



# What's the Buzz?

April 2026

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## Outstanding Pollinator Habitats

By Linda and Rich Silverman, Penn State Master Gardeners

### 21<sup>th</sup> Habitat of Merit Award

Our 21<sup>st</sup> Habitat of Merit award goes to John Feters and Coleman who live in a beautiful HOA retirement community in Kennet Square. Since they moved in fairly recently, the transformation to native plants is absolutely astonishing. Just look at the pictures.

***Describe your garden – size, type? Is it shady, sunny, dry, moist? Does your property have any unusual elements?***

We live in a duplex in an HOA retirement community, so garden areas are mainly limited to the foundation beds around the house. Luckily, we received permission to add a small bed around the mailbox as well as create an island bed on the side of the house as a privacy screen. Despite the small space, each garden area has different sun and soil conditions ranging from full sun to full shade and from dry to moist, which allows for a wide variety of plants that like those various conditions.



Although I'm mainly a native purist, I've learned that a front border of daffodils in the spring followed by zinnias in the summer creates the curb appeal favored by many HOA communities. However, I'm pleased that our native plant beds have also received lots of compliments from neighbors.



***How old is your garden and how long have you been at this site?***

It's been a little over 2 years since we started planting. All previous plant material was removed before we bought the house, so we began with a blank slate. Moving from Zone 5a to 7a, we were not familiar with the different types of plants that would grow here and enlisted the help of a wonderful landscape designer.



Living in the mushroom capital of the world means we have access to free mushroom soil which we used to amend all the beds prior to planting. Adding a top dressing of bio char and soil conditioner as well as leaving the leaves should also help improve the heavy clay soil over time.

***How many species of plants do you have?***

There are over 140 different native trees, shrubs, grasses and forbs that we have planted in the different beds. I was pleasantly surprised that it was possible to create that much plant diversity in a relatively small area.

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

Most plants were purposely selected for their pollinator appeal and larval host ability. There are a wide range of pollinators these plants have attracted including bumblebees, leafcutter bees, blue winged wasps and hummingbird moths. I find it mesmerizing to just stand and watch different plants buzzing with pollinator activity and want to learn more about identifying all of them.

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

Prior to moving to PA, we lived on 46 acres in the woods of SW Wisconsin and had a 5-acre prairie. I've always loved gardening and birding, but it wasn't until I read Douglas Tallamy's first book that I came to appreciate the power of native plants, especially in terms of bird appeal. I was quick to convert and began expanding the variety of native plants on our property, and just like the Field of Dreams (build it and they will come theory), it wasn't long until we noticed an increase in both the number as well as variety of birds. During the 25 years we lived in Wisconsin, we observed 130 different birds as a result. Hopefully our efforts here in Pennsylvania, albeit on a much smaller scale, will yield similar results.

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

Our backyard is very small and backs up to a steep hillside which was covered with *Vinca minor* and Japanese pachysandra. The area was neglected for years and was overgrown with honeysuckle, tree of heaven, privet and oriental bittersweet vines as well as large patches of garlic mustard and Japanese stiltgrass.

We removed most of the invasive plants with the exception of the pachysandra which is helping cover the soil and aids in erosion control. Over time, we plan to gradually eliminate the pachysandra and replace it with native ground cover plants.

Winter sowing seeds is a cost-effective way of growing more plants and is something I've done for several years. What doesn't get added to the garden, I have given away to neighbors.



Luckily, there were several established native trees such as *Lindera benzoin* (spicebush), *Prunus serotina* (cherry), *Liriodendron tulipifera* (tulip poplar), *Cornus florida* (dogwood), and *Sassafras* already here and we supplemented those with *Quercus alba* (white oak) and *Cercis canadensis* (redbud) as well as several shrubs such as *Corylus americana* (hazelnut), *Ilex verticillata* (winterberry), *Hamamelis virginiana* (witch-hazel), *Cornus amomum* (silky dogwood), *Aesculus parviflora* (bottlebrush buckeye), *Viburnum dentatum* (arrowwood) and *Rhododendron periclymenoides* (pinxterbloom azalea). A pleasant surprise was an established patch of *Conoclinium coelestinum* (blue mistflower).

