WILD ONES JOURNAL
SPRING 2025 • VOL. 38, NO. 1

WILD ONES®

A VOICE FOR THE NATURAL LANDSCAPING MOVEMENT

Photo Credit: Catherine & Todd McKenzie

Don't spring into action — yet

By Barbara A. Schmitz

I admit, I get antsy. After the long winter months, I'm ready for spring. And that means I want to get my hands dirty and start working in my gardens … immediately.

But Justin Wheeler reminds us not to clean up too soon as some species such as sweat bees (*Halictidae sp.*) are still hiding out, waiting for the warmer days that arrive in May. Read his tips on Page 30 to determine when it's time to begin yard clean-up without fear of disturbing the pollinators that reside near you.

So if you must wait, the question becomes what do you do until then?

One, you could start thinking about where to construct or place a puddling area in your yard that will provide butterflies with key nutrients for reproduction that nectar lacks. Learn about three different ways to cater to butterflies from Kristine Nemec on Page 28.

Two, get crafty and fight invasives! Read on Page 19 how Wild Ones member Inna Alseina does both, designing art projects using invasive plants to get peoples' attention. I think she's right when she says the biggest problem facing invasive species is people's plant blindness. People don't recognize plants, and too many think invasive plants are pretty so they shouldn't be eradicated.

Three, don't treat soil like dirt! As author and Wild Ones member Jeff Hoyer points out in what is the first of a year-long series on soil, soil is a functioning ecosystem all to itself and is constantly in flux, absorbing a myriad of changes both natural and manmade. Read more on Page 4 and learn about Aldo Leopold's land pyramid and its fountain of energy that ensure land is more than just soil.

Four, take a hike in a nearby woods or state or national park, and look out for clubmosses, those miniature pine tree-like plants growing on the forest floor. As author Mackenzie Seymour points out on Page 17, the name "clubmoss" is misleading because these plants are not mosses. Among the oldest vascular plants, club mosses are distributed globally and are particularly abundant in North America.

Five, help other gardeners, particularly older ones whose mobility makes it difficult for them to care for their garden themselves. Or if you're one of those "older" gardeners like me, don't hesitate to ask for help if you need it. Learn about other options such as downsizing your garden, using adaptive gardening tools or planning for accessibility in Besa Schweitzer's article on Page 27.

Of course, there's plenty more to explore in this issue. Dig in and let us know what you'd like to see next. Email your ideas to journal@wildones.org.

Happy spring! Happy gardening!

Contents

Botanical Gardens 7

Monarch populations 10

Witch Hazel 15

Fighting invasive species 19

Aging with your garden 27

Book review 32

Wild Ones Journal

— Editor —
Barbara A. Schmitz
journal@wildones.org
(Please indicate topic in subject line.)

— Contributing Writers —
Jeff Hoyer • Christine McCarthy • Kristine Nemec
Jared Rosenbaum • Matthew Ross • Besa Schweitzer
Mackenzie Seymour

— Design/Layout —
Kevin Rau

— Proofreader —
Mariette Nowak

Cover Photo: Catherine & Todd McKenzie

WILD ONES JOURNAL
SPRING 2025 • VOL. 38, NO. 1

WILD ONES®

A VOICE FOR THE NATURAL LANDSCAPING MOVEMENT

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

WINNER 2020 APEX® AWARDS FOR PUBLICATION EXCELLENCE

By Jeff Hoyer

The father of modern ecology, Aldo Leopold, in his essay on *The Land Pyramid* in "A Sand County Almanac" explained how ecosystems evolved to function:

"Plants absorb energy from the sun. This energy flows through a circuit called the biota, which may be represented by a pyramid consisting of layers. The bottom layer is soil. A plant layer rests on the soil, and insect layer on the plants, a bird and rodent layer on the insects and on up through various animal groups to the apex layer, which consists of large carnivores.

"Land, then is not merely soil. It is a fountain of energy flowing through a circuit of soils, plants and animals. Food chains are the living channels which conduct energy upward; death and decay return it to the soil."

In general, animals cannot live without plants and plants cannot live without soil. The soils that support prairies and forests took thousands of years to form through the process of succession. The life and death of the plants and animals in one era set the stage for the next era by building ever thicker and more diverse soil. It takes, on average, 500-1,000 years to make an inch of soil. This fact alone should make us respect the time and sacrifice it took to build the soil our very lives depend on. In short, we need to stop treating our soil like dirt!

Soil is a functioning ecosystem all to itself, composed of air, water, minerals, insects, worms, fungi, bacteria, viruses, plants and animals. Like any complex ecosystem it is constantly in flux, absorbing a myriad of changes both natural and manmade. Given enough time, nature finds a solution to most challenges. The problem is that the changes humans have imposed on earth, especially since the start of the industrial revolution, have occurred much faster than natural systems can adapt to through evolution. The destruction of soil ecosystems is just one example. Because soil is the very foundation upon which all restoration efforts rests, we must make strides to repair the damage done to the soil by decades of farming, urbanization, invasive species and the extinction of the native species that once called the soil their home.

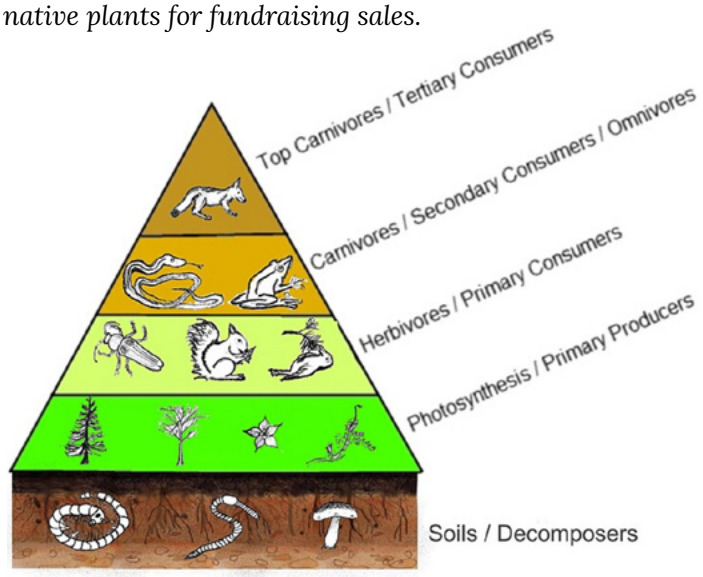
Leopold's thumbnail sketch of land as an energy circuit conveys three basic ideas:

1. Land is an energy circuit.
2. Native plants and animals keep the energy circuit open.
3. Human-caused changes are a different order than evolutionary changes and have effects more comprehensive that intended or foreseen

In 2025, our Wild Ones Journal coverage will look at soil and its role and explore what we can do protect and improve it and keep that energy circuit working for generations to come.

