Transplanting Larvae or Plants

Refrain from transplanting larvae to your garden from other areas unless the species are native to your region. Why is this important? Some exotic species do not have natural controls and populations may increase dramatically. The gypsy moth is an example. Working with native species helps conserve the local butterfly fauna. The same is true of plants. Using native plants is encouraged, but digging them from natural areas such as parks is illegal. Instead, find an area planned for development such as new road construction, housing developments or a proposed parking lot, and remove plants that would otherwise be destroyed. Remember to get permission before you dig. The best approach may be to gather seeds from the various native plants you wish in your garden and plant them. It may take a little longer, but the results will be the same.

Hibernation Boxes

You can buy or make butterfly hibernation boxes, but they are not essential if you have adequate food, water and cover. Furthermore, in West Virginia, there are only a few species of butterflies that hibernate and these are generally not colonial, so the boxes may not receive much use. Boxes however, provide protection from predators by allowing a few species of butterflies to enter and hibernate through the winter. It is best to attach hibernation boxes to a tree or post in a shady area near host plants.

A Few Tips

Butterflies are sensitive to herbicides and pesticides; avoid using chemicals in your yard.

Be patient; developing your garden and attracting butterflies takes time, several years is not uncommon.

Tom Allen

Male zebra swallowtails gather at wet area.

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Cover photo of a monarch butterfly on aster by Jerry A. Payne, USDA Agricultural Research Center, www.forestryimages.org

Wildlife Diversity Program

Wildlife Resources
West Virginia Division of Natural Resources

P.O. Box 67
Elkins, WV 26241
(304) 637-0245
Fax: (304) 637-0250

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WVDNR WILDLIFE RESOURCES SECTION

Butterfly Gardening *in West Virginia*

WILDLIFE WEST VIRGINIA DIVISION OF NATURAL RESOURCES

www.wvdnr.gov

Welcome to the world of butterflies

Butterflies in your garden are a sure way of adding color and life to your backyard, patio or window sill. Gardening for butterflies is a natural way to enhance your garden and intensify its beauty and splendor. A butterfly garden in your yard will also attract birds and mammals, adding more diversity to your surroundings.

Observing Butterflies

It is important to observe butterflies and learn about them when planning your butterfly garden. Butterflies begin to appear with the warming days of spring (above 60^0 F) and continue to be active until late fall. Knowing which nectar plants butterflies prefer will give you a good idea of what plants to use in your garden. Try to identify butterfly species and the date you observe them throughout the season. A butterfly field guide will enable you to identify the various species visiting your area, which is important for planning a butterfly garden. With this information, you can then learn the habits and life cycles of each species and take an inventory of which species are in your area. In order to begin planning your butterfly garden, it is important to know about the life cycle of a butterfly.

Tom Allen

West Virginia white, the only butterfly named after our state.

Life Cycle

Butterflies have four life stages: egg, larva (the caterpillar), pupa (chrysalis) and adult (the butterfly). Each stage is unique and has specific needs (food and environmental factors) that enable its development and survival.

Edward Manigault, Clemson U., www.forestryimages.org

Monarch chrysalis

Butterflies may lay eggs in the spring, summer or fall. Usually the eggs are laid on or near plants that are the host of the newly hatched larva or caterpillar. Eggs differ in size and shape depending upon the species. Some butterflies lay eggs in clusters while others, like the monarch butterfly, lay a single egg on the host leaf. Butterflies can lay anywhere from 20 to 1,500 eggs, depending upon the species, so a good nectar source is essential to maintain the health of butterfly populations that grow quickly. For many species of butterflies, eggs hatch within a few days of being deposited.

When caterpillars (larvae) hatch, they first eat the egg shell and then begin to eat vegetation, flowers or fruit of the host plant. The larva of one species of butterfly in our region, the Harvester, is predaceous and feeds on woolly aphids (occurring mostly on alder) rather than plant parts. Some species feed only on one kind of plant and perhaps only on a certain part of the plant. Others may be less selective and will feed on a variety of plants. The larval stage eats, grows and stores energy. Caterpillars molt several times because their skin (made of chitin, similar to our fingernails) does not expand. Each stage of molting is called an instar. The number of instars depends on the species, but usually consists of 4 or 5.

