

February 2025 Newsletter

SOUTHEASTERN PENNSYLVANIA CHAPTER

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Meadow Installation Insights

Presented by Emma Schad, Habitat and Volunteer Manager at Riverbend Environmental Education Center, ISA-certified arborist, and Master's student in Geographic Information Science at Temple University

Photos of meadows installed in sweeping front yards or large fields are impressive and inviting. Whether it's a pocket meadow or several acres, meadows are habitat-rich environments for native plants, animals, and insects.

Meadows are open areas occurring naturally in areas where conditions won't allow the growth of trees or shrubs – for example, areas that are too wet or too dry, or where the soil is too thin to support trees and shrubs. Serpentine barrens are an example of natural meadow habitat in our area. Meadows aren't a historically common land cover on the east coast, due to our climate and soil conditions.

Meadows can appear after events like fire or wind storms create cleared areas that allow early succession plants to establish. These areas will grow up into forest unless they are actively managed.

If meadows require constant maintenance, why should we plant them? Meadow habitat is second only to forest in terms of species richness, and it's a big improvement over turfgrass lawn or abandoned pasture. Meadow habitat is at risk due to increased residential and agricultural development, and historical fire prevention programs.

Lessons from the Field

Meadows can be established in various settings, including backyards and public parks, under solar panels, and as edges between woods and fields. Meadow installations can become overrun by weeds or non-seeded plants. Here's what we can learn from these experiences:

- Site preparation is key and can take several years to complete
- Species choice is important
- Maintenance is necessary -- meadows can't be planted and then forgotten

Planning Pays Off

Before you start to work your site, decide if the type of meadow your property can support meets your aesthetic and functional needs. Do you want to manage stormwater? To reduce mowing? To create an attractive display?

Your site conditions -- chiefly, soil moisture -- will determine what kind of meadow you can grow. In general, higher soil moisture means taller plants.

Most meadow plants have adapted to grow in a relatively specific range of soil moisture conditions,

WO SEPA 2025 CALENDAR

Mar. 20 Spring Garden Solutions webinar
Apr. 16 TBA
May 3 Garden tour in Perkasie, Bucks County
June __ TBA
July __ Tour of Bondsville Mill Park
Sept. 18 Garden tour in Pottstown, Chester County
Oct. 16 National Wild Ones Webinar TBA
Nov. 20 Chapter elections; webinar TBA
Recordings of past meetings are available on our YouTube channel.

from wet to very dry. Most of southeastern Pennsylvania is too wet to support warm-season grasses. Big bluestem, Indian grass, and switchgrass are key components of dry mid-western prairies. These grasses can survive in areas with 10" or less of rainfall a year, with minimal water over the summer.



On a site with thin, dry soil and excellent drainage, you might be able to establish a successful meadow of warm-season grasses. However, a goldenrodaster community is much more common for a typical southeastern Pennsylvania meadow.

Site Preparation Is Key

First, observe the soil, light, and water conditions at your proposed site. If the site doesn't receive at least 6 hours of direct sunlight a day, meadow plants will not thrive.

Do a <u>mason jar soil test</u> to determine the amount of sand, loam, and clay in your soil. Many nurseries and websites recommend planting in "well-drained loamy soil," but native plants have evolved to thrive in local soils, which include dry soil, wet soil, thin rocky soil, and clay. Native plants have evolved to grow in all these soils.

The biggest threat to meadow establishment is compacted soil. The soil in abandoned agricultural fields and pastures usually is highly compacted due to years of heavy equipment use. Site preparation includes de-compaction using a tiller or hand cultivator on smaller site, and a tractor on larger sites.

Repeated soil de-compaction also accomplishes weed suppression by exposing and destroying weed seeds that sprout after each round of de-compaction. This process can take 1 to 3 years, but

it's necessary to remove persistent weeds like mugwort, Canada thistle, and stilt grass before you start replanting with natives. Other methods of weed control include burning, and smothering.

During the site preparation process, it might be necessary to sow cover crops to prevent erosion. Chose your cover crop species carefully; some are aggressive re-seeders and can be hard to get rid of when their job is done.