We also planted 700 plugs of various native forbs, grasses and sedges to provide pollinator appeal from early spring to late fall. These included *Zizia aurea* (golden alexander), *Packera aurea* (golden ragwort), *Polemonium reptans* (Jacob's ladder), *Phlox divaricata* (woodland phlox), *Aquilegia canadensis* (wild columbine), *Pycnanthemum muticum* (broadleaf mountain mint), *Echinacea purpurea* (purple coneflower), *Allium cernuum* (nodding onion), *Helianthus divaricatus* (woodland sunflower), *Solidago flexicaulis* (zig zag goldenrod) and *Eurybia divaricata* (white wood aster). It's surprising the variety of native plants that will happily grow in partial or full shade.

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

The *Asclepias incarnata* (swamp milkweed) and *Asclepias tuberosa* (butterfly weed) have attracted monarchs and the bronze fennel, although not native, attracts Black swallowtails. And soon after planting *Antennaria plantaginifolia* (pussytoes) we spotted an American lady caterpillar. The brown hooded owlet moth is not especially attractive, but in the larval stage it is a beautiful red, blue and yellow striped caterpillar. Other butterflies we've seen include the common buckeye, American Snout, Least Skipper, Cabbage White, Spicebush Swallowtail, Eastern Tiger Swallowtail, Banded Hairstreak and Red Admiral.

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

I've always heard that *Liatris ligulistylis* (meadow blazing star) is a monarch magnet, but it wasn't until we planted some that I fully appreciated that statement. There were always at least 3 Monarch butterflies on them every day they were in bloom.

No wonder this garden was selected as an example of what you can do with native plants in a variety of settings – dry, sun, moist and shade. Cheers to our 21<sup>st</sup> Garden of Merit – John always answered my letters with “Cheers”.



## **JOIN US for the Open House at Bees, Bugs, Blooms Pollinator Trial.**

**When:** Saturday, August 15, 9a. To 1:00p

**Where:** Penn State Southeast Research and Extension Center  
1446 Auction Rd, Manheim, PA

**What:** 9:15 and 11:15 Tours of the Pollinator Trial/Insect Walk by Tim Abbey  
10:00 “The Gourmet Bees of Our Gardens” talk by Margarita Uribe Lopez,

Family activities, Pollinator displays including live caterpillars  
**Plant plug sale** of some of our best native pollinator plants



# OUTSTANDING POLLINATOR PLANTS

## Bloodroot—*Sanguinaria canadensis*

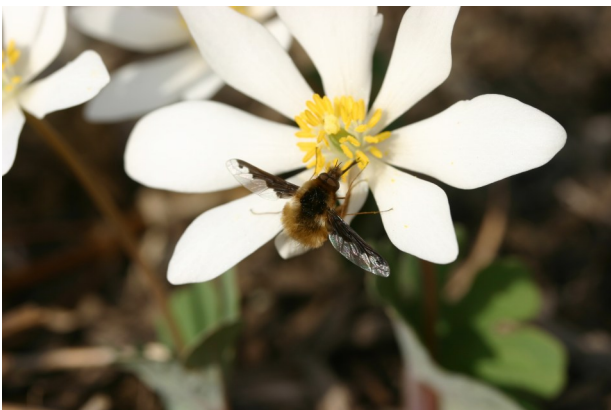
By Lisa Schneider, Centre County Master Gardener, Snetsinger Butterfly Garden

What gardener doesn't love spring ephemerals--the brief but brilliant woodland display that lifts our spirits after a long winter. These native beauties emerge from rhizomes or tubers beginning in early spring and quickly take full advantage of the early spring light that the slower-to-leaf-out canopy offers.

Named for the roots that yield a reddish-orange sap that can stain skin or clothes, bloodroot (*Sanguinaria canadensis*) is one of the earliest native spring ephemerals in PA. The colorful sap, which is unpalatable to deer, is characteristic of other flowers in the poppy family (*Papaveraceae*). This sap has a long history of use by Indigenous peoples and early European settlers, and it's still used to produce natural red, orange, and pink dyes. The eight or more petals of bloodroot cluster around yellow-tipped stamens and open to the sun in temperatures above 46F, closing when darkness falls. Truly ephemeral, each fleeting flower blooms for only a day or so before it dies, and will be visited by small bees, ants, bee flies, wasps and beetles for pollination. But bloodroot doesn't put all its eggs into one basket: If the flowers are not pollinated by insects within three days, the stamens will bend down to touch the stigma so that self-pollination occurs.



A single green leaf wraps around the flower stalk and opens to full size as the flower wilts. The seedpod then begins to develop as the leaf continues to grow, and these leaves can persist into summer if soil moisture is sufficient. And one could argue that once the blossoms have finished, that's when the story really gets interesting!



