



Gardening for Butterflies and Pollinators

The flash of a colorful butterfly and the buzz of a bumble bee traveling between flowers brings extra beauty and enjoyment to our gardens. Planning your garden or landscape to include plants that attract and sustain butterflies, bees and other beneficial insects can increase populations of these desired insects and increase the diversity you can observe and enjoy. You will also be doing your part to help preserve butterflies, honey bees and pollinators that are threatened and in decline.

Butterflies

Butterflies are among the best-known and most popular of all insects. Butterflies fly during the daytime and when at rest most hold their four, brightly colored wings together above the body. (Most moths are dull colored and fly at night and when at rest, hold their wings spread to the side).

Butterfly Life Cycle and Development

Butterflies have a complete life cycle and develop through four distinct stages: egg, larva (caterpillar), pupa (chrysalis), and adult. The larva or caterpillar stage has chewing mouthparts and eats plant foliage to grow. Some species feed on many different plants (host plants), whereas others are restricted to only one or two. The caterpillar food preferences of common Iowa butterflies are listed in Table 2.



Most caterpillars eat and grow for three or four weeks. When fully grown they change into the pupa called the chrysalis. Within the chrysalis the caterpillar is transformed into an adult butterfly.

Newly-formed adult butterflies force their way out of the chrysalis with their wings limp, crumpled and soft. Over a period of a few hours the wings expand to their final size, harden and dry and the butterfly is ready to fly.

During the adult stage, butterflies use a long, coiled proboscis to feed on nectar from flowers as a source of moisture and energy. Some butterflies eat a variety of foods, whereas others are more selective. Butterflies may also feed on rotten fruit, plant sap or carrion.

After male and female butterflies mate the female butterfly begins to lay eggs on plants that will be eaten by the caterpillar. The adults usually die soon after mating and egg laying has been completed (usually within two to fourteen days). Monarch and other butterflies that migrate are programmed to survive the extended period until the next opportunity to reproduce.

Pollinators

Pollinators are animals that help plants reproduce (produce fruits and seeds) by carrying pollen from one flower to another. Specifically, pollinators carry pollen from the male flower parts to the female flower parts. The wide variety of animals that visit flowers can be pollinators, including bats, birds and other animals, but most importantly, insects.

Pollination is necessary for proper development of many fruits and vegetables that surround the seed. Without pollination most fruits and vegetables will not set fruit, the fruit will be incomplete or misshapen or yield will be low. This means that without pollination we would not have the grains, fruits, nuts and vegetables that comprise approximately 35 percent of global food production.

Different plants have different ways of accomplishing pollination. Plants such as corn, grape, soybean, tomato, eggplant and pepper have female and male parts close together in the same or adjacent flowers. Wind releases pollen that falls onto the stigma without difficulty and no aid or assistance is needed. For other plants, the pollen will not fall easily to the stigma and another means of transporting pollen is necessary. This is where pollinators play an important role. Pollinators carry the pollen from the male flower parts to the female parts and allow the plant to successfully produce seeds. Different flowers attract different pollinators and flower shape, size, color, structural arrangement and fragrance aid in attracting pollinators and maximizing pollination efficiency.

Common Pollinators in Iowa

Insects that commonly serve as pollinators in Iowa include honey bees, bumble bees, flower beetles, hover flies and butterflies. These insects are not selflessly doing a favor to the flowers. The insects are enticed to do the job with a reward of food. The food is usually nectar (sugar and water) and pollen (protein).

How to Establish a Butterfly or Pollinator Garden

Sunny Location

Locate your garden where it receives the greatest amount of sun exposure possible. Insects such as butterflies and pollinators are cold-blooded and depend on the sun to

warm their bodies. Also, the plants on which butterflies and pollinators depend generally grow better in full sun (six or more hours of sunshine per day).

Nectar and Pollen Sources

Pollinators and butterflies will meet their season-long need for food, specifically nectar and pollen from flowers on trees, shrubs, perennials and annuals. An effective pollinator habitat will provide pollen and nectar sources throughout the growing season and offer a variety of flower shapes and sizes. Plant in groups—not rows—to increase the likelihood of butterflies and pollinators finding and choosing your garden for a feeding stop. While a wide variety of flowering plants will provide nectar and pollen, plants that are native to Iowa are preferred. Native plants are adapted to our soils and climate, require less maintenance and will attract more pollinators than non-native plants.