Jeff Hoyer is a 30-year veteran biology and environmental science teacher and member of the Wild Ones Lake-To-Prairie (Illinois) Chapter. He has been a member of the chapter board and a presenter at their area conferences. When not teaching, Jeff enjoys volunteering with several prairie and woodland restoration projects and raising native plants for fundraising sales.

Forest Assistant Aldo Leopold and dog "Flip" at cut-over land near the abandoned Irwin Claim in 1911 in the Apache National Forest, Arizona. Photo courtesy of the Forest History Society, Durham, NC



Coming next:

Summer: Are you ready to test your soil?
Fall: Interpreting soil test results
Winter: Invasive plants may be as disruptive to the ecosystem below ground as they are above ground

BIG ROLE FOR SMALL GRASSES

Sourcing native plants made easy:

We combine the inventories of wholesale growers across the Midwestern and Eastern US and offer over 600 species throughout the growing season.

Whether you're a home gardener or a horticultural professional, from the Midwest to the East Coast, Izel Native Plants offers solutions.

From laptop to doorstep let your imagination grow!

izelplants.com

When you experience a landscape dominated by grasses, something magical happens. The wind is made manifest in undulating waves as it sweeps across their blades and blooms. The sound and movement are mesmerizing.

Bouteloua gracilis (blue grama)
© Hoffman Nursery, Inc

Grasses can transform and elevate our garden experience, even when they're not the dominant element. Yet many familiar ornamental grasses are big, and not every garden can accommodate them. Fortunately, there are many smaller, native grasses that provide similar benefits without the big footprint. And they adapt well to cultivated landscapes.

Species like *Deschampsia cespitosa* (tufted hairgrass) and *Eragrostis spectabilis* (purple lovegrass) are valuable not only for their ecological benefits and workhorse abilities but also for their roles in planting design. They can unify a complex composition, create a foundation for a perennial planting, or fit easily into a townhouse garden.

These smaller-scale natives offer the distinct combination of aesthetic and sensory qualities that most ornamental grasses share. Their long, linear foliage contrasts visually with the garden's more typical rounded and oblong leaves. Several have inflorescences that catch the light and glow when backlit by the sun.

More small grasses, and their role in the landscape can be found in our blog post: A Big Role for Small Grasses

Izel Native Plants
Every plant counts

Photos by Matthew Ross unless otherwise noted

Lily conservation in the Land of the Ninja

Lilium japonicum in Mount Sannomine (Ryōhaku Mountains), Ono, Fukui Prefecture, Japan. *Photo: Alpsdake, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons*

By Matthew Ross

More than 6,600 miles away from home, I had the privilege of experiencing the sights and sounds of Koka City, Shiga prefecture, Japan. Surrounded by the Suzuka Mountains, lush forests and a green belt of shared conservation and agricultural land known as the Satoyama, a cluster of small cities combined their respective identities to form Koka City in 2004. With history that dates back millennia and known as the birthplace of the Ninja, it may be surprising that it is also home to one of the most inspiring native plant conservation programs I have had the honor of experiencing.

As part of a month-long journey through the gardens and landscapes of Japan, I spent a week visiting Koka City, which is the sister city to Traverse City, Michigan. My host, Noriyoshi Nakajima, orchestrated one of the most amazing weeks of my life. I had the honor of visiting Abuhari Botanic Garden, Minakuchi Kodomo No Mori (Kid's Forest), the Medicinal Herbal Museum, Satoyama Genkikai, the Ninja Museum and much more. One thread that bound these unique cultural attractions together was the story of Sasa-yuri (*Lilium japonicum*), also known as mountain lily and bamboo lily in reference to its preferred habitat and bamboo-like basal foliage. Known for its edible attributes, medicinal powers and intoxicating fragrance, this charismatic plant was once far more widespread throughout the region. While selections of the species are commercially available, pressure from domestication, harvesting and herbivory from wild boar and deer have dramatically reduced its wild populations.

The director of the Medicinal Herbal Museum in Koka City, left, and Noriyoshi Nakajima stand alongside the interpretive posters highlighting the native flora of the region that are used as herbal medicines.

While I wasn't fortunate enough to see bamboo lilies (*Lilium japonicum*) in bloom, the pristine blue of the gentians throughout the Satoyama were awe inspiring.

A team of community members and dedicated professionals have been working tirelessly to combat its shrinking numbers, and they have galvanized a movement to bring awareness to its conservation. Its white blooms are the official flower of Koka City, and for the past 17 years the lily has been propagated by school-age students who have learned the tissue culture protocols under the direction of Seita Watanabe, a specially appointed assistant professor at the Botanical Gardens and the Graduate School of Science at Osaka Metropolitan University. At a small civic center, I had a chance to see the tissue culture setup where hundreds of propagules of the Lilium are being stored before being "grown out" in insulated trays of compost and ultimately planted within the surrounding landscape by school children every year. It's a fascinating program where students plant the finished plants of their research which is integrated into their schoolwork. A commemorative tag is placed beside each cluster of lilies. I was visiting during the dormant season and only saw the amber strands of remnant foliage and the dark brown seedheads. The seeds harvested from the landscape beds are used to support production of mature plants that are then dispersed to conservation lands across the prefecture.

The process of speeding up the years it takes for the lily to go from seed to a mature flowering plant has been well studied and documented. At several of the cultural institutions I visited I was impressed to see how each organization took pride in preserving the species and sharing the interpretation materials about the process. It was especially eye opening to see how Japanese agricultural practices for cultivating rice have incorporated leaving areas for native plants to flourish at Minakuchi Kodomo No Mori and Satoyama Genkikai. I may not have had the pleasure of seeing the flowers in full bloom, but with each seedhead or basal leaf I saw in their nursery beds I saw hope and a future where the lily will be prolific in the nearby mountains once again.

