



NATIVE PLANTS, NATURAL LANDSCAPES

SOUTHEASTERN PENNSYLVANIA CHAPTER

# April 2023 Newsletter

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## April Meeting Highlights

### Program -- Pollination: What's the Story?

Presented by Mike Slater

#### Part 1 - Pollination Ecology

Pollination is one of the major interactions between plants and animals. The relationship between plants and the animals that visit the flowers to get nectar and pollen is a complicated one. Pollination is not so much a cooperative interaction between plants and animals as it is plants and animals using each other for their own purposes.

Like most ecological relationships, the two parties each have their own goals. Plants want their pollen moved from one flower to another, resulting in fertilization and genetic diversity. Animals want nectar and/or pollen to feed adults and young. The tension between these two goals has driven a wide array of adaptations in flowers and in animal anatomy and behavior.

Plants started out relying on wind to carry their pollen. However, wind pollination is inefficient, so some plants evolved to encourage animals to visit their flowers to move pollen. These plants attract pollinators by providing a reward -- pollen, nectar, or both -- but not too much reward, because producing extra pollen or nectar requires the plant to use more of its resources. Animals rely on the pollen and nectar as a source of food for adults and young.

Plants also evolved strategies to attract pollinators and increase the efficiency of pollen transfer. These include attractive displays of color, scent, or pattern, exclusionary devices such as closed flowers, and pollen placement that requires animals to brush by the pollen to get their reward.

The flowers of blue-eyed grass and bluet have a bright yellow center to show insects where food can be found. *Iris versicolor* has a landing platform to enable insects to crawl into the flower to get pollen. Parsley has flat-topped flowers that provide a wide, open landing field for pollinators. Ball-shaped flowers, such as those of rattlesnake master and buttonbush, provide a lot of access, allowing insects to approach from any direction.

Flowers with narrow entryways, such as phlox, force insects to brush past their pollen-containing anthers. Insects that visit more than one flower will inadvertently transfer pollen to the next flower.

Flowers that bloom very early or very late will attract more pollinators because food is scarcer at those times. The white petals of bloodroot, an early spring bloomer, reflect sunlight, creating a miniature solar-heated area to help pollinators stay warm while flying on chilly spring days.

Some flowers are configured to deposit pollen on a particular part of an insect, which can keep pollen from other species from getting mixed up. Yellow passion flower is shaped so its pollen falls on a visitor's back.

Some flowers limit access with flowers that are closed (e.g. gentian) or have limited access (e.g., snapdragons). Only insects that know how to pry open the flower can get inside to access the nectar.

Not all insects that visit flowers are good pollinators. Butterflies visiting flowers in the aster family don't do much pollinating because their bodies don't touch the pollen when they feed. Bees have furry bodies that are well adapted to carry pollen from numerous flowers before they have to return to the nest to deliver it. Wasps cannot reach the nectar of longer flowers; they require flowers with shallow nectaries. The [blue-winged wasp](#) feeds on

shallow flowers like mountain mint and goldenrod. Females burrow into the soil to lay their eggs on the larvae of Japanese beetles.

Many plants attract a variety of insects, which requires them to produce a lot of nectar or pollen because so many insects visit. When flowers are bred for a different form, such as double flowers, the pollen-containing areas may be so small that insects can no longer access them, resulting in a plant that doesn't feed insects. Cultivars with flowers of a different color may not succeed in attracting their pollinators, e.g. orange coneflowers or the purple form of great blue lobelia.

When planting for pollinators, it's important to plant a large enough area to make the effort worthwhile for insects. Bees prefer making short trips to find nectar, visiting numerous flowers in one trip before returning to the nest.

## **Part 2 - Special Plant-Insect Relationships**

Attracting pollinators can cause disadvantages for some plants. The pinker the flowers of spring beauty (*Claytonia virginica*), the more likely they are to be pollinated, but pinker flowers are also more likely to be eaten by deer. If the deer population is high, *Claytonia* is more likely to produce whiter flowers.

