



What's the Buzz?

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Outstanding Pollinator Gardens

By Linda and Rich Silverman, Penn State Master Gardeners

Our 8th 'Garden of Merit' is awarded to Tom Smith of York, PA. His property is unique and unlike any we have ever seen. Rich and I saw the property in its infancy and revisited it last year to see the dramatic changes.

1. *Please tell us about how and why you purchased the property. What are the unique features?*

We purchased this property because we were looking to have a new home built. The property is unique because it has a stormwater detention basin on the property which collects runoff from approximately 27 acres of development. I am the owner of the stormwater detention basin and also responsible for the maintenance. Initially, I was spending 5-8 hours a week mowing the property and using 5 gallons of gas each time. A benefit is the property is 1.5 acres in size, meanwhile most adjacent properties are a ¼ acre and less.

2. *Describe your garden -- size, type (shady, sunny, dry or moist)?*

There had to be a better alternative to mowing and polluting. Since the property is 1.5 acres, most of the property is now maintained as a wildlife habitat area. The property is shaded with a wetland and meadow in the bottom of the



stormwater detention basin. Upland areas are very dry.

GARDENS OF MERIT (Cont)

3. *How old are your gardens and how long have you been there?*

I started the process of converting the property to be wildlife habitat in 2005.

4. *How many species of native plants do you have and what is the importance of native plants to increasing pollinators?*

I have over 40 species of native trees and shrubs. There are at least an additional 20 native perennial plants found on the property. My tree/shrub species such as Red Bud, Pussy Willow, Black Willow and Spicebush provide pollen and nectar for pollinators early in the season and end with Witch Hazel in the fall.

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

Everything has been done to increase pollinator diversity and provide better bird habitat. The property now attracts a variety of pollinators, especially when compared to previously being all mowed. Pollinators include a variety of bees, wasp, butterflies and moths.

6. *What are your future plans to increase pollinator diversity in your garden?*

Future plans include planting more native plants and continue to manage/prevent non-native/invasive plants from moving in.



Ever wondered why the pollinator certification application changes from time to time?

You may have noticed that every so often you will see that the requirements for the Penn State Master Gardener Pollinator Friendly garden have changed. As pollinator research tells us more about the food and nesting requirements of pollinators, we want to make sure that what we recommend and the gardens that sport Penn State certification are the real deal and are truly supporting pollinators.



And recently, Penn State changed our e-mail which we changed on the application.

So to be sure you have the latest information, please don't keep an application that you have downloaded for more than 3 months.

OUTSTANDING POLLINATOR PLANTS

Packera aurea (golden ragwort, golden groundsel)

Family: Asteraceae

By Master Gardener Lorri Schmick

Golden ragwort is a member of the Aster family. It is a hardy perennial that grows with relatively few problems. It will naturalize under optimal conditions.

The plant consists of rounded dark green foliage that is 3 to 5 inches in length, spreading moderately fast to form an excellent ground cover. The foliage remains green pretty much all year long. Flat topped yellow daisy like flowers (up to 1 inch in diameter) appear on stalks 10 to 14 inches high that rise up from the center of each rosette of leaves. Blooming time is April and May, lasting about three weeks, making this a lovely early blooming Spring plant.

Golden ragwort is a carefree plant that prefers full sun to light shade, wet to moist soils, but will tolerate dryer, shady conditions. It will freely self-seed, naturalizing into large colonies in optimum growing conditions. Removing the flower heads after blooming will keep unwanted spreading if that is desired. Using a string trimmer makes for an easier job.



Golden ragwort is a beautiful plant in flower and an effective groundcover even in dry conditions. For these reasons, it is often used in native landscape gardens, meadow plantings, and rain gardens.

As one of the first flowering plants in Spring (April and May), the nectar and pollen of the flowers are attractive to many small bees, flies, and beetles such as the little carpenter bees, cuckoo bees, and various Halictid bees (sweat bees). Golden ragwort is a host plant to the northern metalmark butterfly. It has very few insect or disease problems and has been known to be deer and rabbit resistant.

