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UT Extension
PB1636



Butterfly Gardening

THE UNIVERSITY of TENNESSEE

Table of Contents

Introduction 3
The Butterfly Life Cycle 3
Butterfly Habitats 4
Creating a Butterfly Garden 6
Butterfly Garden Care 7
Sources of Information about Butterflies 8
Appendix A. Tree and Shrub Food Sources
and the Butterflies They Attract 9
Appendix B. Herbaceous Plant Food Sources
and the Butterflies They Attract 11

Butterfly Gardening

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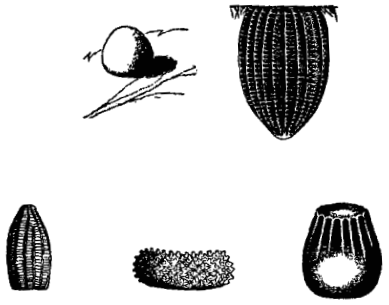
Butterfly gardening has become a rewarding outdoor hobby that is sweeping the country. But what exactly is butterfly gardening? Quite simply, it is the practice of attracting butterflies to your garden by growing common plants and flowers that they use. As development infringes upon fields and meadows, butterflies are losing their habitats to new subdivisions and shopping malls. By providing the right types of plants, shelter, water and a safe haven for them to lay their eggs, you can attract butterflies to your garden. You may be able to witness a truly miraculous process of nature: the transformation from egg, to caterpillar, to chrysalis, to adult butterfly. And in the process, you might help ensure the continued and increased survival of common butterflies that are threatened by the destruction of their wild habitats.

The Butterfly Life Cycle

Butterflies are members of the insect order Lepidoptera. The word "lepidoptera" is derived from the Greek words *lepis,* which means "scale;" and *pteron,* meaning "wing." The order Lepidoptera is composed of butterflies, skippers and moths. While they may appear very similar at first glance, butterflies and skippers are quite easy to tell apart. The wings of true butterflies are larger and fuller by comparison, while those of skippers are smaller and triangular. Butterflies often have more brightly colored wings than skippers, which are generally muted shades of brown and gray. The bodies of butterflies are also slender, while skippers have thick, bulky bodies. Butterflies may appear to fly swiftly, but they are not strong fliers—their wing strokes are relatively slow. Skippers fly very swiftly, often darting around with wings moving so fast they appear to blur. Butterflies and skippers are only active during the day, while many moths are active at night. (Some moths, however, are active during the day as well.)

To have a successful butterfly garden, you need to understand the life journey of butterflies, skippers and moths. The beautiful creatures that float through your yard are actually the culmination of a life cycle that develops in four stages. The term for this type of life cycle involving dramatic changes in form and function of the insect from stage to stage, is "complete metamorphosis."

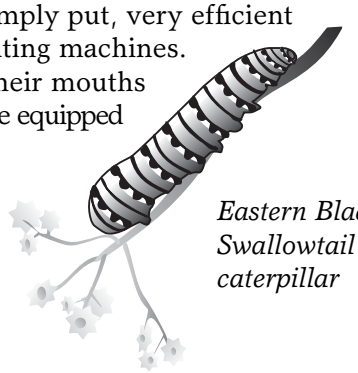
The first stage is the egg, which is laid by the adult female butterfly. As the



Butterfly eggs come in many shapes, colors and textures.

outside covering dries and becomes solid, the egg can take on intricate textures and become quite colorful. Eggs may appear smooth and round, like those of the Tiger Swallowtail; oblong and segmented, as in the Falcate Orangetip; or even vase-shaped and ribbed, like the Queen Butterfly's. Depending upon the species, eggs may be laid singly, in rows or in clusters of anywhere from a few to several hundred. Most butterflies need sunny areas for mating and laying their eggs.

The second stage in the butterfly life cycle is the larva or caterpillar. Caterpillars are, simply put, very efficient eating machines. Their mouths are equipped



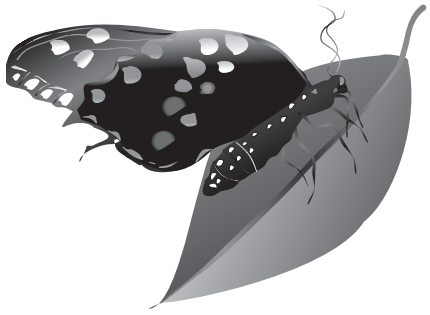
Eastern Black Swallowtail caterpillar

with a pair of powerful chewing mandibles to help them grind their food. The spinnerets, or silk gland outlets, are located on the lower lip.



