Wild Ones®

NATIVE PLANTS, NATURAL LANDSCAPES

WINTER 2018–19 • *Journal* • VOL. 31, NO. 5

A voice for the natural landscaping movement.
Working toward the next four decades of growing native plants and restoring natural landscapes.

Cover Photo: Bradley Alistair

NOTES FROM THE PRESIDENT

Like most of you – at least in central or northern climates – I am eager to put my gardens to bed at the end of the growing season. By then, I'm simply worn out with selecting, planting, pruning, weeding and protecting my various plants. This year, I was so looking forward to being done with the task that I finished up one night at 8:30 wearing a headlamp. Then a week later, I ignored a combined sleet-snowstorm until after I finished in the last garden bed. Now, my reward is that I can luxuriate through the winter, or at least until I get planting fever sometime in late March.

With gardening finally on hiatus, I began with catching up on reading. Opening one magazine, I read "Montana State University faculty and graduate student document first-ever Montana bumblebee species record." The article, about research published in *Annals of the Entomological Society of America,* said Montana has the largest number of bumblebee species recorded for a state in the *entire* country and reported that the authors studied 125 years of research records kept at 25 natural history collections to confirm that. Of course, that's all very compelling and a bit exciting, but it was the last two sentences that stopped me cold: "Nationally, bees in general, and bumblebees specifically, are in decline, and they serve as critical pollinators for the world's food supply. The first step toward understanding measures to protect them is to understand what their species numbers look like so that we can build on monitoring efforts."

Then, next in my reading stack I found a saved newspaper article by the Associated Press mentioning Wild Ones Lifetime Honorary Director Doug Tallamy, famed University of Delaware entomologist. The headline jumped at me: "Scientists fear non-pest insects are declining." The article contained compelling evidence of dwindling numbers of insects across multiple species. "Bugs" that were once common are becoming less so – ones like moths, butterflies, native bees, ladybugs, mayflies and fireflies. Further research taught me that scientists across the world are now focused on getting baseline statistics needed to confirm insect declines, which range from estimates of 45 percent to 82 percent!

For years now, we Wild Ones members have forcefully stepped in to reverse the decline of one insect, the monarch butterfly. For them, we're making an impact – growing milkweed, sharing milkweed plants and seeds, and educating ourselves and the public about the importance of this specific native plant in helping another species. Along the way, we learned that *all* pollinators need help, and what better way to protect pollinators than to get more native plants into the landscape? And, I must say: who better than Wild Ones?

It now seems to me – does it to you, too? – that our monarch work has been a first, learning step in what is going to be a much larger need – helping all insects. Not to be forgotten is that in the larger picture, by helping all insects, Wild Ones will also make a difference to even more species. First to mind is our birds – 60 percent which need insects as a food source, as do amphibians and bats. (Personally, I will admit that I'd like to exempt mosquitoes. Then again, I'm very fond of animals like bats and purple martins and love a good toad in my garden, so forget that.)

No other organization is full of people who not only understand native plants, but who also deeply care about "healing the earth, one yard at a time." Have I told you lately that I am so very proud of you and our organization?

Janice

Wild Ones®
NATIVE PLANTS, NATURAL LANDSCAPES

Promoting environmentally sound landscaping practices to preserve biodiversity through the preservation, restoration and establishment of native plant communities

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Established in 1977, Wild Ones is a national not-for-profit organization of members who teach the benefits of growing native plants and work together to grow and restore natural landscapes.

Wild Ones' definition of a native plant:
A native plant is a species that occurs naturally in a particular region, ecosystem and/or habitat and was present prior to European settlement.

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Member Garden

Loris Damerow
Fox Valley Area (Wisconsin) Chapter

All photos by Barbara A. Schmitz unless noted otherwise

A sunken deck provides a great place to sit and enjoy nature. Note that native plants are also put in containers. Below: A bee nectars on wild bergamot *(Monarda fistulosa).*

Editor's Note: We'd like to feature native gardens, large or small, in upcoming issues. If you're interested in sharing your native garden, send four to six high-resolution photos, as well as a brief description, to barbara.a.benish@gmail.com *or* journal@wildones.org. *Please include your contact information so we can get in touch with you.*

By Barbara A. Schmitz

Just four little words burned into the back of an Aldo Leopold bench. But those four words say so much about the woman who painstakingly restored her yard for pollinators.

Loris Damerow says the Wild Ones Fox Valley Area Chapter presented her with the bench, inscribed with the words 'Steward of the Land,' after serving her term as chapter president. And looking at her yard today, those words couldn't ring more true.

Damerow says when she bought her home in Appleton's historic old third ward in 2007, there were yews across the front and a lawn service treated the grass. "My first thought was, 'We are going to get rid of this.'"

The back and side yards included slopes that are 25 feet by 40 feet and 20 feet by 100 feet, and common buckthorn (*Rhamnus cathartica)* had completely taken over. "Really, about one half of the yard was mature buckthorn," Damerow recalls.

And so she began the process of getting rid of the invasive species. But it was a slow process since she did most of the work herself. "I did a little bit every year, chopping and painting the stems," she says. But seven or eight years into her work of removing the buckthorn, she got a little "help" from the state when workers replaced a road bridge adjacent to her home. They didn't realize there was an old limestone retaining wall in place, and when they removed the bridge, the wall collapsed, which destabilized the slope.

"My prairie planting in the front yard slid down the hill, so I rescued all the plants and put them in pots … and successfully reinstalled them the next year," she says. "I must have had 250 pots filled with shrubs, perennials and grasses."

Concerned that her house might be the next thing to go, the city and state worked together to come up with a plan, and ultimately a new retaining wall. And Damerow adds, they had to do it to her specifications. So the city removed all the buckthorn — 100 feet of it — along the western slope, and seeded native plants in its place.

Wanting to have all the buckthorn on her property gone, she hired a crew to get rid of the rest of it on the southern slope. "It's amazing to think that the whole hillside now has been growing there for only three years," she says.

Member Garden

Loris Damerow
Fox Valley Area (Wisconsin) Chapter

Loris Damerow sits on the Aldo Leopold bench given to her by the Wild Ones of the Fox Valley Area Chapter.

About the Yard

- The one-third acre lot is located in the city of Appleton, Wisconsin, and sits on a bluff overlooking the historic Fox River. From the backyard, you can see and hear the rushing water going over a dam.
- It includes a 45-degree slope in the backyard where she's created stone and mulch pathways between the many native plants added after she got rid of the common buckthorn that had taken over the lot.
- Much of her property gets full sun, with the exception of shade created by two large basswood trees.
- About 80 percent of the plants are native, and the vast majority are native to Wisconsin.
- A sunken deck and an Aldo Leopold bench provide a great place to sit and watch nature.
- Some of Loris Damerow's favorite native plants include wild petunia (*Ruellia humulis*), prairie dock (*Silphium terebinthinaceum*), wahoo tree (*Euonymus atropurpureus*) and sweetgrass (*Hierochloe odorata*). But she adds, "I love all native plants."

Amazing isn't an overstatement. The back yard features a sunken deck with chair where Damerow likes to drink coffee in the morning and watch nature around her. Then there are stone and mulch pathways that slowly lead down the hillside, with that Aldo Leopold bench and native plants interspersed. On the bottom is a fence, and on the other side of the fence is now staghorn sumac (*Rhus hirta)* and prickly ash (*Zanthoxylum americanum),* host for the giant swallowtail. "The sumac just sprang up after the buckthorn was removed and the prickly ash was transplanted from a Wild Ones rescue,"Damerow says.

She estimates that about 80 percent of her plants are native, and says she started in the front yard, wanting to show people how you could incorporate native plants into an urban setting. "I immediately set to work making an island bed in the front of the house," she recalls. "I had 3 yards of sand brought in to create a low mound, a place to incorporate native plants that prefer good drainage. I wanted to learn about and grow species that did not take to the dense clay soil around the house."

That front bed includes her favorite flower, wild petunia (*Ruellia humulis*), as well as pale purple coneflower (*Echinacea pallida*), little bluestem (*Schizachyrium scoparium*) and many others.

As she designed her new landscaping, Damerow pulled the flowerbeds away from the house. When she started work on the side slopes, she tried to take it a little bit at a time.

"I'd start with a manageable area and get that done, and then each

The Damerow yard, before and after. Photos courtesy Loris Damerow

Member Garden

Loris Damerow
Fox Valley Area (Wisconsin) Chapter

Left: Loris Damerow added pathways to her slope, allowing visitors to see native plants close up. Right: Clearly defined edges give the front yard an intentional look. Loris Damerow had 3 yards of sand added to start this flowerbed.

season, expand out," she says.

She actually moved a flatbed of plants from her previous home in South Beloit, Illinois, to Appleton. "I brought some of my favorite plants with me, like my Japanese tree peonies and large clumps of prairie dock. My investment in native plants deepened when I moved to the Fox Valley 10 years ago and became active in Wild Ones. I learned more about the critical role that native plants play in our environment. Now, I have little interest in the new shiny, fancy plants."

