WILD ONES JOURNAL
SPRING 2024 • VOL. 37, NO. 1

WILD ONES®

A VOICE FOR THE NATURAL LANDSCAPING MOVEMENT

Photo by Bette Kauffman, Wild Ones Western Gulf Plain Chapter

A Message from Wild Ones Education and Program Coordinator

By Sara Ressing

In the cycle of seasons, spring is another season of change. Sure, you can see this in our gardens and landscapes, but as I write this, I'm reminded of the movie "Groundhog Day." This cinematic masterpiece uses the backdrop of an early spring day to explore themes of transformation and self-reflection, as the protagonist experiences change in a very literal sense through repeated days. As you will read in this issue of the Journal, transformation, movement and change are constant themes for Wild Ones.

Monarchs very literally embody transformation through metamorphosis. Read more in the latest installment of our butterfly and pollinator series, supported by Monarch Joint Venture, which can be found on Page 10. Besa Schweitzer sheds light on the personal impact of tagging these remarkable insects with her mentor and the guidance of Monarch Watch, a community science initiative dedicated to the research, conservation and study of monarch butterflies.

Witness the subtle yet profound movements shaping our natural world, and incredible role ants play in the lifecycle of native wildflowers in "Ants are Superheroes in the World of Native Wildflowers" by Kim Strader, highlighted on Page 30. Strader describes the symbiotic relationship between ants and plants, where ants, often unseen agents of change, help the movement and dispersal of seeds across forests and meadows.

On Page 35, you will learn what it takes to be a "true" pollinator. A pollinator is an animal that moves pollen from the male anther of a flower to the female stigma of a flower. It is a process that is critical to species and ecosystem health and resilience.

And finally, you might notice a few changes in the Journal as well. In an effort to keep the Journal relevant and engaging for our readers, the scope and focus of the Journal has changed over time. Complete the Journal Feedback Form and help guide the direction. Members are always welcome to send their thoughts and comments to support@wildones.org. And finally, we are always looking for contributors. You can read more about the submission guidelines on our website.

What happens with all this movement? Seeds spread, new flowers bloom and Wild Ones continues to reshape our own and others' minds about natural landscaping. And of course, as we all know, the beauty of native plant gardens and landscapes stems from their ever-changing nature.

P.S. For those that don't follow the tradition, Punxsutawney Phil's prediction this February indicates an early spring, so you can look forward to a change in weather coming to your area soon.

Sara is a biologist and administrator in higher education. She started part time at Wild Ones this past summer and supports the mission though her active involvement in the development, strategy, reporting and budgeting for programs such as the Lorrie Otto Seeds for Education Grants, Native Garden Designs, Wild for Monarchs, Wild Ones Journal and educational webinars.

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"Perfection"
Standing tall against dark green blades, the freshly opened Louisiana blue iris (*Iris giganticaerulea*) is queen of the wildflowers. Photo Contest submission

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SOFT LANDINGS ADD LIFE UNDER NATIVE TREES

Native trees are powerful plants in managed landscapes. They provide a host of benefits, from lowering ambient temperatures to creating habitat for wildlife. However, figuring out what to plant underneath them can be challenging. The default is often turfgrass or a ring of mulch.

Native trees and our landscapes deserve more. The default misses an opportunity to realize the full potential of the trees and our landscapes. In natural areas, trees are part of a living landscape where plants grow together in communities. Soft Landings is a planting strategy that mimics natural plant communities and helps us understand why it's worth tackling this planting challenge.

Many herbaceous plants that contribute to soft landings also serve as host plants for pollinators and provide food and nesting material for birds and insects.

Soft Landings are diverse native plantings under keystone trees or any other regionally appropriate native trees. These safe, undisturbed areas, which also include fallen leaves and organic material, provide the habitat many beneficial insects must have to complete their life cycles. The concept was developed by Leslie Pilgrim of Neighborhood Greening and pollinator conservationist Dr. Heather Holm, with funding from Wild Ones Minnesota.

For suggestions and tips on plant selection, prep, and planting for Soft Landings, read our full blog post.

Ready to create your own soft landings under native trees?

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Member Garden

Lynn Kirkpatrick
Ann Arbor (Michigan) Chapter

ALL PHOTOS BY LYNN KIRKPATRICK *unless otherwise noted.*

Panorama of backyard in May 2017

By Barbara A. Schmitz

Talk about ironic.

When Dave and Lynn Kirkpatrick moved into their new home in Northville, Michigan in 2000 with its oversized wooded lot, they immediately added junipers, hostas and daylilies, earning a subdivision gardening award.

But about six months later, Lynn met a Wild Ones member who inspired her to landscape with native plants. And they immediately started transforming their property into a natural paradise.

"As a botanist, I had studied native plants, but I had never considered using them in the landscape because they were not available at typical nurseries," Lynn recalls. "The entire backyard became my first test garden, with plenty of trial and error."

One thing she quickly learned: Know a plant's habits before you plant it, or else you'll end up with plants out of control.

More than 23 years later, the Kirkpatricks are still experimenting. Their 1.5-acre property has heavy clay soil. Water management is challenging since they're located at the lowest point in the subdivision.

Lynn says about 75% of their property is now native.

"The other half used to be a suburban mess," she says, since they had too much lawn and invasives like reed canary grass (*Phalaris arundinacea*) and common buckthorn (*Rhamnus cathartica*). "Over the years we have reduced the lawn size and added native gardens. Many areas rebounded on their own after removing the invasives."

It's been a slow, but steady process, all done by them.

"The gardens have been added section by section," she said. "Each season, we added an area of native plants while removing lawn by digging or smothering with woodchips."

They created most gardens to mitigate problems. For instance, they have four gardens to help guide rain and sump water, and their bridges, boardwalks and flagstone pathways evolved as they learned from earlier designs.

In most years, they purchased plugs from a local native plant nursery. But Lynn also collects seeds to plant.

They installed an arid garden in their front yard where grass struggled because water rarely reached it. Now New Jersey tea (*Ceanothus americanus*), lance-leaved coreopsis (*Coreopsis lanceolata*), horsemint (*Monarda punctata*), butterfly weed (*Asclepias*

A native biennial water hemlock (*Cicuta maculata*) with blooms similar to nonnative Queen Anne's lace (*Daucus carota*). It grows naturally in the floodplain and is quite beautiful in July and August. However, it is extremely poisonous if eaten so it's kept away from the path edges.

A robust Michigan lily (*Lilium michiganense*) that grows naturally in the Kirkpatrick yard. Unfortunately, the deer love it too, making it rare. *Below:* Lynn designed and built two new bridges to cross their creek in style. The bridge is surrounded by Virginia bluebells (*Mertensia virginica*), iris leaves and marsh marigold (*Caltha palustris*). The white flowers in the background are nonnative summer snowflakes bulbs (*Leucojum aestivum*), beautiful but removed from the water's edge so they don't spread.

About the garden

- The 1.5-acre Kirkpatrick property is located in southeast Michigan, and about half of the property is woods.
- The landscaping in their front yard is more conservative and looks "tidier" to keep neighbors happy. But the side and back have much more variety, sloping to the creek and its floodplain, then rising into the wooded area.
- They have slowly added gardens section by section, mainly to mitigate or solve problems such as drainage issues.
- Their yard contains 275+ different species of plants, of which 90% are native to southeast Michigan.
- Some of their favorite native plants include wild geranium (*Geranium maculatum*) for the pink flowers in late spring and palmately lobed leaves offering beautiful fall colors; bloodroot (*Sanguinaria canadensis*) for its early spring cheer and leaves that get larger every year; cardinal flower (*Lobelia cardinalis*) and great blue lobelia (*Lobelia siphilitica*) for their captivating colors; northern bush honeysuckle (*Diervilla lonicera*), a tough suckering shrub that fills space nicely and stays short; lady fern (*Athyrium filix-femina*), Christmas fern (Polystichum acrostichoides), early meadow-rue (*Thalictrum dioicum*) and a variety of sedges (*Carex spp.*) offer pleasant textures.
- Other favorites include bur oak (*Quercus macrocarpa*), butterfly weed (*Asclepias tuberosa*), winterberry (*Ilex verticillata*) and spicebush (*Lindera benzoin*).

tuberosa) and pearly everlasting (*Anaphalis margaritacea*) thrive.

During the pandemic quarantine, the two eagerly took on some challenges.

"Dave built a beautiful 50-foot, curving boardwalk extension on fence posts pounded deep into the mud," Lynn says. "In another area, I dug into the clay to create a natural pond, extended a sump pump rain garden to feed it and added another rain garden for the overflow. Frogs took to the pond immediately!"

She adds that both projects were very hard physically, but extremely satisfying.

Lynn is proud that their yard is one of the largest and most interesting in their neighborhood.

"The beech-maple-hickory forest takes care of itself, flushing with spring beauty (*Claytonia virginica*), yellow trout lily (*Erythronium americanum*), squirrel-corn (*Dicentra canadensis*), nodding trillium (*Trillium cernuum*), broadleaf waterleaf (*Hydrophyllum canadense*) and then giving way to a beautiful fall color display. They created a woodchip trail lined with fallen tree branches to enjoy, and not step on, the woodland flowers.

A former ditch that is now a small creek runs across the middle and lowest stretch of their backyard, fed by the entire subdivision uphill from them.

"After watching our new creekside woodchip paths float away, we

Right: Our grandson loves this fun way to get across the creek. Below: This February 2004 photo shows the 2-3-foot-wide creek flowing from subdivision drainage culverts. The Kirkpatricks have kept some lawn edge and added several native plant areas to give the drainage ditch a more natural look. Trees include silver maple (*Acer saccharinum*), American basswood (*Tilia americana*) and American elm (*Ulmus americana*).

realized that it would flood again - a few times per year," Lynn says, adding that water flow can go from 2- to 70-feet wide. "We have been adding raised boardwalks and flagstone pathways to allow the water to flow naturally and keep us out of the mud. Additional native plantings, instead of lawn up to the edges, help prevent erosion, add color, texture and provide shelter for many frogs."

Besides frogs, they've seen substantial increases in pollinators, birds and wildlife.

"We have a game cam that has captured some surprising animals, especially at night," Lynn says. "Along with the expected deer and squirrels, there have been raccoons, foxes, coyotes, mink, stray cats, opossums, turkeys, hawks, ducks and even geese herding their 15 goslings through the yard."

In addition, one January day five deer were resting in the snowy woods while 11 turkeys kicked up leaves looking for food. This January, 12 deer were resting on their property.

One of the saddest years was 2003, when they lost 30 green ash trees to Emerald Ash Borer. "Our favorite was 105 years old, and three others were 82," Lynn says. "What was once nice shade was then mostly sunny."

