NATIVE PLANTS, NATURAL LANDSCAPES

WINTER 2020 • Journal • VOL. 33, NO. 4

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



NOTES FROM THE PRESIDENT

Keeping our focus on healing the Earth

By Sally Wencel

As the novel coronavirus pandemic shut down "business as usual," Wild Ones sought new ways to continue providing essential educational and advocacy services to the community.

The Opportunity: People sheltering at home turned to home and garden improvements to keep them busy. Gardening in particular is a trend, often as a way to combat stress or to occupy ourselves.

Even before the pandemic hit, native plants and gardening for wildlife were hot topics. According to Nursery Management magazine, the top trend is "native plants" and the second most trend is "plants for wildlife." In other words, the public is ready to receive Wild Ones' message of saving the Earth one yard at a time.

Then the pandemic hit. With social distancing, gardening arose as an antidote, extending the promise of contact with something real. And what can be more rewarding than seeing wildlife abound as a result of one's labor?

The Challenge: How do we continue our mission when so many of our keystone activities like plant sales, conferences, public meetings and garden tours involve large gatherings? Can remote learning via web conferencing services substitute for in-person activities? We had to shift our resources to rise to this challenge of delivering our message in new ways.

Wild Ones responded by making Zoom conferencing available to chapters, allowing them to shift their public in-person meetings into Zoom meetings. Not all chapters have been able to incorporate internet-based meetings, however, so the challenge remains. Starting in November, we offered chapter leaders more hands-on training on being Zoom-competent and finding ways to share our learning. Some chapters are cautiously holding outdoor events that require social distancing and face coverings; some are holding small group hikes and garden tours while also observing best practices. We are all striving to find safe ways to continue our work through these terrible times.

In the midst of a pandemic and national economic hardship, we experienced some bright spots.

- Both Wild Ones Honorary Directors Douglas Tallamy and Heather Holm presented "Nature's Best Hope" and "The Bombus Among Us" respectively to 1,400 total screens across the country.
- A successful webinar collaboration with <u>New Directions in American</u> <u>Landscapes</u> provided Wild Ones members excellent learning opportunities at discounted rates. Additionally, NDAL donated \$1,500 to Wild Ones in recognition of this collaboration.
- Wild Ones' financial position continues to be strong. We are keeping a careful eye on finances to make sure spending doesn't outstrip our revenues, especially in an economic recession.
- Four new chapters chartered since the last annual meeting, including Chesapeake (Maryland), Keweenaw (Michigan), Ozark (Arkansas) and Southern Kentucky (Kentucky), making Wild Ones 60 chapters strong.

Looking ahead: This next year also means that the national board will be adjusting the 2019-2021 strategic plan and gathering information for the next iteration. While specific objectives, strategies and tactics may change from time to time, our mission continues -- promoting environmentally friendly sound landscaping to preserve biodiversity through the preservation, restoration and establishment of native plant communities.



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.

WINTER 2020 • VOL. 33, NO. 4

5	News
6	Executive director
7	Member garden
12	Maine's gardens
16	Invasive species
19	Winterberries
21	Owen Wormser
24	Heather Holm Q&A
26	<u>Citizen scientists</u>
30	Sugar in trees
33	Photo contest
the lot	

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Wild Ones Journal Online version: ISSN 2472-5900 Print version: ISSN 1551-9155



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ODE TO WINTER

Our spring 2021 inventory

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Sit back and enjoy. Walk through your garden on a snowy morning and absorb the sounds of silence. Take comfort in the knowledge that under that white, cozy blanket creatures small and large are resting, taking shelter, or waiting to engage in their final metamorphosis. Watch the birds feed on your seed heads and know that they are thankful for your commitment to them. Read the prints in the snow as so many hieroglyphics recounting unspoken stories.



The winter garden is not dead. It is the culmination of life and holds the promise of an exciting future.



California

As San Francisco became quieter during coronavirus shutdowns earlier this year, a common songbird responded by changing its tune, <u>Axios</u> reported.

Earlier research found birds alter their songs to compensate for urban noise. But a new study suggests they can shift back if noise pollution is removed.

During pandemic shutdowns, the background noise in urban areas near San Francisco was on par with rural areas and with that of the city in the 1950s, according to the study in the journal <u>Science</u>.

The researchers compared recordings of different dialects of male white-crowned sparrows (*Zonotrichia leucophrys*) in urban and rural areas near San Francisco from spring 2015 and 2016 with those from April and May 2020. Researchers found during the quiet period, the urban sparrows sang more softly and the distance the song traveled more than doubled. They also began to sing lower notes, what females perceive as a more challenging song that therefore may increase the male's sex appeal.



Four state agencies in Illinois have signed a pact to protect monarch butterflies and other important pollinators whose numbers are dwindling. Here, a monarch nectars on swamp milkweed.

Illinois

Four state agencies have signed a pact to protect monarch butterflies and other important pollinators whose numbers are dwindling.

Representatives of the Illinois Departments of Natural Resources, Transportation, Agriculture and the Environmental Protection Agency signed onto the Illinois Monarch Action Plan in September, according to <u>ABC 7</u>.

The project brings together public and private agencies and residents to preserve necessary habitat for monarchs to survive and continue their crucial migration.

The plan calls for 1.3 billion new stems of milkweed in the central United States. Illinois' contribution is 150



million stems by 2038. The Transportation Department, one of the state's largest landowners, has adjusted roadside mowing schedules, reduced the use of pesticides and became

more discerning in the species it plants, Secretary Omer Osman said.

Kansas

<u>Monarch Watch</u> Director Chip Taylor and colleagues have shown that the decline in monarchs' overwintering numbers is not due to an increase in the deaths of the butterfly during the migration — the migration mortality hypothesis. Instead, the main determinant of yearly variation in overwintering population size, they found, is the size of the summer population, the <u>University of Kansas</u> reported.

Published in August 2020 in the journal <u>Frontiers in</u> <u>Ecology and Evolution</u>, the research shows that monarch butterfly populations have been declining for most of the last two decades and that the tagging recoveries — a measure of migration success — did not decrease over time.

Taylor, who is also a University of Kansas professor emeritus of ecology and evolutionary biology, said the prevailing view was that the decline was due to habitat loss that followed increased use of glyphosate herbicide on corn and soybean fields in the Upper Midwest —the milkweed limitation hypothesis.

However, that view was challenged by a number of researchers who maintained that the decline was likely due to increasingly high levels of mortality during the butterflies' migration.

To come to their conclusion that sustaining the monarch migration will require the restoration of over a billion milkweed stems in the Upper Midwest in the coming years, the researchers summarized the results of tagging almost 1.4 million monarchs that resulted in nearly 14,000 recoveries of tagged butterflies in Mexico.

Ohio

The Ohio State University Partners for Pollinators has several free webinars available online at <u>https://u.osu.</u> <u>edu/certify/zoombees-webinar-recordings-2020/</u>. Each session lasts about an hour.

Presenters and their titles include:

- Dan Herms: Introduction to Phenology
- Jamie Strange: <u>The Rusty Patched Bumble Bee and</u> <u>Bumble Bee Conservation</u>
 - Denise Ellsworth: The Bees in Your Ohio Backyard
 - Heather Holm: Solitary and Specialist Bees
 - Doug Tallamy: <u>Nature's Best Hope</u>

New exec director 'wants to add value' to landscapes

By Jennifer Ainsworth

Growing up, I spent a lot of time outside. I loved watching the clouds go by, smelling a sun-baked blanket on the grass, and picking dandelions and violets in the yard.

