October 2022 Newsletter

NATIVE PLANTS, NATURAL LANDSCAPES

SOUTHEASTERN PENNSYLVANIA CHAPTER

sepa.wildones.org

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October Meeting Highlights

Chapter Business

Chapter membership stands at 146 with 5 new members this month.

The nomination slate for chapter board members and officers was presented. The election will be held at our December meeting. The Vice President and Membership Chair positions are open. A brief description of these positions is included on the YouTube recording of this meeting.

This year our chapter had a table at 11 outdoor festivals and community events. We were able to reach hundreds of people at these events, many of whom had never thought about the importance of native plants. We would like to have more volunteers to help with these events.

Finally, the chapter needs someone to serve as program chair. This is a great opportunity for a person who loves to make connections, to organize our programs, events, and tours.

Please contact us at if you're interested in any of these positions. **Here's our contact information:**

secretarywildonessepa@gmail.com

Cultivars and Genotypes

Presented by Ben Kessler, Little Bluestem Nursery, Afton, VA

Let's start with some definitions:

Genotype refers to the genetic makeup of an organism; roughly, its family. "Local genotype" refers to the lineage of a plant whose ancestors grew in the location under consideration. There's great variation in the genotype of plants from one location to another.

Species refers to a set of living things that can reproduce itself. This distinction doesn't fit plants very well, because plants can form stable hybrids or subspecies that are fertile. For example, different species of wild rye (bottlebrush grass, *Elymus hystrix;* Canada wild rye, *E. canadensis;* southeastern wild rye, *E. glabriflorus;* and riverbank wild rye, *E. riparius)* growing near each other can cross-pollinate in a single stand where the habitat transitions from wet to dry.

Phenotype refers to the set of observable characteristics of an plant resulting from the plant's interaction with its environment. The natural cross-pollination of wild rye in response to the moisture level, sunlight, and soil quality of its habitat is an example of the development of a phenotype.

Different phenotype expressions can occur, depending on a plant's habitat. Plants are capable of developing organisms that defy our typical designations of species and subspecies.

Cross-pollination and the resulting hybrids can also occur between native and nonnative strains of a plant. Two examples are yarrow (*Achillea*) and self-heal (*Prunella*). These hybrids can blur the line between native and nonnative plants for these species.

If native and nonnative plants can hybridize, what's a gardener to do? Focus on planting local or regional genotypes of native plants, and grow straight species of natives instead of their cultivars, sometimes referred to as "nativars."

WO-SEPA 2022 Meeting Schedule

Nov. 9: Native Shrubs for Four-Season Interest

Dec. 1: Collecting and Saving Native Seeds

Recordings of past meetings are on our Youtube channel.

October meeting highlights, continued from page 1

Where can a gardener find local genotypes? One place is your own garden; harvest seeds from native plants you're growing, and grow enough plants to share. Local genotypes can also be found in the wild -- along roadsides, on power line cuts, at the edges of agricultural fields. Make sure you have permission from the property owner before you go, and harvest no more than 10% of the available seeds.

These local genotypes have evolved to adapt to local conditions of soil and climate. If you're planting in an area that's relatively undisturbed and reflects these local conditions, it makes sense to plant local genotypes of native plants, because they are already adapted to the site conditions.

If you're planting in a disturbed setting -- a former agricultural field, or ground that's been disturbed by construction and fill, the local genotypes aren't adapted to those soils anyway, so straight-species natives will grow just as well as the local genotypes and will evolve their own adaptations to the soil in which they're planted.

Whether you're gardening in disturbed or undisturbed soil, it's more important to plant straight species and to avoid planting cultivars of natives. Those cultivars have been bred by the nursery industry to change the characteristics of native plants to include traits favored by humans rather than by the wildlife that depends on these plants for food and shelter.

Cultivars might be bred to have different colored leaves, larger or more prolific flowers, a longer bloom season, more frost or heat tolerance, or a shorter stature than their native parents. However, the gene that produces the desired characteristic could also affect the plant's ability to survive weather challenges, or its ability to produce food for the insects and animals that depend on it.