Damerow had her own landscape design business from 2000-2007, and today's she a little embarrassed about some of the plants she recommended others put in. "I used a lot of cultivars because that is what you could purchase," she recalls, "and I'm embarrassed by how much barberry I've installed," quickly adding that she's wiser now. "Designing a habitat is not like designing your living room. It's not just about color or shape; it should serve an ecological function."

Last summer, Damerow was able to share her love of native plants when her property was selected to be part of a community Garden Walk. She included large photos of what the property looked like in the past so people could really appreciate the transformation, and a Wild Ones display touted the benefits of natural landscaping. In addition, she identified 25 plants with stakes and labels. "It was my opportunity to showcase native plants," she says.

For those new to native landscaping, Damerow recommends adding well-defined edges on flowerbeds. "You can have a tangle of wild plants, but if you have a clear edge, people will relax and think it is intentional," she explains. "That's particularly important in urban settings so people don't get too unnerved by the sprawl."

She also encourages people to learn about the native plants they are adding to their yards, and recommends they start small. "It's easy to get overwhelmed, and expensive, too. But just keep expanding."

And that's what Damerow continues to do. "I'm slowly replacing the other ornamentals. Everything I add is a native forb, grass or shrub. You can't do it all at once."

Damerow says she gardens to stay balanced. "I work in mental health, so this is my therapy. Maintaining my gardens isn't a hardship because it's what I love to do. I love looking at the form and texture of plants, and noticing where they grow and how they change."

In fact, she calls her yard her personal sanctuary. "I am not only creating a sanctuary for myself," she says, "but also for the plants and for the larger environment."

NEWS
ACROSS THE NATION

CALIFORNIA

The monarchs that migrate to Pacific Grove's Monarch Sanctuary every year are getting some support for their future survival, the Monterey Herald reported.

Gov. Jerry Brown signed into law a new state program that will offer grants and technical assistance to landowners and farmers who want to play a role in restoring the butterfly's vanishing habitat.

The Monarch Butterfly and Pollinator Rescue Program put forward by Assemblyman Mark Stone, D-Scotts Valley, will provide help to those willing to facilitate healthy monarch habitat areas.

"We are privileged in our district to have the opportunity to witness the natural phenomenon of monarch migration," said Stone, who noted that the idea for the program was initially proposed to his office by the Environmental Defense Fund. "It is hard to imagine this incredible spectacle one day becoming a thing of the past, but experts estimate that there's a 72 percent chance the migrating monarch will be extinct within 20 years. But we have a chance now to save monarchs from extinction and ensure that future generations will still be able to travel to overwintering groves to see them."

FLORIDA

New research shows the number of butterflies and caterpillars in North Florida has declined by 80 percent since 2005, the Associated Press reported.

Researchers believe glyphosate, an herbicide often applied to agricultural fields to eliminate weeds, is one reason for the decrease since it is lethal to milkweed, the monarchs' host plant. Less milkweed means less habitat for monarchs. Florida is home to about 21 native species of milkweed.

Study co-author Jaret Daniels, associate curator and program director of the Florida Museum of Natural History's McGuire Center for Lepidoptera and Biodiversity, said, "This study shows the tight connection between monarchs and milkweed and highlights very dramatic losses in abundance in Florida that further confirm the monarch is declining."

MINNESOTA, WISCONSIN AND ILLINOIS

After a year of new observations for the rusty patched bumblebee, the core range of the species continues to grow, the U. S. Fish and Wildlife Service reports.

Since this species was listed as endangered in the spring of 2017, the USFWS has made new observations, primarily in southwest Minnesota, southern Wisconsin and northern Illinois. New populations have also been discovered in Iowa and Virginia.

The number of individual bees sighted is also up from previous years. The higher number of observations is likely a factor of increased survey effort and awareness, but could also be a sign of a good production year for the bumblebee colonies. In 2016, 48 individual bees were reported across the entire range of the species. In 2017, the number of individual bees sighted increased to 191 across 102 sites. But so far in 2018, there have been more than 300 individual rusty patched bumble bees reported, and many locations are documenting four to 12 individual bees observed at a time.

VERMONT

Reserachers from the University of Vermont found that nonnative plants are more likely to become invasive when they possess biological traits that are different from the native community and that plant height can be a competitive advantage.

Working with a team of international collaborators, Jane Molofsky of the University of Vermont's Plant Biology Department and senior author of the study published in November 2018 in *Nature Communications*, explored differences in biological traits of 1,855 native and nonnative plant species across six different habitat types in temperate Central Europe.

In almost all of the studied habitats, the findings showed non-invasive plants shared similar traits with the native plant community, while invasive species appeared to have similar but slightly different biological characteristics—they were similar enough to be present in the same habitats, but just different enough to have unique characteristics that allowed them to flourish, such as being taller. This phenomenon suggests the additional height of some invasive plants gives them better access to light and enables them to outcompete native plants and spread more aggressively.

Candy Sarikonda, Wild Ones member and Monarch Watch conservation specialist who serves on the national "Wild for Monarchs" committee, writes in September: "We've had a once-in-a-lifetime migration event around Lake Erie. Numerous reports of massive numbers of monarchs dropping from the sky to take shelter and roost as a result of a fierce Nor'easter brought in by Tropical Storm Gordon." Sarikonda reported that there were 30,000 monarchs roosting at Ottawa National Wildlife Refuge, 1,000 on South Bass island where she was monitoring, and thousands more all throughout the Lake Erie islands.

Monarch citizen science:

Help find answers to save this butterfly from extinction

Photo: Barbara A. Schmitz

By Karen S. Oberhauser

Our fascination with monarch butterflies has inspired an impressive array of citizen science programs. Data collected by monarch citizen scientists have helped answer basic questions about habitat use, natural enemies, population dynamics and migration patterns. The array of monarch citizen science projects makes it impossible to review all of them here; if you want more comprehensive coverage see Chapter 2 in my book "Monarchs in a Changing World: Biology and Conservation of an Iconic Butterfly." Instead, I'll highlight two past projects that are particularly interesting to me, and summarize the four current projects with the largest spatial coverage.

Monarch citizen science had its beginning in 1952 when Dr. Fred Urquhart started the Insect Migration Association

First, a quick background on citizen science. Prior to the late 19th century, most scientific research was conducted by amateurs. Happily, citizen science, or the engagement of people who aren't professional scientists in research, is enjoying a resurgence of interest, inspiring involvement of K-12 teachers and students, families and other interested people — pretty much anyone who's interested can help us keep our fingers on the pulse of natural systems.

Left: A female monarch nectars on blue vervain *(Verbena hastata)*.

Even children can volunteer to help with the Monarch Larva Monitoring Project.

Monarch citizen science had its beginning in 1952 when Dr. Fred Urquhart started the Insect Migration Association, a tagging program that lasted until 1994 and engaged hundreds of volunteers in a search for the winter destination of Eastern North American migratory monarchs. Although the winter sites in Mexico were known by local citizens, until 1975 and thanks to Urquhart's program, no one understood that the monarchs that blanketed these mountaintops had flown from as far away as the northern U.S. and southern Canada. While you have probably heard of the Insect Migration Association, especially after it was featured in the stunning Imax film *Flight of the Butterflies*, you may not be familiar with Dr. Courtenay Smithers, who engaged Australian volunteers in a study of monarch presence and absence during the 1960s and 1970s. Smithers and his volunteers learned that Australian monarchs cover a wide area during the summer, and contract into three regions during the winter: a coastal strip from northeastern New South Wales to the Cape York Peninsula, the Sydney basin, and Adelaide. This contraction and expansion allow monarchs to use both seasonally and permanently suitable habitats in Australia.

Tracking the Migration

Citizen scientists study monarch migration through observation and tagging. Volunteers for the largest monarch monitoring program, Journey North**,** report sightings of spring and fall migrating monarchs. Journey North was founded by Elizabeth Howard in 1994. Volunteers' first spring sightings of adult monarchs are shown on a live migration map on the project website. In the fall, reports of overnight roosts are also visualized on a real-time map. Journey North collects other data relevant to understanding monarch biology, including the first eggs, larvae and milkweed that volunteers observe each year.

Monarch Watch, under the direction of Orley "Chip" Taylor at the University of Kansas, continued the legacy of Urquhart's tagging program. Beginning in 1992, Monarch

Watch volunteers have contributed to our understanding of the dynamics of monarch migration, orientation and navigation. Every fall, uniquely coded wing tags are issued to thousands of participants who tag tens of thousands of monarchs; information from the tags recovered along the migratory path or in Mexico can be used to estimate the origins, timing and pattern of the migration.

Monarch Reproduction and Natural Enemies

The Monarch Larva Monitoring Project was begun by Michelle Prysby and me at the University of Minnesota in 1996. MLMP volunteers conduct weekly surveys of monarchs and milkweeds at sites of their choosing, and many also measure survival and parasitoid attack rates by collecting and rearing larvae. MLMP data have helped us understand spatial and temporal patterns in monarch densities, predators and parasitoids, potential impacts of climate change, and winter breeding by monarchs in the U.S.


