Butterfly Gardens

Planting gardens with flowers that attract butterflies is a natural way to attract these lovely creatures to your yard, garden, patio, or even window sill. Not only do brightly colored butterflies contribute aesthetically to any yard, but they are also effective crop and flower pollinators. Your butterfly garden will also attract birds and other wildlife. Before you begin your butterfly garden it is important to know something about butterflies and about their life cycles, biology and behavior.

Butterfly Life Cycle:
All butterflies have the same general life cycle, consisting of four life stages: egg, larva (the caterpillar), pupa (chrysalis) and adult (the butterfly). Each stage has special food and environmental needs.

The cycle begins when butterflies deposit eggs in the spring, summer, or fall, depending on the species. Butterflies can lay anywhere from 200 to 1,500 eggs. Some species lay their eggs singly, some in clusters. A good nectar source is important to the adult's ability to produce large numbers of eggs. In most cases, eggs hatch within a few days of being deposited.

Caterpillars emerge from eggs, usually eating the egg shell first, then eating vegetation, flowers, or fruit of the host plant. Some butterfly species feed on only one kind of plant and sometimes on only a certain part of the plant. Other species may feed on a variety of plants. The caterpillar or larval stage allows time for growth. Although a caterpillar looks soft, its skin is actually a skeleton and is relatively inelastic. Caterpillars "grow" by molting or shedding their "skin" several times. Each stage of molting is called an "instar." The number of instars depends on the species, but is usually four or five. The rate at which a caterpillar grows increases with each molt because the larva eats more food as it enlarges. How large a caterpillar is at its last instar determines the size of the adult butterfly. Caterpillars with abundant, high-quality food eat for less time and become adults more quickly than poorly fed larvae.

Once a caterpillar is full size, it enters the pupal or chrysalis stage. Using silk produced by silk glands, the caterpillar attaches itself to a plant (or other object). Some butterflies, such as skippers, pupate inside a thin covering of silk and leaves. The caterpillar stays still for about a day as the pupal skin forms under the caterpillar skin. Then the old skin splits open and the pupa emerges. Pupae of some kinds of butterflies can be green or brown. The pupae of monarch butterflies are bright green.

In this pupal phase in the cocoon, the caterpillar undergoes changes and metamorphoses into a butterfly (adult). The length of the pupal stage varies with each species and often depends on temperature. Usually, it takes about two weeks. Some species must go through a hibernation stage, or diapause, before emerging as an adult. Once the organs have matured, the skin of the pupa splits and the butterfly emerges. After a few hours, wherein the wings expand and the skin hardens, the adult is able to fly, sip nectar, mate, and lay eggs, thus repeating the life cycle. The entire process-- from egg to caterpillar to butterfly--takes an average of five to six weeks. Some kinds of butterflies have only one generation per year. Others may go through two or three generations in a season. Most butterflies live for two or three weeks although some, such as the mourning cloak which spends the winter as an adult, may live for 10 months or more.

The butterfly's life cycle requires food for both the adult and caterpillar stages. Certain butterfly species will lay eggs on only one, or a few, plant species. Other butterflies lay eggs on many plant species. Generally, butterflies lay eggs only on plants that are appropriate as a larval food source, although this is not always the case. Tiger swallowtails feed on tulip poplar, and the mourning cloak on aspens. Monarch caterpillars feed on milkweed leaves. Milkweed contains toxins that the larvae can ingest without harm, but which makes the caterpillars unpalatable to predators. Butterflies may lay their eggs on or near the kind of plants on which the caterpillars feed. The caterpillar may prefer the leafy parts of a variety of host plants, including flowers, vines, shrubs, trees, and weeds. Unlike caterpillars, adult butterflies feed on a variety of nectar-producing flowers.
Butterfly Behavior and Characteristics:
Butterflies appear in spring when the temperature is above 60 degrees F, and can be observed through late fall. Butterflies are interesting to watch. You may wish to view them in your butterfly garden and keep a record of which butterflies visit specific plants. Some of their interesting behaviors include the following.