Spring ephemerals are very important to bumblebees. The bumblebees flying in spring are mated queens searching for nest sites. They need nectar to survive, and pollen to feed their young after hatching. Deer browsing on spring ephemerals can negatively impact these bumblebee populations.

Insects want to gather pollen and nectar as efficiently as possible, so a larger clump of plants is necessary for attracting pollinators. However, plants don't need to have big flowers to produce a lot of pollen. Plants with an abundance of small flowers can accomplish the same purpose. Some examples of plants with many small flowers are Maryland figwort, white verbena, and blue vervain. Only a few plants, like pasture thistle, have flowers that are large enough to justify an insect stopping to feed on a single plant.

Some plants have evolved mechanisms to protect their pollen from being stolen by insects that won't accomplish pollination. Flowers of the pea family appear attractive to pollinators, but their pollen is hidden and inaccessible until the weight of a bum-

blebee causes that part of the flower to open. The stamens of mountain laurel are spring-loaded to hit the body of a bumblebee with a load of pollen when it visits the flower. Other insects don't like being hit with flower parts, so bumblebees are the main visitors to mountain laurel, which prevents its pollen from being stolen by non-pollinating insects.

Milkweed has evolved a complicated flower anatomy that catches an insect's foot in a slot in the flower. The insect pulls out a pollen-covered foot and then transfers that pollen to the next flower when its foot gets caught again.

Most orchids provide no reward for pollinators, which must crawl into the flower to pollinate it. In compensation, orchids are very long-lived and don't need to produce seed every year.

Some plants are pollinated when a bumblebee lands on a flower and vibrates it to release pollen, which falls onto the bee's sticky body. Partridge pea, cranberry, spotted wintergreen, and most native roses are buzz-pollinated.

Penstemon flowers have tiny hairs on the outsides which prevent small insects like ants from crawling in to steal pollen. In addition, *P. hirsutus* has closed flowers that require pollinators to force their way in to get nectar, excluding smaller insects.

Many flowers have long tubular flowers with no perch for insects, requiring pollination by hummingbirds -- for example, wild columbine, fire pink, cardinal lobelia, and trumpet honeysuckle. Some bumblebees have learned to bite a hole at the base of the nectary of these flowers, and some butterflies have learned to look for this hole and use it as well. To combat this theft, trumpet creeper has evolved thicker-walled flowers, but this requires more resources.

Planting for pollinators requires considering their needs -- straight-species natives, large clumps of visible flowers, a diversity of flower shapes and bloom times, and plants that have not been treated with pesticides, in particular neonicotinoids. Many good reference books are listed at the end of the recording of this meeting.

### **Resources**

[From Nursery to Nature: Are Native Cultivars as Valuable to Pollinators?](#)

[Pollinator Conservation Resources](#)



## Thought of the Month -- Identifying Native Plants As They Emerge

Whether you're new to native plants or experienced, it's important to be able to identify them as they emerge, so you don't pull them as weeds by mistake. Here we'll focus on some early-emerging natives. GrowItBuildIt has an online [database](#) with photographs of many natives in emergent and seedling form. Here are photos of some common spring natives as they emerge through their protective winter leaf cover.



Above: The leaves of wild ginger, *Asarum canadensis*, emerge folded in half (right) before unfurling to their mature heart shape (left).



Left: A clump of bloodroot emerging with a furled leaf clasping the stem of each white flower bud.



Right: Ostrich fern with tightly curled fronds at the base, unfurling its classic fiddlehead.

Right: Leaves of mayapple, *Podophyllum peltatum*, emerge as a single thick stalk before unfurling into a swirly, many-spoked umbrella.



Left: The leaves of Virginia bluebell, *Mertensia virginica*, emerge with a deep purplish cast before turning green as they expand. Flower stalks appear shortly afterwards.