Table 1. Nectar Plants for the Iowa Garden and Landscape

A partial list of flowering plants that are adapted to Iowa and will be beneficial to pollinators and butterflies. Native plants are indicated by “N.”

Flowering plants			
• Asters (some native species)	• Dame’s Rocket	• Lantana	• Purple Prairie Clover (N)
• Bee Balm (some native species)	• Fleabane (some native species)	• Leadplant (N)	• Rugosa Rose
• Black-eyed Susan (some native species)	• Globe Thistle	• Marigold	• Salvia
• Blazing Star (N)	• Goldenrods (some native species)	• Marsh Marigold (N)	• Stonecrop Sedum
• Butterfly Bush	• Heliotrope	• Milkweeds (several native species)	• Violets (N)
• Clovers (some native species)	• Hyssop (some native species)	• Mints (some native species)	• Zinnias
• Coneflowers (several native varieties)	• Ironweed (N)	• Penstemons	
• Cosmos	• Joe-pye Weed (N)	• Phlox (some native species)	
Trees			
• Basswood or American Linden (N)	• Kentucky Coffeetree (N)		
• Flowering Dogwood	• Sugar and Silver Maple (N)		
Shrubs			
• American Hazelnut (N)	• False Indigo, Fragrant False Indigo,	• Silky, Gray, Redosier Dogwoods (N)	
• Arrowwood, Nannyberry, Highbush	Lead Plant (N)	• Wild Rose (several native species)	
• Cranberry Viburnums (N)	• Fragrant Sumac (N)		
• Buttonbush (N)	• Ninebark (N)		
• Elderberry (N)	• Serviceberry (N)		

Larval Host Plants

Host plants are necessary for the butterflies and moths to complete their life cycle. Host plants are where butterflies lay their eggs and where the caterpillars eat. Different species of butterflies use different host plants and your garden should contain the host plants for the species of butterflies that are common in your area. The more varieties you can plant, the greater your chances for attracting more butterflies. The proper host plant for caterpillar feeding must be included to ultimately have the desired butterfly species. For example, encouraging monarch caterpillars requires including milkweeds such as common milkweed or butterfly milkweed in your garden.



Table 2. Caterpillar Host Plants

Common butterflies in Iowa and the host plants where the caterpillar will feed.

Common Name	Scientific Name	Host Plant
Black Swallowtail	<i>Papilio polyxenes</i>	Dill, Parsley, Fennel, Golden Alexanders
Cabbage White	<i>Pieris rapae</i>	Wild Mustards, Cabbage, Broccoli
Clouded Sulphur	<i>Colias philodice</i>	Clover, Alfalfa, other legumes
Common Wood-Nymph	<i>Cercyonis pegala</i>	Purpletop
Eastern Comma	<i>Polygonia comma</i>	Nettles, Hops, Elm
Eastern Tiger Swallowtail	<i>Papilio glaucus</i>	Wild Cherry, Basswood, Tulip Tree, Birch, Ash, Cottonwood, Willow
Giant Swallowtail	<i>Papilio cresphontes</i>	Prickly Ash, Hop Tree
Great Spangled Fritillary	<i>Speyeria cybele</i>	Violets
Monarch	<i>Danaus plexippus</i>	Milkweeds
Mourning Cloak	<i>Nymphalis antiopa</i>	Willow, Birch, Cottonwood, Hackberry
Orange Sulphur	<i>Colias eurytheme</i>	Clover, Alfalfa, other legumes
Painted Lady	<i>Vanessa cardui</i>	Thistle, Nettle, Sunflowers, Mallow
Pearl Crescent	<i>Phyciodes tharos</i>	Asters
Question Mark	<i>Polygonia interrogationis</i>	Elm, Hackberry, Nettles
Red Admiral	<i>Vanessa atalanta</i>	Nettles, Hops, Elm
Red-spotted Purple	<i>Limenitis arthemis astyanax</i>	Poplar, Aspen, Oak
Regal Fritillary	<i>Speyeria idalia</i>	Prairie Violet, Bird's Foot Violet
Variiegated Fritillary	<i>Euptoieta claudia</i>	Violets
Viceroy	<i>Limenitis archippus</i>	Willow, Aspen



Moisture

Pollinators and butterflies need water like other animals. While some water comes from nectar, insects will also drink from pools, mud puddles and birdbaths. A pond, stream or water feature may be beyond the scale of most gardens but a bird bath with rocks for perching, a container of wet sand in the ground, or a puddling area for butterflies will suffice. Change the water in open container two to three times per week to prevent mosquito breeding.

