



What's the Buzz?

April 2023

extension.psu.edu

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Has your property been certified for 5 or more years? If so, We'd love to see current pictures of your garden! We'd also like to hear your stories about pollinator gardening. What have you learned and what is your greatest success? Email us at papollinator@psu.edu. We will share your stories in future issues of "What's the Buzz".

Outstanding Pollinator Gardens

By Linda and Rich Silverman, Penn State Master Gardeners

Welcome to the 15th Garden of Merit Award. This edition features the home gardens of Lorrie Preston.

Describe your garden. How old is your garden?

We moved to a "new to us" 2 acre property in December 2019, just before the pandemic hit. The home and gardens were 12 years old at the time and located in a small neighborhood on the edge between suburbia and the country. The property already had extensive, professionally laid out gardens and hardscaping and offered wonderful opportunities for an avid gardener. Many plants were overgrown and had been sheared into meatball shaped blobs to control the size.



(Outstanding Pollinator Garden, continued on page 2)



(*Outstanding Pollinator Garden*, continued from page 1)

Other plants were in poor health and the gardens were filled with shrubs, trees, and perennials from Asia and other far-away countries.

Here and there, an almost accidental PA native plant could be found, but some had been poorly sited. In addition, the landscape included invasive plants—lots of Japanese barberry, a long row of 10 ft. tall burning bush, multiple butterfly bushes, and more. A shallow mature woodland at the back of the property accounts for half an acre property and includes a nice selection of large native trees offering great habitat for birds and wildlife. Unfortunately, the understory of the woods has been negatively impacted by an active deer herd and is covered with Japanese stilt grass and mile-a-Minute vine. Deer are a challenge and a fair amount of time is spent trying to outsmart them or stay one step ahead of their damage. Most of the gardens are in full sun -- some are shady during the heat of the day, and one area stays shady most of the time.



When spring arrived, at the same time as the COVID pandemic, we got to work on the landscape. We started by having 2 large zelkova trees removed. Dr. Doug Tallamy says that a Zelkova tree offers the same wildlife value as a plastic tree. We had a row of burning bush removed. The rest of the plant removals, we did on our own. In the end, we sent 9 large dump-trucks full of yard waste off site. One of my favorite sections is the large island bed in the middle of the front yard that has become a profusion of native plants—from the 2 ft. tall -- *Aster oblongifolius* ‘October Skies’ to the 7 ft. *Rudbeckia* ‘Herbstsonne’.

Another favorite section, which I envisioned when we toured the garden for the very first time, is the renovated five level tier garden on the side of the house which has

a paver stairway that goes through the middle of the garden to the lower-level backyard. There I have created a magical butterfly and pollinator garden using mostly native and some non-native, non-invasive plants that attract butterflies and pollinators. It is now a joy to walk through that space with colorful wings soaring everywhere and be able to closely observe pollinators hard at work. I enjoy tending a small, fenced vegetable garden that attracts many pollinators, as well.

How many species of plants do you have?

I have not counted the number of plant species I have here – I would estimate two or three hundred, including the woods. I must admit that I am not a native plant purist, although native plants are always my first consideration. Being in a development, I do feel some pressure to create a garden that will be accepted by the neighbors.

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

My garden has an enormous variety of butterflies – lots of monarchs; tiger, zebra, black, and spicebush swallowtails; many skippers of various sizes; fritillaries; azures; sulphurs; hairstreaks and more. I am sure there is a similar variety of moths at night. I have native mason bees nesting successfully in boxes and ground-dwelling native bees living in crevices in the rock walls of the tier garden. The plants are alive with all sizes of bees and wasps of every description, and it is rare to look any place where there isn't something flying from one flower to another. Ruby-throated hummingbirds are regular visitors at the feeder and at a good variety of tubular-shaped flowers that I have included for them. The hummingbird moth is a regular visitor when the bee balm is in bloom. Beetles and true bugs and an assortment of other insects make their home in the garden.