The chrysalis or pupa of the Eastern Black Swallowtail.

The caterpillar spins silk or secretes a sticky liquid that it uses to secure itself as it enters the third stage, the pupa or chrysalis. The chrysalis is a stationary, non-feeding, resting/transforming stage. Inside this shell, the tissues of the larva are broken down and rebuilt into the organs of the adult butterfly. The pupal span is temperature related and usually lasts 7-14 days. When this metamorphosis is complete, the skin of the chrysalis splits open and the adult butterfly, or imago, crawls out.



Newly emerged Eastern Black Swallowtail.

When it first emerges, the butterfly looks wrinkled and misshapen. It must pump haemolymph (insect blood) into its wings and wait for them to spread to their full size and stiffen before it can fly. This is the final stage of the butterfly's life. Its mission now is to mate and produce the next generation of butterflies.

Butterfly Habitats

To insure their survival, it is important to provide the environment needed by butterflies in your region. Different species of butterflies have different lifestyles, so a good butterfly garden should have a variety of habitats. For example, some butterflies prefer open meadows, while others prefer shady wooded habitats. The closer your garden matches their natural habitat, the greater your chances of attracting butterflies and convincing them to stay. The elements of a successful butterfly garden include nectar sources and larval food plants, adequate sunlight, shelter and water.

Adult Monarch butterfly on swamp milkweed



Two stages in the butterfly life cycle need food, so you need to provide two types of plants: larval food and adult food. Larval food plants are commonly referred to as "host plants." It is important to have the right kinds of host plants available for the types of butterflies you wish to attract. Most butterflies will only lay eggs on plants that are a suitable food source for their young. Many caterpillars are limited to one or a few closely related host plants. Some species of butterflies have come to depend upon specific chemicals found in certain plants in order to survive. A prime example is the Monarch, whose caterpillars feed on plants in the milkweed family. The milkweed plant contains toxins that are transferred to the caterpillar when it eats the milkweed. The adult butterfly also contains the toxins. A bird attempting to eat a brightly-striped Monarch caterpillar or the orange and black butterfly will regurgitate them and thus learn that they are not a suitable food source.

There are no general characteristics that make recognizing a good larval food plant easy. You must research and observe the butterflies you hope to attract to your garden to know what host plants to provide for specific butterflies. Tables 1 and 2 at the end of this publication list host plants for many common butterflies.

Adult butterflies get their nourishment from flower nectar, and they will feed on a variety of different sources. Unlike caterpillars, they will investigate any likely-looking nectar source. Butterflies use foot-like appendages called tarsi to taste possible food sources. Adult butterflies and moths feed via a proboscis, a long, hollow, tongue-like structure that they coil beneath their head when not feeding.

There are three characteristics of flowers that attract a butterfly's attention: flower shape or arrangement, color and fragrance.

Butterflies must land in order to feed, so the shape of blooms or bloom clusters should provide a "landing pad" for them. Members of the aster family (daisy-type flowers) are excellent choices. Other good choices are tubular-shaped blooms that contain large amounts of nectar,

such as salvia, morning glory, daylily and trumpet vine.

Certain colors are more effective in attracting butterflies. They gravitate towards the colors pink, red, orange, purple, white and yellow. They also see ultraviolet light invisible to the human eye, which allows them to distinguish patterns in flowers that we don't see. These invisible signs direct the butterfly to sources of nectar.

Scent is also an excellent way to attract butterflies into your garden. Fragrance permeates the air with signals that butterflies decipher with chemical receptors in their antennae, their proboscis and in their tarsi. Strong, sweet-scented flowers such as heliotrope, spicebush, clethra, butterfly bush and viburnum seem to be some of the best butterfly attractants.

