

## Butterfly Basics

*Native Flora Supports Native Species;  
plant accordingly and you will be  
rewarded with beauty.*



Spicebush butterfly feeds on nectar of native *monarda fistulosa*, commonly known as bee balm or wild bergamot. Photo credit Sasha Vasko, FLICKR

By J. Morton Galetto CU Maurice River

Insects have evolved over millions of years to be specialists in their chosen habitats. Butterflies are an excellent example of this evolutionary adaptation. Each species of butterfly's larval stage (caterpillar) has a host plant, meaning a specific plant that its young requires for nourishment.

Like all cyclical stories it's a little bit like what comes first, the chicken or the egg? So we will start with the adult butterfly. First the male finds a mate,

likely by detecting pheromones, a chemical substance released by the female that the male can sense. After mating the female deposits her eggs on a host plant. Remember, the host plant will be specific to that species. Most butterflies have a number of host plants but the selection is small. Host plants should not be confused with a nectar source like flowers. Adults nectar less discriminately, but when the eggs hatch the larvae need to eat the leaves of a specific plant with which the species has evolved and that its survival depends upon. Insects have tolerances only for these particular plants.

Once the caterpillar is fully grown it will construct a chrysalis or cocoon to protect it in its pupal stage. A cocoon is spun from a silky excreted substance; a chrysalis is a molt. From there it will transform into a butterfly. When it emerges its metamorphosis from egg to butterfly is complete, and the lifecycle repeats. Butterflies nectar, mate, lay eggs, larvae hatch, eat flora, grow into caterpillars, make cocoons, grow, and over time emerge as butterflies. This miracle is the basis of one of the nation's most popular children's books, a top seller for over half a century: *The Hungry Caterpillar*, by Eric Carle. Most youngsters know the final pages by heart, when the former caterpillar

makes its final transformation: "He was a beautiful butterfly." This metamorphosis has captivated mankind since humans were capable of recognizing it.

Pupa and chrysalis mean essentially the same thing: a transformative stage from larva to adult. Pupa can refer to either a butterfly or moth, but chrysalis strictly denotes a butterfly pupa. A silken casing is what a moth spins before it pupates inside. The pupa life stage does not solely occur in butterflies and moths; beetles, flies, ants, wasps, fleas, and caddisflies are all familiar insects that undergo this change as well.

By way of example, let's look at the time span during which the spicebush butterfly passes through each of its life stages. For about 4-10 days, depending upon temperatures, an egg sets on its host plant, and then it spends about 3-4 weeks as a larva. Afterwards it will be in its pupal stage for 10-20 days, with the exception of overwintering pupae. As the magnificent adult it will live for about 6-14 days. If we take the mean of each of these stages, excluding overwintering individuals, only about 19% of a butterfly's lifespan is spent in the adult stage.

The butterfly stage is the one that garners the most appreciation for the insect. In its caterpillar stage many people have a Dr. Jekyll / Mr. Hyde approach. As Jekyll they are awed by the butterfly, but Hyde wants to bomb anything that eats leaves in his precious lollipop-tree garden (oh, that was harsh, but possibly not harsh enough!). In an effort to keep the plants from being eaten people commonly purchase exotic varieties for which our native wildlife has no appetite. This may seem like a good strategy except that it provides no food for our caterpillars, and remember what Jekyll is awed by – butterflies. And it also provides no food for our birds that need caterpillars for their young. If you grow only exotic trees in your yard they may as well be artificial. And lawn – you might simply spread concrete in terms of its wildlife value.

Birds can take care of creepy-crawlies, rather than using pesticide bombs that destroy intended and unintended targets. A bluebird needs access to about two acres of habitat to provide enough insects for its young, and there must be native plants that support those insects. That is why at CU Maurice River we encourage people to make a difference by planting native flora in their yards. It is important to recognize that we are collectively

responsible for providing habitat if we want to see both ourselves and nature survive.

Christina Milesi, a NASA biologist specializing in ecosystems, estimates that Americans have planted 32 to 40 million acres of sterile lawn, an area eight times the size of New Jersey (Milesi 2005/Tallamy). Sadly the care of lawns is now directly enmeshed in our economy, with 30 billion dollars a year spent on these pretty green wastelands (Steve Curwood/Rangan interview NPR Living on Earth 2006). Most of the products applied to them adversely affect our water supply. Furthermore, mowing your lawn for one hour produces as much carbon dioxide as driving a car 650 miles, and an estimated 800 million gallons of gas is used each year on lawn care (Hannah Holmes, Suburban Safari 2006).

Let me provide you with yet another reason to plant natives. Many exotics end up as invasives, especially since they have no natural controls to keep them in check. For fun, or rather horror, google "kudzu," a plant brought from Japan in 1876 and introduced at a world exposition in Philadelphia. It was touted as providing cattle feed, lovely flowers, erosion control, and gosh knows what else. It now covers over 7 million acres in the United States and

has caused hundreds of millions of dollars in damage, pulling down telephone poles and buildings. Here is the real deal: no one knows which plant will become the next kudzu, although actually there are a number of close contenders already.

Do I have lawn? Yes, but always less. We keep expanding our native patches every year. Do I have exotics in my yard? Yes, and I live with those mistakes: pachysandra and periwinkle, "Oh my!" We continually strive to do better. Naturalist and author Pat Sutton encourages you to devote just 10% of your yard to natives. That Pat is sneaky, in a good way. She knows that once you have restored 10% to natives and you see the dramatic change in your property, you will be well on your way to converting all you can. Go to Pat's website to get lots of useful advice on transforming your site, with lists of native plants, where to get them, and more:

[www.patsuttonwildlifegarden.com](http://www.patsuttonwildlifegarden.com) –  
You'll be glad you did!

(Please scroll for sidebar)

## Magnificent Monarchs



Monarch feeds on Joe Pye weed nectar.  
Photo credit: JMG

Want to learn about our most famous butterfly? Join CU Naturalist and "retired" educator Sue Fenili for an All-Ages CU Maurice River Zoom Session on Friday, May 29<sup>th</sup> at 4 p.m. To sign up write [info@CUmauriceriver.org](mailto:info@CUmauriceriver.org). This free virtual event is all about the iconic Monarch Butterfly. Sue will share her personal experience with monarchs and their wintering grounds in Mexico. Participants will learn their life cycle, their unique journey, why they are important, and how to attract both monarchs and other amazing butterflies and pollinators to your own yard. Monarchs, along with many other migratory species, have challenges for which you can help provide solutions.

