WILD ONES JOURNAL
FALL 2024 • VOL. 37, NO. 3

WILD ONES®

A VOICE FOR THE NATURAL LANDSCAPING MOVEMENT

Photo Credit: Renee Benage, Wild Ones St. Louis (Missouri) Chapter

Fun things to do this fall

By Barbara A. Schmitz

Maybe it's because I'm writing this on one of those days that is 92 degrees outside with a humidity level so high it makes it feel like 109 F that I'm anxious for autumn to arrive. But I don't think that's it.

It wouldn't have to be hot and humid now to make me want fall to already be here. Yes, I love summer and all the activities it brings — from gardening, to hiking, biking and camping. But fall in Wisconsin means we can still be doing those things knowing the temperatures at night will allow us to open the windows and enjoy the gentle breezes. It's my favorite season of the year as I watch the leaves change color, the birds fly south and the pumpkins turn orange.

This issue of the Wild Ones Journal has some fun things you can learn or try this fall. First, check out the delicious recipes from Russ Cohen on Page 22 as he explains why the black walnut tree (*Juglans nigra*) and its tasty nuts are worth the extra effort needed to get to the nutmeat. On Page 35, Jan Midgley tells us the best ways to collect milkweed seed, which also allows you to ensure the plants will be free from insecticides. So start collecting that seed now! And if you're already decorating your home for Halloween but aren't too fond of spiders, learn some fun spider facts from Kim Smith on Page 18 that may make you change your mind.

Fall is also a good time to plant trees, and if you haven't decided yet what type of tree to plant in your yard, check out "A dozen native trees and shrubs that birds love" by Howard Youth on Page 32.

I was particularly excited to learn about so many community or participatory science programs that are available online in Karen Oberhauser's article, "Your garden as a living laboratory for science exploration," found on Page 11. I've always thought I was too busy or wasn't knowledgeable enough to identify all the bees, birds or whatever you need to be looking at to participate in such programs. But she points out that isn't true and that you don't need to make it a full-time job. And it's all for the greater good of increasing our understanding of the plants and animals that have a sanctuary in your yard! So, make the time and check out the programs she highlights to see if one (or more) might be right for you.

Lastly, as your garden winds down for the year, it's also a good time to consider what changes you'll want to make in the new year. Learn about the importance of adding balance to your yard by adding grasses and grasslike plants to your flower beds on Page 6. Author Kristin Nemec reminds us that successful pollinator habitat provides more than food.

Get your sweaters out of storage and enjoy this next season that's upon us.

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Cover Photo: "Forest Park" by Renee Benage, Wild Ones St. Louis (Missouri) Chapter.

Master naturalists had gathered in Forest Park to do a mini photography workshop. Photo taken with Canon Power Shot SX70HS by Renee Benage, St. Louis, MO.

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HOW LATE IS TOO LATE TO PLANT?

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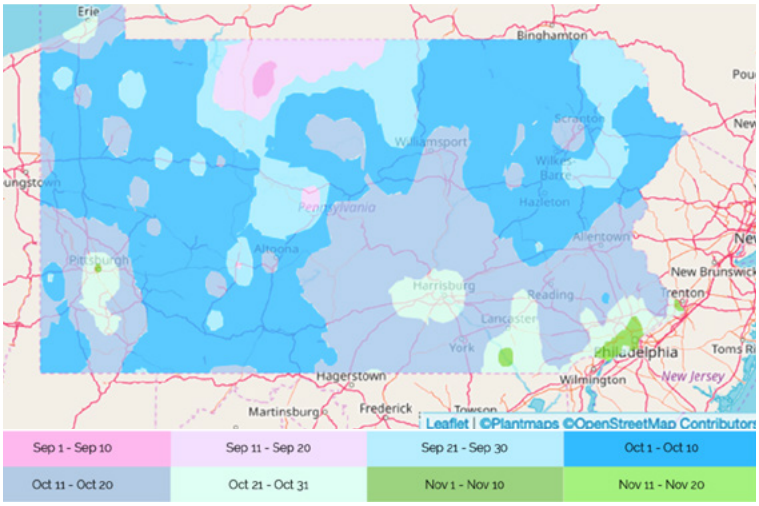
For many of us, autumn offers ideal conditions for working in the garden. Temperatures have cooled and the urge to be outside and play in the dirt is still strong. If you're like us, you may be looking over your garden and thinking of adding more plants. But is it safe to do so? Are you at risk of losing them over winter?

With woody plants, fall planting is not only safe, it's a best practice. As long as the ground isn't frozen, you're good to go. With perennials, knowing whether the plants are warm or cool-season and finding your average date of first frost, will help determine your fall planting window. Following these simple guidelines, and a few others based on growth cycle and timing, will help ensure your plants make it through the winter and it will set them up to thrive the following growing season.



Pennsylvania average date of first frost map

For more guidelines, maps of average first frost dates per state, and other helpful tips for fall planting (even if you're "too late"), check out our blog post: [How Late is Too Late to Plant?]

Izel Native Plants
Every plant counts

Add balance to your blooms with grasses

By Kristin Nemec

It's easy to focus on flowers as you choose plant species to include in your native habitat. Their colorful petals beckon from the seed catalog and you know pollinators need plenty of floral nectar and pollen.

However, if creating pollinator habitat is one of your main motivations for planting natives, don't overlook the role grasses and grasslike plants such as sedges play in pollinators' life cycles. Some native bees, syrphid flies and beetles feed on grass pollen. Mary Hockenberry Meyer, a grass expert and professor emeritus at the University of Minnesota, says although grass pollen may not always be the most nutritious food source available, there is a lot of it, and it can be especially useful to bees when there are fewer wildflowers blooming in late fall.

A successful pollinator habitat also provides more than food for adults. The base of bunchgrasses that grow in clumps rather than dense continuous sod — such as little bluestem (*Schizachyrium scoparium*), sideoats grama (*Bouteloua curtipendula*), switchgrass (*Panicum virgatum*) and purpletop (*Tridens flavus*) — provide shelter for butterfly eggs, larvae and adults. Fallen grass leaves near the plants protect insects from predators and rainy or cold weather. Bumblebee queens nest in the bare soil near the base of bunchgrasses.

Some butterfly species lay their eggs only on certain species of grasses and sedges; the larvae eat these host plants before growing into adult butterflies that will forage on flowers rather than the larval host plants. The University of Minnesota Extension publication "Native Grasses Benefit Butterflies and Moths" lists native grasses and sedges and the butterflies and moths that eat them.

A mix of grasses and flowers can look attractive and provide valuable pollinator habitat. *Photo by Kristin Nemec.*

Many are grass skippers resembling moths, with a small stocky body and short wings, but they fly during the day, have clubbed antennae and are classified as butterflies.

Stephanie Frischie, native plant materials specialist with the Xerces Society for Invertebrate Conservation, says many of the skipper species might not be found in yards since they have complicated habitat needs. Grass skippers are often associated with natural habitats such as woodland edges, prairie, oak savannah and overgrown fields.

However, some grass skippers may occur in suburban areas. Dawn Weber, vice president of the Wild Ones St. Louis (Missouri) Chapter, has photographed adult butterflies

in her ¼-acre yard that includes 5,000-square-feet of native plantings and habitat. For example, she has observed the tawny-edged skipper (*Polites themistocles*), which is a generalist that lays eggs on different types of native and nonnative lawn grasses, and the Delaware skipper (*Anatrytone logan*), which relies on big bluestem (*Andropogon gerardii*) and switchgrass as its host plants. Skipper larvae are difficult to see; most live in shelters made of leaves.

Grasses and sedges provide direct benefits of food, shelter, overwintering and egg-laying sites for pollinators, as well as indirect benefits. As Frischie says, remember that you are replicating an ecosystem; it is unnatural to only include wildflowers.

"Plants aren't decorations — they are living things that have relationships with other animals and the places they live," Frischie says. In a healthy planting there are a variety of grass, sedge and wildflower species occupying different niches.

How many grasses and sedges should be included relative to wildflowers? For those restoring habitat using seed, research conducted by research and restoration program manager Justin Meissen and graduate student Alec Glidden with the University of Northern Iowa Tallgrass Prairie Center offers some clues. Their study compared three seed mixes with different grass-to-wildflower ratios in terms of the number of seeds sown at an Iowa State University research farm near Nashua, Iowa.

The economy mix had 21 species at a 3:1 grass-to-flower ratio and was the least expensive of the mixes. It resulted in more native plant stems overall but fewer flowers. The pollinator mix included 38 species at a 1:3 grass-to-flower seeding ratio. This resulted in a planting with many flowers, but it also had a lot of bare ground and weeds. The diversity mix, with 71 species and a 1:1 grass-to-wildflower ratio, cost less than the pollinator mix. However, it resulted in a similar number of

Above: Host plants of the Delaware skipper (*Anatrytone logan*) include big bluestem (*Andropogon gerardii*) and switchgrass (*Panicum virgatum*). *Photo by Dawn Weber.* Below: A Dakota skipper (*Hesperia dacotae*) larvae working on its shelter. *Photo by Cale Nordmeyer, Minnesota Zoo.*

flowers to the pollinator mix, with the added benefits of little bare ground and fewer weeds. If you want to manage your restoration with prescribed burning, which will keep the plant community healthy in the long run, a 1:1 grass-to-wildflower seeding ratio can also help ensure there are enough grasses to carry a burn.

Hockenberry Meyer acknowledges that people may like the appearance of wildflowers better when landscaping with small plants rather than seed. As she says, "a ratio of 50/50 is fine, but most people are going to be happier with one-third grasses and two-third wildflowers in a yard setting."

Some garden designers recommend a matrix approach to garden design. According to garden designer Piet Oudolf, "Matrix planting is where a single species, or handful of species, dominates the planting, forming a matrix into which other plants are blended." In herbaceous plantings, this base layer of core species often consists of native grasses since these are the dominant species in natural settings. These dominant species may be planted as close as 12 to 15 inches apart to reduce weed competition once the plants get established and provide a structure for other species to lean on.

Your goals and the amount of time you want to spend weeding can influence the relative number of different types of plants you include in your planting. But including plenty of grasses and sedges will help pollinators and create a balanced, more natural habitat.

Kristine Nemec is a member of the Wild Ones Cedar Rapids-Iowa City Area (Iowa) Chapter, is a restoration ecologist and a freelance writer-editor-consultant. Learn more at https://kristinenemec.com.

Planting with a purpose: The Anishinabek Medicine Wheel and Foraging Meadow

Ragwort (*Packera sp.*) in full bloom in the dune garden. This plant makes an excellent "green" or living mulch that can be used as a groundcover.

