

How to Attract Pollinators

Baltimore County's guide on best management practices for creating pollinator habitat



Thank You!

Baltimore County appreciates the assistance of our residents and organizations in helping to restore our environment. To assist Baltimore County land managers and residents with establishing pollinator habitat, Baltimore County established the following pollinator habitat best management practices (BMPs) for gardens and meadows.

Baltimore County encourages residents and business owners to establish, maintain, and protect pollinator habitat on their properties. Baltimore County's approach to protecting pollinators is discussed at the end of this document.

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A honey bee, with pollen attached to its hind leg, pollinating a watermelon flower. Photo by Stephen Ausmus, USDA

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What are pollinators and why do they matter?

Pollinators play a vital role in our ecosystem, with one third of our food supply and more than 75% of flowering plants relying on pollinators for reproduction.

Pollinators assist with plant reproduction known as pollination by transferring pollen grains from the male portion of the flower (anther) to the female portion of the flower (stigma), resulting in seeds and new plants.

While insects are the most important pollinators to our food supply, other pollinators include bats and hummingbirds. The four major groups of insect pollinators are bees and wasps, beetles, butterflies and moths, and flies.



Bumble bees and carpenter bees feeding on yellow wingstem (*Verbesina alternifolia*).

Photo by Carrie Oberholtzer, EPS.

Pollinators in crisis

Worldwide, many pollinator populations have suffered local extinctions or are in decline due to habitat loss, degradation, and fragmentation. Other threats to pollinators include pesticide use, non-native species, diseases, parasites, pollution and climate change (NRC, 2007).



Ruby throated hummingbird feeding in a trumpet creeper (*Campsis radicans*). Photo by T.G. Barnes, University of Kentucky.

Planting Goals and Objectives

Designing pollinator habitat requires careful planning, layout, and placement. Site conditions, the type of habitat, and the pollinators you want to attract influence the overall project design and maintenance requirements. Carefully consider short-term and long-term maintenance requirements before establishing any pollinator habitat. To help design your project, answer the following questions.

What type of pollinator habitat do you want to provide?

Pollinator habitats range from large-scale pollinator meadows to smaller pollinator gardens. Consider providing habitat along agricultural fields, forest edges, septic fields, parking strips, or roadsides that help connect meadow, garden, and forest habitats to provide pollinators with a larger area to forage. Pollinator meadows and pollinator gardens have different site prep, planting, and maintenance requirements. **Generally, meadows require less maintenance and watering once established.**

What type of pollinators do you want to attract?

Research the needs and plant requirements of the pollinators you want to attract. Do you want to attract bees, butterflies, or hummingbirds? While many insect pollinators are generalists, or able to use a wide variety of plants to complete their life cycles, other pollinators are specialists and require a specific host plant to complete their life cycle.



Monarch butterfly. Photo by Brian Lindley, EPS.

For these specialists, the specific host plant is required for the butterfly or moth larvae (caterpillar) to feed. If attracting butterflies or moths to your garden, provide plants that attract the adult butterfly with pollen and nectar sources as well as the host plants that will support the caterpillar. Appendix A provides a list of plant species, their habitat requirements, and the pollinators they attract.

Do you want to provide other environmental benefits?

Do you want to provide habitat for other wildlife? Do you want to provide other environmental benefits like soil conservation and water quality? Determining additional objectives will help you decide which type of habitat you want to provide.

In addition to pollinator habitat, native grass meadows also stabilize soils and improve water quality. Including different types of vegetation (plants, shrubs, trees) will provide habitat and food sources for a range of wildlife.



Brown snake. Photo by Brian Lindley, EPS.



American goldfinch. Photo by Adam Jackson, allaboutbirds.org.

Site Identification and Assessment

When choosing a planting site, consider your budget, site access, the current site use, and your planting objective. If planting a pollinator garden, it is important that you have access to water or that you can transport water to the site. Due to the lack of locally native seeds, it may be best to plant smaller meadows (Tangren, 2019).

