

Butterfly basics

How would you like to see butterflies like the tiger swallowtail in photo 1 in your garden regularly? Grow the right plants, provide a few of the extras they love and you will. Let's start by getting to know how a butterfly grows.

A BUTTERFLY'S LIFE Butterflies may seem like they're floating aimlessly through your garden, but they're actually quite busy and purposeful. With four stages of development — egg, larva, pupa and adult — they have a lot going on. Different species have life spans from a week or two up to a year. Let's take a look at the stages of the tiger swallowtail in the photos below.

It all starts with an egg. They vary in size, shape and texture depending on the species and are laid singly or in groups. You can see a tiger swallowtail egg sitting on a sweetbay magnolia (*Magnolia virginiana*) leaf in photo 2. These tiny eggs are easy to miss if you're not looking for them. Some are smaller than a pinhead and found on the underside of leaves or along the stem of a favored host plant. Others are laid on the top or even the very tip of the leaf. Eggs hatch, on average, in 10 to 14 days, with a few species overwintering and hatching the following spring. If you find a butterfly egg, don't try to remove it—the “glue” used to secure it is very strong and you'll tear the egg case, killing its occupant.

Once the caterpillar, or larva, hatches, it has a job to do: Eat lots of food. Its ability to transform into a butterfly depends on it. Growth rates vary according to species but also with heat and humidity, as well as quantity and quality of the host plant.

A caterpillar can only grow so much before it has to molt, or shed its skin for a new one. The growth between molts is

► From egg to chrysalis, a butterfly's life is always changing, as you can see in these photos showing the life cycle of a tiger swallowtail.

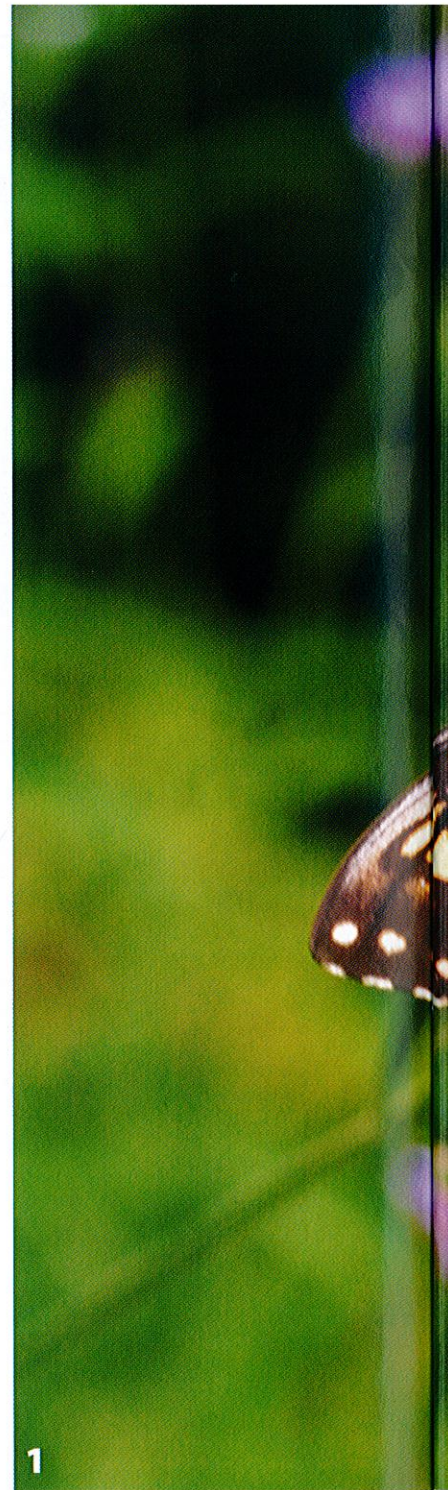
called an “instar” and there can be up to five in a caterpillar's short life.