By Matthew Ross

It is hard to imagine that the Anishinabek Foraging Meadow and Medicine Wheel Garden at Historic Barns Park in Traverse City, Michigan, was just planted. With towering stalks of white sage (*Artemisia ludoviciana*) swaying in the wind, an explosion of golden flowers throughout the landscape and blooming blazing star (*Liatris* sp.) attracting droves of monarchs, the garden feels like it has been here forever. It has been an honor to work on such a unique and inspiring native garden development. Situated at the site of the former farm of the Northern Michigan Asylum, the botanic garden boasts 12 feature gardens ranging from the Walled Garden that was once the horse stables, to a Firewise Garden with plants to use as natural fire breaks in the landscape, and even a magical fairy forest for children of all ages to explore.

While each of these gardens has a clear message and intention, it is a recent garden expansion in the 2-acre Judith Groleau Healing Garden that provides a living example of how we can heal the land and our community through the power of plants.

When I started my journey as the executive director at The Botanic Garden at Historic Barns Park in Traverse City, I had the opportunity to help advance the vision for a new garden featuring exclusively native plants that was co-developed with members of the Grand Traverse Band of Ottawa and Chippewa Indians (GTB). JoAnne Cook and Tera John shared their knowledge with us throughout the entire process and informed us about the Anishinabek culture and the role that plants play in their culture. Their support and leadership have led to the installation of a traditional medicine wheel, the interpretation of the seven grandfather teachings with the empowering artwork of local artist Rik Yannott, as well as the curation of plants that are culinarily, spiritually and medicinally important for the tribe. An appreciation for each species and its deeper connection to the ecosystem was fundamental when Horticulture Consultant Laurel Voran, Landscape Architect Maria Tucker and I were laying out the footprint and plant combinations of the garden with the goal of creating a space where we can invite tribal community members to come and forage/harvest from the collection. Laurel worked diligently to lay out the initial plan and made several iterations of the design based on her research and a series of design charettes with Tera and JoAnne.

One of the biggest challenges was working with the existing soil conditions, which are primarily gravely and sandy remnants of the glacial movement that carved out the bays in Traverse City. They are incredibly alkaline with soil pH reaching over 8, less than 1% organic matter content, extremely low cation exchange capacity, and little to no water retention. We also had a landscape that was inundated with four incredibly aggressive invasive species: smooth brome (*Bromus inermis*), spotted knapweed (*Centaurea stoebe*), field bindweed (*Convolvulus arvensis*) and bladder campion (*Silene vulgaris*); the land had previously been used for cattle grazing

A summer sunset right after the initial planting of the Medicine Wheel Garden in September 2022.

and potato farming. We implemented an aggressive cover cropping schedule to try to recover the planting area from this tapestry of weeds without the use of herbicides using nonnatives crimson clover (*Trifolium incarnatum*), sunflower (*Helianthus* spp.), buckwheat (*Fagopyrum esculentum*) and daikon radish (*Raphanus sativus* var. *longipinnatus*), as well as alternating solarization and smothering strategies. Ultimately, we have been able to help heal the land, but it has been a massive volunteer effort to keep the invasive weeds at bay.

We approached the project with the goal of transforming the site into a series of transitions from a variety of plant communities including short grass meadows, deciduous forest, tall grass prairies, dunes and open barrens. Utilizing plant combinations to blend the ecotones of northern Michigan has allowed us to show the diversity of the region while maintaining the harmony and aesthetics of a cultivated garden.

The garden was planted primarily with landscape plugs (trays of 32, 38 and 50) sourced from regional growers. If you have not had the pleasure of planting with plugs, I highly encourage it! The price for individual plants is far lower than gallon-sized perennials and their growth often surpasses the larger plants quicker if given proper moisture during establishment. It was an amazing undertaking with more than 100 volunteers, school children and community members coming out to help us install the garden, which included an educational opportunity for Tera to teach us about the ways in which the Anishinabek community celebrates the planting of our plant relatives.

The initial planting was successful and nearly all the 3,500 plugs that were installed are now thriving in their new home. In addition, we have enacted a maintenance strategy where we actively continue to plug more plants into the landscape as we weed the new garden. This approach allows us to supplement the initial plantings

The emergence of pasqueflower (*Pulsatilla vulgaris*) next to cool season grasses. It is one of the earliest plants to flower in the garden.

The initial schematic design of the foraging meadow by Laurel Voran.

and see what plants are thriving in our conditions. Since we first started the planting process in August 2022, we have now planted over 5,500 individual plants including a layer of trees, shrubs and evergreens.

A series of warm and cool season grasses bring harmony to the interwoven herbaceous plantings. One of the highlights of the mix is Junegrass (*Koeleria macrantha*). It provides early season structure as one of the first plants to "green up" in the spring, produces elegant flowers in June (or this year early May), then holds its seed heads throughout the remainder of the season. I have also noticed how much better it grows in our dry, barren soils than I have ever experienced in well drained gardens soils.

Another plant that is dispersed throughout the garden is native yarrow (*Achillea millefolium*), which we have both planted and have had come back from the existing seedbank. Its tufts of foliage provide a visual contrast to many of the other broadleaf plants and help guide visitors along the path in the foraging meadow. There is also a small handful of nonnative plants within the garden which include sacred tobacco (*Nicotiana rustica*), a lime green flowering variety that has been used for millennia, and plantain (*Plantago* sp.), which is used to tell the story of the early settlers and how it has been adapted for use as a pot herb and poultice. The collection includes some of the more obscure plants like figworts (*Scrophularia* spp.), birdsfoot violet (*Viola pedata*), trailing arbutus (*Epigaea repens*) and pasqueflower (*Pulsatilla vulgaris*).

Emma harvests white sage (*Artemesia ludoviciana*) that was gifted from the garden to tribal members of the Grand Traverse Band of Ottawa and Chippewa Indians (GTB).

The Medicine Wheel Garden and Foraging Meadow is a place of learning and outreach. We continuously have new visitors say that they are blown away by its beauty and touched by its message. We have offered a series of programs focused on the harvest and use of many of the plants in the garden taught by Tera and other members of the GTB. Horticulturally, the garden offers a place for landscapers and gardeners to see the resilience of our native plant palette and explore the many applications of plants not well known in the trade like leatherwood (*Dirca palustris*), sweet fern (*Comptonia peregrina*), field pussytoes (*Antennaria neglecta*), golden ragwort (*Packera aurea*) and bush honeysuckle (*Diervilla lonicera*). While they may not be well known as landscape plants just yet, each of them presents a niche that landscape designers and gardeners grapple with, like finding out what will grow in lean, dry, sandy soils or finding the right plants for use as a "living mulch."

The conversion of the once blighted property into a thriving native garden is a testament to the power of native plants to overcome adverse conditions and, with a little help, inspire the next generation of gardeners. As these plants continue to grow, they are helping us cultivate an atmosphere of healing and a platform for the Anishinabek to tell their story to a broader audience. I want to extend our sincere thanks and gratitude for everyone who has made this garden a living sanctuary for people, plants and culture.

Matthew Ross is executive director of The Botanic Garden at Historic Barns Park in Traverse City, Michigan and a member of Wild Ones Grand Traverse (Michigan) Chapter.

Your garden as a living laboratory for science exploration

This series is funded in part by MONARCH JOINT VENTURE *and U.S. Forest Service International Programs.*

A black- capped chickadee (*Poecile atricapillus*) sits on a crab apple (*Malus spp.*) tree. *Photo by Mike Reese.*

By Karen Oberhauser

Chances are you don't need to be convinced of the value of having native plants in your yard. You probably already know that these plants support native bees, butterflies and other insects, as well as birds and other vertebrates who get food and shelter directly from the plants, or food from the insects that eat the plants. They help address stormwater runoff problems, are good for the soil and good for the soul. They're beautiful to look at, fun to tend and provide good chances to interact with neighbors and passersby.

Your native plant garden, no matter how big or small it is, can also contribute to science, increasing our understanding of the plants and animals that find sanctuary in your yard. If you collect and report data to one or more of the dozens of relevant community (also known as citizen or participatory) science programs, not only will you learn more about the species you're observing, but you'll add to a growing body of knowledge that will help us preserve them.

Choosing an appropriate project (or two or three) will depend on where you are, what's growing in your yard, how much time you want to spend, what you want to learn, what you already know and who's helping you. I'll start with a few suggestions, and then tell you where to find more. Really, the sky's the limit for what you can do.

My guess is that you have some flowering plants. Those plants attract butterflies and bees that come to get pollen and nectar from the flowers. Some of the butterfly larvae will also eat the leaves, stems or even flowers of your plants. If you're particularly interested in monarch butterflies and have some milkweed plants in your garden, I recommend checking out the Monarch Larva Monitoring Project (MLMP), jointly run by the Monarch Joint Venture and the University of Wisconsin-Madison Arboretum. Monarch larva monitoring can be done pretty much anywhere in the U.S., southern Canada or northern Mexico. MLMP volunteers check their growing milkweed plants about once a week and report the number of plants they check and how many eggs and caterpillars they observe. Over the 25-plus years that the project has been going, we've learned how and why monarch numbers vary from year to year, and what kinds of habitat are best for them. There are also great training resources on the project website.

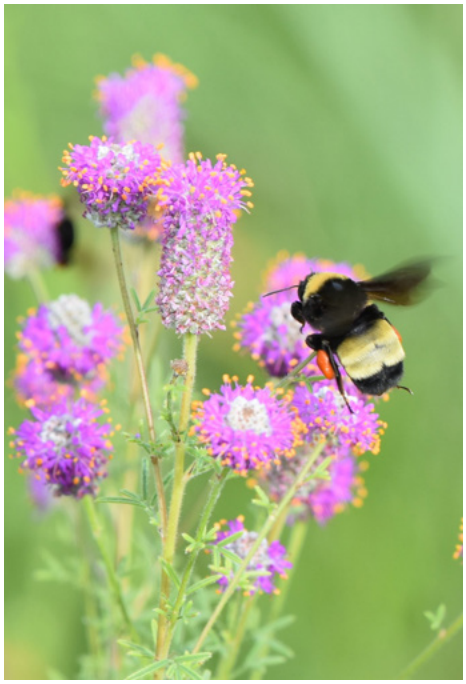
If you'd rather focus on adult butterflies, but only recognize monarchs and perhaps a few other species, there are great resources to help you learn other species *and* report what you see. I'd recommend starting with the North American Butterfly Association's (NABA) Butterflies I've Seen program. Once you register for this project, you report butterflies that you observe on "field trips," which can be trips to your back yard. There are many field guides and online resources like iNaturalist to help you identify the species, and if you submit a photo to the Butterflies I've Seen site their manager will check your identification. If your state (or even your city) has its own butterfly reporting program (as do Nebraska, Michigan, Wisconsin, California, Texas, Illinois, Ohio and others), you can do the same thing on a more local level. If you'd like to join a group to learn about butterflies, NABA has chapters throughout North America that welcome new people on field trips. And if you want to stick with monarchs, you can report your sightings to Journey North, run by the UW-Madison Arboretum.