Above: One native and one nonnative invasive, similar in appearance and often found growing in the same habitat. Left: nonnative, highly invasive lesser celandine, *Ranunculus ficaria*. Right: native common blue violet, *Viola sororia*. Note the finely serrated edges and non-glossy leaves of the violet. Lesser celandine has shiny leaves with edges that are wavy, but not serrated.

To identify an unknown plant, observe the conditions where it's growing -- is the habitat wet, dry, shady, sunny, rocky, sandy, etc. Observe particular characteristics of the leaves, stems, and flowers -- color, shape, and relationship.

Use an online native plant forum or an app like Seek (iNaturalist) or PictureThis to help with identification.

### WO-SEPA 2023 Program & Event Schedule

**May 7** Native Plant Swap/Invasives Trade-In

**May 11** Native Edibles & Companion Planting

**June 7** Backyard Nature Preserve Tour

**September 14** No More Fall Cleanup

**October 11** Native Seed Collection Techniques

**November 16** Chapter Native Seed Swap

Recordings of past meetings are on our [Youtube channel](#).



## Tree of the Month -- Spicebush

Spicebush (*Lindera benzoin*) is native to the eastern half of the United States. It's one of the first native plants to bloom in spring, brightening up the landscape with its clusters of small yellow flowers. It's an excellent substitute for the nonnative forsythia that blooms around the same time. Both male and female plants flower, but only females will produce the deep red, shiny berries, or drupes, in late summer, persisting into fall. Fall leaf color is golden yellow.



Photo credit: Mt Cuba Center



Spicebush berries were used by Native Americans and colonists to flavor foods. Their flavor is similar to commercial allspice, which is a tropical plant native to the West Indies and Central America. The newly emerged tiny green berries are peppery and citrusy. By August or September, berries are red and full-sized, becoming sweeter, with hints of cinnamon or clove. You can use them fresh, pickle or ferment them, or dry them for longer storage. Leaves, twigs and bark of the spicebush can be used to make tea. All parts of the plant are fragrant when bruised.

Spicebush is typically found growing in the wood-

land understory in clonal colonies, but it is adaptable to many growing conditions, from full sun to full shade and wet to dry soil. Optimal conditions are part sun in rich, moist soil. Spicebush is classified as a shrub but can grow as tall as a small tree.

Spicebush flowers are a good early source of food for pollinators. Spicebush hosts nine species of native caterpillars, including the spicebush swallowtail and the eastern tiger swallowtail. The small red berries attract over 20 species of song and game birds, including migrating thrushes. Small mammals also eat the fruit.



Spicebush swallowtail caterpillars typically fold leaf margins over to form a silk-lined shelter in which they retreat when not feeding. Their leaf-folding and feeding are usually minor enough to escape notice. Photo credit: North Carolina Cooperative Extension

### Quick Facts

**Height:** 6-12 feet

**Form:** Small single-stem shrub, can form clonal colonies

**Growth rate:** Slow

**Soil:** Wide range from wet to dry; best in understory

**Leaves:** Medium, oval, turning yellow in fall

**Flowers:** Small yellow; March-April

**Fruit:** Small red berries on female plants in fall

**Habitat value:** Early source of food for pollinators. Caterpillar host plant. Berries eaten by songbirds and small mammals.

## Overwintering Habitat -- Save the Stems, Leave the Leaves

Warmer weather has us eager to get outside and poke through our garden beds to see what's starting to come up. We're tempted to pull handfuls of leaves off the beds to welcome our newly emerging plants. Careful, though - those leaves and plant stalks are the winter homes of many beneficial insects. Disturbing their habitat too early could harm their chance of surviving to emerge and do the work of pollinating, spreading seed, and providing food for birds and other predators.

### Leave the Leaves

In the fall, we're reminded to let fallen leaves cover our native plantings rather than rake them away. Fallen leaves shelter overwintering insects from weather and predators. In cold weather, most butterflies and moths use fallen leaves for winter protection of eggs (red-banded hairstreak), chrysalides (luna moth), caterpillars (wooly bear), or adults. This protection is important in spring as well, until the insects emerge.

