



The Buzz

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Outstanding Pollinator Gardens

By Linda and Rich Silverman, Penn State Master Gardeners

Our fourth 'Garden of Merit' for pollinators is the garden of Ed Dix in Lemoyne, PA. His garden is on a narrow suburban lot of just 0.17 acres. Around the house, there are patios and driveway that leaves about 3,200sq. feet in front and another 1991sq. ft. in the back. The natural soil is dry, stony silt-loam but compost has improved many of the plantings.

Ed has developed large beds of mixed perennial wildflowers and shrubs on the north side with just enough turf to walk and work between beds. The foundation plantings have a bit more of a formal look. Away from the house, the beds have no open space between plants -- like a natural, moist old field habitat, lush and a bit wild. The tight plantings provide shelter to songbirds and small mammals where they can feed unobserved by predators. He began converting the pre-existing landscape about 18 years ago. Barberry hedges, vinca and non-native pachysandra groundcover and several trees were removed and replaced with mostly native plants.



Ed answered the following questions about why his garden is pollinator-certified.

1. How many species of native plants do you have?

At last count, about sixty-six species of native trees, shrubs and perennials are mixed into the property. If we want to add something new, one or more of these will have to go. There is no unutilized space.





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

Many common adult butterflies pass through. We regularly find black swallowtail larva on the parsley in the herb garden. Monarch larva on the milkweeds are rare even though we have four species of *Asclepias*. Persius dusky wings feed on the lupines. We support a great number of bumblebees and many smaller bees. We keep some soil areas open for miner bee nesting areas and we have seen leafcutter bees and carder bees at work. Hummingbirds regularly visit the cardinal flowers as expected, but stop at many other flowers of various plant families.

Our support of pollinators is based on growing a wide variety of native plants. Observing holes cut into leaves of plants is a positive sign that we are supporting a food web that extends beyond insects to songbirds and raptors.

3. How did you get into gardening? How did you get into natives?

Yard work was my assigned chore in childhood. In addition to cutting the grass and trimming the shrubs, I enjoyed exploring gardens and wild plant habitats. After six years of electronics work in the U.S. Navy, I used my GI Bill and savings to earn degrees in Horticulture and Botany at Penn State. After a stint in the Peace Corps assigned to Hope Gardens in Kingston, Jamaica, I took a job as botanist for the Pennsylvania Department of Conservation and Natural Resources (DCNR) Bureau of Forestry. DCNR is the state agency responsible for the management of native wild plants in Pennsylvania. I worked on plant issues across the Commonwealth for 25 years.

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

We will add to the nesting structures for mason bees using natural materials from our garden. We have plant stems of many sizes with soft pith that we can turn into tube houses for solitary bees.

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

Although a cold spell in early spring may have kept some early pollinators from flying, the bumblebees, small green and black bees, and flies of many kinds visiting the garden have been very abundant. We have not seen any monarch or black swallowtail caterpillars yet, but adults have been visiting.

We are recognizing Ed's garden for his great pollinator-friendly landscape. Ed's knowledge and expertise allows his garden to truly exemplify a pollinator-friendly 'Garden of Merit' designation.

News from the Center for Pollinator Research

The Pennsylvania Pollinator Protection Plan

By Harland Patch

This January, Pennsylvania's Secretary of Agriculture Russell Redding named a Pennsylvania-wide task force to create Pennsylvania's Pollinator Protection Plan, also known as the P4. The plan will bring together Pennsylvania beekeepers, growers, land managers, pesticide applicators, educators and scientists to create guidelines that will help conserve Pennsylvania's pollinators.



For beekeepers the plan will focus on best management practices in both agricultural settings and in nearby suburban areas. There will also be a section on keeping urban bees, which is the fastest growing beekeeping community in Pennsylvania. For all beekeepers management of devastating *Varroa* mites is essential, as well as providing good nutrition throughout the year and keeping bees safe from pesticides.