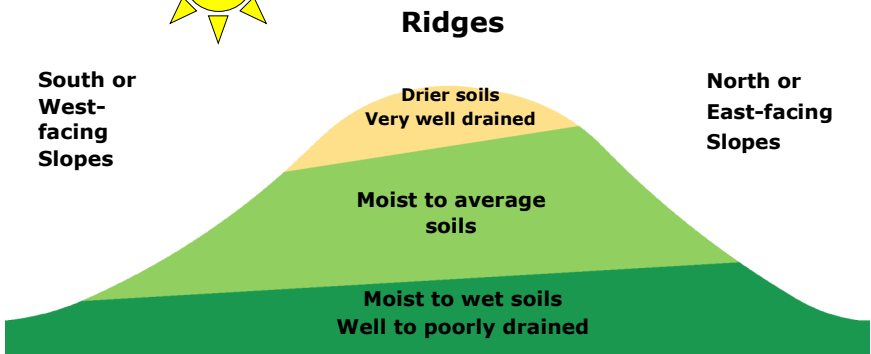
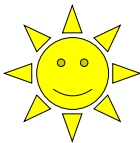
Identifying characteristics of the planting site will also enable you to select appropriate plant species. When selecting a site, it is important to consider the following:

1. Does the location receive at least 6 hours of sunlight per day?

The majority of flowering plants will need at least six hours of sunlight per day (UME, 2019).

2. What is the size and topography of the planting area? What is the extent of the slopes and grades? Are there streams or wetlands on site? Plants have different moisture requirements, and the size and slope of the planting area can make maintenance difficult (NRCS, 2017).

3. What are the soil characteristics? Are the soils clay, sandy, or loam? How well does the soil drain? Is the soil compacted? Do you need to amend the soil? Selecting plants suited to a site's soil will ensure that they are healthier and increase their survivability and regeneration (NRCS, 2017). To determine which soils are on your property, visit www.websoilsurvey.nrcs.usda.gov. Before applying fertilizer or other soil amendments, test your soil to ensure you choose the proper amendments. For more info on soil testing, visit <https://extension.umd.edu/hgic/topics/soil-testing>.



4. What is the surrounding landscape and vegetation? Trees and shrubs help attract birds and insects and provide foraging and nesting sites that may be absent in a pollinator garden or meadow. Consider planting pollinator habitat along forest edges to provide pollinators with all of their habitat needs (NWF, 2019).

5. Is there a clean and reliable water source nearby?

Pollinators need access to clean water. If the pollinator habitat is not located near a reliable source, consider providing drinking and bathing opportunities for pollinators such as bird baths or small containers with shallow or sloping sides.



A water feeder with twigs to prevent bees from drowning. Photo by Zachary Huang, Michigan State University

Site Preparation

Before planting your seed mix or garden, you will need to prepare your site. Remove plant debris to reduce weed seed in the soil and create a smooth surface to ensure good seed to soil contact.

Weeds compete for sunlight, water, and nutrients and often become the biggest challenge to successful wildflower establishment. For a successful meadow, one to two years of site preparation may be needed if there is an abundance of weeds or weed seeds at your site.

If using herbicides, avoid damage to non-target plants and do not apply pesticides labeled as toxic to bees. Consider using herbicide free methods, such as solarizing the existing vegetation or soil with UV stabilized plastic (Xerces Society, 2013).

Selecting Plant Species

When selecting plant species or seed mixes for your pollinator habitat, consider the needs of the pollinators you want to attract and select plants that are adapted to the site's soil conditions.

Meadows

Consider the following when selecting native plants for meadows:

1. **Diversity:** To support the greatest number and diversity of pollinators, select plants with different flower sizes, shapes, colors, heights and growth habitats. Aim to provide a continuous source of pollen and nectar throughout the growing season. Appendix A provides a list of plant species, their habitat requirements, and the pollinators they attract.
2. **Grasses:** To create a stable meadow, grasses should comprise 50 to 70 percent of the vegetation (Tangren, 2019). Including more native grass or sedge in your mix provide nesting and overwintering sites for insects, including bumble bees. Grasses are also larval host plants for some butterflies (Xerces Society, 2013).
3. **Seeding Rate:** Due to a commercial shortage of locally native plants, the University of Maryland Extension recommends starting with a small area, planting native flower and grass plugs, and harvesting the seeds to expand your meadow (Tangren, 2019). If starting your meadow from commercially bought seeds, work with your seed vendor to establish the appropriate rate for your planting (Xerces Society, 2013).
4. **Seed Sourcing:** If possible, purchase seed mixes from local growers who provide seeds that were harvested or produced in or near Maryland (Xerces Society, 2013).