Research indicates that some caterpillars don't favor the leaves of a native cultivar that's been bred to have reddish leaves instead of the green leaves of the straight species. The caterpillars might not recognize red leaves as food, or the red leaves might not contain the nutrition needed to sustain the caterpillars. Either way, this cultivar has failed at the very task the gardener is asking it to perform, which is to support native wildlife. If all we Want is a plant with red leaves, we might as well plant a nonnative for all the good it will do our wildlife.

If you've planted native cultivars in the past, you might have noticed that some don't seem to have the same survival rate as the straight species, whether it's the soil or the weather that creates the challenge. If pollen from such a cultivar is spread to the straight-species of the same plant, that plant's offspring could also lose their ability to withstand those challenges. In a bad year, you might observe an unusual rate of destruction in certain species due to the spread of maladaptive traits from cultivars.

To avoid the danger of introducing viable long-lasting negative genetic traits into native populations, gardeners can focus on planting local genotypes Even transplanting from outside the local area could introduce adaptive tendencies that aren't needed and are favored to the detriment of necessary adaptive techniques.

The minimum viable population is the smallest population of organisms that can persist under the current conditions. The viability of most species will require a large base population because of the variety of environmental conditions that can affect the population. Moving plants around within an ecoregion can benefit the minimum viable population by introducing adaptive genes from other areas with similar local conditions.

Plants grow in partnership with minerals and microbes in the soil. When transplanting, include some of the local soil so these microbes and minerals will be spread to the new population.

Hardy native generalists are commonly seen early in the succession stage -- for example, wingstem (*Verbesina alternifolia*) and jumpseed (*Persicaria virginiana*). Later successional stages, such as woodland, should not have these species unless there are areas of disturbance caused by removing a tree.

Don't automatically remove these early successional natives; they play a role in transitioning a disturbed area to a natural one. You can accelerate natural succession by interplanting a few later successional plants, but not too many.

Sustainable hybrids are producing novel plants all the time. Evolution never stops, whether the plants are natives or nonnatives.

Resources

For more information on this topic and others, such as extinction ecology, companion planting, road botany, mutants, trashland ecosystems, feral education, and weird chemistry, visit Little Bluestem's blog, By the Seat of our Plants.

Thought of the Month -- Protecting Birds from Window Strikes

One of the many reasons we grow native plants is to attract birds to our yards. Unfortunately, this can lead to birds being injured or killed from flying into windows and glass doors. Birds cannot see glass as we can. They see only what's reflected in the glass, which is often trees and sky. Essentially, windows act like mirrors that confuse birds into thinking that they are flying into habitat.

Spring and fall are particularly difficult times, as many birds are migrating. To stop birds from striking glass, the whole area needs to look like a barrier to them. So what can we do to provide the visual cues birds need to "see" the glass?

Markings can be made on windows with stickers or decals. You can also use a paint marker pen, such as Crayola window writers, to draw lines or anything else you like to fill the space. These lines can be scraped away with a credit card or washed off once they're no longer needed. For a quick, easy, and inexpensive fix, use a bar of soap to draw on your windows. We drew lines with soap down our windows while we worked on a more permanent solution. This has seemed to be mostly effective, but not a complete fix.

Apply markings to your windows or doors very densely, leaving gaps no larger than 2" x 2"; otherwise, birds may try to fly through them. Markings should be high in contrast so they stand out. Each marking should be at least one quarter inch wide. The entire glass area should be covered.

Markings must be applied to the outside of the window. Remember that the reflections may make indoor markings invisible to birds. This is also why closing the curtains or blinds inside the house does not work. The exception is when closings blinds stops the "see-through effect" from windows opposite one another or along a glass corridor or in a sunroom.

Other options include:

- Applying a window film, such as those that make a window appear to be frosted. Other films mimic the look of window panes or decorative window grilles.
- Feather Friendly®DIY tape, which can be purchased on line at featherfriendly.com or at Wild Birds Unlimited.
- Bird Screens is a product that attaches to the outside of your windows with suction cups.
- Hang a ribbon or string every 4" down the window, or order parachute cords from birdsavers.com. Bird Savers also sells pre-made versions called Zen Wind Curtains.
- If you're planning to replace your windows, look into special bird-friendly glass, such as etched glass, fritted glass, or UV-coated glass.