As I grew older, I started learning about pollution and how our planet needed help. I remember coming home one night from school in thirdor fourth-grade after we had learned about reducing water and electricity use. I was talking with a family member who was brushing her teeth and I turned off the water while she brushed. She guipped about how she wanted cold water and that is why she kept it running. I don't recall what was said after that, but I carried that lesson into the next couple of decades. I thought that one person could not make a difference and that I alone couldn't save the planet. So I didn't put a lot of effort into my relationship with my environment for a while.

I started working at Goodwill in my early 20s as a cashier in one of their stores. I was fortunate to be surrounded by people who were willing to teach me, and I was eager to learn and grow. After a few years, I was given an opportunity to work on the continuous improvement team, which is focused on removing waste from processes to reduce cost and increase value to the organization. My role was all about making small changes that had really big impacts to the organization, and I loved it. I enjoyed the journey of having a problem, discovering the root cause, finding a solution or alternative and measuring that impact. In hindsight,

this was the catalyst that restored my desire to inspire change around me.

Reducing waste in my life has been something that I have been doing for 3 years or so and it has been extremely rewarding. I strive to make responsible and informed purchases to reduce trash going to the landfill. I try to stay current on recycling practices and compost everything I can. I try to incorporate minimalist practices into my home so that I am reducing what I buy, use and eventually discard. I try to be a conscious consumer, but I still have lots of

opportunity to become better.

As I continued to layer on new personal goals to reduce waste, I realized that even though the changes I make are a "drop in the bucket," my friends and family were starting to make small changes, too. Through that, I realized that my impact is greater than what I do alone.

Earlier this year, I made the decision to leave my full-time job and find something that aligned with my personal values. I wanted to find an organization that helped me learn more about how I could positively impact the environment, educate others and support real change for a better planet. After four months of researching roles and organizations,



a friend forwarded me the job posting for Wild Ones executive director. I researched Wild Ones and found that this organization really fit within my values and interests, and naturally fit within my journey of reducing my environmental impact by adding value back into our landscapes.

I look forward to learning more about native plants and how our organization can support chapters and members across the nation, educating and inspiring others to take steps in their own journeys to help heal our planet.

And I'm always available to answer your questions or hear your concerns. Email me at <u>execdirector@</u> <u>wildones.org</u>.

In 2006, Sarah Mann had just moved back to the Milwaukee, Wisconsin area and was taking daily walks with her newborn daughter to reacquaint herself with the community and to get some needed exercise. The turnaround spot of one of her regular walks was at Big Bay Park in Whitefish Bay.

"One afternoon, as I was rounding the bend to head down to the lake, a woman in a net veiled pith hat and

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 highresolution photos, as well as a brief description, to <u>barbara.a.benish@gmail.com</u> or journal@wildones.org. Please include your contact information so we can get in touch with you.

combat boots emerged from the forested bluff brandishing a

shovel," Mann recalls. "I couldn't resist inquiring about her purpose."

Wild Ones member Ney Collier, also known as Ney Tait Fraser, proclaimed her commitment to saving native plants. "So devoted was she that she adopted the park as its sole steward, eradicating invasives and promoting natives," Mann says. "She patiently explained how essential native plants are to the environment and every creature in it."

Immediately, Mann was sold and grateful that she finally found an approach to gardening that made sense and was more meaningful than choosing plants for purely decorative reasons.

From that moment on, Mann says she made a commitment to convert

Member Garden Sarah Mann

Milwaukee North (Wisconsin) Chapter

All photos courtesy Sarah Mann her lily laden garden to natives. Still, it was a daunting task.

"Partially because my learning curve was so steep about which native plants would be appropriate for the conditions of my garden, but also because I knew nothing about how I wanted it to look aesthetically," Mann says. "I took some pressure off by giving myself permission to take as long as I needed to create my dream garden. It still is and probably always will be a work in progress as I learn, adjust and update."

Mann says she is removing nonnatives as suitable native replacements come into her life. She acknowledged that there are only a handful of favorite nonnatives still permitted

Top: Varieties of aster, goldenrod, snakeroot, figwort and Joe-Pye weed provide fall color and food and shelter for pollinators and other animals.

About the Yard

- Sarah Mann lives on a 1/16 acre lot in Whitefish Bay, a suburb of Milwaukee, which has a range of shady to sunny spots.
- She has around 50 varieties of native plants, and about 90% of her garden is native.
- Sarah says there is always a pollinator party going on in her yard. "Monarchs are in a season long dance around the milkweed. Goldfinches, robins, sparrows, cardinals and other beauties flit from woodland sunflower to birdbath to feeder. Bees and insects dash between the flowers and hover en masse around my figwort. The constant activity is entertaining, mesmerizing and soothing."
- One of her favorite plants is cupplant, which was first given to her by Lorrie Otto, who she met through the Milwaukee Wild Ones chapter. "I asked her what her favorite plant was and she said it was the cupplant because it was so majestic. Then she launched into all the purposes it served, and it made me fall in love with it, too," Mann says.
- But Mann is also a fan of the more understated and delicate spring ephemerals like trilliums.
- Mosses are her newest addition to her yard and she's anxious to see how they'll do.

in her garden and says they will likely be supplanted eventually.

Collier encouraged Mann to join Wild Ones. "It was the perfect way for me to feel tapped into an incredibly wise, likeminded community that was very supportive of my new venture," she says. "Members shared knowledge and actual plants from their gardens. A limited budget prevented me from investing heavily into my garden, but Wild Ones plant rescues were the ideal way to both save precious plants and populate my garden."

Mann says she relied entirely on the "hit-or-miss" approach to determine what plants worked best in different areas of her landscape. Some plants flourished, others failed. Some were unwelcome spreaders.

"I realized through trial and error what works best where," she says.

A monarch nectars off sundrop in the Mann yard. The monarch was raised from an egg found on their milkweed, and they released it after it emerged from its chrysalis. Mann says she and her daughter, now 14, have been raising monarchs for nearly 10 years. They even went to Michoacan, Mexico, so they could see where their butterflies wintered.

"I didn't realize some plants needed amended soil, and those plants died. I planted extremely tall plants too close to the border and that blocked the view of my garden from my kitchen window. Those were transplanted and/or given away."

But Mann says her gardening fine-tuning and expansion has been gratifying. "I have areas where I've had mental blocks with and I'm finally at the point that I have the confidence to address those areas head-on," she said. For instance, she had vinca vine transplanted from her grandmother's yard in her yard. "It was a remnant of a garden that my grandma treasured and I abhorred, but for the longest time, I felt like I would be letting go of my grandma by removing it," she says, noting she finally ripped it out and took charge of that space.

With many activities and events canceled due to the pandemic, Mann says she devoted her free time, as well as her energy and resources, to areas in her life that give her pleasure. "And my garden is the main one. I've done a deeper dive into gardening and it has been profoundly satisfying."

Mann calls herself a "puller outer" gardener since she often pulls out plants that start taking over. "My garden is quite small so I can't afford to have things take over," she explains.