Plant Selection

Choose native plants that are appropriate to your site's sun and moisture conditions. Plants for wet meadows include cardinal flower, swamp milkweed, Joe Pye weed, blue vervain, rushes, and some sedges. Dry meadows can support rattlesnake master, little bluestem, blue wild indigo, blazing star, butter-fly milkweed, Indian grass, and *Rudbeckia*.

Since grasses are the foundation of most meadows, one method is to seed appropriate native grass species and fill in the flowers using plugs. Look for seeds and plants grown from local ecotypes. These plants have evolved to survive in local site conditions and will be the most resilient. You can identify your local ecoregion <u>here</u>.

Maintenance

Meadow maintenance in the first year consists of vigilant weed control. It's better to cut weeds below the soil surface with pruners or a knife than to pull them out, because pulling can disturb emerging natives and expose more weed seeds.

In the second year, many flowers that were seeded will start to appear. Flowers are relatively quick to appear in a meadow but are difficult to maintain over the long term. They can be replanted as plugs to maintain color over the years.

Common invasive plants that will appear and must be controlled consistently include bush and Japanese honeysuckle, autumn and Russian olive, wineberry, and multiflora rose.

Thatch buildup due to decomposing plant material can be controlled by alternating an annual burn or mowing of the meadow, either in early spring (before April 1) or early December. Divide your meadow into two or three sections and burn or mow one section each year. This schedule will allow forbs to reseed and keep invasives at bay.

Keystone Tree of the Month

A few genera (family groups) of native trees and shrubs have been shown to support a very high number of species of native insects by providing food and habitat. These keystone species form the backbone of a local ecosystem and are critical to maintaining the diversity and stability of that ecosystem.

Keystone plants are not always the most abundant species in the ecosystem, but their existence has a big impact on the local food web. One <u>study</u> found that 90 percent of all caterpillar diversity is centered around just 14 percent of plant species.

Trees are major components of the list of keystone plants, in part simply because a tree has more leaves and flowers than herbaceous plants or grasses occupying the same ground. Another contribution is the amount of pollen and new leaves a tree provides early in the season, when native insects are emerging.

One native oak tree can support the caterpillars over 500 species of butterflies and moths. Those caterpillars are a critical food source for over 96 percent of our native songbirds. For example, a pair of Carolina chickadees needs 6,000 to 9,000 caterpillars to successfully raise just one brood of young.

By planting just one keystone tree, you can help restore native biodiversity.

Resources

National Wildlife Federation Native Plant Finder

Keystone Trees & Shrubs

The Little Things That Run the World, E.O. Wilson

River Birch, Betula nigra

As its name suggests, river birch is native to swamps and streambanks, but it is perfectly happy growing in average soil, although an understory of plants is beneficial in keeping the root zone from drying out. It tolerates clay soil but not flooding, and can survive dry summers once it is established.

River birch is a fast-growing tree (up to 2 feet per year) with either a single trunk or multiple trunks. The crown of a mature tree is vase-shaped (single

trunk) to rounded (multiple trunks, right). The unique salmon-pink to reddishbrown bark of mature trees peels away to reveal lighter inner bark.

River birch's small, triangular, serrated leaves turn a buttery yellow in fall.

Catkins hang from the tips of branches



and release large quantities of pollen in the spring. The seeds mature in late spring, not fall, and are eaten by many songbirds.

River birch is one of the few birches that can withstand extreme heat, making it suitable for the climate of southeastern Pennsylvania. It is also more resistant to the bronze birch borer than other birch species.

Birches have exceptional wildlife value, hosting 284 species of lepidoptera, including eastern tiger swallowtail and mourning cloak butterflies as well as several species of giant silk moths. Many species of birds use the tree for forage and shelter.

If river birch is too large for your site, consider grey birch (*B. populifolia*), which grows only 20 to 30 feet tall.

Quick Facts -- River Birch

Size 40 to 80 ft tall, 40 ft wide

Sun Full sun

Soil Moist to average; tolerates clay soil

Water Drought tolerant once established

Habitat Value Birches are a keystone species that serves as a host plant for the larvae of over 280 species of butterflies and moths.