**Nectaring**
Adult butterflies take nectar from many plants. Some plants produce nectar to attract insects, birds, and other wildlife so the plants will be pollinated. The nectar is sipped through a long, straw-like proboscis that is usually kept coiled. The insects' feet have special taste receptors that can detect sweet liquids, causing the proboscis to uncoil when it comes in contact with the nectar.

**Puddling**
Sometimes a dozen or more butterflies will gather round a puddle or wet place. This behavior is called "puddling" during which butterflies sip nutrients with their proboscis. Animals such as butterflies that eat only plant nectar need extra minerals and salts to supplement their diets. Butterflies most often seen puddling include swallowtails, fritillaries, and skippers.

**Basking**
Butterflies fly best when their body temperature is between 85 Â– 100 degrees F. If colder, they need to warm up. They do this by basking in the sun with their wings outstretched to absorb heat. If the temperature goes below 80 degrees F, butterflies can be seen basking before they begin flying.

**Roosting**
Butterflies need a place to roost during the night, and often pick the underside of a leaf. If you want to see where they roost, wait until late afternoon and follow them to their roosting spot. Butterflies also roost during rainy, cloudy, and cold weather. Usually they spend about 14 hours each day roosting, usually from sunset until midmorning.

**Hibernation and Migration**
According to species, butterflies spend the winter in different ways and places. Most, however, winter in the same areas where they spend the summer. The monarch is the only truly migratory butterfly. They migrate as far south as Mexico, returning to the Northeast in the spring. It takes several generations of monarchs to make the trip from North America to their overwintering grounds in Mexico and California. Monarchs that migrate in the fall have just emerged from the pupae; monarchs that migrated to our area this spring are the second or third generation of those that over-wintered in the south. It's still a mystery how these animals know their migratory route.
Mourning cloaks over-winter as adults in protected places such as loose bark, log piles, or buildings. At about 60 degrees F they begin to fly even if the calendar says it is still winter. For that reason, mourning cloaks are often the first butterflies seen in the spring. They may have a ragged look because of their long winter. Most blues over-winter as pupae, and viceroys over-winter as caterpillars.

**Hibernation Boxes:**
You can buy or make hibernation boxes to offer butterflies protection from predators through the winter, but they are not essential if you provide sufficient food, water, and cover. Only a
few kinds of butterflies hibernate in the Northeast and these are not generally colonial, so they probably will not use the hibernation boxes. If you wish to use hibernation boxes, attach them to a tree or post in a shady place near host plants.

**Shelter:**
Butterflies require shelter from the elements and a place to roost. Shrub foliage is useful as a windbreak as are patches of tall grass. You also can provide a place for butterflies to roost, perch, or even hibernate by building a log pile and placing the logs crosswise to create as many open spaces as possible. The ideal log pile size is 5 feet high and 6 feet long. Log piles, suitable for large yards or farms, should be in the shade near host plants.

**Other Food Sources for Your Butterflies:**
Some butterflies such as the mourning cloak, red admiral, and viceroy feed primarily on rotting fruit, tree sap, and even manure. For these butterflies, set out a fermented brew of rotting bananas, plums, and pears to which you have added stale beer, or sugar, or molasses and yeast. This mixture attracts butterflies and can be smeared on tree trunks to simulate sap.

You can make a homemade feeder filled with a solution of sugar water: 4 parts water to 1 part granulated white sugar. Extra solution can be kept in the refrigerator. You can make a feeder by filling a dish or flat container with an absorbent material such as tissue paper and saturating it with sugar solution. This arrangement allows butterflies to perch while feeding. So the feeder will stand out, put the feeder near nectar flowers on a post about six inches higher than the tallest flowers. Butterfly tables can be made by placing dishes of sugar water and rotting fruit on a table about five feet off the ground. You may need to lubricate it with a slippery substance, such as petroleum jelly, to keep ants from climbing up.