Left: The author's front yard in Roseville, Minnesota, provides a good example of what many Wild Ones members' gardens look like. *Photo by Karen Oberhauser.* Below: A bee fly (*Bombylius* spp.) on prairie phlox (*Phlox pilosa*) is just one example of an unusual insect people might observe while participating in community or participatory science projects. *Photo by Mike Reese.*

If bees are your thing, you're in luck! It's hard to learn all of the native bees that are likely visiting your native plants, but bumblebees provide a nice starting point. There are only about 46 species in North America north of Mexico, and many of them are easy to identify. The Xerces Society for Invertebrate Conservation oversees the North American Bumble Bee Watch, a photo-based tracking program. You need to do some learning about the bumble bees in your area, but if you make mistakes, it's OK; the photos are verified by experts. Many states and regions have their own bumble bee monitoring programs, including Vermont, Missouri, Nebraska, Wisconsin and Minnesota, and all of them have expert verifiers to help you learn from your photos. Many bumble bees are becoming rare, and the rusty patched bumblebee (*Bombus affinis*) often seen in Upper Midwestern gardens, was listed as federally endangered in 2017. Thus, in addition to providing habitat for this important group of insects, you'll help us learn more about what kinds of habitat they use.

Another bee project, the Great Sunflower Project (GSP), is run by San Francisco State University. You don't need to know all the species you see, just record general groups, like unknown bees, bumblebees, carpenter bees, honeybees, birds and butterflies. You watch one kind of flower for a given amount of time (chosen by you) and see how many species come to it. Data from this project is helping us understand where pollinator services are strong or weak compared to average. The GSP website also has a habitat assessment tool that helps you figure out how your garden is supporting local pollinators, and includes suggestions on how to make it better.

Butterflies, bees…. What's next? Birds! The great thing about birds is that you can observe them during all seasons, whereas the butterflies and bees are either hibernating in winter (perhaps somewhere in your garden) or have gone south if you live in a temperate area. There are so many bird projects that it's hard to pick just one, but I recommend starting out with eBird, run by the Cornell Lab of Ornithology (CLO). It is amazing, with more than 100 million bird sightings contributed annually by hundreds of thousands of observers. And if you're just learning to identify birds, the CLO has a tool called Merlin, which will help you learn the birds you observe with your eyes or your ears. You record when, where and how you go birding, and record what you see (or hear).



Left: A monarch butterfly (*Danaus plexippus*) nectars on common milkweed (*Asclepias syriaca*). *Photo by Brenda Wry.* Above: A black and gold bumblebee (*Bombus auricomus*) nectars on purple prairie clover (*Dalea purpurea*). *Photo by Jay Watson.*

If you're interested in learning more about the status of the species you observe, the eBird website includes many visualization tools to help you learn and track where the birds are over the course of the year. If you really want to feel like you're part of something big, check out the map of real-time checklist submissions at ebird.org/livesubs, where you can see where in the world lists have been submitted today, with new spots showing up in bright yellow.

If you want to be a bit more focused with your bird observations, you can report hummingbirds who come to your garden to Journey North, which tracks six species of hummingbirds as well as several other bird species.

Just a few more resources for you. If you'd like to report pretty much anything you see, including your plants (which, after all, are the stars of your garden show), you can use a program called iNaturalist. You simply register at iNaturalist.org, then start submitting photos of any organism that you see. You can ask for AI help identifying the species in your photo in real time, which will be checked by real people later. As of summer 2024, there have been almost 200 million submissions to iNaturalist, which now has a repository of sightings that document the range of almost half a million species.

Finally, if you want to find out more about monitoring birds, bees, butterflies or almost anything else, check out scistarter, compiled by Arizona State University. You can search for a project by species, location and many other criteria, and the website will find a list of projects that meet your criteria and provide links to their websites. With more than 1,400 projects listed, you'll find something to pique your interest and support your journey to use your garden as a living laboratory for scientific investigation.

Karen Oberhauser is an Emerita professor of the UW-Madison Department of Entomology where her interests centered on monarch butterfly biology and conservation. She is also a former Honorary Director of Wild Ones.

Culver's root: Is it the right plant for your property?

By Michelle Grigore

In our backyard prairie, August brings with it a surge, literally, of tall, white candelabras 5-6 feet tall. The flowers are the native Culver's root (*Veronicastrum virginicum*), found often in open woods, moist meadows and prairies across the central and eastern U.S.

The scientific name *Veronicastrum* means "false Veronica," a reference to a similar looking plant. It has a long history with Native Americans and European settlers. Plants were first collected in Virginia in 1679 by naturalist John Banister. Culver's root reportedly earned its common name after a doctor who prescribed its use, although verifying information on the life of Dr. Culver isn't found.

Our Culver's root usually grows to about 6 feet tall. It's a handsome plant with dark green whorled, toothed leaves on tall stems. Each plant can be 3 feet across and the leafy whorls can measure 6 inches across. I seeded this native about 25 years ago. The seeds had great germination rates because we have masses of Culver's root in the wetter areas of the prairie.

In late July the flower spikes have formed; they can be 12-inches tall and originate from the upper whorls of leaves. The tiny white flowers are cup-shaped and just ¼-inch long, but there are dozens of them on each spike. The male anthers look like lace projecting above each flower.

Culver's root needs full sun and moist soil. There are a few cultivars of this native plant that have made it into the ornamental trade. It is usually used in the back of floral beds, in massed plantings. Stems can be pinched back in May if you want shorter, more compact plants.

Culver's root is also a good pollinator plant, attracting a wide

Culver's root (*Veronicastrum virginicum*) does best in full sun and moist soil.
Photo by John Arthur

range of native bees, honeybees, wasps, butterflies, moths and syrphid flies. It is a great nectar source at a time when July flowering plants are winding down and autumn flowers are not yet available. It is also a good rain garden addition due to its rapid rhizomatous growth.

Native Americans used Culver's root for pain relief, as a cathartic and emetic, to treat coughs, fevers and rheumatism and even to aid childbirth, according to the Native American Ethnobotany Database. A tea made from the leaves induced vomiting (catharsis); otherwise, the rhizomatous root was used for medicinal purposes. More current uses include treating liver and gall bladder, and promoting the flow of bile, according to Drugs.com.

Propagation of Culver's root can be done through stem cuttings, a portion of the rootstock or by seed. It can take two years before plants cloned from cuttings or rootstocks flower. Plants grown from seed may take longer. I collected the seed pods when dried to yellow, putting them in a paper bag to ripen. The pods turn brown when mature, but the seed often remains in the capsule. The Natural Resources Conservation Service (NRCS) recommends using a rolling pin to slightly crush the pods, spilling the seed. They also recommend cold stratification of the seed before germination can occur. I collected seed and sowed it before winter, letting nature administer the cold treatment.

Overall, Culver's root is a good nectaring plant that blooms when other flowering plants are waning. The height of the plant and profusion of flowers really sets off the back of a mixed perennial bed. If you have a moist soil area in full sun with room to spare, Culver's root may be the right fit for your yard.

Michelle Grigore is a Partner at Large (PAL) with the Wild Ones Oak Openings Region (Ohio) Chapter.

Culver's root (*Veronicastrum virginicum*) is a favorite of many types of bees.
Photos by Barbara A. Schmitz

SFE grants fund school projects promoting pollinators

Watkins Middle School students work to repurpose benches into friendship benches in their new pollinator garden, made possible due to a Wild Ones Seeds for Education grant.

About 25 Watkins Middle School students designed, built and planted a native pollinator garden that was so successful it saw many pollinator visitors over its first summer.

Project Coordinator Deanna Karpuz said the school saw more butterflies, bees and birds than they had ever had before once the garden was in place.

"The students were very excited about the hands-on part of this project," Karpuz said. "They loved to build (the flower beds) using tools and planting the plants. Many times, students create projects and never see them come to life."

But this pollinator garden, made possible thanks to a Wild Ones Seeds for Education grant, allowed the students to be a part of the entire process from planning to planting, she said.

"This garden has really improved the look of the courtyard," Karpuz said. In the middle of the raised garden beds, the students also repurposed benches as friendship benches, giving students a place to sit and meet friends.

Elementary teachers also use the garden, taking their students there to observe and plant, while the older middle school students help to teach the younger students about native plants and pollinators.

She said the school didn't have any trouble with weeds. "However, we did have issues with chickens getting into the gardens and digging for insects," she said. "We have since blocked off the area where the chickens can roam."

The garden and plants will eventually be moved behind a new school building, she said. "Once they are moved, we plan to continue to expand the garden with trees, vegetables, bees and more pollinator plants."

The middle school is part of the Southwest Licking School System in Pataskala, Ohio.

Casa dei Girasoli Montessori School students planned and installed a pollinator and bog garden in North Charleston, South Carolina, thanks to a Wild Ones Seeds for Education grant.

Project coordinator Brianna Heupel said students learned about plant and insect life cycles, local vegetation and their extensive contribution to the ecosystem. "Despite our school being located inside of a busy shopping plaza on a large main (street) we are fortunate it is also right next to undeveloped wetlands ... providing the perfect opportunity for wildlife."

The school created a bog garden nearby, planting native plants that thrive in wet conditions. They also planted natives in their outdoor play area.

After the garden was installed, students were responsible for pruning and watering under the guidance of the project coordinator. Students also read multiple books about pollinators and kept nature journals where they drew pictures of what they saw in the garden.

In subsequent weeks, teachers introduced local butterflies into the curriculum. "First, we raised and released painted lady butterfly caterpillars," Heupel said. "Students witnessed caterpillars turn to cocoons, then emerge into butterflies."

But the most surprising outcome was that one student was so interested and inspired by butterflies he asked to complete a large research project on butterfly lifecycles, she said. The research was completed for Montessori Education Week.

Arachnids + October = Arachtober, or spider facts for everyone

By Kim Smith

Fact #1: Spiders aren't insects. Insects have six legs, spiders have eight. If you want to be afraid of something with eight legs, take a look at ticks!. (Most spiders have eight eyes as well; two big ones and six smaller ones.) Spiders are in the class *Arachnida*, while insects are in the class *Insecta*.

Fact #2: The vast majority of spiders are totally harmless to us. That's right, most of them will run *from* you, not *toward* you. And even though they may bite in self-defense, if they happen to get caught between your body and a hard surface, most spider bites won't hurt you. Even though most spiders do carry venom, it's meant to just kill tiny insects. Of course there are some spiders that are very dangerous, but if you know which ones occur in your part of the world, you can take precautions to keep yourself safe from them.

Fact #3: Not all spiders spin webs. A few years ago, I was surprised to learn this. It was one of those things I'd never really looked into but just assumed that they all did, in the same way that I used to think that birds slept in their nests at night. (Most birds only use nests when they're raising young; they sleep in trees or other sheltered spots at night.) So, if a spider doesn't spin a web, how does it catch prey? By chasing it down or lying in wait for it, that's how. I often come across crab spiders (*Thomisidae*) tucked down inside flowers waiting for prey insects to stumble into their clutches. And spiders can run surprisingly fast, as you'll discover if you ever need to try to remove one from your bathtub.