A related problem is outdoor lighting, particularly landscape and security lighting. Leaving lights on all night can result in nighttime collisions with windows and walls and can also keep birds circling in the air in confusion until dawn.

So, turn off those lights at night and add some visual cues to your windows, especially during seasonal migration periods, and in the spring when you notice young birds learning to fly. The goal is to help keep our birds in flight.

More Resources

National Audubon Bird-Safe Home brochure

Bird-Safe Window Marker Guidelines

Solutions To Prevent Bird-Window Collisions

Glass Collisions: Preventing Bird Window Strikes

Tree of the Month -- Shagbark Hickory

Among the many beautiful hickories of the oak-hickory forest is the distinctive shagbark hickory, *Carya ovata*, obviously named for its interesting and unusual bark. Shagbarks are large and long-lived but slow-growing trees. Mature trees can reach 70 to 100 feet tall and about 50 to 70 feet wide. Hickories have deep tap roots, which can make them difficult to transplant. The taproots can grow 2 to 3 feet in the first few years, so if you're buying trees, it's important to find a nursery that knows how to grow them properly.

Shagbark hickories are adaptable to a variety of soils, tolerant of clay soils and drought but not flooding, as they prefer well- drained soil and also full sun. Leaves are alternate and pinnately compound, with 5 or sometimes 7 finely toothed leaflets, including a large terminal leaf.

Fall foliage is golden yellow. Shagbark hickory's distinctive grey bark starts out smooth and becomes "shaggy" with age. On mature trees, the bark plates protrude from the trunk, providing hiding and feeding places for insects, small birds, and bats.

Yellow-green catkins in April develop into small brown nuts that mature in fall and provide food for turkeys, songbirds, squirrels, chipmunks, mice, raccoons, fox, rabbits, and people.

Shagbark hickory is a climax species of the eastern hardwood forest. The trees are hosts for the larvae of numerous moths and butterflies, including the hickory and banded hairstreak butterflies and underwing moths.

Deer typically don't bother shagbarks that are over 8 feet tall, but smaller trees need protection from browse and antler rubbing.

Go Native Trees, near Lancaster, specializes in growing hickories and can advise gardeners how to grow them, as well as providing tips on practices to avoid.

Shagbark Hickory Quick Facts

Height: 70-100 ft

Form: Straight trunk; open, oblong crown

Soil: Sandy to clay loam; must be well-drained

Sun: Full sun to part shade

Growth rate: Slow; difficult to transplant due to large taproot

Leaves: Alternate, large, pinnately compound

Flowers: Greenish catkins in spring

Fruit: Edible nuts in fall

Zone: 4-8

Habitat value: Birds and squirrels feed on catkins; leaves and bark support caterpillars; birds and mammals feed on nuts.

Pledge To Rewild -- Fall Yard Work

In January, we invited readers to start off 2022 with a pledge to rewild. This initiative by the Wild Seed Project aims to meet the challenge of biodiversity loss head-on by restoring a minimum of 70% of native plant biomass to support healthy populations of butterflies, bees, birds, and insects that are crucial to a functioning ecosystem.

The pledge to rewild includes 10 action steps to help you get started. This month, in tune with the change of season, we're focusing on fall maintenance practices.

Less Is More

We've been taught that fall leaves don't belong on lawns, so we're used to raking, blowing, or mowing them up and depositing them somewhere else. But traditional fall "cleanup" activities are actually harmful to native plants and wildlife. Let's dig a little deeper into this relationship.

Lawn grass commonly includes nonnative fine-bladed grasses like Kentucky bluegrass (native to Europe and Asia but not Kentucky), red fescue and sheep fescue (native to Europe and the northwestern states of the U.S. but not southeastern PA), and perennial ryegrass (native to Europe).