Reforestation with wildflowers as groundcover. Photo by Jon-Michael Moore, EPS.

Gardens

The following recommendations will help you design your pollinator garden. Appendix A provides a list of plant species, their habitat requirements, and the pollinators they attract.

- Plant native wildflowers that bloom from early spring to fall, providing pollinators with nectar and pollen throughout the growing season. Native plants tend to require less maintenance.



Pollinator garden. Photo by USDA.

- Plant mostly perennials since they require less maintenance and will come back each year.
- Consider adding a few non-native herbs and annuals that are good for pollinators and are not invasive, including oregano, garlic, chives, parsley, sunflowers, zinnias, and cosmos.



Butterfly weed (*Asclepias tuberosa*). Photo by Jon-Michael Moore, EPS.



Eastern swallowtail on Joe Pye Weed (*Eupatorium dubium*). Photo by Dennis Krusac, USDA.

- Avoid modern hybrid flowers that are showy but often are lacking in pollen, nectar, and fragrance. To avoid hybrid flowers it is best to buy plants labeled as heirlooms.
- Plant groups of the same species to increase pollination efficiency.
- Include a range of flower colors, fragrances, heights, and shapes to attract different pollinator species.
- Include host plants for caterpillars (butterfly and moth larvae). Many butterfly larvae only feed on one or more specific plants (USFWS, 2011; USFS, 2019; Pollinator Partnership and NAPPC, n.d.). Dill, fennel, parley, and rue are all host plants for swallowtail butterflies.



Caterpillar of the monarch butterfly on its host plant. Photo by Carrie Oberholtzer, EPS.



Bald-faced hornet (*Dolichovespula maculata*) nest in a reforestation. Photo by Jon-Michael Moore, EPS.

- Consider adding trees to your garden. Many pollinators depend on forests to provide foraging sites and habitat. Native trees provide the preferred food for over 500 species of caterpillars of moths and butterflies (NWF, 2019). Pollinators, including wild populations of honeybees and wasps, utilize tree branches and hollow trees for nesting. In fact, some trees, like hackberry, provide early spring flowers for bees (OSU Extension, 2015).

Preferred Flower Characteristics by Pollinator Type

Bats

- Dull white, green, or purple
- Strong musty odor emitted at night
- Abundant; somewhat hidden nectar
- Ample pollen
- Regular or bowl shaped flower that is open at night
- Example: Evening primrose (*Oenothera biennis*)



Bat on pokeweed (*Phytolacca Americana*). Photo by MD DNR.

Bees



A bumble bee gathering pollen from a flower. Photo by Jay Watson, WI DNR.

- Bright white, yellow, blue, or UV
- Nectar guides present
- Fresh, mild, pleasant odor
- Nectar is usually present
- Limited; often sticky and scented pollen
- Shallow, tubular, flowers with landing platforms
- Examples: white turtlehead (*Chelone glabra*), bee-balm (*Monarda* spp.) and purple coneflower (*Echinacea purpurea*)

Information on the page was provided by the Pollinator Partnership and NAPPC.

Beetles

- Dull white or green
- Strongly fruity, fetid, or no odor
- Nectar is sometimes present
- Ample pollen
- Large bowl-like magnolia shaped flowers
- Examples: cranesbills (*Geranium* spp.) and American paw paw (*Asimina triloba*)



Ladybug (*Coccinella* spp.). Photo by Sarah Witcher, EPS.

Birds

- Scarlet, orange, red, or white
- No odor
- Ample, deeply hidden nectar
- Modest amount of pollen
- Large funnel like or cup-shaped flower with strong perch support
- Examples: wild columbine (*Aquilegia Canadensis*), cardinal flower (*Lobelia* spp.) and bee-balm (*Monarda* spp.)