Fact #4: Spiders are very beneficial

in your house. Allowing spiders to live in your house means that you get their insect-eating services for free. Witness this photo (far right) of a jumping spider (*Salticidae*) that caught a green bottle fly (*Lucilia sericata*) on my sunroom wall.

Fear of spiders is very common, but Arach-tober gives us an opportunity to try to overcome those mostly unfounded fears. I've discovered that the more time I spend looking at spiders, reading about them or watching them, the more comfortable I am around them. It's my hope that by occasionally writing about spiders, I can help others become more open to accepting these cool creatures that are such an important part of the ecosystem.

I've heard of extreme levels of arachnophobia before, and recently read about a California man who tried to kill a large spider with a blowtorch and instead set his apartment on fire. He torched the spider, but it was still able to run up onto his mattress, which then caught fire and it quickly spread from there. Don't be that guy! A wolf spider won't hurt you, but if you must relocate it, perhaps you'll want to use your designated "mercy cup" instead of a blowtorch.

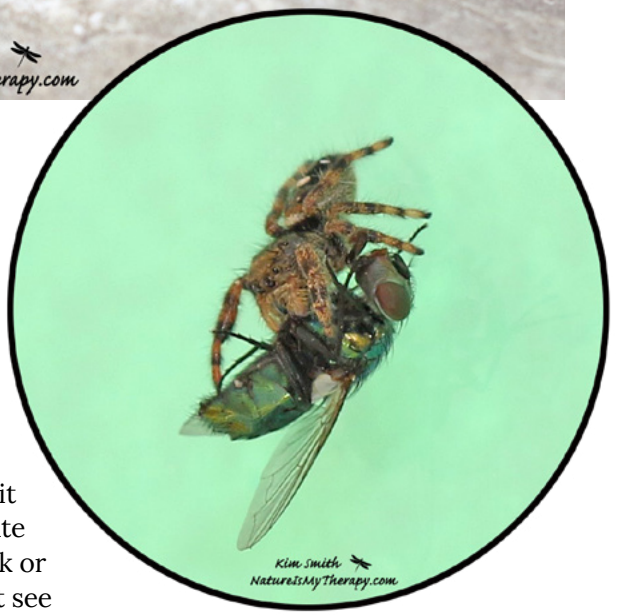
Did you know that some indoor spiders won't survive if you put them outdoors? Native spiders will likely be able to survive outside, but if your indoor spider is a transplant that's become a house spider, chances are that it will perish if moved outdoors. So if you're not sure what type of spider is in your home, just try to ignore it or use your mercy cup to relocate it into a cupboard under the sink or someplace else where you won't see it. Out of sight, out of mind, right?

And look at what good mothers they are — I found two wolf spiders living on a rock wall along a river last year. The first one was dragging her egg sac around as she hunted for food for herself. She does this so that the babies will be able to climb up onto her back as soon as they emerge. Yes, wolf spider mothers just load up their back (aka "minivan") with kids! Can you imagine how irritating that must be?

I hope I helped spark your curiosity about spiders. Now enjoy the fun of Arach-tober!

Kim Smith is a naturalist and writer from Toledo, Ohio. She's been on the board of the Wild Ones Oak Openings Region (Ohio) Chapter since 2018, and served on her chapter's Native Plant Sale Committee for the past four years. She also served five years on the board of Toledo Naturalists' Association, has been a dragonfly monitor for Metroparks Toledo and leads dragonfly field trips each summer.

Reprinted with permission from Smith's blog, natureismytherapy.com, with minor changes.



Clockwise from upper left: A northern crab spider (*Mecaphesa asperata*) perches on yarrow (*Achillea millefolium*) flowers, waiting for prey to come along; A wolf spider (*Lycosidae*) carries her babies on her back; A jumping spider (*Salticidae*) catches a fly on Smith's sunroom wall.

Research shows air pollution's destructive impact on pollination

By Gina Bartleson

The impact of human activity on the environment has been undeniable and includes anthropogenic noise, light and air pollution. Research has shown that human-generated noise and light pollution affects the fitness and survival of birds, mammals and insects. However, less is known about airborne pollutants and whether those influence organism behavior and ecology.

But a study by researchers at the University of Washington suggests that many urban areas have sufficient pollution to significantly reduce the distances at which pollinators can sense flowers. Their 2024 research can be found at https://www.science.org/doi/10.1126/science.adi0858.

Airborne pollutants come from both natural sources, such as wildfires, and human sources, including vehicle emissions and burning fossil fuels. Of particular concern is if these air pollutants could impact ecologically and economically important plant-pollinator interactions. These interactions depend on pollinators locating flowers, some over long distances, by following the floral scents that plants release.

To determine whether air pollution affects floral scents, researchers J.K. Chan, S. Parasurama, R. Atlas, R. Xu, U.A. Jongebloed, B. Alexander, J.M. Langenhan, J.A. Thornton and J.A. Riffell studied the pale evening primrose (*Oenothera pallida*), a plant native to arid Western North America. *O. pallida* releases a scent that attracts a wide diversity of pollinators including two nocturnal pollinators, the white-lined sphinx (*Hyles lineata*) and hawkmoths (*Manduca* spp.), which navigate distances to visit these flowers.

Floral scents from *O. pallida* were collected and the floral compounds that were most attractive to the pollinators were identified. Authors determined that *O. pallida*'s pollinators were sensitive to many of the same chemical compounds in the floral scent (including monoterpenes cis-□-ocimene and □-pinene).

The study's authors then examined if these floral compounds would break down in the presence of nitrate radicals (NO_3), a major air pollutant produced by both natural and human emissions like vehicle exhaust. NO_3 levels are especially high at night without sunlight to break it down. Investigators found that *O. pallida*'s scent compounds were sensitive to degradation by NO_3 and NO_3 decreased the levels of cis-□-ocimene and □-pinene by 84% and 67%, respectively.

Next, researchers investigated how well the nocturnal pollinator hawkmoth species (*Hyles lineata* and *Manduca* spp.) could locate and fly toward *O. pallida*'s scent. When the flower's normal scent was present, the hawkmoth species reliably flew to the scent source. When the floral scent was combined with NO_3 levels that were comparable to a typical urban setting, *Manduca* spp. moth visits dropped by 50% compared to the floral scent alone while *H. lineata* didn't visit the scent source at all. When a similar experiment was performed in a natural setting, the hawkmoth species visited the real *O. pallida*, and a fake flower spiked with the unaltered *O. pallida* scent. However, the fake flower spiked with the floral scent and NO_3 experienced 70% less pollinator visits than the natural and unaltered scents.

Finally, the authors used a computer model simulation to determine which areas globally would have the most potential problems with pollinators and plant scent-recognition due to NO_3 air pollutants. Regions with the most severe impacts from NO_3 included most of the industrialized world: North America, Europe, Central Asia, the Middle East and Southern Africa. A further simulation revealed that there has been a 75% decrease in pollinator scent-recognition distances since the pre-industrial era compared to present times in heavily populated urban areas.

This study demonstrated that NO_3 air pollution affects pollinators by changing floral scent chemical composition. This negatively affects both plants and pollinators and the critical plant-pollinator interaction necessary for many plants that rely on pollinators. This is especially concerning as the number of endangered and threatened pollinator species continues to increase. This breakdown of the plant-pollinator relationship has worldwide impacts on pollination rates and dire implications for agriculture critical to the food supply.

Scent recognition is also an important process for other ecological and behavioral processes such as mate and host selection and predator-prey interactions. The combination from natural as well as human-generated sources of air pollutants are a very real concern and in a rapidly warming world; natural production of air pollution through increased wildfires threatens to add to the air pollution that organisms will be exposed to. These findings underline the importance of recognizing airborne pollutants as a danger and mitigating these pollutants wherever possible.

Gina Bartleson is a member of Wild Ones Cedar Rapids-Iowa City Seedling Chapter, Iowa State coordinator for Pollinator Partnership and a native plant enthusiast who loves writing about them as much as she loves planting them.

Black walnuts may be hard to crack, but the taste is worth it

By Russ Cohen

Black walnut (*Juglans nigra*) trees are well-known and appreciated across much of the U.S., particularly in rural areas of the Midwest. But it's particularly appreciated in Missouri where some commercially driven gathering and processing of the nuts takes place, and where an annual Black Walnut Festival has been held in Stockton for more than six decades.

That said, considerably fewer people are familiar with black walnuts in my region of New England, and fewer still have experienced the distinctive taste of the ripe nuts. These nuts admittedly present a formidable challenge to process and open, but their unusual and assertive flavor has no counterpart. Thus, those having a chance to collect and consume the nuts may find it to be well worth the trouble, especially in the form of black walnut honey squares or baklava.

Black walnuts are difficult to crack, so it's best to use a nutcracker built just for those nuts. *Photo by Russ Cohen*

Distribution and identification

The native range of *Juglans nigra* extends from the 100th Meridian eastward to the Appalachians and the Eastern Seaboard, and from the Gulf States northward into southern Canada. As Indigenous peoples have used *Juglans nigra* for millennia for food, medicine and other cultural purposes, it is highly likely that they played a role in expanding the species' range. Further expansion of black walnut's range occurred in the last several hundred years, and continues to take place today, through deliberate planting (especially for the species' valuable wood), and its natural spread, aided by squirrels, along rural roadsides and field edges.

Black walnut trees are frequently found in cities as well. According to iNaturalist, *Juglans nigra* now occurs far beyond its natural range (e.g., the West Coast and most of Europe). So, you have a good chance of encountering this species not far from you.

The first challenge this species presents might be in successfully finding and identifying it, especially during the non-nut-producing season. Black walnut trees tend to leaf out later than many other tree species and are somewhat hard to recognize when dormant. Unlike shagbark hickory's distinctively shaggy bark, the bark of black walnut trees is hard to distinguish from other species. However, one detail distinguishing black walnuts and their close cousins butternuts (*J. cinerea*) from other species is the distinctive "monkey face" leaf scars noticeable on their dormant twigs. Once the pinnately compound leaves with 15-23 leaflets emerge, however, they bear a strong resemblance to those of several other species like sumac or tree of heaven, which also presents an identification challenge.

One way to confirm the identity of a black walnut tree is to "scratch and sniff" the central stem of a leaf at its base. If it's black walnut, you should detect a distinctive spicy aroma, which is identical to the smell of the husks surrounding the nuts. But if the scent is only faintly spicy, chances are that it is a butternut, also known as "white walnut" because of its lighter-colored wood. Of course, once the ripening nuts are visible on the trees, beginning in early summer, black walnut trees are much easier to pick out in the landscape. You'll want to look for bright green, spherical husks that will eventually get to about 3 inches in diameter when fully ripe. In contrast, butternut husks are egg-shaped and about 2 inches long when ripe.

