Body: medium size (0.2–0.4 inch), often colorful, orange, red and black; oval-shaped abdomen, resembling ants.

Legs: moderate length, pairs of spines on outermost segments; agile and built for running rapidly.

Eyes: two parallel rows, each with four small eyes (Figure 71).

Web: silk used to make a tube-like retreat under stones or in leaf litter.

Egg sac: flat, white disks attached beneath objects on the ground, or in rolled leaves.

Habitat: ground dwelling, commonly found under rocks and in leaf litter; some found on foliage. Only a few enter structures.

Behavior: most species active during the day with movements that mimic ants; run rapidly and hide under objects to rest.



Figure 68. Manybanded antmimic spider, *Castianeira longipalpa*.



Figure 69. Orange antmimic spider, *Castianeira amoena*.

Running Crab Spiders (Family Philodromidae)

Running crab spiders (Figures 72 and 73) are active hunters of insects and inhabit foliage of trees, shrubs and tall vegetation. Some are found on tree trunks and surfaces of buildings and other structures. Most species have coloration and markings that enable them to blend in with their backgrounds. The species pictured are common and distributed across the United States east of the Rocky Mountains. *Tibellus oblongus* (Figure 73) is more often found in tall grasses and prairies. Egg sacs of running crab spiders are often attached to leaves, bark or branch crotches, and they are guarded by the female spider.

Body: small to medium (0.2–0.4 inch) usually with a flattened carapace and abdomen; speckling and coloration assist with camouflage.

Legs: long, agile for running and held laterally from body, appearing crab-like.

Eyes: eight small eyes in two closely spaced, curved rows (Figure 74).

Web: silk produced for anchoring and making an egg sac.

Egg sac: bright white and often located in crotches of branches; tent-like with eggs embedded within layers of silk.

Habitat: found on bushes, trees, and in tall vegetation; occasionally found in homes on walls and ceilings.

Behavior: run swiftly on plants and trees; when at rest, press themselves against their background and blend in, undetected by prey or predators.



Figure 70. Bullheaded sac spider, *Trachelas tranquillus*.



Figure 71. Bullheaded sac spider eye pattern.

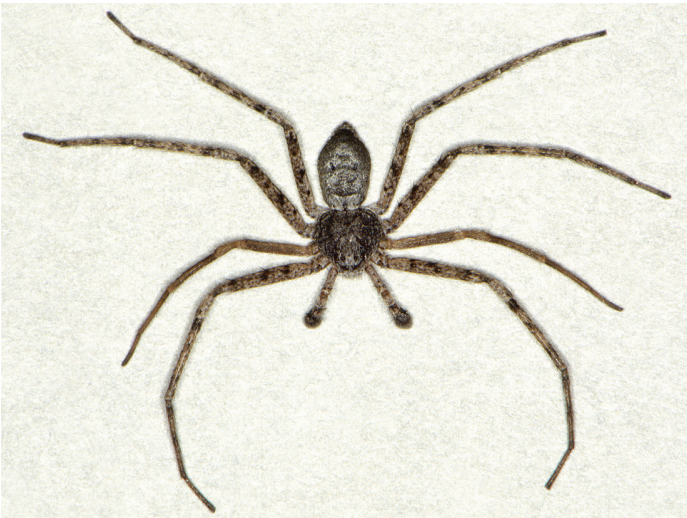


Figure 72. Running crab Spider, *Philodromus vulgaris*.



Figure 73. Running crab spider, *Tibellus oblongus*.



Figure 74. Running crab spider eye pattern.

Jumping Spiders (Family Salticidae)

Jumping spiders (Figure 75, 77, 78, 79, 80) stalk and pounce on an insect when it is close enough to be captured. They are reported to be able to jump up to 40 times their body length. These spiders are active during the day and have large eyes with acute clarity that enables them to track movement of insects and predators from great distances (Figure 76). Their prey includes all kinds of small insects (Figure 77).

The habitats where jumping spiders are found include fields, forests, gardens, and around structures. Silk is used to line retreats and also as a safety line when jumping. The densely lined retreats may be found under stones on the ground, under bark of trees, on plant foliage, in cracks, or on surfaces of structures. Eggs are deposited in silken tents and protected by the female.

Most jumping spiders have a hairy appearance and mottled coloration that varies from blackish to dull, earthy colors (Figure 78), but a few species are bright red- orange or green (Figure 79). Others are nearly hairless and slender and have an ant-like, shiny appearance



Figure 75. Bold jumper, *Phidippus audax*.



Figure 76. Bold jumper eyes and green, metallic chelicerae.



Figure 77. Jumping spider, *Phidippus clarus*, with planthopper prey.



Figure 78. Jumping spider, *Platycryptus undatus*, on tree bark.



Figure 79. *Phidippus whitmani* prowls in forest leaf litter.



Figure 80. Eye pattern, *Phidippus carolinensis*.

and reside near ant colonies. Most species in the genus *Phidippus* have amazing metallic blue-green chelicerae (Figure 76).