The loss of the trees also impacted the water table since those trees no longer pulled up hundreds of gallons of water daily. "The increased sunlight and moisture created a wonderful germination bed where, it seemed, everything sprouted and overwhelmed many areas," Lynn said,

"including an idyllic 'fern grotto.'"

Invasive reed canary grass (*Phalaris arundinacea*) dominated the area, so she knocked back 90% of it by timely herbicide treatment in early spring before other plants emerged.

A willow-herb appeared in the floodplain a few years ago with pink flowers on stalks 3-4-feet tall. "I was quite disappointed to find out it was hairy willow-herb (*Epilobium hirsutum*), an invasive that can become as bad as purple loosestrife (*Lythrum salicaria*)," she said. "I dug it out immediately and found spreading rhizomes reaching 5 feet."

Swamp rose (*Rosa palustris*) is a plant she does not recommend, even though it is native. "Arching branches form a very dense, prickly thicket that has relatively few flowers," she said. "Wildlife loves it for hiding, nesting and food, but it increases too quickly and is extremely difficult to trim back due to the painful thorny prickles."

For those new to native landscaping, Lynn recommends they take time to observe the property's conditions, particularly if they just moved there. Secondly, find a good local native plant source, and be hesitant in putting in plant "giveaways," unless you trust the source. And thirdly, if you plan to add trees to your landscape, plant them now because they take so long to mature.

Even though it has been over two decades, Lynn says she's not done tinkering with her yard. Their next projects call for planting more shrubs to create better backdrops and building an additional elevated boardwalk on the right side of the yard. "I'm also thinking of expanding the pond, just because I like it so much."

Lynn says they enjoy watching the yard change throughout the year. "So many people have such a static yard," she says. "But ours is very dynamic and we love that."

Above: Lynn's new favorite combination in a rain garden: cardinal flower (*Lobelia cardinalis*), lady fern (*Athyrium filix-femina*), great blue lobelia (*Lobelia siphilitica*) in front of dwarf bottlebrush shrub (*Fothergilla gardenii*). Below: Marsh marigold (*Caltha palustris*) is one of Lynn Kirkpatrick's favorite native flowers.

Tagging monarchs with Monarch Watch

All photos by Besa Schweitzer

This series is funded in part by MONARCH JOINT VENTURE

By Besa Schweitzer

Are you looking for new ways to help monarch butterflies beyond planting milkweed in your yard? Monarch Watch's butterfly tagging program could be the opportunity you are looking for. Tagging migrating monarchs is a way to participate in community science to help researchers learn more about monarch populations and migration. It is also a great activity to do with children to increase their participation in the garden or to bring out your own inner child.

My fifth-grade teacher, Gerald Axelbaum, now retired, was always looking for new ways to bring his students outside. In 1992, he heard about a new organization called Monarch Watch that was asking community members to help tag monarch butterflies in order to track their flight to Mexico. Axelbaum's class had participated in previous research projects studying acid rain and really enjoyed becoming part of an international project; this monarch project sounded like it would also be very interesting. Monarch Watch offered an opportunity to help with the research of tracking monarchs to Mexico, giving his students an opportunity to work with scientists in other countries, as well as learn about the lifecycle of an insect.

After responding to Monarch Watch and requesting materials, Axelbaum set about incorporating monarch tagging into his fifth-grade curriculum. Using a sewing machine, the students made their own butterfly nets out of coat hangers and cloth. He says the students "had pure fun building the nets." Net building was

A monarch begins its transformation from caterpillar into butterfly inside a chrysalis. It takes 8-10 days for the miracle to occur.

also a lesson for students in sewing, measuring and taking pride in their creation. Monarch Watch mailed the class a set of stickers to tag the monarchs with and asked them to record data on sex, date tagged and if the butterfly was wild. Because he loves to teach science, Axelbaum encouraged his students to collect additional data like wind speed, temperature and which direction the butterfly headed when it was released.

The fifth-grade class visited a nearby nature reserve to catch and tag their monarchs. Axelbaum remembers that when the project first started in the 1990s, it was common to see monarchs crossing the road in front of the school bus on the way to the nature reserve. Some days they would catch up to 120 monarchs and they would run out of tags. As the years passed, however, he said he noticed a decline in the number of monarchs available for his students to tag. It was very disappointing to have a class of excited fifth graders ready to catch monarchs when no monarchs were around.

To increase the number of monarchs available for his students to tag and to learn more about their lifecycle through a hands-on experience, Axelbaum ordered larva that could be reared in the classroom from Monarch Watch. Caterpillar eggs were also collected off milkweed leaves in the garden to be reared indoors. The students quickly became bonded with their caterpillars as they cared for them, fed them and watched them molt five times as they grew bigger and bigger. Monarch caterpillars must be fed fresh milkweed leaves, so Axelbaum spent each morning biking around the neighborhood harvesting milkweed from abandoned ditches and fence lines. However, a few years in to rearing larva in the classroom, tragedy struck and all the larvae died from disease. Axelbaum learned there is a need to sanitize the caterpillars' containers and the surrounding environment, which is hard to do in a classroom.

"Sadly, there are so many ways for them to die before becoming adults, and the kids get bonded to their larva," he says. "It sometimes ends in tears." But when things went well, students had the opportunity to witness their monarch finally evolve

Above: As a monarch caterpillar sheds its exoskeleton for the final time, it forms a chrysalis. Inside the chrysalis, the caterpillar begins its transformation into a butterfly. Below: When a monarch caterpillar is fully grown, it finds a suitable place to make its chrysalis. It then attaches a wad of silk and hangs from it, upside down (in a "J" shape) for about 18 hours, before it forms a chrysalis.

These munching monarch caterpillars eat the same milkweed leaf.

into an adult butterfly, making all the hard work delightfully worth it.

Monarch tagging is a great activity to do with kids. It is captivating to let a monarch sit on the palm of your hand waiting for it to take flight after receiving a tag. This is also a wonderful time for photos. Speaking about his experience with his students over the years, Axelbaum says that "any touch of an insect makes them more familiar and comfortable," creating more kids who have a lifelong connection to insects. The activity can be very exciting, but it is also a great responsibility since the child must be gentle with each insect

"There is a lovely freedom children experience as they run across the prairie with a net after a monarch," says Axelbaum. They are hard to catch, and if you open the net without caution, they fly out and are gone. Catching a monarch takes skill.

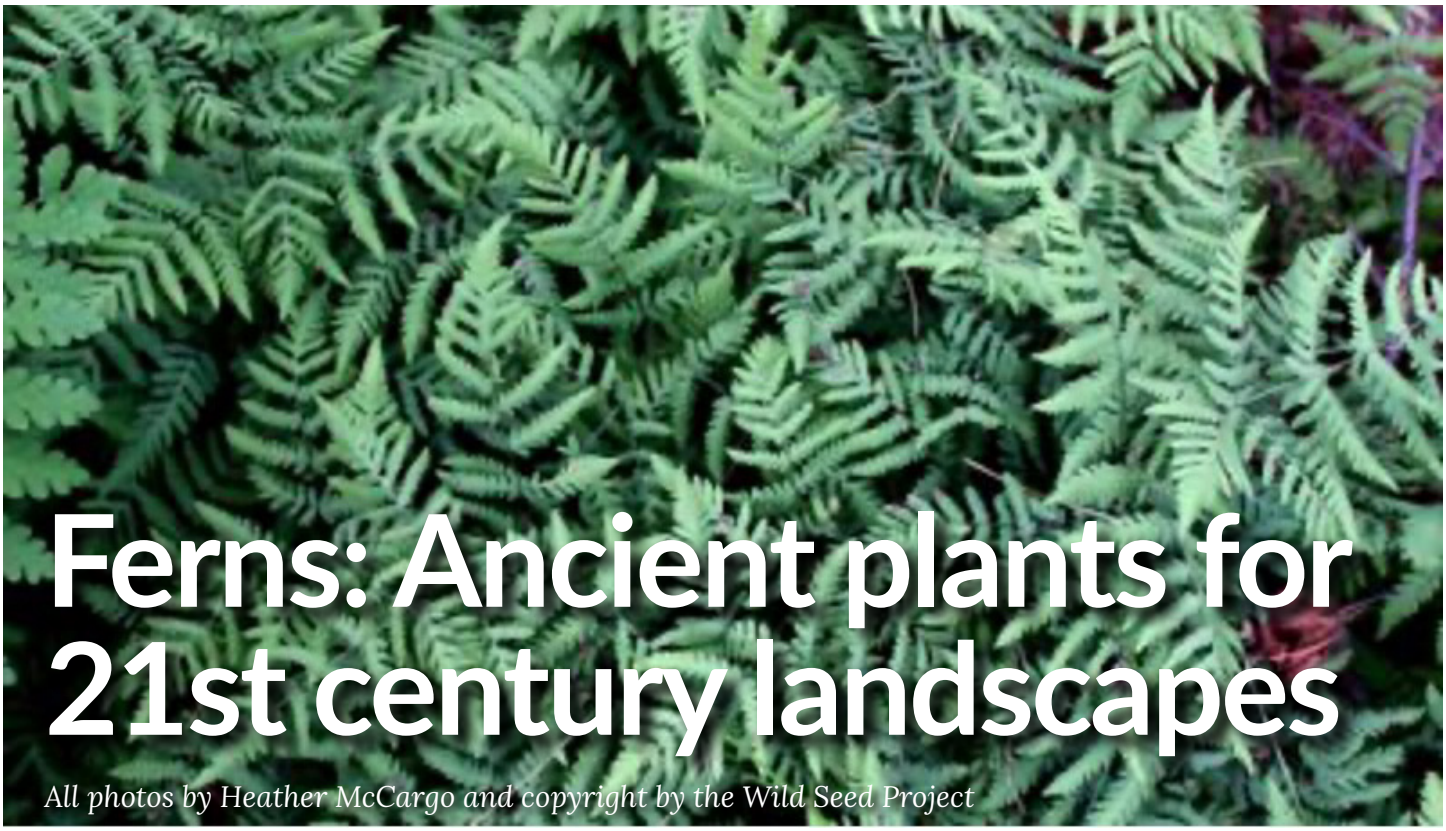
Axelbaum recommends a method for successfully catching monarch butterflies. "Be like a batter; be cocked and ready to swing," he says. "Wait for a monarch to perch on a flower to sip nectar. Swing your net well past the flower the butterfly is perched on to get the butterfly all the way to the back and center of the net, keep the net moving to keep the butterfly inside. Then flip your wrist to fold the net over and close off the opening, and gently untangle from any plants. Next, hold the net up to the sunlight to find the butterfly, and while gently squeezing the wings closed from the outside of the net with one hand, reach inside with your other hand to gently grasp it and remove it, always gently pinching the leading edge of the wings together so it cannot fly or hurt itself."