One of her favorite plants in the garden is cupplant (*Silphium perfo*-

Left: Goldenrod and asters provide bright colors in the Mann yard each fall. Bottom left: This is the newest area that Sarah Mann is converting to natives after pulling out the vinca vine at the front of her house. It includes a variety of ferns, sedges, violets, baneberries, bloodroots and Jack-in-thepulpits. This area has dappled sunlight and Mann plans to transplant some of the tender Wild Ones plants from the seed exchange nursery garden into this garden when they get a bit sturdier. Bottom right: One lucky bunny! Sarah Mann's rabbit enjoys the solitude inside a pen in her backyard, which is filled with native plants. Wild rabbits will often come up to the pen to commune with Mann's bunny, but she said she wished her rabbit would tell the wild ones to stop eating her native plants.

liatum), which was gifted to her by Lorrie Otto, a deceased Wild Ones lifetime honorary director who is known for her nationwide fight against the use of DDT. "She touted their majestic qualities and I've loved them ever since," Sarah says. "Their towering sturdy stalks are sentries at my garden entrance. Their cleverly designed leaves hug the stems and act as both ladders and rain water drinking vessels for chipmunks. When the flowers finally burst open midsummer, the insect and bird activity is incessant until they fade at the end of the season."

But the favorite sections of her garden are the shady areas filled with Jack-in-the-pulpit, trillium, ferns and wild ginger.

"It's one of the first areas of activity in the spring with tender shoots greeting warmer, longer days," she

says. "I've just dotted some sedges into the mix for textural variety. Another more recently developed section is also shady but focuses more heavily on a sedge base punctuated by ferns, cardinal flowers and Solomon seal."

The newest addition to her yard is a moss garden. "The first moss garden I visited was in Tokyo, Japan and it was so lovely, peaceful and enchanting. I've been in love with it ever since," Sarah says. "Moss is this ground pillow that you can't help but lie down on and put your cheek against."

Mann says her moss garden includes some rock features and enough open soil to allow moss to spread. "I'm flying by the seat of my pants with this one, but I know I will learn along the way how best to make moss flourish." Mann says she found a moss garden in the outskirts of Milwaukee, and that's where she accumulated littles bits and pieces. "My hope is to anchor them in my garden and have them spread," she says.

Started just this summer, the moss garden is located in shade. Mann admits it doesn't have the most natural conditions, so she ends up watering it a lot. "We'll see what happens," she adds with optimism.

Her advice to those who are new to native gardening is to not be intimidated. "Don't feel like you have to know how you'll lay out the garden and know what plants you'll use," she said. "Just start small with one area putting in plants you like or rescue. Embrace your space as you would a relationship that you want to last forever. There's no rush. Take time to nurture it, connect with it Sarah Mann grew these native plants from a Wild Ones seed exchange, allowing her to grow the diversity of plants in her yard.

and savor it."

Gardening with native plants is satisfying, she says, particularly when friends who are more accustomed to nonnative gardens visit her lush, abundant garden. "They always remark about how magical it is because it's so full of color, texture and life," she says.

Mann says creating and maintaining a native garden is an act of love.

"As a gardener, I'm an instrumental part of doing the right thing by the environment and the creatures in it," she says. "I find that tending to my garden and being surrounded by purposeful, mindful beauty is incredibly hopeful and the perfect antidote to these challenging, uncertain times."

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• 11 • Wild Ones Journal • Winter 2020 • Vol. 33, No. 4 • wildones.org

The northern bounty of Maine's public gardens

By Matthew Ross

Known for some of the most beautiful and pristine natural landscapes in the country, lobster rolls and the cold, refreshing waters of the Atlantic Ocean, Maine is one of the nation's top destinations for summer vacationers. For those planning on making the journey to the "pine tree state," I encourage you to think about adding two public gardens to your agenda:

<u>Coastal Maine Botanical Garden</u> in Boothbay and the <u>Abby Aldrich</u> <u>Rockefeller Garden</u> in Seal Harbor. The two sensational gardens masterfully integrate the native flora of Maine into their designed landscapes.

While Coastal Maine might be best known for its expansive botanical collection, interactive children's garden and sophisticated plant combinations, there are incredibly well-designed hiking trails that call to native plant enthusiasts. The network of trails embraces the natural beauty and diversity of Maine's flora. Providing a place for calm contemplation and reflection, the Vayo Meditation Garden exemplifies how a native palette can be used to create intentional movement. Accented with Maine granite, the garden seamlessly fades into the neighboring ecosystem and amplifies the deeper connection we all have to a sense of place.

As the pathway continues, visitors can spot a series of thought-pro-

voking sculptures made with natural materials that celebrate Native American heritage. The trail concludes with a stunning view of the Black River at The Landing. This is where garden visitors can access the gardens directly from their boats, providing an experience that typifies the idyllic coastal Maine community. Throughout the hike, there are moments for kids of all ages to explore the bounty of the coastal forest.

Three hours to the north there is a world-class collection of gardens and

Top: The entrance through the imperial walled garden is like opening a door to another world at Abby Aldrich Rockefeller Gardens. Above: Vayo Meditation Garden at Coastal Maine Botanical Garden offers a delightful setting for reflection.

natural lands adjacent to Acadia National Park that are often overlooked. From 1926-30, John D. Rockefeller Jr. and Abby Aldrich Rockefeller worked with famed landscape architect **Beatrix Ferrand** to design a breathtaking garden that combined their collection of Asian sculptures, an English cutting garden and a collection of woodland natives. Approaching the garden, visitors are invited to enter the imperial walled garden to experience a moment of Zen and contemplation. While it looks completely naturalistic, the garden is thoughtfully designed with intentional sight lines and layered symbolism that has been impeccably maintained for nearly a century.

An informal carpet of lowbush blueberry (*Vaccinium angustifolium*) and black crowberry (*Empetrum nigrum*) are combined with herbaceous woodland plants to seamlessly blend into the wild of the preserve and the towering red spruce (*Picea rubens*) canopy. This provides the perfect canvas for the Asian statuary and classic English borders. Garden visitation is extremely limited due to opening its gates to the public less than five years ago.

Both gardens build upon the beauty and expanse of Maine in a thoughtfully crafted, designed approach that strengthens the connection between native flora and the cultivated world. The landscape vignettes provide ample ideas for gardeners to see the native palette as an opportunity to stretch the boundaries of what is formal while still being functional.

Matthew Ross is the coordinator of continuing education at Longwood Gardens in Kennett Square, Pennsylvania, is a Wild Ones Partner-at-Large and has served on the national board since 2017.

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How removing invasive species can help our native birds

Top: Amur honeysuckle's berries are are like junk food to birds. They fill them up, but have little nutrtional value. Above: Wintercreeper will climb trees, eventually preventing birds from foraging for insects in the bark.

By Ned Keller and Kathy McDonald

It has become a well-known fact that invasive plant species contribute to the decline of native plant species and to the decline of the native insect species that depend on those native plants. Less well known is how the spread of invasive plants contributes to the decline of many of our native birds.

When we call a nonnative plant invasive, we mean that it has become so common that it is displacing native species from an ecosystem. Most nonnative plants are not invasive. For example, we aren't concerned that petunias are taking over our forests. But more than 4,300 invasive plants have taken root in the United States. Invasive species compete directly with native species for moisture, sunlight, nutrients and space. Because invasive species often produce many seeds and are easily adaptable with little competition, they spread aggressively and create a decrease in plant diversity. The establishment and spread of invasive species degrade wildlife habitat and can contribute to the decline of many species.

Let's use the very common Amur honeysuckle (*Lonicera maackii*) as an example. Amur honeysuckle produces much less food for birds than native shrubs. But what about all those red berries? Don't birds feast on them? Yes, but the nutritional content of those pretty red berries is far inferior to the berries of most native shrubs. They are like junk food – birds fill up on them, but don't get the nutrition they need.

And the berries are really the least

of it. Almost no caterpillars of moths and butterflies feed on honeysuckle. Most nesting songbirds feed their young almost exclusively on caterpillars and other insect products. Fewer bugs means less food for nestling birds, and therefore fewer songbirds over the course of a few generations.