Karen Oberhauser looks to capture a monarch in 2016.

Project Monarch Health, started in 2006 by Sonia Altizer at the University of Georgia, engages citizen scientists in measuring the prevalence of a protozoan parasite, *Ophryocystis elektroscirrha* (OE). Volunteer citizen scientists sample monarchs

(either adults captured from the wild or wild caterpillars that they rear to adulthood) by swabbing their abdomens and returning swabs to the University of Georgia, where MonarchHealth scientists analyze the samples. MonarchHealth data document changes in OE infection rates within and between seasons, and are helping us to understand complex interactions between migratory host species and their parasites.

Recently, collaborative efforts have increased our ability to integrate data from the many existing monarch monitoring projects. The Integrated Monarch Monitoring Project, coordinated by the Monarch Joint Venture, engages volunteers in a systematic sampling of monarch habitats throughout the U.S., and combines habitat assessment with estimates of adult and immature monarch density. Monarch Health and the MLMP are working together to understand the impacts of winter breeding by monarchs in the southern U.S., focusing on the potential for increased OE infection rates.

Conservation Impacts

Conservation values of monarch citizen science programs stem from data that can be used to advance conservation science on monarchs and inform specific actions, such as setting conservation targets for habitat restoration or preserving habitats that are important to monarchs. In addition, volunteers engage in stewardship activities on the land they monitor, basing management decisions on their observations of what constitutes quality monarch habitat. Monarch monitoring engages citizens in actions that affect their understanding of the importance of conservation, and, as a result, fosters connections between participants and local, national and international natural communities. Monarch citizen scientists share their knowledge in local presentations and with news media and elected officials. The expertise developed through their involvement in the projects described above and others builds confidence and encourages outreach and environmental advocacy.

Thanks to monarch citizen scientists, we are better equipped to face the challenge of ensuring that monarchs and their incredible migratory phenomenon are around to fascinate future generations of children, scientists and citizens. The data generated in these projects provide ways to answer questions that could never be addressed through traditional academic research programs.

What inspires people to contribute considerable time to understanding monarch biology? If you're a monarch citizen scientist, you might be able to answer this question for yourself. The ease with which monarchs are recognized? Their presence in your backyard or favorite natural areas? A memory of a childhood interaction with a monarch you raised? Their incredible beauty or amazing and unique migration? Whatever our reasons, monarch citizen science is a tradition that involves thousands of volunteers each year and has led to a treasure-trove of biology and conservation action. I'd love to hear your monarch citizen science story.

Karen Oberhauser is director of the University of Wisconsin Arboretum who has been studying monarch butterflies sine 1984. She previously served as the director of the Monarch Lab. Oberhauser is also an honorary director for Wild Ones.

Below: A Monarch Larva Monitoring Project volunteer searches for signs of monarchs. Right: Karen Oberhauser points out the features of a monarch butterfly to children attending a festival.

Photo: Jane Bullis

Rusty patched bumblebee sighted in yard

By Mike O'Brien

My wife, Sylvia, in looking for another activity to fill her retirement, answered a notice to be in the Wisconsin DNR Bumblebee Brigade. This is a monitoring program set up to train citizen scientists in an organized way to observe and record local sightings of bumblebees. It involved a 4-hour course how to identify 20 different bumblebee species, as well as how to perform a systemic survey of an area and then record observations on a DNR website. It seemed like an interesting way to spend an hour or two this summer in the various natural areas we are blessed with in the La Crosse area.

So why bumblebees? Bumblebees are important pollinators of both native plants and agricultural crops such as cranberries, blueberries, tomatoes and peppers, to name a few. Unfortunately, bumblebees are in decline throughout the world and Wisconsin is no exception. The rusty patched bumblebee is one of 20 species known in Wisconsin and has recently been placed on the Federal Endangered Species List due to a 87 percent decline in its estimated population over the last 20 years. Its historical range has been drastically reduced, but it has been present mainly in the northern tier of the United States.

Sylvia O'Brien hadn't realized the endangered rusty-patched bumblebee was a visitor to their yard until she took a close look at photographs she had taken.

Once Sylvia completed the course and became an official member of the Bumblebee Brigade, her next step was to find a place to do a survey. Since our yard is full of flowers and bees, it seemed like a good place to start. So with me as her trusty assistant, we began on July 3 with our observations of a 30-meter area, which basically involved three sides of our home.

Our house is on the edge of La Crosse in the beautiful Driftless Region, so named for the fact that it has never been touched by any of the numerous ebbs and flows of glaciers during the last several Ice Ages. The land is roughly contoured

with many bluffs and ancient rivers, including the Mississippi and the Kickapoo that run through the heart of it. Among these bluffs on some of their steep hillsides are remnant "goat prairies" that have survived probably because they are too steep to plow or graze and dry enough to suppress tree growth. I have a keen interest in these prairie remnants and have tried to reproduce those around our house. As loosely affiliated members of Wild Ones, we have planted our yard with numerous species of native forbs and grasses over the last 30 years.

With iPhone cameras in hand, we ventured out to discover what bumblebees were visiting our home. This first survey found just one species: *Bombus bimaculatus*, or two-spotted bumblebee, and this included a small hive of them inhabiting a bird house on our porch. But still, it was a good first outing to get our technique down trying to photograph a moving object. This is no small feat because the photos have to be good enough to identify all the various markings that differentiate the bumblebee species.

Our second survey was in late July with Joe-pye weed (*Eupatorium maculatum*), Culver's root (*Veronicastrum virginicum)* and figwort (*Scrophularia lanceolate)* in full bloom. The number of bumblebees had increased dramatically and it seemed we were seeing several new types. That being said, it is sometimes hard to tell in full sunlight and with a busy bee moving about exactly what species of bee you are looking at. It wasn't until 2 weeks later when Sylvia got down to curating our pictures for submission did she realize what we had. Here in our modest little yard we discovered we had the endangered rusty patched bumblebee!

Now if anyone needed validation that what the Wild Ones do is important, this is it. So just by planting native plants around our yard, we have provided a small refuge for an endangered species and at least 3 other species of bumblebees. In addition, it's also a refuge for numerous other species of pollinators, butterflies and other insects, birds and mammals.

Our next forays will be to some of these goat prairies that can still be found on the edge of La Crosse. This might be where our rusty patched visitor has been surviving.

Mike and Sylvia O'Brien are Wild Ones Partners at Large and live on the edge of La Crosse, Wisconsin, on the Mississippi River. Mike is a physician at Mayo Clinic Health System in La Crosse, and Sylvia is a retired family practice physician, having worked at the student health clinic at UW-La Crosse.

New genetically engineered chestnut will help restore this decimated iconic tree

By William Powell

American chestnut trees were once among the most majestic hardwood trees in the eastern deciduous forests, many reaching 80 to 120 feet in height and eight feet or more in diameter.

The "then boundless chestnut woods" Thoreau wrote about in Walden once grew throughout the Appalachian mountains. They provided habitat and a mast crop for wildlife, a nutritious nut crop for humans and a source of valuable timber. Because of their rapid growth rate and rot-resistant wood, they also have significant potential for carbon sequestration, important in these days of climate change.

The species has a sad story to tell. Of the estimated 4 billion American chestnut trees that once grew from Maine to Georgia, only a remnant survive today.

The species was nearly wiped out by chestnut blight, a devastating disease caused by the exotic fungal pathogen *Cryphonectria parasitica*. This fungus was accidentally introduced into the United States over a century ago as people began to import Asian species of chestnut. It reduced the American chestnut from the dominant canopy species in the eastern forests to little more than a rare shrub.

After battling the blight for more than a century, researchers are using the modern tools of breeding, bio-control methods that rely on a virus that inhibits the growth of the infecting fungus, and direct genetic modification to return the American chestnut to its keystone position in our forests.

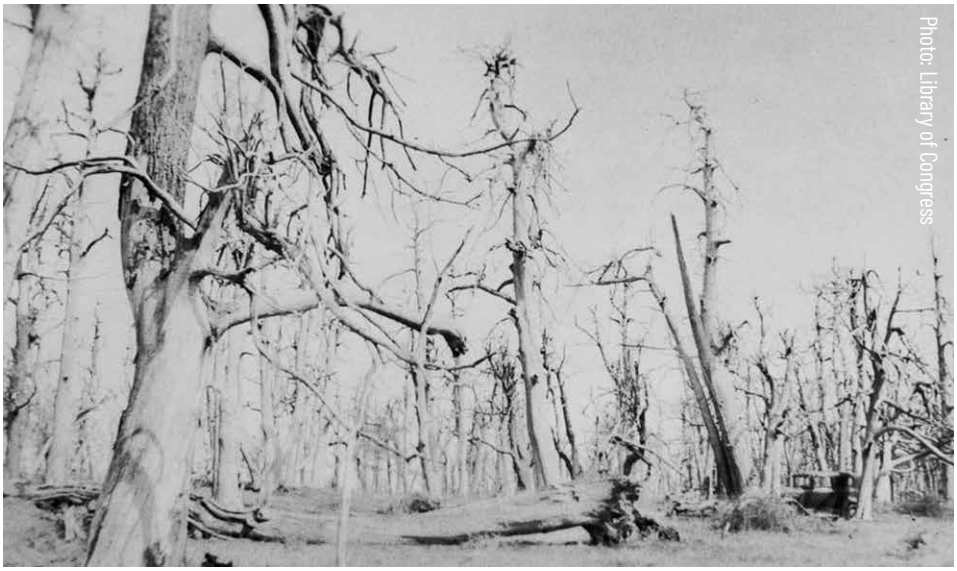


Photo: Library of Congress

A ghost forest of blighted American chestnuts in Virginia.