These grasses require good air circulation and exposure to sunlight to thrive. Being smothered under a layer of fall leaves is no good for a lawn, so conscientious homeowners have been removing fall leaves for decades. This activity can be time-consuming and expensive even on a mid-size lawn.

Here's the good news -- shrinking the lawn is part of rewilding our yards, so we should have less lawn and more wild areas to work with. Ideally, our lawns are so small that they can easily be hand-raked and the leaves deposited in nearby areas that are now planted in natives. The natives will benefit from the nutrients in the leaves, which are delivered gradually as the leaves decompose over the winter. The insects overwintering in the leaves will have a chance to mature next spring, and salamanders, birds, and other wildlife will use the leaves as cover during winter weather.

Leave the Leaves

Traditional "flower beds" contain isolated clumps of perennials or annuals liberally surrounded by triple-ground mulch. Fallen leaves and dead stems accumulating in these beds are considered "unsightly," so they are removed and bagged for disposal. Native plantings, however, include multiple layers of plants all the way to the ground level. There is very little mulch showing. Even in winter, the ground is covered primarily by decaying leaves, stems, and branches, with the crowns of some perennials showing through.

Leaves, stems, and branches have been falling in forests, meadows, swamps, and grasslands since the dawn of vascular plants. They enrich the soil as they decay, and fallen leaves provide places for bugs to hide and birds to forage for food. The layer of decomposed plant material that covers the ground in a native planting is critical habitat for a variety of critters such as salamanders, snails, worms, and toads. Not only is it ok to "leave the leaves," it's actually important for your native plants and the creatures that share their habitat.

That said, what to do with the excess leaves you rake from your small lawn areas, patio, and driveway? You have a coupe of good options.

- Extra leaves can be added to native planting areas as long as you don't cover the crowns of plants or create a thick mat where spring ephemerals will emerge.
- Save extra leaves to use as mulch in an area you are converting from lawn or weed patch to native plantings.
- Build a brush pile of tree limbs that fall on your lawn and driveway, and add any excess leaves. Everything will break down over the winter, creating a new planting area with rich soil, or providing you with soil to use when potting up seedlings of natives.

Save the Seeds

Leave the stems of native perennials standing until spring. Their seed heads will provide nutrition for birds, like this American goldfinch nibbling on false sunflower seed heads. The seeds of coneflowers, black-eyed Susans, and other native wild-

Pledge To Rewild, continued from page 5

flowers provide a helpful winter food cache for birds. The seeds might be almost invisible, but birds eat them all winter long, as this junco is doing with monarda seed heads.

Grasses—not turf grass species, but natives like bluestems and gramas—also provide good wildlife forage after they go to seed. Leaving other plants stalks standing can fill your property with protein-packed bird snacks in the form of insect larvae, such as the fly and wasp larvae that inhabit goldenrod galls.

Galls Are a Good Thing?

Goldenrods are host to insects that give rise to several types of galls. The galls are structures that are produced by the plant, rather than the insect. After certain insects lay their eggs on vegetation, their larvae tunnel into the host tissue, where they feed on the plant's living cells. Goldenrods, among other plants, respond to these internal herbivores by producing additional cells within the stem that both feed and isolate the larvae.

The larva develops within this chamber, called a gall, and emerges as an adult. Some galls are parasitized by other insects, whose larvae prey on the larva developing inside the gall. Other galls are attacked by woodpeckers, who recognize the structures as a source of food. If goldenrod stems are cut down before the adult insects emerge in the spring, the cycle is broken.

Other natives that host galls include oaks and witch hazels.

Build a Brush Pile

Instead of piling fallen branches at the curb to be hauled away, use them to create additional habitat in your yard by building a brush pile. Chickadees and other birds that spend the winter with us will appreciate the protection from harsh weather, as will small mammals, toads, and salamanders. The pile will shrink over the winter as the contents settle and decompose. In the spring, you can either keep the pile going by adding spent plant stalks or spread whatever's left in your native planting areas as mulch and fertilizer.