Ruby-throated hummingbird dipping nectar from scarlet beebalm (*Monarda didyma*). Photo by Joseph M. Schneid.

Butterflies

- Bright red and purple
- Nectar guides present
- Faint but fresh odor
- Ample, deeply hidden nectar
- Limited amount of pollen
- Narrow tubes with spur and wide landing pads
- Examples: milkweed (*Asclepias* spp.) and Joe-pye weed (*Eupatorium purpureum*)



Black swallowtail (*Papilio polyxenes*) feeding on zinnas. Photo by Brian Lindley, EPS.



Tachinid fly on catnip. Photo by Beatriz Moisset, USFS.

Flies

- Pale and dull to dark brown or purple; flecked with translucent patches
- Putrid odor
- No nectar
- Modest amount of pollen
- Shallow, funnel-like, or complex and trap-like flowers
- Examples: skunk cabbage (*Symplocarpus foetidus*), goldenrod (*Solidago* spp.) and Queen Anne's lace (*Daucus carota*)



Moth. Photo by Sarah Witcher, EPS.

Moths

- Pale and dull red, purple, pink, or white
- Strong sweet odor emitted at night
- Ample deeply hidden nectar
- Limited amounts of pollen
- Regular shaped or tubular without a lip
- Examples: Phlox (*Phlox* spp.) and wild columbine (*Aquilegia Canadensis*)

Nesting and Resting Sites

Consider providing both nesting and resting opportunities in your pollinator garden or meadow. These sites should provide protection from severe weather and predators. For nesting and egg-laying opportunities, consider planting trees, shrubs, tall grasses, and low-growing plants (Pollinator Partnership and NAPPC, n.d.).

For ground nesting insects, leave small patches of uncovered soil and avoid using weed cloth or heavy mulch throughout your garden. Dead trees and branches in

your pollinator habitat will also provide nesting sites. Providing bee boxes or insect houses can help attract pollinators to your garden and provide shelter and nesting sites (Pollinator Partnership and NAPPC, n.d.).



Orangestriped oakworm (*Anisota senatoria*) feeding on an oak leaf. Photo by Jon-Michael Moore, EPS.

Maintenance

Maintenance is the critical yet often-neglected step in ensuring the long-term survival of a planting project. To ensure the success of your pollinator habitat, consider the type of maintenance and equipment required. Maintenance requirements will depend on the size and type of pollinator habitat you plant. Meadows will require less overall maintenance than gardens after they are established. Meadow establishment takes 3 to 5 years.

Avoid using insecticides in your pollinator habitat, as most insecticides and some fungicides can kill bees or impact bee reproduction. If you need to use pesticides, take the following steps to reduce negative impacts on pollinators: utilize integrated pest management (IPM) practices, select pesticides that are least toxic to pollinators, especially bees; read and follow the label carefully; and apply when the majority of pollinators are not present.

Do not use neonicotinoids, as they have been found in pollen and nectar (Xerces Society, 2019).

Meadows

Three to five years are required to successfully establish a meadow. Depending on the site condition, one full year may be used to prepare the site for planting. It is important to kill any turf grass or weed seed banks in the soil. Proper site preparation will reduce the amount of long-term maintenance required to maintain your meadow.

To establish meadows and control annual weeds, meadows will need to be regularly mowed throughout the first year after planting. For smaller meadows, you can spot spray weeds with herbicide, making sure to protect desired plants from herbicide drift.

Irregular mowing will continue the second and third year after planting to address biannual weeds, trees, shrubs, and cool season grasses. Once the meadow is well established, only mow part of the meadow once in a single season. No area should be mowed more frequently than every two years, in order to ensure the protection of dormant insects and larvae. If the appropriate wildflower mix is selected for your site, there should be no need to water (Xerces Society, 2013).

Gardens

Pollinator gardens require long-term and continual care, including weed control, insect and disease control, and watering. Plants may need to be pruned or thinned, and dead plant material will need to be cut to the ground. Consider leaving dead plant and leaf material for overwintering insects. To reduce weeds, you may need to mulch each year. Make sure you have a reliable water source, as pollinator gardens may need to be watered during dry periods.

