

A Guide to Indoor Spiders

Honors Thesis

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By Alex Gray

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With thanks to my Honors Advising
Committee comprised of
Ruth Hufbauer,
Matt Camper
and Matthew Stachniak



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Intro



In dedication to those who are curious of the tiny world around us.

Despite being misunderstood, spiders are miraculous creatures that display a wide variety of fascinating and unique behaviors. Ranging from having the playfulness of a cat and chasing lasers, to the shyness of a hermit crab, their behavior and appearances are all highly evolved to suit the type of environment they live in, their hunting styles, and the ways they use their webs. They play a massive role in the ecosystem in ways most people don't know about, being instrumental in pest control in vineyards, orchards, and even people's gardens and homes. Thoughtful exposure to spiders can be a surprisingly powerful tool for helping people confront and manage arachnophobia.

Arachnophobia is the intense, irrational fear of spiders. It has a long, deep history, tracing back to the dark ages. It is a deep primordial fear. Over time, these fears have been played upon in books and films in ways that have spread misconceptions about spiders, their biology, and how dangerous (or not) they actually are. I created this book for people who are willing to try to understand and maybe overcome their fear of spiders.

This book specifically covers the groups of spiders typically found indoors or in people's homes in Northern Colorado, in Larimer and Weld County. My goal is to help educate residents on these types of spiders by teaching them which spiders are notable and what "medically significant" means in the spider realm. This book will also cover how to safely capture spiders, and overall aims to disband the common fears and misconceptions around these spiders.





The three main types of spiders that are common in Colorado also tend to face the most misconceptions. These types are hobo spiders, yellow sac spiders, and false widows. We will explore more about them later in this guide. However, before we go any further, to put things straight, spiders are much less aggressive than yellowjackets. Yellowjackets defend their nests vigorously, but spiders don't. In fact, they keep their venom in reserve for their prey. Venom takes resources, time, and nutrients to make, so they only try to bite if you are actively causing them harm or pressing down on them. It takes a specific situation both on your part and the spider's, for a bite to occur. Please keep in mind that most spiders have poor vision, and cannot see you in most circumstances.


In this book, I mention "bite risk and effects" in the bio of each spider. In this book, I define "bite risk" as how commonly this spider has been documented to bite people, and cover effects of the bite that the spider is known to cause. I use data from the bite's effect that are "verified bites." Verified bites are cases where the person being bitten sees the spider at the site of the bite, captures the spider, and has the spider identified by an arachnologist. Since most spider bites are harmless, "bite effects" are not the same as "medically significant," which I will define next. The effects described are for an otherwise healthy person with a healthy immune system, who is bitten by the spider.

Defining "Medically Significant:"

When I use the term "medically significant" I am referring to spiders whose bites have been shown to cause severe, long-lasting or systemic symptoms due to the venom they inject. This includes cases of people with immune difficulties, small children, and elderly people (Hauke and Herzig, 2017).

In this book I will compare spider bites to bee stings, pinching, and wasp stings, so you can understand that most spider bites that affect humans should just be treated like other insect bites or stings.





As with any open wound, a bite can get infected if you are not careful, and such an infection is generally worse than any spider bite discussed in this book. Despite the fact that some spiders can bite, I promise you that spiders can save you from many insects that can be dangerous to humans, like mosquitos, and using them as a natural pest control can be beneficial for both you and the spiders that live in your house or yard.

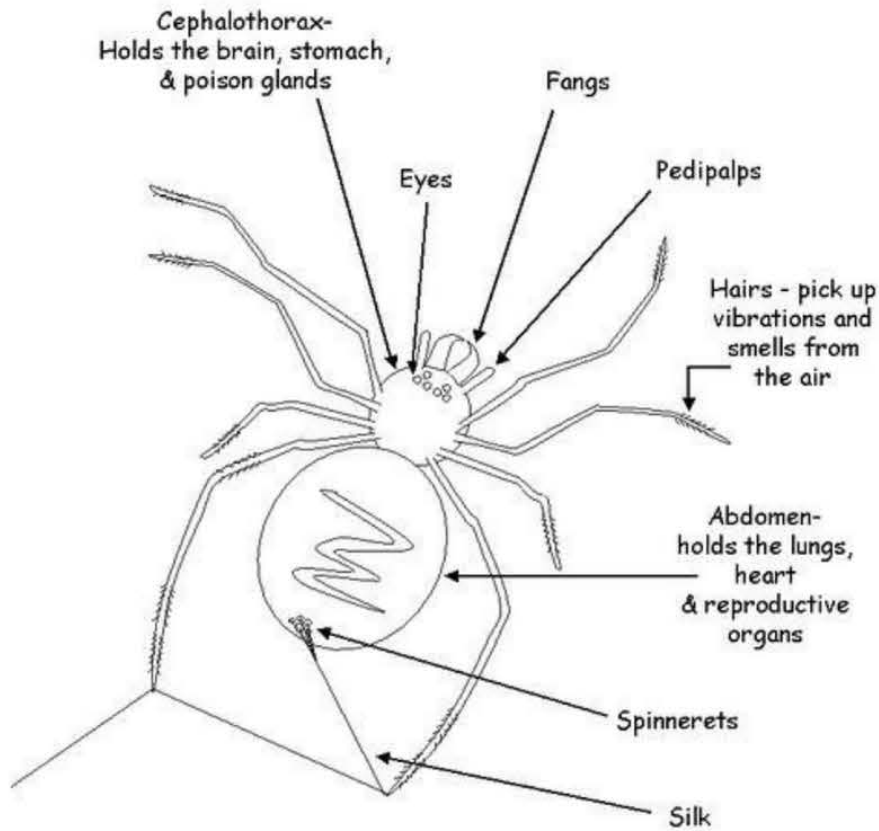
The spider categories in this guide are organized for accessibility for people with arachnophobia. This was done by organizing the spider categories by commonality and potential for triggering arachnophobia, with more triggering spiders being towards the back of the book. I hope this method allows for people to be able to have an easier time digesting the information.