To restore this beloved tree, we will need every tool available. It's taken 26 years of research involving a team of more than 100 university scientists and students here at the not-for-profit American Chestnut Research and Restoration Project, but we've finally developed a non-patented, blight-resistant American chestnut tree.

One genetic tweak

My research partner, Dr. Chuck Maynard, and I work with a team at the SUNY College of Environmental Science and Forestry (ESF) that includes

Photo: John Maushammer/Flickr

Chestnut blight canker.

Thirty days after infection with chestnut flight, the wild-type American chestnuts on the left are wilted, while the 'Darling 54' transgenic trees are doing well.

high school students, undergraduate and graduate students, postdoctoral fellows, colleagues from other institutions and volunteers. Our efforts focus on direct genetic modification, or genetic engineering, as a way to bring back the American chestnut.

We've tested more than 30 genes from different plant species that could potentially enhance blight resistance. To date, a gene from bread wheat has proven most effective at protecting the tree from the fungus-caused blight.

This wheat gene produces an enzyme called oxalate oxidase (OxO), which detoxifies the oxalate that the fungus uses to form deadly cankers on the stems. This common defense enzyme is found in all grain crops as well as in bananas, strawberries, peanuts and other familiar foods consumed daily by billions of humans and animals, and it's unrelated to gluten proteins.

We've added the OxO gene (and a marker gene to help us ensure the resistance-enhancing gene is present) to the chestnut genome, which contains around 40,000 other genes. This is a minuscule alteration compared to the products of many traditional breeding methods. Consider the techniques of species hybridization, in which tens of thousands of genes are added, and mutational breeding, in which unknown mutations are induced. Genetic engineering allows us to produce a blight-resistant American chestnut that's genetically over 99.999 percent identical to wild-type American chestnuts.

Gene transfers happen all the time

For some, this raises a question: isn't moving genes between species unnatural? In short: no. Such movement has been essential to the evolution of all species. Researchers are discovering that horizontal (between-species) gene transfer happens in nature and even in our own bodies. In fact, the same organism (*Agrobacterium*) that we use to move blight-resistant genes into chestnuts has also permanently modified other plants in the wild. For example, all the sweet potato varieties on the market today were genetically engineered by this bacterium around 8,000 years ago.

There is another logical question: what about unintended consequences? Of course, undefined questions are impossible to answer, but logically the method producing the smallest changes to the plant should have the fewest unintended consequences. We have not observed nontarget transgene effects – that is, changes that we didn't intend – on our trees or on other organisms that interact with our trees, for example with beneficial fungi.

And at any rate, unintended consequences aren't constrained to the genetics lab. Chestnut growers have seen unintended consequences resulting from their hybrid breeding of chestnuts. One example is the internal kernel breakdown seen in chestnut hybridization, caused by crossing a male sterile European/Japanese hybrid ("Colossal") with Chinese chestnut. By mixing tens of thousands of genes with unknown interactions through traditional breeding, occasionally you get incompatible combinations or induced

mutations that can lead to unintended outcomes like IKB or male sterility.

One of the key advantages of genetic engineering is that it's far less disruptive to the original chestnut genome – and thus to its ecologically important characteristics. The trees remain more true to form with less chance of unforeseen and unwanted side effects. Once these genes are inserted, they become a normal part of the tree's genome and are inherited just like any other gene. They have no more chance of moving to other species than do any of the approximately 40,000 genes already in chestnut.

Next steps for the blight-resistant American chestnut

One of the challenges of genetic engineering that is not faced by any other methods of genetic modification also serves as a safeguard. We must shepherd these trees through federal regulatory review by the U.S. Department of Agriculture, the Environmental Protection Agency and the Food and Drug Administration. Our plan is to submit these applications as we finish collecting the necessary data; we expect the process to take three to five years. Once we receive (anticipated) approval, we will quickly make the trees available to the public.

This project is unique because it is the first to seek approval of a transgenic plant to help save a species and restore a forest's ecology. Our forests face many challenges today from exotic pests and pathogens such as emerald ash borer, hemlock wooly adelgid, sudden oak death, Dutch elm disease, and many more. The American chestnut can serve as a model system for protecting our forest's health.

Direct genetic modification will likely not be used in isolation. Integration might improve the outcomes of both the conventional hybrid/backcross breeding program of the American Chestnut Foundation and our genetic engineering program. Allowing crosses between the best trees from both programs will allow gene stacking – having multiple and diverse resistance genes in a single tree – with each working in a different way to stop the blight. This would significantly decrease the chances that the blight could ever overcome the resistance. The two programs working together would also allow the addition of resistance genes for other important pests, such as *Phytophthora*, which causes a serious root rot in the southern part of the chestnut range. And combining methods increases the chances that the resistance will be long-lasting and reliable, which is very important for a tree that in good health can live for centuries.

A unique aspect of the genetically engineered American chestnut trees is their ability to rescue the genetic diversity in the small surviving population of American chestnut trees. When we cross our blight-resistant transgenic trees to these surviving "mother" trees, directly in the wild or from nuts gathered from them and grown in orchards, we're helping preserve the remaining wild genes.

Half the resulting offspring will be fully blight-resistant, while also containing half the genes from the mother tree. By making these crosses, the restoration trees will be ecologically adapted to the diverse environments in which they'll grow. These trees could also be used to boost the genetic diversity of the hybrid/backcross breeding program, or used directly for restoration and left to fend for themselves, allowing natural selection to make the final determination of the effectiveness of our efforts.

The American chestnut was one of the most important hardwood tree species in the eastern forests of North America, and it can be again. This tiny change in the genome will hopefully be a huge step toward putting the American chestnut on a path to recovery.

William Powell is a professor in the Department of Environmental and Forest Biology, State University of New York College of Environment Science and Forest. This article is reprinted from The Conversation.

Mistletoe: Pucker up and follow tradition

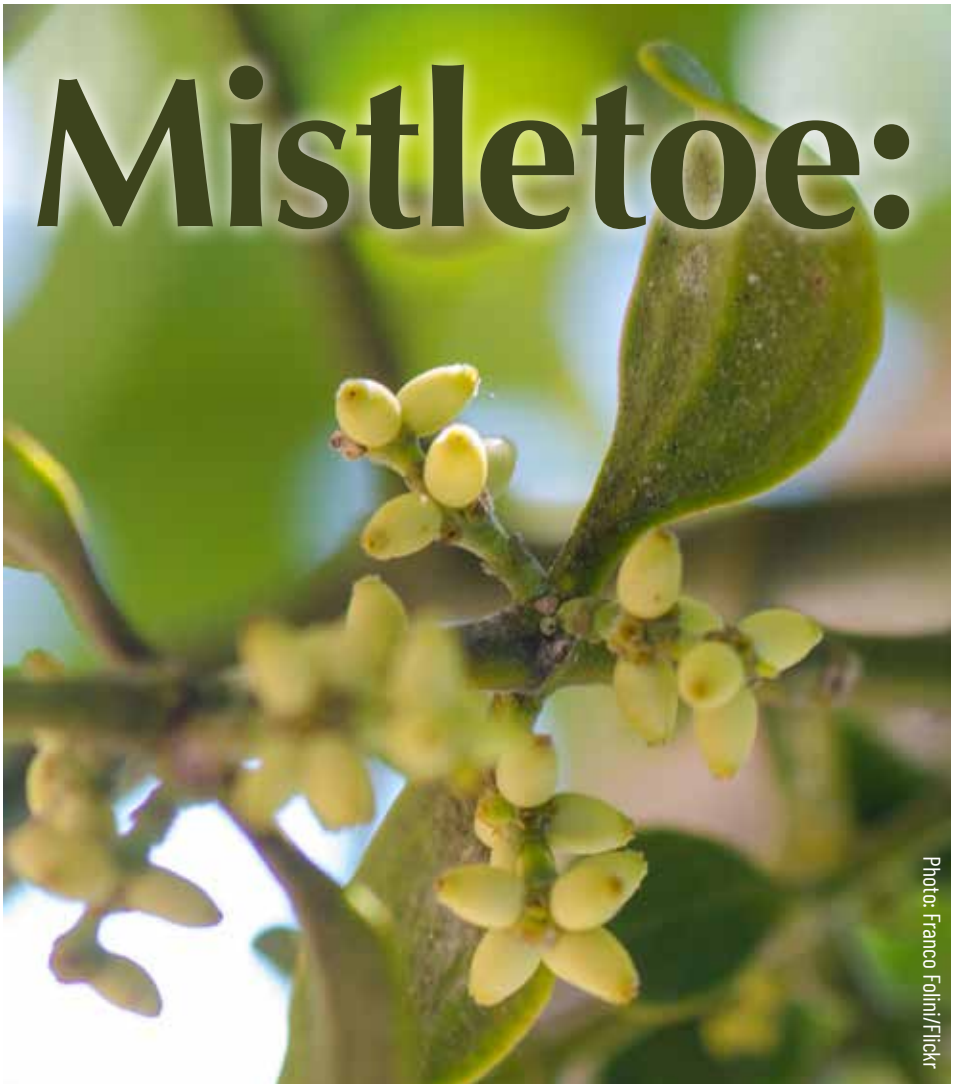


Photo: Franco Folini/Flickr

American mistletoe has small, leathery green leaves and white berries that are toxic to humans and should not be eaten.