Threats from wildlife are a problem in pollinator gardens and include damage from deer, rabbits, and ground hogs. Consider fencing part of your garden, especially as plants become established.

Bee Lawns

If you would like to contribute to pollinator conservation on your property, but do not have the space for a garden or meadow, consider maintaining a “bee lawn” by embracing weeds and allowing clovers and dandelions to bloom in your grass.

If maintaining your lawn for bees, follow all state and local laws. Bee Lawns can be kept at three inches high. No lawn should be maintained higher than eight inches. You may consider installing a bee or insect house on your property, or providing bees and butterflies with water in a shallow container with sloping sides.



Flowering bee lawn. Photo by University of Minnesota.

How Baltimore County Protects Pollinator Habitat

Baltimore County is committed to protecting and providing quality pollinator habitat on public land as well as to minimizing threats to pollinators from pesticide use and mowing. The County’s approach to pollinator protection includes three main strategies: increase pollinator habitat, reduce threats to pollinators, and provide education and stewardship opportunities to Baltimore County residents. The following section outlines these strategies and the steps the County is currently taking for long-term pollinator conservation.

Increasing Pollinator Habitat

Reduce mowing on under utilized fields and maintain areas as meadows. Underutilized fields on County parkland are often maintained as meadows, providing pollinators with native plants for foraging and nesting. These fields are mowed once a year in early March and provide pollen and nectar to pollinators. Meadows can be found at local parks throughout the County.



Meadow at Oregon Ridge Park. Photo by Jim Curtis, Oregon Ridge Nature Council.

Install and maintain native plant gardens. Native plant gardens and pollinator gardens are also maintained at several parks within the County. These gardens are an important component of the nature programs offered by Baltimore County’s Department of Recreation and Parks and the Nature Center Councils. In addition, the County emphasizes planting perennial flowers around County buildings.

Create living shorelines and wetland habitat. To restore eroding shorelines, the County installs living shorelines that improve water quality, habitat, and ecological function. These projects provide native plants for pollinators, increasing nesting and foraging opportunities.

Plant native trees and plants. Native vegetation provides forage and habitat for bees and other pollinators. Native trees and plants are planted in all of the County’s reforestations, stream restoration and shoreline enhancement projects. For landscape projects on County-owned land, native trees are planted in all circumstances except for a limited number of urban-adapted species near buildings or in road rights-of-way.

Maintain young reforestations as meadows. Where possible, reforestations are mowed one to two times a year to maintain the understory as a meadow. Mowing is stopped once trees are well established and invasive plants are no longer a threat to tree health.

Minimizing Threats To Pollinators



Milkweed (*Asclepias syriaca*) in a Baltimore County reforestation.
Photo by EPS.

Control and manage invasive species. Invasive plants and insects have had a profoundly negative impact on our local ecosystems by reducing native plant diversity. When feasible, the County controls and manages invasive species in waterways, forests, meadows, reforestations, stream restoration projects, storm water retrofits, and shoreline protection and enhancement projects.

Manage deer populations on County-owned land.

Deer populations within Baltimore County are at unsustainable levels and threaten the overall health of our forest. The lack of native plants in the forest understory caused by deer browsing negatively impacts polli-

nators by reducing the availability of foraging sites (Sakata and Yamasaki, 2015). To control deer populations, the County has an integrated wildlife deer management contract with the United States Department of Agricultural (USDA). Under this contract, the USDA provides a survey of each



High deer browse at Oregon Ridge Park, Photo by EPS

park's deer population, makes management recommendations based on the survey, and manages the deer population.



Rare native orchid at Oregon Ridge Park.
Photo by Jim Curtis, Oregon Ridge Nature Council.

Minimize impacts from pesticides. All pesticides (herbicides, insecticides, etc.) are applied by or under the direction of a certified Pest Control Applicator. All labels and guidelines for pesticides are followed to minimize any impacts to non-target species. In addition, the County specifically avoids applying pesticides labeled as toxic to bees, especially neonicotinoids, in reforestation or tree plantings.