Nut harvesting and processing

Regardless of when you locate any black walnut trees, you'll want to visit again when the nuts are ripe and begin to fall off the tree. For the

Northeast, that tends to be in early October; it may be different for your region. Black walnut trees will often drop some if not all their leaves before their nuts, which makes the nuts remaining attached to the tree — resembling old, green tennis balls — easy to spot. Wait until the nuts drop off the tree to harvest, but don't wait too long or the squirrels may beat you to them. You will have your best luck in gathering lots of nuts if you can find trees in the open, such as in the middle of a field or alongside a road.

A typical black walnut tree drops dozens if not hundreds of nuts over 3-4 weeks. They won't all ripen and fall off the tree at the same time so you can typically gather a bunch of nuts, and then return a week or so later to get those that have fallen in the meantime. Once you've gathered some nuts, the next step is to remove the outer husks (with their strong, citrusy aroma) from the shells containing the nutmeats. This is admittedly an unpleasant task, as the inside of a fresh husk is yellowish and juicy and touching this inner husk pulp with bare hands will stain them brown for several weeks. Waiting a week or so, until the husks begin to decay, makes this job a bit easier.

Partially rotted husks will be yellow with brown spots on the outside. On the inside, you will find juicy, black pulp that can also stain your skin, although not as badly as the fresh pulp. Sometimes the decaying husks are colonized by fly larvae, which is understandably off-putting. Don't let them bother you, though, as their presence does not affect the nut inside the shell. Plus, one fringe benefit of the smelly, messy husks is that many property owners consider black walnuts a nuisance, and thus are more than happy to have you take away as many as you want!

One technique some people use to remove the black walnuts husks from the shells is to gather the nuts,

Russ Cohen's Black Walnut Honey Squares

Ingredients

For the crust:

- 1/3 cup unsalted butter, softened
- 1/3 cup brown sugar (OK to substitute with natural cane sugar or maple sugar)
- 1/4 teaspoon salt
- 1 cup all-purpose flour

Note: Black walnut shells are notoriously hard to crack (the shells are in fact so hard that they are used commercially as an industrial abrasive). Most conventional nut crackers cannot open black walnuts (even the heavy-duty kind). Unless you have a nutcracker that is specifically designed to handle black walnuts, I advise you go the time-tested route and use a hammer.

For the filling:

- 1/4 cup unsalted butter
- 1/3 cup brown sugar (OK to substitute with natural cane sugar or maple sugar)
- 1/3 cup honey
- 1 tablespoon half & half (OK to substitute light cream or heavy whipping cream)
- 1/2 teaspoon vanilla
- 1/4 teaspoon each cinnamon, allspice and ground cloves
- 1 to 1 ½ cups shelled and chopped black walnuts (toasting them first helps bring out their flavor)

Preparation

Preheat oven to 350 °F. Line an 8" ×8" baking dish with aluminum foil, and butter or spray with non-stick cooking spray.

To prepare the crust, cream together butter and sugar using a stand or hand-held mixer. Add salt and flour and beat until crumbly.

Press mixture into the prepared pan and bake for 15 minutes.

While the crust is baking, prepare the topping by combining butter, sugar, honey, and half & half in a saucepan over medium heat. Stirring constantly, bring mixture to a simmer, and allow to simmer for one minute. Remove from heat and stir in the vanilla, spices and chopped black walnuts.

Remove the crust from oven and pour filling over the top. Return to oven and bake for 17 minutes.

Remove to a wire rack and allow it to cool completely.

Remove the entire contents of the foil-lined baking dish (it should come out easily in one piece), place on a cutting board, and cut into ¾" × ¾" squares.

The recipe yields about 49 squares.

Photo by Bruce Fellman

husks and all, bring them home, roll them out on their driveway and then run their car back and forth over them. If you are lucky, you will find a black walnut tree growing near a roadway or parking lot where other cars have already done that job for you. Then you can gather the de-husked shells with the ripe nuts inside.

However, the technique I use is to stomp on the husks where I find them under the tree, and then roll them around under my shoe to get most of the husk off. Once you have most of the husk off, you can remove any residue still clinging to the shells by filling a 5-gallon plastic bucket about halfway with nuts, then filling the bucket about 3/4 with water. Next, stir the nuts in the bucket with a stick to get the nuts knocking against each other so the remaining husk bits rub off and fall into the water. Repeat until all husk residue is removed.

You may want to do a "sink and float" test at this stage. Shells that sink to the bottom of your bucket have close to 100% sound nuts inside; nuts that float to the top will include the "duds."

What you do next with the de-husked nuts depends on whether you are gathering the nuts for eating or for propagating into new trees. For the former, dry the shells with the nutmeats still inside thoroughly (at least a month) to "cure" the nut inside each shell. This accomplishes two things. One, dried-out black walnut nutmeats taste and store better than fresh. Secondly, dried-out nutmeats separate from the shell after cracking better than fresh nutmeats.

To dry the shells, I spread them one layer deep on sheets of newspaper on the floor of my squirrel-proof garage. Once they're dried out, you can store unshelled black walnuts in a dry location for several months or even over a year without the nutmeats inside getting rancid. Once you've shelled them,

Black Walnut Baklava

Ingredients

For the baklava:

· 1 pound phyllo dough, thawed (see note below)

· 1/2 pound (two sticks) butter, melted

· 3 cups shelled black walnuts (lightly toast the nuts first to help bring out their aroma and help retain their crunchiness in the final product)

· 1/4 cup sugar

· 1 teaspoon grated lemon zest

· 1/2 teaspoon ground cinnamon

· 1½ tablespoons whole cloves

For the syrup:

· 1/2 cup sugar

· 1 cup water

· 3/4 cup honey

· 1 tablespoon fresh lemon juice

· Zest (outside peel) of one orange, removed in large strips

Preparation

Note: You'll need phyllo dough for this recipe; it usually comes in 1 lb. packages and is found in the frozen foods section of most supermarkets and upscale grocery stores. You'll need to thaw out the dough before using – overnight in the fridge or 5 hours at room temperature. Leave in the box until ready to use. You'll need a pastry brush, too.

Preheat oven to 325 F. Butter the bottom and sides of a 9"x13" baking pan.

Coarsely chop (or finely grind, according to your preference) 3 cups of black walnuts.

Stir ¼ cup sugar, 1 teaspoon grated lemon zest and ½ teaspoon ground cinnamon together in a small bowl.

Melt 1/2 lb. (two sticks) of butter. Roll out the phyllo dough flat on a smooth work surface. Trim half the phyllo into 9"x13" inch sheets, then put the remaining dough back in the package and save for another use.

Place two sheets at a time into the bottom of the baking pan, then brush with melted butter. Repeat this twice for a total of six sheets. Then sprinkle half of the chopped nuts and half of the sugar/lemon zest/cinnamon mixture on top of the six buttered sheets.

Lay down another 3 pairs of sheets, brushing each pair with melted butter before putting down the next. Sprinkle the remaining nuts and sugar/lemon zest/cinnamon mixture.

Cover with all the remaining phyllo sheets (one pair at a time, brushing each pair with melted butter before applying the next). Brush the top with the remaining butter.

Using a sharp serrated knife, cut through all the layers to make 2" wide diamonds or squares (make sure to do this before baking). Pin down each cut corner with a whole clove. (You'll need about 1½ tablespoons of whole cloves for this task).

Bake at 325 F for 30 minutes, then reduce oven to 300 F and continue to bake until the baklava is golden brown, about 30-60 minutes.

Prepare the syrup while the baklava is baking. In a saucepan, combine the sugar, water, honey, lemon juice and orange zest.

Bring this mixture to a gentle boil and then simmer, uncovered, for 15 minutes. Strain the hot syrup and pour evenly over the baked baklava. Allow to cool completely (at least four hours) to room temperature before serving.

though, you should refrigerate (or ideally, freeze) any shelled nutmeats that you won't be using within a week or so.

If, on the other hand, you're intending to propagate new trees from any of the nuts you've gathered, do *not* let them dry out; otherwise, those nuts are likely to die. The technical terms "hydrophilic" or "recalcitrant" are sometimes used to categorize seeds that must be kept moist from gathering until they are sown; all native nuts I know of fall into this category. Store these de-husked black walnut shells, slightly damp, in a freezer bag in a fridge until you sow them, normally in the following spring. And when you do sow them, protect the sown nuts from ravenous rodents for at least a year. I use pieces of ½-inch mesh hardware cloth for this purpose.

One cautionary note regarding the planting of black walnut trees. While *Juglans nigra* is relatively free from pathogens over much of its range, Thousand Cankers Disease is of potential concern. This disease, caused by the combined activity of the walnut twig beetle (*Pityophthorus juglandis*) and a fungus (*Geosmithia morbida*), primarily emerged in the western United States but has since spread to states like Tennessee, Pennsylvania and Virginia.

There is one final challenge for the nuts you intend to eat. Black walnut shells are notoriously hard to crack open. The shells are so hard that they are used commercially as an industrial abrasive. They will break most conventional nut crackers, so see if you can procure a device that is specifically intended for use on black walnuts. The one I have, made by C.E. Potter from Oklahoma (no longer being manufactured, but used ones are available for sale online), works wonderfully. It weighs 10 pounds, is made of sturdy cast iron, is worked by hand and exerts a tremendous amount of pressure on each inserted nut until it cracks open and the pieces fall into the tray. A vise and/or hammer can also yield decent results after some practice. Expect, though, to rely on a nut pick (a pointy metal dental tool works even better) to pop out embedded nut meats from the shell pieces. Regardless of how you get the shells open, carefully inspect your shelled nutmeats to make sure all pieces of shell have been removed.

Once you've shelled them, you will discover that black walnuts have a robust and aromatic flavor, considerably different from and much stronger than the cultivated, store-bought "English" (actually Persian) walnut (*J. regia*). Toasting them for a few minutes in a toaster oven enhances their flavor (as well as their shelf life). While I admit that black walnuts are not my favorite for eating plain, black walnuts excel as an ingredient in many desserts and other dishes, especially when paired with honey, as long as it isn't expected that the black walnuts' assertive flavor will fade into the background (because it won't).

Russ Cohen's Black Walnut Honey Butter

In my opinion, this is one of the easiest, and tastiest, ways to use black walnuts. I like to serve the nut butter warm to show off its unique fragrance. The aromatic black walnuts, salt and sweetness of the honey will pull your taste buds in three different directions at once.

Ingredients

- 2 cups shelled black walnut meats
- 3/8 teaspoon salt
- 3 ½ tablespoons honey

Preparation

Spread the nut meats out on a shallow baking sheet and gently roast in a regular or toaster oven at 200 F for approximately 30 minutes. Make sure that the nut meats don't burn or get overcooked.

Place the roasted nut meats in a food processor along with the salt and honey and blend for several minutes until well-mixed and peanut butter-like in texture (it will be somewhat grainier).