By Donna VanBuecken

Many of us hang a sprig of mistletoe over a doorway during the holidays because it allows us to "kiss" someone, often when they are not expecting it. But why do we do that?

European folklore speaks of mistletoe as being a symbol of love, peace and goodwill, while the ancient Druids of Britain used it to celebrate the coming of winter — thus our use of it during the wintery holiday season.

According to the White Goddess website, if enemies met by chance beneath mistletoe in a forest, they laid down their arms and maintained a truce until the next day. In fact, this is thought to the origin of the custom of exchanging kisses under mistletoe, a sign of friendship and good will.

The Anglo-Saxons thought kissing under the mistletoe was connected to Freya, the goddess of love, beauty and fertility. According to legend, a man had to kiss any young girl who found herself under mistletoe. And if a couple in love exchanges a kiss under the mistletoe, it was interpreted as a promise to marry, as well as a prediction of happiness and long life.

There are about 36 species of native mistletoe in the United States and Canada. The genus name for American mistletoe is *Phoradendron*, which means "tree thief." Because it is parasitic, the evergreen shrub is found growing in the tops of hardwood trees in the eastern and southern United States and as far west as New Mexico. It prefers oak, elm and poplar for its hosts, but it is not particularly fussy. It relies upon the trees for water and minerals and slowly kills them over time.

According to the Alabama Forestry Commission, mistletoe *(P. leucacarpum)* is dioecious, which means that each plant is all male or all female. Only the females produce the sticky white fruits, which play a critical role in an ingenious seed transport strategy. When birds eat the berries, some of them stick to their bills, which they scrape off on limbs as they fly from tree to tree. If a seed is deposited onto a suitable host tree, it sprouts directly into the limb to make a new plant, and the tree becomes infected with a destructive parasite.

As sad as this relationship is, mistletoe is good for many birds and butterflies as well as large and small critters not only for food, but also for shelter and nesting. So enjoy this holiday plant knowing it is useful for more things that just kissing!

Donna VanBuecken was the first executive director of Wild Ones, and in her retirement writes a blog on native plants and natural landscaping at www.accentnatural.com. She is a member of Wild Ones of the Fox Valley Area and also an honorary director for Wild Ones.

Photo contest winners named

The winner of the 2018 Wild Ones Photo Contest - People's Choice Award is Bob Hulse with his photo "Female Ruby Throat & Royal Catchfly." Bob said about the photo, "I was waiting for a butterfly to move out of the shadow and this hummer came by and took away my attention. I was about 4 feet away." Bob is a member of the Wild Ones Tennessee Valley Chapter. Congratulations, Bob!

By Tim Lewis
Wild Ones Photo Contest Chair

We had great entries in our photo contest with 165 accepted entries, and lots of winners. Great scenery photos, closeups of native plants and pollinators, natural landscaping photos, photos by kids, and Wild Ones project photos were submitted. By entering their photographs in our photo contest, photographers are helping Wild Ones further its mission. Wild Ones may use their photos in Wild Ones publications, promotional materials, presentations and on the Wild Ones websites so that others may be inspired to learn about native plants and natural landscaping.

Congratulations to the category winners:

POLLINATORS
First Place: Bumblebee on Common Milkweed by Leanne Phinney
Second Place: Butterfly Buffet by Nan Sanders Pokerwinski
Third Place: Bee and Butterfly by Paula Alterkruse

NATURAL LANDSCAPES
First Place: Beach Grass Restoration by Denise Gehring
Second Place: Pollinator Garden 2 by John Magee
Third Place: Colorific by Dennis Nagan

SCENERY
First Place: Woodland Ephemeral Pond by Danielle Bell
Second Place: Mayapple and Dutchmans Breeches by Ed Buchs
Third Place: Wetland by Laura Sjoquist

FLORA
First Place: Calopogon Multiflorus by Donna P. Bollenbach
Second Place: Canyon Cactus by Bret Rappaport
Third Place: Beauty by Bluebells by Peggy Steichen

PHOTO BY KIDS
First Place: Beyond the Metal Fence by Maya Sarikonda
Second Place: Falling Fire by Maya Sarikonda

CHILD OR CHILDREN
First Place: Friends by Joe Lecroy
Second Place: Maya in Her Element by Candy Sarikonda
Third Place: Sunday Planting by Kim Lowman Vollmer

WILD ONES PROJECTS
First Place: WOFVA 18th Plant Sale by Donna VanBuecken
Second Place: WOFVA Plant Sale Volunteers by Donna VanBuecken

Beach Grass Restoration by Denise Gehring took first place in the natural landscapes category.

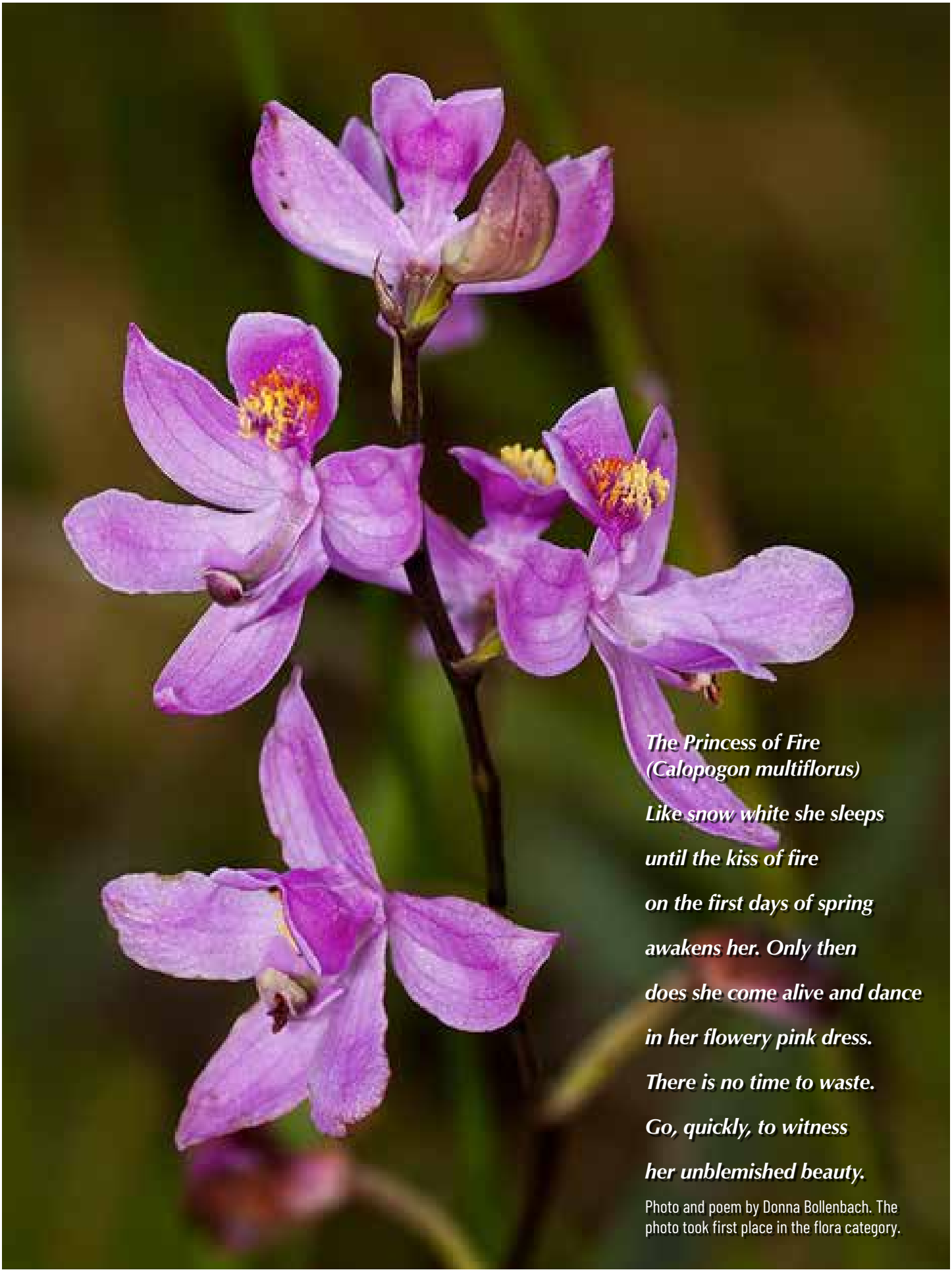
Watch your email for information on how to order a 2019 Wild Ones calendar featuring the photo contest winners.

