

Robbers, Ambushers, and Assassins

by Danae Wolfe



IN MY previous two articles, I wrote about fireflies and wasps, mentioning how both are great predatory insects to welcome into the garden. As a follow-up, I'd like to introduce some of my other favorite beneficial insects that help keep garden pests in check.

Gardens that support a diversity of native flora and fauna are generally resilient to pest problems. Nature has a way of providing checks and balances. But what happens when our gardens don't support predators? Let's consider one well-documented North American predator-prey relationship for insight.

Historically, gray wolves roamed free across two-thirds of the United States. Today, these wolves cover just 10 percent of their historic native range. With the extirpation of wolves from many areas, populations of white-tailed deer—a valued prey animal for gray wolves—have exploded. Higher populations of white-tailed deer in some

Great Lakes forests have resulted in significant deer browsing on tree saplings which, in turn, has created a shift in dominant tree species. Over generations, this shift can change the entire structure of a forest.

When humans interfere with predator-prey relationships, there are often chain-reaction consequences, some of which are only known many years later. Although much research remains to be done on the insect world, these relationships are as alive in our gardens as they are throughout Great Lakes forests and every ecosystem on Earth.

So, who are the predators of the garden? There are too many to name here, but I have compiled a short list of some of my favorite beneficial, predatory bugs and included a few resources (opposite page) for those interested in a deeper dive!

DRAGONFLIES (ORDER ODONATA)

Known for their broad, glittering wings and large, all-seeing eyes, dragonflies are

an oft-admired insect. But while they appear graceful and delicate, these aerial acrobats are one of the most fearsome garden predators. Dragonflies are known to snatch prey out of mid-air with a 95 percent success rate, compared to only a 17 to 19 percent success rate for a lone lion!

HOVER FLIES (ORDER DIPTERA)

Hover fly, flower fly, syrphid fly. Often mistaken for sweat bees due to their mostly yellow-and-black-striped coloration, the humble hover fly goes by many names. Most gardeners know the hover fly as a powerful pollinator that spends its days visiting flowers. But you might not realize that, in about 40 percent of hover fly species, their larvae are fierce predators that feed on soft-bodied insects like aphids and scales.

LACEWINGS (ORDER NEUROPTERA)

Lacewings are small, delicate insects with intricate wings and voracious appetites. Adult lacewings are mostly nocturnal, so you might find them lingering near porch lights. While larvae of all species feed on insects, only adults of some species are predacious. Lacewing larvae are sometimes called “aphid lions” because of their appetite for aphids, but they'll also feed on such pests as mealybugs, psyllids, thrips, mites, whiteflies, and even small caterpillars.

ROBBER FLIES (ORDER DIPTERA)

Robber flies are generalist predators that feed on wasps, bees, dragonflies, flies, leafhoppers, butterflies, and grasshoppers, among other arthropods. Adults range in size from just 3mm to 50mm and boast elongated bodies, large eyes, and long, bristled legs that help them capture prey. Gardeners can usually find robber flies perched in sunny spots in the gar-

Also known as “aphid lions,” lacewing larvae have hearty appetites for aphids, making them wonderful biocontrol agents to have in the garden.

den, waiting to ambush prey in fast aerial chases. Once caught, these predators will return to a perch to consume their meal.

AMBUSH BUGS (ORDER HEMIPTERA)

Ambush bugs are one of my favorite garden predators. Resembling a strange mix between a turtle and a T-rex, these tiny garden terrors are ambush predators (as their name so aptly suggests). Ambush bugs are true bugs with piercing, sucking mouthparts and raptorial forelegs that help them capture prey up to ten times larger than their small bodies. These predators lie in wait on flowers and attack unsuspecting insects that are busy collecting pollen or nectar. Ambush bugs feed on a variety of insects, including bees, wasps, and butterflies.

ASSASSIN BUGS (ORDER HEMIPTERA)

Both assassin bug nymphs and adults are predators, feeding on small and medium-sized insects, including caterpil-

Resources

If you want to learn more about attracting or identifying beneficial bugs in the garden, check out these great resources:

Good Garden Bugs: Everything You Need to Know about Beneficial Predatory Insects by Mary Gardiner. Quarry Books, 2015.

Attracting Beneficial Bugs to Your Garden: A Natural Approach to Pest Control by Jessica Walliser. Timber Press, 2013.

lars, aphids, stink bugs, and flies. Like ambush bugs, assassin bugs stab prey with their swordlike, piercing, sucking mouthpart before injecting their meal with enzymes that aid in digestion. Adults and nymphs are characterized by their slender bodies and long, spindly legs. Assassin bugs are colorful in-

sects, ranging from reds and oranges to browns and greens.

MANTIDFLIES (ORDER NEUROPTERA)

If you thought ambush bugs are strange looking, let me introduce you to the wonderfully wacky mantidfly. Resembling a mix between a praying mantis, a wasp, and a lacewing, mantidflies, or mantid lacewings, are small to medium-sized predators with fierce-looking raptorial forelegs that help them catch prey. Both adults and larvae are predatory, feeding on small insects, though larvae in the subfamily Mantispininae feed exclusively on spider eggs.

HONORABLE MENTION: SPIDERS

I know, I know. Spiders aren't insects. Nonetheless, they are awesome garden predators! Spiders are so beneficial, in fact, that the late Norman Platnick, a leader in spider taxonomy, said, "If spiders disappeared, we would face famine." Why? Because spiders are masters at controlling pests. A 2017 study found that spiders consume an estimated 400 to 800 million tons of prey each year. Despite their hearty appetites, spiders generally are not aggressive towards humans and will usually only bite in self-defense. So put down that shoe and consider leaving your eight-legged neighbors in peace so they can take care of any unwelcome pests in your home and garden!

SUPPORTING BENEFICIAL BACKYARD BUGS

The best way to support beneficial, predatory insects (and spiders) in the garden is to support the prey they eat. Without food, beneficials will have no real draw in your garden. Incorporate plenty of native plants in your landscape that support a diversity of arthropods across their life cycle and throughout the season. As with supporting insects in general, reducing or eliminating pesticides can help beneficials thrive.

With the right balance of predators and prey, many pest problems can be kept in check, thus avoiding the need for chemical control.

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Above: Ambush bugs may be small, but what they lack in size, they make up for in predatory prowess. These true bugs use their raptorial forelegs to grasp prey, then stab them with their swordlike mouth before consuming them.

Left: Mantidflies might be one of the wackiest-looking insects in the garden. Like ambush bugs, these insects use their raptorial forelegs to capture and grasp prey.