This species is very widely distributed in Eastern North America in USDA hardiness zones 3-9. Habitats include wet deciduous woods, meadows, banks of rivers, streams and lakes, slopes of rocky ravines and roadsides.

Packera aurea (Continued)



SO, WHAT IS NOT TO LOVE ABOUT THIS PLANT!!!!

- Its early yellow flowers attract many different species of bees and it has a long blooming season!
- It can survive happily in shady conditions that are wet or dry!
- It blooms in spring and the leaves continue to make a thick rug for the remainder of the season!
- It can cover large areas and is a good ground substitute for non-native groundcovers like English ivy!
- It will eliminate the need to mulch and weed in areas where it spreads thickly!

Summer Garden Experience—Visit our pollinator trial

Mark your calendars for Saturday, July 27 from 9am to 2pm, the date and time for the next Summer Garden Experience held at the Penn State Southeast Research and Extension Center, 1446 Auction Rd, Manheim, PA, 17545.

Admission is \$10 a carload and the day will be filled with speakers, seminars, tours and more.

Take a wagon tour of the research plots, visit the flower trials, admire the Lancaster County Master Gardeners Idea Gardens and visit Bees, Bugs and Blooms, our pollinator trial. Master Gardeners will be on hand to answer your questions about the pollinator trial and some of our trial winners will be for sale. For more information visit:



PROTECTING POLLINATORS: Avoiding Invasives

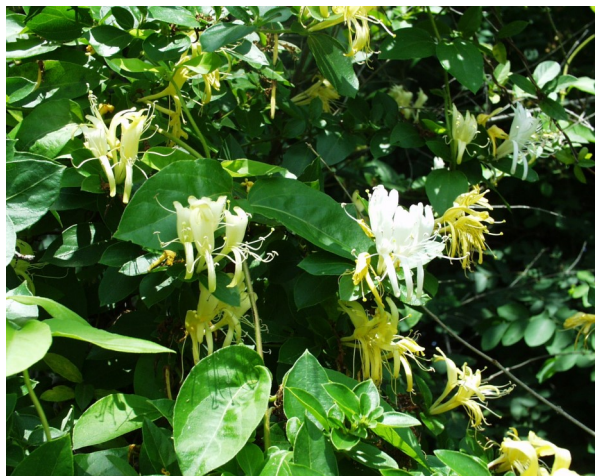
Japanese honeysuckle (*Lonicera japonica*)

by Tim Abbey, Penn State Extension

Japanese honeysuckle (*Lonicera japonica*) is an invasive, non-native climbing vine. It was brought to the United States, along with other non-native honeysuckles such as Tatarian (*Lonicera tatarica*), as an ornamental plant. Like many invasive species, Japanese honeysuckle likes to grow along the edge of a disturbance (wood edge, path). It prefers full sun, but it can grow in shaded environments. This plant reproduces by seed or from the runners that can root at the node. Growth is aggressive and the plant will climb over other desirable plant material. The foliage has an opposite orientation. Young leaves have smooth lobes and are narrow and elongate. Mature leaves are oval with smooth edges with hairs on the surface. In northern areas, Japanese honeysuckle drops its foliage. In warmer areas, it is semi-evergreen to evergreen. The white, ornate flowers appear in the spring and are very fragrant. The seeds are dispersed in black fruit.



Like all woody invasive species, Japanese honeysuckle requires time and effort to remove. Seedlings can be removed by hand. Due to its climbing nature, using a mower for management could be a problem. In late summer, mowing (if possible) or cutting the vines needs to be followed



up with application of concentrated herbicide (glyphosate or triclopyr) to the cut wood. You can also cut the plants in mid to late summer, wait for the plants to regrow, and then spray the new foliage. Foliar applications of glyphosate or triclopyr can also be applied, but if this is done early in the growing season, further monitoring will be required to watch for regrowth. Remember to always read the label for specific application sites, precautions and mix rates.

Feel the buzz: Penn State to bring pollinator garden that will last 'forever' to the Arboretum

By Jade Campos | Reprinted from The Daily Collegian, April 18, 2019

After years of planning and research by Penn State's Center for Pollinator Research, a large pollinator garden is set to break ground at the Arboretum in the fall 2019.