Pollinator Education

In cooperation with the Baltimore County Department of Recreation and Parks, the volunteer Nature Councils establish and operate educational programs at each of the County's Nature and Environmental Centers throughout the County. Many of these programs focus on pollinator education, including educational speakers that specialize in native plants, monarch butterflies, and other pollinators. In addition to speakers, many of the County's Nature Centers have beehive boxes, native pollinator gardens, and meadows. The Oregon Ridge Nature Center also hosts the Honey Harvest Festival.

For more information on the programs offered at the County's Nature and Environmental Centers, visit: <https://www.baltimorecountymd.gov/Agencies/recreation/.programdivision/naturearea/index.html>.

In addition, Baltimore County supports the University of Maryland Extension Baltimore County office whose educators and volunteers provide educational programs based on the science-based research findings of the University of Maryland and other land-grant universities, including the Master Gardener program and pollinator-related outreach efforts with youth and adults.

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Appendix A. Plant Lists for Pollinator Gardens and Meadows

Use the following lists to select Maryland native plants for your pollinator meadow or garden. The majority of the listed plants are well-suited for small-scale gardens and attract a range of pollinators. To locate native, non-hybrid plants for your planting visit local native plant sales. The Maryland Native Plant Society provides a list of nurseries and other plant vendors that sell plants native to Maryland at: <https://mdflora.org/plant-sales>.

Perennial Flowers (Continued)							
Botanical Name	Common Name	Color	Height	Flower Season	Sun	Soil	Visitation by Pollinators
<i>Actaea racemosa</i> *	black cohosh, fairy candles	white	3-6'	Jun-Sep	part shade to shade	moist, acid, rich loam	bees, butterflies
<i>Aquilegia canadensis</i> *	wild columbine	red & yellow	12-15"	May-Jun	part shade, shade	sandy, well drained	butterflies, bees, moths, hummingbirds
<i>Asclepias incarnata</i> *	swamp milkweed	pink to reddish	4-5'	Jun-Oct	sun to part shade	moist	flies, butterflies, hummingbirds
<i>Asclepias syriaca</i> *	common milkweed	pale purple	2-3'	May-Aug	full sun	moist	flies, butterflies, bees
<i>Asclepias tuberosa</i> *	milkweed, butterfly weed	yellow to orange	1-3'	May-Aug	sun to part shade	dry to moist	bees, butterflies, flies, hummingbirds
<i>Baptisia australis</i> *	false blue indigo	blue-purple	3-6'	May-Jun	sun to part shade	dry to moist	bees
<i>Baptisia tinctoria</i>	wild indigo	yellow	3"	Jul-Sep	full sun	dry to moist	bees, butterflies, moths

Perennial Flowers (Continued)							
Botanical Name	Common Name	Color	Height	Flower Season	Sun	Soil	Visitation by Pollinators
<i>Boltonia asteroides</i>	white doll's daisy	white	3-6'	Jul-Sep	full sun	dry to moist	butterflies
<i>Chelone glabra*</i>	white turtle-head	white	3-10'	Jul-Oct	sun to part shade	light, rich, wet to moist	bees
<i>Claytonia virginica</i>	spring beauty	pink-white	0.5"	Mar-May	shade	moist	bees, flies
<i>Coreopsis lanceolata</i>	Lanceleaf Coreopsis	yellow	2'	Apr-July	full sun	well drained	bees, flies
<i>Dicentra eximia</i>	wild bleeding heart	pink	1.5'	Apr-Sep	shade	moist	humming-birds, bees
<i>Echinacea purpurea</i>	purple cone-flower	rose-purple	2-4'	Jun-Aug	full sun to part shade	med wet, well drained	bees, butterflies
<i>Eupatorium</i> spp.	Joe-Pye weed, boneset, thoroughwort	pink, purple, white	1-10'	Jul-Oct	sun to part shade	average medium wet to wet	butterflies, bees
<i>Gentiana andrewsii</i>	bottle gentian	blue-purple	2'	Aug-Oct	full to part shade	medium	bumble bees
<i>Geranium maculatum</i>	wild geranium	lav	1-2'	Apr-Jul	part shade	med wet, well drained	flies, bees, beetles
<i>Helenium autumnale*</i>	sneezeweed	yellow	2'	Aug-Oct	full to part shade	wet, med wet	bees, butterflies, moths, beetles
<i>Helianthus</i> spp.*	sunflower	yellow	1-6'	Jul-Oct	full sun to part shade	dry to med wet, well drained	bees, beetles
<i>Liatris</i> spp.	blazing star	rose-purple	1-6'	Jul-Oct	full sun to part shade	med wet, well drained	bees, butterflies, humming-birds
<i>Lilium</i> spp.	native lilies	yellow, red, orange	3-6'	Jun-Aug	sun	moist to wet	humming-bird
<i>Lobelia</i> spp.	cardinal flower	red or blue violet	1-5'	Jul-Oct	full sun to part shade	moist	butterflies, bees, humming-birds