Danielle Bell's Woodland Ephemeral Pond took first in scenery.

Friends by Joe Lecroy took first in the children's category

Peggy Steichen entered Prairie Smoke Spring Emergence in the flora category.

Bumblebee on Common Milkweed by Leanne Phinney took first place in the pollinator category.



The Princess of Fire
(Calopogon multiflorus)

Like snow white she sleeps
until the kiss of fire
on the first days of spring
awakens her. Only then
does she come alive and dance
in her flowery pink dress.
There is no time to waste.
Go, quickly, to witness
her unblemished beauty.

Photo and poem by Donna Bollenbach. The photo took first place in the flora category.

Please donate to our annual appeal

By Elaine Krizenesky

As the days get shorter and the air gets colder, it's time to think about year-end to-do lists. If you live in the Midwest, you need to empty the oil and gas from the lawnmower and fill the oil and gas in the snowblower. Patio furniture is replaced by snowmen. The sleeveless shirts, shorts and sandals are set aside and replaced by hoodies, gloves and boots.

The last quarter of the year is also the time that most organizations finalize their plans and budgets for the coming year. That is why you hear about charities and their year-end "Annual Appeal." What is this mysterious Annual Appeal? Quite simply, it is a request for a donation to support an organization's mission in the new year.

Wild Ones is structured so dues are 100 percent tax deductible for members. While this is a nice benefit for members, the organization cannot support all its programs on member dues alone. Like most charities, Wild Ones relies on year-end donations given during its Annual Appeal to operate. Without these funds, we cannot spread the word about the importance of native plants. We cannot share educational brochures to teach people how even just a few plants can make a difference. We cannot produce the *Wild Ones Journal* to highlight ways to add natives to any type of landscape, combat invasives, and create habitat for native insects, butterflies and birds.

Recent studies have shown that Wild Ones' work is making a difference. The number of reported monarch roosts increased this year, and the estimated numbers of monarchs noted by monitoring groups was the highest in the past several years. The U.S. Fish & Wildlife Service just released a notice that the rusty patched bumblebee continues its slow but steady rebound after declining by 87 percent in the last 20 years.

We can't stop now. A report released in November by the National Academy of Sciences, Engineering and Medicine shows native plant communities are the most promising weapons against climate change. Pollinator action is still in crisis, with mortality rates for many bee species remaining high due in part to pesticide poisoning and loss of habitat. Without these pollinators, the world's food supply cannot be maintained. There is much work yet to be done by Wild Ones.

As you work on your year-end tasks to get ready for 2019, please think about what you would like to help Wild Ones accomplish in the new year. You should have recently received our Annual Appeal in the mail. As you contemplate your year-end gift, imagine what we can accomplish next … together.

Your membership dues are tax deductible if you itemize deductions on your tax return.

Since Wild Ones is a national not-for-profit natural landscaping organization created solely for the purpose of educating the public, its donors can deduct their contributions including membership dues. Dues are also eligible for employer matching funds programs.

Mark Your Calendar

JANUARY

January 5
National Bird Day
Leave your native plants standing to feed & shelter your feathered friends over the long winter.

January 19
23rd Toward Harmony with Nature Conference
8 a.m. – 4:15 p.m.
Oshkosh Convention Center, 2 N, Main St., Oshkosh, WI

January 26
National Seed Swap Day
In November, native plant seeds collected from the WILD Center and surrounding area in northeast Wisconsin were made available for a freewill donation, raising more than $1,000 to help cover operating expenses in 2019. Even more exciting, untold numbers of native plant seeds have been added to the landscape!

It's important to consider the source of native seeds. Plants and seeds should not only be native to your particular area, but also from the same ecoregion. The National Wildlife Federation has a free Native Plant Finder tool – all you need to do is enter your ZIP code. To determine your ecoregion, use this Ecoregion Map from the USDA Forest Service.

FEBRUARY

February 16
Minnesota Chapters' Design with Nature Conference
9 a.m. – 4:30 p.m.
University of St Thomas, St. Paul Campus

MARCH

March 16
Tennessee Valley Chapter's Plant Natives 2019 Symposium

Nearly 46 years ago, on Dec. 31, 1972, the U.S. Environmental Protection Agency issued a press release. It read, "The general use of the pesticide DDT will no longer be legal in the United States after today." Here's how that change came about.


Photo courtesy Milwaukee Journal Sentinel

Lorrie Otto:

The inspiration behind Wild Ones worked tirelessly to ban the use of DDT

Editor's Note: Lorrie Otto, of Milwaukee, Wisconsin, died in 2010 at the age of 90, but one of her friends, Ney Tait Fraser, is determined to keep Otto's name alive. Fraser's book, "Mending the Earth in Milwaukee," includes a chapter on Otto's fight to ban DDT and it is written in Otto's words. It is published here, in part, with Fraser's permission.

My husband's job took us back to Milwaukee, Wisconsin, where we purchased a house in Bayside. My concern about DDT started when it was sprayed for mosquitoes. Very rapidly, it escalated to spraying elm trees. People stood on the ground shooting hoses of DDT up in the air. New thinking was to spray DDT with helicopters. People were warned that they should cover birdbaths and put cars in the garage because of spray damaging the finish of cars and getting on windshields.

Our concern built up gradually. At that time, we had immense warbler migrations. All of a sudden, there were hardly any birds in the trees during migration seasons. The robins did not sing. If you saw any robins at all, they would be in convulsions on the edge of lawns beating their wings against the grass. Do you recall how robins used to sing after summer showers and enjoy bathing in the puddles of rain? After the use of DDT, not only was there no sound, there were no robins. Insectivorous birds were affected by DDT, whereas birds that ate grains — quails and pheasants, for example — were not affected. It was just the insectivorous birds and then raptors such as eagles.

We had 63 eagles' nests around Lake Michigan. Then there were only three nests. Eagles were not able to produce young because eggshells were thin or missing completely. It was seriously disturbing to observe what was happening. If you really knew what was happening, it became frightening. All the rivers, lakes and waters in Wisconsin were tested including Lake Michigan. DDT was present in every fish tested. One summer, there were reports of high concentrations of DDT in Lake Michigan's chubs. Seagulls regurgitated food contaminated with DDT into their young offspring. Advisories were sent out to warn people against eating fish. Clearly, DDT was going up the food chain. Here we were spraying trees to kill an insect and we were killing birds and fish. This

DDT hit songbird populations hard, including that of the widespread American Robin.

great long chain of life was being destroyed.

At that time, the media called protesters "bird lovers" or "conservationists," not "environmentalists." We would appear at village meetings requesting that spraying of DDT be stopped. This was really grim. The newspaper would report that "bird lovers" were at the village meeting. When I showed them a basket of dead robins, officials said, "Waddayawant? Birds or trees?" So, we tried to get a bill through our legislature, but failed to do so.

The agriculture people made you think that the entire economy would collapse if DDT was banned. All the cabbage leaves would turn to lace. We would destroy the canning industry. The tourist industry would collapse. There was so much fuss about this that finally the Department of Agriculture formed a committee of 17 people. One represented the parks and recreation of Wisconsin. One represented the municipalities responsible for saving the elm trees in cities and towns. One represented the fruit growers in Door County. One represented the canning industry. One came from the Department of Natural Resources.

Another represented the Wildlife Department of the University of Wisconsin. Dr. Joseph Hickey, from the Wildlife and Ecology Department of the University of Wisconsin, was world famous. He begged for a ban on the use of DDT. Seventeen people voted as to whether we should continue the use of DDT. The man from the Department of Natural Resources abstained. Dr. Hickey from the Ecology Department said that we absolutely must stop this. All the rest of those men voted that we should continue to use DDT. Reading that outcome in the newspaper made me furious.

A week or two before, I had read about a group of scientists and one lawyer on Long Island, New York, who were going to court to try to stop the spraying of DDT against mosquitoes on Long Island. I thought, "I'll get those scientists to come here to Wisconsin."

In Wisconsin, we have a special ruling that citizens can go before the hearing examiner of the Department of Natural Resources. We had to gather supporters and witnesses along with a lawyer to litigate against the Department of Agriculture. I flew out to Long Island and asked to meet the scientist, Dr. Charles F. Wurster. I said, "If we wait any longer, there is not going to be anything to save." The timing was good. Any earlier, people would not have been upset enough to financially support an effort to ban DDT. They decided they would come to Wisconsin. I can remember Dr. Wurster saying: "We have all the marbles. We just have to lay them out in front of the judge." I said, "You come to Wisconsin and lay out those marbles, please."