In late summer, queen bumblebees hibernate by burrowing an inch or two below ground. A layer of insulating leaves provides additional protection from severe weather.

The silvery checkerspot butterfly overwinters at the base of its host plants: black-eyed Susan, coneflowers, and sunflowers. When we root around at the base of our native plants in the spring, we risk disturbing the caterpillars and chrysalises that overwinter there.

### Save the Stems

Various species of bees, including carpenter bees, overwinter in the pith of plant stems that are left standing over winter. Other common occupants of spent stems and twigs include cavity-nesting wasps and stem-boring moths. Some beneficial insects insert their eggs into stems and grasses to overwinter.

Plants with pith-filled or hollow centers, such as goldenrod, raspberry, *Monarda*, and cup plant, provide ideal nesting habitat for bees as small as yellow-faced bees and as large as carpenter bees.

In the early spring, as the bees emerge and seek suitable stems for nesting, gardeners can cut stems

back to a height of 12 to 18 inches, which opens the stem for easier entry. The cutoffs can be left lying on the ground to provide additional habitat.



Photo credit: The Xerces Society

Female bees will find a cut or naturally occurring open stem, start a nest, then lay an egg on the pollen balls. Larvae eat the pollen before emerging.

For this reason, cut stems should be left standing or lying on the ground for as long as possible. As native plants start their spring growth, the spent stems will be hidden by the emerging leaves and flower stalks.

Other native bees overwinter in the ground and emerge as the weather warms in spring. Resist the temptation to cover bare patches in the garden with mulch, which can inhibit the emergence of these pollinators by preventing the ground from warming up and inhibiting the insects' escape through the thick covering.

Here are some signs that most overwintering insects have completed their emergence:

- Tomatoes can be transplanted to the garden with no protection from cold temperatures
- Apple and pear trees have finished blooming
- Turf grass is high enough for regular mowing

Restoring native habitat means mimicking what nature does. Do we really need to "clean up" the garden, or should we just make sure we're providing the best habitat possible for the native plants, insects, birds, and other creatures we're striving to protect?

### Resources

[For Pollinators' Sakes, Don't Spring into Garden Cleanup Too Soon](#)

[Leave the Leaves!](#)

[Insects in Winter](#)



## Spotlight on Plants with “Weed” in the Name -- Milkweed

Native milkweeds are the required host plant for caterpillars of the monarch butterfly and play a critical role in the monarch’s life cycle. The loss of milkweed plant populations across the United States is believed to be a significant factor in the butterfly’s decline in numbers.

Milkweed probably got its “weed” designation because some species are willing spreaders in the right locations. Certain species of milkweed were commonly found along fencerows, field edges, and roadsides, and in pastures and prairies. The intensification of agriculture has resulted in the destruction of fencerows and the clearing of field edges using herbicides. Municipalities now regularly mow or spray roadsides with herbicides so they will look less “weedy.” The result has been the large-scale destruction of the only plant species that sustains the monarch’s life cycle.

Milkweeds contain various levels of chemical compounds that make the plants toxic to most insects and animals. Monarchs and a few other insects have adapted to store these substances in their tissues, making the caterpillars and adults toxic to predators. Because milkweed plants are the only source of food for monarch caterpillars, the butterflies depend on finding enough milkweed plants in their breeding locations and also along their migration routes.

In our area of the country, the main monarch host plant is *Asclepias syriaca*, common milkweed. Other species used by monarchs in our area, in order of their abundance and preference, are *A. incarnata* (swamp milkweed), *A. tuberosa* (butterfly weed), *A. verticillata* (whorled milkweed), and *A. exaltata* (poke milkweed). Whether you have sun or shade, wet soil or dry, there’s probably a native milkweed adapted to your site conditions.

### Resources

[Milkweed Profiles](#)

[Milkweeds: A Conservation Practitioner’s Guide](#)

[Tropical Milkweed -- A No-Grow](#)

[Milkweed FAQs](#)

[Milkweed for Monarchs](#)

Common milkweed  
*A. syriaca* (to 4’ tall with large, thick leaves and pale pink flowers) may be the easiest to grow, thriving in just about any soil in full sun and spreading vigorously by rhizomes.