Tom Allen

Baltimore caterpillar

Tom Allen

Leonard's skipper

Silk glands called spinnerets are located in the mouth area. With these, the larva spins the silk it uses for support and protection. Once the caterpillar reaches full size it transforms to the pupa, also known as a chrysalis.

Tom Allen

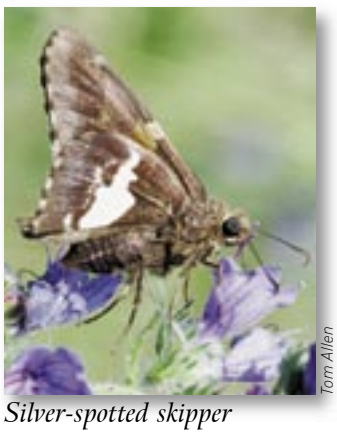
Great spangled fritillary

The duration of the pupal stage varies with each species and often depends on temperature. Some species must go through a hibernation stage or diapause before emerging. Although the pupa may appear dead or inert from the outside, amazing changes are occurring inside—the larva begins to change into a butterfly. Development generally takes about two weeks. Once all the organs have changed, the skin of the pupa splits and the butterfly emerges fully developed, and is ready to sip nectar, mate and lay eggs.

Attracting Butterflies To Your Backyard

Habitat Requirement

Each butterfly species has different habitat requirements. The presence of host plants generally determines the extent of habitat needs for each species. Thus, it is important that you know the life cycle of the butterfly species in your area. Ideal butterfly habitat includes a nectar source for the adult and a host plant for the caterpillar. A variety of flowering forbs, shrubs and trees are good nectar sources for butterflies *(Table 1)*. Water is also important. You may want to provide a shallow puddle in your garden, although, in West Virginia, there is usually enough moisture in the form of dew to supply the butterfly's needs.



Tom Allen

Silver-spotted skipper

Butterflies like to perch on trees and shrubs; therefore dogwoods, yellow poplar, wild cherry and redbud are good choices to plant in your garden. Large rocks strategically placed may serve as resting and sunning spots for butterflies. The rocks are a good place to put a homemade brew, consisting of ripe bananas, molasses, sugar, stale beer, fruit juice and water. Spread the brew on the rocks or on tree trunks. Some butterflies species prefer rotting fruit rather than flower nectar.

Tom Allen

Checkerspot

Scent, Taste and Sight

Butterflies are attracted to strong scents, yet equally important is the carbohydrate content of the nectar. Butterflies have sensors for smell and taste in various areas of their bodies, but most smell with their antennae or forelegs. Color is also important; butterflies are near-sighted, and can see colors well into the ultraviolet range. Therefore, your garden's scent and color are important to the butterfly's survival. Planting a variety of flowers is better than planting one species. The best combinations include yellow, mauve and lavender flowers with a strong scent. Purple and reds are also good colors to select.

Where to Plant

Make sure you place your garden in a spot accessible for your viewing pleasure Butterflies need sunny areas; therefore, your plantings should be placed where they get the most sunlight. Some shade is essential during the hot summer months so planting trees and shrubs near your garden will provide both shade and perching sites for butterflies. Wind exposure is also important; butterflies do not cope well with strong winds. Use vegetation to protect butterflies from strong winds. Decide how much time you can invest planting and maintaining your garden and design it according to these guidelines. If you are not sure of how much time to invest, select three or four plant species and build from there if you have more time. You do not need to follow all the suggestions mentioned in this brochure to have a successful butterfly garden; pick and choose ideas that are feasible for you to do.