Spring Cut-Backs

Native plant gardeners are advised not to cut back spent stalks until nighttime temperatures are consistently above 50 degrees -- usually some time in May, in our area. The dried seed heads will feed goldfinches and other birds, and the stems will provide shelter for many insects over winter.

Bumble bees and ground-nesting bees will emerge as flowering trees and shrubs start to bloom in April, but they still need cover during spring's cold nights and heavy rains.

Standing plant matter gives shelter to wild birds and small mammals for protection



during the day as they look for food and is an insu-

lator to soften the cold winds at night.

Leaving top growth through the cold months also protects your soil by providing cover from hard winter rains that erode the ground.

Approximately 30 percent of native bees excavate cavities or use existing cavities in deadwood, stone crevices, or plant stems. Intentionally planting na-

tive plants that have pithy or hollow stems will go a long way toward attracting and supporting these native bees.

Dry stalks of plants like *Monarda* can be cut back in early spring to provide nesting habitat for native bees and wasps. Cut stems to various heights, ideally between 15 and



24 inches, and no shorter than 8 inches.

If you live in a neighborhood with rigid aesthetic standards, you may have no choice but to cut stems to 8 inches. Leave stem cutoffs on the ground to provide additional insulation, or stack them upright in a sheltered location. Don't throw them out -- you could be throwing out native insects!

In the spring, new foliage will quickly cover last year's stems. Leave the cut stems in place until midsummer to make sure all the nesting bees have hatched out and left the nest site. If the stems are adequately camouflaged by live foliage, you can just leave them standing to provide additional nesting habitat in the fall. They will decompose naturally.

Most stem-nesting insects require hollow stems, but a few species of bees can utilize pithy stems with a soft center that can be hollowed out. The excavated plant material is then used to build the nest. Only a few types of bees are capable of doing this (carpenter bees, some leafcutter bees, small resin bees). Most species require a stem that is already hollow. Having stems of different diameters provides potential nesting habitat for a diversity of bees.

Native plants with hollow stems or soft, pithy stems include:

anise hyssop (Agastache) Anemone virginiana milkweed (Asclepias) wild indigo (*Baptisia*) field thistle (*Cirsium discolor*) Echinacea Joe Pye weed (*Eutrochium*) blazing star (Liatris) Monarda sumacs (Rhus) cut-leaf coneflower (Coreopsis laciniata) rattlesnake master (Eryngium yuccifolium) oxeye daisy (Heliopsis helianthoides) switchgrass (Panicum virgatum) wild quinine (Parthenium integrifolium) obedient plant (*Physostegia*) mountain mints (*Pycnanthemum*) elderberry (Sambucus) goldenrods (*Solidago*) asters (Symphyotrichum) skullcap (Scuttelaria incana) cup plant (Silphium perfoliatum) meadow rue (Thalictrum) Culver's root (Veronicastrum virginicum) ironweeds (Vernonia and Verbesina) golden Alexander (Zizia aurea)

Landscaping for Pollinators

Penn State's <u>Center for Pollinator Research</u> is helping residential gardeners play an important role in conserving pollinators. In 2021, the Center, located on the university's State College campus, opened a 3.5-acre garden at the Arboretum that reflects the latest research on bird and pollinator populations and habitats.

Portions of the garden are designed to assist researches working to understand how to attract native pollinators, and other areas are intended to demonstrate how to create attractive pollinator and bird-friendly landscapes.

Research conducted at the Center investigates the effects of environmental stressors like habitat loss, disease, and pesticide exposure on pollinator populations and explores ways to promote the health and abundance of pollinators through conservation and sustainable management practices.

"Landscaping for pollinators involves creating gardens that are both aesthetically beautiful and ecologically functional. Pollinators can thrive in urban environments, as they are small organisms that live in small worlds. Even a small container garden replaces an uninhabitable concrete desert with riches such as food and soil for wild bees."

The research and demonstration garden includes many different habitats, including mixed woodland, woods edge, sunny meadow, and wetland. The garden was constructed from the ground up, literally — different soils were brought in to create various habitats.