Makes approx. 12 oz.

Medicinal uses and nutritional values

Although I am not an herbalist (and strongly suggest you consult one before using this plant medicinally), black walnut bark and hulls are supposedly effective in eliminating various types of intestinal worms and parasites, as well as controlling yeast (*Candida* spp.), athlete's foot, ringworm, jock itch and other common fungal infections.

In just one ¼-cup serving, black walnuts also provide 6.8 grams of protein, surpassing the protein content of English walnuts by over 50%. Additionally, black walnuts have lower amounts of total fat, polyunsaturated fat and saturated fat, while providing a higher concentration of monounsaturated fat. In comparison to English walnuts, black walnuts contain less sugar and carbohydrates while providing higher amounts of essential nutrients such as phosphorus, magnesium, potassium, iron and fiber.

Ecological values

Black walnuts are great trees for attracting birds and wildlife to the landscape. They host some 23 species of moths, including dagger moths, luna moths and walnut caterpillar moths, which in addition to their intrinsic value, are

consumed by songbirds including chickadees, bluebirds, nuthatches, wrens and others. The nuts are a valuable food source for squirrels and chipmunks, which in turn become prey for owls, hawks, falcons and larger mammals. So *Juglans nigra* can offer a significant contribution to the ecological food web as well as providing food and medicine for people.

Last but not least: The issue of allelopathy

Perhaps for some of you this issue might be foremost on your mind when you think about this species: the widely held belief that black walnut trees can inhibit the growth of, and possibly even kill, some other plant species attempting to grow near them. This effect, referred to as allelopathy, is thought to be caused by a toxic substance called *juglone* (actually, a non-toxic substance called *hydrojuglone* that is oxidized into juglone) present in many parts of black walnut, particularly in its roots and in the husks surrounding the nuts. So, you may have been advised against planting anything near an existing black walnut tree and/or planting a black walnut tree in your yard.

It turns out, though, that black walnut's bad reputation in this regard may be largely undeserved. There is a paucity of scientific research documenting the allelopathic effect of juglone on the growth of other plants in *in situ* (non-laboratory) conditions. There are apparently several naturally occurring processes in the soil that attenuate juglone concentrations to a level below that which could harm other plants. And even if there may be some growth-inhibiting effect by black walnut trees on some nearby plants, for whatever the reason, there are evidently quite a few species that have no trouble at all (actually, can thrive) growing in association with black walnuts. My own personal observations reveal that black raspberries (*Rubus occidentalis*), wild lettuce (*Lactuca canadensis*) and violets (*Viola sororia*) all do well around black walnuts. Many nurseries, Cooperative Extension offices and others put out lists of plant species that have proven to be unaffected by black walnut; (I recommend looking at several, as their recommendations differ.) A particularly enticing combination could be planting pawpaws (*Asimina triloba*) underneath black walnuts, as pawpaw trees are very shade-tolerant; their fruits ripen at roughly the same time as the nuts (at least in my region) and their fruits, paired with the nuts, could be fashioned into some delicious recipes.

I'll wrap up with several miscellaneous tidbits:

• Sometimes people make pickles from immature black walnuts or butternuts (e.g., when a strong storm blows them off the trees). If a knitting needle can be pushed through one of the nuts, they are young and tender enough to be pickled. Immature nuts can also be used to make a liqueur called nocino.

• Black walnut husks provide one of the few natural dyes that do not require any fixative. The dye results in a light brown color.

• Black walnut wood, a lovely dark brown in color, straight -grained and easily worked, is highly prized by furniture makers and others, and therefore commands a premium price.

Aunt Vivian's Black Walnut Cake

Ingredients

- 2/3 cup butter or margarine
- 2 cups sugar
- 4 eggs
- 1 cup milk
- 2¼ cups flour
- 3 teaspoons baking powder
- ¼ teaspoon salt
- 2 teaspoons vanilla
- 1 heaping cup shelled and ground black walnuts

Preparation

Preheat oven to 350 F. Grease and flour two 9" round cake pans.

Sift together flour, baking powder and salt.

In a separate bowl, cream butter and sugar well using a stand or hand-held mixer.

Add eggs one at a time to butter and sugar, then alternately add flour mixture and milk.

Add vanilla and ground walnuts to batter and mix well.

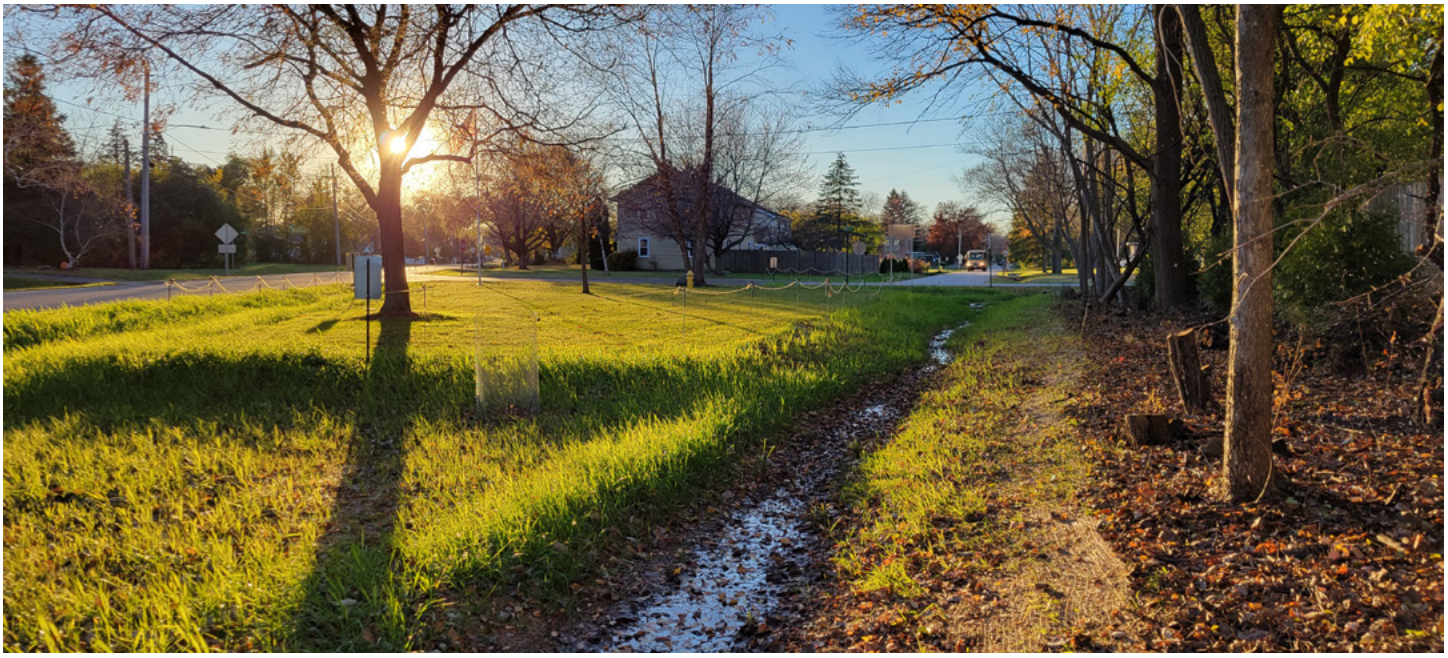
Divide batter evenly and pour into prepared pans and bake about 35 minutes.

Allow cake layers to cool completely before removing from pans. Chill cake layers in the refrigerator prior to icing.

Note: You may choose to toast the nuts for a fuller flavor. Buttercream icing goes well with this.

A member of the Wild Ones South Shore MA (Massachusetts) Chapter, Russ Cohen is a naturalist and wild foods enthusiast who plays the role of Johnny Appleseed for native edible species. Until his retirement in June of 2015, Russ Cohen's "day job" was serving as the Rivers Advocate for the Massachusetts Department of Fish and Game's Division of Ecological Restoration.

All photos by Janice Aull



Plants started growing immediately in the ditch's matting, and the ditch now mitigates soil erosion and controls sediment.

Ditch project highlights collaboration, community involvement

Editor's Note: In late August, the Shields Township hired a contractor to cut down the native plants and shrubs, leaving only a small section because it was filled with water. Janice Aull is trying to find out why the Township took this action and is working to show the officials the value and importance of having an educational demonstrational area to model proper stormwater mitigation for the community. We'll update this story in our summer issue.

A collaborative mindset combined with well-defined goals often leads to positive outcomes. Just ask Janice Aull, a member of the Wild Ones Lake-To-Prairie (Illinois) Chapter.

In October 2022, Aull realized it was time to take action to resolve the poorly constructed, unmaintained and eroded ditch along Foster Avenue, east of Birch Avenue in Knollwood, Illinois. The ~780-foot ditch had become a significant safety hazard for the community and had begun eroding the road.

Meetings with Lake County Planning, Building & Development and the Lake County Stormwater Management Commission revealed grant funding was available to repair the ditch. Co-founder of the Aull Nature Preserve, a nonprofit organization dedicated to restoring and maintaining 2.25 acres of wetland in Lake Bluff, Illinois as a private preserve dedicated to nature, Aull took on the responsibility to write and submit a Watershed Management Board (WMB) project proposal on behalf of Shields Township. Funding from this grant required a minimum of 50% match through actual dollars or in-kind services.

In December 2022, Shields Township received approval for the WMB grant and several months later, Hey and Associates, Inc. were awarded the bid to conduct a hydrology study, design and construct the site to mitigate stormwater, soil erosion and control sediment.

In early August 2023, community volunteers, including several members from the Lake Bluff Open Lands Association (LBOLA), an organization whose purpose is to protect, preserve, restore and manage open spaces and natural areas, helped prepare the site for construction. Volunteers used chain saws, herbicides and labor to remove buckthorn and other invasive plant species from the area, Aull said.

Construction on the Foster Avenue ditch was completed in August 2023. Construction included creating a green infrastructure leveraging native plants; regrading the ditch and installing check dams based on the hydrology study results; and installing biodegradable erosion matting embedded with native plant seeds.

From Sept. 1-Nov 12, 2023, community volunteers, including members of the LBOLA, installed three donated swamp white oak (*Quercus bicolor*) trees, 55 donated native shrubs and more than 600 donated live native plants or plugs. The volunteers also sorted, cleaned and scattered over 1 pound of donated native seeds.

The grant called for educating community members and school-age children about the importance of

capturing raindrops where they fall and implementing proper stormwater management. Project work included, but was not limited to:

• Educational information and resources being posted and updated online.

• Taking time on workdays to share and discuss the importance and value of creating green infrastructures to capture, filter and mitigate stormwater.

• Sharing knowledge and project information with community members as they stopped by to chat with the volunteers during workdays.

• Conducting a formal educational program with the Safe Haven school children when they volunteered their time to install fencing around the project area. The children transplanted native plants from their pollinator garden in early spring 2024.