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Preston tier garden after creating larger drifts of plants

I am very excited about the small white oak (*Quercus alba*) tree that we have planted this year. According to Dr. Tallamy, there is no other plant that will bring in the number of caterpillars that a white oak will. That means lots of pollinators here to lay the caterpillar eggs and lots of birds here to eat the caterpillars. I have pollinator plants in bloom through every season and if I plant something that seems to have low value to pollinators or wildlife, I willingly remove it to plant something more useful to them.

***How did you get into gardening?
How did you get into natives?***

I grew up exploring nature in the outdoors of central NY on my grandfather's farm, which was right next door. My mother did some gardening of flowers and vegetables,

but mostly she inspired me to enjoy the natural world. It was when my husband and I moved to PA some 35 years ago that I started gardening on my own and it was a natural fit to garden for birds and invite nature to our property. I have taken lots and lots of gardening-related classes over the years and was fortunate to be inspired by passionate native plant gardeners who fueled my excitement and commitment to garden for pollinators and wildlife. I have wanted to make a positive difference in the health of our environment and leave every property where I have lived in better shape than it was when I arrived. I was a Penn State Master Gardener in Cumberland County for 11 years, with a focus on gardening for wildlife. I also worked at a large garden center helping customers solve their lawn and garden problems and I even had my own private environmentally friendly garden consulting business for a while, helping clients make their properties more wildlife friendly.

What are your future plans to increase pollinators in your garden?

I'll keep tweaking the gardens and adding more native plants, working toward the 70% native plant goal that Dr. Douglas Tallamy has stated is required for our native birds and wildlife to thrive. I will allow the current young plantings to expand their footprint in the garden and add more native groundcovers in those areas that are still predominately covered with mulch. We recently removed three *Carlesii* viburnums and extensive Japanese ground junipers. In their place are three 5' winterberry hollies and a mixed groundcover of Golden Alexander, Violets, Blue Lobelia, Ohio Spiderwort and more. I have been creating a woodland planting of sorts under the serviceberry using *sedum ternatum*, wild ginger, ferns and more. I am also worked hard to get Japanese Stiltgrass and Garlic Mustard under control on a large section of the woodland edge and have planted dozens of native shrubs and perennials in hopes of crowding out the invasives. The key to success in this area is to build a fence before the plants emerge this spring to keep the deer away.

I am also learning to relax a little more with my garden practices – leaving the leaves under trees, waiting to tidy up the garden until later in the spring and mimic nature's ways more. I plan to add more *Carex* and other groundcovers this year. It's an ongoing learning process and each year we have the chance to make our gardens a little healthier for nature.

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(*Outstanding Pollinator Garden*. Continued from page 3)

What have you observed this year in regard to the number of bees and other pollinators?

The monarchs came earlier in the season this year and laid dozens of eggs on the milkweed in May. I didn't see adult monarchs for several weeks after that, but have seen lots of monarchs and other butterflies from mid-July through August. The bee, wasp and fly varieties have been most impressive on the Mountain Mint and the Summersweet (*Clethra alnifolia* 'Sixteen Candles'). The bees and wasps seemed to come late, but once they arrived, their numbers and diversity of sizes, colors, and shapes astounded me.

There are many native plants that attract pollinators. Do you have a special one that you would like to suggest?

You can never have enough milkweed (spp.) in the garden. I grow common milkweed, swamp milkweed, and butterfly weed. There is a large community of insects that rely on milkweed and even a book to introduce you to them called 'Milkweed Monarchs, and More'. Not only are milkweeds the essential host plant for monarchs, but most butterfly species seem to enjoy nectaring on milkweed flowers, and they are visited by many bees, butterflies, and wasps. Everyone should include a hefty patch of some form of milkweed in their garden, selecting the variety based on your growing conditions.



Congratulations to Lorrie Preston for creating these amazing pollinator gardens as recipient of the Garden of Merit Award

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.

OUTSTANDING POLLINATOR PLANTS

American pussy willow (*Salix discolor*)

By Master Gardener Lorri Schmick

Looking for an easy fast-growing screen or border plant? The native Pussy Willow is that and more. The pussy willow is a quick growing shrub that provides ecosystem services in multiple ways. This fast-growing shrub is densely branched and will provide screening for you, early season nectar for pollinators, and habitat for song birds. Pussy willow can be grown as a large shrub or small tree, the shape determined by the gardener with pruning shears.

