



Wild Ones[®]

NATIVE PLANTS, NATURAL LANDSCAPES

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



Wild Ones President Rita Ulrich

It is an honor to serve as president for Wild Ones, as well as a challenge. I know I have some big shoes to fill. Janice Hand led us out of a difficult financial situation and put us in an excellent position to focus on mission-related work. We are seeing an unprecedented level of interest in native plants, and we must take advantage of that opportunity.

Numerous organizations are promoting native plants because they provide the habitat for everything else. Wild Ones members have a depth of

knowledge that few other organizations can match. The challenge is figuring out how to harness that knowledge to expand our reach.

If you attended our virtual Annual Meeting on Oct. 12, thank you! You had excellent suggestions and questions. I appreciate hearing your thoughts on updating, upgrading and expanding our website.

I'm a big believer in the wisdom of the crowd, and members are our crowd. Not only that, members are our greatest resource. The knowledge, experience and enthusiasm that you possess is the key to making native plants the norm, rather than the exception. If you have any suggestions, questions or comments for Wild Ones, please send them to me at president@wildones.org. I promise I will read all of them and I look forward to working with all of you.

I know this organization is capable of showing many more people that native plants are far superior to exotics. But we must also give people the information and support they need to proceed in using natives in individual yards and community spaces, so they become the standard supporting the insects and biodiversity we need to survive.

I welcome the challenge and I hope you do too!

Wild Ones is growing like a wildflower!

By Janet Rothe

It's been an exciting year for Wild Ones. As of Oct. 23, 2019, we have 59 chapters and 4,014 paid members! That's an increase of nearly 14% in membership from January when we had 3,535 paid members and 53 chapters. And, we have new Seedlings that are working hard to become chartered chapters.

We attribute this growth to the hard work of our members. Our members are reaching out to

friends, family members and the public and sharing the message of the importance of planting native plants and the effect on our environment.

All of us at Wild Ones are thankful for our members who continue to educate the public on the importance of native plants. Every day our members are making a real difference!

Janet Rothe is the membership manager for Wild Ones.



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

NATIONAL OFFICE WILD CENTER

2285 Butte des Morts Beach Road

Neenah, WI 54956

Phone: (920) 730-3986

Email: info@wildones.org

NATIONAL STAFF CONTACT INFORMATION

National Office Director

Elaine Krizenek • 920-730-3986

elaine@wildones.org

Membership Manager

Janet Rothe • 920-730-3986

janet@wildones.org

Office Specialist

Jessica Buettner

info@wildones.org

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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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Wild Ones Journal

— Editor —

Barbara A. Schmitz
journal@wildones.org

(Please indicate topic in subject line.)

— Contributing Writers —

Denise Gehring • Ron Jones • Kristen Kauth
Elaine Krizenesky • Kim Moor • Bill McNee
Janet Rothe • Chip Taylor

— Design/Layout —

Kevin Rau

— Proofreader —

Denise Gehring

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National News

The State of the Chapter Report (SOCR) was formatted as a Google survey this year to make it easier for chapters to complete on any device or platform.

The survey can be filled out a section at a time if you can't do it all at once. Just complete some of the report and click "submit." Google will send you an email with a link to edit your survey; use this link to fill out subsequent parts of the report.

If you are a chapter president or vice president and did not receive the email, please check your spam or junk mail. You can also email janet@wildones.org to obtain a new link to the survey if needed. The SOCR is due Dec. 31. Chapters not submitting on time are charged a \$25 fee.

We have a few members of our national Board of Directors whose terms are up in 2020. If you or someone you know would like to serve on the national board, we want to hear from you!

The prospectus and the application are located in the Members-Only site under National_Reports. To submit a nomination, please email the person's name and/or completed application to nominations@wildones.org. Nominations for Directors are due Dec. 30.

CHAPTER ANNIVERSARIES

Madison, Wisconsin	24 years
Menomonee River Area, Wisconsin	22 years
St. Cloud, Minnesota	21 years
St. Louis, Missouri	21 years
Arrowhead, Minnesota	19 years
Central Wisconsin, Wisconsin	19 years
Central Upper Peninsula, Michigan	18 years
Greater Cincinnati, Ohio	18 years
Lexington, Kentucky	17 years
River City/Grand Rapids Area, Michigan	12 years
West Cook, Illinois	6 years
Front Range, Colorado	6 years
Smoky Mountains, Tennessee	4 years
Southeast Missouri, Missouri	1 year
Southshore Massachusetts, Massachusetts	1 year
Louisville, Kentucky	1 year
Middle Tennessee, Tennessee	1 year

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WILD Center Update

The WILD Center has hired Jessica Buettner to work 15 hours a week in the office specialist position. We are looking for someone to job-share for an additional 10-15 hours a week.

Jessica can be reached at info@wildones.org. Please contact her for any membership questions, officer changes, database updates, store order questions or general information.

Wild Ones online



www.facebook.com/wildonesnative



pinterest.com/wonational/



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Member Garden

Melinda Chamberlain Dietrich
Greater Cincinnati (Ohio) Chapter

All photos courtesy
Melinda Chamberlain Dietrich

Melinda Chamberlain Dietrich says she started planting native plants for a simple reason: They were pretty.

"While I was raising two sons in an old farmhouse with a barn in Lexington, Massachusetts, I began to grow native ephemerals along an old stone wall in the shade of a large sycamore tree," she says. "It was back in 1980, and I knew nothing about the advantages of native plants."

But she did know about plants. Growing up in Connecticut, Chamberlain Dietrich's mother had been president of a garden club and they had a lot of plants from England like dahlias in their yard. "But I wanted something different," she says. "I loved hiking in the mountains, being outside where it was wild. I wanted that more old original feeling of our environment."

In her retirement, then living in a suburb of Cincinnati, Chamberlain Dietrich looked for something to do with her free time. "I decided I wanted to learn more about plants," she says. So she became a Master

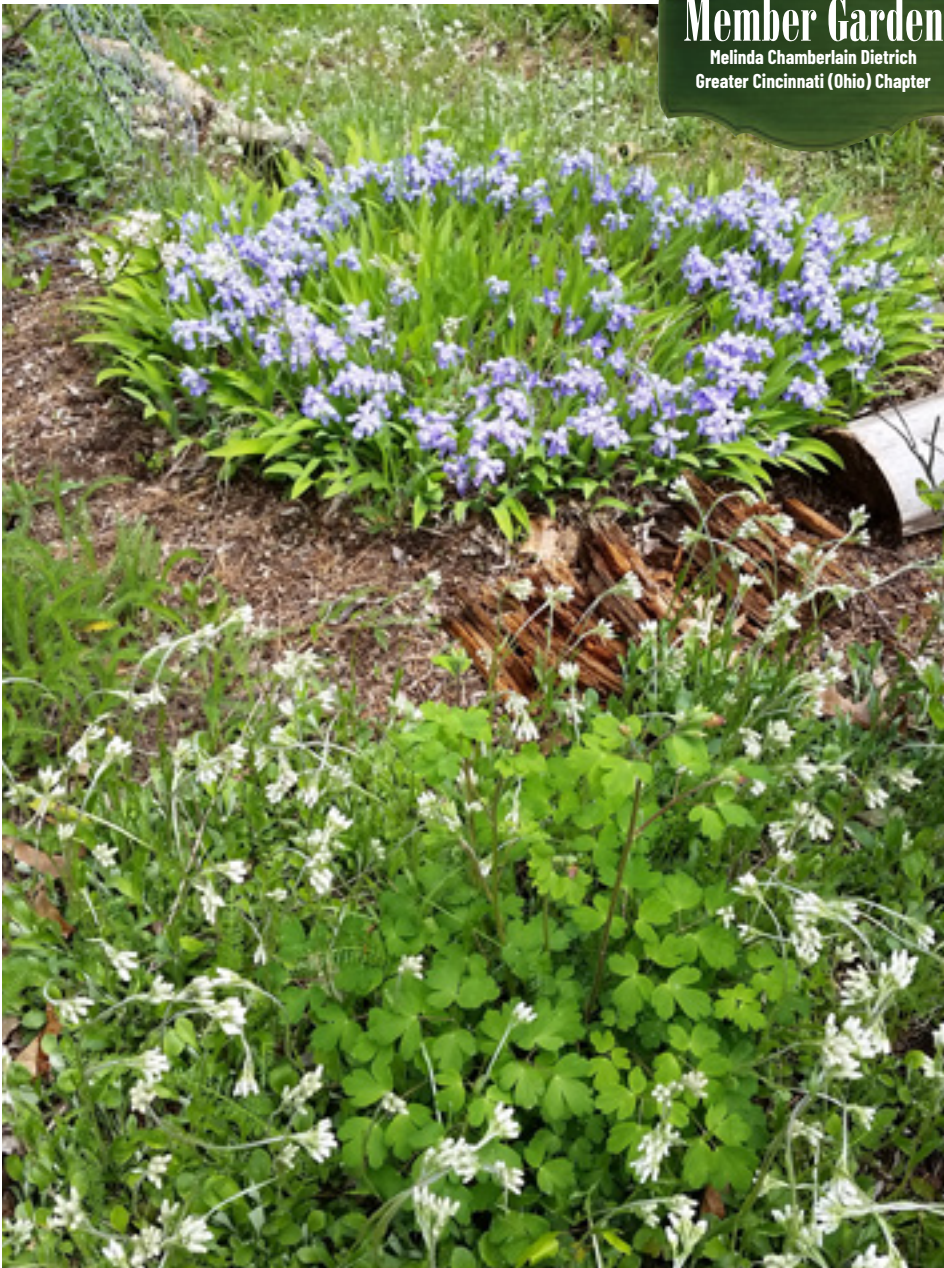
Virginia bluebells (*Mertensia virginica*) bloom each spring in Chamberlain Dietrich's yard.