I had to find a lawyer who would admit their lawyer into the courts of Wisconsin. In addition, I had to provide money to pay all the scientists to travel to Wisconsin and testify. I was not experienced in fundraising. Eventually, I persuaded a man named Fred Ott to help me. He was superb. Ott raised most of the money, almost $100,000, from his German friends in the Milwaukee area. Many people

made small contributions of $10, $15 or $20. Big money came from wealthy people with estates who had noticed the disappearance of birds. Wrens did not sing in the summertime anymore. There were no wrens in the wren houses. Those wealthy people forked out money to ban DDT. The world as they had known it did not exist any longer.

We brought in a scientist from Sweden, Dr. Göran Löfroth, Institute of Biochemistry at the University of Stockholm, who had found DDT in human milk. Robert Risebrough from the Institute of Marine Resources, University of California, Berkeley, came to Wisconsin. Dr. Robert L. Rudd, a University of California zoologist, had worked on the effects of pesticides at the same time Rachel Carson did. His book reached the same conclusions that Carson cited in her book "*Silent Spring*." Robert Van den Bosch, a biologist from Berkeley, California, traveled to Wisconsin. Charles F. Wurster, Jr., a molecular ecologist from State University of New York at Stony Brook, was there. Professor Donald A. Chant was recruited. Chant had been chair, Department of Biological Control, at the University of California, Riverside. I invited him to testify. He came to Wisconsin from the University of Toronto, where he served as zoology chair from 1967 to 1975. The following men came from UW-Madison: William Reeder, Ph.D.; Orie L. Loucks, Ph.D.; J.J. Hickey, Ph.D.; and Hugh H. Iltis, Ph.D. I can't remember the names of the Environmental Defense Fund scientists from New York. Most of them are now dead or retired.

The scientists I brought together had read one another's reports in scientific literature. They all moved into my house in Bayside. It was like an enormous scientific meeting. One scientist had worked on the decline of brown pelicans in New Orleans. Another had written about the decline of falcons in California. They talked all night, long before falling asleep. Although I had convinced my neighbors to put up these scientists, the guests would not separate from each other. They stayed here to talk and talk and talk. They were intoxicated with each other.

When I came downstairs to cook their breakfast, I would stand on the balcony looking at all these individuals asleep in my drawing room. I had to step over their bodies to get to my kitchen. That group put the whole story of DDT together. We went to the State Capitol in Madison. The hearings opened in the Wisconsin State Capitol Chamber on Dec. 2, 1968. There was full and sympathetic coverage from the newspapers. *The New York Times* sent a reporter. NBC sent a camera crew. It was a David-and-Goliath battle. Young, obscure research workers were up against representatives of the giant DDT manufacturing industry including manufacturers, agrarian scientists and doctors headed by the Industry Task Force for DDT of the National Agricultural Chemical Association. We told the story to the judge. Then our evidence was rebutted. We returned to rebut our opponents. The verdict of the hearing was not handed down for months, perhaps a year.

News coverage was so strong and the reporting was so excellent that within two weeks legislators were educated about the perils of pesticides. They passed a bill forbidding any further spraying of DDT in Wisconsin. The Environmental Defense Fund — which is what the gang of scientists and the lawyer became — decided that banning DDT state by state would be too slow. They went straight to Washington to stop the use of DDT in the entire United States. In Washington, they convinced Dr. William D. Ruckelshaus, who was the first director of the Environmental Protection Agency, that DDT should be banned in our country. In 1972, it was banned.

However, it takes a long, long time for the environment to heal itself. Robins did not return for 20 years. Now, when I see a young robin with a speckled breast, I do a little curtsy and say, "Welcome, but for me, you wouldn't be here, little bird."

Lorrie Otto, left, with author Ney Tait Fraser

Thank you for your contributions

TECH FOR TOMORROW FUND

Richard Bergstrom, Bergstrom Automotive, Neenah

GENERAL OPERATING FUND – MEMBER SUPPORT

Savannah Furman, St. Louis

Marjorie Lundy, Lake-to-Prairie

Martha Lunz, Milwaukee-North

Wild Ones **Greater Cincinnati Chapter**

Wild Ones **Illinois Prairie Chapter**

Wild Ones **Loess Hills Chapter**

Wild Ones **Red Cedar Chapter**

Wild Ones **Wolf River Chapter**

GENERAL OPERATING FUND – MATCHING DONATIONS

Walter Wieckert, Illinois Tool Works Foundation, Fox Valley Area

IN-KIND DONATIONS

Pete Coonen, Coonen's Complete Service, Menasha — Donated parts and service to repair a broken valve on golf cart tire

Ross Schuh — Endangered native plants

Dave Edwards — Snapping turtle skeleton on display board, shelving unit for bird nests, animal skulls and other artifacts

Agropur Little Chute Facility — First aid kit to the WILD Center

Ann Rosenberg —Hand-painted monarch peace pole

Matt Larson and Mike Larson – Locking donation box for the WILD Center grounds

Karen Syverson – Registration fee for Director to attend Planned Giving training seminar

Tim Seidl – Native plant seeds

Denise Gehring — Solar security camera

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Laura Kosey

Owl's Hill Nature Sanctuary
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www.owlshill.org
Susan Duvenhage

Chapter News

By Stephanie Marcelle

Wild Ones would like to welcome three new chapters. The **South Shore** (Massachusetts) Chapter was chartered on Sept. 17, 2018, and serves the South Boston/South Shore area. Officers include President Britt Drews, Vice President Todd Breitenstein, Secretary Kristen Nicholson, Treasurer Jen VanGelder, and Member Co-Chairs Summer Tobin and Chris Jacobs. The **Louisville** (Kentucky) Chapter was chartered on Oct. 2, 2018. Officers include President and Member Chair Hart Hagan, Vice President Margaret Carreiro and Treasurer Barbara Berman. The **Middle Tennessee** Chapter was chartered on Oct. 25, 2018, and serves the Nashville/Middle Tennessee areas. Officers include President Richard Hitt, Vice President Katrina Hayes, Secretary Brian Hendrix and Treasurer and Member Chair Cooper Breeden.

Chapter Anniversaries

23 years . Madison, Wisconsin
21 years . Menomonee River Area, Wisconsin
20 years . St. Louis, Missouri
20 years . St. Cloud, Minnesota
18 years . Arrowhead, Minnesota
18 years . Central Wisconsin, Wisconsin
17 years . Greater Cincinnati, Ohio
17 years . Central Upper Peninsula, Michigan
16 years . Lexington, Kentucky
11 years . River City-Grand Rapids Area, Michigan
5 years . . Front Range, Colorado
3 years . . Smoky Mountains, Tennessee
3 years . . Tupelo, Illinois

New Lifetime Members

Joy Jacobs
Ann Arbor (Michigan) Chapter

Andrew Pfisterer
Oak Openings (Ohio) Chapter

In Memoriam

Marion L. Scheer, Neenah
Fox Valley Area (Wisconsin) Chapter

Elise Harvey, East Lansing
Red Cedar (Michigan) Chapter– Founding Member

Paul Mahlberg, Bailey's Harbor
Door Peninsula (Wisconsin) Chapter

Steve Schmelzer, Sturgeon Bay
Door Peninsula (Wisconsin) Chapter

Please email Elaine Krizenesky at elaine@wildones.org to report the death of a member.

Rick Nirschl, a well-known naturalist in Ohio and beyond, shared his extraordinary photos of local dragonflies and damselflies at the **Oak Openings Region** (Ohio) chapter's Oct. 9 program, "Dragons of the Toledo Area." Members learned about Odonata behavior and the aquatic habitats they need to complete their life cycle.

West Cook (Illinois) Chapter members learned how to add pocket prairies into their landscapes at their Sept. 16 program, "Pocket Prairies in 6 Easy Steps," presented by Edie Rowell, of Wilmette's Little Garden Club. She recommended plant combinations for full sun, partial sun and shade. In October, Monica Buckley and Charlotte Adelman shared ideas for woodland gardens in shade. Buckley is a landscape designer and owner of Red Stem Native Landscapes, while Adelman is a Wild Ones member, author and advocate for the permanent protection of natural areas.

Rock River Valley (Illinois) Chapter members learned how to create a bird oasis at its Sept. 20 meeting. Pam Karlson has documented more than 110 bird species in the Chicago garden wildlife habitat she created. She discussed landscape enhancements to attract resident and migratory birds to urban and suburban gardens, as well as explored habitat needs of pollinators, the role of citizen science and planting suggestions for birds with an emphasis on natives.

Members of the **Madison** (Wisconsin) Chapter learned about early algae fossil species found at its Oct. 17 program, "Algae and More." Jerry Gunderson, who has spent a lot of time collecting and examining rocks, found the fossils in Wisconsin or the Upper Peninsula of Michigan. He also discussed fossil and early land plants such as lichens, liverworts, mosses and green algae.