It can be hard to tell which caterpillar belongs to what butterfly because some of them change as they mature. The first couple of instars of the tiger swallowtail are brown and white, as in photo 3. That's very different from later stages, which have eyespots and a swollen-looking front. Color changes, too, from the light green in photo 4 to the deep purple-green of the final instar in photo 5.

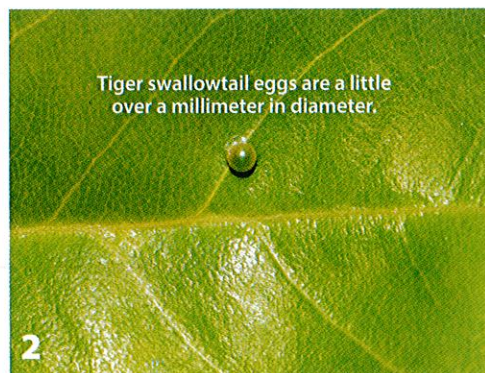
Right before pupating, or forming a chrysalis, the caterpillar stops eating and looks for a safe place to enter this last stage. It spins a silk mat and with a pair of specialized hooks, anchors itself to an object. After molting, the chrysalis dries and hardens, like the one in photo 6, providing protection from weather and predators. Inside, the caterpillar basically liquefies and emerges in a couple of weeks as an adult butterfly.

Late-season tiger swallowtail chrysalises go through winter, and the butterflies that emerge in spring tend to be smaller than summer ones. Other species hibernate as adults or migrate to warmer areas. There can be multiple generations a year with the most in warm-winter areas—tiger swallowtails typically have one to three.

Discover how you can get some of these amazing creatures to hang out in your garden on the following page. >>

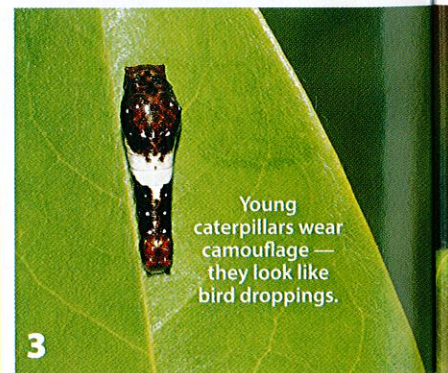


1



Tiger swallowtail eggs are a little over a millimeter in diameter.

2



Young caterpillars wear camouflage — they look like bird droppings.

3

Tiger swallowtail adults sip nectar from a variety of plants, including lilac (*Syringa* spp. and hybrids), milkweed (*Asclepias* spp.) and Joe-Pye weed (*Eutrochium maculatum*).



PHOTOS: © ButterflyNature.com



Tiger swallowtail caterpillars develop two eyespots.

4



The dark color tells you this caterpillar is almost ready to pupate.

5



Two slender strands of silk help support the chrysalis.

6



▲ This black swallowtail caterpillar looks similar to a monarch's. But monarch caterpillars stick to eating milkweed, while black swallowtail caterpillars have a broader appetite that includes fennel (*Foeniculum vulgare*), parsley (*Petroselinum crispum*) and the dill (*Anethum graveolens*) here, to name a few.