### Swamp milkweed

*A. incarnata* (3’ tall with slender leaves and deep pink flowers) does not spread as aggressively as common milkweed and requires moist to wet soil in full sun.



### Butterfly weed

*A. tuberosa* (just 2’ tall with small, slender leaves and orange flowers) requires well-drained soil in full sun. It does not spread by runners and often occurs singly rather than in clumps in natural meadows.





### Whorled milkweed

*A. verticillata* (to 2' tall with a single stem, needle-like foliage, and greenish-white flowers) prefers dry, sandy soil in full sun and emerges earlier than other milkweeds, providing food for early-migrating monarchs.



### Poke milkweed

*A. exaltata* (2' to 6' tall with broad leaves and drooping white flowers) thrives in dappled shade in woodland openings.



Notably absent from this list is tropical milkweed, *A. curassavica*. This member of the milkweed family is not native to the United States. Because it is attractive and easy to propagate, it has become popular as an ornamental plant. However, it poses problems for monarchs in our region for two reasons.

First, if tropical milkweed is allowed to overwinter, it can become a breeding ground for a parasite that infects monarchs. These parasites can't survive on native milkweeds that die back in winter. Second, tropical milkweed continues to bloom later in the season than native milkweeds, which could confuse monarchs into continuing to breed when they should be migrating.

You might notice monarch caterpillars feeding alongside other insects on your milkweed, such as tussock moth caterpillars, milkweed beetle larvae, or milkweed bugs. Each insect's feeding patterns on milkweed leaves are different. Careful observation will allow you to identify the insects that are feeding on milkweed leaves even before you see them. Photos of different insects' feeding patterns on milkweed are [here](#).



Photo credit: [Monarchwatch.org](http://Monarchwatch.org)

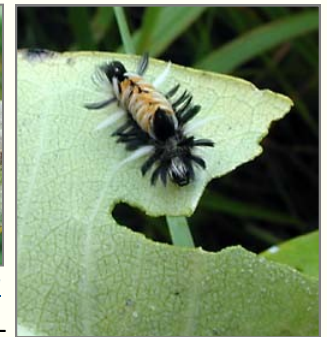
First, second, and third instar monarch larvae chew through the outside layers of leaves rather than chewing through them completely.

More mature caterpillars are heavier feeders and can quickly consume entire leaves. They may chew into the petiole of the leaf and feed on the underside.

Other milkweed feeders are the milkweed bug (below left), the milkweed tussock moth caterpillar (below right), and milkweed longhorn beetles.



Photo credits: [Monarchwatch.org](http://Monarchwatch.org)



If you see nonnative yellow-orange oleander aphids (below) on your milkweed plants, consider not spraying the plant with water—you might knock off a monarch egg or a young caterpillar. Instead, strive to create a layered, diverse garden that supports beneficial predators that will control the aphids naturally.



Photo credit: [Monarchwatch.org](http://Monarchwatch.org)

Common milkweed has been called nature's mega food market for insects. Over 450 insects are known to feed on some portion of the plant.

Numerous insects are attracted to the nectar-laden flowers. It's possible to see flies, beetles, ants, bees, wasps, and butterflies on the flowers at the same time.

You can grow milkweed from seed or buy mature plants. If you buy plants, make sure they have not been treated with neonicotinoid pesticides, which have been shown to have a detrimental effect on monarchs that feed on these plants.



## Native Plant Swap and Invasives Trade-In

**When:** Sunday, May 7, noon to 4:00 p.m.

**Where:** [John James Audubon Center at Mill Grove](#), 1201 Pawlings Rd, Audubon, PA 19403, at the Overlook (between the parking lot and the Visitors' Center)

**Native Plant Swap** Bring plugs or potted plants that are **native** to Pennsylvania, to exchange with other native plant enthusiasts. If you're not sure whether your plants are native, look them up ahead of time.