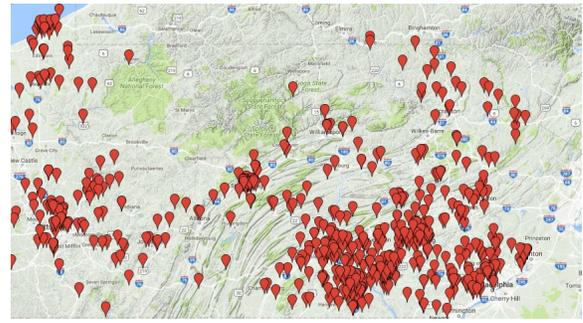
Supporting pollinators in home landscapes and in neighborhoods is also increasingly popular. The P4 will provide detailed guidelines and link to a broad range of supporting "how to" materials, including lists of the best native and non-native plants to support pollinator populations. Sections will also be included for land manager of parks, forests, roadsides and power line corridors.

Another primary goal of the plan is to outline the best management practices to protect bees in Pennsylvania agriculture.

Pennsylvania agriculture is one of the most diverse of any state in the United States. The agricultural counties in PA have between 24 and 53 types of crops, compared to less than half that in most Midwestern states. And many of those crops rely on pollination. These include tree fruits like apples, cherries, and peaches, and small fruits like strawberries, blueberries, raspberries and blackberries. Many vegetables grown in PA also need pollination including pumpkin, squash and cucumber. Although some farms rent honey bees for pollination Pennsylvania is relatively unique in getting much of its pollinator services from native pollinators. This is due to small farm size - about 1,000 acres smaller than the average farm in North Dakota- in mixed habitats. These are places where bees and other pollinators can find diverse forage and nest sites.



Members of the task force include Penn State's Center for Pollinator Research, Pennsylvania Dept of Agriculture, PA State Beekeepers Association, Pennsylvania Department of Conservation and Natural Resources (DCNR), Western PA Conservancy, PA Natural Heritage Program, Pennsylvania Game Commission, Longwood Gardens and Phipps Conservatory. Christina Grozinger, Director of PSU's Center for Pollinator Research heads the Task Force. The Task Force's goal is to have a final version of the plan by the end of June 2017. It will be hosted online at PSU and will be "living" document that will be linked to current new information.



Did you know? There are currently 677 certified pollinator gardens in 57 counties in Pennsylvania. Check out the pollinator map at <http://ento.psu.edu/pollinators/public-outreach/cert>

PROTECTING POLLINATORS

Avoiding Invasives:

By Connie Schmotzer, Penn State Extension, York

***Buddleia*—Butterfly Bush**

How could the ever popular butterfly bush possibly be a problem for pollinators when it attracts butterflies and is highly marketed as a “must-have” plant for butterfly gardens?

If it stayed in the gardens where it is planted, butterfly bush might be an asset to the pollinator garden. But unfortunately it does not. Its dust-like seeds are easily carried from our yards by the wind and are deposited along roadsides, in hedgerows, fields and along trails. Because butterfly bush is originally from Asia, it has no natural predators here. Not one native caterpillar is able to feed on it, so it can easily out compete native asters and milkweeds that our local butterfly larvae depend on.

Over the years I have watched butterfly bush spread from roadsides along Rt. 83 to ditches behind a local mall, to open areas along our popular rail trail. Because of the popularity of this plant, its spread into our natural areas is accelerating.

Be careful of the argument that a plant is not yet invasive in your area. Plants have to reach a certain population density before they tip over the edge. So for many less populated places it is simply a matter of time. And our changing climate is making it possible for plants to spread into different hardiness zones.

Another compelling argument for not planting butterfly bush is that by choosing it instead of a plant that helps support the insect and caterpillar population, you are not helping the food web. To survive, butterflies desperately need host plants with leaves that are palatable to their offspring, young caterpillars.



Butterfly bush along a road in York County

In our own 0.4 acre, we want to pack in as many beneficial plants as possible. So instead of butterfly bush we have chosen important host plants such as oak trees, pawpaws, spice-bush, milkweeds, asters, goldenrods and others. These plants are not only host plants, but also provide the nectar that adult butterflies need.