*Bombylius major* (greater bee fly, a bee mimic) pollinating bloodroot

Bloodroot is one of the many woodland wildflowers whose seeds are spread by ants (*myremecochory*). Ants gather the seeds and store them in underground nests, feeding on the fleshy appendage (*elaiosome*) attached to each seed. The elaiosomes are nutritional powerhouses, rich in fats and sugars, so the ants are highly motivated to take the trouble of transporting them back to the nest. After dinner, the remains are disposed of in the ants' waste tunnels, which are filled with rich organic matter--the perfect fertilizer for new plants. In this way, the ants essentially 'plant' the seeds in an environment where they'll be protected until they germinate the following spring.

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Bloodroot is best grown in mildly acidic woodland conditions with rich, moist, well-drained soils and partial to full shade. Plant bloodroot near a path or at woodland edges so you'll be able to spot the flowers when they begin opening. In addition to the straight species, there are several semi-double and fully double cultivars, such as 'Multiplex' (= 'Flore Pleno'). These are lovely and might be easier to find, but beware: The extra petals are actually modified stamens, so these cultivars are of ten sterile and will not multiply, except by division.

Consider adding bloodroot to your native plant lineup—both as a welcome sign of spring and a reminder of the wisdom of Mother Nature.

Learn more about bloodroot from these sources:

<https://nativebeeology.com/2017/04/01/the-blooming-of-the-bloodroot/> <https://hort.extension.wisc.edu/articles/bloodroot-sanguinaria-canadensis/>  
<https://blogs.illinois.edu/view/7362/807683#:~:text=Bloodroot%20plants%20exhibit%20nyctinasty%E2%80%94they%20close,the%20temperature%20isn't%20above%2046%C2%B0F>

### **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](mailto: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.



# PROTECTING POLLINATORS: Avoiding Invasives

## The Privets—*Ligustrum japonicum*, *Ligustrum sinense*, *Ligustrum vulgare*

By Connie Schmotzer, Penn State Master Gardener



Privet hedges are a common feature in home landscapes

Mention privet, and my mind used to go to the carefully pruned hedge in front of my grandmother’s house. These days, it conjures up a wall of green in the understory at Richard M Nixon County Park, one of my favorite places to walk. Covering a large portion of the understory of the woods there, privets have created dense stands, crowding out native plants and drastically altering wildlife habitat.

Privets’ habit of leafing out early in spring gives them a competitive advantage over native plants, decreasing the diversity of native flowers that provide



Invasive privet overtaking the woodlands in Nixon Park, York County

nectar and pollen to different types of bees and other pollinators. Because privets come from other continents and ecosystems, very few insects are able to eat the leaves, so the forest produces many fewer caterpillars and insects to feed nesting birds

How do privets move from our yards to woodlands? Birds are the primary movers, eating the berries and flying to forested areas to deposit the seeds. Just because birds eat the berries, doesn’t mean the berries are good for them. New studies show that many invasive plants lack the proper sugar and lipid content that birds need at different times of the year. Susan Smith Pagano of the Rochester Institute of Technology has done extensive research on the berries that birds eat. Migratory birds need high-energy fruits that allow them to rapidly refuel. You can access her work [here](#). Our songbirds have co-evolved with the native trees and shrubs that they need for successful migration. Invasive plants interrupt this partnership.

Gardeners can help by not planting privet in their yards and removing any privet that might already be present. Individual plants can be dug out or cut back to the ground in late summer and the cut ends treated with herbicide. Pick up any fruit that has fallen and place it in the garbage.

*Invasive Plants, Continued on page 8*



**PennState Extension**

Not sure if you have privet on your property? Here are a couple of hints for identifying it. All the invasive species of privet are in the olive family and have these things in common: Their leaves are opposite on the stem, are obovate in shape and have entire (smooth edges). The flowers are white, with four petals and trumpet shaped and appear in clusters at the ends of branches. To view a video of how to identify privet, go to the Penn State Extension [privet identification page](#)