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.



Member Garden

Melinda Chamberlain Dietrich
Greater Cincinnati (Ohio) Chapter



About the Yard

- Melinda Chamberlain Dietrich's home is located in Brookline, Massachusetts, a short drive from the Atlantic Ocean. The land along the Concord River was created by glacier melt, which dropped sand in esker formations as it ran to the Merrimack River. This provides excellent natural drainage for many native plants.
- According to her research online at Go Botany: Native Plant Trust, 246 out of her 500 total plants on her half-acre parcel, or almost 50%, are native to Massachusetts. A total of 53% are native to the New England states, 6% are either endangered or threatened in New England, 20% are native to the United States, and 365 plants, or 73%, are native to North America.
- Chamberlain Dietrich says it is difficult for her to say what her favorite native plants are. "I'm more interested in a community of plants that share some important functions to survive and thrive together," she says. But she admits she loves milkweed and *Liatris*, which both attract monarchs.
- Her gardens are currently laid out along curving grassy pathways that highlight the experience of different eco-environments with each turn. The flowering plants bloom throughout the seasons from early spring to late fall. This year she focused on ways to enhance that experience by pruning, transplanting and selectively adding varieties.

About half of the 500 total plants in Melinda Chamberlain Dietrich's yard are native to Massachusetts, like this columbine in the foreground.

Gardener and shortly after discovered the local Wild Ones chapter and volunteered to be treasurer. She remains a chapter member.

For about 12 years, she moved back and forth between Ohio and Massachusetts, finally moving permanently to Massachusetts about two years ago. She brought along plants from Cincinnati to her new home, and reports that all the plants are doing well. She attributes that to climate change, which is altering hardiness zones.

Today, her home is sited along one side of a half-acre parcel in a residential neighborhood near the

Concord River. The border along the back of the property is lined with 60-year-old white pine trees. A second border runs along a dead-end street lined with a sandy glacial bank in full south-facing sun. The front border faces the road, which curves downhill toward the hot western sun.

During her Master Gardening training, she had researched the landscape designs of Gertrude Jekyll, an artist, horticulturist and landscape designer known for her planting in drifts of color. That appealed to Chamberlain Dietrich, who as an artist with degrees in painting and graphic design, set out to learn more

about native plants, including how to grow them and group them.

"I was always interested in looking at things from an architectural viewpoint," she says. "I draw everything on paper so I have some idea of what the landscape will look like when finished. I try to be aware of how plants grow and how they look in different seasons."

Growing up in New England, Chamberlain Dietrich says she loved hiking in the White Mountains, a section of the Appalachian Mountains. "The experiences of following a trail, seeing a new vista open up at a bend, and the surprise of a small



Above: One pathway features various shrubs, such as *Hydrangea arborescens*), maple-leaf viburnum (*Viburnum acerifolium*), Wichita blue juniper (*Juniperus scopulorum* 'Wichita Blue'), yellowroot shrub (*Xanthoriza simplicissima*) and others. Left: Insects like this dragonfly are a common site in the Chamberlain Dietrich yard. Right: A leopard frog hides in the grass.



layering and diverse plant combinations that provide food and habitat for birds.

But she admits that over the years there was a lot of trial and error in her yard as she perfected her native gardens. With the help of her son, they planted natives for sun and shade, for bloom and various flowering time, for attraction of pollinators, birds, wildlife and more. But her goal was always the same: to make her yard more sustainable. "I desire to combat climate change, and attract insects, wildlife, reptiles and amphibians," she says. "In the last two years, we installed a small pond where I am now learning about native wetland plants, which help provide habitat for dragonflies that are endangered in Massachusetts, and Leopard frogs, which are declining."

wildflower blooming were things I wanted to bring into the landscape."

She began to incorporate shrubs into her yard, placing them at turns that hid the view of a new habitat around the corner. "I designed drifts of layers of plants from small perennials like wild ginger (*Asarum canadense*) to native great rosebay rhododendron (*Rhododendron maximum*) and red maple (*Acer rubrum*), which were chosen to thrive naturally in an existing micro-habitat," she says.

She also credits [Doug Tallamy](#), and says his ideas inspired ideas for her to maintain her gardens and landscaping, from ground covers, to

Some of her favorite plants are those that attract monarchs. She has three varieties of milkweed in her yard, and during the summer, the monarchs fly around the house into and out of the gardens checking out the native plants like blazing star (*Liatris ligulistylis*). The south facing "prairie garden" includes wild bergamot (*Monarda fistulosa*), Bush's poppy mallow (*Callirhoe bushii*), queen of the prairie (*Filipendula rubra*), bigleaf aster (*Aster macrophyllus*), cutleaf coneflower, (*Rudbeckia laciniata*) and winterberry (*Ilex verticillata*) shrubs.

Her "woodland path" garden is designed around a small group of

Member Garden

Melinda Chamberlain Dietrich
Greater Cincinnati (Ohio) Chapter



The sun dapples through the tree's branches, creating a pattern on the snow-covered grounds.

pre-existing pink lady slipper orchids with many added ephemerals like trillium, bloodroot, mayapple and Solomon's seal, which bloom in early June. The "endangered natives walk" is bordered by stiff goldenrod (*Oligoneuron rigidum*), hairy beard-tongue (*Penstemon hirsutus*), pasture rose (*Rosa caroliniana*) and Virginia rose, wild senna (*Cassia hebecarpa*) and smooth hydrangea (*Hydrangea arborescens*), which blooms in mid-summer. In the sloping shade of

an old red maple tree, a number of medicinals thrive such as elderberry, black cohosh, goat's beard and goldenseal.

Her advice to those new to native landscaping is to purchase plugs or small plants, rather than starting from seed, and stay away from natives and cultivars. Also, be sure to find a nursery that deals in and is knowledgeable about native plants.

But she also says you need to pay attention to the plant's require-

ments. "If the plant needs full sun, it won't survive in the shade," she says. "Survey your landscape for what kind of habitat you have, and then pick the plants that will do well in that habitat. Know what's going on throughout your yard all through the day."

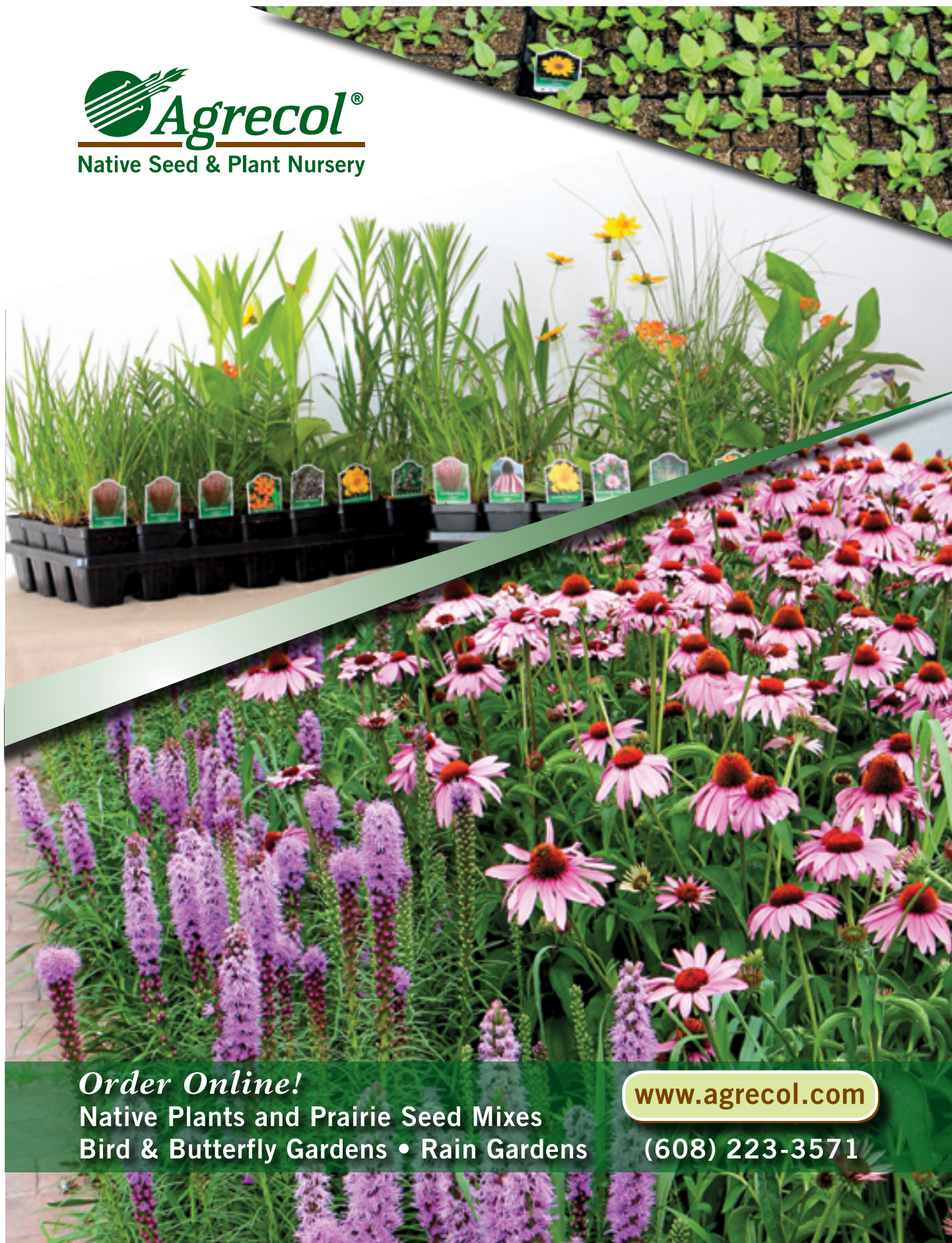
Due to global warming, long-term issues of sustainability and changing hardiness zones, Chamberlain Dietrich says she has about 100 different species in her yard that are native to the United States (outside of New England), including *Liatris ligulistylis* and *Callirhoe bushii*. She keeps a record of how the plants do. To her, it's all about plant diversity and habitat supporting the food chain.

