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Dear Readers,

I hope this newsletter finds you all well during this difficult year. Spring isn’t far away and I’m sure many of you are spending this time planning new gardens and deciding on plants to add to your landscape. We hope that you will find some inspiration from the articles in this newsletter.

Yours in gardening, Connie Schmotzer
Pollinator Certification Coordinator

Outstanding Pollinator Gardens

By Linda and Rich Silverman, Penn State Master Gardeners

Our 10th ‘Garden of Merit’ is awarded to Kim Blocher of Newville, PA.

Her gardens are surrounded by the Michaux State Forest and reflect the serenity and beauty of the area. This is the first garden in our ‘Garden of Merit’ articles where mosses were an integral part of a garden bed.

Describe your garden—size, type?

We live on the edge of the Michaux State Forest, near Carlisle. Our home is about 3 miles from Pine Grove Furnace State Park. We have about an acre.

It is primarily wooded with chestnut, oak, red maple, sassafras, and hemlock. The area cleared for the house includes gardens that are both sunny and shady. The sunny spots are not as sunny as they were when we first moved in 12 years ago! The trees have grown a lot and I was not very forward thinking in setting some of my planting areas. I have some perennials that need full sun that no longer thrive as the shade moves in.

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The soil is well adapted for woodland plants and is reasonably moist, but it is thin and needs to be amended when significant trees or shrubs are planted. I have 5 distinct garden areas with different sorts of plantings: the sunny bank, a shady bank with ferns, hemlock and mountain laurel, a spring woodland garden, and a moss garden surrounded by shrubs and trees. There is also a garden in the sun with blue blooming perennials (my husband’s garden!)

How old is your garden and how long have you been at this site?
As I noted, we have been here 12 years, and I began gardening right away. There were some beds there already from the former owner, but mostly planted with azaleas and rhodies. I concentrated on the sunny bank in front of the house, adjacent to the cul-de-sac. It was overgrown with invasives, but also had some nice groundcover of low bush blueberry and Comptonia. In the fall, I noticed some goldenrod and black-eyed susan coming in. I spent time clearing small areas, using newspaper and mulch to keep the weeds down as I began planting. Over time, it took shape as a nice pollinator friendly garden. Then I started work on other areas to include spring ephemerals, a moss garden, and other plantings.

How many species of plants?
I recently walked through the yard taking an inventory of the species of plants and counted about 90 different kinds of native plants. The native trees noted above, along with dogwood and redbud. I recently planted a black cherry (Prunus serotina). Ferns—cinnamon, royal, maidenhair, Onoclea, lady fern, Victorian lady fern, hay-scented, ostrich fern, and Christmas fern. Native wildflowers—columbine, wood anemone, gentian, hepatica, Jacob’s ladder, goldenseal, waterleaf, blue bells, Solomon seal, early meadow rue, Indian pink, golden Alexander, golden ragwort, trillium, wild ginger, turtlehead, twinleaf (Jeffersonia), and various Asclepias.

**What kind of pollinators do you attract? What have you done to increase pollinator diversity?**

I am not really diligent about recording the types of pollinators in my yard. Certainly, we have tons of butterflies once the high season perennials are blooming. Last year was an especially great year for butterflies. The bees on the mountain mint are almost deafening! We do attract hummingbirds and bats. Wasps, beetles and flies are apparent. Last year, I took a course at Longwood on native plants. Its emphasis was on selecting plants that promoted pollinator diversity. For instance, we learned that *Comptonia* (sweet fern), is the larval host for 64 species of *Lepidoptera*. The black cherry, incredibly, is the larval host for 456 species. I am trying to include these sorts of plants to increase my pollinator diversity. Oaks are the best genus for larval hosts in terms of the sheer numbers of larvae supported.

**How did you get into gardening?**

It’s so long ago—it is hard to remember. I was inspired by visiting a friend’s lovely garden and then realizing how little I knew about plants. I have taken courses at Longwood over many years. Of course, Master Gardener training has been critical in my education. In terms of native plants—I have always been fascinated by their role in ecology. And I just love the way they look in a garden, in the forest, and in our wetlands.

**Future plans?**

I do not plan to increase my gardens in size. I am not looking for more weeding and garden work! I do want to continue to provide nectar and food throughout the growing year by thoughtful inclusion of plants that play specific roles. I also am very interested in moss gardening and have been working on my new moss garden with the addition of a few wildflowers and ferns within the garden.