**Transplanting Larvae or Plants:**
It is best to refrain from transplanting larvae to your garden from other areas because of the risk of introducing harmful exotic species. A classic example of this is the gypsy moth, a non-native introduced pest that causes millions of dollars of damage to trees annually. It is best to work with native species of animals and plants adapted to your area. Using native plants is encouraged, but digging them from natural areas such as parks is illegal. You can dig on private property with permission. The best approach may be to gather seed from native plants you wish to have in your garden.

**Butterfly Gardens:**
Many butterflies tend to live out their lives within a relatively small area. A few species stay in proximity and turn into regular visitors. Lawns that are excessively trimmed, mowed, and covered with pesticides provide poor environments for butterflies. Therefore, if you want to have a flourishing butterfly garden, you need to provide wildflowers, tall grass, and perhaps some weeds, in a pesticide-free setting. If you use pesticides to eliminate garden pests, you also may harm your butterflies. This includes the use of the bacterial insecticide Bt (Bacillus thuringiensis) which can kill butterfly larvae.

The butterfly garden should include a shallow pool or wet area, although butterflies can get moisture from dew. Butterflies like to perch on trees and shrubs, so dogwoods, wild cherry, and redbud are good garden choices. Large rocks strategically placed may serve as a resting and sunning spots for butterflies.
Scent and color are important to attract butterflies. They have sensors for smell and taste in various places on their bodies, but most smell with their antennae or forelegs. Butterflies perceive shapes only at close range but can see more colors than humans, and they can see ultraviolet light. Therefore, planting a variety of flowers is better than planting only one species. The best color combination is yellow, mauve, or lavender flowers with a strong scent. Purples and reds are also good colors to select.

Remember, if you want to attract "flying flowers" as butterflies are called, you need to provide plants attractive to both caterpillars and butterflies in a natural setting.

References:


How to Attract Hummingbirds and Butterflies, Ortho Books, 1991

Pesticides are poisonous! Read and follow all safety precautions on labels. Handle carefully and store in original containers out of reach of children, pets or livestock. Dispose of empty containers immediately, in a safe manner and place. Pesticides should never be stored with foods or in areas where people eat.
Nectar Plants
* bee balm, Monarda spp.
* black-eyed Susan, Rudbeckia spp.
* bluebeard, Caryopteris
* coneflower, Echinacea spp.
* coreopsis, Coreopsis spp.
* dogbane, Apocynum spp.
* goldenrod, Solidago spp.
* ironweed, Vernonia spp.
* Joe Pye weed, Eupatorium fistulosum
* lantana, Viburnum spp.
* marigold, Tagetes spp. (single petal varieties)
* Mexican sunflower, Tithonia spp.
* milkweed, Asclepias spp.
* New England aster, Aster novae-angliae
* phlox, Phlox spp.
* pincushion flower, Scabiosa spp.
* pink live-forever, Sedum alboroseum
* sweet William, Dianthus barbatus
* thistles, Centaurea and Cirsium sp.
* verbena, Verbena spp.
* white alyssum, Alyssum spp.
* zinnia, Zinnia spp.

Host Plants
* daisies
* hackberry
* citrus plants
* parsley
* fennel
* dill
* rue
* violets
* turtlehead, plantain
* Queen Anne's lace
* snapdragon
* hops
* nettles
* wild cherry
* aster
* passion flower vine
* milkweed
* willow
* clover

Butterfly & Hummingbird Garden

The following are shrubs whose blooms provide nectar:
* butterfly bush, Buddleia spp.
* fruit trees, various
* lilac, Syringa vulgaris
* privat, Ligustrum spp.
* redbud, Cercis canadensis
* rose of Sharon, Hibiscus syriacus
* spicebush, Spirea spp.
* sumacs, Rhus spp.