"If you do have a range of native plants, you might have a butterfly show up that you've never seen before," she says.

Chamberlain Dietrich says she has a special section of sandy, bare ground that is used by solitary native bees. "We protect these bees, never planting anything in this area," she says, noting that many other bees and insects, including dragonflies, damselflies, ants, butterflies and moths, prefer the sandy, meadow banking along the road where they grow milkweeds, little bluestem, big bluestem, Indian grass, prickly pear cactus, wild lupine and more.

Also coming to her yard are a wide variety of birds including barred owls, and wild turkeys, deer, coywolves, woodchucks, rabbits, frogs, snakes and more. "There are so many birds eating insects — we never use herbicides or pesticides," she says.

Chamberlain Dietrich says it has been very rewarding to see all these species in her yard. "It's made my life 100 times healthier, and my son depends on it for his health," she says, noting that when he comes home from work in the city that he often goes out to the garden to work. "Spending time in nature makes you relate to the natural world in a way that is very fulfilling."



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NEWS

ACROSS THE NATION

GEORGIA

A new study from the University of Georgia sheds light on how a harmful parasite, *Ophryocystis elektroscirra*, or OE, is able to maintain high levels of infection in resident monarch populations in the southeastern U.S.

The study, "Multiple transmission routes sustain high prevalence of a virulent parasite in a butterfly host," was led by Ania Majewska, a doctoral student in the Odum School of Ecology.

In the southeastern U.S., some monarchs have become year-round residents, a shift that appears to be caused by the planting of tropical milkweed (*Asclepias curassavica*), which doesn't die back in winter unless exposed to freezing temperatures. It has allowed monarchs to forego migration and breed year-round in warm climates.

Using a combination of field work and mathematical modeling, the researchers set out to determine the mechanisms driving these OE infection hotspots. From May to October 2015, they monitored gardens to measure OE prevalence over time and to determine exactly how OE was being transmitted within the butterfly population.

They found that OE infects monarchs when caterpillars eat spores of this protozoan. Infected female monarchs can infect their own offspring through spores shed onto their eggs, a process known as vertical transmission. Environmental transmission occurs when caterpillars encounter OE spores shed by unrelated adult monarchs onto milkweed leaves where the caterpillars feed. Finally, uninfected adults can acquire spores through contact with infected adults, which don't cause disease in the exposed adults, but can infect a fraction of their offspring, a process called adult spore transfer.

To understand how these transmission routes changed over time, the researchers tested butterflies for infection by pressing tape against their bodies and looking for OE spores. They found that the fraction of monarchs infected as caterpillars increased from very low levels to nearly 100% over a period of five months. For monarchs that emerged initially as uninfected adults, 81% had acquired OE spores from infected adults by the end of the study period. They also found that the proportion of milkweed leaves receiving spores rose from zero to roughly 75% over that time.

Read their complete study at <https://royalsocietypublishing.org/doi/10.1098/rspb.2019.1630>.

NATIONWIDE

The U.S. Postal Service will celebrate the exotic beauty of native orchids with 10 new stamps in 2020. Each stamp features a photograph of one of nine species that grow wild in the United States: *Cypripedium californicum*, *Hexalectris spicata*, *Cypripedium reginae*, *Spiranthes odorata*, *Triphora trianthophoros*, *Platanthera grandiflora*, *Cyrtopodium polyphyllum*, *Calopogon tuberosus* and *Platanthera leucophaea*.

Art director Ethel Kessler designed the stamps with existing photographs by Jim Fowler.

VIRGINIA

Local citizen scientists working with programs of the Smithsonian Conservation Biology Institute discovered a rare orchid that is nearly extinct in the commonwealth of Virginia. The purple fringeless orchid (*Platanthera peramoena*) is estimated to have fewer than 1,000 individual plants left in the state.

Patty Lane of Rappahannock County and Kate Heneberry of Warren County found four individual purple fringeless orchids in bloom while conducting a routine orchid survey on a private farm just south of Sperryville, Virginia, over the summer.

"I was so elated to find this huge purple orchid, I wanted to do cartwheels in the marsh," Lane said.

Lane and Heneberry had finished their mid-July survey and were leaving their site when they noticed a purple flower in a pasture. After investigating, they identified the plant as a rare orchid; their find was confirmed by experts at Shenandoah National Park.

Purple fringeless orchids are native to the southeastern and mid-Atlantic region of the United States. However, the orchids are declining throughout their range—where wetlands have disappeared—and are endangered in several states where they are native.

WISCONSIN & OHIO

Jumping worms continue to spread in Wisconsin and have now been confirmed in Oneida and Langlade counties. They are also continuing their spread nationwide, and have made it to Lake County in northern Ohio, after first becoming established in a number of eastern and southeastern states.

Native to East Asia, the jumping worm was first found in Wisconsin and the Upper Midwest in 2013 in Dane County, and within two years, had already spread to 14 counties.

Jumping worms feed on soil organic matter, leaf litter and mulch and create very grainy-looking and hard little pellets when they excrete. The 'changed' soil resembles large coffee grounds, and has poor structure for plants to grow in. The worms are parthenogenetic, producing eggs without the need for a mate, so just one worm can start a new population.

Click [here](#) to learn more.

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VanBuecken receives award for work against invasive species

Donna VanBuecken, the first executive director of Wild Ones and a current honorary director, received a 2019 Invader Crusader Award from the Wisconsin Invasive Species Council.

A founding member of IPAW, the Invasive Plants Association of Wisconsin, VanBuecken received the award in a ceremony on June 5, 2019 for her contributions to prevent, control or eradicate invasive species that harm Wisconsin's lands, waters and wetlands.

The Wisconsin Invasive Species Council was created as a result of 23.22 Wisconsin Statutes that required the Wisconsin DNR to write rules to create a classification system for invasive species and for the governor to appoint an Invasive Species Council that would advise the DNR on the rule.

"In response to this statute, Kelly Kearns, who is an invasive plant coordinator for WDNR, helped organize a group of citizens concerned about invasive species," VanBuecken said. "We used the catchphrase 'plants out of place,' she recalled. Besides educating Wisconsin residents about invasive species, IPAW supported the statute, which led to the WDNR's development of NR Chapter 40. NR 40 finally became a Wisconsin Rule in 2009 and IPAW continues to be involved with its updating and maintenance. They also have had a representative on the Wisconsin Invasive Species Council since its inception.

VanBuecken, who is also on the boards of the Wisconsin Hall of Fame and the Citizens Natural Resource Association, said she handled membership for the fledgling group for a few years, but after five years, stepped down from the board as Wild Ones was consuming more of her time.

But educating others about invasive plants, as well as native plants, has remained one of her priorities.

"Invasive plant species have a way of invading habitat areas and overtaking the native plant species

that have evolved with our wildlife," she said. "Native insects and plant species need each other to thrive."

VanBuecken said she became interested in native plants through her parents. "My dad and mother enjoyed squirrel hunting and sometimes they'd take me along," she recalled. "They would point out the flowers and trees; it was just part of my education. In those days we didn't know there was a difference between native and nonnative plant species."

Today, she's the one doing the educating, reaching out to hunting, fishing and other groups. "People need to understand the difference between a nonnative plant and a native plant if we are ever going to get them to stop introducing nonnative invasive plants to our landscapes," she said.

But besides educating the end user of the plants, we also need to educate the provider of the plants, VanBuecken said. "We have to talk nurseries into not selling nonnative invasive plants and talk them into selling more native plants," she said. "It's a win-win scenario ... and it's healthy for our planet."