The branching structure of honeysuckle is also less favorable for nesting songbirds. Studies on the nesting habitat of songbirds show that when birds use invasive species for nesting, there is a higher predation rate as opposed to using native shrub species. And honeysuckle can so dominate the understory of a forest that ground cover is nearly eliminated, which means that ground-nesting birds like ovenbirds no longer have proper nest sites.

Some of the most highly invasive vining species are still sold in gardens stores today. Wintercreeper, or *Creeping euonymus*, is a shade tolerant plant that forms dense mats, depriving native species of space and sunlight. It will also deplete soil nutrients and moisture from nearby plants, causing the decline of nearby native species. If allowed to grow out of hand, the vine will spread over anything in its way, even climbing trees. The dense mats formed around tree trunks can prevent birds from foraging for insects in the bark, Left: The key to getting specific birds to your backyard is knowing what they eat. Chickadees, for example, only feed their young caterpillars and other insects. So it shouldn't be surprising that oak trees are one of the best native plants for birds, supporting 557 butterfly and moth species. Right: Wintercreeper will climb trees, eventually preventing birds from foraging for insects in the bark.

which can help sustain them in the winter. And thick mats on the forest floor can also prevent ovenbirds and other ground-nesting species from finding a suitable nest site.

These are just a couple of examples of how invasive plant species contribute to the decline of native birds. Other invasive species may impact birds less directly, or in different ways, but all of them crowd out native plant species. And as native plant diversity decreases, the diversity of the entire ecosystem also declines, impacting butterflies, birds and other groups of organisms.

Getting to know the invasive plant species in your area can help early identification and removal before extensive damage is done. There are many invasive plant removal workdays conducted by local and state conservation organizations, and there are many Wild Ones chapters that you can participate in and learn how to best eradicate these invaders. The birds will thank you for it!

Kathy McDonald and Ned Keller are long-time birders and naturalists who enjoy being in nature to learn more about local flora and fauna, as well as landscaping with a purpose to welcome wildlife to their yard. Kathy was one of the founding members of Greater Cincinnati Wild Ones in 1999. Ned is the past president of Audubon Society of (Cincinnati) Ohio. Both serve on the board of the Midwest Native Plant Society, whose mission is to "Advocate the vital role of native plants in the landscape to preserve ecological integrity and connect people with nature."

For more information: <u>The National Association of Invasive Plants Councils</u> <u>The National Audubon Society</u>

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Support Wild Ones and help make a difference

By Sally Wencel

The photos you see here are from Wild Ones' Lorrie Otto Seeds for Education program. For over 20 years, this key Wild Ones initiative has engaged thousands of youth in the important work of preserving our environment by providing grant funding to local schools, nature centers and youth groups throughout the United States for natural landscape projects.

This is just one of the many ways your support helps educate and spread the word about Wild Ones' time-sensitive mission to establish and restore native plant communities. Because of you Wild Ones also:

• provides free, educational resources and learning opportunities that are open to the public

• supports the efforts of more than 60 local Wild Ones chapters in 20 states

• publishes a quarterly, awardwinning journal for members featuring current native plant information and resources

• and is about to debut free, professionally designed native garden templates for multiple regions in the United States. Read more about this initiative on page 23.

But we can't do it without you! Will you make a gift today to help educate people of all ages about the importance of growing native plants? You'll help make a crucial, lasting impact for generations to come.

One of the big mistakes in our approach to conservation is the idea that "nature" is something set aside in preserves and parks, something separate from our daily lives that we go to visit, says Doug Tallamy, Wild Ones honorary director and author of "Bringing Nature Home." He warns, "We can no longer leave conservation to the conservationists." Wild Ones members like you live this sentiment and we aim to support your efforts to educate the public about this crucial message through a strong national presence.

We know that future generations might not grow up experiencing the simple joy of watching bumblebees pollinate flowers or the wonder of a monarch butterfly emerging from its chrysalis. It's that simple: nature may no longer be around us.

Wild Ones remains the only national nonprofit organization whose sole mission is to restore native plant communities and promote sustainable landscaping. We know native plants are the building blocks for ecosystems that support our survival and we must continue to get out that message and advocate for better land stewardship. Our work has never been more important.

You can help spread the word that native plants are our best hope to save our environment. Educating the public and raising awareness has never been more urgent, and it has also never been so difficult to do during this pandemic. Social distancing continues to be our new normal and critical in-person outreach like plant sales, garden tours and Seeds for Education projects are more challenging to conduct. Wild Ones members like you are finding innovative ways to continue our education and advocacy and we are sharing these creative solutions for these harrowing times.

Will you please consider making a donation to Wild Ones today? Your support will help us be successful in this vital work. Together, we can save the earth, one yard at a time.

Your gift today is crucial! We don't receive funding from the government. We must depend on membership fees, donations and gifts from individuals like you, foundations and companies. To donate, go to <u>wil-</u> <u>dones.org</u> and click on the "donate" button on the homepage.

Winterberry: Adding color to the winter landscape

Winterberry (*llex verticillata*) gets its name from its bright red berry-like drupes, which are present all winter.

By Katharin Mason-Wolf

One of my favorite native shrubs for winter interest in the garden or landscape is <u>llex verticillata</u> or <u>winterber-</u><u>ry</u>. This is a deciduous holly, which means it loses its leaves in the fall, unlike many other hollies that retain their leaves through the winter. The lack of leaves on this shrub during the winter makes the bright red berry-like drupes, which are present all winter, even more dramatic and gives the shrub its common name.

Winterberry is most often found growing naturally in wet areas and

along stream banks, ponds or lakes in full sun to partial shade in rich, organic soil. It is adaptable to garden settings provided it has consistent moisture and low pH. Growing winterberry in higher pH soils can lead to chlorosis of the leaves. Chlorosis is a condition in which leaves produce insufficient chlorophyll. As chlorophyll is responsible for the green color of leaves, chlorotic leaves are pale, yellow or yellow-white.

Winterberry may also be susceptible to leaf spot and powdery mildew, although these are generally not significant issues. Due to its preference for wet soils, it is a good choice for rain gardens.

Winterberry is generally dioecious, which means male and female flowers occur on separate plants. Both male and female plants are needed for fruit formation; however, one male plant in the general area is sufficient for a number of female plants. Occasionally, perfect flowers (both male and female parts in one flower), will appear along with unisexual flowers on one plant. Flowers are white and inconspicuous,

appearing in June to July.

Male flowers grow in clusters of three to 10, while female flowers grow singly or in groups of two or three. Male and female flowers look similar, but female flowers usually have more petals (six to eight) and a single central ovary, whereas male flowers have four to six petals and four to six stamens. If pollinated, the female flowers form drupes that start out green and ripen to bright red by fall. Botanically speaking, a drupe is a fruit with a single seed or stone, such as a peach.

Flowers appear on new growth, so any pruning should be done in late winter or early spring before new shoots appear.

The leaves are alternately arranged and elliptical in shape, generally twice as long as wide with serrated edges, somewhat flat at the base and pointed at the tip. Leaves can be medium to dark green, somewhat shiny on the upper surface and slightly pubescent on the lower surface. Fall color is pale green to yellow, occasionally with some purple tinges.

Winterberry grows 6 to 10 feet

or taller with a similar spread and will often spread by suckers to form thickets or clumps. The suckers can be pruned back to control spreading if desired. The bark is dark grey to brown and smooth, with white lenticels forming on older branches.