Although Kim, as stated, is not interested in enlarging her beds, she is constantly adding more plants to create even more biodiversity.

It is with great pleasure we present to Kim Blocker the 10th ‘Garden of Merit’ Award.
Trees and Shrubs: The Keystones of Pollinator Habitat

Though we recognize them as the “bones” of our landscape design, trees and shrubs are often overlooked when we think about choosing plants for pollinators. But trees and shrubs, often referred to as “woodies”, provide vital habitat for pollinators.

Indeed, woodies provide habitat that herbaceous perennials cannot. And because they are long-lived in the landscape they are also a good investment. Some of the services that trees and shrubs provide are:

♦ Shelter from wind: Many pollinators can’t forage for food when winds are gusting. A variety of densely planted evergreen and deciduous plants can provide a windbreak for them

♦ Nesting sites: Bees can nest in crevices and holes in the bark of trees. Many bees and beetles often nest in dead tree snags and branches. And the hollow stems of some shrubs are used by solitary bees for nest sites and overwintering.

♦ Resting places for butterflies: Adult butterflies often hide among foliage and hang upside down from leaves or twigs to rest.

♦ Reliable sources of pollen and nectar: During bloom time, flowering trees and shrubs are covered with blossoms rich in pollen and nectar. Because these blossoms are so numerous and close together, they are easy for pollinators to access, saving them much energy.

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In our pollinator certification, you will notice that we require a minimum of 4 different species of trees and shrubs. Larger properties should plan to have as many woodies as possible. But even the smallest of yards will have space for several small shrubs. *Clethra alinifolia* (summersweet), and *Itea virginica* (Virginia sweetspire) both have cultivars that don’t exceed 2 – 3 ft. in height.

When choosing trees and shrubs, take into account their bloom time so that you have a good food supply for pollinators throughout the seasons. For instance, red maple (*Acer rubrum*) and pussy willow (*Salix discolor*), are both early spring bloomers that provide food as the first pollinators are emerging. Red twig dogwood (*Cornus sericea*) and coral berry (*Symphoricarpos occidentalis*) provide food in mid-summer.

It is best to choose the straight species of native plants. But if the only choice you have for a tree or shrub is a cultivar, please avoid plants bred to have red or purple leaves. This is especially true if you are gardening for butterflies. Red and purple leaves contain anthocyanins that deter insect feeding. When a caterpillar host plant that normally has green leaves is changed in this way, it becomes useless as a host plant. This was shown by a study done at Mt. Cuba and published in Hort Technology October, 2018. (Emily C. Baisden, Douglas W. Tallamy, Desiree L. Narango, and Eileen Boyle)

For more information on choosing trees and shrubs for pollinators in Pennsylvania, check out these websites:

*Native Trees and Shrubs for Pollinators*, by Heather Holm

*Pollinator Partnership, Selecting Plants for Pollinators, Eastern Broadleaf Forest*
https://pollinator.org/PDFs/Guides/EasternBroadleafOceanicrx20FINAL.pdf

*Pollinator Partnership, Selecting Plants for Pollinators, Central Appalachian Broadleaf Forest*
https://www.pollinator.org/PDFs/Guides/CentralAppalachianrx7FINAL.pdf
PROTECTING POLLINATORS: Avoiding Invasives

**Norway maple** *(Acer platanoides)*
*(Connie Schmotzer, Penn State Master Gardener)*

Walk down almost any street in a Pennsylvania town and you will find several Norway maples either in front yards or in the tree lawn. I remember two of these large shade trees in the lawn of our house in my childhood home in Lancaster County, and it seems every other house in my York, circa 1960’s neighborhood has one.

Though Norway maple leaves resemble those of the native sugar maple, the trees are easy to tell apart by the white milky sap that is exuded by Norway maple when you tear a leaf or twig.

Norways were introduced in 1756 to Philadelphia by botanist John Bartram who obtained seeds from England. Norway maple soon became available for sale, and by the 1960’s was one of our most popular street and front yard trees.