• Installing educational signage sharing the benefits of proper stormwater management techniques.

Moving forward

As with any landscaping project, it will take several years for the native plants to settle in, become established and thrive. Organizers are looking forward to seeing how the site supports wildlife, including pollinators.

Community and LBOLA members have adopted this right-of-way and are committed to maintaining it for the coming years. The focus for the team will be to:

• Ensure this eco-friendly, eye-appealing, sustainable stormwater drainage system (green infrastructure) thrives.

• Collaborate with Safe Haven school to utilize the site for educational field trips.

• Educate and inspire additional community members to create their own green infrastructure by adopting, restoring and maintaining a sustainable stormwater drainage system in a right-of-way near them and capturing raindrops where they fall.

Green infrastructures mitigate stormwater properly, protect communities from flooding and create a healthy habitat for nature, Aull said. "Creating a healthy habitat for nature will encourage our children to explore and learn about nature and gain the health benefits from being outdoors," she added.

Clockwise from top: These pawprints in mud show that a raccoon stopped by; This sign helps to spread the word about native plants and the natural water cycle; A rescued and relocated oak seedling is protected by a wire cage.

Their work is already seeing results. By May 2024, Aull said they had a natural, sustainable, stormwater ecosystem established. "Native plants are growing and the area has frogs, dragonflies, birds and crayfish, which enjoy eating insects," she said. "It may look messy, but nature is in full swing with filtering, absorbing and leveraging stormwater to create a healthy habitat."

So, what can you do in your community?

Aull said that one of the easiest things you can do is capture raindrops where they fall. That can include installing rain barrels on your property: the average roof collects 600 gallons of water for every inch of rain. Rain barrels not only conserve water, energy and money, but they also reduce runoff, improve water quality and prevent soil erosion. Lastly, natural rain water has the pH level that is ideal for plant growth, she said.

How to build a simple rain barrel

By Dan Benish

I've always known that rainwater is better for my vegetable and flower gardens than city water, but when the local water utility doubled my monthly water bill, I decided it was time to harvest free water using a rain barrel. Here's how I did it.

Confirm regulations

Some states have rainwater harvesting restrictions so be sure to check your state's rules and regulations prior to installing a rain barrel. Learn more here.

Location

Begin by identifying a site with level, well-compacted ground (gravel is best) near a downspout, preferably at the back of the house and close to where the water will be used. Don't worry about whether you'll collect enough rainwater; an inch of rainfall on a 1,000-square-foot roof yields about 600 gallons of water.

Rain barrel

Rain barrel kits are available online and from most big-box stores, but being thrifty by nature I chose to fabricate my own. The 50-gallon plastic barrels I used cost $20 each on Facebook Marketplace and were once used to ship pickles. In all cases, be sure the container you use is made from food grade material and never contained non-food products. UV protected plastic barrels will minimize algae growth as well. Barrels made from clay or steel also work well.

Diverter kit

There are several ways to divert rainwater into your barrel. The method I chose uses a closed-top barrel and a diversion device that is easily inserted through a small hole in the downspout. (When it rains, the diverter directs some of the rainwater through a flexible hose and then into the rain barrel. When the rain barrel is full the diverter automatically sends all the rainwater through the downspout and away from my house.) The primary advantage of using a closed-top barrel is that it is less likely to be clogged by leaves and other debris. Diverter kits can be purchased for $20-$30.

Spigot

You'll probably achieve the best results if you purchase a rain barrel spigot kit. They cost about $10 and usually include rubber seals to ensure a tight, leak-proof installation. Install the spigot according to the manufacturer's instructions on a flat surface several inches above the bottom of the barrel.

Rain barrel stand

When full, a typical rain barrel can weigh over 400 pounds. For that reason, it is important that the rain barrel rests on a solid platform that can safely support the full weight of the barrel. The platform can be as simple as a stack of patio blocks, or a more elaborate structure made from treated lumber. In all cases, make sure the ground beneath the stand is hard, firm and level. I chose to build a stand from treated lumber that is 16 inches above the ground. The additional ground clearance allows me to place a watering can beneath the spigot, or I can attach a hose to the spigot and use gravity to deliver water to my gardens.

Dan Benish is the husband of the Wild Ones Journal editor and is always willing to create whatever new projects his wife comes up with for their yard.

This rain barrel, made from a pickle shipping container purchased from Facebook Marketplace, is used mainly to water flowers and vegetables in containers in the author's back yard. Below: A second barrel has a hose attached, and is used predominately to water the vegetable garden.

Dealing with mosquitoes

Using a closed-top barrel to create your rain barrel means you should have few issues with mosquitoes. But if mosquitoes manage to get in through a crack, there are a few things you can do. According to Blue Water Baltimore:

- Drain all the water within five days of the rain barrel filling up. This not only eliminates standing water, but it ensures that the next time it rains the rain barrel will be empty and can reduce runoff.
- Add one tablespoon of ecofriendly liquid soap once a week or after each storm. This creates a film on the water's surface and causes mosquitoes that get into the barrel to drown before laying eggs.
- Add a Mosquito Dunk monthly (or any other product that contains *Bacillus thuringiensis israelensis* or *Bti*), which will kill mosquito larvae.
- Add ¼ cup vegetable oil once a week or after each storm to your barrel. The vegetable oil will stay on top of the water and suffocate any mosquito larvae.

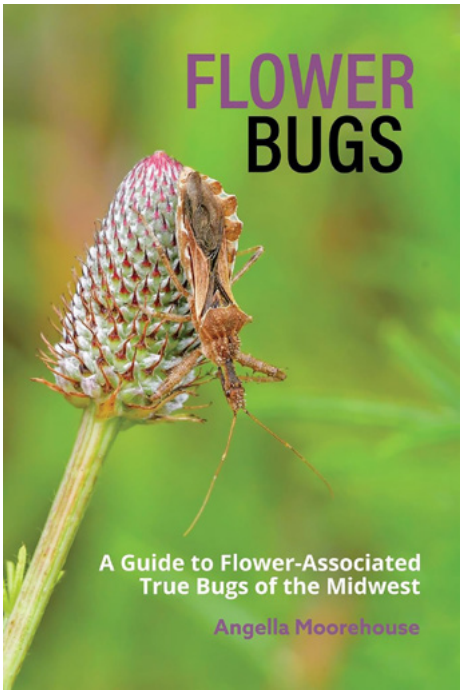
Book Review

Title: "Flower Bugs: A Guide to Flower-Associated True Bugs of the Midwest"

Author: Angella Moorehouse

Published: 2023

Rating: ★★★★½



By Beth Bradburn

"Flower Bugs: A Guide to Flower-Associated True Bugs of the Midwest" came out of a study that was not originally focused on true bugs (that is, insects of the order *Hemiptera*, suborder *Heteroptera*) and was likely written as much in order to make use of author Angella Moorehouse's vast trove of observations as to meet any existing demand for such a guide.

It is aimed at naturalists and citizen/community scientists, but with its "bias for native species," the guide is perfectly suited for native plant gardeners who cultivate for the sake of ecosystem services and thus don't necessarily regard insects of any type as a nuisance or threat in the garden. Pointing out that true bugs are usually discussed in terms of the damage they do to monoculture crops and conventional landscape plants, Moorehouse takes a more neutral stance, seeking to understand and explain the complexity of the relationship between plants and insects, and to encourage further exploration of the under-studied ecological role of flower-associated true bugs.

Because flower bugs contribute minimally to pollination (they mainly feed on flowers, or use them for shelter or to hunt prey), they may have been overlooked by native landscapers, who understandably emphasize pollinator attraction.

Moorehouse's expertise in photographing flower bugs contributes to two of the guide's most notable features: detailed advice for taking pictures of bugs, and, most strikingly, a visual index of *Heteroptera* families and genera that the reader can use as a quick guide to begin identifying a species. Color photos, rather than drawings, work well for this visual index, while helpful drawings of bug anatomy appear elsewhere in the guide.

Other highlights of this thoroughly researched and thoughtfully arranged volume include a detailed comparison of two online resources — BugGuide and iNaturalist — and a "how to find" section in each species entry. Explanations of the various methods (from simple observation of plants to sweep netting) cited in the "how to find" notes are included in the introduction.

Not every native landscaper will need this specialized guide, but it should be of great interest to those who seek to expand their understanding of the natural communities in their gardens, or perhaps who are just curious about the diverse life they are seeing on their plants.

Beth Bradburn edits the chapter newsletter and website for the Wild Ones Kalamazoo Area (Michigan) Chapter.

A dozen native trees and shrubs that birds love

A cedar waxwing (*Bombycilla cedrorum*) feeds on black elderberry (*Sambucus nigra*).
Photo: Michael Banco Wild Ones Root River Area (Wisconsin) Chapter

By Howard Youth

Manicured suburban lawns just don't cut it for birds. Sure, you may see an American robin stop by. But to attract birds to your home (and provide needed food and shelter), move beyond lawns to create a buffet of benefits for your avian neighbors. Read on for a list of a dozen kinds of plants that will have your yard bursting into song.

It's about location … of food

For starters, remember that to attract birds to your home, real estate is a lot about location, location, location … of food. Recent studies document widespread losses of insect life, which adversely impact bird populations. As for birds, a recent study documented how suburban birds need native plants — which host native insects — to thrive.

As natural habitats dwindle, especially around large urban centers, suburban and urban residents need to up their game for wildlife. It can be a lifesaver for birds losing habitat to development. Kay Charter, founder and executive director of Saving Birds Thru Habitat, has some encouraging words on every individual's effort to attract birds and provide habitat:

"Every single person who owns a piece of property of any size can make a difference. They can begin by removing nonnative plant species from their land and replacing them with natives. Why native plants? Native plants are important for many reasons, but they are essential as virtually the only hosts for many native insects. Insects are essential food for many birds, particularly nesting songbirds. … A small yard, even in the heart of a city, can provide these crucial sites."

Kay and her husband Jim established the 45-acre Charter Sanctuary near Omena, Michigan, where more than 60 bird species have nested. They have worked hard to keep native plants going strong and to provide an educational opportunity for others. Charter explains why native plants are the best choice for breeding birds:

"Baby birds, like baby humans, must have the building blocks of protein in order to develop and grow into healthy fledglings. … [they get] that necessary protein from insects. Insufficient insect food results in underweight or fewer fledglings, or, worse, failed nests."

Top options to attract birds with native plants

Planting bird- and insect-friendly native trees and shrubs is a great way to get started now on a property that will sustain wintering, migrating

Look for pileated woodpeckers (*Dryocopus pileatus*) eating acorns and berries from chokecherry (*Prunus virginiana*) in the fall. They typically change their diet when insects are harder to find. *Photo by Mara Koenig/USFWS Midwest Region*

and breeding birds. Here are a few examples of native trees and shrubs that attract birds and make out-sized contributions to suburban habitats.