All spider pictures are for educational and identification purposes. Please engage in what is comfortable for you. I have put trigger warnings for each spider picture so you will not be caught off guard whenever you turn a page, however I encourage you to look at them so you can see and identify them. I was careful to select images based solely on clarity of their markings.

For identification, I will use terms that are easy for anyone to understand, avoiding technical language like “dorsally flattened” in favor of phrases such as “flat on top.” Another example of identification phrases I will use is “abdomen comes to a point”, “egg shaped”, or “bullet form.” Sometimes I will reference the abdomen, head, and other spider body parts like spinnerets.



Here is a diagram of the basic body parts of the spider, feel free to always flip back to it if you are confused.



Additionally, to help navigate this book, I have given you a trustworthy guide! Say hello to Ocho! They will give you tips and let you know about upcoming spider pictures, and other additional facts throughout this book. And with that... let's get started with our spider categories.

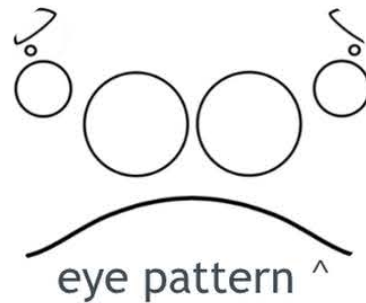
Heads up!! Educational spider pictures will appear in the next 31 pages!



Jumping Spiders



Bold jumping spider ^



eye pattern ^

Family: Salticidae

Identification:

One pair of very large, forward facing eyes, next to a medium-sized second pair of forward facing eyes. Compact body and short, sturdy legs, usually furry. Seems to “teleport” when it moves.



Size: 6-18 mm

Occurrence: Common

Common Local Species: Bold jumper (*Phidippus audax*), Apache jumping spider (*Phidippus apacheanus*), Zebra jumping spider (*Salticus scenicus*), California flattened jumping spider (*Platycryptus californicus*), desert red jumping spider (*Phidippus ardens*)

Habitat/Range: Widespread

Bite Risk and Effects:

Biting incidents are rare, with very few documented cases. Bite can be painful like a bee sting, but the venom is harmless, and pain subsides after a few minutes.

Jumping Spiders

Behavior:

Jumping spiders are generally active during the daytime, and typically hide within their silken homes at night. They are more commonly found on the plants outside of people's homes, rather than inside. The most common jumping spider in the Northern Colorado region is the bold jumping spider, followed by the Apache jumping spider. Typically, when encountering humans, they tend to stop and observe them, and jump away. The bold jumping spider is not aggressive and is even used as a terrarium spider.

Description:

Jumping spiders are one of the most species-rich groups of spiders, making up 13% of all spider species world-wide! The reasoning behind their name is because, rather than building a web, they jump on their prey to capture them. They mainly use their silk as a bungee jumping line to catch themselves if they misjudge a jump and fall. Jumping spiders have some of the best vision in the arachnid world due to their large, forward-facing eyes. They have spatial vision and are able to see nearly 360 degrees. Jumping spiders have a visual system based in red, green, blue and ultraviolet colors. For reference, humans' vision systems are only based in three colors: red, green, and blue. They also can climb nearly any surface due to the specialized hairs on their feet! There is so much more research and interesting behaviors of jumping spiders that I cannot fully delve into, so if you are interested, feel free to look into further readings!

Because of their hunting behavior and good vision, hunting spiders pounce on lasers like cats, making them excellent pets!



Funnel Spiders and Grass Spiders

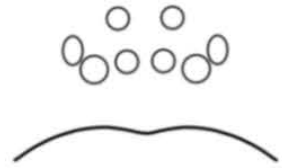
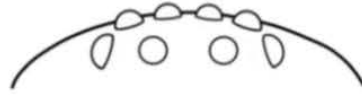


Pennsylvania funnel spider ^

Spinnerets >



Size: 8-14 mm



eye pattern ^

Families: Agelenidae and Eratigena

Identification:

Characterized by two of its spinnerets at back of abdomen (described above). Eight eyes in two rows. Somewhat hairy legs, light colored lines on the body. Patterned abdomen. Colored mostly in shades of brown.

Occurrence: Common

Habitat/Range: Widespread, especially in Colorado



Common Local Species: Pennsylvania funnel-web spider (*Agelenopsis pennsylvanica*), barn funnel weaver (*Tegenaria domestica*). The hobo spider (*Eratigena agrestis*) is uncommon, and not medically significant. The giant house spider (*Eratigena atrica*) is rare in Colorado.

Bite Risk and Effects: These spiders are not medically significant. Their bite causes a stinging feeling, weaker than a bee sting. Occasional swelling at the site of a bite can occur, but it disappears within a few hours. All funnel weaver spider venom is harmless to humans, including that of hobo spiders.





Funnel Spiders and Grass Spiders



Behavior:

Funnel spiders are very shy, typically living in crevices, under rocks, under tree roots, and caves in the wild. Grass spiders typically build their webs in dense grass, mulch, or in juniper shrubs. They are active at night. If they encounter a threat, their main reaction is to hide, retreat into their web, or run away, kind of like a turtle and its shell. They like dark spaces, so if one runs toward you, it's because they are seeking cover. They are very fast runners. Like humans, they can survive long periods without food, but not without water, so inside houses they typically hang around damp places so they get a drink.