VanBuecken said the most important thing to remember about invasive nonnative species is that they are displacing our native species. "People need to realize how easy it is for the seed of nonnative plants to be spread," she said. "Many hunters have such a naïve attitude about the environment. If they walk on a trail with knapweed, they will carry the seed. If trucks and cars are traveling where teasel is, they will carry the seed in their tires. We need to wash mud from our boots, keep our car tires clean ... and stop being so careless."

VanBuecken said she was surprised to receive the Invader Crusader award. "They called and left a message on my answering machine, and I called them back and asked if they had called the right person," she said. However, they explained they had called the right person, and that she received the award for her



Tom Buechel, chairman of the Wisconsin Council on Invasive Species, presents Donna VanBuecken with a 2019 Invader Crusader Award for her work in fighting invasive species.

work in helping to start IPAW and in educating people about the damage invasive species can do, as well as educating people about the benefits of native plants to our environment.

NR40 updates

The invasive species rule (Wis. Adm. Code ch. NR 40) makes it illegal to possess, transport, transfer or introduce certain invasive species in Wisconsin without a permit. It was recently updated and species were added.

"It's important for people to understand the various categories in this legislation and how they are regulated," said Donna VanBuecken. "There are species that have so overwhelmed the state already that we can't do anything except watch for new areas of invasion and try to stop their spread. But there are also other categories for which we can take more determined action. It's important for people to realize legislation is out there to try to help us maintain habitat for the wildlife we have."

To learn more, go to <https://dnr.wi.gov/topic/Invasives/classification.html>.

Family: *Dryopteridaceae* (Wood fern family)
Native range: Eastern North America
Height and spread: 1-2 feet
Sun: Part shade to full shade
Moisture: Dry to medium
Leaf: Evergreen
Tolerates: Rabbit, deer, drought, heavy shade, erosion, dry soil, shallow-rocky soil

Christmas fern: Not your average holiday plant

Christmas fern in a wooded garden.

By Kim Moor

Christmas fern (*Polystichum acrostichoides*) typically grows in a fountain-like clump up to 2-feet tall and features leathery, lance-shaped evergreen fronds. This means it's still green at Christmas, as the name suggests.

The stalks are noticeably scaly. Because of its distinct features, this attractive fern is fairly easy to identify. It grows best in organically rich, well-drained, dry to medium moisture soils in part to full shade. Although the plant is rhizomatous, it typically will not spread or naturalize, but can form small colonies. Clumps will increase in size over time. If planting in poorly drained soil, rhizomes should be planted at

an angle to help combat potential crown rot problems.

This fern naturally occurs in both dry and moist wooded slopes, and moist banks and ravines, helping to conserve soil, and to alleviate erosion. It is especially likely to be found where either limestone or sandstone comes close to the ground surface in hilly woodlands. These habitats are dominated by deciduous canopy trees. In a garden setting, Christmas fern would do well in woodland or shade gardens, or shady areas of borders, along walls or foundations. It is a good plant for massing on slopes to help combat soil erosion. During the winter, the evergreen fronds of this fern are

eaten sparingly by whitetail deer. In addition, young fronds may be eaten by such upland gamebirds as the ruffed grouse and wild turkey.

Christmas fern's tightly coiled fiddleheads, also known as crosiers, emerge silvery green in early spring. As the frond matures, the long narrow blade deepens to a rich, dark green. The frond is supported by a stipe, or stem, which is typically about one-fourth the length of the total leaf. The stipe of the frond is black to very dark brown at the base, and fades to green as it continues toward the tip. It is also covered in coarse light brown to tan scales. The blade (leafy portion) of the frond is lanceolate and widest

Right: Christmas fern coiled fiddlehead. Below, left: Sori on an immature Christmas fern. On a more mature plant, the spore cases would appear more aligned in rows. Below, right: Santa boot shape of Christmas fern pinnae.

at the base. The blade is pinnate, which means it is divided into a number of leaflets that are arranged regularly on each side.


On mature plants, the first fronds that emerge are generally fertile and are held stiffly upright. The plant reproduces by spores. The sori (spore cases) are round, and appear on the upper third of the fertile frond. They are arranged in rows mid-rib on each side of the pinna. This characteristic gives the Christmas fern its botanical name. In Greek, poly means 'many' and stichos means 'rows.' The fertile fronds are followed by somewhat shorter, sterile fronds, which tend to be more loosely arching in form. In the winter the spore-bearing fertile leaves die, but the sterile leaves will remain through the winter, although they are often laid down by snow or frost.

Opinions differ regarding the origin of Christmas fern's common name. Some say it comes from the fact that the fern is evergreen at Christmas and was used by early settlers as a holiday decoration. Others believe it comes from the fact that the pinnae, especially the larger ones, are shaped like a Christmas stocking or like Santa's sleigh or boot. What do you think?

Kim Moor is a member and the current vice president of the Gibson Woods Chapter of Wild Ones in Hammond, Indiana. She's also the newsletter editor for her chapter. Kim joined Wild Ones 7 years ago, mainly because she had a new home with a wooded area in the back that she wanted to enhance in a natural way. Without any native plant knowledge to speak of, she jumped right in by volunteering to compose the monthly newsletter, knowing that it would give her the incentive to learn about native plants while searching for interesting subjects to share.






Photos by Kim Moor



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PHOTO: Laura Hedien



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146 members 'attend' Annual Meeting webinar

By Elaine Krizenesky

The 2019 Annual Meeting was held via webinar on Oct. 12. The West Cook (Illinois) Chapter hosted the national board, and it was wonderful to see beautiful Oak Park and to meet some of the chapter officers.

About 146 people registered for the meeting to learn about our challenges and accomplishments over the past year, including Tech for Tomorrow, Seeds for Education, our Strategic Plan, financials, and going forward into 2020. If you missed the meeting, you can find a complete recording or slides of the meeting on the Wild Ones [Members-Only site](#) under National Reports < Communications with Chapters.

Tech for Tomorrow

The Tech for Tomorrow update included progress toward the creation of a new Membership system and repopulating the public website with information and resources. A sample of the new site design vs. the current site design was shown.

Membership

Membership continues to grow, with more than 4,000 paid members to date. We currently have 58 Chapters and three Seedlings. In the past year, new chapters chartered in Arkansas, Maryland and Massachusetts.

Seeds for Education

In 2019, the Seeds for Education grant program received 46 applications from 18 states. About 31 people served as SFE judges, and 10 projects were ultimately funded. For the 2020 grant cycle, 39 applications were received. If you are interested in serving as a judge, please email SFEapplication@wildones.org.

We are also looking for nursery partners across the country to guide SFE grant winners. If you have a native plant nursery and would like more information, please email info@wildones.org.

Strategic Plan

Wild Ones' 2019-2021 Strategic Plan was approved by the Board of Directors in February. You can read the details by logging in to the [Members-Only site](#) and clicking on National Reports, then Plans. Highlights of the plan's goals include providing more native plant resources, increasing the number of chapters by six, having a 75% member retention rate, and developing strategic partnerships with like-minded organizations.

The most difficult tasks require volunteer time (updating position papers and developing a fundraising plan) or large amounts of staff time (grant writing, creating a list of native plant nurseries, public and Members-Only website work, and implementing new programs). Some tasks were assigned to summer interns: researching nontraditional fundraising and donor recognition best practices, creating a list of schools conducting scientific research on native plants, and compiling a list of current Citizen Science programs.

Progress on completing our strategic goals is perpetually monitored by staff and the national board president. In the past six months, we have made great progress on the huge list of 2019 tasks. While the number of tasks on the 2020 list is smaller, the tasks themselves are larger. Much of our future progress will rely on adequate staffing, coupled with additional assistance from

volunteers. If you are interested in helping with any tasks related to our Strategic Plan, please email president@wildones.org.

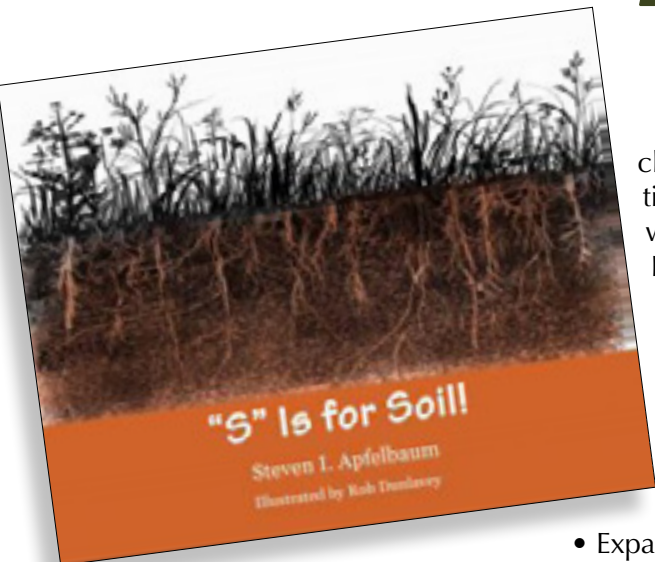
Financials

Wild Ones' federal 990 reports not only national information, but a compilation of the entire organization, including all chapters. The financial outlook for 2019 is positive. Wild Ones has been under budget for eight out of the nine months of 2019. Overall, our cumulative net position to date for 2019 is positive. We expect this number to remain positive through the rest of 2019, as it was in both 2017 and 2018.