1. Oaks (*Quercus*): In his book "*Bringing Nature Home*," Douglas Tallamy writes that "oaks are the quintessential wildlife plants: no other plant genus supports more species of Lepidoptera (butterflies and moths), thus providing more types of bird food, than the mighty oak." If you have the space, by all means, plant one!

2. Willows (*Salix*): Weeping willows are nonnative, but there are many native willow species, such as black willow (*Salix nigra*) and pussy willow (*Salix discolor*). These shrubs or small trees may be found at native plant suppliers. Many moths and butterflies are attracted to these moisture-loving plants, which can be used in borders.

3. Cherries (*Prunus*): Native cherries, such as black cherry (*Prunus serotina*) and common chokecherry (*Prunus virginiana*), provide not only food for birds, *but also leaves that feed many types of caterpillars, from the large and striking cecropia moth to the abundant eastern tent caterpillar. Cuckoos, orioles and many other woodland birds feed on tent caterpillars, while gnatcatchers pull away some of the caterpillar nests' silk for their own cup nests.*

4. Birches (*Betula*): The complicated, peeling bark shelters many invertebrates, while the leaves attract hundreds of butterfly and moth species. Seeds and buds of these rather small, somewhat short-lived trees attract birds and small mammals. The adaptable river birch (*Betula nigra*) is one of our favorites.

5. Dogwoods (*Cornus*): Insects come to the flowers, and birds to the fall berries. There are eastern and western dogwood species, and trees as well as many shrubs, including the lovely-in-all-seasons red-twig dogwood (*Cornus sericea*). (Note that flowering dogwood (*Cornus florida*) is native to North America, but kousa dogwood (*Cornus kousa*) is not.)

6. Hollies (*Ilex*) : Many of these trees and shrubs are evergreen, providing year-round shelter, nesting places and berries that ripen late fall or into winter. Choose from trees such as American holly (*Ilex opaca*) or the deciduous shrub, winterberry (*Ilex verticillata*). Although birds love them, remember that holly berries are toxic to humans and pets.

7. Elderberry (*Sambucus*): Elderberries are shrubs or small trees that provide abundant flowers for insects, along with summer berries beloved by people and birds alike. You'll have to be fast if you want to keep some for yourself!

8. Mulberry (*Morus*): In summer,

This male cardinal (*Cardinalis*) was eating berries along the bank of the Mississippi River near Keokuk, Iowa. *Photo: Macomb Paynes, Flickr.*

birds flock to the fruits, after insects have crowded spring flowers. Choose the native red (*Morus rubra*), not the invasive, introduced white mulberry (*Morus alba*).

9. Juniper (*Juniperus*) (including redcedars)**:** These shrubs and trees produce berry-like fruiting bodies and year-round cover. Eastern redcedar (*Juniperus virginiana*) fruits are a staple for cedar waxwings.

10. Viburnum (*Viburnum*): These shrubs grow in the forest understory, attract invertebrates to their flowers and leaves and produce berries and nesting areas for a wide variety of songbirds. Be sure to choose species native to your area. We particularly like arrowwood viburnum (*Viburnum dentatum*).

11. Shadbush or serviceberry (*Amelanchier*): From flowers to fruits to nesting cover, the *Amelanchier* family offers small trees and shrubs that are among the most popular with wildlife habitat aficionados. There are many species, but it's hard to beat the tree-sized downy serviceberry (*Amelanchier arborea*) for beauty and bird appeal.

12. Blackberry and raspberry (*Rubus*): Attractive to many insects, these thorny plants also create brambles that provide cover and nesting places, while producing berries in summer. Be careful not to confuse these with the similar, but red-stemmed invasive exotic called wineberry (*Rubus phoenicolasius*).

A note to Southwest gardeners

From a gardening point of view, the Southwest is a different world from the rest of the United States, and rich in bird-habitat opportunities. Much of what's lacking in the surrounding country – namely water – is available right at home.

A clean water feature such as a recirculating shallow bath or pond will attract birds. Plus, the region is rich in cacti, agave, the thorny shrub Ocotillo (*Fouquieria splendens*) (which can be cut and planted to make living fences), and other flowering plants that draw hummingbirds and orioles. Do some homework on native bird-attracting plants, then contact your local nurseries.

Another plus in the Southwest: xeriscaping is popular as a water-saving measure. Rocky yards planted with native species attract more invertebrates and lizards than do water-starved turf lawns, which means that predators such as greater roadrunners, loggerhead shrikes and raptors may come calling.

Howard Youth is American Bird Conservancy's senior writer/editor. He has been a birder for 40 years – and a native plant gardener for just about as long. Howard volunteers in parks near his home in Maryland, cutting back invasive exotic plants so they do not overwhelm important bird habitats.

All photos by Jan Midgley

Growing milkweed from seed ensures plants will be free from insecticides

By Jan Midgley

Why grow milkweeds from seeds? There are many reasons: to guarantee pesticide-free plants, to grow plants of local or regional provenance that have adapted to your climate and soil, to produce plants to share, and just to have the thrill of seeing the miracle of seed germination of a workhorse member of your ecosystem.

Since insects visit milkweed (*Asclepias* spp.) plants for nectar and as a place to lay their eggs, any pesticides within or on the tissues of the plants are toxic. Sharon Selvaggio, pesticide specialist for the Xerces Society, addressed this issue in a talk she gave for the People and Pollinator Action Network of Colorado. In the talk she referenced a retail milkweed study by the University of Nevada Reno and the Xerces Society published in 2022. Researchers analyzed the tissues of five species of milkweed plants purchased from 33 stores across 15 states along monarch migration corridors. They screened 235 plants for 92 pesticides. On average, the specimens contained 12 different pesticides with the range of pesticides per plant varying from 2 to 28.

"Some nurseries that have transitioned away from neonicotinoids simply shifted to other systemic insecticides," Selvaggio said. "Unfortunately, some of these insecticides are nearly as harmful as neonicotinoids …"

For anyone who wishes to support the entire ecosystem as well as have a beautiful landscape, toxin-free plants are a must. The best way to guarantee safe plants is to grow them from seeds. You can always buy seeds, and the Xerces Society has helpful guides organized regionally regarding seed sources. But ideally you will collect your own seeds or get them through Wild Ones native seed swaps. Then you will know the provenance and the health of the mother plant.

When a milkweed pod begins to split, it won't be long before the seeds disperse in the wind.

You must always have permission to collect seeds on private or public lands. Regulations vary widely for different parts of the country and local Wild Ones chapters or native plant societies may be able to provide information on regulations in your area or at least point you to resources.

So how do you gather native seeds? First, gather your hat and tools. You will need paper bags, perhaps a few plastic bags, clippers, a pencil and a marker. Reclosable plastic bags should only be used for seeds that can or need to remain moist. These seeds may have an aril or an elaiosome. An aril is a fleshy or sometimes hard, colorful material that surrounds the seed. An elaiosome is an oily, fleshy attachment to the seed. Seeds with an elaiosome are ant dispersed and disappear quickly when ripe. For *Asclepias* spp., you only need paper bags, but who finds only one species of seed to collect when on the hunt?

Watch the seed follicle (often called a pod) for a color change from soft green to tan. If the pods have a gap at the suture through which silky hairs are beginning to show, clip the pod(s) free and place a rubber band around the follicle. If the color has changed but the slit is not gaping, pinch the pod and check if the suture opens easily. If it does and the seeds inside are brown, you can collect the pod. Several follicles can be contained in one rubber band. Place the bundle in a paper lunch bag. Write the species name and the date and

Placing a couple coins in a paper bag will help you separate milkweed seeds from the pods and floss. Right: Butterfly weed (*Asclepias tuberosa*) with its bright orange flowers call for monarch butterflies to visit.

location of collection on the bag.

Clean these fruits by gripping an individual follicle. Peel the two sides away while containing the column of plumes and push the seeds off onto a sheet of paper on a tray. Thumb seeds off now when the hairs are easily gripped in one hand or store the bag in a dry place at about 70 F until you can clean the seeds. Once the silks dry, they are harder to grip, but they are manageable.

Put the seeds into a paper envelope. Store the seeds in a moisture-proof container at 40 F if possible.

If you missed collecting the follicles when the split was just opening and the silks have dried and threaten to carry the seeds on the wind, clip the follicle with escaping seeds and put the mass into a paper bag. When you have all the fruits contained in the bag, let them dry for a few weeks at room temperature. They can dry for many months, but I do recommend getting them cleaned by late fall.

To clean seeds exploding from capsules, put the mass of material in a paper bag and add three or four coins. Shake vigorously many times. Peer into the bag and remove large non-seed pieces. Shake some more. Holding the bag over a piece of paper on a tray, cut a slit in the bottom of the bag. Gently shake the seeds onto the paper. The silks and other bits of the fruit will be contained in the bag.

Fertile seeds are flattish in the middle. To test for fertility, place the seeds on a flat surface and press the seeds gently with a fingernail. If a seed collapses, it is not viable.

Various sizes of coin envelopes are ideal for storing seeds in shoe boxes in a refrigerator. Instead of licking the envelope use a piece of painter's tape to seal it. Painter's tape can be removed and reapplied multiple times.

Store clean milkweed seeds in a cool and dry location, and you can put yourself on the path to home-grown, toxin-free plants.

The germination process is enhanced by storing the seeds dry at 40 F for three or four months. The most important temperature in the propagation process is the heat at the time of germination. Temperatures above 70 F, preferably 80 F, will pop the cotyledons or embryonic leaf right out of the soil.

Many people like to sow their native seeds in fall, thus letting weather (cold weather followed by spring's warming temperatures) provide the cold stratification that milkweed species need to germinate. However, I do not recommend fall sowing. A large percentage of the seeds will either rot, desiccate or be eaten. If the seeds are stored at 40 F over the winter and then sown outside as temperatures warm to at least 70 F, germination percentages will be higher. Depending on the humidity of the part of the country you live in, you may want to soak the seeds in a small clear bowl of water on a windowsill. Once radicles emerge, sow the seeds outside.

Jan Midgley operated a native plant nursery for over 30 years in Maryland and Alabama. She kept detailed notes on every step of the propagation process for each species. The notes supported the writing of articles, lectures and books. She continues to self- publish "Native Plant Propagation," 5th edition. After a move to Colorado seven years ago, Midgley started a crash course in the flora of the Southern Rockies. She now volunteers arranging specimens in the Denver Botanic Gardens Herbarium and maintains a germination guide for native plant seeds on the Wild Ones Front Range (Colorado) Chapter website.

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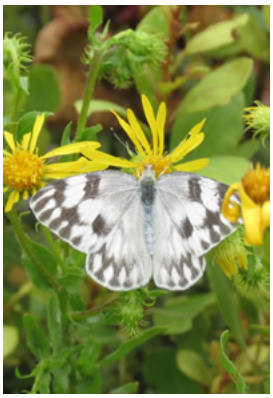

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