Hardy in zones 4-8, it grows in damp soil with deep taproots that take up a lot of water. For that reason, it is a great plant to include in a rain garden or any place that tends to stay wet after a heavy rain. Unlike many Pennsylvania native plants, they do not require acidic soil. They prefer full to part sun. They can grow to 6 to 15 feet with a spread of 4 to 12 feet.



Photo by Justin Wheeler

Bee enjoying pollen and nectar from male catkins of American pussy willow

The pussy willow is dioecious (die A shus) meaning that male and female parts are found on different plants. The male plants have larger, showier catkins. The catkins are the soft grey fur of the pussy willow that forms a warm protective layer around the flower. The female plants tend to have catkins that are smaller and greener. The fuzzy “fur coats” are the flowers that keep the reproductive parts of the plant warm. Hummingbirds use the fuzzy softness to line their nests. The early March catkins provide one of the first-of-the season nectar sources for pollinators. You know you have a male plant when the catkins begin to look yellow. This is the pollen on the tips of the anthers. The willow can be pollinated by the wind and by insects that are drawn to its strongly scented nectar.

The native pussy willow can be mixed with other native shrubs such as viburnums, ninebark, service berry to create a rich diversified hedgerow. It is tolerant of deer and black walnut. You can prune as desired to harvest stalks of the catkins. You can also cut it down to the ground every few years for a flush of new growth.

In summer, it is a non-descript shrub despite its display of blue-green leaves. But in midwinter, when the red buds start to peek out from the branches, it becomes a sign of spring to come and a return to warmer weather. In old religions, the pussy willow was a sign of new life!!



(American pussy willow (*Salix discolor*) - Continued from page 5)

As a larval host plant, it is broadly used by some 18 butterflies and moths, such as the cecropia moth, lo moth, eastern tiger swallowtail, morning cloak butterfly, viceroy butterflies among many others which emerge in early spring. Also, the pussy willow is a nectar provider for early spring insects which include honey bees, mason bees and mining bees. This very reason makes it a “must have” for the pollinator garden. Doug Tallamy rates the willow very high on the plant list of host plants.

The *Salix discolor* (native pussy willow) must not be confused with the non-native *Salix caprea* (goat willow). **Many non-native species have been introduced for ornamental value and DO NOT serve as larval hosts.** It is important to seek out the native species.

If you like to save the catkins for a spring decoration in the house, cut them before the pollen appears. Do not put them in water. They will dry and stay nice for years. They are also nice to use in outdoor pots for accent and height with other spring flowers.

The easiest method of propagation is to cut off a branch and stick it into moist soil. The branch will eventually form leaves at the top and develop roots underground. You may also put a cut branch into water. It will form roots and you can plant outside.

The American pussy willow is a great example of how a native plant provides habitat and supports native wildlife. Plant *Salix discolor* (pussy willow) this spring and you will be helping those early pollinators!!!!



PROTECTING POLLINATORS: Avoiding Invasives

Norway Maple (*Acer platanoides*)

By Master Gardener Jen Mohler

Background: The Norway maple was introduced by John Bartram from England to the U.S. in 1756 and was soon offered for sale. It was planted in towns, farms and settlements for its hardiness, adaptability, shade, and quick growth. As reforestation occurred in our forests, Norway maple became a part of the native tree canopy in the forest system and spread by seed to many areas.

Description and biology: Norway maples are large hardy deciduous trees that can grow from 40-70 feet and are tolerant of many environments. The trees produce copious amounts of winged seeds that are eaten by the Northern Cardinal, Rose-Breasted Grosbeak, Bobwhite, quail, and wild turkey. The leaves are five pointed, paired, deciduous, dark green and palmate (like a hand). Small flowers are produced in the spring which mature into paired winged “samaras” in the summer and are dispersed by wind and quickly germinate. The leaves contain a white milky substance that can harm insects and pollinators.