From 2015-2018, Wild Ones received between 60% and 70% of its revenue from donations and grants. Mission-related revenue, which includes memberships, is not as large, but has grown from 5% in 2015 to 20-25%. Other revenue, 20% of our total, comes from all the hard work done by chapters to raise funds.

On the expenses side during the same time period, Wild Ones' focus has been on our mission-related, educational native plant projects and activities. These accounted for over 80% of all money spent in 2018. Additionally, almost 10% of our expenses were in the form of grants made to other non-profit organizations. Other expenses have been reduced from over 35% in 2017 to just 8% in 2018. This means we are saving money on a national level and at the WILD Center. For more details about Wild Ones' financials, log in to the [Members-Only site](#) and select National Reports < National Financials. Summarized financial statements are available for each individual month.

"S" Is For Soil!



By Kristen Kauth

I recently read and highly recommend the new book "S" Is for Soil! by ecologist Steven I. Apfelbaum, founder of Applied Ecological Services, Inc. The book explores the value of soil to all life on earth.

Only 38 pages long, the book is written for the layperson and in-

cludes an easy-to-read narrative on a complex subject. The whimsical graphics by Rob Dunlavey kept me smiling with the turn of every page, and I found the book both educational and delightful.

"S" Is For Soil! is divided into two sections:

- The Basics - What is Soil? (Don't Call It Dirt); and
- Expanded Understanding - Digging a Little Deeper (Whole System Thinking).

I can't do better than the press release, so here are excerpts:

As this simple primer begins, " ...It has been said that we know more about the moon than the soil under our feet." Today, with growing concern for dwindling resources, there is a new sense of urgency to

better understand and care for soil (what many of us misguidedly call "dirt") and our very real connection to it. In fact, "our lives may depend on it."

Written for high school and older students, and lay, business and professional audiences, "S" Is For Soil! and its cast of soil characters guides readers with clarity and humor through the essential and often complex understandings about soil, employing a conversational narrative. The book reveals the remarkable story about the abundance of life — from billions of microscopic organisms to burrowing animals — that occupies the thin layer of soil on the planet and that represents 95% of all terrestrial life on Earth!

It explains the role healthy soil can play in addressing the challenging problem of climate change, touching upon the historic role that Earth's grasslands have played in storing large quantities of carbon deep in the ground and about innovative ranching and farming practices that are now being employed to "regenerate" or build-back soil health by putting all of those "unemployed" soil microbes and deep-rooted grasses back to work to re-build the lost carbon stores of the past.

"S" Is For Soil! was produced in partnership with the Lower Sugar River Watershed Association. The book can be purchased individually or in larger discounted quantities online at www.lsrwa.org or by contacting LSRWA at 608-897-8641.

A companion teacher's guide titled "Digging into Soil — A Garden Practicum" has been created by KidsGardening in cooperation with the authors and LSRWA. It is available to download at no cost on the KidsGardening website.

Kristen Kauth is a member of the Fox Valley Area Chapter of Wild Ones.



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Emerald ash borer threatens North America's ash trees

By Bill McNee and Ron Jones

The emerald ash borer (EAB), *Agrilus planipennis*, is an ash tree-killing beetle that is native to eastern Asia. It was found in southeast Michigan in the summer of 2002, but is believed to have been introduced about a decade earlier in wood packing materials. EAB has since been detected in 35 states, Washington, D.C., five provinces of Canada and several countries in eastern Europe.

The emerald ash borer is very aggressive at attacking and killing native ash species (*Fraxinus* spp.), and the vast majority of trees have little resistance. At present, blue ash (*Fraxinus quadrangulata*) appears to be the species most tolerant of EAB infestation in the Upper Midwest, and many large blue ash remain alive. Also in the Olive family, White fringetree (*Chionanthus virginicus*) is an ornamental that is susceptible to EAB infestation. Mountain ash (*Sorbus spp.*), in the Rose family, is not susceptible to EAB.

Tunneling by EAB larvae cuts off the tree's food and water supply, and even healthy trees typically decline and die within a few years of infestation. Symptoms of EAB infestation include a declining canopy, epicormic sprouting at the base of the tree, bark cracks covering winding larval galleries, and 1/8" D-shaped holes made by emerging adults. There are a number of insects, diseases and stress agents that produce signs and symptoms similar to EAB. Contact your local state officials if EAB is suspected, but has not yet been confirmed in your area.

As of 2019, it is likely that several hundred million trees have already been killed by this insect, and billions more will eventually be killed in North America's urban and rural forests. An infestation often goes undetected for 4-6 years, and at this point, some of the ash trees



An adult emerald ash borer is approximately ½ inch in length. Right: Distinctive winding galleries created by EAB larvae under the bark in an infested ash tree.



in the infested area are dying or are already dead. Tree mortality among larger trees is expected to be more than 99%, although a small proportion of ash trees have remained alive long after nearby ash have been killed. Young ash regeneration, either sprouts or seed-origin trees, may be abundant, but they will become susceptible to EAB infestation as they grow. Some of this small ash will produce seed as a small tree, and likely allow ash to persist on the landscape.

Most dispersing EAB adults typically fly less than ½ mile per year, but the spread may be several miles per year where populations are high. However, numerous "outlier" infestations have been established through the accidental transport of the insect in firewood, nursery stock and unprocessed logs. Campgrounds and urban areas are thought to be at highest risk of EAB introduction due to accidental transport in firewood. Industries that use ash have taken steps to minimize the risk of additional EAB spread, but in spite of numerous education-

al efforts, many people are unaware of the risks of transporting hitchhiking pests in firewood and continue to move firewood long distances. Don't move firewood long distances because EAB may be hiding inside the wood and ready to create a new infestation far from existing ones. Buy firewood near where you plan to burn it. At least 20 states have been placed under state and federal quarantines, with 10 more under a partial EAB quarantine.

Forest management

First, determine how much ash is present on your property and consult with a forester if you have more than a small amount. Look for signs of EAB infestation in your trees. Landowners and municipalities will usually have more options if they start managing for EAB before the trees become heavily infested. In most cases, taking action before EAB impacts your property will keep your forest balanced with a mix of non-susceptible tree species, allowing you to meet management goals even if all of

the remaining ash are harvested or killed by the insect.

The non-ash tree species in a forest can benefit from the openings created by ash mortality. Wet sites with a high proportion of ash, such as swamps and river bottoms, will be most heavily impacted by EAB. Be cautioned that management options may be limited on wet sites and some areas will be taken over by shrubs, pioneer plants and invasive plants. It is especially important to consult a forester if this is the forest type of interest.

If a timber harvest is recommended, a forester will probably suggest harvesting all or most of the ash before the trees are heavily impacted by EAB. You will likely receive a higher price for your ash trees, have fewer problems with invasive plant establishment, and may have an easier time getting non-ash tree regeneration established. Diversify the tree species on your property because other tree-killing pests and diseases may eventually arrive.

WILD Center property

Wisconsin's first EAB detection occurred in Ozaukee County in July 2008, and the pest has now been detected in most of Wisconsin's counties. In the southern half of Wisconsin, infestations and tree mortality are now common in both urban and rural forests. In northern Wisconsin, EAB has been found at a handful of sites and tree mortality is very limited. It is widely believed that there are additional, undetected infestations present across the state.

The 16-acre Wild Ones property at the Wild Center in Fox Crossing, Wisconsin includes 3 acres of woodland along the shore of Little Lake Butte des Morts. Unfortunately, up to 95% of the trees are green ash. The Wild Ones staff has been proactive treating an understory of invasive buckthorn and planting a mix of non-ash tree species to replace the ash in the future. In addition, Ron Jones, a consulting forester and Wild Ones member, has assisted in lining up a local logger to harvest the ash now to minimize the hazard and clean-up of standing EAB killed ash. The non-ash tree regeneration will



Characteristic thinning canopy of an EAB-infested ash.

be well-established by then, which will reduce the likelihood of needing to treat invasive reed canary grass. In the meantime, the resident woodpeckers are helping in some biocontrol of EAB.

Insecticide options

Insecticide treatments are an option for preserving high-value ash even if EAB is present, but this will require treatment of the ash trees every year or two as long as they are to remain alive. Treatments are not practical or cost-effective for woodlot ash trees, and some ornamental ash may have pre-existing problems that make them poor candidates for treatment. The highest risk of EAB infestation, and thus priority for insecticide treatments, is within 10-15 miles of a known EAB infestation. A multi-state guide to insecticide treatments can be found online at www.emeraldash-borer.info.

Hazard tree issues

It is important to note that one of the EAB-related issues that has emerged in the last few years is the safety hazards that result from ash infestation and mortality. These trees have different structural characteristics than a non-infested ash and must be dealt with differently, both by a property owner and the tree care

industry. EAB tunneling initiates a drying process that leaves a branch or tree trunk structurally weaker than normal, and these trees are prone to structural failure in a different manner than an non-infested, dead tree. This often happens quickly, and trunk breakage can occur within 1-2 years of tree death. In addition, infested tree removals may need to be done using different equipment and methods than in the past. Many tree care companies do not allow their staff to climb ash trees that are too heavily impacted because of the risk to worker safety.