Winterberry is native to eastern and central United States and eastern Canada. It is found from Ontario to Louisiana and throughout the central U.S. to the East Coast. It seems to occur more sporadically in southern states with more recorded data in states from Virginia northward.

There is another, more southern species of deciduous holly, <u>Ilex decidua</u>. Its berries are eaten by a variety of songbirds and small mammals. Because the berries persist in good condition throughout the winter, they provide an important winter food source for the birds and mammals that feed on them. It is reported to be a host plant for the <u>Henry's</u> <u>elfin butterfly</u>, found mainly in the north and in the Appalachians, as well as along the Atlantic coast. The larvae of several moths and flies feed on its leaves along with white-tailed deer, although it is not a preferred food source for deer. The clumping growth habitat provides valuable cover and nesting sites for birds and small mammals.

Like other hollies, winterberry is somewhat toxic to humans with sensitivity varying by age, weight, health and individual susceptibility. Toxicity can also vary by season, different plant parts and stage of growth. Despite, or perhaps because of its toxicity, there are medicinal uses for winterberry that include using the bark as an astringent or antiseptic, using the berries as a cathartic and making a tea from the crushed leaves. Due to the reports of toxicity, however, don't try any of these without further investigation and education.

Propagation from seed can be difficult as the seeds must be scarified after the outer flesh is removed as well as cold stratified at least twice. Propagation from cuttings in early spring is usually more successful.

Katharin Mason-Wolf is president of the Wild Ones Oak Openings Region (Ohio) Chapter.

Wormser promotes Wild Ones' teachings through book

Owen Wormser, of western Massachusetts, is a landscape designer and owner of Abound Design. He is also author of <u>"Lawns into</u> Meadows: Growing a Regenerative Landscape," a book with a handson, how-to approach to native landscaping that includes a shout out to Wild Ones. Published by Stone <u>Pier Press</u> in July, the book educates readers about Wild Ones and its motto, "healing the earth one yard at a time," while adding that the organization also offers a way to get involved locally without having to start a movement from scratch.

Q: What started your interest in native plants?

A: My interest began even before I understood what native plants were. In the book, I share how as a child I grew up off the grid in rural Maine, surrounded by nature, and fortunately that suited me well. I was always interested in plants and most of the plants around me — in the woods, in fields, and on the side of roads — were native. As I grew older, I learned about the value of those plants and my interest only increased.

Q: Why did you decide to write a book?

A: Since graduating with a degree in landscape architecture in 1998, I've been practicing landscape design and installation. My focus has always been on creating low-maintenance landscapes. From the beginning it became clear that when done properly, meadows are very low maintenance. The publisher was looking for someone to write this book and my name came up. It presented an amazing opportunity to share something that I've learned intimately and am passionate about, as well as being inspirational and actionable, because the book includes advice on designing, preparing the land, planting and more, all without chemicals.

Q: Describe some of the work you've done?

A: One recent meadow I did was for the <u>Eric Carle Mu-</u> <u>seum of Picture Book Art</u>, which is near where I live in Massachusetts. I designed a memorial meadow for Eric Carle's wife and museum co-founder, Bobbie. And over the years, I've done a wide range of work for homeowners, nonprofits, government and businesses including Japanese inspired gardens, edible landscapes and ecological restoration projects.

Excerpt from book:

A meadow is what can happen when you give the earth a chance to heal itself. When planted properly, it fills out easily and grows almost entirely on its own. With every year in the ground, meadow plants support more life and build healthier soil. This makes them quite efficient at parking carbon — just the opposite of a resource-guzzling lawn. Lawns are among the ways we burden nature. Meadows are far more generous, giving back to the earth much more than they take.

Q: What do you hope people remember most from your book? A: I hope they remember that collaborating with nature and meadow plants is not as mysterious as people think. Along those lines, I hope people gain a greater trust in the process of regeneration and nature's ability to create abundance. The timing of this book is right; there is much greater interest than ever in getting rid of lawns. People are understanding it is their responsibility to take care of the planet, and that they can start doing that in their backyard.

Q: Why did you include Wild Ones in your book?

A: Wild Ones is really an exemplary organization. What the book focuses on is central to what Wild Ones does, and we need more of that. In short, Wild Ones is such a good example of how people can work together to create an ecologically healthier world.

Q: What might people be surprised to learn about you?

A: Even though I've been in this business for more than 20 years, I still occasionally make mistakes with plants. Learning is an ongoing process, and if I do make a mistake that's OK as long as I correct it and I learn from it. It really is an ongoing learning process when you work with native plants.

Q: What advice would you give to those new to native landscaping and meadows in particular?

A: Patience is important. Meadows with perennial native plants, especially those grown from seed, don't happen overnight. You must trust yourself and understand it is a process. It's also important to understand that native plants have been around for thousands of years, and that there is an interaction and connectivity to other plants and animals, such as pollinators. Because of this, native plants are particularly important to local ecosystems.

CHAPTER ANNIVERSARIES

Menomonee River Area, Wisconsin 23 years	
St. Cloud, Minnesota	
St. Louis, Missouri	
Arrowhead, Minnesota	
Central Wisconsin, Wisconsin	
Central Upper Peninsula, Michigan 19 years	
Greater Cincinnati, Ohio 19 years	
Lexington, Kentucky18 years	
River City-Grand Rapids Area, Michigan 13 years	
West Cook, Illinois7 years	
Front Range, Colorado	
Smoky Mountains, Tennessee5 years	
Southeast Missouri, Missouri2 years	
South Shore Massachusetts2 years	
Louisville, Kentucky2 years	
Middle Tennessee, Tennessee	
Chesapeake, Maryland 1 year	
Keweenaw, Michigan1 year	

Mark Your Calendar

DECEMBER Dec. 1 National Day of Giving (#Giving Tuesday) Please consider furthering Wild Ones' mission with a tax-deductible donation here.

JANUARY

Jan. 5 National Bird Day How about planning to add more bird-friendly plants this growing season?

Jan. 10

Save the Eagles Day

The WILD Čenter is doing its part! The eagles have been spotted almost every day.

Jan. 25

National Seed Swap Day

Visit <u>www.wildones.org/connect/chapters/</u> for a link to your chapter's website to see if there is a seed swap near you.

FEBRUARY

National Bird Feeding Month

Don't forget to incorporate plants with edible seedpods or berries in your landscaping.

Grant to pay for regional garden designs, native guide

Wild Ones received a <u>Stanley Smith</u> <u>Horticulture Trust</u> grant in 2020 and is using the funds to develop six professionally designed garden designs for the regions of Chicago, Chattanooga, Milwaukee, Minneapolis, St. Louis and Toledo. The native garden designs will be free for the public to use and will be published on the Wild Ones public website in January 2021.

In addition to the native garden designs, the grant is also funding the development and initial printing of a 10-page "Native Garden Guide" for first-time native gardeners. The information provided in the guide is general and is applicable to any region of the country.

The Native Garden Guide will

be shipped to chapters in February 2021 to distribute to members and the public as they see fit. Chapters will receive certain quantities based on membership numbers:

- 0-49 members will receive 100 guides
- 50-89 members will receive 160 guides
- 90-200+ members will receive 230 guides

Additionally, a high-resolution print friendly pdf version of the guide will be available on the Wild Ones website to download. The national office will also keep a quantity of the Native Garden Design guide on hand for PALs to request.

We greatly look forward to sharing the native garden designs

and guide with you and hope both become integral tools in your chapter's member recruitment efforts.