You can safely hold butterflies by their wings, even though they will lose a few scales, but not a damaging amount. You only get one chance to catch them; if they escape, they are off, flying up into the sky.

Axelbaum describes the 30 years he has spent with his students tagging monarchs as magical, thrilling and exciting. This is a great growth opportunity for children. One of the great resources of the Monarch Watch program is that you can see if any of your tagged monarchs has been recovered in Mexico. He is proud that, over the years, 20 or so of his students' monarchs have been recovered in Mexico, completing their great migration.

Whether you are a child or not, monarch tagging can be thrilling and engaging. If you plant milkweed in your garden, the monarchs will come. Be ready, and when you see the monarch butterflies traveling south in August and September, have your tags ready. You can preorder your tags from Monarch Watch in the spring, and they will be mailed to you in summer. Order early because supplies sometimes run out. While we impatiently await the return of the monarchs, we can also watch their progress on the Journey North website and report any monarchs arriving in our gardens.

Besa Schweitzer is a native garden specialist with over 20 years' experience gardening with native plants. She is also the author of "The Wildflower Garden Planner," an interactive guidebook to native landscaping in Missouri. Besa is a member of the Wild Ones St. Louis Chapter.



Ferns: Ancient plants for 21st century landscapes

All photos by Heather McCargo and copyright by the Wild Seed Project

Northern oak fern (*Gymnocarpium dryopteris*)

By Heather McCargo

Ferns are ancient plants whose ancestors first appeared on Earth over 300 million years ago. Members of a division of primitive plants called *Pteridophytes*, ferns are one of the Earth's oldest plant groups and dominated the land before the rise of flowering plants. During the age of the dinosaurs, ferns and other primitive plants such as club mosses and horsetails reached magnificent proportions, many over 100 feet tall. This period of the Earth's history had a global climate of warm temperatures and high humidity, ideal conditions for ferns to flourish.

How ferns reproduce

Ferns are dependent on moisture for their sexual reproduction. Their primitive method of propagation evolved before flowering plants and involves two distinct phases in their life cycle: the mature fern that we all know and recognize; and the reproductive phase when they are just small flat plants that look like leafy liverworts. Sometime during the growing season, a mature fern releases spores, which are the plant's sexual reproductive cells. With adequate moisture and light, these spores begin to grow into small flat plants called *prothallia*, the second phase in the life cycle. Male and female sex organs develop on the prothallia. If fertilization occurs, the egg cell grows into a young fern (*sporophyte*), and the life cycle of a new fern begins again, often taking several years to reach maturity.

In nature, fern spores germinate in moss, rotting logs or damp exposed soil in shady locations (such as by a stream). Moist, porous rock such as limestone ledges are also ideal fern habitat. A patient person may be successful laying fern fronds with ripe spores onto a rotting log, bed of moss or moist limestone, but it may take a few years before you will know if you have been successful. Fern spores can be propagated indoors on a bright windowsill out of direct sunlight or under lights.

It was a global climatic shift to a dryer planet late in the Cretaceous period (as the dinosaurs were waning) that allowed the flowering plants' rise to dominance. Flowering plants, with their amazing new trick of sexual reproduction via flowers and seeds that are able to disperse and ride out the dry or cold spells, shifted the world's dominant vegetation away from ferns.

Ferns in the garden

Ferns make excellent landscape and garden plants, especially in shady or moist environments. Their beautiful foliage is striking all season, beginning when their first leaves unfurl in the spring (like a fiddlehead), to their intricate foliage in many different shades of green to their fall colors of yellows, golds and browns. Though they are not pollinated by insects, their foliage still provides food for many butterflies and moths during their caterpillar stage. Despite the delicate look of ferns, many of them are very hardy, thriving in deep shade, damp soggy soil and even dry and acidic locations in full sun! Ferns even look great as potted plants.

Below are a dozen species of ferns native to the northeast United States that make great garden or landscape plants. When purchasing ferns, please make sure that they

Cinnamon fern (*Osmunda connamomea*)

have been propagated in a nursery and not dug from the wild, a still too-common practice that is damaging to wild plant communities.

Ferns to grow in your landscape
As woodland plants, ferns thrive in soil with a mulch layer of leaf mold or aged hardwood bark. Mix with other shade-loving native perennials, trees and shrubs to create a dynamic landscape full of interest for people and other wildlife.

Northern maidenform fern
Blue-green foliage with striking black stems growing 18 inches tall and forming clumps 3 feet wide, northern maidenhair fern (*Adiantum pedatum*) mixes well with other woodland wildflowers such as wild ginger (*Asarum canadense*) and bloodroot (*Sanguinaria canadensis*). It prefers full to partial shade, moist to wet fertile soil, and is native to deciduous woodlands and streamsides with limestone bedrock.

Lady fern
Delicate green fronds unfurl to make vase shaped clumps 3-feet tall by 18 inches wide. Lady fern (*Athyrryium felix-femina va. angustum*) has distinctive dark specks on their lower stem that makes them easy to recognize. Stems can be green or red. The creeping root systems are good for stabilizing slopes and look dramatic mixed with Solomon's seal (*Polygonatum* spp.) or cranes-bill geranium (*Geranium* spp.). It is tolerant of sun if soil is consistently moist; otherwise plant in part to full shade. Lady fern is native to deciduous forests throughout the northeast region.

Hay-scented fern
Hay-scented fern (*Dennstaedtia punctilobula*) has bright yellow green fronds and thrives in dry, infertile and highly acidic soils creeping aggressively to create a ground cover 18 inches tall and capable of carpeting large areas. This is an extremely tough plant that will dominate unless mixed with other strong plants, such as large-leaved wood aster (*Eurybia macrophylla*) or Canada anemone (*Anemonastrum canadense*), making a lovely tapestry of leaf textures and blooms, and a dynamic and easy ground cover for large areas under shrubs and trees. Hay-scented fern grows in rocky deciduous or coniferous woods and clearings in sun or shade, and is very drought tolerant once established.

Marginal wood fern
Marginal wood fern (*Dryopteris marginalis*) is a distinctive upright vase-shaped fern that is very adaptable in the garden and landscape. A mature plant is 18 inches tall and wide and stays put to make a nice speciman. Foliage is evergreen, but after a long snowy winter, fronts will be flattened in the landscape. It is a widely distributed fern of deciduous forests.

Northern oak fern
Northern oak fern (*Gymnocarpium dryopteris*) is a low ground cover fern with delicate bright green foliage 8 inches tall. Fronds are distinctly divided into three parts, making it easy to identify. It is perfect for cool, moist acidic soils, often found growing with bunchberry (*Cornus canadensis*) and wood asters (*Eurybia* spp.), both excellent garden companions. Northern oak fern is native to cool, coniferous woodlands.

Ostrich fern
Ostrich fern (*Matteuccia struthei-opteris*), the edible fiddlehead fern beloved by wild food enthusiasts, has medium green vase-shaped fronds that are 3-4 feet tall, and over time spread to cover large areas making a dramatic lush groundcover. Plant if you have a large shady location, but not a small garden. Once established, early spring harvests right out your back door make this the shady perennial vegetable ideal for home landscapes and organic farms. It prefers moist to wet soils and is tolerant of dry soil in summer.

Sensitive fern
This low-growing ground cover fern has distinctive fronds that lack the feathery appearance of most ferns. In early spring the foliage has a reddish cast that turns to medium green. It prefers moist to average soil, and it grows 12 inches high and spreads to form large patches. Sensitive fern (*Onoclea sensibilis*) also looks great with other tough wetland perennials such as turtlehead (*Chelone spp.*) and cinnamon fern (*Osmundastrum cinnamomeum*). Grows in wet to medium moisture woods.

Cinnamon fern
Cinnamon fern (*Osmunda connamomea*) is a large, bright green vase shaped fern, 3 feet tall and wide that

make dramatic specimens in the garden. The unfurling fiddleheads are coated in tannish fur, and later in the spring, the cinnamon-colored fertile fronds appear in the center, making this species easy to identify in the wild. This fern grows in moist to wet soils in part to full shade and is native to deciduous woods and wetlands.

Royal fern

In the spring, the fronds of royal fern (*Osmunda regalis v. spectabilis*) unfurl with a pinkish blush, and once unfurled become a blue-green upright vase-shaped plant. Foliage reaches 3-feet tall and stays in tidy clumps. Cardinal flower makes a dramatic companion for shady moist sites. Royal fern grows in wet to medium moist soil, and is often found growing on the edge of streams and wetlands.

New York fern

New York fern's small, delicate bright green fronds that are 12 inches tall make small ground covering patches that mix well with other perennial wildflowers such as foam flower (*Tiarella* spp.), wood phlox (*Phlox divaricata*) and bunchberry (*Cornus canadensis*). *Parathelypteris noveboracensis, aka Thelypteris noveboracensis* has a similar look to hay-scented fern, but it is much less aggressive, making it appropriate for smaller spaces and mixing with other species. New Yorrk fern is native to deciduous and coniferous woods and edges and grows in moist or dry soil.

Rock polypody

Rock polypody (*Polypodium virginianum*) is *a* charming low creeping plant that grows on rocky ledges. Its evergreen fronds are 8 inches tall and it grows on rock walls and ledged slopes in acidic soils. It is found in the wild growing on the litter that accumulates on large rocky boulders and cliffs in moist deciduous and coniferous forest.

Christmas fern

Christmas fern (*Polystichum acrostichoides*) has distinctive dark green clumps of upright evergreen leaves 18 inches tall by 18 inches wide. Mixed with other ferns and native perennials, Christmas fern is a very handsome garden fern with a long season of interest and prefers moist to summer dry soil.

Heather McCargo is the founder of Wild Seed Project, a Maine-based nonprofit that encourages the use of native plants in all landscape settings to expand wildlife habitat, support biodiversity and build climate resilience. To accomplish this mission, Wild Seed Projects sells seeds of native plants, produces an annual publication, educates the public through its programs and website, and promotes Rewilding in Northeast landscapes.

More information on growing and propagating ferns

Native Ferns, Moss and Grasses by William Cullina

Brooklyn Botanic Garden Handbook Ferns: Wild Things Make a Comeback in the Garden

Shawn Jalbert of Native Haunts: Presentation on fern propagation

Republished with permission from Wild Seed Project.