USDA Map showing states where *Buddleia* is invasive

OUTSTANDING POLLINATOR PLANTS

From Bees, Bugs and Blooms

Each issue we will highlight plants from our trial at the Southeast Research and Extension Center — Bees, Bugs, & Blooms. From 2012 to 2014, 84 plants and some of their cultivars were monitored for their attractiveness to a wide variety of pollinators. The results are on our Pollinator Friendly Garden Certification website. Go to <http://ento.psu.edu/pollinators/public-outreach/cert> and click on Step 1 – Provide Food. On that page you will find a list of links. The first one, Bees, Bugs Blooms, contains our results. Check it out!



Pollinator Trial at Penn State's Research Center
near Manheim

The Goldenrods — *Solidagos*

*The goldenrod is shining upon a distant hill
Its gold will turn to silver before the winter chill*

Many of us remember celebrating the arrival of fall and a new school year with a verse about goldenrod. It is certainly the stuff poems are made of – striking yellow colors setting off a stormy fall sky, ushering in the most colorful season of the year.

More and more gardeners are bringing the beauty of these native wild flowers into the garden. But wait, you say, what about those of us with hay fever?!

It's time to set the record straight about goldenrods and allergies. Simply stated, **goldenrods do not cause hay fever**. Plants that cause hay fever are usually wind pollinated. Their pollen is small and light and easily blown to other plants. Wind pollinated plants don't need exceptionally showy flowers to attract insects. Goldenrods must rely on insects for pollination because their pollen grains are too heavy and sticky to be carried by the wind. Their bright yellow blossoms act to attract a variety of insects. The real hay fever culprit in the fall is ragweed. It often grows in the same places as goldenrod, but is usually not noticed, as its flowers are not nearly as showy as goldenrod. Ragweed pollen is small and easily carried by the wind, causing many of us to sneeze and weep our way through the fall.

With the hay fever worry out of the way, think about adding some goldenrods to your garden. They will add gorgeous fall color to the landscape and provide a much needed late season nectar source for pollinators. Goldenrods are a vital food source for migrating butterflies and many different kinds of bees. They will also attract the beneficial predators that keep garden pests in check. The seeds of goldenrods provide food for juncos, sparrows and other songbirds.

There are over 130 species of goldenrods in North America and many are now available to gardeners. They can be divided in spring or early summer and are easy to establish. No fertilizer is required. Here are several of favorites of our pollinators:

Solidago rigida Stiff goldenrod

A top winner in the Bees, Bugs, Blooms trial, *Solidago rigida* came in second for total pollinator visits and first for attracting the most diversity of pollinators. It grows 2 to 5 ft. tall on stiff stems that keep it erect in the garden. It likes moist to average soil but can tolerate drought and is great for back of the border.



Stiff goldenrod - a pollinator winner

Goldenrods (continued)

Solidago rugosa 'Fireworks' – Rough-stemmed Goldenrod

This cultivar was selected from a population of *Solidago rugosa* growing on the North Carolina coastal plain. Its shrub-like form makes this 3 foot high plant a nice garden addition in any season. But, like all goldenrods, it is outstanding in autumn when it erupts with panicles of small yellow flowers that splay out like fireworks. Drought tolerant and not particular about soil, this is a showy and easy to grow plant. Combine it with similar meadow type plants such as False Sunflower (*Heliopsis helianthoides*) or New England Aster (*Symphotrichum novae-angliae*) or use it as a middle or back of the border plant.

Solidago nemoralis – Gray Goldenrod

One of the shorter goldenrods, Gray goldenrod stays between 1 to 2 feet tall and thrives in poor soils in sun to part sun. Blooming later than most goldenrods, it has a clumping habit and will grow in full sun to part shade. Gray goldenrod is a good choice for slopes or poor soils where little else will grow.

Solidago caesia - Wreath Goldenrod

This shade tolerant goldenrod tolerates medium shade to partial sun. In nature it is found in open woods and along woodland edges. Growing 2 to 4 feet tall, it looks great in dappled shade in the garden.



Solidago caesia—wreath goldenrod at woods edge with blue wood aster and *Rudbeckia fulgida*