Q&A with Heather Holm

The Wild Ones webinar on Sept. 24 featuring Honorary Director Heather Holm had more than 600 attendees, including one visitor from Australia, making it a global event.

However, Holm, pollinator and native plant educator and author, was not able to answer all the questions in the time allotted. Here are the questions and her answers that she didn't get to.

Q: Apis nearctica (a honeybee) existed in North America 14 million years ago and went extinct. It was later found in Nevada shale and its fossilized record was identified by Michael Engle of the University of Kansas, Lawrence.

A: Yes, a fossil of *Apis nearctica* was discovered in Nevada and as you mentioned, this species went extinct. It belongs to the same genus *Apis* as the European honeybee (*Apis mellifera*), but nothing is known about its sociality or natural history. It also would have been a wild, undomesticated species

as no humans would have been actively breeding and managing this species 14 million years ago. It is important not to conflate Apis nearctic with Apis mellifera as they are two separate species. The European honeybee is a nonnative species and was introduced to the continent through human means. For example, if we introduced a European species of mammoth that still lives today and one that was a different species than the mammoth that occurred in North America before the last Ice Age, we would not consider this introduced species native because it belonged to the same genus as the mammoth that went extinct.

Q: What is the lifespan of queen bumblebees?

A: A queen bumblebee lives for approximately 12 months, or from late summer or autumn to the following autumn.

Q: In a community garden setting, one gardener thought there were *Apis mellifera* is a nonnative species that was introduced to the continent through human means.

too many flowers, noting that the bees visited the flowers and ignored the veggies. Can there be a thing as too many flowers?

A: No, a flower patch next to a garden should help with the vegetable pollination. The more flowers the better. I would consider planting bumblebee-specific flowers to ensure you're attracting a diversity of bumblebees, bees that are excellent pollinators of cultivated vegetables.

Q: What is the use, if any, for bee houses?

A: Bee houses provide nesting opportunities for solitary, cavity-nesting bees such as mason bees and leafcutter bees. One problem is that they have become "trendy" and are now mass-produced and available in big box stores. These mass-produced houses are often poorly designed — too shallow, for example — and can be more harmful than helpful. In addition, these supplemental houses require maintenance (cleaning and stem replenishment) to prevent pathogen and disease transmission. I prefer that people provide natural nesting opportunities for cavity-nesting bees such as standing dead trees (snags), logs lying on the ground and flower stalk stubble.

Q: How can you capture a bee to identify it while avoiding harming it?

A: A small, clear plastic container with a lid works well. Gently hold the container upside down and place it over the bee while it's visiting a flower, then slip the lid on. The bees can be viewed for several minutes inside the container, then let go.

Q: Do bumblebees sting and/or bite people?

A: Female bumblebees (queens and workers) can sting, but males can-

Only female bumblebees can sting.

not. Their sting is reserved for nest defense.

Q: What can you suggest for people who do not like carpenter bees and want to get rid of them?

A: I am not aware of any specific practice that will help deter carpenter bees. One reason they use human-constructed buildings/decks for nesting sites is they have lost much of their natural nesting opportunities.

Q: Why have carpenter bee populations been so large lately?

A: Carpenter bees are opportunistic and have adapted to nesting in human-made structures. The range of the eastern carpenter bee (*Xylocopa virginica*) has been expanding northward, likely due to warming temperatures and the availability of nesting sites. However, I cannot answer specifically why or if a population is more abundant from one year to the next.

Q: What are your thoughts on commercially available bumblebee hives for crop pollination?

A: Commercial colonies have introduced pathogens to wild bumblebee populations. The colonies and bees are supposed to be destroyed by the person that purchased the colony, but this often does not occur. I would focus on creating habitat close to the crop planting to facilitate pollination of the crops by wild bee populations.

Q: What is the foraging range of most bumblebees?

A: Bumblebees can fly up to a mile or more (7 miles in one study), but generally will choose to look for food sources (flowering plants) as close as possible to the nest (hundreds of yards is ideal). Flight and searching for food can be an energy-taxing endeavor that they must offset with food consumption (nectar). This is why highly fragmented landscapes make bees vulnerable if they don't have stopover fueling stations (flower patches) to help facilitate movement through the landscape.

Q: Do bumblebees defend their nest?

A: If a nest is disturbed, bumblebees will buzz to let the intruder know that they are unwelcome. A few or many workers may emerge and fly around to investigate the threat. They will sting if they feel that the nest is very threatened, but generally they give off these disturbance signals before deciding to sting a threat.

Q: Diseases will spread faster as bees are forced into smaller spaces (diminishing habitat). As habitats hopefully expand, will that spreadout the population and help the bees outgrow disease?

A: This is why habitat corridors are important. They connect isolated habitat fragments to help facilitate pollinator movement through a landscape.

Q: How can I find out about the quality of pollen of various plants?

A: It is not well documented other than a handful of specific studies that analyzed pollen for the quantity of protein and other chemical components.

Q: Was there a mention of specific amino acids in plants that are needed by native bees?

A: I did not mention specific amino acids, but some plants can have a dozen or more types of free amino acids in the nectar. It's the plants with the higher concentrations of amino acids that have significant nutritional qualities required by bees (new queen bumblebees) and other flower-visiting insects (migratory butterflies).

Q: Why are plants producing nectar and pollen that is less nutritious today?

A: One study demonstrated that the protein content decreases as CO² rises in the atmosphere. The second reason why floral resources are likely less nutritious is the degradation of our soils. Degraded soils lack the critical biological components — bacteria, fungi and microorganisms — that help process and replenish nutrients, and facilitate nutrient transfer to plants.

Q: If we see lots of bumblebees on our blooms does that mean there are nests close by?

A: Yes, there will be a nest nearby. Bumblebees can fly a mile or more, but if adequate floral resources occur close to the nest, their flight range may only be a few hundred yards.

Q: I have bees in a ground nest in my garden. When will they abandon the nest?

A: It really depends on what kind of bees they are. If it's a solitary bee, then nesting activity (provisioning, egg laying) lasts for 3 to 4 weeks. If it's a social nest, the nest could be active into autumn until cold temperatures/frost end the nesting activity.

Editor's Note: If you missed Holm's webinar in September, it isn't too late. You can still view it at <u>https:// www.youtube.com/watch?v=Xu-DazQQV5k4</u>. Teid and

Citizen scientists help parse the native/nativar debate

By Jessamine (Jessa) Finch

The current environmental moment is dominated by messaging about the importance of animal-mediated pollination in response to the recent, alarming pollinator declines. Contributing factors include habitat loss, agriculture chemicals and disease, and affect honeybees and native pollinators alike. One of the most common "calls to action" included in such messaging encourages the creation of pollinator-friendly gardens. These spaces are intended to support the foraging and nesting needs of pollinators, but differ from ecological restoration in that they are marketed to homeowners, schools and parks as a managed, attractive landscape.

Given their shared evolutionary history, native plants are promoted as a key ingredient of pollinator gardens, especially those designed to support native pollinators. However, the popularity and wide availability of cultivated varieties (cultivars) of native plants can be a stumbling block in plant purchasing and garden design. Often, cultivars of natives are labeled as "native plants," despite the fact that they can differ substantially from the true native. Cultivars can vary in flower color, size and scent, as well as bloom time, all traits directly related to attractiveness to and use by pollinators. This begs the question, what is the role of cultivars of natives, or nativars, in pollinator habitat creation? To answer that question, we need to know if nativars provide the same pollinator support as true native plants.