Toby Oliver

Eastern swallowtail

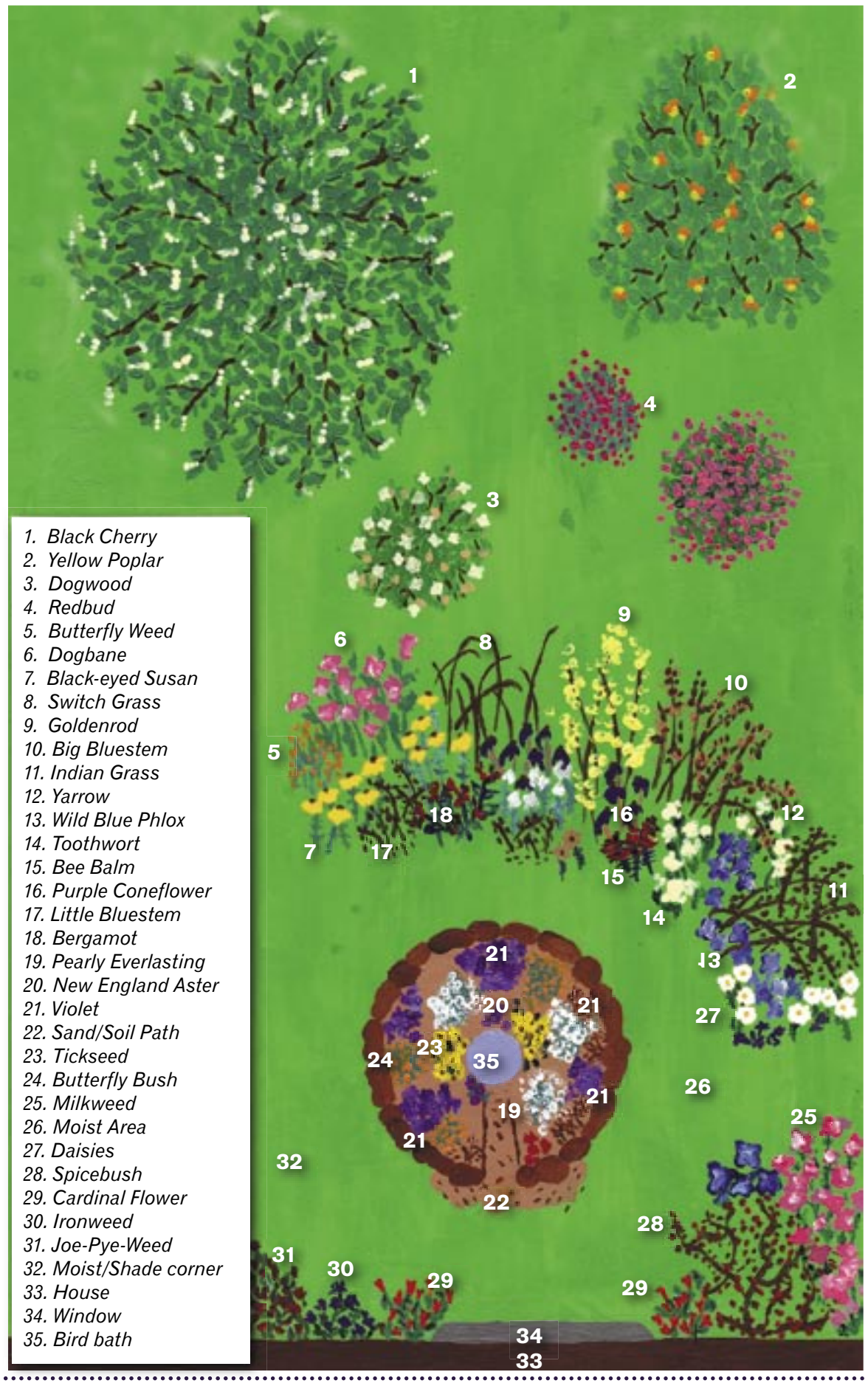
Plant Selection

Plant species with different but overlapping blooming seasons allows the maximum number of butterflies to persist in your garden. Plant lilacs, azaleas, violets and phlox for spring blooms. Clovers and garden vegetables can be planted in the spring and summer. Daisies, cone flowers, milkweeds, butterfly weed and sunflowers bloom during the warm summer months. Plants such as ironweed, native thistles, joe-pye-weed, asters, goldenrods, bee balm, butterfly bush, mints, cardinal flowers, vetch, nettle and yarrow can be planted for the warm months and will survive into the fall. Butterfly bush is among the best nectar sources for butterflies and one of these shrubs will do wonders for your garden. Remember that the greater the variety of plants you select, the more butterfly species you will attract to your garden.