Sasa-yuri (*Lilium japonicum*) has a long and storied history in the region and across Japan and has been prized for its aesthetics and medicinal properties. This point was further emphasized at the Medicinal Herbal Museum where the lily was front and center in an exhibit that highlighted the native flora of the region that has medicinal benefits. Gorgeous images of golden lace (*Patrinia scabiosifolia*) to Japanese felwort (*Swertia japonica*) are paired with information about their use as herbal medicine and presented in a way to encourage visitors to support efforts to keep these plants growing in the region.

One of the coolest takeaways from the experience was learning about the deep reverence that ninjas had for the flora of Japan. Exhibits

The director of Minakuchi Kodomo No Mori (Kid's Forest) shares the interpretation of the *Lilium japonicum* and shows the insulated coolers where they over winter the 2–3-year-old plants before they are planted out in the wild.

at the Herbal Museum and the Ninja Museum focused on the historical connection between ninjas and botany. Utilizing local herbs for medicine, poisons, food and other utilitarian purposes was a key tenant to their practice and schooling. Many of the ninjas even ended up transitioning from being ninjas to being traveling pharmacists and herbalists after the end of their service.

Who would've thought that a trip halfway across the globe would present a topic of interest for a native plant organization in the United States? I was honored to have had the chance to explore the flora of Japan and am forever grateful to the eye-opening experience provided as a 2024 Chanticleer Fellow.

However, you don't have to travel halfway around the world to experience similar programs. The Fairchild Tropical Botanic Gardens' Million Orchid Project is a scaled-up version of what I experienced in Koka and is helping repopulate Florida's Miami Dade County with over a million orchids, having students assist with their propagation. Integrating plant propagation and conservation into the school curriculum is a win-win as it not only helps add to the overall population of the species, but also helps cultivate advocates for native plants for decades to come.

Wild Ones member Matthew Ross is the executive director of The Botanic Garden at Historic Barns Park in Traverse City, Michigan, and participated in the North American Japanese Garden Association Field Study and was selected as one of two Chanticleer Fellows alongside Scott Ferguson of the University of British Columbia Botanic Garden.

The Lily Society homebase at the Koka Civic Center.

Study gives insight into why wintering monarch populations are declining

By Leigh Hataway

With vigorous debate surrounding the health of the monarch (*Danaus plexippus*) population, newly released research from the University of Georgia (UGA) may have answered the biggest question plaguing butterfly researchers: Why are the wintering populations declining while breeding populations are stable?

A study published by the Proceedings of the National Academy of Sciences suggests that monarchs are dying off during their fall migration south to Mexico. The UGA researchers found that roost sizes have declined by as much as 80% along the migration route.

"The monarchs are increasingly failing to reach their winter destinations," said Andy Davis, lead author of the study and an assistant research scientist in UGA's Odum School of Ecology. "Either they're losing their ability to migrate or they're losing their will to migrate."

The study was co-authored by Jordan Croy, a postdoctoral associate in UGA's College of Agricultural and Environmental Sciences.

What's leading to the monarch migration decline?

Migrating monarchs don't fly at night; instead, they spend their evenings roosting on trees or shrubs.

The researchers relied on data from Journey North, an organization that uses community scientist sightings of animals to track wildlife migration patterns. The study covers 17 years of community-reported sightings of migratory routes of monarchs. They found that the timing of the migration hasn't changed and, if anything, the route has become greener and warmer over time, which should have led to larger roost populations.

"How do you say that the mon-

Monarch (*Danaus plexippus*) butterflies nectar on meadow blazing star (*Liatris ligulistylis*). *Photo: Gary Shackelford*

USFWS recommends monarch butterflies be protected

The U.S. Fish and Wildlife Service (USFWS) recommended in December that monarch butterflies (*Danaus plexippus*) become listed as a threatened species under the Endangered Species Act. (ESA). But that recommendation does not mean that the monarch is now legally protected by the U.S. government.

The USFWS accepted public comment on the proposed listing through March 12, 2025. Now the USFWS has one year to review the input and scientific data before making a final decision. The USFWS could propose changes to the original proposal, list the monarch as "threatened" or "endangered" or decide not to list the species.

Once the final rule is published in the Federal Register, it generally takes effect within 30-60 days.

A monarch (*Danaus plexippus*) caterpillar munches on swamp milkweed (*Asclepias incarnata*) *Photo: Barbara A. Schmitz*

arch butterfly is going extinct in the winter while they're perfectly healthy in the summer?" asked William Snyder, co-author of the study and a professor of entomology in UGA's College of Agricultural and Environmental Sciences. "This paper fills in that gap by saying the problem is that fall migration."

The researchers documented a steady, dramatic decline in roost sizes over the migration route that were independent of climate and landscape factors. The scientists cited two reasons for the decline.

The first is the increasing prevalence of a debilitating monarch parasite, *Ophryocystis elektrosirrha*, or OE, which has increased tenfold since the early 2000s. This increase corresponds with increased plantings of nonnative milkweeds throughout the flyway.

The second possible reason is the release of captive-reared butterflies by well-meaning people who are hoping to help the monarchs.

"All of the evidence we have shows that when monarchs are reared in a captive environment, either indoors or outdoors, they're not as good at migrating," Davis said.

How can people help 'save the monarchs'?

Although well intended, many of the

OE at a glance

- The *Ophryocystis elektrosirrha* or OE parasite infects monarchs as caterpillars when they unintentionally ingest spores and develop internally during the caterpillar and pupal stage. Infected adult monarchs emerge covered with millions of dormant protozoan spores, or oocysts, on the outsides of their bodies and scatter these on eggs and milkweed during breeding activity including mating and egg laying. The parasite is transmitted during cycles of monarch reproduction because parasites have to be eaten by a caterpillar to cause a new infection.
- The protozoan is increasing in prevalence as the fraction of infected North American monarchs has more than tripled when comparing pre-2000 numbers (2–5% infection rate) with post-2000 numbers (7–15% infection rate).