Unfortunately, unlike jumping spiders, they are unable to climb slippery surfaces, so they can get stuck in sinks and bathtubs. If you ever encounter this, although startling, know that they were just thirsty. You can help them out by catching them, and when you release them, giving them a few drops of water. Funnel weaver spiders are named after the shape of the web they build. They typically hide in the corner of their coned web until prey is caught on the edges. When they detect the vibrations the prey makes on the web, they quickly climb over, wrap up their prey, and then return it to their corner. When it detects something too large to be prey, the spider quickly retreats into its web.



Funnel Spiders and Grass Spiders

Description:

Funnel weaver spiders are one of the most common spiders people find in their homes, especially in Colorado. One species of funnel spider is known as the “hobo spider” This spider is introduced from Europe, and unfortunately, misinformation has spread about them, claiming that they are aggressive and have a nasty bite that leaves a slow-healing wound. None of these claims are true. Claims like this are often used for marketing by pest management companies, so please be wary when encountering that type of information. Remember that funnel weaver spiders are NOT aggressive, and DO NOT tend to bite, their main goal is to escape above all else when under threat. Their venom is harmless towards humans.

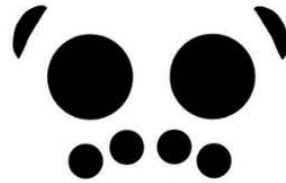
“Not a single case of a bite with medical complications could be demonstrated with any confidence” (Wolfgang, et al., 2024.)
Remember that funnel weaver spiders are shy, rarely bite and are not dangerous!



Wolf Spiders



Schizocosa sp. ^



eye pattern ^

Family: Lycosidae

Identification:

Eight eyes in three rows, two large middle eyes, and unlike the jumping spider, it has a row of four eyes below it. Short, stubby spinnerets. Usually brown or gray and pretty furry. Light stripes and markings on abdomen and cephalothorax, some stripes, or “brandings” on legs.



Size: mm

Occurrence: Common

Habitat/Range: Widespread

Common Local Species: Carolina wolf spider (*Hogna carolinensis*), rustic wolf spider (*Trochosa ruricola*), thin-legged wolf spiders (*Pardosa spp.*), and numerous other species.

Bite Risk and Effects: Bites are rare, although larger individuals can bite. The bite feels like a bee sting and may itch after. It causes some localized swelling, but the venom is harmless to humans.




Wolf Spiders



Behavior:

Wolf spiders are ground hunters, and typically do all their traveling and hunting at night. While some make burrows to hunt, it is more likely that any wolf spider in your home is a wandering wolf spider, and does not make burrows. They mainly depend on vibrations and sight to catch prey, hence why their two forward-facing eyes are larger. While jumping spiders have more detailed vision, the wolf spiders' main eyes have better low-light vision, and can also see differences between light and dark lit areas. These spiders are swift runners, and favor moist environments such as basements. When threatened, they usually retreat to darker areas. Since they are ground spiders, they are poor climbers, and typically remain on the floor. It is most common to see them in fall, as that is when their prey, most insects, move indoors to find protected areas from the cold of winter. Their hunting behaviors are very diverse. They typically stalk their prey, and pounce on it. Some species, after grabbing the prey after pouncing, roll onto their backs, so their prey cannot escape.

Wolf spiders have an elaborate mating process. Females lay out pheromone-infused silk draglines, so the males can find them and mate. Sometimes the males will follow the silk for hours.



Wolf Spiders

During courtship, males perform specific dances, tapping, and signals to the female. When a female creates an egg sac, she carries it underneath her abdomen. When her spiderlings hatch, they ride on her abdomen in a bulky ball, until they are old enough to disperse.

Description:

Wolf spiders vary greatly in size, with larger ones being mistaken for tarantulas, and smaller ones can be mistaken for funnel weavers. They can be on the larger side compared to most spiders, especially the Carolina wolf spider that can be found in Northern Colorado.

Wolf spiders had a notable presence in the dark ages, being blamed for causing the infamous "mad dancing disease" or the "Tarantism" in the 1500s. During that time, when people thought they had been bitten by a wolf spider, they believed the cure was to dance the venom out of their system. Later, it is theorized that it was a European widow spider that caused the venomous bites that sent them in a dancing frenzy, in order to get the painful venom out.

Interestingly, their eyes reflect light, similarly to a deer's, due to having reflective eye tissue similar to deer and other animals. This allows them to see well in low-light environments. A fun nighttime activity you can do during the summer is to go wolf spider spotting. All you need to do is to shine a flashlight on the ground at night, and their eyes will reflect back to you, and tell you where they are.



Yellow Sac Spiders



eye pattern ^

Family: Cheiracanthiidae

Identification:

Mainly straw colored. Pale yellow abdomen, with brownish pale cephalothorax and legs. Little black toes. Eight eyes in two rows.



Size: 5-11 mm

Occurrence: Common

Habitat/Range: Widespread throughout North America

Common Local Species: Northern yellow sac spider (*Cheiracanthium mildei*), black-footed yellow sac spider (*Cheiracanthium inclusum*)


Bite Risk and Effects: Harmless, most bites hurt less than a bee sting. Minor localized swelling, numbness, and itching. No lasting effects of venom. Resolves in a few days at most.

Fun Fact: In 2011, there was a vehicle recall with Mazda6 and several other companies. It turns out, it was because juvenile yellow sac spiders were attracted to the hose material used in the vehicles. Luckily it is not a big issue anymore as cars have now installed screens in these hoses to keep them spider-free.