The Arboretum became home to a pollinator garden nearly a decade ago, which is currently still in place. However, many found it to be small and lacking diversity. Kim Steiner, the director of the Arboretum, said he began thinking about creating a bigger pollinator garden shortly after the first was created.

Steiner said they were "planning something that would be different from any other pollinator garden ever built." He described most pollinator gardens across the country as being "superficial" by creating the "illusion" of a good pollinator garden by only attracting butterflies.

Harland Patch, an entomologist with the Center for Pollinator Research, believes knowledge on pollinator gardens need to be more widely available.

"Our goal was simple," Patch said via email. "To build a better pollinators' garden that supported the broadest biodiversity possible and communicated the principles, including the plant lists, to the broad public."

The pollinator garden is projected to be completed by the summer of 2020, meaning that it will be available for students at the beginning of the 2020-2021 school year. It will sit between the Children's Garden and the Schreyer House.

Shari Edelson, the director of horticulture and curator at the Arboretum, said that many people believe the gardens are merely somewhere to look at flowers. However, Edelson believes education on pollinators is important because "over 80% of flowering plants rely on pollinators to reproduce."



The Center for Pollinator Research has been working with the Arboretum to create designs for an improvement to the Arboretum pollinator garden, which is to be ready for students in the fall of 2020. Courtesy Sheri Edelson

Penn State Arboretum Pollinator Garden (Cont)

The upcoming pollinator garden has gone through several conceptual plans and designs in order to be as effective as possible. Currently, the final designs are being created and are expected to be completed in the upcoming weeks.

The Children's Garden is one of the most popular destinations at the Arboretum. Steiner noted that it actually attracts more adults than children because of the designs that make it "appealing" for people of all ages. He said they chose to hire the same designer for the pollinator garden in order to make it "almost as interesting to go through as the Children's Garden."

Patch said the pollinator garden will act as a "series" of smaller gardens. The overarching gardens will include a bird garden and a pollinator's garden, which were initially separate though eventually merged together in the planning process.



The current plan of the pollinator garden which will sit between the Schreyer House and the Children's Garden.
Courtesy of Sheri Edelson

Throughout the area, there will be a food garden and floral garden to educate on the importance of pollinators in the food system as well as the different floral structures pollinators use. Patch added that there will also be a research garden that will showcase "important historical research in pollination science and even ongoing projects for current students and faculty" at Penn State.

Edelson believes that many features of the garden, including a meadow disk, orchard area and boardwalk, will be "visually striking." There will be a bird observation deck where faculty and students can see different species of birds as they bathe, feed and potentially nest. The garden will also include an entry gate, which was chosen as the Class of 2019 gift and which Edelson said she was very "excited" for.

The landscape of the garden has been designed in order to benefit the different pollinators of the region. Different landforms will be included throughout the garden along with several different ecosystems. Patch said there will be a forest area and a wetland area for different types of pollinating plants.

Penn State Arboretum Pollinator Garden (Cont)

“Some of the things we’re trying to achieve in this garden have never been done before,” Edelson said.

She added there are designs in the work for an observation hive where visitors can “view a honeybee colony at work.”

There is vast potential for the pollinator garden to bring something new to the Arboretum. Steiner believes it “adds a different dimension” because most of what is currently in place is “decorative.” He said that the added feature to the Arboretum will bring a “scientific component.”

Steiner said the garden “embodies a big issue people are aware of,” though many people focus merely on honey bees and butterflies when they think of pollinators. However, there are many species of pollinators native to Pennsylvania ranging from bees and butterflies to beetles and flies. Steiner believes they are “just as important,” and hopes that the pollinator garden will “be at the forefront of education” on these different species.

Those working on the project have high hopes for its ability to enrich the student experience while on campus. It has the chance to reach students in all fields of education, as well as provide the opportunity to explore the natural wildlife of Pennsylvania.

“We want this garden to function on multiple levels,” Patch said. “It should be simply a beautiful place students can go to submerge themselves in the living dynamic world- far away from their screens.”

Steiner hopes the garden will continue to engage the public for many years to come, even after team members move on.