The reasons for this increase are varied and still under study. However, the increase is likely caused by:

- More year-round breeding activity in the southern U.S. due to milder winters and the planting of nonnative tropical milkweed that lets monarchs continue to breed throughout the winter when they should be overwintering in Mexico in a non-breeding state. (Remember, parasites transmit during cycles of monarch breeding, so an extended breeding season means more cycles of parasite transmission each year).
- Monarchs crowding into smaller breeding habitats as their native breeding habitat shrinks due to agricultural intensification and urbanization.
- The growing number of people doing captive breeding of monarchs, with the intention of helping the species, since raising large numbers of monarchs often spreads the disease and leads to higher rates of infection and the release of captive-raised infected monarchs.
- Increased planting of nonnative milkweed, which causes an increase in the parasite. The University of Georgia (UGA) has a short video that discusses issues of OE on YouTube. However, the problem is not with tropical milkweed *per se*, but is rather with the winter-breeding behaviors that it enables. In warm parts of the country, if tropical milkweed persists long enough so that multiple generations of monarchs can lay eggs on the same plants, this results in the build-up of OE spores on the milkweed leaves and the transmission of parasites to caterpillars over many generations.
- OE spores deposited by infected monarchs are known to persist on surfaces for several months or longer unless they are exposed to harsh chemicals or extreme temperatures. The situation is different for migratory monarchs. When monarchs leave for Mexico in the fall and milkweed plants die back in the winter, this allows the monarchs to come back to "clean" habitats in the spring because the parasites die during the monarch's long absence and the new growth of milkweed is parasite-free.

To prevent and control OE, you can:

- Plant native milkweeds. Consult the MJV Milkweed Vendor Map and your local Wild Ones chapter for help in finding nurseries that sell native milkweeds in your area. Or ask local growers to produce native milkweeds.
- If you have tropical milkweed, replace it with native species or cut it back from October–February to within 6 inches of the ground (unless it dies back naturally on its own).
- Participate in research efforts. Community science programs dedicated to studying monarch ecology and conservation include UGA's Project Monarch Health, where participants test wild monarchs for OE; the Monarch Larva Monitoring Project, where volunteers monitor a milkweed patch for eggs and larva; Monarch Watch, where participants tag monarchs; and Journey North, where you can report monarch and milkweed sightings, including winter sightings.

Sources: Sonia M. Altizer, Martha Odum Distinguished Professor of Ecology, Odum School of Ecology, University of Georgia and Monarch Joint Venture

things people do to try to help, such as planting nonnative milkweeds or raising monarchs for release in captivity, may actually be harming the monarch population by interfering with their ability to migrate long distances.

"One of the best things people can do to ensure that the monarchs are as robust and healthy as possible is basically just leave the caterpillars alone in your backyard," Davis said. "Resist the temptation to bring them inside and protect them because it seems like Mother Nature does a better job at creating really healthy, robust migrators than we do."

Leigh Hataway is the research communications manager and associate editor at the University of Georgia.

Witch hazel: A medicine for a**holes

Witch hazel (*Hamamelis virginiana*) at peak autumn color within the Marion Brooks Natural Area of Moshannon State Forest in Pennsylvania. *Photo: Flickr*

By Jared Rosenbaum

You may know witch hazel as a beautiful native shrub, one of the last wildflowers of the season. You may know it as *Hamamelis virginiana*. But I know witch hazel as medicine for a**holes.

Now I know Wild Ones started in the Midwest and folks out there are a bit more demure with their language than we are here in New Jersey. So I want to assure you that I am speaking purely scientifically here. I'm not talking about presidential candidates, or your next-door neighbor with that perfect lawn and not a pollinator in sight.

Plants develop complex chemistry in order to ward off pests and diseases. Unlike us two-legged beings, they can't run very fast, nor do they have what we would consider an immune system. So they deal with the stresses of life on Earth structurally and chemically. Witch hazel produces chemicals called tannins, particularly hamamelitannin (cleverly named, see what they did there?). Tannins are found in many plants. Oaks are notable in this regard, and tannins are what makes unprocessed acorns unpalatable to humans. Tannins are highly astringent; they bind proteins and are dangerous to consume in quantity. Not only do tannins deter consumption of plant parts by herbivores, they are also antibacterial and antioxidant.

Witch hazel is a tall shrub with a high canopy, each stem seeking sun almost heedless of the others, so that sometimes it sprawls and stems and branches intertwine in pursuit of a small light gap. It is most noted for its flowers, which though spidery and wan, bloom in late October into November when little else blooms. I often see it as an understory shrub in older (not post-agricultural) forests, especially on dry to mesic slopes in association with oaks. It tends to form large colonies but does not readily colonize younger woodlands. Perhaps this is, in part, due to its unusual seed dispersal method: its seed capsules eject their seeds, shooting them up to 30 feet in a radius around the parent plant. A nice way to keep your children close, but not super-effective at long distance dispersal. When I collect witch hazel seeds for our plant nursery, I need to get there before the capsules fully dry out, put them in a sealed brown paper bag, and check back days later after the seeds have shot out of the dry capsules.

In addition to collecting seeds, I usually forage a few small branches from witch hazel. Witch hazel had some folkloric use in water-witching (dowsing), something I did as a kid on rambles with my dad but am unsure I could pull off now. But I'm not planning on dowsing; I'm foraging the

Witch hazel (*Hamamelis virginiana*) in bloom. The Latin name means "together with fruit" and you can see here why - both new flowers and last year's fruits occur together on the same branch. *Photo: Flickr*

twigs to make a tincture, an extract in alcohol. Witch hazel extracts are noted as topical astringents, and witch hazel is one of relatively few herbal medicines you could find in fluorescent-lit drugstores even in the dark ages before echinacea, bespoke soaps, tea tree everything and so on.

To make witch hazel extract, I clip the twigs into small finger-length portions, soak them in a mason jar full of vodka for a month, and use the resulting tincture for weepy rashes, like poison ivy. It is particularly amazing — and amazingly good — for fixing a torn-up, itchy butthole after a few days of diarrhea, and hemorrhoids in general.

Medicine for a**holes, like I said.

Using native plants as medicine is one way to be drawn into closer relationship with them. Some people are drawn to plants because of pollinators, or songbirds or beautiful flowers. Others are drawn to native culinary and herbal uses. While foraging can sometimes be purely extractive, at its best it is part of a reciprocal relationship where we harvest plant parts and tend plants (and habitats) in return. I think of foraging as part of a robust approach to ecological restoration, one that draws in many kinds of land stewards with many backgrounds and interests. While ecological restoration may be a young art and science, Indigenous land management on this continent dates back thousands of years and has always involved the tending of native edible and medicinal plant communities.