Wasp releases

One strategy to manage EAB is to introduce some of the insect's natural enemies from its native habitat in eastern Asia. After extensive testing, four species of small parasitic wasps were released in the United States starting in 2007. The wasps are produced by a USDA lab in Michigan and distributed around the country for release. They are smaller than a grain of rice and do not sting people or animals.

Three of these wasp species attack EAB larvae under the bark of ash trees, whereas the fourth species lays its eggs inside EAB eggs on the tree bark. Wisconsin's experience has been that the wasp releases do not stop the decline and death of the large ash. However, scientific studies are showing that they are helping to keep EAB numbers down in the young ash regeneration. It is hoped that this will help a greater proportion of the young ash reach reproductive age and allow ash to persist on the landscape in greater numbers.

For more information about EAB, infestation maps or insecticide information, visit www.emeraldash-borer.wi.gov or www.emeraldash-borer.info.

Bill McNee is a forest health specialist with the Wisconsin Department of Natural Resources in Oshkosh, Wisconsin (bill.mcnee@wisconsin.gov) and is the principal author of this article. Ron Jones works part time as consulting forester and is the current treasurer of the Wild Ones Fox Valley Area Chapter.



Landscape connections help expand our sense of place

The chinquapin oak was formerly called pigeon oak because the now-extinct passenger pigeon often nested in the tree's broad, strong, low branches.

By Denise Gehring

Have you ever explored a natural area to discover links to the past, as well as unexpected connections in the present?

Not long ago, our group explored the new Sawyer Quarry Nature Preserve in northwest Ohio, first taking in its geology and cultural history. We examined the ancient limestone reefs, then the quarry floor finding timeworn wooden rails, mining pits and dynamite holes revealing glimpses to its past. In 1883, Charles Sawyer bought 110 acres for the quarry operation. Once quarried, the limestone was processed; some was heated in kilns on the quarry rim for cement making. But most was crushed and hauled by mule-drawn carts to railroad cars bound for Toledo's up-and-coming glassmaking industry.

The limestone bedrock was formed 440 million years ago from life in the warm Silurian seas. It extends from the quarry north into the basin of Lake Michigan, then to Wisconsin's Lake Winnebago and surprisingly, to the Fox Valley around the WILD Center. In more recent geologic times, the Wisconsin glaciation covered the land east of the Rocky Mountains, over the Great Lakes region to New England. Receding about 11,000 years ago, the glacier's powerful melt waters and deposits laid the foundation for today's watersheds and land features where many Wild Ones members live.

In northwest Ohio and northeast Indiana, the melt water produced an immense wetland — 1,500 square miles of dark water-logged soils, known as the Great Black Swamp. Towering out of the swamp, grew a vast forest of American elm, ash, oaks, basswood, hickories, cottonwood, sycamore and walnut. Under a dense canopy were clouds



From *Portraits and Habits of Our Birds*. Originally issued as Educational Leaflets no. 1-100 of the National Association of Audubon Societies; a scrap book containing artwork and information of the era. Date 1925

of buzzing malaria-infected mosquitoes, making this mud-covered wilderness uninhabited, first for native peoples, then pioneers. This made the region the last in Ohio to be settled. By the 1830s the mucky, swamp roads were still corduroy, made of logs, making the crossing quite burdensome. Many westward travelers became sick or died from “swamp fever” (malaria and cholera). For each overland mile, stones from the Sawyer Quarry marked the route. In time, quarry stone was laid on top of the corduroy roads, then compacted to improve the main road out of the swamp.

From 1850 to the 1880s, there was logging, burning and wide-spread ditching. Once drained, the Black Swamp revealed its fertile soil (“black gold”) and like the prairie states, the wild lands were transformed into bountiful cropland, leaving few remnants of the native ecosystems. In 1885, Ohio Gov. Hoadly

exclaimed, “*The changes caused by ditching and draining have been so great in the last 34 years as to hide all present evidence of the original character of the lands.*”

Above the quarry, the remnant Black Swamp forest withstood the 19th century expansion. Living links from the past, many grand trees survived: American elm (*Ulmus americana*), swamp white oak (*Quercus bicolor*), tulip (*Liriodendron tulipifera*), and on the rise, red oak (*Quercus rubra*) and white oak (*Quercus alba*). Most of the trees grew buttressing trunks and roots, an adaptation for saturated conditions.

Across the woods, tangles of exposed roots entwined the limestone outcrops. Of special interest were the “limestone loving” trees: corky barked hackberry (*Celtis occidentalis*), blue ash (*Fraxinus quadrangulata*) with distinctive square twigs, the straight, slow-growing ironwood (*Ostrya virginiana*), American basswood (*Tilia americana*) the bee tree, and the chinquapin oak (*Quercus muehlenbergii*), a sentry tree, rooted in history.

In 1819, federal land surveyor Samuel Holmes recorded chinquapin oak, but with a bygone name: “*On a limestone ridge, the following timber was noted: white, red, burr, pin and pigeon oak.*”

Pigeon referred to the now extinct passenger pigeon that shared the range of the chinquapin. The broad, strong, low branches of these oaks were often chosen as nesting habitat for the colonial crowded nests of passenger pigeon flocks in the prime breeding range of southern Ontario, Great Lakes states south to Missouri, and through states north of the Appalachian Mountains. From 10 to 40 nests per oak was not unusual. Typically, one egg was laid per pair.

Before fall migration to southern states, thousands of passenger pigeons devoured the bounty of the forests: beechnuts, acorns, chestnuts and fruits like dogwood berries. Preferred were the chinquapin’s small

(about ¾ inch), sweet, thin-shelled acorns. Even now, these acorns are quickly consumed by wildlife from bears to mice, and numerous bird species, from chickadees to wood ducks. People forage for these tasty acorns, too. With so many seeds eaten, its high pH preference, and limited germination success, it’s no wonder the chinquapin oak has only scattered distribution in its range. Fortunately for Wild Ones members, this steadfast oak endures in our shared landscape.

Not so the passenger pigeon. Before its extinction in 1914, the abundance of passenger pigeons was a phenomenon inspiring fascinating accounts in local newspapers. Noted naturalists wrote excellent narratives including Audubon, Thoreau and Muir who shared this in “The Story of My Boyhood and Youth” (Chapter 4, 1913):

“*I have seen flocks streaming south in the fall so large that they were flowing over from horizon to horizon in an almost continuous stream all day long, at the rate of 40 or 50 miles an hour, like a mighty river in the sky, widening, contracting, descending like falls...and rising suddenly...How wonderful the distances they flew in a day--in a year--in a lifetime! They arrived in Wisconsin in the spring just after the sun had cleared away the snow, and alighted in the woods to feed on the fallen acorns that they had missed the previous autumn. A comparatively small flock swept thousands of acres perfectly clean of acorns in a few minutes.*”

It was estimated that in the early 19th century one in four species of birds were passenger pigeons. In 1818, more than 135 million were estimated in West Virginia alone. In the spring of 1871, the largest nesting colony ever was reported in southcentral Wisconsin. After gathering details from 10,000 newspapers and personal accounts, A.W. Schorger estimated this immeasurable nesting population stretched 850 square miles!



The sign by the diorama at the Philadelphia Academy of Natural Sciences reads: This diorama of a woodlands filled with passenger pigeons captures a scene that was once common, but is now lost forever. Passenger pigeons were among the most abundant species of North American birds. Their populations numbered in the billions until the late 1870s, but declined sharply over the next 25 years due to hunting and habitat destruction. The last passenger pigeon died in 1914 at the Cincinnati Zoo.

In 1878, Michigan had the last significant colony of 10 million birds. But, by 1889, the swift decline of the species from overhunting, trapping and commercial sales was evident when the New York Times reported only 5,000 remained. In 1900, regrettably none could be found in the wild. The decline of the passenger pigeon spurred the enactment of the *Lacey Act of 1900*, the first federal law to protect and restore terrestrial fauna, fish and wild plants with interstate regulations and prohibitions.

Considered as an example of a former keystone species, the passenger pigeon had a major role in the ecology of the forest community. Audubon described their forest disturbance like that of a tornado. These were large birds, about the length of pileated woodpeckers, but heavier. Not only did nesting cause physical disturbance and create sunny forest openings, but their enormous roost-

ing deposited fertilizer as overflowing whitewash. Young and adult birds served as abundant food for predators and were easily hunted. Biologists have proposed that the pigeon's own food requirements of the mast of small acorns (chinquapin, pin and white oak) that could be swallowed, may have limited which tree species grew in the forest. In contrast, oaks with big acorns (bur, red and chestnut oak) left uneaten by enormous flocks, could germinate for greater forest dominance.

Did the extinction of passenger pigeons produce a trophic cascade similar to when predators are eliminated from an ecosystem? The loss of passenger pigeons may have produced unforeseen outcomes. A study published in 2006 reported that a predictor of Lyme disease risk is linked to the abundance of acorns, and in turn, small rodent populations like white-footed mice, the main host of black-legged ticks. This

species is the transmitter of *Borrelia burgdorferi*, the bacterium that causes Lyme disease. Wisconsin researcher David Blockstein asked the question: Is it possible that if passenger pigeons had not been hunted to extinction that the explosion in mice populations and Lyme disease would have been less likely?