**Invasives Trade-In** Bring a photo (not the plant!) showing that you removed a nonnative invasive plant from your property in 2023 without using herbicides, and receive a native plant plug FREE! Find a list of nonnative invasive plants [here](#). A trash bag full of invasive forbs, grasses, aquatic plants, or vines = one invasive tree or shrub.

The Pennsylvania Department of Conservation & Natural Resources has [Fact Sheets](#) and information about the [impact of invasive plants](#) in Pennsylvania.



## Nursery Openings and Plant Sales

**Apr. 21** [Garden Shop at Jenkins](#), Jenkins Arboretum, 631 Berwyn Baptist Road, Devon PA 19333.

**Apr. 23** [Earth Day Native Plant Sale](#). Audubon Mill Grove, 1201 Pawlings Rodd, Audubon PA 19403.

**Apr. 24-May 5** [Perkiomen Watershed Conservancy Plant Sale](#), on-line pre-ordering.

**Apr. 30** [PennState Master Gardeners Plant Sale](#). Fairmount Park Horticultural Center, 100 N. Horticultural Drive, Philadelphia PA.

**May 6** [PennState Master Gardeners Plant Sale](#). Middletown Grange Fairgrounds, 576 Penns Park Rd, Newtown, PA.

**May 6** [PennState Master Gardeners Plant Sale](#). Montgomery County 4-H Center, 1015 Bridge Rd, Collegeville PA.

**May 6** [PennState Master Gardeners Plant Sale](#). Farm & Home Center, 1383 Arcadia Rd, Lancaster PA.

**May 6-7** [Plant Sale](#). Jenkins Arboretum, 631 Berwyn Baptist Road, Devon PA 19333.

## Educational Opportunities

**Apr. 18** [Supporting Lepidoptera with Native Plants](#). Morris Arboretum webinar, 7:00 p.m.

**Apr. 19** [Kill Your Lawn](#). New Directions in American Landscaping webinar, 2:00 p.m.

**Apr. 19** [Who's in Your Garden? The Life and Times of Insects](#). Native Plant Society of NJ webinar, 7:00 p.m.

**Apr. 20** [Native Orchid Conservation Efforts at Longwood Gardens](#). Jenkins Arboretum webinar, 7:00 p.m.

**Apr. 21** [At Home in a Wild Landscape](#). New Directions in American Landscaping webinar, 2:00 p.m.

**Apr. 23** [How To Develop a Native Garden Plan](#). Wild Ones Capital Region NY webinar, 1:30 p.m.

**Apr. 27** [What We Know About Herbicide Impacts on Pollinators](#). Xerces Society webinar, 1:00 p.m.

## Events

**Apr. 22** [Earth Day Phoenixville](#). Reservoir Park, 601 Franklin Ave, Phoenixville PA.

**Apr. 28-30** [Wildflower Weekend](#). Mr. Cuba Center, 3120 Barley Mill Rd, Hockessin DE.

**Apr. 28-May 1** [Philadelphia City Nature Challenge](#).

**Apr. 29** Native Garden Planting. Blue Marsh Lake Visitor Center, 1268 Palisades Drive, Leesport PA. For more info contact [beckey.seel@berksnature.org](mailto:beckey.seel@berksnature.org). Private tour of WOSEPA member's property, 1:00-3:00 p.m.

**Apr. 29** [Lancaster Native Plant & Wildlife Festival](#). Overlook Park, 595 Granite Run Drive, Lancaster PA.

**Apr. 29** [Ambler EAC Earthfest](#). Ambler Borough Hall, 131 Rosemary Ave, Ambler PA.

**May 6** [Central PA Native Plant Festival](#), Millbrook Marsh Nature Center, Puddintown Rd, State College PA.

**May 9** [Nature's Best Hope](#), Doug Tallamy. 7:00 p.m. First Presbyterian Church, 3231 W. Tilghman St. Allentown PA.