When we tend habitats that contain witch hazel, we are also caretakers for oaks (*Quercus* spp.), black cohosh (*Actaea racemosa*), bloodroot (*Sanguinaria canadensis*), lowbush blueberry (*Vaccinium angustifolium*), serviceberry (*Amelanchier* spp.) and many other edible and medicinal native plants. Consuming plants for food and medicine is a deeply ancestral act, one that predates *Homo sapiens*. When we consume wild plants, many of us will feel a responsibility to give back, to be caretakers, to be good members of the wild plant community. We can give back by being stewards of wild habitats and by introducing native medicinal and edible species into our gardens. Supporting plants, humans and other wildlife, together.

Maybe witch hazel medicine isn't only for a**holes, after all.

Jared Rosenbaum is the author of "Wild Plant Culture: A Guide to Restoring Native Edible and Medicinal Plant Communities," *and is featured in the ROOTED Plant Videos series on YouTube. He is the owner-operator, with his wife Rachel, of Wild Ridge Plants native nursery in New Jersey. The article above contains some content loosely adapted from his book.*

Clubmosses: These ancient plants aren't mosses at all

Left: Ground-cedar (*Diphasiastrum complanatum*) looks like cedar boughs that are lying on the ground, giving it its common name. Right: Stiff clubmoss grows in forests and open woodlands. *Photo: Nina Laakso/Flickr*

By Mackenzie Seymour

Have you ever been curious about the miniature pine tree-like plants growing on the forest floor as you take a hike? Although sometimes referred to as ground pine or princess pine, these plants are not related to pine trees and instead belong to a group of plants called clubmosses.

Appearance and growth

The name "clubmoss" is misleading because these plants are not mosses. Clubmosses are a part of the phylum Lycopodiophyta, which are a group of vascular plants that possess xylem and phloem tissues to transport water and nutrients.

Clubmoss leaves are small and have a needle-like appearance. Their leaves have either a spiral or whorled arrangement. Clubmoss stems can grow upright or horizontally (creeping) on the ground.

These plants are slow growers, and for some species it may take 20 years to grow to maturity and release spores for reproduction. Additionally, clubmosses have symbiotic relationships with mycorrhizal fungi. Clubmosses rely on these fungi for nutrients, such as phosphorus, zinc, nitrogen and copper, and share carbohydrates in return.

Habitats

Clubmosses live in a variety of habitats, including temperate and tropical forests, bogs and wet prairies and wetlands. Although most clubmosses prefer moist, shaded environments, some species, such as ground-cedar (*Diphasiastrum complanatum*) and Pennsylvania or Hickey's tree clubmoss (*Dendrolycopodium hickeyi*), can thrive in higher elevations and dry forests.

Clubmosses typically grow in acidic and well-drained soils. Soils higher in acidity are thought to discourage other plants, such as weeds and grass, from growing, providing a favorable environment for clubmosses to thrive.

Clubmosses are distributed globally, but are particularly abundant in North America. Common species include common or running clubmoss (*Lycopodium clavatum*), which grows

Hickey's tree clubmoss (*Dendrolycopodium hickeyi*) looks like little trees, with the taller ones less than a foot tall. *Photo: Flickr*

in woodlands, forests and grasslands of Northeastern and Northcentral regions; stiff clubmoss (*Spinulum annotinum* or *Lycopodium annotinum*), which grows in Northeast and Upper Midwest forests and open woodlands; peacock or blue spike moss (*Selaginella uncinata*), which grows in Southeast marshes; and lake quillwort (*Isoetes lacustris*), which grows in freshwater habitats in Northeast regions.

Evolution

Clubmosses are ancient plants and are among the oldest vascular plants, having been around for approximately 400 million years. According to fossil records, the *Lycophyta* lineage diverged from early vascular plants around 410 to 420 million years ago in the Devonian period. During this period, these plants were among the dominant groups as they possessed advantageous characteristics over other plant species. These characteristics included vascularized tissues for efficient transportation of water and nutrients and the development of strobili, often called cones, for increased reproductive success.

During their period of dominance, clubmosses formed dense, biodiverse swamp forests. In modern times, those fossilized forests are tapped for coal to fuel the global economy.

At the height of the Devonian and Carboniferous periods, clubmosses grew to over 100 feet tall. Over time, they shrunk to their modern size of four to 20 inches. This is largely due to climate shifts that favored smaller plants and the rise of angiosperms, or flowering plants, during the Cretaceous period, which are considered to have more efficient reproductive strategies.

Reproduction

Clubmosses reproduce through releasing spores. Depending on the species, clubmosses are homosporous or heterosporous. Homosporous plants produce spores that can develop into bisexual reproductive structures (i.e., having both male and female structures), while heterosporous plants have either male or female spores.

Specialized structures called strobili release spores; the spores are dispersed through wind. The spores are covered in a combustible oil that insulates them from water, allowing them to travel longer before germinating, according to Kennesaw State University.

Medicinal properties

Medicinal use of clubmosses stems from their alkaloidal properties; alkaloids are bioactive compounds that possess anesthetic, cardioprotective and anti-inflammatory benefits. Most notable is the development of a drug called Huperzine A from the toothed clubmoss (*Huperzia serrata*) and northern firmoss or fir clubmoss (*Huperzia selago*). Huperzine A was developed in the 1980s by the Chinese Academy of Sciences to treat Alzheimer's disease and improve memory and thinking, and was recently shown to have neuroprotective effects, according to research published by the National Library of Medicine.

Quick facts

- You can release the spores of clubmosses by tapping the plant, which releases a yellow puff known as lycopodium powder.
- Lycopodium powder was used as a flash powder in early photography. It was also used to power the first internal combustion engine called the Pyréolophore.
- Clubmosses can be used to dye fabrics.

Mackenzie Seymour, a member of the Wild Ones Rock River Valley (Illinois) Chapter, is attending Illinois State University for a master's degree in biological sciences with an emphasis in neuroscience and physiology. She is researching how fluctuating climate change temperatures impact animal nervous systems.

All photos courtesy Inna Alesina accept otherwise noted.