“You can’t count on [faculty] forever, but I plan on having that pollinator garden forever,” he said.



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.

Introducing Beescape: A new online tool and community to support bees



UNIVERSITY PARK, Pa. — A new online tool and community, called [Beescape](#), enables beekeepers, or anyone interested in bees, to understand the specific stressors to which the bees in their managed hives, home gardens or farms are exposed, according to researchers at Penn State.

“Pollinators, particularly bees, play a vital role in supporting ecosystems in agricultural, urban and natural landscapes,” said Christina Grozinger, distinguished professor of entomology and director of the [Center for Pollinator Research](#) in [Penn State’s College of Agricultural Sciences](#).

“Nearly 90 percent of flowering plant species use pollinators to set seed and fruit, which animals — including humans — rely on for food.”

Yet Pennsylvania beekeepers lose nearly 50 percent of their honey bee colonies each winter, Grozinger added, and several wild bee species — including the bumble bee *Bombus pensylvanicus* — are threatened or endangered. These trends are occurring across the United States and around the world.

“We know that bee populations are declining because of several key stressors, including exposure to insecticides, reduced abundance and diversity of the flowering plants that bees depend on for their food, and loss of nesting habitat for wild bees,” she said.

Grozinger noted that bees travel large distances — several kilometers from their hives in the case of honey bees — to find food for their babies. But it has been nearly impossible for a beekeeper, or anyone interested in understanding what the bees in their backyards or farms are experiencing, to know what stressors their bees might encounter during their trips.

Grozinger and her colleagues designed [Beescape.org](#) to answer these questions. Previous work by members of the research team created methods to estimate the forage quality, nesting habitat quality and insecticide load in a landscape.

[Beescape.org](#) allows users to select a specific location — the apiary where they house their honey bee colonies, their home garden or their farm, for example — and obtain these landscape-quality scores for the surrounding region, up to 5 kilometers away. Users also can examine the crops that are being grown in the areas around them.

“Beescape allows people to see the world as a bee, which will help them make decisions about where to place their colonies or steps they and their neighbors can take, such as planting pollinator gardens or reducing insecticide use, to make the landscape more friendly for bees,” said project collaborator Maggie Douglas, an assistant professor at Dickinson College in Carlisle.

Importantly, noted Grozinger, [Beescape](#) enables researchers to partner with beekeepers and gardeners to gather information about how their bees are doing. The data generated from this partnership and community of collaborators will help researchers to better calculate how these landscape-quality scores translate to health outcomes for bees.

Beescape, Cont.

“With data provided by beekeepers from agricultural, rural and urban landscapes across multiple states, we will be able to develop high-quality predictive models that will be included in the website in the future,” said Melanie Kammerer Allen, graduate student in ecology at Penn State, who is involved in the project. “This will allow beekeepers to determine if they should provide the bees with supplementary food, for example, or for a grower to decide if they should add pollinator nesting habitat near their crops.”

The team collaborated with Azavea, a Philadelphia-based company that designs civic geospatial software and data analytics for the web, to develop the site.

The site currently has map information for Pennsylvania, Indiana and Illinois, and the team plans to include additional states in the future. Beekeepers and individuals with wild bee hotels in their backyards are encouraged to join the Beescape.org community and help provide information on the health of their bees.

Beescape is a partnership led by Penn State’s College of Agricultural Sciences, Center for Pollinator Research and [Huck Institutes of the Life Sciences](#). Other collaborators include Eric Lonsdorf, a lead scientist at the University of Minnesota’s Institute on the Environment; Harland Patch, research scientist; Doug Sponsler, postdoctoral fellow; and Kate Anton, research technician, all with the Penn State Department of Entomology; Adam Dolezal, assistant professor at the University of Illinois, Urbana-Champaign; and Brock Harpur, assistant professor at Purdue University.

The research was supported by funding from the U.S. Department of Agriculture’s National Institute of Food and Agriculture, the Foundation for Food and Agricultural Research, and the National Socio-Environmental Synthesis Center.

To learn more, visit [Beescape.org](#) or Penn State’s Center for Pollinator Research at <https://ento.psu.edu/pollinators>.