Left: Northern maidenhair fern (*Adiantum pedatum*); Right: Hay-scented fern (*Dennstaedtia punctiloba*)

Chapters share the bounty of native plants

Capital Region member Chris Burghart at SoBro, one of the first installation events where they arranged the large rocks and their chapter provided native plants. *Photo by Kristi Shepler*

Sharing plants and seeds is a great way to spread the word about native plants throughout any community. Here is how three Wild Ones chapters from different areas of the country — Capital Region NY, New York; St Louis, Missouri; and Front Range, Colorado — have fulfilled the mission to "connect people and native plants."

Capital Region NY, New York
By Kristi Shepler

The Wild Ones Capital Region NY (New York) Chapter has successfully formed partnerships with established organizations that help it share plants and seeds with others in their area. Some organizations have similar missions to Wild Ones, but the chapter found they don't have to be environmentally related to be effective.

An early partnership with the Emma Treadwell Thacher Nature Center helped the newer chapter reach the southern portion of its range. The nature center already had a successful native plant pre-sale and had low stock, so they asked the Wild Ones chapter to bring plants, with their popular natives quickly selling out. The chapter reached about 200 people that first year and even more people the second year. Now the chapter has an official partnership including a Memorandum of Understanding that Wild Ones Wild Lawyers helped develop.

But that partnership rippled through other chapter events. With the nature center's help, the Capital Region NY Chapter was able to offer

More than 260 people participated in the Denver seed swap coordinated by the Front Range (Colorado) Chapter.

free native plants at the annual Capital Region Flower & Garden Expo, which attracted more than 17,000 visitors in three days. While the expo focuses on traditional gardening methods, it also includes an ecological landscaping demonstration garden, educational displays and some natural landscaping presentations. The Capital Region NY Chapter was so well received by attendees that they are doing it again in 2024!

The chapter's seed swap started small because of COVID restrictions with several members bringing in seeds while wearing masks and social distancing. But the seed swap has also expanded, doubling attendance yearly, thanks to additional partnerships.

Botanist Steve Young introduced chapter members to the New York Flora Atlas (NYFA), teaching them how to identify plants native to New York. And with help of the NYFA and support from Young and the Emma Treadwell Thacher Nature Center, their seed swap has expanded into the annual Native Plant Celebration, which also offers native plant-inspired crafts and propagation methods.

The Capital Region NY Chapter also formed a partnership with the Schenectady Historical Society, which hosts the Festival of Trees, a month-long holiday event. Chapter members made decorations out of natural items at their Native Plant Celebration and then decorated a tree for the festival. It also gave them the opportunity to distribute 30 jars of native seeds promoting their chapter and mission.

A city that prioritizes sustainable living, Saratoga is in the northernmost section of the chapter's range. The Capital Region NY Chapter partnered with SoBro Conservancy of Saratoga, a new local nonprofit, by donating native plants to their project. Converting an abandoned gas station lot on a busy intersection to a community garden demonstrates how beautiful native plants can be in any setting. The chapter also continues their work at Sustainable Saratoga's Pollinator Palooza event, giving the chapter another opportunity to sell plants and share their mission.

Front Range, Colorado

By Peggy Hanson

The Wild Ones Front Range (Colorado) Chapter has also been partnering with nonprofit organizations to host plant and seed swaps for several years. What was once a Front Range

Front Range (Colorado) Chapter volunteers collect seed to create a base inventory.

member activity quickly revealed itself as a wonderful public outreach opportunity to introduce people to native plants and give everyone access to a wider variety of native plants. Since increased access means more native plants in the landscape, chapter leaders made swap events a priority in their mission.

In 2023, the Front Range Chapter was a leading partner in two native plant swaps and several seed swaps along the Front Range, spanning about 200 miles south to north.

Last year 560 people attended their plant swaps and over 500 attended or participated in their seed swaps. In June, members and partner organizations grew or salvaged from gardens about 7,500 native plants to provide a base inventory at two swaps in Denver and Fort Collins.

In November 2023, they again partnered with nonprofit organizations to hold seed swaps in three cities along the Front Range: Denver, Colorado Springs and Fort Collins. The seed swaps had about 150 native species. Newcomers were welcomed and oriented on how to select seed and grow native plants for their gardens, while seasoned gardeners delighted in the wide selection to expand the colors, textures and variety of forage in their gardens. Community activists collected seed for community and school gardens to improve public spaces. It meant more natives in Front Range landscapes thanks to the amazing volunteers who filled 90 shifts to provide a base inventory of seed and plants, 50 shifts to clean seed and 60 shifts to promote and put on these free events. Publishing a flyer and creating a Facebook event in advance of the swaps, as well as periodically posting on the preparations, teasers on inventory, etc., is very helpful in getting people interested and keeping the event on their radar and in their calendars.

Access to native plants is a major barrier in the Front Range as there are relatively few nurseries that carry a variety of native plants. The chapter's swaps provide a central location for people to obtain a variety of plants and seeds for free, as well as get resources to help them succeed in propagating or landscaping with them. The chapter continues to see an increase in attendance each year.

Another happy outcome of plant and seed swaps is the community building and education that takes

Members share plants at Wild Ones St. Louis (Missouri) Chapter garden gatherings.

place in a full-cycle process: plants lead to seeds lead to plants. The Front Range Chapter continues to leverage swap events and provide volunteer opportunities to help build a robust base inventory so swap participants needn't bring seeds or plants to take seeds or plants. Everyone is encouraged to plant extra seeds and grow them to share at future native plant swaps.

St Louis, Missouri

By Donna Short

The Wild Ones St. Louis (Missouri) Chapter has grown significantly in recent years as more people became aware of the importance of native plants. Often newcomers are stymied on where to start and the experienced are looking for something new. Sharing plants and seeds provides something tangible to start or expand their gardens.

Annual seed exchange

Over 100 native plant enthusiasts gathered in November to share seeds. Though it's called an exchange it is not necessary to bring seeds to participate.

Kevin Mowery, who individually provided 320 packets of 46 varieties of native seeds, demonstrated how several everyday containers such as milk cartons, berry containers, water, soda, juice bottles, etc. can be re-used to successfully start seeds outdoors in the winter. The chapter also distributed some bulk packages of seeds for larger plantings. Chapter members were available to answer questions and make recommendations, while information sheets on the germination requirements of each seed type were also available. In total, more than 600 seed packets of over 75 native varieties of wildflowers and shrubs were distributed. The remaining seeds were donated to various free seed resource groups in the area.

Chapter members also gather monthly and tour an area garden. A table is dedicated to plants brought in by members to share.

Community tabling events

The chapter provides information tables at community events such as seasonal festivals. Bareroot plant giveaways have been successful in attracting visitors to their table. The chapter displays a photo of the plant and recommendations for growing conditions. They've found that bareroot plants require minimal preparation and are easy to transport. Chapter members were alerted to a problem with jumping worms in the area a few years ago and they avoided spreading this problem by sharing bareroot plants or plants grown in potting soil.

Member Besa Schweitzer set up a Facebook page for plant and seed sharing and plant ID questions. The page has more than 8,000 members community-wide and covers a wide range of topics from techniques for eliminating invasives to landscaping ideas and material sources in addition to plant swaps and giveaways.

People make connections and make new friends when they visit for a swap or share their questions and concerns on the page, fostering a feeling of community. Often, it's a way to find native species that aren't available in stores. One person's surpluses may be a new gardener's starter plants, providing a way to enter the native landscaping movement without making an investment.

Annual seedling order

The Missouri Department of Conservation offers an annual order of bare root seedlings of many common native trees and shrubs, which they propagate. The minimum order is 10 seedlings of a species; we recognize that many home landscapes cannot accommodate so many plants of the same species. So our chapter places bulk orders based on member preferences. After members get first pick, we sell the surplus seedlings to the public.

The spring beauty mining bee:
A specialist that needs our help

A spring beauty mining bee (*Andrena erigeniae*) in Great Falls, Virginia on Virginia spring beauty (*Claytonia virginica*).
Photo by Judy Gallagher/Flickr

By James Faupel

As you read this, winter is sliding away as the daily available sunlight grows. Soon, the soil will warm, and early spring wildflowers will begin to poke the tips of their leaves out, waiting for consistently warm temperatures.

Virginia spring beauty (*Claytonia virginica*) is one of our earliest native spring ephemerals. The Claytonia genus includes host plant species for its very own pollen-specialist bee. The spring beauty mining bee (*Andrena erigeniae*) is an ephemeral bee that emerges from its mother's nesting cavity only for the brief period of the year when the Virginia spring beauty flowers are blooming. The bees then die, but not before they have a chance to produce their own offspring for the next year. In Missouri, this specialist bee has only the singular host plant from which she can acquire pollen to feed her larvae—*Claytonia virginica*—but there are two additional Claytonia species within the bee's entire range throughout North America from which she can also gather pollen.

Claytonia virginica is typically a 6- to 8-inch tall, perennial, herbaceous wildflower that mainly grows in moist, loamy soils throughout eastern North America. These diminutive plants can also be found growing in the understory of mesic prairies—which have similar sun exposure as the dappled sun-lit understory of woodlands—and can be easily seen following the duff removal of a dormant season burn.

Currently, however, you are more likely to come across this plant in a human construct: the mowed turf grass lawn. Virginia spring beauty has adapted to flourish within semi-frequently mowed settings, especially when there is dappled shade from limbed-up trees above them. Irregular mowing schedules of many tree-laden community parks allow for the perfect conditions for these spring wildflowers to have time to reseed and spread, and for insects to nest in the less frequented and less compacted soils.

The lifecycle of this partnership

Virginia spring beauty is one of the first native spring wildflowers to emerge from the soil and flower each March/April, alongside other early spring favorites such as bloodroot (*Sanguinaria canadensis*) and yellow trout lily (*Erythronium americanum*). Its bloom period can last three to four weeks or more, while also beginning seed production all along its stem, within the pollinated and spent flower heads.

Shortly before the flowers open, male spring beauty mining bees exit the previous year's nesting cavities. This allows the males to get acquainted with their surroundings and build up energy to prepare for territorial competition. Days later, once the female spring beauty mining bees begin to emerge, the males have a very short window of opportunity to mate due to the short bloom time of their host plant and the unpredictable nature of spring weather. Every future generation of their species is dependent on their parents' successful rendezvous each spring.

All adult male and female bees visit flowers to drink nectar to gain energy, but only females gather pollen purposefully to take back to their nests to feed their larvae. Since there are so few reliable pollinators active at this early stage of the season, the Virginia spring beauty is provided with premium quality cross-pollination services by this loyal, specialist female bee as it systematically visits each flower within range. The female spring beauty mining bee lays a single egg upon each pollen provision that she brings back and deposits in her approximately 6-inch-long nest cavity, tunneled into the loamy soil below her host plants. As the blooms fade, these specialist bees fade too, passing along the torch for their species' future to their offspring in the ground. Throughout the rest of that spring and into autumn, each of the larvae in the nest cavity has hatched out of its egg, eaten the pollen provision from its mother, pupated and then matured into its adult form by winter. Over winter, under the snow and leaves, the spring beauty mining bees await the warming of the soil to once again begin taking their brief midday flights in the warm rays of spring sunshine.