Butterfly plants may be trees, shrubs or herbaceous plants such as annuals, perennials, grasses and herbs. Many of the best butterfly plants are common "weeds" and native wildflowers. When you think about it, this makes sense. Butterflies are often specifically co-adapted with the native plants of a region, laying their eggs on the same tried-and-true plants generation after generation.



Buckeye butterfly on Joe-Pye weed, a native plant.

Several things besides plants with tantalizing flowers and foliage can make your garden attractive to butterflies. Sunlight is important, not only for reproduction but for drying wet wings and raising body temperatures for flying. To facilitate this process, you can lay light-colored stones in your garden for the butterflies to rest upon. To provide sunny locations, leave part of your garden open and unobstructed, which also gives butterflies room to escape their predators. Ground covers such as alfalfa, clover and other low-growing host and nectar plants combine well with grasses in open areas. Since different species of butterflies take nectar at different times of the day, be sure to place some nectar plants where they will always be in the sun whenever the butterflies arrive. Rock gardens planted with sedum, aubrieta and primrose do well in sunny locations and are ideal basking spots for warmth-loving butterflies.

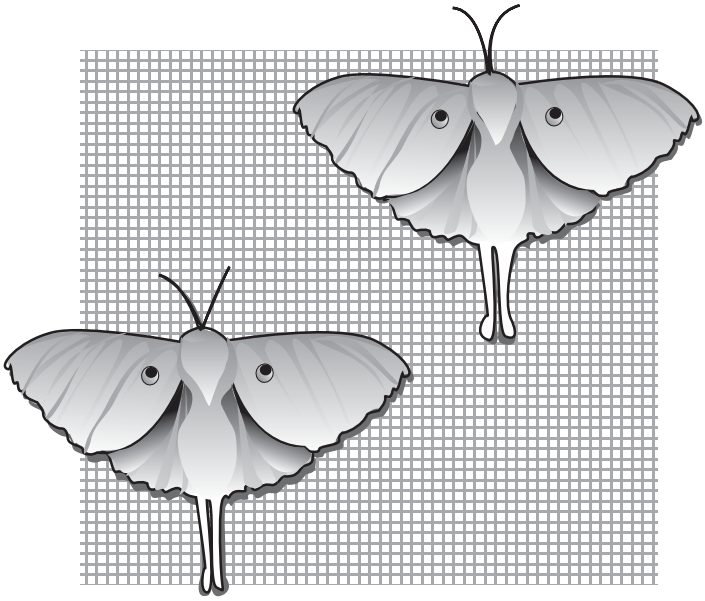
A totally open garden is not an ideal habitat, however. Since butterflies are such delicate creatures, they tend to be easy victims of strong winds and storms. It is therefore necessary to provide a safe haven for them to escape harsh weather. A row of shrubs, a large tree or a low rock outcropping can break the force of the wind and provide safe refuge. Some nectar plants that make excellent windbreaks are honeysuckle and spicebush, hawthorn and hibiscus. Willow, poplar and wild cherry trees create shelter and are larval food sources for several species. A butterfly box may also provide a source of refuge for butterflies when placed in a shady spot or attached to a tree.

Like all living creatures, butterflies need water to survive. However, they cannot drink from open water. Instead, provide your butterflies with a mud puddle, from which they will acquire not only moisture, but also vitamins and nutrients released in the soil. By simply letting the hose run on one area until it is muddy, you provide all that a butterfly needs in the way of water. Another method of providing a butterfly watering hole is to bury a bucket of sand, filled to within an inch or so from the top. Place a few rocks and/or sticks on top of the sand to serve as perches and fill the bucket with water.

Butterflies are sometimes attracted to other, more "earthy" sources of nourishment, such as urine patches or "doggie-doo," so a spot that is frequently visited by the family pet may become a favorite butterfly hangout in your garden. Rotting fruit is a special treat for some butterflies as well. A plate of fruit juice, sugar water or even stale beer with a sponge floating in it will also provide them with an energizing treat.



A Red-spotted purple butterfly takes a drink from a puddle in a gravel drive.



Luna moth.