The main recommendation is to plant as many flowering plants as possible. The Center has created <u>plant guides</u> and information on nesting habitat to support specific types of pollinators, including hummingbirds, bees, butterflies, and flies. Each guide recommends trees, shrubs, and forbs that are particularly attractive to the target pollinators, including information on each plant's preferred soil, moisture, and light.

What To Plant for Butterflies

Adult butterflies feed solely on nectar and prefer dense plantings of nectar-rich flowers to maximize feeding efficiency. Because butterflies do not hover when they feed, they prefer flowers that provide them with a platform to perch while feeding. Those flowers tend to be either large and flat, or small and densely clustered.



A pollinator-friendly garden needs host plants to feed the insects' larvae as well as nectar-rich plants for the adults. Many plants have evolved toxins in their leaves or stems to prevent insects from eating their leaves and invading their stems. In turn, certain insects have developed the ability to feed on these plants despite the toxins. These insects will lay eggs only on the plant species whose leaves their larvae are able to eat. Unless a garden includes these plants, the specialist insects that have developed a relationship with them will not be able to reproduce.

Other plants have evolved to cope with insect predation by producing large quantities of leaves, or developing the ability to continue to produce new



Monarch caterpillar feeding on common milkweed

leaves throughout the season. Many different insects can feed on these plants. Including these plants in a garden Is critical to attracting the largest variety of pollinators.

What To Plant for Bees

Most bees are entirely dependent on flowers for their food. Adults consume nectar, a carbohydrate, while protein and nutrient-rich pollen is eaten by both adults and larvae. Some species of bees are specialists, meaning they feed only on certain species of flowers. For example, squash bees feed almost exclusively on cucurbit flowers. Other bees are generalists, visiting most types of flowers in a given area.

Many bees are generalists when it comes to nectar, meaning they will feed on a wide range of flowers, but will use the pollen from only a few species of flowers to feed their brood. Researchers have determined that the ratio of protein to lipids in pollen is important for brood food.

The list of plants to support bees includes several that bloom heavily in spring. Unlike honeybees, many native bees raise only one brood each season. The plants that produce pollen for these bees must be in bloom at the same time the bees are feeding their brood. Bees are not aggressive when feeding on flowers and can be safely observed close-up.

Serviceberry and redbud, both on the list of beefriendly plants, bloom heavily in spring, providing a feast of pollen and nectar for bees and others.



Planting flowers that provide optimal nutrition for bees supports their local populations, which in turn supports the entire ecosystem.

What To Plant for Hummingbirds

Ruby-throated hummingbirds, the only hummingbird species native to Pennsylvania, appear in our area in early May following migration from their winter habitat in Central America. Hummingbirds need flowers with high concentrations of nectar because they are relatively much larger than insects that feed on nec-



tar. Hummingbirds also feed on small insects that visit flowers, including ants, spiders, and flies. Although the hummingbird's long, slender bill is able to get nectar from long, narrow flowers such as columbine and honeysuckle, it is also able to feed from the tiny flowers at the center of this *Tithonia*, a sunflower native to the hummingbird's wintering grounds in Mexico and Central America.

What To Plant for Flies

Flies might not be on your wish list of pollinators, but native flies are the second most important pollinator after bees. Flies are distinguished from other insects by their single set of wings. Other pollinators have two sets of wings. Flies prefer flowers that are small, flat, and often tightly clustered, like mountain mint, New Jersey tea, and plants in the onion and carrot family.

Nesting Habitat

Rock walls, exposed soil, spent plant stems, fallen leaves, and brush piles provide places for insects to lay eggs, raise their young, and overwinter. Leaving spent stems standing through late spring is especially important to allow insects to emerge.

Plant by Numbers

Native Broadleaf Evergreen Shrubs

Evergreens -- broadleaf or needled plants that keep their foliage all year -- are often overlooked by gardeners but shouldn't be. In addition to providing visual interest in the depths of winter, evergreens are important elements of wildlife habitat, providing shelter year-round, nesting sites, fall berries, and larval food for many insects.