Yellow Sac Spiders



Behavior:

Yellow sac spiders are named that because during the day, they wrap themselves up in a silk cocoon sac. They are nocturnal, so they hunt, roam, and mate at night. They are quite nomadic creatures with a strong affinity for houses. They also are common in orchards and vineyards, which are important for pest control. Sometimes they even eat plant nectar! They make a new silk retreat daily and retreat in crevices, corners, or walls of houses. They like to crawl on vertical surfaces and ceilings at night.

Since they are mostly nocturnal, they have quite poor vision, and mainly rely on vibrations, smell, and taste to hunt. They do not use a web to hunt, rather they depend on their front two legs to feel vibrations. When they sense their prey, they quickly grasp it and give it a bite. An interesting behavior that yellow sac spiders do immediately after they bite, is that they release all their legs from the prey, and only hold them up with their fangs. This helps protect the spider from the wriggling insect, and also makes sure the insect has no surface to push on to escape. They will only bite if disturbed, but most bites are caused by accident due to being squished by skin contact (ie: if they hide in clothes people put on.) Just know that since they are so nomadic, and it is more likely you will encounter one than most spiders.





Yellow Sac Spiders

Description:

Like hobo spiders, yellow sac spiders have been given quite a bad reputation through the media; Most infamously claiming that it causes necrosis wounds. However, this is proven to be “fake news” and poorly sourced. The venom in their bite, while painful, is relatively harmless to humans and mainly causes itching & small localized swelling. The swelling typically is gone by the next day.

For telling the two common North American species apart, a general rule is that if it is found indoors, it is most likely a *C. mildei*, and if it is found outdoors, it is likely a *C. inclusum*.

Running Crab Spiders



Diamondback spider ^

Oblong running crab spider >



Running Crab Spider Eye Patterns



eye pattern ^

Family: Philodromidae

Identification:

Second pair of legs much longer than other pairs, legs all skinny and same build.



Size: 7-11 mm

Occurrence: Slightly uncommon

Habitat/Range: Widespread

Common Local Species: Oblong running crab spider (*Tibellus oblongus*), attractive running crab spider (*Tibellus oblongus*), white striped running crab spider (*Philodromus rufus*)

Bite Risk and Effects: Bites are extremely rare! Next to no records.

Running Crab Spiders

Behavior:

Running crab spiders are given their namesake for their sideways movement. They typically prefer to climb on vertical surfaces, like walls and ceilings. They move extremely fast, and are actually one of the fastest animals on earth. They highly depend on their speed to catch insects. They are roaming hunters, so they only use silk for egg sacs and as a security rope like a bungee cord. They are extremely flighty spiders, and as noted above, bites are extremely rare since they will use their great speed to move far away from threats.

Description:


Running crab spiders are among the fastest hunters in the arachnid world, known for their lightning speed, rapid reaction time, and efficient prey capture. Running crab spiders are not to be confused with crab spiders, which are in different families. You can see the key differences between the families below:



Running crab spider on the left and crab spider on the right. Running crab spiders have longer legs, with the second pair of legs being the longest. All legs are the same thickness. The crab spider has thicker and longer front legs compared to the shorter back legs.



Running Crab Spiders



While crab spiders rely heavily on vision, running crab spiders rely on touch, pressure, smell and air currents. They have lots of sensitive hairs on their body which is what helps make them such successful hunters. Running crab spiders can lay extremely flat, which can allow them to squeeze into tight crevices, like a flounder fish. They hide under logs or trees, so they can hunt or overwinter.

Cobweb spiders (Cellar and Combfooted Spiders)



Long bodied
Cellar Spider ^

Triangulate
Combfoot
∨



Families: Pholcidae (Cellar spiders) Theridiidae (Combfoot Spiders)

Identification:

Cellar spiders: Long, slender, hair-thin legs, pale brown or yellow. Tiny abdomen and cephalothorax in comparison to legs.

Combfoot spiders: Large spherical abdomen (teardrop shape is for true widow spiders.) Usually brown or dark brown with marbling or white markings on cephalothorax. No hair.



Size: 0.8-12 mm

Identification: Cellar spiders: Long, slender, hair-thin legs, pale brown or yellow. Tiny abdomen and cephalothorax in comparison to legs.

Combfoot spiders: Large spherical abdomen (teardrop shape is for true widow spiders.) Usually brown or dark brown with marbling or white markings on cephalothorax. No hair.

Occurrence: Common

Habitat/Range: Widespread

Common Local Species: Long-bodied cellar spider (*Pholcus phalangioides*), American cellar spider (*Pholcophora americana*), common house spider (*Parasteatoda tepidariorum*), triangulate combfoot spider (*Steatoda triangulosa*)

Bite Risk and Effects:

Cellar spider: Very rarely bites.

Combfoot spiders: Very rarely bites. Venom can cause moderate pain for several hours. Can cause headaches, tiredness, and redness. Bite can be itchy, and have some bruising, minor swelling a few days later. Most symptoms disappear within 48-72 hours



Cobweb spiders (Cellar and Combfooted Spiders)




Behavior:

Both of these spider families mainly use their cobwebs to hunt and mate. They also display similar behaviors, with both cellar and combfoot spiders rarely ever leaving their webs. Combfoot spider males do occasionally wander to find mates. Combfoot spiders are nocturnal and they typically hang out in a corner of their web during the day, and sit in the middle of it at night. Both spiders' webs take up a layered 3D space, rather than the stereotypical 2D web orbweaver spiders are known for. Cellar spiders typically place their webs in corners of rooms, or under an area with an overhang. In comparison, combfoot spiders tend to place their webs in much less noticeable areas. Their webs always have a surface underneath them and the spiders typically make them in dark, tight, secluded areas. However this is not always the cause, as combfoot spiders can build their webs in the open, usually in corners.


