PENNSTATE

College of Agricultural Sciences
Cooperative Extension

Pennsylvania Pollinator Series

3.1. Pollinator Food

You don't need to have a large property or dedicate your entire garden to hosting pollinators in order to benefit them. Most important is to make a first step, a change in attitude, which through the power of example could be followed by others. Put together a few adjacent backyards and you can form a stable pollinator habitat or a nectar corridor through which pollinators can navigate towards other resources.

Sunflower

Think big and start small! Tear up the lawn in a small area in your backyard that gets at least six hours of sun per day and start some life on it… When starting a pollinator garden, strive for the following:

- **Abundance** - Plant in drifts or clumps.

Pollinators' survivability depends upon the availability of food resources. Pollinators visit flowers for the acquisition of energy rewards; these are available in a small enough quantity per flower that the pollinator is continually motivated to search for more. In this way, plants ensure that pollinators visit many flowers, resulting in better pollination. To provide a worthwhile refueling stop, gardeners should plant the same plant species in drifts or clumps. Don't forget flowering shrubs and trees — they often provide abundant and early food sources.

- **Diversity** - Select plants with flowers that will provide a range of shapes, and colors.

There is a great diversity among pollinators. While some are strictly specialized for certain species or genera of plants, most pollinators are generalists and have a diet consisting of a wide variety of food sources. For both specialist and generalist pollinators, diversity will be directly correlated with the availability of a variety of plants. Unlike bees, the butterflies and moths in adult stage visit flowers to get nectar; in the larval stage, these pollinators feed on specific plants. Female monarch butterflies, for example, need milkweed to lay their eggs. Milkweeds are toxic, but monarch butterflies have evolved to assimilate the toxins, which will protect them against predators. To have a diverse population of butterflies you need to plant a variety of larval food plants.

- **Sequence** – Plant for bloom succession.

NATIVE PERENNIALS FOR A SUNNY POLLINATOR GARDEN

PLANT NAME	COMMON NAME	COLOR	SOIL DRAINAGE	Bloom Time
Aquilegia canadensis	Columbine	Red	Well drained	Late spring
Asclepias tuberosa	Butterfly Weed	Orange	Dry, Well drained,	Summer
Asclepias verticillata	Whorled Milkweed	White	Moist to dry	Summer
Ceanothus americanus	Jersey Tea	White	Dry, Well drained	Early summer
Eupatorium fistulosum	Joe Pye Weed	Mauve	Moist to wet	Late Summer
Helianthus spp	Sunflowers	Yellow	Moist to dry	Summer
Helenium autumnale	Sneezeweed	Yellow	Moist to wet	Late Summer to Fall
Liatris spicata	Marsh Blazing Star	Purple	Moist to wet	Summer
Lobelia cardinalis	Cardinal Flower	Red	Moist to wet	Late Summer
Lobelia siphilitica	Great Blue Lobelia	Blue	Moist to wet	Late Summer
Monarda fistulosa	Wild Bergamot	Lavender	Moist	Summer
Monarda didyma	Oswego Tea	Red	Moist	Summer
Penstemon digitalis	Foxglove Beardtongue	White	Moist	Spring
Pycnanthemum muticum	Broad-leaved Mountain Mint	Whitish green	Moist	Mid-Late Summer
Rudbeckia fulgida var. fulgida	Brown-eyed Susan	Yellow	Average to dry	Late Summer
Solidago caesia	Blue-Stemmed Goldenrod	Yellow	Moist to dry	Fall
Symphyotrichum laeve	Smooth Aster	Purple	Moist to dry	Fall
Veronicastrum virginicus	Culver's Root	White	Moist	Mid-Late Summer
Zizia aptera	Heart-leaved Alexanders	Yellow	Moist to wet	Spring

NATIVE PERENNIALS FOR A SHADY POLLINATOR GARDEN

PLANT NAME	COMMON NAME	COLOR	SOIL DRAINAGE	BLOOM TIME
Aquilegia canadensis	Columbine	Red	Drained to dry	Late spring
Arisaema triphyllum	Jack-in-the Pulpit	Green/Brown	Moist	Spring
Phlox divaricata	Wild Blue Phlox	Lavender	Moist	Spring
Phlox stolonifera	Creeping Phlox	Lavender	Moist	Spring
Spigelia marilandica	Indian Pink	Red	Moist	Summer
Eurybia divaricata	White Wood Aster	White	Moist to dry	Fall
Soildago caesia	Blue-stemmed Goldenrod	Yellow	Moist to dry	Fall
Viola canadensis	Canada Violet	White	Moist	Spring - summer

OTHER PERENNIALS FOR POLLINATORS

PLANT NAME	COMMON NAME
Agastache	Giant Hyssop
Echinacea purpurea	Purple Cone Flower
Lavendula	English lavender
Ocimum	Basil
Origanum	Marjoram
Origanum	Oregano
Petrosillum	Parsley
Rosmarinus	Rosemary
Thymus	Thyme
Zinnia	Zinnia