Body: small to medium (0.1–0.6 inch), usually stocky and fuzzy; abdomen oblong and tapers to a tip; coloration and markings quite variable.

Legs: moderate in length and held out from body; front legs often larger and more stout and positioned forward.

Eyes: eight eyes in three rows—the front row has four eyes with two very large eyes in the middle; the second row has two eyes widely set apart; the third row has two small eyes about halfway down the length of the carapace (Figures 76 and 80).

Web: silk used to line a retreat, and as a safety line when jumping.

Egg sac: eggs loosely held together by silk and confined in a dense, silken tent.

Habitat: found in the landscape in a variety of settings as well as around or inside structures.

Behavior: move about in jerky fashion while crawling on surfaces, often rotating in various directions to locate prey. Once observed, stealthily moves forward until within jumping range to capture prey.

Spider-Like Arachnids

Harvestmen (Order Opiliones)

Harvestmen, sometimes called “daddy-long legs,” (Figures 81, 82 and 83) are commonly found outdoors in the landscape, especially in forested areas, where they are frequently found at the base of plants and trees. They are also sometimes found in basements and crawl spaces. The black harvestman, *Protolophus niger*, (Figure 84) has shorter legs and a very hard body. It lives on the ground in forests and among stony habitats and is very tolerant of arid conditions.

Harvestmen have eight legs, but the second pair of legs are much longer and act like antennae to sense the environment around them. Most species are nocturnal omnivores and feed on small living and dead insects and spiders wherever they come into contact with them. They possess mouthparts that crush their prey, and they then lap up the prey’s body fluids. A few species are known to feed on plant juices.

When disturbed, harvestmen secrete a milky, offensive fluid. Contrary to rumor, they have no venom glands and do not bite. When attacked by a predator, a harvestman can deliberately detach a leg, which twitches and distracts its offender. Any legs lost do not grow back again.

Body: small (0.1–0.3 inch) appearing to be globular and fused into one unit. In reality, the body is composed of a prosoma (carapace) and abdomen.

Legs: four pairs, very long and thin; legs have outward posture and suspend the body high above the surface.

Eyes: two eyes, opposite each other on a raised bump on the top of the prosoma or carapace (Figure 85).

Web: silk not produced.

Habitat: found outdoors in leaf litter, among plants, shrubs and trees; also found on exterior surfaces of structures and sometimes in crawl spaces or basements.

Behavior: crawls slowly about on foliage of plants and bushes; often found resting on leaves or flowers.



Figure 81. Eastern harvestman, *Leioibunum vittatum*.



Figure 82. Harvestmen, *Leioibunum* sp.



Figure 83. Eastern harvestman, *Leioibunum vittatum*.



Figure 84. Black harvestman, *Protolophus niger*.



Figure 85. Harvestman, *Leioibunum sp.*, eye location.



Figure 86. Windscorpion, *Eremobates sp.*
(Matthew Graham, Eastern Connecticut State University)

Windscorpions (Order Solifugae)

Windscorpions (*Figure 86*), also called sun scorpions or camel spiders, are usually found in semi-arid to arid regions. These nocturnal, running predators search for arthropods and small vertebrates by sensing vibrations of their movement with their long, front leg-like structures called pedipalps. Prey include beetles, moths, termites and small lizards. Some windscorpions species are known to climb shrubs and trees in search of prey. They bite and crush their prey with their huge pincher-like jaws. Unlike spiders, they do not have venom glands and, thus, are harmless.

Body: large (0.8–1.1 inches) soft, cylindrical abdomen that appears segmented; large and powerful jaws protrude forward from the head.

Legs: four pairs of long, hairy, robust legs designed for swift running; a front pair of large, protruding pedipalps appear to be legs, but actually are sensory and used for detecting prey by touch.

Eyes: two small eyes on the front of the head just above the jaws (*Figure 86*).

Web: silk not produced.

Habitat: found outdoors in arid landscapes, on bare ground, in grasslands and canyons, and on hills; may be hiding beneath objects on the ground.

Behavior: nocturnal hunters for insects; run swiftly and hide under objects when pursued; poor eyesight, relying on pedipalps (“forelegs”) to sense prey.

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Web Resources

- BugGuide*, Identification, Images & Information. (bugguide.net)
- Common Spiders of the Chicago Region—Field Guides*. The Field Museum, Chicago, IL. (fieldguides.fieldmuseum.org)
- InsectIdentification.Org*. (www.insectidentification.org)
- PBase Tom Murray Gallery—Arachnids* (www.pbase.com/tmurray74/arachnids_arachnida)
- Spiderz Rule!* (www.spiderzrule.com)
- UNL Library Sciences Image Collections—Spiders*. University of Nebraska. (contentdm.unl.edu/cdm/search/collection/entspider2)

All photos and illustrations are by James Kalisch, unless otherwise noted.



Figure 87. Orchard Spider, *Leucauge venusta*, a longjawed orbweaver.