Wild Ones member fights invasive species in a variety of ways

By Barbara A. Schmitz

About 15 years ago, artist and industrial design professor Inna Alesina learned about invasive species when she took a group of students to Patapsco River, which flows into the Chesapeake Bay.

"I wanted students to see why they needed to be conscientious about what they design," she said. There the students saw a concrete tunnel that caused a huge amount of plastic waste to wash into the waterway. Needless to say, when people design products from plastics, they don't think that their designs will be polluting a river, she said.

But it was what a ranger told Alesina and her students at the site that resonated with her; she pointed out invasive *Phragmites australis* that likely arrived with the shipping industry 200 years ago from Europe, Asia and North Africa. "There were no birds there because of it," she said. "Once you see invasives you can't unsee them."

And so began Alesina's fight with species that cause ecological damage. A member of the Wild Ones Greater Baltimore (Maryland) Chapter, she has spent nearly four years working to eradicate invasive plants from one small area of Gunpowder State Park, a public recreation area comprising six non-contiguous areas covering more than 18,000 acres.

The park with its 120 miles of multi-use trails had been a place where Alesina would go to hike. When she noticed invasives such as Japanese knotweed (*Reynoutria japonica*, *Polygonum reynoutria*, *Polygonum cuspidatum* or *Fallopia japonica*), Japanese barberry (*Berberis thunbergii*), garlic mustard (*Alliaria petiolate*), multiflora rose (*Rosa multiflora*) and oriental bittersweet (*Celastrus orbiculatus*), she asked to volunteer. Since fall 2021, she has volunteered at the park weekly, and often daily, to eradicate the barberry, logging 245 volunteer hours, often with her family.

Filled with thousands of invasive berries and sterilized seeds, Sculptures of Significance are cherished as a "slow gift" that reflects the time and effort invested in its creation.

The park is understaffed and doesn't have enough resources to rid the land of the invasive species. It's Alesina's hope that her work, as well as that of other volunteers, will at least slow the growth of invasive species and give native plants a chance to grow.

"Japanese barberry is my nemesis, so I started to learn everything about it," she said. She now educates people about invasive species and

why they should join in the fight. She and other volunteers lead groups through the park, teaching them how to identify (not always successfully) barberry and cut it down as it outcompetes native vegetation for resources, disrupts wildlife habitat and increases the risk for Lyme disease since its thickets provide an ideal habitat for deer ticks.

For now, she's mainly concentrating on barberry at the park. She and other volunteers are removing berries and cutting plants down to the root ball. "We're trying to keep it from reproducing and slow it down so it won't produce berries next year," she said. "We're also experimenting with putting milk jugs over the plants so it will cook itself."

The volunteers have already had some success with native ferns and orchids coming up in their place. "It's my hope that when I come back in a few years I will notice a difference and feel better," she said.

Alesina is also one of a growing number of people who cook with invasive species like linden viburnum (*Viburnum dilatatum*), often taken from the state park.

In December, she was removing about 80-100 pounds of linden viburnum berries each week after the first frost. "Almost every day I cut some vines," she said. "Friends joke that I always walk with big loppers when I'm hiking. But I feel so much better if I can free a couple trees on a hike."

Alesina also designs art projects using invasive plants to get peoples' attention. "I stuff art with seeds from invasives and make weighted blankets with the seeds." Her artwork appears in shows and competitions, and she recently had a show and asked people to bring invasive plants into the gallery that they had removed from the wild in a "buy back" program. In return, Alesina gave out four commission watercolors for those who brought in plants. A room was also devoted to sharing some of her artistic process and included invasive plant recipes such as Japanese barberry rice pilaf and linden viburnum compote.

She envisions an alternate world where people live differently and care for the world as a part of their daily routine. In recognition for her belief, she received notable distinction in the 2024 Core77 Design Award for speculative design for "Gifts of Time, Space & Attention." Her work, in part, included a garment with a built-in compression device that fosters a connection with trees; an "invasivorist" training kit including microscope, spore kit, field guide and edible invasive cookbook, which offers a return to identifying plants and eating them; a therapeutic weighted invasive seed blanket; and sculptures of significance, which include hand-sewn designs full of sterilized seeds that will not be eaten or relocated by birds or animals, thus preventing further harm.

She writes: "For a future world with novel ecosystems, diminished in diversity and scope by human action, 'Gifts of Time, Space & Attention' offers speculative objects as tools for exploration into new rituals and

Left: When going on hikes, Inna Alesina often brings along tools like loppers in case she sees invasive plants. *Photo: Leonid Guzman.* Below: While this watercolor of Japanese barberry (*Berberis thunbergii*) may look beautiful, the invasive plant outcompetes native vegetation for resources, disrupts wildlife habitat and increases the risk for Lyme disease since its thickets provide an ideal habitat for deer ticks (*Ixodes scapularis*).

practices for healing the land, our more-than-human community and ourselves."

Alesina said she lives in a suburb filled with barberry bushes and admits she hasn't been too successful in persuading people to remove the invasive shrub. But when those who were interested in removing it started asking her what they could replace it with, she went searching for resources, found Wild Ones and joined. She has also killed the turf in her yard, planted natives and started a shrub nursery so she could give people natives like elderberry (*Sambucus canadensis*) when they rid their property of barberry and other invasive species.

She said Wild Ones members have been supportive of her efforts. "I feel like I've found my people. Almost everything in my front yard is from shares," she said. "Wild Ones members are always helpful and kind, and native plants have become my therapy … and addiction."

Alesina admits that she doesn't always do the best job educating people about the issues with invasive plant species. "I come from Ukraine and my language structure is very direct. My enthusiasm and compassion for (native plants) is huge, and people sometimes feel I am too pushy or direct. But when I care about something, I get emotional and it's hard for me to get people engaged."

That's why she appreciates Wild Ones' messaging, she said. Simply, they know how to state things and get people to pay attention.

Alesina said the biggest problem facing invasive species is people's plant blindness. "People just don't recognize plants," she said. Plus, too many people think invasive species are pretty and don't understand why they should be eradicated.

But she is far from alone in her fight against invasive plants. National Invasive Species Awareness Week, held the last week of February each year, is an annual multi-agency event to raise awareness about invasive species, the threat that they pose and what can be done to prevent their spread.

