

THE GREAT OUTDOORS



Thomas Shahan caught this "in your face" view of the placement of a rabid wolf spider's eight eyes.

Death by Spider

The glow of a firefly draws our columnist into the world of a spider.

By J. Morton Galetto, CU Maurice River

It was a dark moonless evening as I climbed the hill from our dock on the shores of the Maurice River to my home. I'd been watching droves of catfish hammer schools of minnows that were attracted to the lights on the dock. As

I moved toward the house, on a rudbeckia (a native daisy family plant) the glow of a lightning bug caught my eye: the first of the season. Seeing fireflies always transports me to my childhood, and it's hard to resist wanting to capture one.

The glow somehow didn't seem right, and as it turned out when I inspected it with my lantern someone had already beaten me to the punch: A rabid wolf spider had it in its clutches and its light seemed to be stutteringly different, almost a steady on – fading to off. Possibly an SOS of sorts.



This rabid wolf spider capturing a firefly was snapped by our columnist, leading to her exploration of the species. Photo: J. Morton Galetto.

The rabid wolf spider does not make a web but rather relies on its speed and stealth when capturing its prey. It is thought that its wild forward movement is how it may have earned the title of "rabid." Rabies is restricted to mammalian species, a taxonym that includes humans, so although like all spiders it has a venomous bite it can in no way be inflicted with rabies.

Its bite is indeed painful, and although harmless the discomfort can last for hours. As a result, rescuing this lightning bug from the clutches of a wolf spider was of little interest to me. But I did wonder why the spider had chosen the unpleasant-tasting lightning bug for its supper. Knowing that their nasty flavor was designed to keep predation to a minimum, I decided to investigate whether lightning bugs are common prey for the spider.

Steroid pyrones called lucibufagins contribute to their offensive taste, which is similar to the cardiotoxic bufadienolides found in some poisonous toads. Would-be predators like rodents and birds may try one but they are unlikely to eat a second. Thus some lightning bugs sacrifice their lives so others will survive, similar to monarch larva.

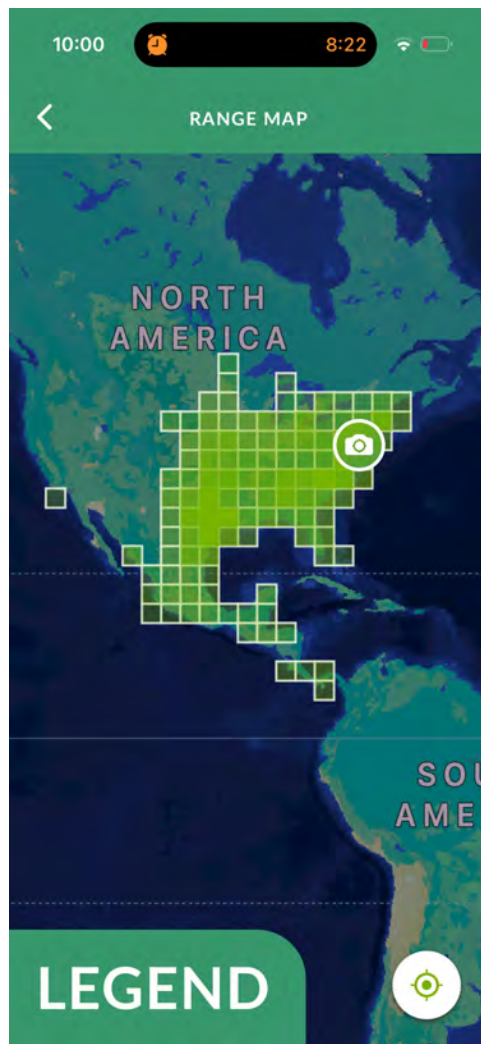
A number of sources reported that indeed spiders often leave fireflies alone because of their bitterness. As a child I experienced that taste; I had a penchant for sucking my thumb and learned that collecting fireflies and thumb-sucking or nail-biting were an unpleasant combination.

Conversely a group of scientists in China's Wuhan Province found some orb-weaver spiders had a devious behavior. In the studied species only male lightning bugs fly, so the strategy employed is to capture a male and inject it with venom, causing it to flash like a female and thus attract other males to the web. These experts discovered that the spiders would not dine immediately on the prey, so they employed it as a lure.



Orb weaving spiders similar to this golden silk species were studied by Chinese researchers. Orb weavers alter the flash of a male firefly to the single flashes of a female. This strategy lures other males to the web. In this species only males fly. Photo: by J. Morton Galetto.

The range of the rabid wolf spider extends from the Rocky Mountains eastward: wildlife enthusiasts that use iNaturalist have posted a plethora of photos and locations on this commonly-used citizen scientist collective. A massive crowdsourced biodiversity database, iNaturalist uses artificial intelligence to help people instantly identify species of plants and animals. This collection of observations is not only connecting novices to nature but has also informed experts on species ranges and other facts, and sometimes even brought about new discoveries.



The citizen scientist database created by some 24,845 sightings of the species rabidosa rabida reported to iNaturalist. It shows the range of the rabid wolf spider. Map: iNaturalist generated.

The keen eyesight of the wolf spider aids it in hunting down its prey. It has eight eyes arranged in three rows. Just above its chelicera, or mouth parts, is a row of four eyes, followed by two, and lastly topped off by two more placed high on its carapace. This creates what an amateur like myself would call "One heck of a face." While most spiders have eight eyes, the number can vary from none, like some cave dwellers, to two or four.

The wolf spider's overall appearance is striped, but that does not distinguish them from other similar species. The slanted tan or orangish spots inside of the brown center stripe of its abdomen is considered an identifying feature. The total body length is around a half inch long.

The spider is found most commonly in tall grasses and climbs into vegetation at night. Its habitat is open woodlands, pastures, and prairies – so it is somewhat adaptable to lawns. It is grouped in the "ground hunting guild" of spiders and is known for its athleticism, running down prey like a "wolf."

The rabid wolf spider, or *rabidosa rapbida*, is one of the species that carries its silken cocoon or egg sac, which holds 168-365 developing spiderlings – generally from July through October. If the female drops her sac from her spinnerets she will return to search for it and carry it off in her jaws, reattaching it to the spinnerets later. The young spiders can't break out of the sac on their own but

make noises that indicate to the mother that it is time for them to be set free.

After having carried the sac a week to several months before the young emerge, the mother will transport them on her back until they are independent. The period of dependency lasts for as much as six months, while a typical lifespan for this species is two years.



The rabid wolf spider carries her egg sac for a week to several months until the spiderlings inside make sounds signaling it is time for the mother to free them from the cocoon. Photo: Greg Lasley, iNaturalist.



After hatching, the young stay on the mothers back until reaching independence for as long as six months. Photo: J. Cochran, iNaturalist.

Unsurprisingly these spiders eat small insects and invertebrates, crickets, locust, ants, grasshoppers, and other spiders. They tend to stay put and then ambush their prey, making use of agility and speed.

On some naturalist-led night excursions in the tropics I've observed thousands of spiders' eye shine. I've not tried that locally but maybe I shall. Shining a flashlight around doesn't really work; the trick is to use a headlamp so that the eyeshine is reflected directly back at your eyes. The light's color plays a role as well, but isn't as

important as the angle of the light in relation to your eyes. Various LED lights seem to work well.

Therefore, it wasn't eye shine that attracted me to the spider's presence but rather the glow of its prey. Who would have guessed that this chance encounter would have resulted in so many interesting tidbits of knowledge. Clearly one aspect that makes nature so very alluring is the vast amounts of things we know, and those which we don't.

Sources

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