Cellar spiders seldom bite people, and are especially non-aggressive. Instead of their main defense mechanism being fleeing or biting like most spiders, it vibrates and spins violently in a process called "gyration." It spins around in a circle so quickly, that it makes it impossible for predators to see and lock in on the spider. This is a very fun and interesting behavior to observe. It is definitely worth watching in-person or on a nature video if you have the chance!

Combfoot spiders do not typically bite people as they are pretty stationary in their webs. On rare occasions they may wander to find a new place to build a web, or to mate. Even when disturbed in their web, they typically run away, and will only bite if being squeezed, pressed, or harmed.





Cobweb spiders (Cellar and Combfooted Spiders)




Description:

While cellar spiders are not pretty to look at, they are extremely graceful and docile. They carefully wrap up prey caught in their web meticulously and at a distance using their legs. They hardly move from their web, so you always know where they are, if they are in your house. When prey gets stuck in a cellar spider's web, the spider immediately wraps the prey with silk before it has a chance to escape. Cellar spiders take advantage of their long legs to keep their head and body as far away as possible to their prey, and use their rear pair of legs or methodologically wrap prey in silk. They don't bite it until the prey is completely immobilized and wrapped up.

Combfoot spiders are called combfoot or comb-footed spiders because of the hairs on the back pair of their legs that "comb" out sticky silk, which helps them be more effective in wrapping prey. Combfoot spiders use both sticky and non-sticky silk in their webs. They attach sticky silk to the floor, acting like a tripwire, so when an insect crawls along it, the silk springs up into the web and the insect is stuck midair. The combfoot spider then wraps it with silk, bites it, and eats the liquified remains. Once the venom takes hold and the insect dies, it sucks up the fluids inside it like a juice box. Afterwards, the exoskeleton of the insect is dropped by the spider from the web.

Both spiders are best known for their ability to quickly wrap up their ensnared prey in silk before it has the chance to escape. These spiders can take down much bigger creatures than their size, like wasps, wolf spiders, or even black widows! They also feed on pest species like brown recluses, wasps, and for combfoot spiders, occasionally even lizards.



Both combfoot and cellar spiders are great house guests, as they do a fantastic job at pest control, and usually stay in their webs. Cellar spiders make for good terrarium pets due to being easy to feed and fun to watch their graceful movements.



Other Ground Spiders (Woodlouse Hunters, Parson)



< Western Parson Spider



Woodlouse hunter spider ^



Woodlouse hunters:

Deep rust or red colored legs and cephalothorax. The abdomen is gray or light brown colored, slightly shiny. Looks like a cooked pinto bean. No hair and somewhat shiny.



Size:

Ground spider: 6-9 mm (top)
Woodlouse spider Size: 9-15 mm
(bottom)



Families: Dysderidae (Woodlouse hunters), and Gnaphosidae (Ground Spiders)



Ground Spiders:

Long, cylindrical, widely-spaced spinnerets. Parts of the body covered in velvet hairs. Slightly elongate, flattened body, colored in brown and black tones. Legs are all the same length.

Occurrence: Uncommon

Habitat/Range: Widespread

Common Local Species: Woodlouse spider (*Dysdera crocata*), western parson spider (*Herpyllus propinquus*)

Bite Risk and Effects:

Woodlouse Hunters: Venom can feel itchy or hot, but is harmless to humans. The bite itself feels like a hard pinch.

Ground Spider: Bites are rare. Sharp pain initially, followed by itchiness, joint pain, tiredness and nausea. Thickened skin where the bite was. Symptoms gone by 48 hours, redness and thickened skin gone after 9 days.




Other Ground Spiders



Behavior:

Ground spiders are nocturnal hunters that typically roam freely in search of prey. They are one of the fastest types of spiders, and are very quick to hide and retreat. After a hunt, they return to their hideout during the day. They can be typically found outside under rocks or bark, whereas inside they hide in dark places, or anywhere that is away from view or light. These spiders are one of the most difficult ones to capture and release peacefully outside due to their speed and instinctual need to hide. Since these spiders are relatively harmless, sometimes the best you can do is usher them into a dark corner or crevice so they are comfortable and can continue eating pests for you.

Woodlouse hunters are found exactly where woodlice, or roly-pollies, are found: decaying wood, leaf litter, under logs, rocks, and caves. In homes, woodlouse hunters can be found in basements, garages, and moist areas. It is a nocturnal hunter that hides under dark areas in a silk retreat during the day. Although it is most known for hunting woodlice, it is also known to hunt similar insects in that environment, typically earwigs and crickets. Its long fangs are used mainly to pierce the woodlouse's tough armor.