In addition to the butterflies and skippers you may attract, there are many beautiful and fascinating moths that may visit your garden. You may see several large and colorful moths in your garden between dusk and dawn, including Polyphemus, Prometheus, Luna and Cecropia moths. Who can forget the hauntingly beautiful sight of the ice-green Luna moth winging through the garden on a warm summer's night?

While the details of creating an ideal "moth garden" are beyond the scope of this publication, here are some quick tips that may help you attract these amazing creatures. Nocturnal moths locate food sources primarily by scent, so flowers that are fragrant at night, such as moonflower or tall white nicotiana, will get their attention. In general, white or pale-color flowers are better moth attractants because in the dark these flowers reflect moonlight (or any available light) better, thereby making a fragrant target a little easier to spot by a hungry moth searching for a meal. Some of these moths have been mistaken for hummingbirds as they flit from flower to flower, thereby earning them the improper name of "hummingbird moth." It's well worth making a night-time visit to the garden to observe these colorful creatures in action.

Creating a Butterfly Garden

The first step to creating a butterfly garden is observation and identification. Determine what types of butterflies reside in your area. Observe them in your own backyard, in parks and in the gardens of others. Identifying your local butterflies can be challenging, but several resources are available to you. Visit local libraries and bookstores for field guides. The Internet is a wonderful source of information on butterflies and butterfly gardening. You may also be able to contact the entomology department at local colleges and universities for help. If there is a natural history museum in your area, it may have a butterfly collection that can help you identify your neighborhood butterflies.

Many butterflies are residents of specific habitat types, such as deep forests, grassy prairies or mountain meadows. Consider whether your garden can imitate the habitats of the butterflies you observe locally. Butterflies also live within specific temperature ranges: tropical vs. temperate, for example. It won't do you any good to provide the ideal habitat for Zebra Longwings (a tropical species) if you live in East Tennessee, because we simply don't have the proper temperature range here for their survival. Field guides will provide much information about the habitat needs of your local butterflies.

It is also important to realize that some butterflies are more plentiful at certain times of the year, so your butterfly population will probably change throughout the season. Observe the local butterflies throughout the seasons to learn what they feed on at different times.

The second step in creating a butterfly habitat is researching potential garden plants. Chances are, you can grow the right plants if you've seen these plants flourishing in your neighborhood, but it's a good idea to educate yourself on new plants before making large financial investments. Use caution when adding "weedy"



Red Admiral butterfly on purple coneflower.

plants like morning glories and thistles. If they are allowed to go to seed, your neighbors may not appreciate the added work they have to do to keep their gardens weed-free.

The third step in creating a butterfly habitat is design. Evaluate your current garden. This could be a good time to renovate and evaluate the vantage points and desired focal points of the garden. The ideal site is undisturbed by people and pets, yet open to your view.

Learn where a particular butterfly species likes to lay eggs, whether it be sun, dappled shade, etc., and place appropriate host plants in the desired sites in your garden.

Hanging baskets and other containers can also be used to create a butterfly garden in an area you might not have thought would support one, such as urban areas and small balconies in apartments. Window boxes or hanging baskets on a fence may make it easier for you to see your butterflies.

The fourth step in creating a butterfly habitat is construction. Modify your site if necessary and plant all the wonderful new plants you've decided to include. Be aware that your butterfly garden probably isn't going to be perfect the first year. Your knowledge will change, so you may realize that you should have done some things differently. And just because the books say a given butterfly species uses a certain plant in your area doesn't mean the butterflies have read that book. They may thrive on something entirely different in your neighborhood. Watch what's happening in your garden and bear in mind that changing the garden is half the fun. Remember, a good garden is never totally finished.

As you become more "advanced" in your new hobby, you may want to add special features that may draw less common species into your garden. A small wooded area may entice satyrs and mourning cloaks in from the wilds so that you can observe them from a convenient stump or bench. Buckeyes and red-spotted purples, which are fond of open trails, may be attracted to a patch of bare ground in a sun-dappled glade.

Butterfly Garden Care

There are some precautionary actions you can take to insure the butterflies you have attracted will remain a part of your garden.