Previous nativars research

Research to date on this question has been limited in geographic, taxonomic and temporal scope. The dissertation of Annie White (2016, University of Vermont) focused on 12 native herbaceous plant species and 14 native cultivars, tracking pollinator visitation in field experiments at two sites over two years. Her results found seven native species were visited significantly more frequently by pollinators than their cultivars, four were visited equally, and in only one case was a cultivar visited more frequently than the native species. Similar investigations are underway at the Mt. Cuba Center, including one considering coreopsis (5 native species, 20 cultivars; Cass & Delaney, 2014) and another on phlox (6 native species, 2 subspecies, 15 cultivars; Nevison, 2016). The phlox study found that insect visitation did not significantly differ between cultivars and the straight species in the majority of cases. However, certain cultivars, particularly those selected from the wild, may be more attractive to insects than the straight species. For more information on Mt. Cuba's trials check out https://mtcubacenter.org/research/trial-garden/.

Above: A class at Clark Elementary School, Waukegan, Illinois, poses with their newly installed nativars research garden.

Enter: Citizen scientists

Given that one major application of this area of research is to inform home gardeners interested in supporting pollinators, the Budburst team at Chicago Botanic Garden thought this question was a great opportunity to engage the public in a research investigation. We decided to leverage citizen science to elevate pollinator-friendly gardens to pollinator research gardens and gather data on pollinator preferences across the country. To that end, Budburst launched the <u>Nativars Research</u> <u>Project</u> in 2018, bringing together home gardeners, schools and botanic gardens to collect data on this critical question.

Participants are asked to plant at least one native species and one cultivar from the <u>plant list for their</u> <u>region</u> and conduct pollinator observations weekly during the flowering period. Data can be collected using <u>paper data sheets</u> and entered online via a <u>Budburst account</u>. Our mobile-responsive website also allows you to directly submit observations from a mobile device. Plant lists

Shown here is a subset of the native plants and cultivars evaluated as part of the Nativars research project in the Midwest. From top to bottom: red columbine (*Aquilegia canadensis*), black-eyed Susan (*Rudbeckia fulgida*), New England aster (*Symphyotrichum novae-angliae*).

were developed based on the three hubs for the project: Chicago Botanic Garden, Denver Botanic Gardens and San Diego Botanic Garden.

In the Chicago region, Budburst has collaborated with the Chicago and Waukegan School Districts to weave the nativars research project into life sciences curriculum for students in grades 2-8. Each participating school installs a nativars research garden and observes pollinators as part of a two-week unit covering the form and function of plants and animals, as well as human impacts on the environment.

Early results: Native plants are in the lead

While we have not yet conducted a formal statistical analysis, data for the Midwest plants indicate that mean pollinator visits per minute are higher for true native plants than for their cultivars. However, we also see considerable variation among cultivars, which is not always consistent with our expectation that the greater the degree of trait divergence from the native the greater the impact on pollinator visitation. For example, for red columbine, the most visited cultivar, 'Corbett' (1.29 visits/minute), has yellow flowers, yet received more visits than the pink and red cultivars considered. However, the other yellow cultivar evaluated, 'Songbird Goldfinch,' was visited the least (0.24 visits/min.). In the case of black-eyed Susan, all cultivars received roughly equivalent pollinator visits (0.15-0.2 visits/min.), at less than half the rate of the true native (0.41 visits/min.). The most dramatic results thus far are for New England aster, for which we see the native (1.3 visits/min.) visited by pollinators

Map of botanic garden partners for the Budburst Nativars research project.

at four times the rate of the cultivars (0.25-0.33 visits/min.).

Another expected result was variation in the composition of the floral visitors between native plants and their cultivars due to floral trait manipulation. However, the composition of the floral visitors is largely similar between native plants and their cultivars. Across all study taxa, the most frequent floral visitors are small bees and flies and honeybees. Importantly, we do see some instances where the diversity of floral visitors varies, for example between the wild type New England aster (4 pollinator groups observed) and 'Purple Dome' (2 groups). Oppositely, 'Little Lantern' and 'Pink Lanterns' attracted a greater diversity of pollinators (5 groups) than the wild type red columbine (2 groups).

Join Budburst Nativars

While these early results provide interesting insights, with some evidence to suggest that cultivars may not provide equal support for pollinators as true native plants, more data is required before we can draw robust conclusions. Consider joining the nativars research project to contribute vital data that will help us answer a critical question in pollinator conservation. If any of the study taxa are already a part of your landscape, all you have to do is learn the observation protocol and dedicate 10 minutes a week. Otherwise, contact your local nursery for plant availability. In 2021, Budburst will undertake a thorough analysis of all submitted data, which we hope will bring greater clarity as to the role of cultivars in ecological landscapes.

Sign up for our newsletter. And, follow Budburst on Facebook, Instagram, and Twitter @pbudburst.

Jessamine (Jessa) Finch is the manager of Budburst, a citizen science project of the Chicago Botanic Garden. She recently completed her Ph.D. in the joint Program in Plant Biology and Conservation of Northwestern University and Chicago Botanic Garden. She is interested in plant conservation, with a focus on the impact of climate change on native plants.

Editor's Note: Wherever you live, it doesn't take long to become a contributor to the Budburst project. Once you are set up, you make observations for 10 minutes, once a week. Find a complete overview here.

This article was originally published in the July 2019 ELA Newsletter. It is reprinted here with permission from

🔶 Wild Type 🏟 Cultivar

ELA (<u>www.ecolandscaping.org</u>) and Jessa Finch.

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Mean number of pollinator visits per minute to native plants and their cultivars. Numbers within point indicate the number of observation minutes per taxon. Error bars represent 1 SE.

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Sugar in trees

By Scott Bowe

When I mention sugar in trees, you might think about the sugar maple and the sweet syrup we produce from its sap every spring. But what you may not realize is that sugar is the fundamental building block of all trees and plants. Too much sugar in your diet is a bad thing. Sugar in a tree is a good thing and is the foundation of life on earth.

Let's start out by grouping all life on earth into two categories. There are producers and there are consumers. Trees and other plants are producers since they can make their own food using the sun through the process of photosynthesis. People and other animals are consumers since the depend upon plants or other animals for food. I've been out in the sun all day long and have gotten very hungry. As a consumer, I can't make my own food using the sun.

So how do trees use the sun to make food? They take light energy from the sun and convert it into chemical energy in the form of carbohydrates and sugars. The process begins with water gathered by the tree's root system, carbon dioxide from the air and light energy from the sun. Green chlorophyll pigments found mainly in the tree's leaves absorb energy from the sun, then use this energy to break apart and recombine the basic building blocks of water and carbon dioxide. Six carbon dioxide molecules and six water molecules are used to produce one sugar molecule, which is called glucose, and six oxygen gas molecules. For animals like us, glucose is the most important source of energy for cellular respiration and the by-product, oxygen, is very important for all life on earth.

Let's focus on the glucose sugar molecule. If the tree uses it as its primary building block, why doesn't a branch taste sweet if we lick it? Because the tree uses more chemistry to recombine the glucose into other building blocks. Imagine if wood tasted sweet, that the glucose was readily available for us to consume, then popsicle sticks would taste as sweet as the popsicle. You would hurry up and eat the popsicle so that you could get to the tasty stick inside! Trees recombine glucose into another carbohydrate called cellulose. Cellulose is a long polymer of glucose molecules linked together. First the glucose molecules link together to form pairs, then these pairs link together to form chains more than 10,000 pairs long. These long cellulose polymers combine with other polymers and lignin to form the cell walls, the actual wood itself, in the tree.