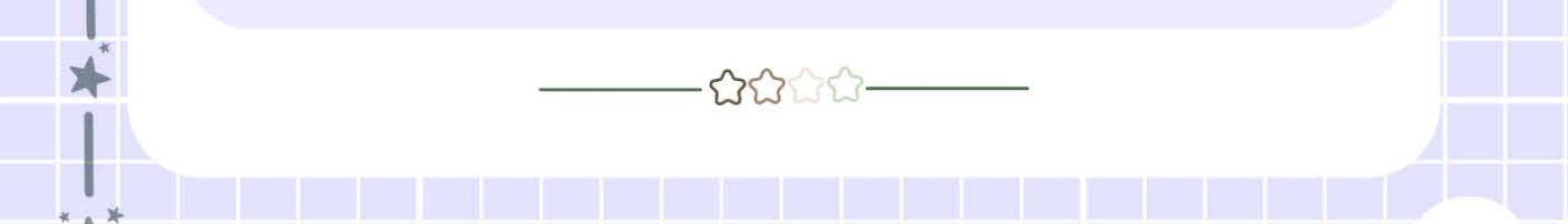
Other Ground Spiders



Description:

Ground spiders have quite a variety of hunting techniques and behaviors that sets them apart from other similar spiders. While most ground and roaming spiders do not use silk, ground spiders use it, to an extent, for hunting. They weave a small sheet for them to stand on and when prey comes by, they grab the prey and throw them into the sheet, causing it to be ensnared. Ground spiders will eat anything they catch or scavenge, including dead insects. An interesting defense mechanism of Western parson spiders is that they drop a wide strip of silk from their spinnerets to defend against attackers from behind.

Woodlouse spiders are quite noticeable due to their stark coloring, however its long fangs and venom are harmless to humans. The venom has no lasting effects, and the bite itself feels less like a bee sting, and more like a pinch. Like most spiders, the woodlouse hunter is very reclusive, and will not bite unless threatened, squeezed, or trapped against skin. Since it prefers mainly wet, high-moisture areas, and cannot live in dry climates, it is less likely that it could accidentally hide in clothes, and more likely that you would find it under a rug, in a moist basement, or other dark, moist room.



Medically Significant Spiders



Male Black Widow^



Western Black Widow

< Female Western black Widow

Family: Salticidae
Genus: Latrodectus



Identification:

A mature female's cephalothorax is very shiny and black. She has two red spots on the underside of her abdomen that may look like an hourglass. These spots are sometimes yellow, or whitish. No noticeable hairs or spines. Males are much smaller, and both males and immature females are brown and with varying red/orange spots outlined in white.

Size: 3-16 mm

Occurrence: Rare (not usually in homes)

Habitat/Range: Widespread


Bite Risk and Effects: Bites rarely. Initially causes severe pain like a wasp sting. Hours later, pain is felt far away from the bite site for up to two days, often throughout the body. Profuse sweating, nausea, vomiting, anxiety and dread, cramps for up to four days.

Medical Significance:

While bites are painful, they are typically not life-threatening for the average person, however, medical attention is recommended if there is a severe reaction, or a child is bitten. Antivenom is available for severe cases. Systematic therapy is recommended, painkillers for the pain, and anti-nausea medicine for the nausea. Please be mindful if you have a weak immune system.



Western Black Widow




Behavior:

Western black widow's behaviors are very similar to combfoot's. They use cobwebs to snag their prey. Sticky webs are used as "tripwires", and when the insect gets stuck on them, it breaks the sticky silk's connection to the ground, and the insect gets lifted into the main cobweb. Once the insect is lifted, the widow spider actually throws sticky silk at the prey until it is immobilized, where it then delivers a venomous bite. They usually build their webs outside or in sheltered, dark crevices. Typically this would be in outbuildings, under railings, dark places, leaf litter, garages, and in outhouses. They are not typically found in homes, but are more likely to be found outside or in a garage or shed. They are **not aggressive**, and typically flee if you touch their web accidentally. Only under rare circumstances will they bite if you disturb their web, mistaking you for a large insect. Most bites to humans are done by females because male black widows do not live long and are very small.

Description:

Widow spiders look very different depending on whether they are male or female. Females are much larger, shiny, black, and have the famous red dots that may look like an hourglass shape on the underside of their abdomen.



Western Black Widow

Males are much smaller and are usually brown with light or red markings on their backs (as shown in image). Immature females also look similar to males, except they still have the teardrop-shaped abdomen.



Western black widows have a neurotoxin in their venom which is the main reason for their bite being so painful. Since all spider venom is made up of proteins, spiders take an abundant amount of resources, time, and energy into making this venom, and this is not an exception for western black widows. Spiders have a great understanding of how much venom they have left, so they deliberately choose how much to use when hunting or defending themselves. For black widows, one third of all bites are “dry bites” where the widow uses no or little venom. For other bites where venom is used, severe pain occurs that can last up to two days. Other symptoms are systemic effects, nausea, headache, and extreme dread and anxiety can start hours later and four days to disappear. For bites, anti-venom can be given, but is only used in severe cases.

Western Black Widow

If you are bitten, please seek medical attention first. This is especially important for **children, seniors, or anyone who has a weakened immune system**, since black widow venom will be more potent. Therapy to manage symptoms is recommended, along with painkillers, and anti-nausea medicine. For bites, anti-venom can be given, but is only used in severe cases. Additionally, please be mindful of pets, as cats are especially at risk from the venom. **If you suspect that your cat might have been bitten, please call a veterinarian and ask if they are equipped to treat a black widow bite.** With this being said, most of the time, black widows are seclusive and stay in their webs. However, each spider has different personalities and varies in its willingness to bite, but this only applies if you are forced to handle the spider.

Female black widows are especially defensive of their young. So if you see an egg sac in a black widow's web, please leave it alone, and the spider will leave you alone.



Brown Recluse (NOT FOUND IN COLORADO)



< Violin marking



Family: Sicariidae

Identification:

Six eyes arranged in three groups. Pale brown, yellow or red coloring. No markings on abdomen or legs, only a characteristic violin marking on cephalothorax. Slender legs, no branding, no obvious spines, very fine hairs



Size: 6-20 mm

Occurrence: Extremely scarce in Colorado

Habitat/Range: NOT FOUND IN COLORADO and cannot survive in the climate

NO Common Local Species

Bite Risk and Effects: Bites are very rare. Initial bite is painless. Most bites are no worse than a bee sting, and can be itchy. 10% of bites cause inflammation, cell death, but still can be healed on its own in about 3 weeks without medical intervention. The healing process can be painful and slow. Severity of necrotic lesions can vary, but is usually only a skin lesion. In extremely rare cases (less than 1%), usually in children, a severe systemic reaction can cause destroyed red blood cells and organ failure.