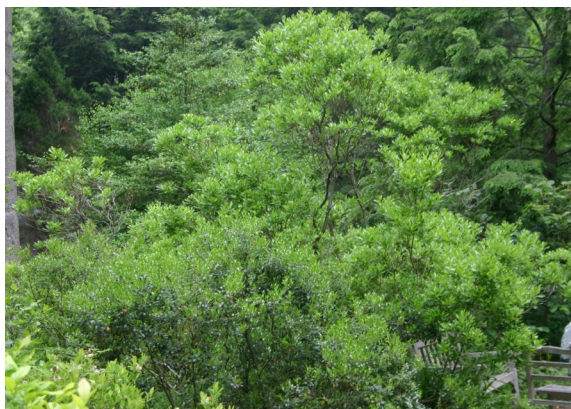


White flowers appear on privet in spring

Because hedges are important to many homeowners for privacy, many gardeners will likely want a replacement for privet. There are many native plants available that will do the job. Some of the best native shrubs for birds are our native viburnums, particularly arrowwood viburnum, *Viburnum dentatum*. If you have dry, well drained soil you might opt for northern bayberry, *Morella pensylvanica*. Shrub dogwoods such as red twig dogwood, *Cornus sericea*, or gray dogwood, *Cornus racemosa* are also excellent hedging plants. Planting a mixed border of several different species is an even better idea. The variety of berries will provide food for different species of birds at different times, and planting different species assures the long-term survival of the hedge.



*Viburnum dentatum*, arrowwood viburnum in bloom



*Morella pensylvanica*, northern bayberry, is a good plant for drier soils



*Cornus sericea*, redtwig dogwood, makes a great hedge with winter interest

# How Can Dark Skies Help Pollinators?

Gardeners have known for a long time that insects are vital to our existence. In the words of E.O. Wilson, insects are “the little things that run the world”. They pollinate, decompose waste, and provide pest control. And importantly, they are the base of the food web, providing sustenance for all other members of the food web, including us. Without insects, the world as we know it collapses, with tragic consequences for all of us.

Insects are currently disappearing at an alarming rate. In 2017, a long-term study found declines of more than 75% of insects in protected areas in Germany. Insects are threatened by pesticides, loss of habitat, climate change, disease and pollution. Most dedicated gardeners have cut back or eliminated pesticides and have tried to add pollinator friendly features to their landscape. But now we need to add one more stressor to our list - light pollution.

About half of all our insect species are nocturnal, spending most of their life at night. Among them are some of our most charismatic insects, such as fireflies and glowworms. And many are some of our very valuable pollinators, particularly moths and beetles. Artificial lighting poses a real problem for these insects. Firefly courtship is easily disrupted by additional light, as is glowworm mating. Many insects are drawn directly to outdoor lighting. You no doubt have seen the clusters of moths flying around your outdoor lights. About 1/3 of them die before morning, either from exhaustion or being eaten by predators.

It’s not just insects that suffer from artificial light. Birds that migrate or hunt at night navigate by moonlight and starlight. Artificial light throws them off course and directs them toward the landscapes of cities. Migrating birds are particularly vulnerable, especially on foggy nights when they collide with illuminated buildings. Artificial lights can also cause birds to start their migration too early or too late. Even plants are affected. Light pollution affects how they grow and reproduce and affects their seasonal rhythms. Plants, like animals, need a sleep cycle to complete their growth. That’s hard to do when natural darkness doesn’t happen.



Whitney Cranshaw, Colorado State University, Bugwood.org UGA1455100  
Fireflies are among the insects harmed by artificial lighting



The polyphemus moth is one of our nocturnal species of Lepidoptera

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This problematic artificial light comes from many sources. In our neighborhoods there are streetlights, our windows, security lighting on our houses, and lights lining our walkways. So, what can you do to help? It's actually pretty easy. It starts with pulling your shades to keep light in at night.

Here are some tips from Dark Skies International:

- Pull your shades at night to keep light indoors
- Get rid of floodlights and install motion sensor lighting. (The reason most people have outdoor lighting is for safety – both to keep out intruders or to light walkways and entrances at night. Motion activated lighting fills this need)



Outside artificial lighting creates problems for insects and plants

Finally, electronic bug zappers are still manufactured and widely available despite the overwhelming research which shows that they are useless at controlling insect pests. In fact, bug zappers destroy far more beneficial insects. A study at the University of Delaware aimed at investigating the effectiveness of bug zappers on mosquitoes found that that of 13,000 zapped insects, less than 0.25% were mosquitoes. Over 99.75% were beneficial insects.

For more information about the effects of light pollution on wildlife and insects, check out the Dark Sky PA website at <https://www.darkskypa.org/>. There's lots to learn, as well as resources for dark sky certified products.



View of the earth at night from a satellite