Rhiannon Crain from Cornell's Habitat Network discussed ways to get your neighbors and others interested in native landscaping during the **Habitat Gardening in Central New York** Chapter program on Oct. 8.

WILD Center Update

Waterfowl foul

The village in which the WILD Center is located was forced to pass a revised firearms ordinance in September that allowed waterfowl hunting off the shore of the WILD Center, along with most of the rest of the village. This is because Wisconsin law states that local governments may not restrict hunting, fishing or trapping unless there is a safety issue. The Wisconsin DNR maintained there was no safety issue to justify the existing village ordinance banning the discharge of firearms.

Wild Ones asked the DNR to include the Center in a restricted "no hunting" zone, but the DNR rejected this request. The first week of hunting, there were four reports of birdshot hitting homes on Stroebe Island, the land across the water from the WILD Center. In addition, both a village police car and a DNR vehicle were hit by birdshot. As a result, the Village Board revised the ordinance to include most of Stroebe Island and the WILD Center in the restricted zone. Wild Ones is grateful to the Village Board for moving quickly to resolve this safety issue for visitors to the WILD Center.

Ash trees

Approximately 90 percent of the woodland area on the WILD Center property is covered with ash trees. These will be destroyed in the near future by the emerald ash borer, an invasive beetle from Asia whose larvae feed on the inner bark of ash trees and disrupt the trees' ability to transport water and nutrients.

The EAB has been spotted in Winnebago County and is within a few miles of the WILD Center. Once infected, EAB will kill trees within three years.

Wild Ones has few options to deal with EAB:

- Treat trees chemically, which is expensive (about $100 per tree) and must be done annually.
- Let nature take its course and the ash trees will likely die within the next few years. Limbs and whole trees will fall, which could cause injuries, block trails and harm ground plants. Wild Ones will need to have the dead trees removed at a high cost.
- Enter into a contract for the trees to be cut and sold to paper mills. Larger trees will become boards; smaller trees will be used by pulp mills. This option provides income to Wild Ones and eliminates the liability of dead trees that could fall.

Once the trees are infected, they are no longer valuable to loggers, so Wild Ones needs to move quickly. At its August meeting, the Board approved a plan to contract with a logging company to harvest the trees. Once that is completed, our next step will be to plant other species of trees. Last year, Wild Ones received a donation of over 300 oak trees from the Million Tree Project. We will be contacting this and similar organizations, as well as native plant nurseries and members to ask for tree donations.

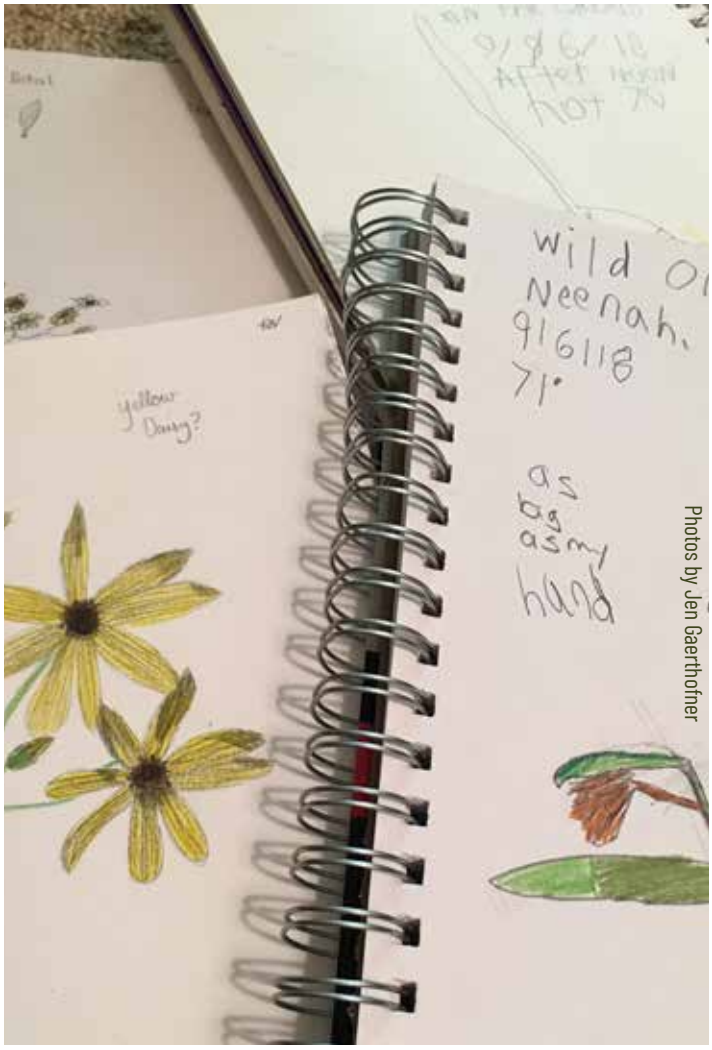
More details will be provided once we have found an appropriate logger.

Art comes to the WILD Center

Unleashed NJ, a homeschool group, visited the WILD Center on Sept. 6. After a lesson on native plants and why they are important, the students took a tour of the grounds. The day wrapped up with the kids, ranging in age from 4 to 18, journaling and sketching native plants on the property.

Volunteer projects and thanks

Hank the Turtle is a slow-moving resident who was unfortunately killed after being hit by a car last summer. His final journey took him to the woods on the WILD



Photos by Jen Gaerthofner

Journals and sketches from homeschool group Unleashed NJ

Center property, and thanks to a Wild Ones member, Hank now teaches visitors about snapping turtles.

Dave Edwards, Fox Valley Area Chapter, recovered Hank's remains, cleaned and preserved them, and put the pieces back together so people can see a snapping turtle close-up. This educational tool includes a beautiful birch-framed display board and features not only Hank's shell and skull, but all 10 claws, which are surprisingly large. Edwards also built a large wildlife display unit, which now shows off a wide variety of bird nests, as well as other artifacts recovered from the Center property.

Students from St. Mary Catholic High School again took to the woods at the WILD Center for the school's Annual Day of Volunteering. Twenty youth plus chaperones learned about native plants and why they are important before heading out to tackle buckthorn.

The kids made amazing progress, which is extra important this year because we need to get the buckthorn under control before the ash trees are removed from the property. Students were interested to learn about native plants, and many took home brochures and catalogs to share with their families how they can make a difference in their own backyards. It was truly a successful event!

Denise Gehring, national board member, generously donated funds to purchase a solar security camera to protect the WILD Center grounds and national office. We receive real-time notifications of movement in the parking lot and can review the files if there is a problem. Staff is optimistic this will alleviate some of the dumping and other issues we have experienced over the past year. Many thanks to Denise!

Ross Schuh, Fox Valley Area Chapter, is interested in not just native plants, but specifically those that are rare or endangered. Schuh has purchased several endangered native plants that he donated to the WILD Center so they will be protected and hopefully can grow and multiply. Thirteen plants have been donated by Schuh so far, including purple milkweed (*Asclepias Purpurascens*), tall green milkweed (*Asclepias hirtella*) and foamflower (*Tiarella cordifolia*). Hopefully, by working together, these plants will prosper and we can eventually move some of them off the endangered species list.

Above: Dave Edwards shows off the mount he made for Hank the turtle. The display is used for educational purposes. Below: The Wild Ones National staff shows off the new video camera donated by Denise Gehring, and hopes it will cut down on dumping and other issues.

Ecology club creates outdoor classroom with SFE grant

The Rush Ecology Club, of Cinnaminson, New Jersey, created an Interpretive Outdoor Classroom, thanks to a Wild Ones Seeds for Education grant.

According to project coordinator Marita Barth, student club members and parents planted flowers and herbs in their new pollinator garden in May 2017. About 82 percent of the budget was supported by SFE for native plants and seed; the remaining monies went for mulch and netting.

Barth said they purchased the original plants from Haines Farm Garden and Pinelands Direct Native Plants, but they are continuing to add native perennials to the space, as well as upgrading their water system. "We need to replace our soaker hoses, add another timer and more mulch," she said.

Last fall, third, fourth and fifth graders collected seeds from their plants, then planted them into the garden and composted and mulched them to protect them, Barth said. "After weeding the area again, we plan to continue to add compost and mulch where needed and plan to plant more perennials, as well as annuals, to crowd out the weeds," she said.

In addition, to help teachers and adult leaders use the project area effectively, they created interpretive signs with QR codes for several plants and garden aspects, and they plan to add more.

"We asked teachers to have their class 'adopt' plants and care for the seedlings prior to planting them in our gardens," Barth said. They also offered cross curriculum ideas for use in the gardens.

The students loved showing and explaining the garden to others, particularly the Superintendent of Schools, she said.

For others considering taking on a similar project, Barth recommended they test and prepare their soil well before planting. "Also, if possible have one adult to every three or four students while working in the garden, especially if using tools," she said.

The Rush Ecology Club's outdoor classroom includes signage with QR codes to inform others of the importance of native plants.