Medical Significance: Possibly of medical concern, recommended to seek medical attention and capture the spider. The best healing method is "watchful waiting," where surgical removal occurs if the wound is severe, and after the wound has started to heal.

Brown Recluse

Behavior:

Brown recluses are, straightforwardly enough, reclusive. They are nocturnal, and typically hide in crevices, cracks, under stones, bark, etc. Within its range, it is known for typically being inside human dwellings, mainly hiding in low light areas and under rarely-moved objects.


They are not great climbers and cannot climb slippery objects. In terms of how they hunt, they have two strategies: They either wander out in search of prey, or lay out silk threads, and, similarly to funnel web spiders, lay in wait for prey to walk along it and trigger vibrations.

Recluse spiders are not aggressive, and seem to actively avoid interacting with humans. There have been cases where people lived with very high populations of recluse spiders for years without noticing—and without ever being bitten. In comparison to most spiders, it is even more shy. The brown recluse will only bite as an absolute last resort, typically if it is pinned against skin and has no means to escape, which can happen if it hides in clothes on the ground. An easy way to prevent this if you live in the habitat range of the brown recluse is to shake out your clothing and bang out shoes that are on the ground.





Brown Recluse




Even then, most brown recluse bites are “dry bites” and do not contain much venom, acting as a warning bite. That being said, it is still a good idea to seek medical attention so the bite can be treated effectively, and to take these measures to prevent bites altogether.

If you are bitten, please wash the wound with soap and water. Do not scratch at the wound as that can introduce bacteria into it. If you live in the brown recluse range, and have been bitten or suspect someone has been bitten, and their urine darkens, get the person to a hospital immediately. These are all signs of an extremely rare systemic response that needs to be treated.


Description:

Brown recluses are not native to Colorado and cannot typically live there naturally because the environment is unsuitable. What this means is that the only way a brown recluse would be able to be found would be in an indoor area, where it could have been transported there via humans. Because of this, it is extremely rare to find a brown recluse in Colorado, with only a few confirmed cases. Brown recluses have a very difficult time establishing populations outside of their range, much more so than other spiders. It is theorized that the main reason is due to the environment, weather, and elevation.






Brown Recluse



It might also be because they tend to stay in the same spot for generations. There are instances of buildings with high brown recluse populations, but in the nearby bushes or buildings, no recluses were found. They will stay in the same place for generations. They overwinter in September or October, and re-emerge in the spring.

Brown recluses have a generalist diet and will eat anything they can capture, even eating larger wasps or armored insects. Brown recluses are hunted upon by combfoot spiders, such as the common house spider (*Parasteatoda tepidariorum*), and the Triangulate combfoot spider (*Steatoda triangulosa*).

Historically, brown recluse bites often have been misdiagnosed at medical facilities. The reason behind this is because, sometimes, necrotic lesions can appear on a person's body for other reasons. Since brown recluses are known to cause this condition, people tend to jump to the conclusion that it was a brown recluse bite. This is extremely dangerous because not only does it lead to a misdiagnosis, but a patient can receive incorrect treatment that can worsen the actual issue causing the necrotic lesions.



Brown Recluse

There are a number of conditions that can look like brown recluse bites, including methicillin-resistant *Staphylococcus aureus* (MRSA), which is known as a bacterium responsible for difficult-to-treat infections in humans. The best way to diagnose a brown recluse bite is to be within the region of the spider that bit you and capture it, so the doctor can diagnose the bite properly. Despite all these warnings, extreme cases are very rare, and are even less dangerous than bees. Here's a table to see the comparison!

From: **Spider Venoms Potentially Lethal to Humans**

Venomous animal group	Region	Bites or stings per year	Deaths per year	Human population (millions)	Death rate per million	Reference
Snakes	World	5,400,000	125,345	5,840	21.5	Chippaux (1998)
Scorpions	World	115,000 (recorded)	180	2,264	0.08	Chippaux and Goyffon (2008)
-	World	1,190,000 (recorded + estimated)	3,271	2,264	1.4	Chippaux and Goyffon (2008)
Bees and wasps	USA	NIA	48	265	0.18	Langley (2005)
-	Australia	NIA	0.35	18	0.02	McGain et al. (2000)
Spiders	World	NIA	<200	5,300	0.038 (1)	Russell (1991)
-	USA	NIA	6	265	0.023 (1)	Langley (2005)
-	World	NIA	0 to <5	6,200	0 to <0.001 (2)	This study

Despite all these warnings, extreme cases are very rare, and are even less dangerous than bees. Here's a table to see the comparison!





OUTRO



Double Checking Information and Sources....

When it comes to researching anything, it is always essential to check the sources you use to make sure the data was not biased or skewed. The same can absolutely be said for spiders. The majority of common house spiders gain a lot of bad press because of how common they are, and how easy it is to blame them for mysterious wounds that appear.

Additionally, if one spider is found out to be dangerous, it can cause a domino effect where other spiders are blamed for being just as dangerous. Even within the long line of academic spider research, numerous articles have given false depictions of their behaviors, bite risk, and the effects of the venom for a multitude of reasons. Some of them are due to the research itself being outdated. For example, in one study, funnel spiders were inaccurately called "aggressive", when in truth, they were cornered and heavily threatened during the experiment. These are just a few examples of how a single study can allow misinformation to spread.