Perennial Flowers (Continued)							
Botanical Name	Common Name	Color	Height	Flower Season	Sun	Soil	Visitation by Pollinators
<i>Lupinus perennis</i> *	lupine, sundial lupine	blue-purple	1-3'	Apr-Jul	sun to part shade	dry sandy	bees, beetles
<i>Monarda didyma</i> *	bee-balm	red	1-3'	Jul-Oct	sun to part shade	acidic, rich moist	butterflies, bees, hummingbirds
<i>Penstemon digitalis</i>	Beard-tongue	white	2'	Jun-Jul	sun to part shade	well drained	bees, butterflies, moths
<i>Pycnanthemum</i> spp.	mountain mint	white	3'	Jul-Sep	full sun to part shade	well drained	butterflies, bees
<i>Phlox</i> spp.*	phlox, wild sweet William	rose, pink, purple, blue, violet, white	1/2-6'	Apr-Oct	sun to part shade	med wet, well drained	butterflies, moths
<i>Podophyllum peltatum</i>	May-apple	white	1'	Apr-May	part shade to shade	moist	bees
<i>Rudbeckia</i> spp.*	black-eyed Susan	yellow	1-10'	Jul-Oct	full sun to part shade	dry to med wet, well drained	Primarily a host plant
<i>Salvia</i> spp.	sage	violet	1-2'	Apr-Jun	full sun to part shade	moist, well drained	bees, butterflies, hummingbirds
<i>Solidago</i> spp.	goldenrod	yellow	1-6'	Jun-Oct	full sun to part shade	dry to med wet, well drained	migrating butterflies, bees, beetles, flies
<i>Spigelia marilandica</i>	woodland pinkroot	red	1-3'	May-Jul	part shade	moist	hummingbird
<i>Symphotrichum</i> spp.*	aster	white, blue, violet	1-6'	Jul-Oct	full sun to part shade	med wet, well drained	butterflies - room to land and perch, bees, beetles

Perennial Flowers							
Botanical Name	Common Name	Color	Height	Flower Season	Sun	Soil	Visitation by Pollinators
<i>Verbesina alternifolia</i>	Wingstem	yellow	4-6'	Aug-Oct	full sun to part shade	med wet	bees
<i>Vernonia noveboracensis</i> *	New York ironweed	purple	6-7'	Jul-Sep	full to part shade	med wet	butterflies, bees
<i>Viola spp.</i> *	violets	white, yellow, blue, deep purple	3-8"	Apr-Jun	full sun to filtered shade		butterflies, bees

Asterisks (*) are used to identify plant species that are host species to insect larvae. Information provided by Pollinator Partnership and NAPPC, Xerces Society, and the University of Maryland Extension.