Turn your garden into a buffet

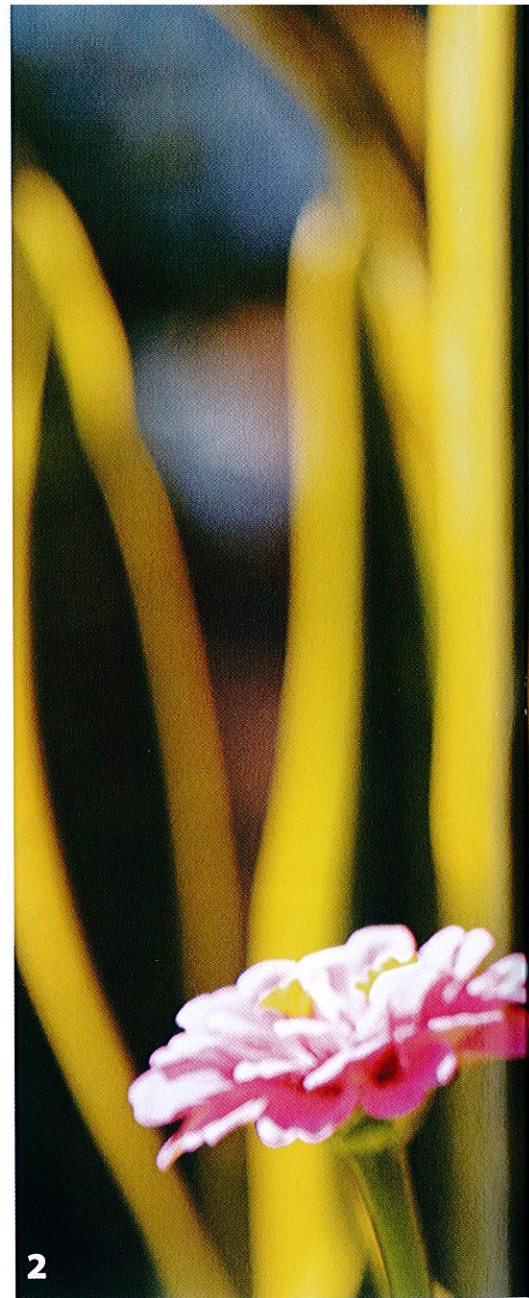
Want to keep butterflies coming back for more? Grow a garden filled with a variety of flowers and foliage. They're really sensitive to chemicals, though, so you'll want to avoid using pesticides and herbicides, which can kill them. Here's what you can put on the menu that will appeal to them in all their stages.

FOOD FOR CATERPILLARS Butterfly larvae, or caterpillars, are always looking for something to eat. That usually means foliage but can also mean flowers. There's even one, the harvester butterfly, whose caterpillar eats woolly aphids. One thing to keep in mind is that most caterpillars are rather picky. Some, such as the black swallowtail in photo 1, will munch on a variety of plants, while others are species-specific. That means the caterpillars will only eat a certain group of plants. Monarchs are the best known for this—they only eat milkweeds (*Asclepias* spp. and hybrids). Because of this exclusive appetite, the monarch caterpillar's

body absorbs toxins from the plant that causes vertebrates to become very sick if they eat them. Do a little research on the butterflies in your area to be sure you have the plants they need for their young.

If you're worried about having a tattered-looking garden with hungry caterpillars around, grow extra of the plants they love. If you do have an abundance of the hungry little critters, carefully relocate some to another patch of the same plant.

It's a good policy to avoid picking up caterpillars yourself. Some have spines or prickles that irritate your skin. Conversely, they're very sensitive to chemicals and can pick up something, even nicotine from a cigarette, if you haven't washed your hands. If you need to move a few to avoid too much damage on a particular plant, cut off the stem they're on or get them to crawl onto a small stick for relocation. Also, if you're lucky enough to come across



a caterpillar while it's molting or just finished, don't touch it. The skin is very soft at this point and easy to damage.

FOOD FOR ADULTS Adult butterflies are easier to please; they eat from a wider variety of plants. They have some of the best eyesight in the animal kingdom, seeing all the colors we can and into the ultraviolet range. Did you know that some flowers look quite different when you're able to see these high-frequency colors? If you could look at a black-eyed Susan (*Rudbeckia fulgida*) flower with an ultraviolet light, you'd see a large dark center



The petals of this zinnia make a great landing pad for the giant swallowtail (*Papilio cresphontes*) to steady itself as it sips from the small yellow flowers in the center.

PHOTO: Ben Dixon

that extends out into the petals. This pattern, easily seen by the butterfly, is the flower's way of advertising the snack that's available. While feeding, the butterfly scatters pollen on its wings, legs and proboscis (feeding tube), spreading it to other flowers.