This specialist bee's lifecycle may be one of those easily affected by future climate change fluctuations, as it depends primarily on one species of flower to exist, a flower whose emergence is, as far as I can ascertain from published literature, completely controlled by climate-influenced soil temperatures. The spring beauty mining bees' emergence is also sensitive to the warming of the soil. It has evolved to emerge from the soil at the same time as the spring beauty blossoms open. A poorly timed bee emergence before or during a late deep freeze could kill off localized bee populations or destroy that year's flowers. Destruction of the flowers would deplete the bees' nectar and pollen resources, starving them to death.

Similarly, an early season mowing during the bloom period could result in all the flowerheads being destroyed, which could also cause the devastation of a localized population of spring beauty mining bees. Female mining bees (*Andrena*) don't travel far from their soil nesting cavities to forage for their host's pollen and nectar, so localized disturbances can have detrimental repercussions.

Additionally, poorly timed mowings during Claytonia bloom or seed development periods would prevent

Why should we care about native bees?

Cross-pollination occurs when an animal collects pollen from one plant species and then carries that pollen to another plant of that same species. Pollinators play an essential role in natural ecosystems by helping plant populations reproduce, a role that we rely on heavily for continuing our worldwide supply of food, as well as many other plant-based resources, such as medicine, clothing and building materials. Research shows that approximately one-third of our global food supply is reliant on animal pollination. About 80% of the plants in the world rely on animal pollination. Our continued survival on this planet is dependent on pollinators.

Bees are some of the world's best animal pollinators. Female bees actively search for and collect pollen on their bodies to take back to feed to their young. Most other animal pollinators only transfer pollen between plants that accidentally stuck to their bodies. That makes them more likely to deliver the wrong species of pollen, thus leading to unsuccessful pollination.

Many people know of only a handful of bee species, which number more than 4,000 in the U.S. and 20,000 worldwide. Many native bees are pollen specialists, focusing on gathering pollen from a small group of host plant species, sometimes from only one species of plant. This behavior exponentially decreases the odds of the wrong pollen being delivered to the host plant. This incredible plant-animal relationship can make specialist bees some of the most reliable pollinators of the plant-based resources that we and so many other animals depend upon to survive.

The mining bee is a specialist bee that has evolved to have an interconnected relationship with its host plants. Native to North America, they are one of the largest bee families with numerous species found across the continent. The story below is about one variety of mining bee, the spring beauty mining bee (*Andrena erigeniae*), that true to its name, specializes in collecting pollen from the spring ephemeral wildflower spring beauty (*Claytonia virginica*). Its range is from Minnesota to New York, south to North Carolina and Georgia.

This mining bee (*Andrena vicina*), one of the most common and conspicuous Andrena species in eastern North America, digs in the sand. *Photo/Flickr*

plants from being able to spread that year, and too frequent of mowings every year could potentially starve out a plant population, making it disappear forever.

Female spring beauty mining bees evolved to nest in the loose loamy soils of woodlands. The wheels of heavy equipment frequently running over spring beauty turf area will also compact the soil to the point that the plants will no longer be able to grow there, and the bees will not be able to nest in it.

How can you help the two species to survive?

Claytonia virginica, which grows in plant hardiness zones 3-9, is a great candidate for home landscapes, especially since it loves the low competition for sunlight and root space in a mowed turfgrass lawn. The plant is most easily propagated from seed, as their tubers can be very deep in the soil, making it difficult to transplant. If you wish to start growing this plant on your property, first try purchasing locally sourced seed from a native seed retailer. If you cannot find a reliable local source, ask a friend or local park that has a large lawn population if you can collect some of their seeds before they mow. You would need to start checking for ripening seeds as soon as large patches stop flowering. Do not collect seeds of native plants from any land other than your own without having first received permission to do so, and do not harvest plants or seeds from small wild populations. Once you have an established planting of spring beauties, remember not to use herbicides or insecticides on your lawn, and to mow high and infrequently to allow for seed development and minimal soil compaction.

Female spring beauty mining bees need large patches of pollen resources to be able to rear their young, so you likely won't see too many of these bees at small populations of *Claytonia virginica*. Growing plants from seed can take many years and it will take even longer for your plants to spread into a large patch. Starting native plant populations on your property so they can grow and spread into future resources for wildlife, such as for these specialist mining bees, is an incredibly important action to take. You may never get to see the fruits of your labor yourself, but you should plant them nonetheless. This concept is similar to an old saying that you may have heard: "Blessed is the one who plants trees under whose shade they will never sit."

Depending on your site's connectivity to surrounding green spaces, pollinators will find your flower population with time. Successful native plantings don't happen overnight, so patience is a virtue. Due to our ever-sprawling urban and suburban population centers and fragmented green spaces left in the wake, it is vital that we find ways to include the displaced native plants back into our human landscapes, to continue to support the wildlife these plants sustain.

James Faupel is a supervisor of ecological restoration for the Missouri Botanical Garden at the Litzsinger Road Ecology Center. Faupel began his career in horticulture, first working in the nursery industry and later in the design and landscaping trade. He has been working with native plants for more than 17 years.

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Foraging in your own yard

By Debbie Naha-Koretzky

A lot of people think that foraging, or gathering wild food, involves a trek into the wilderness. But while a woodland hike will reveal many edible species, a surprising (and delicious) array of wild edible plants can be found in your yard.

Wild food grows everywhere, even in urban areas. From the lovely violets in a spring lawn to the acorns and walnuts of fall, free food is abundant.

What you'll find in the way of edibles changes as the seasons progress. Stinging nettles (*Urtica dioica*) appear in late winter and early spring, and transform into a fantastic, nutrient-dense soup or side dish once cooked. Just remember to wear gloves when handling this plant in its raw state! Young dandelion greens (*Taraxacum officinale*), bittercress (*Cardamine* spp.), wild garlic (*Allium* spp.) and chickweed (*Stellaria* spp.) are a few of the edible "weeds" that frequently pop up in lawns and vegetable beds.

Different culinary treasures appear with the warmer days of summer. You're likely to encounter wood sorrel (*Oxalis* spp.), purslane (*Portulaca oleracea*), lambsquarters (*Chenopodium album*), plantain (*Plantago* spp.) and other edible volunteers. Raspberries (*Rubus* spp.), rosehips (*Rosa* spp.), spicebush (*Lindera benzoin*) and wild grapes (*Vitis* spp.) are commonly found in shrubby edge habitats.

Gathering wild food is fun. It provides a satisfying connection to the natural world and a great source of nourishment. The wild ingredients you bring back to your kitchen are free, locally grown, seasonal and very fresh!

Foraging on your own property

Making use of the edible bounty in your own yard has definite advantages:

Garlic Mustard Quesadilla

A tasty way to eliminate invasive garlic mustard (*Alliaria petiolata*) from your garden. Yield: 1 large quesadilla (8 wedges)

Oil or butter for the pan
2 large flour tortillas
1/3 cup shredded cheddar or mozzarella cheese
1/3 cup garlic mustard leaves, chopped
1 tablespoon finely chopped red bell pepper
1 tablespoon corn, fresh or canned
Salsa or sour cream, optional

Heat a large skillet over medium heat. Add a little oil or butter.

When hot, put 1 tortilla in the skillet.

Sprinkle with about half the cheese. Top with chopped bell pepper, corn and garlic mustard.

Sprinkle with the remaining cheese. Place the second tortilla on top.

With a spatula, press down lightly while cooking. When the bottom tortilla starts to brown, flip it. (For an easy way to flip the quesadilla, slide it from the pan onto a large plate. Top with a second plate, flip using two hands and slide the quesadilla back into the pan to finish cooking.)

Cook until the other side is crisp.

Transfer to a cutting board. Let cool for a minute or so, then cut into 8 wedges. Serve with salsa and sour cream if desired.

Riverbank grapes (*Vitis riparia*), native to North America, make terrific jelly.
Photo by Debbie Naha-Koretzke

• You don't have to ask permission to harvest.
• It's usually a cleaner source of foraged food. You're likely aware of any herbicides or other chemicals that may have been used.
• Having your own source of food and nutrients gives a sense of food security.
• It's easy to observe a plant through its life cycle if it is growing right outside your door.
• Picking wild salad ingredients is only a matter of taking a few steps into the garden!

Eat the invasives

Foraging can also be a delicious way to help control the spread of invasive species.

You may not entirely wipe out a stand of garlic mustard (*Alliaria petiolata*) or Japanese knotweed (*Polygonum cuspidatum*) by eating it, but every effort counts. As some foragers say, "If you can't beat 'em, eat 'em."

Preferentially remove invasive plants. This will give native species a chance to reproduce and thrive. When you gather invasive wineberries (*Rubus phoenicolasius*), Himalayan blackberries (*Rubus armeniacus*) or autumn olive (*Elaeagnus umbellata*), you'll enjoy the tasty fruits while giving birds less opportunity to spread those seeds into the environment.

Protect the natives

Over-harvesting of native plants can have devastating effects on their populations. One example is ramps (*Allium tricoccum*). Also known as wild leeks, many wild colonies of this early spring delicacy have been decimated by over-harvesting.

If you are lucky enough to have a ramp patch on your property, careful management will ensure its long-term viability. Taking only a single leaf per plant is one sustainable way to harvest ramps.

The conservation status of plants varies by location, but it is generally agreed that ramp populations need protection. Before foraging any vulnerable species, look into recommendations for sustainable harvesting. And of course, if a plant is rare or threatened in any way, it should not be removed.

A word about safety

Never put a plant in your mouth without being 100% certain of its identity. Get to know the plant. Is it safe to eat raw? Are there any similar or look-alike plants? Are there parts that are toxic, or any other cautions regarding its use? Cross-check multiple resources.

Eat only a small amount of a new plant at first, in case of possible

Pine Needle Tea

The vitamin C-rich needles of eastern white pine (*Pinus strobus*) make a simple nourishing tea.

3-4 tablespoons chopped fresh white pine needles

1 cup water

Sugar or honey, to taste

Lemon, to taste

Bring the water to a boil in a saucepan. Remove from heat and add the pine needles.

Allow to steep for 10-15 minutes. Strain.

Add sweetener or lemon as desired.

Purslane Potato Salad

Purslane (*Portulaca oleracea*) provides a tart and crunchy contrast to the potatoes in this recipe.