Clockwise from top left: Wild Ones member, artist and professor Inna Alesina collects Japanese barberry (*Berberis thunbergii*) seeds in a pouch to be used in her artwork; Inna Alesina with a sculpture. *Photo: Elena Volkova;* This therapeutic weighted blanket calms the body and restores the land as it is stuffed with sterilized invasive seeds.

Alesina said she isn't about to give up. She plans to continue to remove invasives, host information tables at block parties and other events, take part in tree plantings and continue her artwork devoted to invasive plants.

Her next project will be working with a local nonprofit to create tree protector sculptures for young oaks and protect them from deer browsing and other animals. She has proposed designing 18 sculptures that will protect the young seedlings for 5-10 years. The number 18 was chosen because it is the Jewish number that means life, she said.

Alesina said she is inspired by environmentalist and author Robin Wall Kimmerer. "The first step of loving a place is to pay attention," she said. "Start noticing things and be curious about the plants around you."

She encourages people to use apps like iNaturalist to identify plants and then question where those plants came from and what they are doing to the environment. She adds, "People also need to understand that you can't plant natives until you remove invasive species because it isn't a fair fight for the natives."

Rural Iowa residents embrace Adopt-a-Prairie program

Left: The roadside was just grass in front of Cathy Lafrenz's property before the county launched its Adapt-A-Prairie program. Right: The roadside in front of Lafrenz's property is now full of color and provides the perfect entrance for her flower farm. *Photos by Brian Burkholder*

By Kristine Nemec

Some landowners view prairie plants as unkempt weeds that need to be eradicated. But Iowa corn and soybean farmer Hans Schnekloth chose to have prairie plants seeded on the roadside bordering his property after he heard his county would do it for free.

He said he was compelled to add the plants because the area used to be covered by diverse prairie. "If I can do little projects to give pollinators pathways through the county and offset my day job, it creates a natural barrier," he said.

Schnekloth is one of 72 residents who have signed up for Scott County's Adopt-a-Prairie program. Intended for rural landowners who live along a road managed by the county road department, the program was established five years ago by Brian Burkholder, the county's roadside vegetation manager. Hired in 2017, Burkholder is responsible for managing the county's roadside vegetation using safe, environmentally sustainable methods, including strategic mowing and invasive species control. When he started his job, he knew one of his tasks would be planting native vegetation on roadsides where needed, such as those with exposed bare soil.

However, Burkholder thought one way he could gain public support for his program was to modify the Adopt-a-Road concept, where individuals and groups volunteer to pick up litter in sections of the roadside, and turn it into Adopt-a-Prairie. Residents complete a form on the county website if they want the roadside vegetation team to replace grasses such as smooth brome and fescue growing in the right-of-way in front of their house with native vegetation.

Burkholder obtains the native prairie seed used in the right-of-way for free from the University of Northern Iowa Tallgrass Prairie Center, which annually obtains a grant to purchase seed for Iowa counties that

Inset left: Hans Schnekloth's roadside was pretty barren before prairie plants were planted. Inset right: Schnekloth's roadside is filled with colorful native plants after agreeing to participate in Scott County's free Adopt-A-Prairie program. *Photos by Brian Burkholder*

have a roadside vegetation program. He applies for grants for equipment and facilities that support the program, such as a seed cooler, through the Iowa Department of Transportation's Living Roadway Trust Fund.

Burkholder plants the seeds using a hydroseeder, which sprays a slurry of water, seed and mulch onto the roadside. He manages the area until it matures, and after that residents can agree to handle maintenance such as removing noxious weeds if they want to. A lot of people request to do the upkeep, which is really helpful.

The biggest challenge? Some residents want the prairie "right now" when it takes at least three years for the plants to establish when starting with seed. Burkholder will receive complaints from neighbors who think the plantings look weedy, so he explains why he is planting native plants and offers to come out and explain which plants are native and which are the true weeds. So far no one has taken him up on his offer of a site visit.

Once the plants are established, residents have been pleased with the benefits provided by the plantings. Schnekloth said his wife and children like to pick the flowers and make bouquets. "It's a nice addition to life." They also see a lot more butterflies flying around than they used to.

He also appreciates how he no longer gets standing water in the ditch. The prairie plants' deep roots help the water infiltrate the soil. He said he finds it interesting to watch how different plants establish in different parts of the ditch that has been seeded.

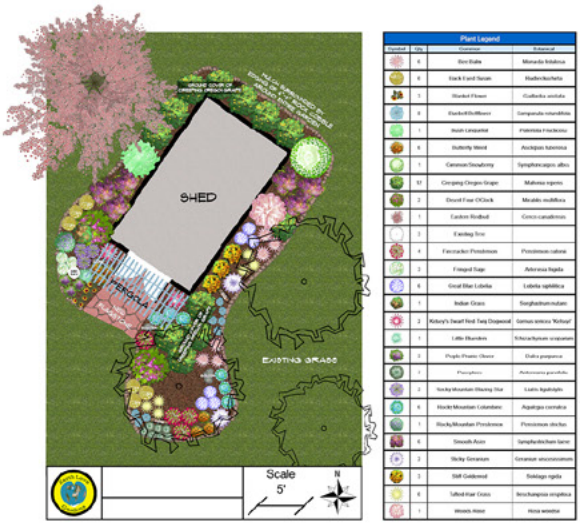
Cathy Lafrenz, who runs a you-pick flower farm, requested a roadside planting as a way to honor her late husband, Cliff. Lafrenz said Cliff had long paid attention to their local environment, including the roadsides. One year they paid for their anniversary dinner by picking up beer cans by the side of the road. When they would drive, Cliff was all about figuring out what the yellow roadside flowers were. She remembers looking up partridge pea (*Chamaecrista fasciculata*), Maximilian sunflower (*Helianthus maximiliani*) and golden Alexander (*Zizia aurea*).

So when she heard about the Adopt-A-Prairie program, she didn't hesitate to participate. During the first two years, she got some comments about the weeds periodically, but those comments are fewer and farther apart as the prairie gets established. Now people are starting to recognize it for what it is.

Lafrenz said the roadside prairie is a perfect entrance for her flower farm because people drive in and see the color. "They put the prairie in… and every day I can see my husband there. It's just a continuation of the values that we hold. It's not very much, but it's what I can do. My prairie makes me incredibly happy."