If you're looking to convert an area of lawn or weeds to native plantings, build the pile on that area so it will smother the existing vegetation. In the spring, either plant through the decomposed material or clear it off, allow a few weeks for residual weed seeds to sprout, then hoe the area off and plant your natives. Mulch the new plants with wood chips or decomposed leaves to prevent further weed seeds from sprouting until your newly planted natives fill in. As a bonus, natives whose seeds lay dormant under the grass are also likely to sprout and fill in the gaps, including white avens and honewort in sunny areas, Virginia smartweed and jewelweed in part shade. Familiarize yourself with the seedlings of these natives so you don't pull them out by accident while you're weeding.

Fall Is for Planting

if you want to make your backyard a welcoming winter haven for birds, fall is a great time to shrink your lawn by expanding your existing native planting beds. In cooler weather, it's not hard to spend an hour weed-whacking some grass down to the soil level, laying down fallen logs as a border, and covering the area with wood chips so you can plant more bird-friendly natives. Many nurseries are having sales now, and early fall is the perfect time to plant shrubs and trees so they can settle in before winter.

Resources:

To Help Birds This Winter, Go Easy on Fall Yard Work

All Galls Are Divided into Three Parts

It's Gall Season!

Audubon Native Plants Database

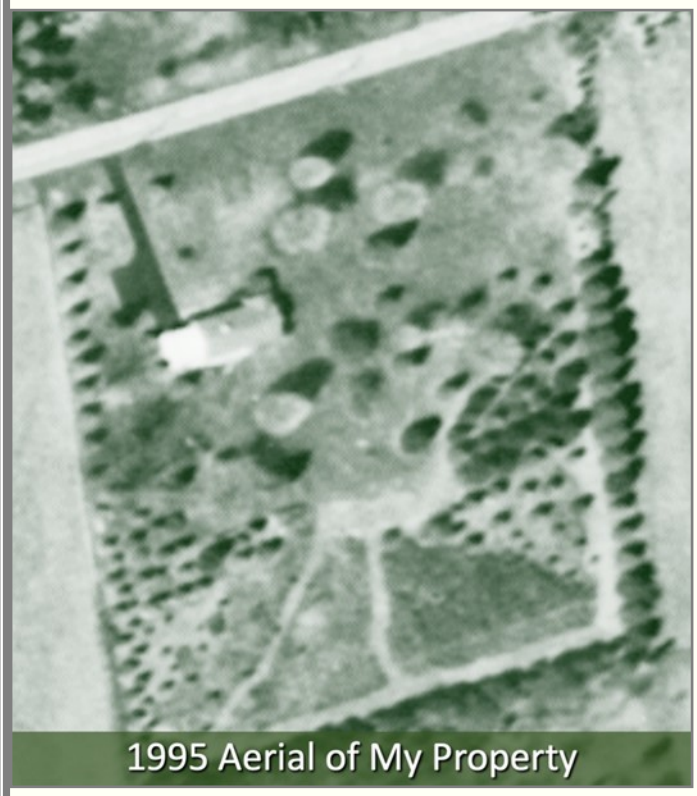
Plant This Not That -- Streetside Plantings If your property includes sidewalks and street frontage, these areas are an opportunity to showcase native plantings and educate passers-by about the beauty and diversity of native plants. Plant groundcovers and shorter plants next to the pavement, and site your taller natives far enough from the sidewalk or roadway that they won't flop onto the pavement after a hard rain. A border of bricks or landscaping pavers will give your streetside planting added definition. Lay bricks or pavers level with the street or sidewalk to avoid having them plowed up in the winter.