In 1946, Aldo Leopold gave an address to the Wisconsin Society for Ornithology in Appleton, just 4 miles from the WILD Center. This excerpt may offer perspective as to why stories of the past landscape can help us develop a deeper sense of place through landscape connections with Wild Ones.

"The pigeon was no mere bird, he was a biological storm. He was the lightning that played between two biotic poles of intolerable intensity: the fat of the land and his own zest for living. Yearly the feathered tempest roared up, down, and across the continent, sucking up the laden fruits of forest and prairie, burning them in a traveling blast of life... Once the pigeons had subtracted from his numbers, and once the settlers had chopped gaps in the continuity of his fuel, his flame guttered out with hardly a sputter or even a wisp of smoke. Today the laden oaks still flaunt their burden at the sky, but the feathered lightning is no more. Worm and weevil must now perform slowly and silently the biological task which once drew thunder from the firmament. The wonder is not that the pigeon passed out, but that he ever survived through all the millennia... Things that Wisconsin did not offer him today he sought and found tomorrow in Michigan, or Labrador, or Tennessee; to find them required only the free sky, and the will to ply his wings."

Denise Gehring is former president of the Wild Ones Oak Openings Chapter, and a naturalist who serves on the National Wild Ones Board of Directors. She also is chair of the Seeds for Education program.

Winter forage:

Plant diversity through preservation is vital for resident fauna



A chickadee rests on a post as the snow falls.

We've all asked or been asked at some point, "What do animals find to eat in the winter?" And we're equally familiar with the token response of "nuts and berries." Of course, this very vague explanation leads one to wonder just what kind of nuts, and if berries even persist throughout the winter.

For me this oversimplified explanation warrants a deeper exploration on the true variety of plant-based food sources that are available throughout the winter, as well as how this availability is directly linked to our mission of preservation.

Regarding berries, let's better define the generally used term "berry." The majority of the fruit-bearing species that provide winter forage actually produce a drupe or stone fruit. Drupes consist of a single seed surrounded by endocarp, the hard layer around a seed; mesocarp, the yummy fleshy part; and exocarp,

the skin. Combined, we call this the pericarp. Lots of drupes together are typically called aggregate drupes, such as in blackberries and raspberries. True berries, however, consist of multiple seeds surrounded by the mesocarp and exocarp; the endocarp is very soft or even absent. Tomatoes, bananas, blueberries and even watermelons are true berries.

Let's take a look at some of the soft mast or drupe-producing plants that can provide winter forage. There is quite a variety of small shrubs and vines that can provide soft mast, and not all of them grow in the same type of ecosystem. For example, winterberry holly (*Ilex verticillata*), arrowwood viburnum (*Viburnum recognitum*) and poison sumac (*Toxicodendron vernix*) are all species that we find in or near wetlands or hydric (wet) soils. Bogs, fens and emergent marshes are all wetland ecosystems in which these plant species thrive. While poison

sumac may be anathema to humans, it along with its cousin poison ivy (*Toxicodendron radicans*), provides excellent food sources for our birds. I once observed a gray catbird consume 20 poison ivy drupes in less than a minute!

There are other vines that provide persistent fruits, such as American bittersweet (*Celastrus scandens*) and greenbriers (*Smilax* spp.). These are typically found in drier upland areas and transitional edge habitat between forests and open sites.

Many small trees and shrubs also provide winter forage for resident birds. Chickadees have an extended palate for members of the birch family (*Betulaceae*). Gray birch, river birch and yellow birch — which are also associated with either wetland, riparian or more mesic to hydric soils — produce numerous catkins that contain energy-rich nutlets.

Sub-canopy trees found in mixed hardwoods ecosystems such

as musclewoods (*Carpinus caroliniana*) and hop hornbeams (*Ostrya virginiana*) are also members of the birch family and therefore produce valuable catkins.

Edge habitat shrubs, the sumacs (*Rhus* spp.) produce copious amounts of persistent fruits along with silky dogwood (*Cornus amomum*), gray dogwood (*C. racemosa*), and blackhaw viburnum (*Viburnum prunifolium*). Well managed sites such as those mentioned, with a minimum amount of invasive shrubs like bush honeysuckles (*Lonicera* spp.) and privets (*Ligustrum* spp.), will invite a greater variety of animal species and healthier populations.

Oh nuts! Another botanical lesson. True nuts are hard pods that don't easily open to reveal the fruit and seed inside, such as acorns, hazelnuts and chestnuts. In truth, hickory nuts and walnuts are not true nuts, but are special nut-like drupes. Regardless of what kind of nut is out there in the woods, the harder mast fruits contain loads of healthy fats that provide tons of energy for birds and mammals throughout the winter months. Species such as swamp white oak (*Quercus bicolor*) and kingnut hickory (*Carya laciniosa*) are typically associated with riparian corridors or wetter soils, while black oak (*Q. velutina*) and bitternut hickory (*C. cordiformis*) can be found in drier uplands.

Acorns combine with the characteristic browse of whitetail deer to complete their diet, while they are essential to the eastern wild turkey. Beech nuts and hazelnuts, also known as filberts, constitute excellent forage for whitetailed deer, squirrels and chipmunks.

Other valuable sources of winter forage include seeds produced by native conifers such as white pine (*Pinus strobus*) and tamarack (*Larix laricina*). White pine persists in a wide range of habitats, while tamarack is endemic to bogs and fens. It's also worth mentioning the impor-

tance of protecting the very few native grasslands and natural open areas that remain. Perennial grasses such as big bluestem (*Andropogon gerardii*), Canada wild rye (*Elymus canadensis*), and prairie dropseed (*Sporobolus heterolepis*) not only provide seed, but also excellent cover and wind protection for birds and small mammals.

Other seed-producing prairie plants such as tall sunflower (*Helianthus giganteus*) and many of the *Silphiums* such as prairie dock (*S.*

seeds, or there can be individual seeds stored and buried over a large area. Of course we have all seen the ubiquitous anxiety of a fox squirrel as it scurries from spot to spot in an effort to hide a plump walnut without being seen. Even aquatic mammals such as muskrats and beavers are quite adept at creating food caches within their lodges for an easily accessible snack during the long winter months.

Ecosystem integrity and preservation dictates the presence or absence



Winterberry holly can be found near wetlands.

terebinthinaceum), cup-plant (*S. perfoliatum*) and whorled rosinweed (*S. trifoliatum*) are invaluable to birds.

One important aspect regarding winter forage that is likely more important than locating it is the ability to store it. A number of bird and mammals are quite adept at hoarding food throughout the warm season and building up caches of food to be located as the winter trudges on.

Resident birds such as blue jays, nuthatches and chickadees are just a few that create food caches. A cache may contain hundreds of

of these winter forage essentials. We often focus on the ephemeral beauty of our botanical diversity and overlook the final product: whether it be a drupe or nut; it is the means of survival for our resident animals. Only through preservation of the diverse ecosystems that harbor these plants can we ensure an available bounty of forage throughout the long, cold winter.

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Grasslands, birds, monarchs, pollinators and more

By Chip Taylor

The world has been changing rapidly, but the changes are such that most of us aren't aware of what has changed or what is missing.

As an ecologist, I'm alert to change but, like most people, I often miss the indicators. Crows are down. The numbers aren't what they used to be. Did you notice? I did, but well after I should have. Crows and other corvids declined due to their susceptibility to West Nile Virus. I anticipated that the numbers would recover once the virus had run its course. They did, somewhat, but the numbers are not what they were before West Nile,

and now they may be declining for other reasons.

What about other birds? Did you catch the headlines in September announcing the results of a study of bird population numbers in the United States over the last 50 years? The numbers have declined by 29% or 2.9 BILLION birds! The biggest losses, a negative 53% (>700 million), occurred in 31 grassland species. Wow! That's staggering, and these results give rise to many questions. Why were the losses highest across the vast grasslands that dominate areas east of the Rockies in the United States and Canada to eastern Illinois?

What factors contribute to these losses? Probable causes include loss of habitat, fragmentation, neonic insecticides, herbicides and mowing. Of these, there are data on habitat loss due to the intensification of land use in agriculture and the continuous march of development. While it is likely that the other factors contribute significantly to habitat loss, attaching specific numbers to them or even assessing which is the most important isn't possible at this time.

A restoration site, created by Pete Berthelsen of Conservation Blueprint, is home to many pollinators.



© Peter Berthelsen, Conservation Blueprint, LLC.



Top: *Asclepias tuberosa*, or butterfly weed, is a species of milkweed that attracts butterflies because of its color and nectar. Middle left: A monarch caterpillar munches on a milkweed leaf. Planting more milkweed is necessary if we are to save the monarch butterfly. Middle right: A red admiral butterfly nectars on purple coneflower (*Echinacea purpurea*). Bottom: A monarch on *Asclepias incarnata*.