When it comes to researching spiders, some articles or newspaper articles will cite these skewed studies, with one flawed article often being cited over and over again. When data is cited like this, for any subject, it is important to read over the article carefully to make sure the study or research is not biased in some way. Be smart with what information you consume, especially for something as greatly feared as spiders. If you can find accurate sources, you could learn something new!



Remember! More people die from lightning strikes than spiders! Spider bites kill less than 3 people per year in the United States, whereas lightning strikes kill 30 people per year in the US. To put this in perspective, here is a ratio of spider bites reported per year, vs. the deaths in the US from spiders between 2001 and 2010:



2,104,539 spider bites reported : 27 spider bite deaths

It is also important to remember that spiders are still one of the best methods of pest control, especially in agriculture. There are so many different types of spiders and each type has a certain use for its silk. Orb weavers, funnel weavers, and ground hunting spiders each have their own unique methods to get rid of specific pests, so you can pick and choose which spider you need. Whether you would like to keep them in your garage, or outside of the house so it doesn't bother you anymore, it is good to learn the basic spider behaviors to avoid and which methods you can use to safely transport them wherever they need to be.

Aggression Signs and What to Avoid:

Most spiders will flee when you try to catch them, but some might stand their ground and make this move:



A spider rearing up its front two legs and exposing its fangs is a common way spiders try to scare off predators or other threats.



This is a common defensive posture a spider makes to try to scare off predators. Do not disturb them if they are making this pose, as it typically means that they are planning to bite next.

Some spiders have vibrant coloring on their bodies. This is also another defense mechanism called "aposematism", where strongly venomous spiders are brightly colored, to warn predators. Not all brightly-colored arachnids have this, as some jumping spider males exhibit bright colors in order to mate. A strong example of aposematism is the bright red markings on a female black widow.



Additionally, some spiders have bright coloring to warn predators, but are not dangerous themselves. This is typically more commonly found in insects than spiders. This is called 'Batesian mimicry' a harmless species gains protection by resembling a harmful or unpalatable one, such as a non-stinging fly that looks like a wasp.

"Mullerian mimicry" is when multiple harmful or unpalatable species, such as venomous spiders, stinging bees and wasps, etc., evolve similar warning colors or patterns, reinforcing the message to predators that they should be avoided. A very loose example of a spider that exhibits Mullerian mimicry is the woodlouse hunter spider. This is solely due to the fact that the woodlouse hunter spider is a similar rusty red to venomous centipedes. Woodlouse hunters are also well-defended predators for woodlice and other spiders due to its large fangs.

How to Catch Spiders Safely:

For most spiders, a plastic cup (preferably see-through) or a glass and a piece of paper is all you need to catch the spider and release it outside. All you need to do is to put the cup over the spider on a flat surface, so the spider does not escape. You then slide a piece of paper under the cup and spider. Flip the paper and the cup, and viola, you have caught a spider!

For a more intensive observation method, try this: Creating a homemade spider-catcher/observation container:



“Homemade observation container for spiders, which allows the living spider to be held without injury. With a hand magnifier, the immobile spider can be easily examined. For this, only three plastic coffee cream containers, foam, and transparent plastic film are needed. The bottom is cut out of two cups with a sharp knife, and a piece of transparent film is stretched between them. A piece of foam is glued to the third cup and pushed into the other two cups with the film. A spider caught between them cannot move and can be viewed through the film with a magnifying glass. (Photo Wolfgang Nentwig)”

If you succeed in capturing spiders, putting them outside or in areas of high bug populations can be extremely helpful as they can do all the exterminating work for you. It is not for everyone, but it is worth a try if you are willing to give it a chance.

Throughout this booklet, I hope you've discovered fascinating insights about spiders, their unique behaviors, the truth behind their bites, and the real effects of their venom. Spiders are often misunderstood creatures, but when we take the time to learn about them, we realize most are harmless and even beneficial companions in our homes and gardens.

Most spiders make great roommates or neighbors, quietly contributing to a balanced ecosystem without asking for much in return. By embracing this understanding, you can help dispel common fears and myths, and maybe even inspire others to appreciate these incredible arachnids. Thank you for joining me on this journey into the world of spiders. May your newfound knowledge empower you to coexist peacefully with these fascinating creatures, and to share their story with kindness and curiosity. After all, every creature has a role in the web of life, and spiders are no exception.

Have fun exploring and appreciating my friends! Until next time, stay curious and keep learning!



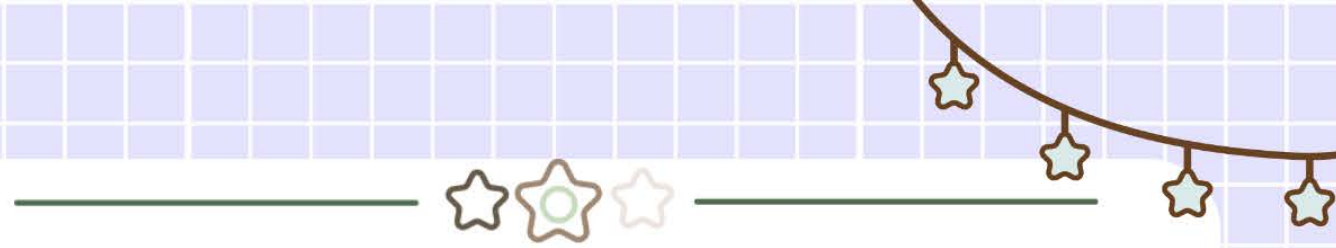


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