For Sun -- Plants are listed from shortest to tallest. Shrubs should be sited well back from the pavement to avoid damage to woody stems by plows in winter.	***Phlox subulata* (moss phlox)** Needle-like semi-evergreen foliage in spreading clumps. Pink, pale blue, or white flowers in spring. Good for edging. Salt-tolerant. ***Antennaria plantaginifolia* (pussytoes)** Round silver leaves form a groundcover that spreads slowly. Small white flowers in early summer. Host plant for painted lady butterfly. ***Rudbeckia hirta* (black-eyed Susan)** Bright yellow rayed flowers on stiff, upright stems. Blooms in full sun all summer. Biennial or short-lived perennial. ***Coreopsis verticillata, C. rosea* (threadleaf coreopsis)** Mounded plants with delicate thread-like foliage and masses of yellow (*C. verticllata*) or pale pink (*C. rosea*) flowers all summer. ***Asclepias tuberosa* (butterfly milkweed)** Stiff stems hold clusters of bright orange flowers in summer. Larval host plant for monarch butterfly. Forms clumps slowly. ***Echinacea* spp. (coneflowers)** Purple or yellow rayed flowers on stiff stems in summer. ***Sporobolus heterolepsis* (prairie dropseed)** Mounding clump of fine-bladed leaves with airy pink to tan flower spikes in summer.
	***Rhus aromatica* (fragrant sumac)** Deciduous shrub, low spreading habit, cluster of small yellow flowers followed by red berried. Colorful fall foliage.
	***Comptonia peregrina* (sweetfern)** Deciduous srub to 3' with fragrant, dark green fern-like leaves and small catkins in spring. Spreads to form large clumps. ***Schizachyrium scoparium* (little bluestem)** Soft blue upright grass turns reddish in fall.
For Part Sun to Shade -- Plants are listed from shortest to tallest.	***Phlox stolonifera* (creeping phlox)** Mat-forming plant with small purple flowers in spring. Will spread to form attractive groundcover. ***Carex pennsylvanica, C. rosea, C. appalachica, C. flaccosperma*** The grass-like foliage of sedges can be fine or wide, bright green or tinged with blue. ***Anemone canadensis* (Canada anemone)** Soft-leaved groundcover with sparkling white flowers in spring. ***Penstemon digitalis* (foxglove beardtongue), *P. hirsutus* (downy beardtongue)** Attractive basal leaves all season, graceful spikes of white or lavender flower in early summer, leaves may turn red in fall. ***Elymus hystrix* (bottlebrush grass)** Adds color, texture, and vertical element. Mixes well with other medium-height natives. ***Zizia aurea* (golden alexanders)** Clusters of bright yellow flowers in spring. ***Eurybia divericata* (white wood aster), *Aster cordifolius* (blue wood aster)** Masses of white or light blue daisy-like flowers in late summer to fall. Important food for late-season pollinators.
Under Street Trees-- Plant the area out to the drip line to provide a soft landing area for insects. In addition to the shade plants listed above, these shallow-rooted plants will avoid competition with tree roots.	***Potentilla tridentata* (three-toothed cinquefoil)** Mat-forming groundcover with compound evergreen leaves, small white flowers in summer, red fall foliage. ***Carex pennsylvanica, C. rosea, C. appalachica, C. flaccosperma* (sedges)** The grass-like foliage can be fine or wide, bright green or tinged with blue. Airy flower spikes in summer provide a graceful accent. ***Heuchera americana* (alum root)** Heart-shaped, mounding leaves can be variegated or have attractive darker veins. Airy white to pink flowers in early summer. Requires good drainage. ***Geranium maculatum* (cranesbill)** Spreading mounds of light green compound leaves, pale pink flowers in summer. ***Athyrium filix-femina* (lady fern)** Forms clumps of arching, lacy fronds.

Diary of a Rewilder -- Marc Radell

I've always loved gardening and wildlife (especially birds!) but didn't start gardening for wildlife until I moved to Pennsylvania 24 years ago. Growing up on 10 acres in rural Michigan, I never had to. The forests, wetlands, and fallow fields along our 'natural beauty road' provided habitat for an incredible variety of vertebrate and invertebrate animals. Tutored by my grandmother in cottage-style flower and vegetable gardening, I never heard of 'native' plants during my childhood, even though I could identify most of the wild plants and animals around me.

Once I finished school, my first full-time job was in Chicago, where I gardened on a much smaller scale. As an environmental lawyer, I learned through work about the harm to ecosystems from toxic chemicals and invasive organisms. After several years, I missed Mother Nature and found a new home in Southeast Pennsylvania with 4.4 sunny acres of loamy soil.



