

**Central Pennsylvania
Pocket Guides**

**Plants for
Butterflies**



Butterfly Gardens

Class Insecta, Order Lepidoptera

BUTTERFLIES USE PLANTS as a floral food source when they are adults and as host plants when caterpillars. Adults feed solely on liquid with their proboscis (prow·baa·suhs), a straw-like sucking mouthpart. While most species of butterfly eat only flower nectar, a few eat tree sap and fruit juice. When feeding from flowers, pollen sticks to the hairs and scales that cover a butterfly's head, body, and wings. The pollen is then transferred from flower to flower, resulting in pollination.

Butterflies with larger wings typically have longer proboscides. This in turn impacts flower selection as species cannot feed from flowers deeper than their proboscis can reach. To maximize the nectar they can consume, small butterflies prefer nectar-rich flowers that are densely planted.

Butterflies are not capable of hovering while feeding. For this reason, they prefer either large and flat flowers such as wild bergamot (*Monarda fistulosa*) or small and densely clustered flowers such as milkweed (*Asclepias* species).

BUTTERFLIES HAVE COLOR vision, using sight and smell when choosing flowers. But unlike bees, their olfactory sense is not as dominant as their eyesight. Butterflies have innate color preferences like most pollinators, but they can also learn to visit flowers of other colors that provide a suitable nectar reward. Monarchs, for instance, prefer orange, yellow, and red flowers in order of preference, over blue, purple, and green. In a 2011 study, monarchs learned to associate a nectar reward with a less desirable color after eight days of training. After another eight days, butterflies learned two colors offered nectar rewards. Monarchs, and likely most butterflies, can distinguish color and learn quickly.







A robust butterfly garden needs host plants for developing caterpillars in addition to nectar plants. Female butterflies choose host plants for egg laying using vision, smell and also by tasting leaves with chemoreceptors on their feet. Caterpillars live on the host plant their mother chooses, eating and growing in preparation for metamorphosis into an adult butterfly.

THE PLANTS BUTTERFLIES choose to lay their eggs on plants are specific and tend to belong to only a few plant families, so planting the right host plants is essential to encouraging caterpillars in the garden. For example, the Eastern black swallowtail (*Papilio polyxenes*) caterpillar eats plants only in the carrot (*Apiaceae*) and citrus (*Rutaceae*) families. Other butterflies specialize on a single genus of host plant. Monarch caterpillars only eat milkweed (*Asclepias* species).

Gardeners that support butterflies will enjoy witnessing their entire lifecycle, from a vulnerable egg to a graceful, vibrant adult.

* Blackiston, D., Briscoe, A. D., & Weiss, M. R. (2011). Color vision and learning in the monarch butterfly, *Danaus plexippus* (*Nymphalidae*). *Journal of Experimental Biology*, 214(3), 509–520.

Plant Symbols Key

 Full Shade	 Dry
 Part Sun	 Moist
 Full Sun	 Wet

Hoary Puccoon

Lithospermum canescens



Floral Phenology



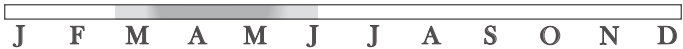
Type	Herbaceous Perennial
Sun	☀ ☀
Water	💧 🍷
Size	6 to 18" Tall 6" Spread
Soil	Acidic Neutral
Tolerances	Drought

Wild Blue Phlox

Phlox divaricata



Floral Phenology



Type	Herbaceous Perennial
Sun	☀ ☀
Water	💧 💧
Size	1' to 2' Tall 1' Spread
Soil	Alkaline Acidic
Tolerances	Drought Clay

Downy Phlox

Phlox pilosa



Floral Phenology



Type	Herbaceous Perennial
Sun	☀️ ☀️
Water	💧
Size	1' to 2' Tall 1' Spread
Soil	Acidic
Tolerances	Drought

Butterfly Weed

Asclepias tuberosa



Floral Phenology



Type	Herbaceous Perennial
Sun	☀
Water	💧
Size	1' to 3' Tall 1' to 2' Spread
Soil	Neutral
Tolerances	Drought Deer

Gray Dogwood

Cornus racemosa



Floral Phenology

J F M A M J J A S O N D

Type	Deciduous Shrub
Sun	☀ ☀
Water	💧
Size	6' to 15' Tall 10' Spread
Soil	Acidic Neutral Alkaline
Tolerances	Flooding Clay

Swamp Milkweed

Asclepias incarnata



Floral Phenology



Type	Herbaceous Perennial
Sun	☀ ☀
Water	💧
Size	3' to 5' Tall 2' to 3' Spread
Soil	Acidic Neutral Alkaline
Tolerances	Deer

Buttonbush

Cephalanthus occidentalis



Floral Phenology



Type	Deciduous Shrub
Sun	☀
Water	💧
Size	5' to 12' Tall 8' Spread
Soil	Acidic Neutral Alkaline
Tolerances	Flooding Drought

Wild Bergamont

Monarda fistulosa



Floral Phenology



Type	Herbaceous Perennial
Sun	☀️ ☀️
Water	💧 🍷
Size	2' to 4' Tall 1' to 2' Spread
Soil	Acidic Neutral Alkaline
Tolerances	Drought

Prairie Blazing Star

Liatris pycnostachya



Floral Phenology



Type	Herbaceous Perennial
Sun	☀
Water	💧
Size	4' to 6' Tall 1' Spread
Soil	Acidic
Tolerances	Drought Clay

Heath Aster

Symphiotrichum ericoides



Floral Phenology

J F M A M J J A S O N D	
Type	Herbaceous Perennial
Sun	☀
Water	💧
Size	1' to 3' Tall 1' Spread
Soil	Slightly Acidic
Tolerances	Drought Clay

THIS FIELD GUIDE was created by Heather Frantz, Christina Grozinger, and Harland Patch. Illustrations produced by Victoria Millsap. Funding was provided by the Center for Pollinator Research, the Huck Institutes for the Life Sciences, and the Penn State College of Agricultural Sciences.

Plants in this guide were selected for a high degree of attraction in most temperate North American landscapes.



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