Ecological Threat: Norway maples spread into a monotypic stand (one of a kind), by outcompeting native trees, shrubs, and herbaceous plants by its creation of a dense shade canopy that restricts the regeneration of native seedlings. Research has shown that the diversity of wildflower species is diminished in forests invaded by Norway maples as compared to forests with native maple trees. The roots release a poisonous chemical into the soil that inhibits the growth of native plants.

Native insects, birds and mammals do not thrive in forests dominated by Norway maple trees because it was an introduced species, not a native species that evolved with native insects and provides little food source except the seeds to some birds. Verticillium wilt can be a potentially serious problem, as well as anthracnose leaf disease.



Prevention and Control: Norway Maple seedlings can be easily pulled out and larger trees can be cut or dug out.

Native Alternatives: Do not plant Norway Maples but substitute sugar maples (*Acer saccharum*) or red maple (*Acer rubrum*).

References:

www.dnr.state.mn.us/invasives/terrestrialplants/woody/norwaymaple.html

Invasive Plant Fact Sheets (pa.gov)

<https://plants.usda.gov>

forestimage.org Norway maple



FROM THE CENTER FOR POLLINATOR RESEARCH

The following article comes from the book *Plants to Support Bees*, one of several Central Pennsylvania Pocket Guides created by the Center for Pollinator Research, available May 2023.

Beloved residents in our gardens, bees are the most effective pollinators. Pennsylvania is home to 437 species and there are at least 4,000 species of bees in North America representing six of the seven families.

The feeding behavior of bees is specialized for the pollination of flowers. A bee's diet comes entirely from flowers, which requires them to physically connect with the plant's reproductive parts. Nectar, a carbohydrate, is consumed by adults while protein and nutrient-rich pollen is eaten by both adults and larvae.

Some species of bees are specialists, meaning they only feed on certain flowers.

For example, squash bees (*Peponapis pruinosa*) feed almost exclusively on cucurbit flowers. Other bees are generalists, visiting most types of flowers in a given area. Bumble bees (*Bombus* spp.) are particularly good pollinators in part because they are generalists, visiting a wide variety of flowers. They are also capable of flying in cold, early morning temperatures. This extends the amount of time they can feed. Some plants such as tomatoes and blueberries require a very specific type of pollination from bumble bees called buzz pollination.



Bumble bee buzz pollinating blueberry flowers

Bees also have physical characteristics that make them great pollinators. The electrostatically charged hairs on their body and legs called scopa pick up pollen to be inadvertently carried from flower to flower. Typically, bees have more hair than wasps or flies making them better pollinators.

Bees are crucial for agriculture, as insect pollination services contribute \$34 billion to agriculture in the U.S. annually. The Western honey bee (*Apis mellifera*) is a non-native domesticated species that is specifically managed for its pollination services. Honey bees are social bees with three social castes within a hive; queen, worker, and drone. Each caste plays a role in the function of the hive. These bees are preferred for commercial farm pollination due to their large numbers; a single hive may have tens of thousands of individuals.

Although most well-known bees such as honey bees and bumble bees are social, 90% of all bee species are solitary, nesting in either tree cavities or underground burrows. After mating, an individual female singlehandedly creates brood cells, collects pollen, and lays eggs. Some species of solitary bees nest near each other, creating aggregations. For example, squash bees (*Peponapis pruinosa*) will nest nearby in loose soil surrounding pumpkin fields, and Eastern carpenter bees (*Xylocopa virginica*) collectively excavate wooden structures.

Those with bee gardens will enjoy a great diversity of bees, as they come in a variety of shapes, sizes, and colors. Bees are not aggressive when feeding on flowers and can be safely viewed from a short distance. Planting flowers that provide optimal nutrition for bees support their local populations, and in turn, support the entire ecosystem.

The Central Pennsylvania
Pocket Field Guide

Pollinator Plants to Support Bees



Eastern Redbud *Cercis canadensis*



Floral Phenology

	J	F	M	A	M	J	J	A	S	O	N	D
Type	Deciduous Tree											
Sun	☀ ☀											
Water	☵ ☶											
Size	20' to 30' Tall 30' Spread											
Soil	Neutral Alkaline											
Tolerances	Deer Clay											

A page from Pollinator Plants
to Support Bees