1995 Aerial of My Property

Historic quad maps and aerial photos show that my property was actively farmed, without a single tree, from at least the 1890s until my house was built in 1958. When I bought the property 40 years later, it was mostly turf, several 30- to 45-year-old Sugar Maples, Flowering Dogwoods, and American Sycamores, and a lot Blue and Norway Spruces of various ages. I was surprised not to see more wildlife, though – after all, I was in the 'country'.

Magnolia Warbler in Pin Oak Sapling

The first thing I did in the yard was to stop mowing the back 2 acres as well as a 30' border along the property sides so that early successional shrubs and trees could grow, providing privacy in case the neighboring fields were ever developed and creating habitat for birds and other wildlife. Pin Oak, Black Walnut, Butternut, Black Cherry, Black Locust, Eastern Red Cedar, White Ash, Common Hackberry, Allegheny & Wild Black Raspberries, and a native-nonnative crabapple complex volunteered in those areas, as did many plants I later identified as invasive.

Alas, I did not yet fully understand the importance of native plants. Though I planted only native trees like those from my childhood, most of the new shrubs and perennials were nonnative. These early efforts resulted in a modest uptick of wildlife, but not what I had expected. Where were all the butterflies, moths, and other insects?

In 2000, two things changed my landscaping habits forever: 1) PennState Master Gardener training, and 2) a new job as an environmental planner. At that time, Master Gardener classes emphasized native plants' reduced maintenance needs over their ecological value, but I learned the importance of using research-based data in home gardening and began to study plant-wildlife interactions on my own. In my new position, I worked closely with scientists who designed native plant communities for ecological restoration projects. To maximize wildlife habitat value at home required removing as many nonnative plants as possible, including turf grass, and creating naturalistic communities of native plants.

About that time, I also started birding under the expert tutelage of the late and much-loved Ruth Pfeffer. We explored a wide range of natural areas

Diary of a Rewilder, continued from page 8

together and witnessed first-hand the elaborate connection between native plants and wildlife. I noted the structures of different plant communities and the plant species that provided food and shelter for different animals, then incorporated that knowledge into my own landscaping decisions and Master Gardener presentations.


Installation of Lined Pond - 2015

Over the next 10 years or so, I really noticed how replacing lawn areas with communities of native plants increased the abundance and diversity of wildlife on my property. I had more bird, mammal, and insect species than ever before. But something was still missing: a sizable water feature. My professional and birding experience had taught me the importance of vernal pools and wetlands for wildlife. I already had two small, preformed water gardens and constructed a new 850-square-foot, lined pond. All the pond plants are native, most of the water is 1-2' deep to accommodate emergent wetland vegetation, and a pump circulates water to the head of a 30' stream. I seeded the excavated and regraded earth with a native meadow mix.

Creation of the pond and adjacent meadow caused another sizeable increase in the number and diversity of animal species. Turtles! Dragonflies! More birds! I've even had Green Herons nest here. I also understand plant succession better.

In the meadow, the annuals and biennials gave way to non-aggressive perennials, which then gave way to aggressive perennials. But the less aggressive plants established seed banks and still pop up in less desirable areas or where the more aggressive species have been disturbed. This has prompted me to view my entire property in terms of succession.

I now see that when I remove aggressive and pioneer plant species from a community, I am freezing natural succession at that stage. But I think that's okay as long as I keep an overall proportion similar to what was here prior to human interference: mostly forest with some herbaceous openings and shrublands where the soil was too wet or the forest was disturbed by natural causes. I'll maintain some meadows and shrubland, but most of the land will be an indigenous broadleaf forest described by the Pennsylvania Natural Heritage Program.

Planting only natives in naturalized communities has worked well so far. To date, I've seen 148 species of birds (my indicator species for healthy ecosystems) on land that was mostly turf only 24 years ago. I deal with landscape challenges in eco-friendly ways: protective fencing and resistant plants for deer; mechanical removal and responsible herbicide use for invasive plants; and choosing a diversity of plant species to hedge against weather extremes and invasive pests. To me, restoring local native plant communities has proven to be a good way to help heal ecosystems, preserve natural biodiversity of plant and animal species, and give wildlife a chance to survive in a severely human-compromised world.