If the wood in a tree is made from cellulose, and cellulose is made from glucose, then why can't we eat wood for our energy needs? The simple answer is that humans and most animals cannot digest cellulose. The glucose molecules that make up cellulose chemically bond together, then these long strands of cellulose chemically bond as parallel strands. These cross-linked structures make the glucose very difficult to remove and use for energy. If we eat wood, it will pass through our system undigested. That is the purpose of fiber in our diets. It will keep you regular, but it does not provide any food value since it can't be digested.

There are a few types organisms, including fungi, certain bacteria, and certain protozoa that can digest wood. These organisms have a spe-

cial enzyme called cellulase that can break cellulose back into individual glucose molecules. Even termites, which are notorious consumers of wood in our homes in the south, depend upon a symbiotic relationship with bacteria and protozoa to digest cellulose. In ruminant animals like cows and sheep, cellulase is produced by symbiotic bacteria, which break down the cellulose in the hay and plants that they consume.

We certainly don't like organisms like fungi when they cause decay in our backyard deck or roof, but they are absolutely necessary. Without consumers like fungi, there would be no mechanism to recycle fallen leaves and woody debris back into the ecosystem. Our forests would be choked with wood and leaves. A friend and colleague at the University of Wisconsin has pointed out that an ecosystem only needs producers like plants and consumers like fungi to function. People and other animals exist in the middle.

Trees use some amazing chemistry. With a little help from the sun, they make their own food, a simple sugar called glucose. Then they combine the glucose in such a way that very few organism can digest it. What an amazing strategy for survival. Native trees can grow and live for many decades and the products that we produce from those trees can be used for many decades more. An amazing material indeed.

Scott Bowe is a professor of wood products and director of the Kemp Natural Resources Station at the University of Wisconsin-Madison. Reprinted with permission from GLPTA, September 2017.

At Prairie Nursery we believe that the best gardens and landscapes, created for more than human pleasure, are places where life flourishes and all creatures prosper. Our wide selection of native shrubs, ferns, wildflowers, grasses and sedges has helped inspire biodiverse gardens and landscape restoration for more than 40 years.

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Pam Pipkin and IBM, Greater DuPage

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Restoring the *native* landscape

Correction

Christine Macklem's name was misspelled in the story, "Chapter builds community pollinator garden," which appeared in the Fall 2020 issue of Wild Ones Journal. Macklem was the leader of a group that created a butterfly and pollinator garden in the shape of a butterfly in the Antigo, Wisconsin area, and also helped establish the Northwoods Gateway Chapter.

Kim Smith took the People's Choice Award for this photo of a snowberry clearwing moth feeding on blue vervain. She said she was walking a trail around a small lake at the Lake LaSuAn Wildlife Area in Pioneer, Ohio and looking for dragonflies when she came upon this hummingbird moth. "These diurnal moths are much-sought-after photo subjects, so I felt I hit the jackpot when I managed to get a few photos of this one feeding on a native plant," she said. She is a member of the West Cook (Illinois) Chapter.

And the winners are...

The 2020 Wild Ones Photo Contest again showed the beauty of all things native, as Wild Ones members entered about 150 photographs in five categories. The winners include:

People's Choice Award

(Chosen by Wild Ones members) Kim Smith - "Snowberry Clearwing Moth Feeding on Blue Vervain" -Oak Openings Region Chapter

Best in Show

Joan Brandwein - "Native Bee on Native Aster" - Big River, Big Woods Chapter

Flora

1st Place - Joan Brandwein - "Columbine in Bloom" - Big River, Big Woods Chapter 2nd Place - Daniel R Cruikshanks - "Sprinkle of Color" - Kalamazoo Area Chapter 3rd Place - Leanne Kay Phinney - "Pasque Flower" - Big River, Big Woods Chapter

Natural Landscaping

1st Place - Cathy Streett - "Wild Bergamot (*Monarda fistulosa*) and Yellow Coneflower (*Ratibida pinnata*) Stealing the Show" - West Cook Chapter

2nd Place - Ken Greshowak - "Potting Shed" - Arrowhead Chapter 3rd Place - Ken Greshowak - "Summer's Many Layers of Color" - Arrowhead Chapter

Photos by Kids

1st Place - Abby Rexer - "Wood Mint" - Middle Tennessee Chapter 2nd Place - Abby Rexer - "Coral Honeysuckle" - Middle Tennessee Chapter 3rd Place - Lukas Shanstrom -"Butterfly on Flower" - Twin Cities Chapter

Pollinators

1st Place - Joan Brandwein - "Native Bee on Native Aster" - Big River, Big Woods Chapter 2nd Place - Gary Shackelford - "Mining Bee on Pussy Willow Catkin" - Madison Chapter 3rd Place - Nan Pokerwinski - "Swallowtail on Coneflower" - River City-Grand Rapids Area Chapter

Scenery

1st Place - Arlene Kjar - "Miles of Susan" - Northfield Prairie Partners Chapter

2nd Place - Mary Jo Adams - "Nipper Prairie" - Illinois Prairie Chapter 3rd Place - Karen Syverson - "Pine River Woodland" - Fox Valley Area Chapter

Best in Show and People's Choice Award winners each will receive a \$50 prize. First place category winners will also receive a \$50 prize. Second and third place category winners receive bragging rights.

A special thank you to our kind contest judges, Bob and Helen, who took the time to closely review 150 great entries to determine this year's winners!

Joan Brandwein earned Best in Show bragging rights, as well as first place in the Pollinators category, with this photo of a native bee on a native aster. Brandwein said she has been developing native plantings in her small urban yard for several years, and has plants booming from early spring through late fall.

Arlene Kjar of the Northfield Prairie Partners (Minnesota) Chapter took first place in the Scenery category with "Miles of Susan." The photo was taken during a program on native prairie seed when the group stopped to admire all the blackeved Susans. We want to thank all of the entrants for sharing their creativity, photographic talents and unique view of native plants and natural landscaping with other Wild Ones members.

By entering photographs in our photo contest, you are helping Wild Ones further our mission. Wild Ones may use contest 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.

A gallery of all 1st-3rd prize winners can be viewed at <u>https://wildones.org/photo-contest-2020-winners</u>. All entries for the 2020 Photo Contest can be viewed at the following links: <u>Flora</u> <u>Natural Landscaping</u> <u>Photos by Kids</u> <u>Pollinators</u> <u>Scenery</u>

Ken Greshowak took second place in the Natural Landscaping category with this potting shed in his yard. He says the potting shed may not be pretty, but it provides an integral function in the garden, keeping his tools and materials organized and dry. The shed is constructed from re-purposed guard rail posts. He is a member of the Arrowhead (Minnesota) chapter.

Abby Rexer took first place in the Photo by Kids category. She said she spotted this downy wood mint in the spring and she loved how the morning light shined through the downy hairs covering the bud.

Gary Shackelford took second place in the Pollinators category for this mining bee (*Andrena sp.*) feeding on the pollen of a male pussy willow catkin (*Salix discolor*) in spring at the Fair Meadows State Natural Area near his home in southern Wisconsin. He is a member of the Madison Chapter.

Cathy Street of the West Cook (Illinois) Chapter took first place in the Natural Landscaping category. She wrote that it was a bright July day and the wild bergamot and yellow coneflower were showing their beauty at Darien Park, which added native plantings a few years ago.

Joan Brandwein of the Big River, Big Woods (Minnesota) Chapter received first place in the Flora category for "Columbine in Bloom." The columbine is part of a woodland planting area under a small tree in her urban yard.