Sample of a Pollinator Friendly Bloom Sequence					Blooming Time (Months)							
Scientific Name	**Common Name**	**Moisture**	**Light**	**H/W**	III	IV	V	VI	VII	VIII	IX	X
Acer rubrum	Red Maple	Moist/Dry	Sun	100'/75'	■	■						
Amelanchier laevis	Smooth Serviceberry	Average	Sun	15'/6'	■	■						
Acer saccharum	Sugar Maple	Average	Sun	100'/75'		■	■					
Prunus serotina	Black Cherry	Avg./Dry	Sun	75'/35'		■	■					
Salix nigra	Black Willow	Avg./Moist	Sun/Shade	50'/35'		■	■					
Cornus florida	Flowering Dogwood	Average	Sun/Shade	50'/50'		■	■	■				
Salix discolor	Pussy Willow	Avg./Moist	Sun/Shade	15'/12'			■					
Tilia americana	American Basswood	Average	Shade	100'/75'			■	■				
Ilex verticiliata	Winterberry Holly	Avg./Moist	Sun/Shade	12'			■	■				
Viburnum dentatum	Arrowwood	Average	Sun/Shade	15'			■	■				
Viburnum lentago	Nannyberry	Avg./Moist	Sun/Shade	15'			■	■				
Senecio aureus	Golden Ragwort	Avg./Moist	Sun	2.5'			■	■				
Sisyrincium Lucerne	Blue-eyed Grass	Moist	Sun	1'/1'			■	■				
Anemone Canadensis	Meadow Anemone	Avg./Moist	Sun	18"			■	■	■			
Cornus amomum	Silky Dogwood	Avg./Dry	Sun	12'			■	■	■			
Penstemon digitalis	Beardtongue, Tall W.	Avg./Dry	Sun	5'				■				
Trad o. Mrs. Loewer	Mrs. Loewer Spiderw	Avg./Dry	Sun	2.5'/1.5'				■				
Phlox pilosa	Prairie Phlox	Average	Sun	2'/1'				■				
Hydrangea arborescens	Hydrangea	Average	Shade	6'/6'				■	■			
Coreopsis verticillata	Threadleaf Coreopsis	Avg./Dry	Sun	5'				■	■	■		
Oenothera fruticosa	Narrow-lv. Sundrops	Avg./Dry	Sun	3'				■	■	■		
Thermopsis caroliniana	Carolina Lupine	Average	Sun	4'				■	■	■		
Asclepias incarnate	Swamp milkweed	Average	Sun	4'/2'					■	■		
Veronicastrum virginicum	Culver's Root	Avg./Moist	Sun	6'					■	■		
Ratibida pinnata	Prairie Coneflower	Avg./Dry	Sun	5'/3'					■	■		
Rudbeckia ful. Var fulgida	Orange Coneflower	Avg./Dry	Sun	4'					■	■	■	
Allium cernuum	Nodding Onion	Moist/Dry	Sun	1'/1'					■	■	■	
Helianthus Lemon Queen	Swamp Sunflower	Avg./Moist	Sun	6'					■	■	■	
Lobelia siphilitica	Great Blue Lobelia	Avg./Moist	Sun	5'					■	■	■	
Monarda fistulosa	Horsemint	Avg./Dry	Sun	5'					■	■	■	
Silphium connatum	Virginia Cup Plant	Average	Sun	10'/4'					■	■	■	
Eupatorium perfoliatum	Common Boneset	Avg./Moist	Sun	5'						■	■	
Aster laevis Bluebird	Smooth Aster	Average	Sun	4'							■	■
Aster nova angliae	New England Aster	Avg./Moist	Sun	4'/2'							■	■

Most pollinators have a short life-span as adults, and different species are present in gardens at different times of the year. Some pollinators can have more than one generation annually. In Pennsylvania there are almost 400 species of native bees (Donovall & vanEngelsdorp, In Press), which as a group are active from early March to late November. In order for a garden to attract pollinators year-round, there must be a succession of overlapping blooming from spring to fall.

Local - Whenever possible, plant species native to your region.

Native plants have been proven to be four times more attractive to native pollinators than non-natives (Frankie, Thorp, Schindler, Ertter, & Przybylski, 2002), so your first choice should be plants native to your region. Don't forget, too, that some non-native plants that are attractive to pollinators have a high chance of becoming invasive, e.g. butterfly bush. While native plants are almost always a good bet, some can be aggressive colonizers (e.g. common trumpet creeper and common sneezeweed). Moreover, some garden plants that have been manipulated for larger blooms and a show of color have lost their ability to produce nectar. Others, like some sunflower varieties, have been bred for producing little or no pollen; thus, they have no pollinator value.

Abundance, Diversity, Sequence, Local, Native, Invasive… If all of these suggestions make you dizzy or if the time needed to apply them is a problem, and yet you still want to be a pollinator friendly gardener there is one simple option: stop mowing and let the nature take its course. . With some management against the invasive plants, over time you will have a selection of plants that will attract local pollinators. For less patient gardeners, the native plants listed in this section should give you a start.

Bibliography

Frankie, G. W., Thorp, R. W., Schindler, M. H., Ertter, B., & Przybylski, M. (2002). Bees in Berkley? *Fremontia* , 50-58.

Source: Mathews, F. Schuyler *Field Book of American Wild Flowers* (New York: G. P. Putnam's Sons, 1902) 511

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