● **Water feature**

Meadow: sunny herbaceous shrubland shrubs & small trees

Woodland: shady herbaceous with open canopy

Mature forest canopy: 85-100% closed, trees 30-70 years old

Early successional forest: canopy 60-85% closed, trees <30 y.o.

Wild Ones Native Garden Designs

Wild Ones wants to help you create striking home landscapes that benefit wild life and you. This site provides practical, educationally sound information on native landscaping developed specifically for first-time native plant gardeners looking for help getting started.

The site also features a growing number of free, downloadable native garden designs created by professional landscape designers for multiple ecoregions in the U.S., taking into account various light, soil, and moisture conditions.

A plant list accompanies each design and provides a quick preview of the diversity and beauty of the native plants incorporated in the design.

Wild Ones hopes these resources inspire, encourage, and motivate you in your native plant journey!

Designs are currently available for Boston, Chattanooga, Chicago, Denver/Front Range, Milwaukee, Minneapolis, St. Louis, Tallahassee, and Toledo. A design for Philadelphia is coming soon!

Some less well-known public gardens to visit this fall

Scott Arboretum 500 College Ave, Swarthmore PA 19081. Open dawn to dusk every day.

Jenkins Arboretum 631 Berwyn Baptist Rd, Devon PA 19333. Open every day, hours vary.

Ambler Arboretum of Temple Univ. 580 Meetinghouse Rd, Ambler PA 19002. Open sunrise to sunset every day.

PHS Meadowbrook Farm 1633 Washington Lane, Meadowbrook PA 19046. Hours and days vary.

Tyler Arboretum 515 Painter Rd, Media PA 19063. Hours vary.

Bartram's Garden 5400 Lindbergh Blvd, Philadelphia PA 19143. Open every day sunrise to sunset.

Chanticleer 786 Church Rd, Wayne PA 19087. Hours and days vary.

Reading Public Museum Arboretum 500 Museum Rd, Reading PA 19611. Open every day sunrise to sunset.

Welkenweir 1368 Prizer Rd, Pottstown PA 18465. Hours and days vary.

Events in the Community and Beyond

Oct. 15 Pennsylvania Native Plant Society Annual Meeting**.** Speakers, nature walk, plant sale. Shaver's Creek Environmental Center, 3400 Discovery Road, Petersburg PA 9:00 a.m. - noon.

Oct. 21 The Land Speaks -- Hercules Meadow Project. Edge of the Woods, 2:00-5:00 p.m., Hercules Cement Plant, 501 Hercules Drive, Stockertown PA. Free; registration required.

Oct. 23 Native Habitat Garden Birding Challenge. Hawk Mountain Sanctuary, 1799 Hawk Mnt Rd, Kepmton PA 19529. 10:00 a.m. - 3:00 p.m.

Educational Opportunities

Oct. 18 Homegrown National Park with Doug Tallamy. Blue Ridge PRISM webinar 11:30 a.m.-1:00 p.m.

Oct. 21 Creating Pollinator Gardens: The Role of Plant Choice & Design. OSU webinar 10:00-11:00 a.m.

Oct. 28 Creating and Managing Habitat for Native Bees. OSU webinar 10:00-11:00 a.m.

Nov. 4 Deciding To Create a Pollinator Garden Is Easy -- What To Do Next? OSU webinar 10:00-1:00 a.m.

Nov. 5 Knowing Native Plants: From Flowers to Seeds. Bowmans Hill Wildflower Preserve, in-person or webinar 1:00-4:00 p.m.

Nov. 6 Deer-Resistant Plants for the Northeast. Scott Arboretum webinar, 2:00-3:00 p.m.

Nov. 11 Wildflower Patches, Flower Strips, & Meadows. OSU webinar 10:00 -11:00 a.m.

Nov. 11 Successful & Ethical Seed Collection. Brandywine Conservancy webinar Noon-1:00 p.m.