Table I. Native Plants for Caterpillars and Butterflies of West Virginia

Common Species	Larval Host Plant	Native Nectar Sources
Pipevine Swallowtail	Dutchman's pipe	milkweed, joe-pye-weed, lilac
Zebra Swallowtail	pawpaw	dogbane, redbud, milkweed[2]
Spicebush Swallowtail	spicebush, sassafras	joe-pye-weed, dogbane[2]
Black Swallowtail	(carrots, parsley, dill, fennel)[1]	milkweed, phlox, clover[2]
Eastern Tiger Swallowtail	black cherry, yellow poplar	butterfly bush[1], milkweed, lilac[2]
Cabbage White	(cabbage, broccoli, mustards)[1]	mustards[1], aster
Clouded Sulphur	clovers	clover, aster, goldenrod
Orange Sulphur	legumes, clover	clover, tickseed, dogwood
Eastern Tailed-blue	red clover, legumes	cinquefoil, dogbane, asters
Spring Azure	dogwood, black cherry	holly, willow, spicebush
Great Spangled Fritillary	violets, pansies[1]	dogbane, ironweed[2]
Aphrodite Fritillary	violets, pansies[1]	dogbane, milkweed[2]
Pearl Crescent	aster	aster,ironweed, dogbane[2]
Meadow Fritillary	daisy, mallow family	aster, ironweed, goldenrod[2]
American Painted Lady	pearly everlasting	yarrow, goldenrod, aster
Monarch	milkweed	milkweed, dogbane, goldenrod
West Virginia White	toothworts, mustard	spring beauty, toothwort
Common Wood Nymph	grasses	sap, dung, milkweed[2]
Little Wood Satyr	grasses	sap, carrion, dung[2]
Red-spotted Purple	black cherry, poplar, oaks	sap, dung, carrion, cherry[2]
Mourning Cloak	willows, elms, aspens	sap, dung, minerals from soil[2]
Comma	nettle, elm	sap, dung, carrion, lilac[2]
Question Mark	nettle, elm, hackberry	sap, dung, carrion,aster[2]
Red Admiral	nettle	sap, dung, carrion[2]
Hobomok Skipper	panic grass	blackberry, milkweed
Silver-spotted Skipper	black locust, stick tights	joe-pye-weed, ironweed
Dreamy Duskywing	willow	redbud, blueberry, strawberry
Juvenal's Duskywing	scrub oak, white oak	vetch, cinquefoil, wild plum
Viceroy	willow, cottonwood	aster, carrion, sap, dung* [2]
Peck's Skipper	grasses	dogbane, ironweed, vetch
European Skipper	timothy and orchard grasses	fleabane, daisy, milkweed
Tawny-edged Skipper	grasses	coneflower, dogbane, milkweed
Cross Line Skipper	grasses	dogbane, ironweed, vetch
Long Dash	grasses	milkweed, tick-trefoil
Northern Broken Dash	panic grass, switch grass	New Jersey tea, clover
Sleepy Duskywing	scrub oak	blueberries, azalea, redbud
Little Glassywing	grasses	ironweed, dogbane, milkweed

*also rotting fruit (see "Habitat Requirements" for homemade brew recipe)
[1]plants that are not native to West Virginia but are not aggressive invaders
[2]also native thistles
NOTE: nectar sources are not limited only to plants listed.



1. *Black Cherry*
2. *Yellow Poplar*
3. *Dogwood*
4. *Redbud*
5. *Butterfly Weed*
6. *Dogbane*
7. *Black-eyed Susan*
8. *Switch Grass*
9. *Goldenrod*
10. *Big Bluestem*
11. *Indian Grass*
12. *Yarrow*
13. *Wild Blue Phlox*
14. *Toothwort*
15. *Bee Balm*
16. *Purple Coneflower*
17. *Little Bluestem*
18. *Bergamot*
19. *Pearly Everlasting*
20. *New England Aster*
21. *Violet*
22. *Sand/Soil Path*
23. *Tickseed*
24. *Butterfly Bush*
25. *Milkweed*
26. *Moist Area*
27. *Daisies*
28. *Spicebush*
29. *Cardinal Flower*
30. *Ironweed*
31. *Joe-Pye-Weed*
32. *Moist/Shade corner*
33. *House*
34. *Window*
35. *Bird bath*

Drawing by Carmen Blumberg and Courtney Tallman