They were originally valued for their shade, fast growth and easy propagation. But in the last 50 or so years, these very qualities have allowed them to escape into our native forests. Once they reach maturity, their dense, shallow root systems and the dense shade that they cast prevent native trees, shrubs and perennials from growing underneath. Because very little grows under Norway maples except for more Norways, in time the forest they invaded becomes a monoculture with very little habitat for native wildlife. Currently, Norway maples have escaped in much of the Pacific Northwest, Mid-Atlantic, Great Lakes, and New England states.

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How can you help keep our forests diverse and healthy pollinator habitat?

- Don’t plant Norway maples
- Pull up any seedlings that you find on your property
- Consider removing Norway maples that you have on your property and replace them with native trees

I know how hard it can be to decide to remove a tree, but in the long run it is for the best. We had three Norway maples on the property we bought in 2002. We removed all of them within a year and replaced them with white oak, ironwood and sassafras. Now, 19 years later, we have wonderful habitat for both pollinators and birds. And unlike under the Norways, native shrubs and perennials are thriving in the beds under the new trees.

Moving?

If you have a certified Pollinator friendly garden and are moving, please take your sign with you and send a note to PAPollinatorCert@psu.edu to let us know you have moved. The new owner of your property will need to recertify. When the gardens at your new address are ready, send us a new application and mention that you that you have moved. We can certify your new garden and waive the application fee.
Penn State’s Pollinator and Bird Garden at the Arboretum is nearing the end of primary construction and the blue fences will soon come down. The garden is an integration of design, to create a human-engaging environment, and science, to build a habitat for pollinator and bird species.

Over the fall groups of volunteers including Penn State clubs and many people from the local community helped plant some 90,000 individual plants with more to be planted in the spring. Plants are central to this garden design. To meet the goal of attracting and supporting as many pollinator species as possible the diversity and abundance of plants is a central component of this garden.

There are more than 350 species and cultivars in this beginning phase and more will be planted as collection increases over the coming years. The majority of these are native to our central Pennsylvania region. Studies at Penn State and elsewhere show that these native blooming plants support the majority of our pollinator species as both nectar and pollen food resources and host plants for developing young insects. Of course, the seeds, nuts and berries that result from pollination support other wildlife including birds. But this garden includes non-native plants that research has shown to be beneficial for pollinators as well, and often these plants are attractive to a large variety of humans being both florally showy and easy to cultivate.
Many pollinator gardens focus on attracting beautiful butterflies and charismatic bees. But this garden is designed for many species of butterfly and moths, both long and short-tongued bees, pollinating flies, beetles, and our one regional vertebrate pollinator, the ruby-throated hummingbird. Diversity of plants alone will not support broad pollinator groups. The garden is also organized to include a variety of habitats, including woodland, wetland and open meadows in a variety of soils, which have been installed to support plants that thrive in these places.

Nesting and overwintering sites are also vital for pollinators. Most native bees for instance are ground nesting, and particularly like slightly sloping ground. So the garden will have a designed area with just the right loamy soil and a loose rock matrix that is preferable. For the other wood nesting and stem nest species there are created pollinator hotels. Understanding just the right design and how to keep these free of pest and parasites will be one of the goals of future research at the garden. To house a glass observation hive of honey bees there is a 20 foot steel and cedar bee pavilion that will protect bees from the elements while still letting visitors view their complex colony life. But the star gem of the garden is the bird viewing pavilion in the forested wetland. This building has three discreet views of complementary gardens that will be a wonderful place to come and be inspired by nature.
It was a primary goal of the garden designers at Didier Studio (general design), Phyto Studio (plant community design) and Lake Flato Architects (structures) that the biotic function of the new garden be as important as the aesthetic appeal and overall experience. The paths, plantings and views are all designed to draw the viewer closer to the flowers and the pollinators, which are small and easily overlooked. Although the garden is large in domestic terms, almost 5 acres, it is small when considering how many herbaceous plants, shrubs and trees need to be accommodated. To achieve this diversity the plants are organized in six or seven layers where low growing sedges act as a natural mulch and a sequence of pollinator interesting plants- often not beautiful to humans, are interspersed with bright showy human plants. Throughout the seasons, including in winter, the gardens will be enticing and beautiful to even the most conventional gardener.

The great hope with these gardens is that they will teach and inspire every visitor to engage the world of pollinator and bird diversity right in their own backyards. The Pollinators’ and Bird Garden at the Arboretum will officially open at the end of April 2021.