Pesticides in your butterfly garden can poison what you're trying to attract. If you feel you must use some form of pesticide, use it very carefully and only on the problem insect. Some organic products are just as devastating to butterflies and other beneficial insects as they are to targeted insect pests. For example, Bt (*Bacillus thuringiensis*) won't just get rid of the cabbage white butterflies on your broccoli and cabbage—it kills all lepidopteran larvae! Instead of a chemical, try the option of releasing ladybug beetles or other predatory beneficial insects that naturally feed upon unwanted visitors like aphids. There is, in fact, one species of butterfly that you may find in your garden that feeds on insect pests. The Harvester is the only North American member of a family of tropical carnivorous butterflies. It feeds on woolly aphids and their honeydew. Don't fret over plants that have been munched upon by caterpillars. Hungry caterpillars are an unavoidable fact of life if you are going to have beautiful butterflies in your garden. If the little critters seem to be devastating one particular plant, gently relocate some of them to another, less-damaged plant of the same species to spread the damage over a larger area. Unless they are totally defoliated, plants will recover surprisingly quickly.

Keep flowers blooming as long as possible to accommodate the succeeding generations of butterflies by deadheading withering blooms to stimulate the production of new flowers.

It's important to remember that you can't control butterflies.You can't make them come to your garden and you can't make them stay. You can only encourage them and hope they will. If you find you are having trouble attracting butterflies or you want a specific variety that you don't have and you are providing the proper food plants, you might find eggs, larvae and chrysalides in the wild and transplant them to your garden. Don't detach



Two Tiger Swallowtails take nectar from a butterfly bush.

eggs or chrysalides from the leaf or branch they are on—just carefully cut the part of the plant they are on and take that back to your garden (after obtaining permission from the owner of the plant, of course).

Exotic species should never be introduced outside their natural home range. They may have no natural enemies in the new area, and could therefore multiply to the point of becoming serious pests. The Cabbage White (also known as the Imported Cabbage Butterfly) is a very common butterfly and a serious agricultural pest in North America that was accidentally introduced from Europe in 1860. Many state and local agencies, as well as the US Department of Agriculture, have strict regulations on the import and interstate transport of potential pest species.

There is a great deal to be learned about butterflies and you can spend a lifetime doing it. There is also a great deal about butterflies and their behavior that is still unknown, and, who knows, you could contribute significantly to our understanding of them with careful observation and note-taking. Wherever your personal feelings for butterflies fall, and however deeply you choose to involve yourself in the hobby of butterfly gardening, you are sure to enjoy a butterfly garden.

Sources of Information about Butterflies

Books

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Mortimer, Senga. "The Lure of the Butterfly." *Traditional Home,* July 1995, p. 22 (2).

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Still, Steven M. *Manual of Herbaceous Ornamental Plants.* 1994. Stipes Publishing Company: Champaign, Illinois.

Tufts, Craig and Peter Loewer. *Gardening for Wildlife.* 1995. Rodale Press: Emmaus, Pennsylvania.

The Audubon Society Field Guide to North American Butterflies. Robert Michael Pyle, Consulting Lepidopterist. Alfred A. Knoph, Inc., Chanticleer Press, Inc. 1981.

Wright, Amy Bartlett. *Peterson First Guide to Caterpillars of North America*. 1993. Houghton Mifflin Company: New York, New York.

Public Butterfly Gardens

Day Butterfly Conservatory at Callaway Gardens, Pine Mountain, GA

The Insect Zoo at the Smithsonian Institution

Butterfly World at Coconut Creek, FL

Ijams Nature Center, Knoxville, TN

Cincinnati Zoo's Insect Zoo, Cincinnati, OH

(Also see the WWW listing of butterfly gardens on the Internet)

Web Sites

The Butterfly WebSite (http://www.butterflywebsite.com)

The Butterfly Zone (http://www.butterflies.com)

International Federation of Butterfly Enthusiasts (http://ifbe.org/ifbe.htm)

Smithsonian Butterfly Habitat Garden Site (http://www.si.edu/resource/tours/gardens/butterfly)

Societies/Clubs

The Lepidopterists Society

Xerces Society

North American Butterfly Association

Southern Lepidopterists' Society

National Wildlife Federation Habitat Gardening

Other local organizations (Entomological associations are more common than lepidopteran societies. If there are none available in your local area, you can always form one.)