Rocks

On cloudy or cool days large rocks and mulched paths provide a basking spot to help warm butterflies for flight.

Shelter

Trees, shrubs, fences and buildings can provide protection from prevailing winds. A leafy cover offers a hiding place from hungry birds. Bumble bees and many solitary bees nest in the ground and need undisturbed open patches of bare ground. Some bees nest in stems and twigs so unkempt natural areas with dead wood, rock piles standing, dead perennials and grasses will encourage pollinator nesting and butterfly overwintering.

Untidiness

If you want to attract butterflies it helps to be tolerant because butterflies prefer a “natural” look rather than a “tidy” garden. That means allowing some “weed” species, such as milkweeds, stinging nettle, and thistle, to grow in the landscape. Leave garden clean up until spring to provide winter protection.

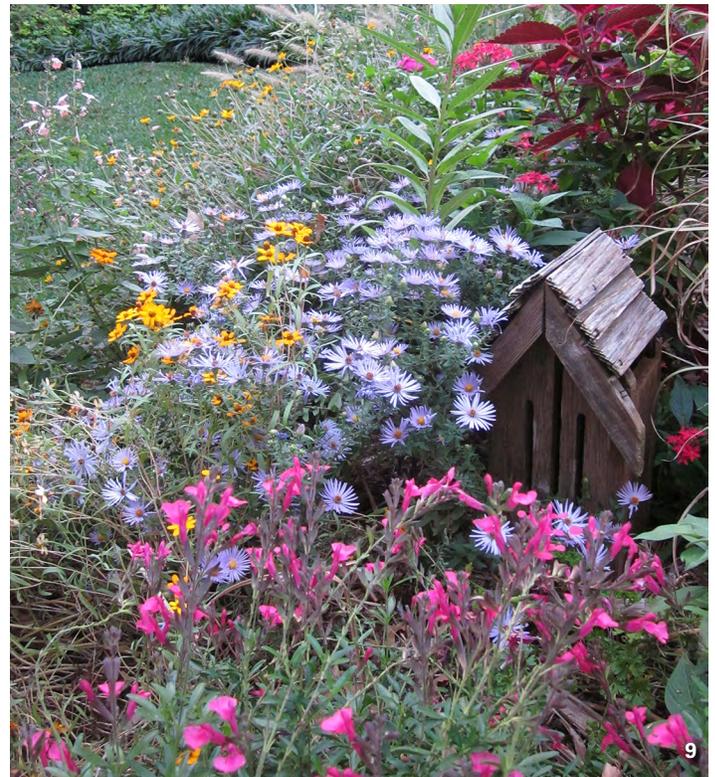
Protection from Pesticides

Avoid pesticides. Insecticides are the most dangerous, but herbicides also can be detrimental to the insects you are trying to encourage. Do not spray plants that are in bloom and use systemic insecticides with caution as the insecticide may be present in pollen and nectar of plants with roots growing in the treated area.

Planting and Establishment

Butterfly and pollinator habitats can be of all sizes and shapes. Adding nectar and caterpillar food plants such as milkweeds to the garden or landscape can be done as part of a new planting or as an addition to an existing garden. Host plants and nectar plants can be established as plants in pots, small starts (plugs) or from seed. Potted plants and plugs are a good method for quick establishment for small areas. Seeding will be more cost-effective for large areas.

Once a site is selected, remove existing plant debris or vegetation such as sod and weeds. Follow good gardening practices, including plant spacing, planting depth, irrigation (especially when plants are young and getting started), and mulching (for weed control and moisture conservation).



For best results, use locally-adapted and native plants for pollinator and butterfly gardens because of their compatibility to the area and growing conditions. Locally-sourced or ecotype plants are often recommended rather than plants transported long distances. Gardeners who want quick results, more diversity, and a more-typical urban landscape aesthetic should include perennials and annuals to provide color, interest, quick results, and season-long bloom.

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