



Spiders: An Undeserved Bad Reputation

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Introduction

When you see a spider, your first instinct is to step on it or squash it, but, before you do, consider two things: (1) spiders are predators that eat insects, and (2) in North America, there are only two groups of spiders of medical concern to humans (widow and recluse spiders).

Although most spider species are venomous, in most cases, venom is used to subdue prey (primarily insects), and, as ubiquitous predators in every ecosystem, they will feed on whatever insect is within their reach.

This means spiders should be a welcome sight, even encouraged to thrive, in your home and garden. More spiders = fewer insects.

Currently, the World Spider Catalog, Version 21.5, Natural History Museum Bern (<http://wsc.nmbe.ch>) lists 48,889 species of spiders worldwide (with more being discovered every year). Over 3,600 species have been sighted in North America (<http://spideridentifications.com/spiders-in-us/spiders-in-virginia>), and ±3,500 species sighted in the USA (<http://usaspiders.com>).

In Virginia, while estimates range from <100 to “nearly 900” species, the Virginia Department of Game and Inland Fisheries lists only 47 species sighted (<https://www.dgif.virginia.gov/wp-content/uploads/virginia-native-naturalized-species.pdf>), and Spider ID lists only 57 species sighted (https://spiderid.com/locations/united-states/virginia/?fwp_paged=3), 51 of which are not included in the Virginia DGIF list. Combined, this means 98 species have been found in Virginia. VT Insect ID Specialist, Eric Day estimates there are actually several hundred species in Virginia, with many yet to be sighted.

There are several factors that can help turn the initial “step n’ squash” response into one of “observe, and if not a black widow or brown recluse, quietly retreat.”

Spider Identification

Spiders are not insects. Spiders have eight legs and two body parts, whereas insects have six legs and three body parts. Spiders have simple eyes (usually eight, rarely six) while insects have compound eyes (two). Spiders are in the phylum Arthropoda (Arthropods), the class Arachnida (Arachnids) and the order Araneae (Spiders). All spiders found in N.A. belong to the suborder Opisthothelae.

Spider families and species, however, are difficult to identify due to their diminutive size (over 50% of spiders are only 1mm - 5mm in length), complex anatomy parts (difficult to see without magnification), taxonomic keys based on adult spiders (may be ineffective when identifying immature specimens), rapid movements (escaping a close eye or camera), and close variations within species (many species look similar but are biologically different).

However, with the help of study and reference aids (bugguide.net, VT Entomology Lab, and other websites), you may be able to identify some spiders down to family and genus. With practice, you can make an identification of some spider families or groups, as spiders are generally placed into two categories: those that build webs, and those that do not.

Specific web-builders can further be identified by their type of web, ranging from irregular-shaped, to orb, or tubular. Examples include cobweb or tangle webs (e.g. American house spider), sheet webs (e.g. hammock spider), orb webs (e.g. barn spider, black & yellow garden spider, spiny-backed orb-weavers),

funnel webs (grass spider) and woolly webs (cribellate orb weavers). One interesting note is that most web-builders have poor eyesight, however, it is thought that good eyesight is not needed as the web serves to catch their prey. Find out more fascinating details about spider webs at:

https://baynature.org/wp-content/uploads/2015/10/spider_webs.pdf.

Non-web-building spiders are called hunting spiders, and consist of those that “hunt” and ambush their prey, and those that lie in wait, ready to nab insects as they pass by. Crab spiders are passive, while examples of aggressive hunters include fishing spiders (“skating” across water, diving to capture prey) and jumping spiders (running sideways, backwards, jumping many times their body length to pounce). Jumping spiders have the best vision of spiders (seeing objects up to eight inches away) and are easily recognizable by their large middle eyes.

Spiders are Predators

Worldwide, spiders reportedly kill an estimated 400 - 800 million metric tons annually (MTA) of prey. While over 90% of that prey are insects, they will consume other arthropods, including other spiders.

Spiders can be found in every microhabitat and in every terrestrial ecosystem except Antarctica. They are also found in many freshwater and marine ecosystems. Some spiders are specialists, while others are generalists in their choice of habitat. Regardless, most spiders are territorial. It may be disconcerting to some people, but it is likely that no matter where your location, you are likely within just a few feet of a spider.

Most spiders are nocturnal, when tactile and chemical cues are more important than sight. Generally, their prey is smaller or equal to the spider’s own size, however, jumping and orb-weaver spiders are known to capture prey many times larger than themselves. Unable to chew their food, spiders use fangs to inject venom into their prey, then inject digestive enzymes to liquify tissue, turning their prey into a digestible “smoothie.”

Are Spiders Dangerous (and what if I get bit)?

In North America, only two spiders have been shown to be of medical concern: (1) widow spiders, in the family Theridiidae and genus *Latrodectus*; and (2) recluse spiders, in the family Sicariidae and genus *Loxosceles*.

Only two of the five widow species in the U.S. are typically found in Virginia: Northern and Southern black widows. Females (males do not bite) of both species have the classic black widow marking: a distinctive red hourglass on the underside of the abdomen (on the Northern black widow, the hourglass is split in the middle). For more information on widow spiders, visit:

<https://www.pubs.ext.vt.edu/444/444-422/444-422.html>.

Of several species of recluse spiders, the most common in the eastern U.S. is the brown recluse. Most brown recluse spiders are light-to-medium brown, with distinguishing features including three pair of eyes in a semicircle (most spiders have eight eyes) and a violin-shaped dark marking extending from the neck toward the abdomen. For more information on the brown recluse, visit:

https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/ENTO/ENTO-135/ENTO-135-pdf.pdf.

Bites from both widow spiders and recluse spiders can result in none-to-severe reaction. Symptoms from widow spider bites usually disappear within 1 - 7 days, while symptoms from the brown recluse may appear 24 - 36 hours after being bitten, and healing may take 6 - 8 weeks (in severe cases, the wound can last several months). Preferred habitats of both are sheltered areas, such as woodpiles, under rocks and debris. Precautionary measures to help avoid bites include wearing long sleeves and gloves, shaking out work clothes and shoes, and regularly cleaning storage areas. For more information on bites and how to avoid them, visit:

https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/ENTO/ENTO-73/ENTO-346.pdf.

Are Spiders Beneficial?

In a word, “yes.” Given the sheer volume of spiders, the volume of insects they consume annually, and their presence in virtually every microhabitat and ecosystem, they bring value to the vegetable garden as a natural predator of insects.

Additionally, multiple studies have shown that spiders can, play a key role in suppressing agricultural pests.

Should spiders be an integral part of the gardener’s Integrated Pest Management (IPM) protocols? In general, they already are, by the sheer volume of their numbers and presence (although their volume is somewhat reduced in vegetable gardens due to the “disturbed habitat”). Such factors as the use of pesticides (killing the spiders or insects, their primary food source), and spiders’ indiscriminate prey selection (they may eat a honeybee as readily as a stink bug) have to be considered as well. For these reasons, while welcoming spiders to your garden, use of spiders as control agents would be less effective than other methods.

Whenever possible, it is recommended that you leave these valuable predators alone to hunt in your garden. They deserve our appreciation, not our scorn.

References

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