Unlike deciduous plants, evergreens do not lose all their foliage at one time. The life of any one leaf can range from 1 to 6 years. Among evergreens that drop 1-year-old foliage are laurel, holly, white pine, and arborvitae. Trees that retain green foliage for 3 years or more include spruce, fir, hemlock, and yew. Most needle-bearing evergreens drop their old foliage in the fall. Hollies shed their old leaves in the spring, as new foliage begins to appear.

Evergreens can appear to be immune to moisture loss because their leaves or needles have a protective waxy outer layer that keeps them from wilting, but in fact they can succumb to drought or be injured when planted in excessively windy locations. Since these plants retain their foliage all winter, they can dry out even when the soil is frozen. On warm days, when the leaves thaw, the plant will lose moisture through its leaves. If the site is windy, moisture loss can be extensive, especially when the supply of moisture in the soil is frozen and cannot move up into the plant.

Last month's newsletter looked at native evergreen trees. This month, we're considering several native evergreen shrubs that can provide beauty and habitat value in your native garden.

<u>Rosebay rhododendron</u> (*R. maximum*) is a multistemmed upright understory shrub growing 5 to 15 feet tall and almost as wide. Rosebay's substantial evergreen leaves and large clusters of white to rosy -purple flowers can create a dramatic focal point.

Rhododendrons are often planted near a house because they are evergreen and have dramatic blooms, but unless they're pruned appropriately, they can over-grow first-floor windows, and homeowners end up tearing them out. A better planting site is the edge of woods in part shade and consistently moist, acidic soil, mimicking the plants' natural habitat. In our area, it's more important to protect rosebay from hot summer sun and drying wind than from winter cold. Deer protection is also necessary.

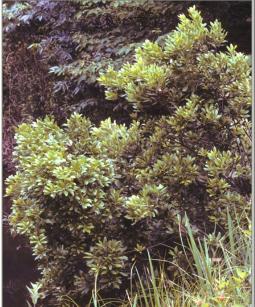
<u>Mountain laurel</u> (*Kalmia latifolia*) is found in a variety of habitats, including open rocky or sandy woods, cool meadows, balds, mountain slopes, acidic forests, and woodland margins. It's a slow grower but can ultimately reach 15 feet in height. Terminal clusters of bell-shaped white to pink flowers appear in late spring.



Mountain laurel is intolerant of heavy clay and wet soil. Despite a reputation for being deer-resistant, it can be damaged by browsing, especially in spring. Although all part of the plant are highly toxic, deer seem to know just how much they can eat without suffering ill effects, and this plant must be protected where the deer population is high.

<u>Inkberry</u> (*llex glabra*) is often used in place of English boxwood because of its similar form. It requires consistent moisture and can grow 5 to 10 feet tall, with shorter cultivars available.

Although it's a holly, inkberry's leaves are spineless, and the fruits are black rather than red. Both male and female plants are necessary to produce berries.



<u>Doghobble</u> (*Leucothoe axillaris* and *L. fontanesia*) is a multi-stem, vase-shaped shrub that stays under 4 feet tall. Arching clusters of small, white, fragrant bell-shaped flowers cover the plant in spring. The dark green leathery leaves can turn red to purple in winter.



Doghobble occurs naturally in shady, wet locations such as streambanks, often together with rosebay rhododendron. Like rhododendron, doghobble prefers moist, acidic, humus-rich soil and does not tolerate drought or windy conditions.

The flowers and leaves are highly toxic to animals, but like rhododendron, the plant can nonetheless be damaged by deer or groundhogs nibbling on the new growth and flower buds.

<u>Cranberry</u> (*Vacccinium macrocarpon*) is a low, trailing shrub that spreads and roots from long, thin stems to form a dense mat that can reach 3 feet in width and no higher than 6 inches. Tiny pinkishwhite flowers appear in late spring and mature to bright red cranberries in mid-fall. The small, glossy, leathery leaves are bronze in spring, becoming dark green in summer and coppery or purplish in winter. Plants in this family support at least half a dozen species of specialist bees.

Cranberry requires moist, acidic soil and does not tolerate hot, dry conditions, preferring morning sun and a root zone that remains cool.