Appendix A. Tree and shrub food sources and the butterflies they attract.

Sci. Name	Common Name	Larval Food	Adult Food*
Aesculus spp.	Buckeye		
Amelanchier spp.	Serviceberry	Coral Hairstreak	
Asimina triloba	Pawpaw	Zebra Swallowtail	
Betula spp.	Birch	Compton Tortoiseshell, Dreamy Duskywing, Tiger Swallowtail, Mourning Cloak	
Buddleia spp.	Butterfly Bush		Swallowtails, Comma, Mourning Cloak, Milbert's Tortoiseshell, Painted Lady, Amer. Painted Lady, Red Admiral
Callicarpa americana	Beauty Berry		Giant Swallowtail
Carpinus caroliniana	American Hornbeam	Red-spotted Purple	
Ceanothus spp.	New Jersey Tea, Wild Lilac, Buckbrush	Mottled Duskywing	
Celtis occidentalis	Hackberry	Question Mark, Mourning Cloak, Hackberry Butterfly, American Snout Butterfly, Tawny Emperor	
Cephalanthus spp.	Buttonbush		Tiger Swallowtail, Amer. Painted Lady, Monarch
Clethra spp.	Summersweet		Spicebush Swallowtail, Question Mark, Amer. Painted Lady, Red Admiral, Red-spotted Purple
Cornus florida	Dogwood	Spring Azure	
Crataegus spp.	Hawthorn	Northern Hairstreak, Red-spotted Purple	
Fraxinus spp.	Ash	Tiger Swallowtail, Baltimore	
Kolkwitzia amabilis	Beauty Bush		
Lindera benzoin	Spicebush	Spicebush Swallowtail	
Ligustrum spp.	Privet		Spring Azure, Painted Lady, Amer. Painted Lady, Red-spotted Purple
Philadelphus coronarius	Mock Orange		

***Note:** Plants which are not listed as attracting a specific type of butterfly are often general sources of food for a variety of adult butterflies. Also, don't be surprised to see butterflies on plants that aren't listed as being attractants for that particular species. Many butterflies will feed on any available nectar source.

Appendix A. Tree and shrub food sources and the butterflies they attract *(continued.)*

Sci. Name	Common Name	Larval Food	Adult Food
Populus spp.	Aspen, Cottonwood, Poplar	Mourning Cloak, Red-spotted Purple, Viceroy, Tiger Swallowtail, Compton Tortoiseshell, Dreamy Duskywing	
Prunus spp.	Plum, Cherry	Spring Azure,	
		Red-spotted Purple, Viceroy, Tiger Swallowtail	
Ptelea trifoliata	Hoptree	Giant Swallowtail	
Quercus spp.	Oak	Hairstreaks, Sleepy Duskywing	
Rhamnus crocea	Buckthorn		
Rhododendron spp.	Azalea, Rhododendron		
Rhus aromatica	Sumac	Red-banded Hairstreak	
Salix spp.	Willow	Swallowtails, Red-spotted Purple, Viceroy, Mourning Cloak	Brown Elfin
Sassafras albidum	Sassafras	Spicebush Swallowtail, Palamedes Swallowtail	
Spirea spp.	Spirea	Spring Azure	
Tilia americana	American Linden	Question Mark	
Ulmus pp.	Elm	Comma, Mourning Cloak, Question Mark	
Vaccinium spp.	Blueberry	Spring Azure	
Viburnum spp.	Viburnum	Spring Azure	
Weigela florida	Weigela		

Appendix B. Herbaceous plant food sources and the butterflies they attract.