Grasses						
Botanical Name	Common Name	Height	Bloom Period	Sun	Soil	Notes
<i>Andropogon gerardii</i>	big bluestem	5'	Jun-Sep	full sun to part shade	wet, moist, dry	Clump-forming; attractive foliage
<i>Andropogon virginicus</i>	broomsedge	2-5'	Aug-Nov	full sun to part shade	dry	attracts butterflies and birds
<i>Carex stricta</i>	Tussock sedge	1-3'	May-Aug	full sun to part shade	wet, moist	easy to grow
<i>Chasmanthium latifolium</i>	sea oats	2-3'	Jul-Sep	part shade	moist	host plant
<i>Juncus effusus</i>	soft rush	2-3'	Jun-Sep	full sun	wet to moist	bird cover in aquatic areas
<i>Panicum virgatum</i>	switchgrass	3-6'	Jul-Oct	full sun	wet to moist	provides food for songbirds
<i>Schizachyrium scoparium</i>	little bluestem	4'	Aug-Oct	full sun to part shade	dry	clump forming
<i>Sorghastrum nutans</i>	Indiangrass	5-7'	Aug-Sep	full sun to part shade	dry	provides food for birds

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Trees							
Botanical Name	Common Name	Height	Flower Season	Color	Sun	Soil	Pollinators
<i>Acer</i> spp.	maple	40-70'	Mar-Apr	red, orange, greenish, yellow	sun to part shade	moist, well drained	bees
<i>Aesculus pavia</i>	red buckeye	10-15'	Mar-May	red, yellow	part shade	moist, well drained	humming-bird
<i>Amelanchier</i> spp.	serviceberry	6-25'	Mar-Apr	white	sun to part shade	wet to dry	bees
<i>Arctostaphylos uva-ursi</i> *	bearberry	6-12"	Apr-May	white tinged with pink	full	Poor/acidic, well drained	bees
<i>Ceanothus americanus</i>	New Jersey tea	3-4'	varies May-Sep	white	sun to part shade	dry well drained	bees
<i>Crataegus crus-galli</i>	Cockspur hawthorn	20'	May-Jun	white	full sun to part shade	moist, dry	bees
<i>Celtis occidentalis</i>	hackberry	40-60'	April	yellow	full sun to part shade	wet, moist	bees
<i>Cercis canadensis</i> *	eastern redbud	20-30'	Apr-May	pink-lav	sun to part shade	moist, well drained	bees
<i>Liriodendron tulipifera</i>	tulip poplar	70-120'	Apr-Jun	yellow	full sun to part shade	moist	bees, humming-birds
<i>Nyssa sylvatica</i>	black gum	30-60'	Apr-Jun	red	full sun to part shade	wet, moist, dry	bees
<i>Oxydendrum arboreum</i>	sourwood	25-30'	Jun-Jul	white	sun to part shade	moist, acidic well drained	bees
<i>Prunus serotina</i>	black cherry	40-60'	spring	yellow/red	full sun	moist	bees, butterflies

Trees							
Botanical Name	Common Name	Height	Flower Season	Color	Sun	Soil	Pollinators
<i>Quercus spp.*</i>	oaks	40-100'	spring	red, brown, yellow	full sun to part shade	well drained	winter shelter, larvae host
<i>Rhus copal- linum*</i>	dwarf sumac	3-6'	Jul-Sep	yellow green	sun to part shade	dry to med wet, average	butterflies, bees
<i>Rosa spp.</i>	rose (wild types)	1-8'	May-Aug	pale pink	sun to part shade	med wet to wet, well drained	bees
<i>Rubus spp.</i>	blackberry, raspberry	3-9'	Jun-Sep	white or rose purple	sun to part shade	moist	butterflies, bees
<i>Salix nigra, S. sericea*</i>	black willow, silky willow	12-50'	Mar-Jul	yellow green	sun to part shade	moist	flies, bees
<i>Sambucus spp.</i>	elderberry	5-12'	May-Jun	creamy white	sun to part shade	wet	flies, bees, beetles
<i>Sassafras albidum*</i>	sassafras	35-50'	April	yellow green	sun to part shade	light, acidic, sandy	flies, bees
<i>Tilia ameri- can</i>	basswood	75-130'	Apr-May	yellow white	shade	moist, well drained	bees, flies, moths
<i>Vaccinium spp.*</i>	blueberry	6"-12'	Apr-Jul	white to pink	sun to part shade	acid, moist, rich, well drained	bees

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Notes



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Baltimore County Executive Johnny Olszewski
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