Photo: Laura Hedden



Photo: Brendan Walsh



Photo: 2004 Wild Ones Photo Contest

Land use changes have been hard to track, often resulting in long lags in reporting. Recently, the urgency of knowing what is happening in real time has resulted in more rapid updating, providing us with a better measure of conversion rates each year. The impact of the Renewable Fuel Standard (RFS) on land use was a shocker. The publication of a report entitled “Plowed Under” by Faber et al. in 2012 indicated that nearly 24 million acres, an area nearly the size of Indiana, had been converted from one land use classification to another from 2008 through 2011. Subsequently, Lark et al (2015) showed that 77.7% of that acreage involved the conversion of grassland to cropland. Another report from the Lark team in 2018 indicated that over 10 million acres of grassland had been converted to crops from 2008-2016. The Plowprint Report by the World Wildlife Fund in 2018 indicated that another 1.7 million acres were converted to cropland in 2017. The bottom line is that grasslands are being lost at an average rate of more than a million acres per year.

What is less clear is how much habitat is being lost to development in grasslands. It’s probable that these losses are also in the range of a million acres a year. Further, some losses may not be accounted for. In many areas in the Midwest, growers have reduced the distance from the edge of the field to the edge of the road, leaving only low diversity grass-filled margins.

There is no doubt that grasslands are in decline and we are losing birds, but does it matter? It does. The loss of grasslands signals that we are not only losing birds, but also pol-

linators, monarch butterflies, small mammals, and the raptors and other predators that feed on them. Further, without the pollinators, we will lose both plant and insect diversity, further eroding the connections that sustain these ecosystems.

Do we want to live in a world without birds and pollinators? The larger question may be, can we? These ecosystems support us. We are dependent on the richness of these environments. The soil is alive. It's a matrix that supports a complex web of life, and the organisms within it are often connected intimately with the health and well-being of the plant and animal life above. These connections are destroyed or modified through changes in land use and the addition of chemicals in the form of fertilizers and short and long-lived insecticides and herbicides. It's fair to ask if, collectively, we know what we are doing. What will be the costs of our quest to extract everything we can from grasslands? Is there another dust bowl in our future?

To counter our destructive tendencies, there is a strong movement to restore habitats both broadly and for specific species. The bird study shows that, in contrast to the general decline, waterfowl numbers have increased over the last 50 years. So have eagles, peregrine falcons and a few other species. These successes are due to habitat restoration and protection. There are also attempts to restore grasslands. The challenge is massive. To keep pace with the annual rate of loss, we need to restore more than a million grassland acres a year. That requires dollars, seeds, locations, boots on the ground and more.

Can we maintain or even increase that rate of restoration? Surely, we can. Will we, is the question. I deal with this issue on a regular basis. Monarch numbers have declined by about 80% over the last two decades, and the crash in the population during the winter of 2013-2014 led to a petition to the Department of



A monarch caterpillar munches on *Asclepias verticillata*. You can certify and register your native garden through Wild Ones. Learn how at <https://wildones.org/butterfly-garden/>.

the Interior to declare the monarch a threatened species.

At Monarch Watch, we have made it our mission to do what we can to sustain the monarch migration. This mission involves getting people, businesses, states and federal agencies to plant milkweeds, the host plants of monarch caterpillars. The task is immense. A major study indicated that 1.4 BILLION milkweed stems need to be planted, mostly in the Upper Midwest, to restore monarch numbers to a level sufficient to buffer the population in the event of extreme losses due to winter storms and other weather events.

We have made a small dent in this number. To date, over 27,000 Monarch Waystations, generally small gardens or restoration sites containing milkweeds and nectar

sources, have been created and registered. In addition, working with nurseries, we have facilitated the production and distribution of a million milkweed plugs (small plants) for restoration projects throughout much of the United States. Monarchs are a gateway species. They have charisma and are known to the public, and the public is strongly interested in monarch conservation. By saving the monarch migration through the restoration of grasslands we will save many other species. It's our mission, but all can contribute. Plant milkweed!

Chip Taylor is a Wild Ones honorary director and founder and director of Monarch Watch, as well as a professor in the Department of Ecology and Evolutionary Biology at the University of Kansas, Lawrence, Kansas.

Dealing with over-enthusiastic mowers

Some Wild Ones members in Flushing, Michigan, struggled to stop their municipality from mowing their wildflowers planted by the side of the road. That is, until a neighbor came to the rescue.

The Kreutzfeldts were featured in the Wild Ones Journal in 2015, in an article titled "Cabin in the Woods." This is an update to their story.

By John and Kaye Kreutzfeldt

We've continued our rather extreme version of natural landscaping since 2015. Basically, we let nature have its way on our property and reject any sense decorative gardening.

There is a price to pay for this when we live among "urban deserts," a description courtesy of Bertha Daubendiek, founder of the Michigan Nature Association, on our street. Though our street-side planting is crown vetch, a traditional wildflower used by road commissions in Michigan, we are still a target for road commission mowing crews.

We thought that we finally had an understanding with our local road commission foreman that we would not be mowed, but you can see in one of the photos what happened *again* this year. This time we were mowed to the bare earth!

Eventually, he came out and apologized and then later put in some wood stakes with pink fluorescent paint on them, so the next

scheduled mowing wouldn't affect us. Needless to say, the stakes did not complement our naturalized yard.

But because of this mowing, a neighbor offered to create some posts for us that would function in the same way as the ugly pink stakes. All he needed was some limbs that might be lying in our property. The idea was to put in posts that would deny the mower access to our plants, such as purple coneflower, goldenrod and asters. He even installed reinforcement rods (rebar) in the posts to make it easy for us to install the posts in the spring and remove them in the fall.

This is where we now have some joy. He basically created yard art for us, and it fits very nicely with our wild property. They're installed in the tall grass that wasn't there before the mowing!

While we'd rather not have the posts identifying our property, they should help save some plants that are beneficial to pollinators.



Top to bottom: The local road commission mowed the Kreutzfeldt's wildflowers down so all that was left was bare earth; A neighbor created the decorative yard posts that were reinforced with rebar; "Do not mow" signs now remind the roadside crews that wildflowers are in place.

SFE grant funds Hawaiian native garden with wiliwili trees



Lokelani Intermediate School in Kihei, Hawaii has a new native Hawaiian garden, thanks, in part, to a Wild Ones Seeds for Education grant.

Project coordinators Colin McCormick, Alexis Kageyama and Kerry Gudmunson wrote in their one-year report that the first plantings of the South Maui Native Plant Hillside were done in December 2018, and included wiliwili (*Erythrina sandwichensis*) trees. The planting was done by students from the Lokelani FFA Club, as well as students in art, STEM and agriculture classes.

"Prior to planting these initial native trees, students prepared the planting site by clearing nonnative vegetation and digging holes and augmenting the soil, all under the supervisor of the Grow Some Good site coordinator," they wrote. "This

planting was a success. All trees are doing well, and the rainy season is well underway."

Students became excited about the project after taking a field trip to the Wailea 670 lava flow area, where they could see the native plants in their natural habitat and collect plant material for propagation, the project coordinators wrote. That helped develop a sense of ownership for the responsibility of perpetuating those native plants.

The group used the entire \$500 grant to purchase specific, rare native Hawaiian plants and Hawaiian canoe plants from the Maui Nui Botanical Gardens. Rare plant material that was collected from natural areas adjacent to the school was delivered to the botanical gardens, where it was later propagated and grown be-

Lokelani Intermediate School students prepare to plant a new native Hawaiian garden.

fore being replanted at the school.

In March 2019, the group started planting additional species, such as *Abutilon menziesii*, *Achyranthes splendens*, *Lipochaeta rockii*, *Dodonaea viscosa* and *Myoporum sandwichensis*, and installed a drip irrigation system shortly after. They also planted \$2,000 in fruit trees and Hawaiian canoe plants.

They hope to also create interpretive signs (with QR codes) to inform students and staff about the different plants found within the garden.

"Our school garden is also supported by a garden coordinator from Grow Some Good who can partner with teachers to bring class groups out to the garden for visits and lessons," they wrote. "Going forward, we can promote the value of outdoor learning, using our native plants garden in particular, across a variety of academic fields. Having our garden coordinator support interested teachers in the form of established lessons, guided garden visits, leading relevant cultural activities, and assisting with additional adult supervision of students will make it easier and more feasible for teachers to bring their classes out on a regular basis."

For others thinking of doing a similar project, they recommended you think long term, have patience and develop a good plan prior to planting out your site.

"Make sure you have irrigation in place prior to out-planting, and definitely let students do all the plantings under your guidance," they wrote. "Also doing a field trip to a natural area directly affiliated or connected to the project prior to starting the project, will help inspire students to take greater ownership in the project itself..."

Thank you for your contributions

RENEWING BUSINESS MEMBERS

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7555 County Road 116
Corcoran, MN 55340-9415
heidi@BloomOnMN.com
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LaceWing Gardening & Consulting Services

6087 N. Denmark St.
Milwaukee, WI 53225-1673
lacewinggcds@att.net
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1250 Centennial Centre Blvd.
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AFFILIATE RENEWAL

Connecticut College Arboretum

270 Mohegan Ave., Campus Box
5201
New London, CT 06320
<http://arboretum.conncoll.edu>
maggie.redfern@conncoll.edu
Maggie Redfern

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