Simple flowers that are easy to land on, like the zinnia (*Zinnia* hybrid) in photo 2, are favorites. But native plants and their cultivars are excellent choices, too. Generally, large butterflies feed from tall plants and small ones stay closer to the ground. So grow plants with a variety of heights and bloom times to make your garden appealing to

more butterflies over a longer period of time. If you can, leave an area of your yard a little wild. There are many weeds, such as the white clover (*Trifolium repens*) in photo 3, that are attractive to butterflies and their larvae.

Plants play a vital role in the life of butterflies. Whether your yard is large or small, having a few of their favorites around really helps these winged wonders not just survive, but thrive. Find out how to grow several plants they love on the next page. >>



▲ Leave some white clover in your lawn to feed the butterflies. Clouded sulphur caterpillars love it!



Blooms for butterflies

Grow the right flowers and you can entice even more butterflies to your garden! They get nectar from blooms and lay their eggs on certain plants that the hungry larvae eat. Not only will you get to enjoy the adults' beauty and movement as they fly around your yard, but you'll be helping to provide a habitat for them, too. Some butterflies can be particular about the flowers they eat or lay eggs on, so here are some of their favorites that will benefit them and make your garden more delightful.

One butterfly that needs help from gardeners is the well-known and beloved monarch, which spends its summer in all parts of North America. Milkweeds (*Asclepias* spp.) are a food source for many insects

and hummingbirds, but they're a vital plant for monarchs—it's the only food source of their caterpillars, so they're dependent on it for survival. There's been a serious population decline of monarchs in recent years because of habitat loss, predators and pesticide use. Monarch Joint Venture, a partnership of state agencies and several groups working to promote monarch habitat, is urging gardeners to plant native milkweeds. When possible, the group recommends planting species that grow wild in your region to add more diversity. For more information about the best choices for where you live, check out www.monarchjointventure.org. There are many milkweed species, but here are two types you might be familiar with—swamp milkweed and butterfly weed. >>

Swamp milkweed

Asclepias incarnata

As you may have guessed from its name, swamp milkweed grows well in moist soil and can even tolerate clay. You'll find it growing in the wild in most of North America, except for the West Coast. Try planting this in a rain garden or along a stream bank. It's also deer-resistant and attracts hordes of many types of butterflies.


This is a pretty milkweed to combine with other pastel flowers. Its vanilla-scented rose-pink flowers cover the tops of tall-branched stems from mid- to late summer. In fall, you'll notice large seedpods that form and break open, releasing seeds attached to fluff that floats away on a windy day.



PHOTO: Courtesy of North Creek Nurseries, Inc.



Perennial BLOOMS: Fragrant rose-pink flowers in mid- to late summer **LIGHT:** Full sun **SOIL:** Moist or clay **SIZE:** 2 to 4 ft. tall, 1 to 2 ft. wide **HARDINESS:** Cold zones 3 to 9, heat zones 9 to 1



Each intricate flower of butterfly weed has five nectar cups that attract many insects.

Butterfly weed

Asclepias tuberosa

The flowers of butterfly weed are an important nectar source for many species of butterflies, as well as hummingbirds, wasps and bees. But that's not all! This perennial is easy to grow in full sun, is deer-resistant, tolerates dry soil and doesn't require fertilizing. It's one of those plant-it-and-forget-about-it plants. But when it blooms, you'll remember why it's in your garden. The unique orange or yellow flowers cover the tops of 1- to 3-ft.-tall plants and bring in the butterflies for up to two months. Butterfly weed is native to all but the northwest part of North America.

The easiest way to add butterfly weed to your yard is to buy a plant from a garden center. You can start from seed, but it takes a little extra effort. Once planted, leave it in place and don't disturb its sensitive taproot, which can grow up to a foot or more long. In fall, it forms narrow seedpods that, if left on the plant, add winter interest. Over time, you may find that it self-seeds in the garden—let the plants grow on to have a larger patch.



Perennial BLOOMS: Orange or yellow flowers from mid- to late summer
LIGHT: Full sun **SOIL:** Well-drained **SIZE:** 1 to 3 ft. tall, 1 to 2 ft. wide **HARDINESS:** Cold zones 3 to 9, heat zones 9 to 1