3 pounds potatoes (white, red or Yukon), cut into large chunks (peeling is optional)

1/4 cup apple cider vinegar

2 tablespoons lemon juice

1/4 cup mayonnaise

1/2 cup sour cream

1 tablespoon prepared mustard (any type)

Salt and pepper to taste

1 cup (or more) purslane tips and leaves

3- 4 hard-boiled eggs, chopped coarsely

Cook the potatoes in boiling water until fork tender. Don't overcook. Drain.

In a large bowl, carefully toss the warm potatoes with the vinegar and lemon juice.

In a small mixing bowl, whisk together the mayonnaise, sour cream and mustard. Season to taste with salt and pepper.

Add dressing, purslane and chopped eggs to the potatoes, and gently fold in. Enjoy at room temperature or serve chilled.

allergy or intolerance. Also avoid contaminated areas and wash your harvest when appropriate.

Responsible and sustainable foraging

Foraging, when done right, does not harm plant populations.

You may have heard something like "take only 30% of what you find" or a similar rule of thumb. Unfortunately, it's not that simple and there is no hard and fast rule regarding how much of a plant should be removed. If several people came along and took 30%, that plant population would soon be wiped out.

Know the plant species and how it's doing in that location. If it's not healthy and thriving, leave it alone. Even if an abundant harvest is available, take only what you'll eat in one day or one meal. Use your best judgment, and don't be greedy. Invasive plants are the exception, of course.

When venturing out from your own yard, be mindful of any restrictions regarding plant removal. Obtain permission from private property owners. Check state, county and local regulations. Parks will often have signs posted that spell out the rules.

Where permitted, forage respectfully. And harvest invasive species to your heart's content.

Debbie Naha-Koretzky (aka Wild Edibles Lady) is a member of Wild Ones South Central Pennsylvania Chapter. She is a registered dietitian/nutritionist, Rutgers Master Gardener, Pennsylvania Master Naturalist, foraging instructor and the author of "Foraging Pennsylvania and New Jersey" (2021, Falcon Guides). She has conducted countless foraging programs for state organizations, environmental centers, native plant societies, state parks and more. She received her master's degree in clinical nutrition from New York University. Visit Debbie's website at www.wildediblesnjpa.com.

Spring Weed Chimichurri

This version of Argentinian chimichurri sauce uses tender wild greens of spring. A mix of dandelion, chickweed, bittercress and common mallow leaves (*Malva neglecta*) works nicely.

1 cup firmly packed spring greens

3 or 4 cloves of garlic, crushed

1/3 cup extra-virgin olive oil

3 tablespoons red wine vinegar or lemon juice

½ teaspoon dried oregano

¼ teaspoon salt, or to taste

1 pinch red pepper flakes

Roughly chop the greens. Put all ingredients in the bowl of a food processor.* Pulse until fine, stopping as necessary to scrape down the sides.

Transfer mixture to a mixing bowl.

Taste and adjust the seasonings. Serve at room temperature.

Delicious spooned over meats, roasted vegetables, sliced baguette, eggs, grains, etc.

*To make by hand (no food processor): Finely mince the greens and garlic. Transfer to a mixing bowl and stir in remaining ingredients.

Wild Pink Lemonade

The showy flowers of the redbud tree (*Cercis canadensis*) are loaded with healthful antioxidants.

1 cup redbud flowers

4 cups water, divided

3/4 cup sugar

1 cup freshly squeezed lemon juice (5 or 6 lemons)

Additional sugar or water, to taste

Place the redbud flowers in a 1-quart canning jar.

Bring 2 cups of water to a boil. Pour the water over the flowers.

Loosely cover and let steep for 1 to 2 hours, giving an occasional stir. Secure the lid and move the jar to the refrigerator. Let it steep for 24 hours total.

Strain, capturing the tea. Discard the flowers.

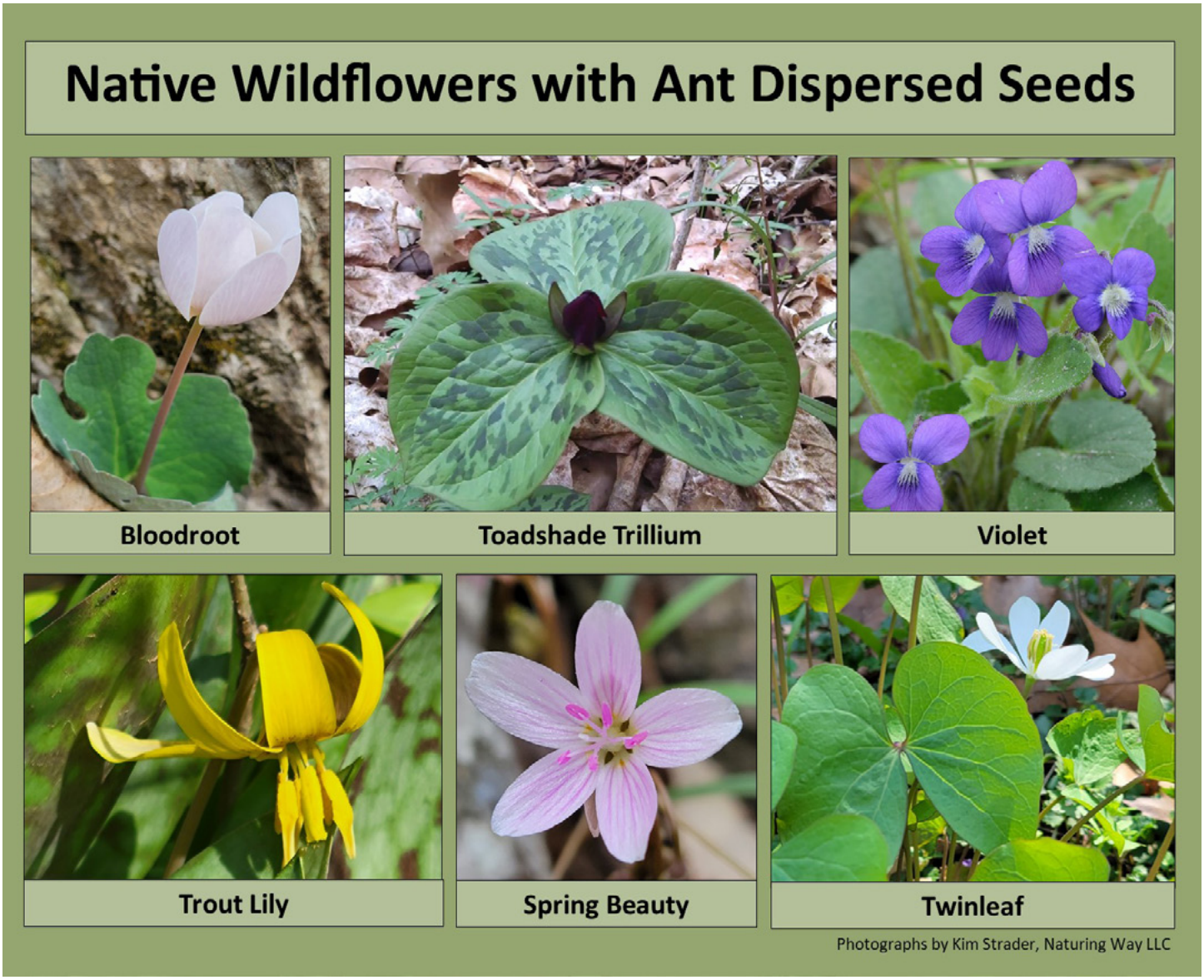
In a small saucepan, combine 1 cup of water with 3/4 cup sugar. Simmer and stir over low-medium heat until the sugar is dissolved. Allow the sugar syrup to cool.

In a large jar or pitcher, combine the strained redbud tea, cooled sugar syrup, and 1 cup of water.

Now the magic happens! Stir in the lemon juice, and watch the liquid turn a beautiful shade of pink.

Add more water or sugar to your liking. Serve over ice.

Ants: Superheroes in the world of native wildflowers

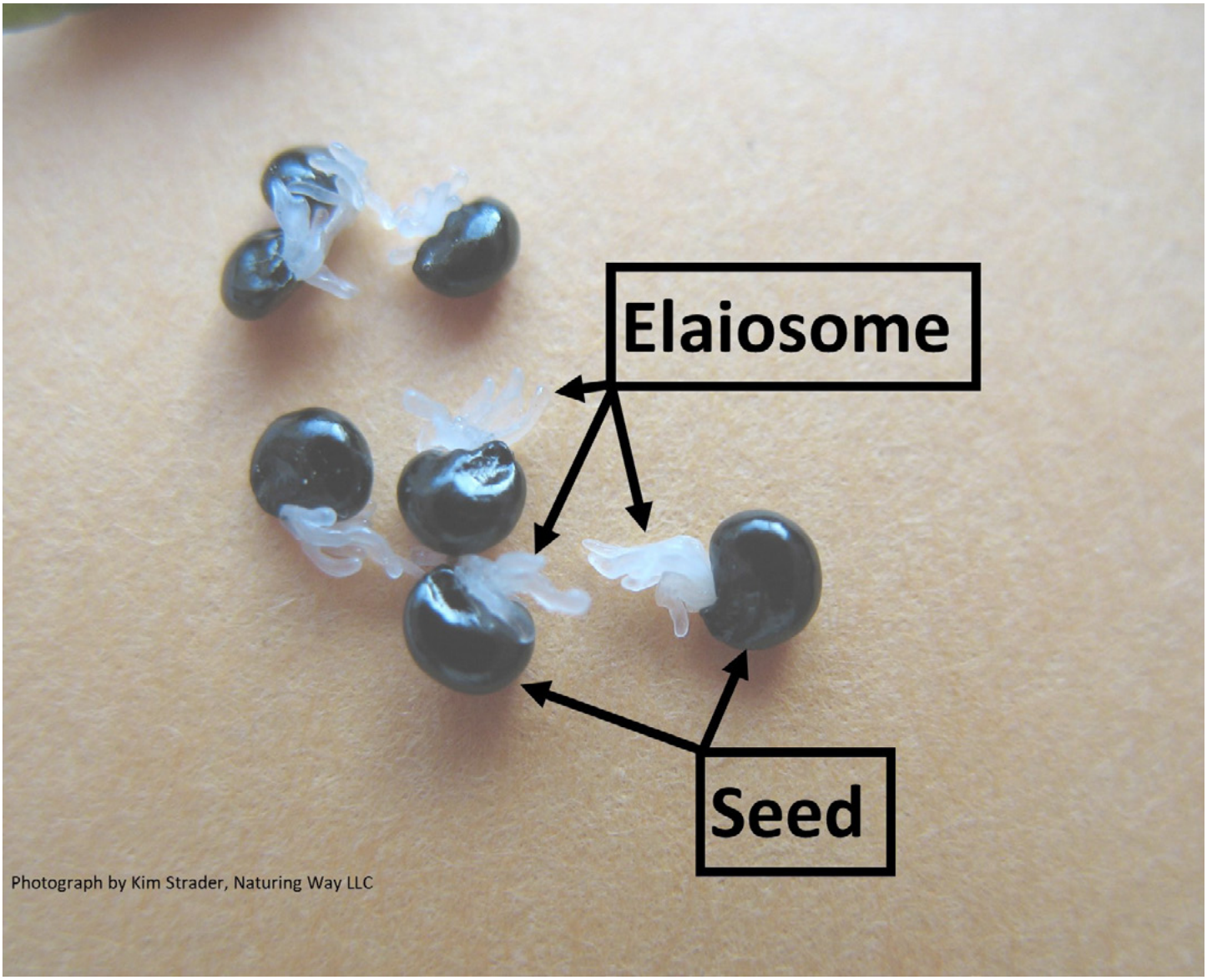


By Kim Strader

One song I remember from childhood is "High Hopes." I'm sure you recall the song's lyrics that an ant can't move a rubber tree plant. This song always had me laughing while I imagined a tiny ant trying to move a big tree on its back.