Sci. Name	Common Name	Larval Food	Adult Food*
Achillea millefolium	Yarrow		Amer. Painted Lady, Amer. Copper
Alcea rosea	Hollyhock	Painted Lady, Common Checkered Skipper	
Alternanthera ficoidea	Amaranth	Scalloped Sootywing	
Amaranthus tricolor	Fountain Plant	Sootywings (Skippers)	
Amorpha spp.	False Indigo	Dogface	
Anaphalis triplinervis	Pearly Everlasting	Painted Lady, Amer. Painted Lady	E. Pine Elfin
Anethum graveolens	Dill	E. Black Swallowtail	
Antennaria dioica	Pussytoes	American Painted Lady	
Antirrhinum majus	Snapdragon	Buckeye	
Armeria maritima	Thrift		
Artemisia spp.	Wormwood	Painted Lady	Tiger Swallowtail, Great Spangled Frit., Monarch, Fiery Skipper
Aruncus dioicus	Goat's Beard		
Asclepias spp.	Milkweed, Butterfly Weed	Monarch	Swallowtails, Sulphurs, Hair streaks, Blues, Mourning Cloak, etc.
Aster spp.	Aster	Pearly Crescentspot	Whites and Sulphurs, Question Mark, Painted Lady, Red Admiral, Buckeye, Checkered Skipper
Aubrieta deltoidea	False Rock Cress		
Aureolaria pedicularia	False Foxglove	Buckeye	
Aurinia saxatilis	Basket of Gold		
Calendula officinalis	Pot Marigold		
Cardiospermum halicacabum	Balloon Vine	Silver-banded Hairstreak	
Cassia marilandica	Wild Senna	Sulphurs, Mercurial Skipper, Blue-banded Skipper	
Cassia obtusifolia	Sicklepod	Sulphurs, Mercurial Skipper, Blue-banded Skipper	
Centaurea cyanus	Bachelor Button		
Centranthus ruber	Jupiter's Beard		
Chamaecrista cinerea	Partridge Pea	Antillean Blue, Cloudless Giant Sulphur, Little Yellow	

***Note:** Plants which are not listed as attracting a specific type of butterfly are often general sources of food for a variety of adult butterflies. Also, don't be surprised to see butterflies on plants that aren't listed as being attractants for that particular species. Many butterflies will feed on any available nectar source.

Appendix B. Herbaceous plant food sources and the butterflies they attract *(continued.)*

Sci. Name	Common Name	Larval Food	Adult Food
Chrysanthemum spp.	Daisy		Cloudless Giant Sulphur, Pearly Crescentspot, Red Admiral
Cimicifuga spp.	Bugbane	Spring Azure	
Cleome hasslerana	Cleome	Checkered White	
Coreopsis spp.	Coreopsis		Sulphurs, Pearly Crescentspot, Buckeye, Monarch
Cosmos spp.	Cosmos		
Daucus carota var. *sativus*	Carrot, Queen Ann's Lace	E. Black Swallowtail	E. Black Swallowtail, Gray Hairstreak
Dendranthema x *morifolium*	Hardy Mum		
Dianthus barbatus	Sweet William		
Dicentra spp.	Bleeding Heart		
Dictamnus albus	Gas Plant		
Echinops spp.	Globe Thistle		
Ecinacea spp. (especially *E. purpurea*)	Coneflower, Purple Coneflower		Silvery Blue, Great Spangled Fritillary, Tawny-edged Skipper, Silvery Crescentspot
Erigeron hybrids	Fleabane	Checkerspots	
Eupatorium coelestinum	Mist-Flower	Metalmarks	
Eupatorium purpureum	Joe-Pye Weed	Metalmarks	Spicebush Swallowtail
Foeniculum vulgare	Fennel	E. Black Swallowtail	
Gaillardia spp.	Blanket Flower		
Geranium spp.	Geranium		
Gomphrena globosa	Gomphrena		
Helenium autumnale	Sneezeweed		
Helianthus spp.	Sunflower	Crescentspots	Tiger Swallowtail, Silvery Crescentspot
Heliotropium arborescens		Heliotrope	Orange Sulphur, Amer. Painted Lady
Hemerocallis spp.	Daylily		
Hesperis matronalis	Dame's Rocket		
Hibiscus spp.	Rose Mallow, Hibiscus	Hairstreaks	
Iberis sempervirens	Candytuft		
Impatiens capensis, I. pallida	Jewelweed	Spicebush Swallowtail	
Ipomoea purpurea	Morning Glory		Cloudless Giant Sulphur
Lantana spp.	Lantana		Swallowtails, Cabbage White, Gulf Fritillary, Fiery Skipper
Lathyrus latifolius	Perennial Sweet Pea	Gray Hairstreak, Blues	Gray Hairstreak

