The Importance of Caterpillars

Most of us know a caterpillar when we see one. It's the creature eating our plant. But we must resist quick judgement that this little guy is evil. The first thing to do is identify the critter crawling on your plant because caterpillars have high ecological value, both as pollinators and as critical food for many wildlife species.

The vast majority of all insects are beneficial and do no harm to people or plants and many insects actually control pests. Pesticides are counter- productive to pest management because they kill the very insects meant to prey on pests to keep them in check.

Like all animals, caterpillars must eat to survive but rarely will their feeding kill a plant. Our native oaks for example, feed over 500 caterpillar species with no ill effects to the trees.

But exactly what are caterpillars? Simply put, they are the larval stage of butterflies and moths. The insect world includes many families (orders), categorized by their identifying characteristics. Butterflies and moths belong to the order Lepidoptera which means "scaly wings", referring to the scales covering the wings of most adults. As with other insects such as bees, flies and beetles, development to adult butterfly or moth is a complete transformation (metamorphosis) with adults looking and behaving quite differently than their larvae. **But only butterfly and moth larvae are considered caterpillars.**

Left: Adult Black Swallowtail butterfly on Echinacea Coneflower.

Above: Black Swallowtail caterpillar.
Below: Spicebush Swallowtail caterpillar.

Caterpillars are often brightly colored with distinctive markings such as lines or patterns, and for good reason. They face many threats and must employ numerous strategies to escape the attention of their enemies, or to thwart their attack. One such strategy is to blend into their surroundings by matching the shape of leaves and twigs, or to resemble bird droppings. Another tactic is bright color or markings intended to warn or frighten predators when discovered. The Spicebush Swallowtail caterpillar uses both these tactics during its development, resembling bird droppings early on and sporting large faux eyespots in later stages.

Often, a combination of red and yellow color between black and white markings can be a warning that this particular caterpillar is unpalatable. The Monarch caterpillar is a perfect example of this tactic. And, if you grow plants in the carrot family such as celery, dill, parsley or fennel, you have likely encountered a caterpillar patterned with yellow dots between green and black bands. This is the Black Swallowtail butterfly caterpillar and <u>not</u> a pest. Planting some of these plants just for the caterpillars, ensures you will have both plants and lovely butterflies.

It should be noted that all butterflies require certain plant(s) to feed their caterpillars. This is referred to as "host" plant specification. Consider the Monarch and Black Swallowtail caterpillars that require plants to sustain them in the milkweed and carrot families respectively. All butterfly caterpillars have this basic need for a particular host plant(s). Our POP website has a list of host plants for butterfly species.

Caterpillar populations for both butterflies and moths are kept in check by many natural enemies including viruses, bacteria, fungi and other pathogens. A caterpillar predator you have likely encountered if you grow tomatoes is a parasitoid (braconid) wasp that lays dozens of white eggs on the body of the Tomato Hornworm. An “infected” caterpillar is already doomed as the wasp larvae will consume it. Allowing the wasps to hatch on the Hornworm caterpillar will actually protect your tomato plants by ensuring survival of predatory wasps for continued pest control.

We all love to see butterflies fluttering in our gardens and welcome them as pollinators. Moths, however, don’t get the love they deserve. But moths are valuable pollinators of the night shift. They pollinate fragrant and light-colored flowers that bloom by the light of the moon such as evening primrose. An exception is the Hummingbird Clearwing moth, a daytime pollinator. Protecting all caterpillars ensures the survival of butterfly and moth pollinators.

It cannot be overstated how important caterpillars are as a food source for birds and many wildlife species. Most baby songbirds are exclusively fed caterpillars since they are soft, easily digested and nutritious. It takes between 6,000 and 9,000 caterpillars to feed just one clutch of baby birds. And, because moths and their caterpillars are far more abundant than butterflies, they are key in providing food for a vast number of wildlife species including amphibians, reptiles, terrestrial birds, and mammals. Adult moths are especially favored by whippoorwills, mockingbirds, flycatchers, grossbeaks and purple martins.

Such amazing creatures, these caterpillars. They have the ability to transfer energy from plants to animals as nutritious food. And, by reaching adulthood, butterflies and moths are winged pollinators. Famed biologist, ecologist, naturalist and entomologist, E.O. Wilson called insects, “the little things that run the world” because of the huge role they play in food webs, ecosystem services and biological diversity. No doubt, caterpillars were at the top of his list.