This is my earliest memory of anything having to do with ants, and somewhere along the way I went from loving the little ant to not really liking them at all. In fact, I have a confession to make; I started hating ants to the point that I would squish them anytime one was near.

Mind you, I am someone who loves all things in nature and believes everything in nature has a purpose or a function, yet I had no problem ending the life of a little ant. Are you this way? Do you kill ants upon sight? If so, you may want to reconsider your actions because ants are superheroes in the world of native wildflowers. They may not be able to move the rubber tree plant, but they can and do move many of our spring ephemeral woodland wildflowers.



Stop before you start imagining a little ant moving a bloodroot or trillium by placing the entire plant on its back and walking away. This is not how they move plants. Instead, ants move plants by moving the seeds. Yes, ants are great seed dispersers, and it is so well documented that there is a term for this method of seed dispersal – myrmecochory. Many consider our Eastern North American forests to be a global hotspot for this activity.

It is not the actual seed the ants want, but a fleshy appendage on the seed called an elaiosome. Elaiosomes are rich in lipids (fatty acid) and are a perfect food for developing ant larvae. After removing the elaiosome to feed it to their larvae, ants move the seed to their refuse pile, located within or outside of the nest. The ant's trash pile is like a compost pile full of rich organic matter, thereby giving the seed a perfect place to germinate and grow.

So, the next time you want to squish that little ant, just remember, ants move plants! Our native spring ephemeral plants depend on ants to disperse their seeds, thereby spreading and increasing populations of our beloved early spring woodland wildflowers.

Kim Strader's passion is connecting people with plants and nature. She curated a collection of native plants at the State Arboretum of Virginia for 20 years and currently works with the Loudoun Wildlife Conservancy. Kim offers walks, talks and workshops through her company, Naturing Way.

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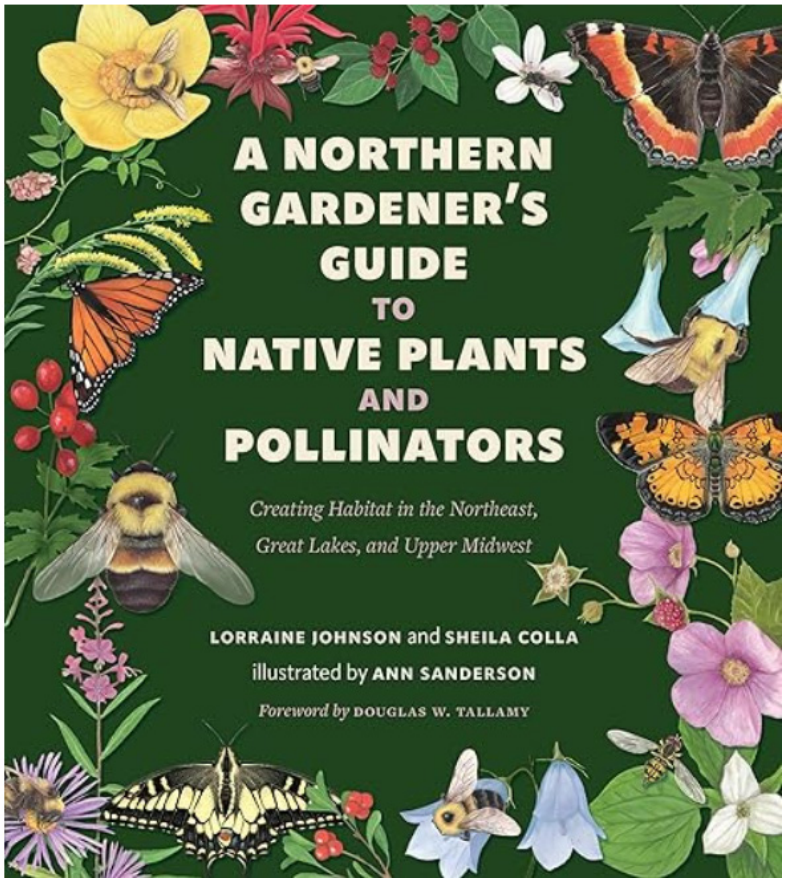
Book Review

Title: "A Northern Gardener's Guide to Native Plants and Pollinators"

Authors: Lorraine Johnson and Sheila Colla

Published: April 2023

Rating: ★★★★½



By Katherine Freund

"A Northern Gardener's Guide to Native Plants and Pollinators" resonates with environmentalists and nature enthusiasts alike with its focus on native plants and their crucial relationship with pollinators. This comprehensive guide tackles the pitfalls of traditional landscaping while pushing readers toward adopting sustainable landscaping practices and creating habitats in the Northern region.

The guide's strength lies in its commitment to raising awareness about the importance of biodiversity in our landscapes. Authors Lorraine Johnson and Sheila Colla have an engaging writing style and tackle the misconceptions about using native plants in residential landscaping. Johnson is recognized for her extensive work as a gardening advocate, with a focus on urban agriculture and sustainable landscaping. Her publications have consistently provided practical advice to gardeners, aiming to foster a deeper connection between individuals and their environment through ecological gardening practices. Colla is a research scientist whose work primarily focuses on conservation biology, including native pollinators. The two previously collaborated on "A Garden for the Rusty-Patched Bumblebee: Creating Habitat for Native Pollinators" (2022).

The format of "A Northern Gardener's Guide..." makes it so you can page through and read helpful tidbits or dive into the authors' down-to-earth details on topics that impact our decision-making on turning our lawns into beautiful natural gardens! Before and after photos of home gardens provide compelling visuals of how the reader's lawn can transition into a natural landscape.

Johnson and Colla dedicate a sizable portion of the book plant profiles. The profiles are in a user-friendly format, making them accessible to both seasoned gardeners and beginners. The profiles, organized by season to aid gardeners in creating color, texture and habitat year-round, also beautifully blend photographs and detailed species illustrations by Ann Sanderson. Many guides in print use illustrations of plants that can be challenging to the novice to interpret. This book, however, uses illustrations to highlight the photos and make identification easier.

"A Northern Gardener's Guide to Native Plants and Pollinators" is a valuable resource for anyone looking to cultivate a home landscape that both flourishes aesthetically and contributes to the well-being of the environment. It's a must-have for any Northeast gardener's home bookshelf.

Katherine Fruend is a Wild Ones chapter liaison.

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SFE grant helps Montana school create native plant garden

Thanks to a Wild Ones Seeds for Education grant, the Farm to School of Park County in Livingston, Montana created a native plant garden that is helping students learn about gardening and the importance of native plants in the regional ecosystem.

Project coordinator Megan Randall said they divided the project into three stages: planning, planting and ongoing education.

"In the planning stage, a class of middle school students learned about perennial and native plants and created garden plans incorporating native plants into the existing school garden," Randall said. They planted yarrow (*Achillea* spp.), Rocky Mountain penstemon (*Penstemon strictus*), black-eyed Susan (*Rudbeckia* spp.), blanket flower (*Gallardia* spp.), purple coneflower (*Echinacea* spp.) and milkweed (*Asclepias* spp.).

Then in the planting stage, six special education students helped plant the native perennials in the new school garden. "They learned about the difference between annual and perennial plants and helped with the process of planting and watering them," she added.

The garden now will be used to educate middle school students about the importance of natural landscaping for our environment.

Randall said the project was successful, despite the fact that they weren't able to keep to their intended timeline due to staff turnover.

"The special education students were excited to get a hands-on experience in the school garden, and they were especially excited to learn that the plants they helped install will be a part of the garden for many years to come, rather than just one garden season," Randall said. "During the planning stage of the project, the students learned about how native plants support native pollinator species."

Students at Farm to School of Park County plant native plants in the school's new garden.

The middle school now has a school garden that includes space for annual vegetable production as well as a native perennial garden, Walter said, adding that the garden will support their educational and curriculum goals at the middle school.

Walter said the school doesn't have plans to expand the garden. "But we absolutely plan to continue using the garden as a learning opportunity in the coming years," she said. "We work with LINKS for Learning (an afterschool and summer enrichment program), the special education classroom, and the Family and Consumer Science class at the middle school. Any student who is engaged in these programs will have the opportunity to learn in the garden, including lessons about the importance of native plants."

What does it take to be a true pollinator?

By Julia Gehring

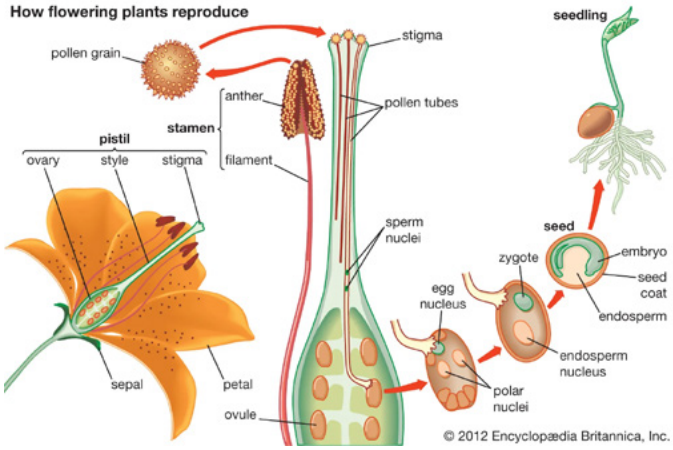
As spring gets into full swing, many late spring and early summer wildflowers will be in peak bloom. Natives will provide an attractive sea of flowers for the casual botanist to enjoy as summer quickly approaches. In addition to this picturesque landscape, these plants will be providing many insects with much needed food rewards after the long, harsh winter. Many of these flower visitors will return the favor by providing pollination services to the plant. However, not all these visitors are equally beneficial to the plant.