Appendix B. Herbaceous plant food sources and the butterflies they attract *(continued.)*

Sci. Name	Common Name	Larval Food	Adult Food
Lavandula angustifolia	Lavender		
Leucanthemum x *superbum*	Shasta Daisy		
Liatris spp.	Gayfeather		
Linum perenne	Flax	Variegated Fritillary	
Lobelia spp.	Lobelia		Cloudless Giant Sulphur
Lobularia maritima	Sweet Alyssum		
Lonicera spp.	Honeysuckle	Checkerspots	Swallowtails
Lupinus spp.	Lupine	Blues	Common Blue, Silvery Blue, E. Pine Elfin
Malva moschata	Musk Mallow	Gray Hairstreak, Painted Lady	Painted Lady, Amer. Painted Lady, Red Admiral, Monarch
Marrubium vulgare	Horehound		
Matthiola incana 'Annua'	Stock		
Mentha spp.	Mint		Swallowtails, Whites, Hairstreaks, Painted Lady, Amer. Painted Lady, Red Admiral, Monarch, Large Wood Nymph
Monarda spp.	Beebalm, Bergamot, Horsemint	Hairstreaks	
Nepeta x *faassenii*	Catmint		
Opuntia humifusa	Prickly Pear Cactus		
Panicum virgatum	Switchgrass	Skippers	
Passiflora spp.	Passionflower, Maypop	Gulf Fritillary	Gulf Fritillary
Petroselinum crispum	Parsley	Swallowtails	
Phlox paniculata	Phlox		Common Sulphur
Polygonum sp.	Knotweed, Fleeceflower	Coppers, Blues, Fritillaries	
Polygonum capitatum	Pinkhead Knotweed 'Magic Carpet'	Coppers, Blues, Fritillaries	
Pontederia cordata	Pickerelweed		Palamedes Swallowtail
Ratibida columnifera	Mexican Hat		
Rubus spp.	Brambles	Meadow Fritillary	Golden-banded Skipper
Rudbeckia spp. (except *R. fulgida* 'Goldsturm')	Black Eyed Susan		Great Spangled Fritillary, Pearly Crescentspot
Ruellia pedunculata	Wild Petunia	White Peacock, Crescentspots	
Ruta graveolens	Rue	Swallowtails	
Salvia spp.	Sages		
Scabiosa spp.	Pincushion Flower		Amer. Painted Lady

Appendix B. Herbaceous plant food sources and the butterflies they attract *(continued.)*

Sci. Name	Common Name	Larval Food	Adult Food
Sedum spp. (except *S.* 'Autumn Joy')	Sedum, Houseleek	Buckeye	Milbert's Tortoiseshell, Painted Lady, Red Admiral, Comma
Solidago spp.	Goldenrod		Sulphurs, Gray Hairstreak, Painted Lady, Amer. Painted Lady, Red Admiral, Viceroy, Giant Swallowtial
Symphytum spp.	Comfrey		
Tagetes spp. (especially single-flowered varieties)	Marigold		Milbert's Tortoiseshell, Painted Lady, Amer. Painted Lady
Thymus spp.	Thyme		
Trifolium pratense	Red Clover	Clouded Sulphur, Alfalfa Butterfly	Cabbage White, Great Spangled Frit., Painted Lady, Amer. Painted Lady, Red Admiral, Skippers
Tropaeolum majus	Nasturtium	Whites	Whites
Urtica spp.	Nettle	Question Mark, Comma, Milbert's Tortoiseshell, Mourning Cloak	Swallowtails
Vaccinium spp.	Blueberry	Spring Azure	
Verbena spp.	Verbena	Buckeye	Great Spangled Fritillary
Vernonia noveboracensis	Ironweed	Amer. Painted Lady	Tiger Swallowtail, Great Spangled Fritillary, Monarch, Fiery Skipper
Viola spp.	Violet, Pansy	Great Spangled Fritillary, Meadow Frittilary	Spring Azure, Falcate Orangewing
Zinnia spp.	Zinnia		Painted Lady, Amer. Painted Lady

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05-0195 PB1636-3M-1/05 (Rep) E12-5115-00-004-05

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