Although commercial cranberries are grown in bogs to facilitate management, this isn't necessary in the garden as long as the plants are grown in moist, well-drained, acidic soil. <u>Creeping juniper</u> (*J. horizontalis*) is a versatile, sprawling native needled evergreen shrub. It is fairly adaptable to various soil types as long as the soil is well drained. It is drought and deer tolerant, fairly salt tolerant, and can grow in rocky ground and hot, dry areas.

Creeping juniper prefers full sun. It grows only 1.5 feet high, and its branches can spread to form a dense mat up to 10 feet wide. Creeping juniper has green or blue-green, scale-like foliage that may take on a purplish tinge in winter. Many cultivars have been developed with gold, bronze, or blue-toned foliage. This shrub produces small, round, blue, berry-like cones that are enjoyed by birds. It can be especially attractive trailing over the edges of retaining walls. It is useful on slopes for erosion control.



<u>Florida anise tree</u> (*Illicum floridanum*), as its name implies, is native farther south than Pennsylvania, but its tolerance for hot, humid conditions makes it suitable for our climate. It's not actually a tree, growing just 6 to 8 feet tall.

The bright green foliage is attractive and aromatic, smelling similar to anise spice when crushed or bruised. The shiny, leathery leaves are light olivegreen in color, and the dark red strap-petaled flowers are showy. The star-shaped fruit are not related to the star anise spice and should not be consumed. The leaves, fruit, and seeds of this plant are all toxic to humans and animals.

This is a plant for part to full shade and loamy soil, including shady rain gardens. The flowers, despite their unpleasant odor, are attractive to pollinators. Although the leaves are poisonous to animals, this does not deter deer from tearing off leaves and flowers, and the plant will need protection in areas of high deer pressure.

Invasive Species -- Wineberry

Late winter is a good time of year to identify and remove wineberry because the distinctive red, spine-covered canes are among the few stems remaining upright in the woods. They are easy to spot against snow or leaf cover and can be pulled or cut as long as the ground is not frozen hard.

Wineberry (*Rubus phoenicolasius* Maxim) was introduced into the U.S. from Asia over 200 years ago as breeding stock for cultivated raspberries. Its tasty berries are often harvested for pies and jam. However, the aggressive shrub can form dense thickets that displace native plants and alter native habitat.

Wineberry thrives in rich soil in sun or part shade and can be found in woods, forest margins, streambanks, and even wetland edges. It tolerates moderately dry soil but will not grow as aggressively.

Identification

Wineberry is a multi-stem shrub with long, arching canes that are covered with distinctive tiny, sharp, wine-red spines. Mature canes have lateral branches that create a dense thicket and prevent easy access to the roots for a removal operation.



The small pointed flower buds are covered with the same tiny red spines as the stems. The fruit are bright red and look like small raspberries.

Toothed leaves occur in threes, with a larger center leaflet and two oval base leaflets. The



undersides of the leaflets are silvery-white.

No other berry plant has the distinctive red spiny canes of wineberry. Black raspberry has smooth, blue-tinged canes, and the thorns of both red and black raspberry are much sparser and do not cover the entire stem as they do on wineberry.

Effect on Native Habitat

Wineberry spreads from root buds, root suckers, tip -rooting of long cases, and seed distributed by birds that eat the tasty fruit. It can form dense, impenetrable thickets in natural areas, making the habitat unusable for other species. It is more aggressive than many native species and has a wider range of tolerance for light, soil conditions, and moisture.



Removal and Control

Wineberry does not have a tenacious root structure, making it relatively easy to control. Young plants can be hand-pulled, but sturdy gloves are necessary to avoid injury from the sharp, spiny hairs. If canes break off when hand-pulled, follow the remaining cane to the root and cut below the root crown with pruners or loppers.

Larger clumps can be removed by working from the outside edges, cutting each cane below the root crown, until the center is reached. The root system on mature clumps can be extensive, and if not removed it will send up new shoots. Roots can be pulled or dug up, although this disturbs a larger area of soil. Return visits will be necessary to remove new plants that sprout from root fragments.

