

A Vital Connection: Native Plants and Butterflies

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Butterflies are herbivores, just like cattle and horses. Every native butterfly evolved in synchrony with a native plant as its food source. For most, the relationship is exclusive to a particular species, genus or family. Only 10% of insects, including a few butterflies, are polyphagous, able to dine on a wider array of plant species. For the Lepidoptera, adult butterflies and moths do not eat; the caterpillar stage does all the eating and growing.

Butterflies as Botanists

Butterflies live their lives in response to the absence or presence of chemical stimuli. When plants 'breathe' (transpiration) they emit chemicals into the air. We can detect some of these chemicals, like the fragrance of Mint or Roses. Butterflies "smell" with their antennae and are far more efficient at detecting these airborne molecules because each antenna houses over 16,000 olfactory receptors. This makes them superb botanists, recognizing plants at the molecular level. When an airborne host plant molecule slams into an antenna's chemical receptor, the butterfly is like a heat-seeking missile, following the trail of molecules back to its caterpillar's potential food.

The males of many species of butterflies guard territories over their species' host plant because that is where they will meet the ladies. The pregnant female "tastes" the host leaf with her feet and when the chemical receptor on her foot and the plant molecule connect like a lock and key, she lays an egg. Closely related imported ornamentals and hybrids will also be used if they have the essential molecule that prompts butterflies to lay their eggs. For example, Black Swallowtails evolved with native Parsleys and other members of the Carrot family such as the gorgeous Golden Alexanders, but they have adapted and even prefer domesticated Dill and Fennel.

Examples of Native Host Plants

These caterpillar gustatory specialties are referred to as Host or Food Plants. Most people already know about the Monarch caterpillar's dependence on the Milkweed family. Likewise, only selected members of the genus *Aristolochia* (pipevines) can be eaten by Pipevine Swallowtail caterpillars. The Zebra Swallowtail caterpillar restricts its menu to just one species of plant, our native Paw-paw. It's very simple: no Paw-paws, no Zebras. If we lose a native plant that is an obligate host, we will also lose the butterfly that depends on it. We see this happening today with over 80% of the Midwestern Milkweeds eradicated by habitat destruction and modern farming practices. If a female butterfly does not find the correct caterpillar food plant, she will die with a belly full of unlaid eggs. Just as well, since her babies can eat no other food and would starve to death if the eggs were to hatch on the wrong plant.

How do you know which plant goes with which butterfly? Any good butterfly field guide lists the caterpillar food plants for each species. You can also Google the name of the butterfly and "host plant" to find out which plants are on the menu.

What about Wild Flowers?

This plant specificity exists only at the caterpillar stage. Some (but definitely not all) species of butterflies do sip nectar, but any nectar-rich flower with a convenient landing strip and short nectaries will do. For gardeners who prefer only native plants, the early spring flowers like Rose Verbena, *Glandularia canadensis*, will greet butterflies as they emerge from their chrysalis or migrate north from their winter home. Summer possibilities include Echinacea, Phlox, Monarda and multiple species of Milkweeds. And fall's Salvias, Asters and Sunflowers will provide the necessary nectar for migrating butterflies.

Summary: Using Natives in Your Yard

Since every species of butterfly has a unique host plant, you can select which butterflies you want in your yard by which plants you install. Imagine a pregnant butterfly's joy when she finally finds her host plant in your yard! She lays her eggs and, with luck, you have established a new resident breeding population on your property.