But how can an observer tell which of these insects are true pollinators and which simply utilize the plant as a resource without providing that essential service? To determine this, we must first have a closer look at what pollination is.

Pollination is the process by which a pollen grain, the male plant gamete, reaches the receptive region of the stigma, which is a portion of the female reproductive organ of plants. Often, we think of pollination as having to do with an exclusive interaction between plants and animal pollinators such as bees and butterflies.

But in fact, many plants are wind pollinated. Many tree and shrub species such as red maples (*Acer rubrum*) and most pine and oak trees, rely on wind pollination. Amazingly, even some of our agriculture crops such as pecans and pistachios rely on the wind to disperse pollen instead of an animal agent to produce their edible fruits. However, most of our crops and flowering plants need an outside agent, typically an insect, to perform an act of pollination to produce fruit.

To attract these agents, many plants provide some type of food reward or deceptive incentive. Many acts of pollination are accidental from the pollinator's point of view, as they are often a byproduct of trying to reach a food reward. For instance, most butterflies do not visit flowers to collect pollen; instead pollen grains attach themselves to a butterfly's proboscis and other body extremities as they insert them into flowers, past the anthers, to reach their preferred food source, nectar, at the base of the corolla. Some plants even have specialized, aggregate pollen grains that move all of the pollen at once, such as the pollinia of many plants in the dogbane (*Apocynaceae*) family.



Many bee species, both honeybees and native bees, will visit flowers for a food reward in the form of pollen and nectar, resulting in pollination. Many bees will intentionally collect pollen grains and store them in their corbiculae (pollen baskets), until they return to the hive to feed their brood. During this process, pollen attaches to hairs along their body and mouth palps, holding on until the bee visits a nearby flower. Voila, pollination!

However, some bees will steal pollen, nectar and oils from native plants without returning the favor with an act of pollination. Some bees in the genus Centris, for example, are faithful visitors to *Malpighiaceae* plants, a plant family that is native to the tropics and subtropics, yet they have been demonstrated to be extremely poor pollinators.

So next time you are out in your garden and see an animal visiting a flower, stop and observe that plant-animal interaction up close. You may be witnessing a true pollinator at work! Or perhaps, you are watching some rascal steal a wildflower's assets. A great resource to learn more about our local plants and the insects that visit them is Heather Holm's book, "Pollinators of Native Plants: Attract, Observe and Identify Pollinators and Beneficial Insects with Native Plants." If you are interested in observing these processes for yourself, the best time to watch most pollinators is in the morning and early afternoon. Find a sunny spot in your yard or nearby park that has a high density of flowers and bring your binoculars. Enjoy this time with abundant spring wildflowers and all the biodiversity they support!

Julia Gehring is a botanist in Benzie County, Michigan. She loves studying, fermenting, teaching others about, and protecting plants and many other organisms. She is a member of the Wild Ones Oak Openings Region (Ohio) Chapter.


Photo by Gary Shackelford

Get ready for hummingbirds

From Wisconsin Pollinators.com

The ruby-throated hummingbird spends the winter in Central America or Mexico and migrates north to their breeding grounds in the southern U.S. and western states as early as February, and to areas further north later in the spring. The first arrivals in spring are usually males.

The migration triggers

Although there are differing views in the birding community as to what triggers the start of migration, it is generally thought that hummingbirds sense changes in daylight duration, as well as changes in the abundance of flowers, nectar and insects. Instinct also plays a role in making the decision to migrate.

Making the trip

During migration, a hummingbird's heart beats up to 1,260 times a minute and its wings flap 15-80 times a second. To support this high energy level, a hummingbird will typically gain 25-40% of its body weight before it starts to migrate and make the long trek over land and water. They fly alone, often on the same path they have flown earlier in their life, and fly low, just above treetops or water. Young hummingbirds navigate without parental guidance.

Hummingbirds fly by day when nectar sources such as flowers are more abundant. Flying low allows the birds to see and stop at food supplies along the way. They are also experts at using tailwinds to help them reach their destination faster, thereby consuming less energy and body fat. Research indicates a hummingbird can travel as much as 213 miles in one day. However, those that make the 500-mile flight from Florida to the Yucatan Peninsula do it in 18-22 hours non-stop, depending on wind conditions.

The spring migration can be hard on the hummingbird population as they move north from their winter homes in southern Mexico and Central America. Stops along the way may be for a few minutes, or a few days at more favorable locations with abundant food supplies. Strong cold fronts moving south over the Gulf of Mexico make flying difficult as the birds deal with headwinds and heavy rain over long distances with no shelter. Food is non-existent over the open waters.

Need for food

Hummingbirds may be some of the smallest birds in the world, but fluttering those tiny wings can be quite a workout. Flapping away at up to 80 beats per second burns up calories fast. To maintain their momentum, hummingbirds need to eat – a lot! To satisfy their speedy metabolisms, these busy birds consume half their

body weight in insects and nectar, feeding every 10-15 minutes and visiting 1,000-2,000 flowers per day.

How to attract hummers to yards and gardens

• More than most birds, hummingbirds need to bathe regularly due to the sticky nature of nectar. They prefer very shallow, moving water or a spray mist.

• Add native plants to your yard that will attract hummingbirds. Bergamot (*Monarda fistulosa*) is a favorite of both ruby-throated hummingbirds and butterflies. It's easy to grow in a perennial border, wildflower garden or meadow. Other wildflowers popular with hummingbirds include red bee balm (*Monarda didyma*), lavender hyssop (*Agastache foeniculum*), fireweed (*Chamaenerion angustifolium*), beardtongue (*Penstemon* spp.) blazingstar (*Liatris* spp.), wild petunia (*Ruellia humilis*), royal catchfly (*Silene regia*), purple coneflower (*Echinacea purpurea*), cupplant (*Silphium perfoliatum*), butterflyweed (*Asclepia tuberosa*), cardinal flower (*Lobelia cardinalis*), great blue lobelia (*Lobelia siphilitica*) and others.

Test your hummingbird knowledge

1. What do hummingbirds use to suck the nectar out of flowers?
a) Beak c) Tongue
b) Nose d) Siphon

2. Spiders can kill hummingbirds.
a) True
b) False

3. Other than nectar, what do hummingbirds eat?
a) Seeds c) Insects
b) Suet d) Pollen

4. Hummingbirds can die of starvation just a few hours after eating.
a) True
b) False

5. How many times per second can a hummingbird beat its wings?
a) 100 c) 300
b) 200 d) 400

6. When it comes to water, hummingbirds ....
a) Love to swoop through a dripper or mister
b) Splash in a bird bath
c) Hummers hate water

7. What doesn't work very well on a hummingbird?
a) Eyes c) Feathers
b) Feet d) Wings

8. Hummingbirds can be found in both the Eastern and Western hemispheres.
a) True
b) False

9. The male hummingbird takes part in which task of baby bird care?
a) Incubating the eggs at night
b) Gathering the nesting material
c) The male does not take part

10. When do hummingbirds go into a state of torpor to conserve energy?
a) After mating season
b) All winter since it is almost like a state of hibernation
c) When food is scarce

11. Hummingbirds eat almost half their body weight each day.
a) True
b) False

12. How long is a ruby-throated hummingbird from the tip of the beak to the tip of the tail?
a) 2 inches c) 4 inches
b) 3 inches d) 5 inches

13. How large is a hummingbird egg?
a) ¼ inch
b) ½ inch
c) ¾ inch

14. What is the name of the bright-colored patch on the throat of most male hummingbirds?
a. Wattle c. Crest
b. Gastrroliths d. Gorget

15. How long do hummingbirds usually live?
a. 1-2 years c. 5-6 years
b. 3-4 years d. 6-10 years

16. Hummingbirds have to keep moving to survive.
a. True
b. False

Answers:

1. C. Tongue. To get nectar from a flower, a hummingbird first inserts its long tongue into the blossom. Its specially adapted tongue is folded into paired troughs or partial tubes and draws nectar into its mouth by capillary action.

2. A. True. Hummingbirds seek out spider webs as a source of spider silk in nest construction. The silk is used to bind the nest to the tree branch or other substrate and to hold the nest together. Even so, the hummingbird must be careful when removing the pieces of webbing, for it may become entangled and trapped there. Spider silk has a tensile strength comparable to steel on a weight basis. In one report, a ruby-throated hummingbird was caught in an active web, and was quickly wrapped and encased by the spider, much as an insect might be.

3. C. Insects. Small insects, larvae, insect eggs and spiders are critical food sources for hummingbirds. Insects provide fat, protein and salts the birds cannot derive from nectar. These are crucial nutritional components, especially for rapidly growing hatchlings. Hummingbirds may hunt insects in several ways, including gleaning or picking them from bark, flowers or leaves, hawking them in midair or plucking them from spider webs or sticky sap. To get the required amount of protein for a healthy diet, an adult hummingbird must eat several dozen insects each day.

4. A. True. The hummingbird's metabolism is so rapid that consumed sugars are used immediately to fuel the body. Periods of torpor (rest with a low metabolic rate) ease the threat of starvation, but overall, they must keep eating all day long to survive. To survive long distance migrations (18-20-hour flights over the Gulf of Mexico), hummingbirds bulk up their body fat ahead of time.

5. B. 200 beats per second.

6. A. Love to swoop through a dripper or mister.

7. B. Feet. Even though they have feet, they are unable to stand for long periods of time and unlike other birds, they are unable to walk on their feet.

8. B. False. Hummingbirds are found only in the Western Hemisphere.

9. C. The male does not take part.

10. C. When food is scarce or when they simply need to rest, hummingbirds can put themselves into a kind of trance, known as torpor, to conserve energy. While in a state of torpor, a hummingbird's body temperature decreases and its metabolism falls to around 1/15th of its normal rate. Its heart rate also drops to around 50-180 beats per minute. Although useful, torpor can have negative side effects. It can take a healthy bird up to an hour to recover after coming out of torpor, and weak hummingbirds have been known to die during a state of torpor.

11. A. True.

12. B. 3 inches.

13. B. ½ inch.

14. D. Gorget.

15. B. The average lifespan for a hummingbird is only about 3-4 years. While most hummingbirds die in their first year, some have been known to survive for up to 10 years or more. Hummingbirds are the smallest species of bird and face many threats from predators and their environments.

16. B. False. While they are fantastic flyers, hummingbirds spend just 10% of their time in flight. Flying is extremely taxing on their bodies, so they make the best use of it for obtaining food and (occasionally) mating flights. The remainder of their time is spent sitting, digesting and in torpor.

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