Disturbance without replanting can result in the return of the same invasive species or other invasives. Good native candidates for replanting in semishaded habitat are golden ragwort (*Packera aurea*), wood poppy (*Stylophorum diphyllum*), and ostrich fern (*Matteuccia struthiopteris*).

Support Native Habitat on State Facilities and Roadsides!

State-owned property across Pennsylvania provides a great opportunity to provide native habitat. Many of these properties are now maintained with nothing but mowed lawn, which is the equivalent of a desert for native insects and wildlife.

A bill in the Pennsylvania legislature would prioritize the use of native plants at state-owned facilities. After all, shouldn't the offices of Commonwealth agencies feature plants native to Pennsylvania? Native plantings also save taxpayer dollars because they require less watering and maintenance than lawn. The benefits of native plants include protecting water quality, improving the ability of soil to infiltrate water, preventing soil erosion, and providing food and habitat for native insects and animals.

Ask your state representative to support <u>HB 426</u>! Find your state representative <u>here</u>.

You can also ask your state representative to include roadside habitat programs in transportation budgets this year. Roadside habitat programs minimize mowed grass areas adjacent to state-maintained roads (beyond the zone where mowing is mandated for visual safety) and replaces them with native plants. As a result, mowing costs paid with taxpayer dollars will be reduced and roadsides will be enhanced with wild-life-friendly habitat. Transitioning from turf grass to native roadside habitats also reduces the need to spray herbicides and pesticides. Click here for more information.

Events and Educational Opportunities

- **Feb. 19** <u>A Chickadee's Guide to Gardening</u> PennState Extension webinar presented by Prof. Doug Tallamy, 7:00 p.m.
- Feb. 19 Matrix Design for Biodiverse Gardens. Northeast Ohio Pollinator Society webinar, 7 p.m.
- Feb. 20 Bees Beyond Honey: understanding the Rols of Native, Solitary, and Honeybeen in Pillination and Biodiversity. Wild Ones webinar, 7 p.m.
- Feb. 20 <u>Wildlife Habitats to Attract Backyard Birds</u>, Jenkins Arboretum webinar. 7:00 p.m.
- Feb. 23 <u>Creating and Maintaining Meadow Plant Communities</u>. Bowman's Hill Wildflower Preserve webinar. 2:00 p.m.
- Feb. 26 Elements of a Healthy Landscape. Brandywine Conservancy webinar. 6:30 p.m.
- Feb. 26 Pollinator Pathway: Caterpillar Appreciation and Support. PennState Extension webinar, 7:00 p.m.
- Feb. 27 Using Native Plants to Support Northeastern Birds. Native Plant Trust webinar, 5 p.m.
- Mar. 2 <u>Name that Plant Bird Insect: A Beginner's Guide to Using Nature Apps</u>.Bowman's Hill Wildflower Preserve webinar, 2:00 p.m.
- Mar. 5 Vernonia for Every Garden. Mt. Cuba Center webinar. 6:00 p.m.
- Mar. 5 <u>Attracting Wildlife to Your Property</u>. Northeast Ohio Pollinator Society webinar, 7 p.m.
- Mar. 6 & 13 Gardening for Watershed Conservation. Mt. Cuba Center, 3120 Barley Mill Rd, Hockessin, DE. 10:00 a.m.
- Mar. 14 Bring Bluebirds and Others to Your Garden. Mt. Cuba Center, 3120 Barley Mill Rd, Hockessin, DE. 10:00 a.m.
- Mar. 19 Homegrown Conservation. Mt. Cuba Center webinar, 6:00 p.m.
- Mar. 21 <u>Beginner's Native Perennial Garden</u>. Mt. Cuba Center, 3120 Barley Mill Rd, Hockessin, DE. 10:00 a.m.
- Mar. 21 & 22 Gardening for Watershed Conservation. Mt. Cuba Center, 3120 Barley Mill Rd, Hockessin, DE. 10:00 a.m.

Mar. 22 Introduction to Bonsai Using Native Trees. Mt. Cuba Center, 3120 Barley Mill Rd, Hockessin, DE. 10:00 a.m.