Kristine Nemec is a program manager at the University of Northern Iowa Tallgrass Prairie Center. She is also a freelance writer and editor, and a member of the Wild Ones Cedar Rapids-Iowa City Area (Iowa) Seedling Chapter.

We create a custom native plant landscape design for you ...anywhere you live!



• **We remotely design your landscape** utilizing an abundant variety of beautiful regionally-native plants that provide as low-water habitat for pollinators and birds. We focus on plants that are available at nurseries, to make the implementation of the design as simple as possible.

• We thoughtfully place plants and other elements in the design, paying focus to each plant's mature sizes, light requirements, water requirements, soil requirements, bloom colors and times, textures, wildlife value, and more.

• Elements such as nest boxes, birdbaths, wood logs and more can be included to provide as resources for beneficial wildlife and to add to the aesthetic and feel of your garden.

• Our designs include the optional planning of perennial edibles, including fruit trees, fruit-bearing shrubs, and perennial veggies, optionally through permaculture practices, raised garden beds, and more.

POLLINATOR PARTNERSHIP
Protect their lives. Preserve ours.

BEE FRIENDLY GARDENING™

As partners with Pollinator Partnership's Bee-Friendly Gardening (BFG) program, we can design you a BFG-certified garden!

Visit us at www.EarthLoveGardens.com

Arizona SFE recipient expands native plant project

Thomas Edison once said, "Good fortune is what happens when opportunity meets with planning." Prescott Unified School District in Arizona found out in 2024 just how true that is.

The school district's farm-to-school program, a Wild Ones Seeds for Education (SFE) grant recipient, was able to expand its plan to plant native plants on an existing gabion wall and, in turn, prevent erosion after it received additional funding from the Arizona Department of Education. So instead of just adding native plants along the wall and the hillside behind Prescott High School, they were able to plant numerous fruit tree guilds throughout the newly designed food forest area that measures 130 feet by 35 feet, according to project and farm-to-school coordinator Victoria Ellis.

"Our project was an incredible success," Ellis wrote in the farm-to-school program's SFE final report. Through those two donations and others, they were able to plant a 3,600-square-foot food forest learning lab, complete with native plants throughout. The project led to increased water retention and soil stabilization in the area, and meant they were also able to install an outdoor classroom. The final project was supported not only by the school's classes, but also by volunteers, organizations, parents and community members.

According to The Daily Courier, the Prescott High Food Forest was a $150,000 project adjoining the existing student garden intended to become a perpetual "bioverse planting system" oriented around the orchard that will provide a canopy for the growth of medicinal and flavorful herbs, perennial berry bushes and other edible and floral crops.

Above: A volunteer spreads her arm to help show the size of what was to become Prescott High's food forest area. Right: Volunteers of all ages came to help plant Prescott High School's expanded native garden and fruit tree guilds.

Ellis said that nearly 70 youth were involved in the planting, and the students were most excited to learn which plants they could plant on their own campus, including plants that offer medicine, food and aesthetic nourishment. The students planted 83 perennial flowers, shrubs, grasses and sedges, including Arizona passionflower (*Passiflora arizonica*), desert lavender (*Condea emoryi*), golden currant (*Ribes aurem*) and others.

"One of the most significant learning outcomes was their ability to restore and wrestle back control over their food sovereignty," Ellis said. "Learning how the food producing plants and native plants work together, in a small space as a fruit tree guild, was incredibly powerful for them to witness in their learning lab."

Ellis said the food forest learning lab has created a new space for students to enjoy the outdoors and contemplate their own experience of the world. "They have increased their understanding of and access to the natural world and have also been able to build connections with community members in the garden."

Photos by Besa Schweitzer unless noted

Aging with your garden

By Besa Schweitzer

Sometimes the energy of youth fades and a large garden can become a burden to keep up with. Short-term setbacks like replaced hips can result in long-term changes to mobility. Or perhaps, priorities change and there just isn't as much time for the garden.

Don't sweat the small stuff. An established garden can be allowed to mature with age. Plants may move around and fill in. As trees mature more areas become shaded. Or large trees may die and create a sunny patch. Let the plants find their space. Switch from being a gardener to a caretaker who guides the plants but lets them fulfill their own goals. Relax your standards.

Find a gardener to help. If you can, hire someone to come take care of your garden for you once a week. Better yet, find a young person and train them to take care of your garden while they build their own native garden at home. Perhaps give them some of your more rambunctious plants to start their new garden. Make a point to help or just sit in the garden while the gardener is around to stay involved in the process.

Downsize and simplify. Allow bigger patches of plants to form even if it smothers some diversity. Plant more shrubs in the further regions of the yard to take up space and shade out weeds. Focus your energy on the most beautiful parts of the garden. If an area is getting too weedy, mow it.

Francine Glass uses her kneeler to save her 73-year-old knees while weeding. *Photo by Kathy Bildner*

Marsha Gebhardt, Penny Holtzmann and Susan Rohde enjoy drinking tea next to the rain garden.

Plan for accessibility. Make a path and sitting space that is accessible. Walkers and wheelchairs require flat even surfaces and easy to get out of seating. This may be a back deck or patio, or a new space may need to be made. Plan this future need into the design of your garden so that you will continue to have access to this space that brings you joy. Focus on the view out the window from your favorite recliner.

Invest in adaptive gardening tools. There are many special tools that allow you to stand and garden. Gardening stools can give you a place to sit and still be able to dig in the soil. Rolling garden carts keep all your tools accessible and also provide a place to sit. Tools with special grippy handles allow arthritic hands to be comfortable. A walking stick can help you keep your balance.

Go to physical or occupational therapy. Gardening is an important part of your life that you shouldn't have to give up. Advocate for yourself to get the help you need to stay outside. Follow through with your exercises and stretches. Commit to supporting your health so you can be out in the garden for as long as possible.

Aging and disability should not mean the end to enjoying your garden. There are many ways to prepare yourself and your garden for the future. Remember that gardens are living changing spaces. Guide that change to meet your needs in the future.

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.

Karen and Sven Anderson check out the flowers from a paved sidewalk.

Butterflies need more than nectar to survive

Don't toss old fruit. Create a fruit platter for insects like butterflies so they can sip liquid from the rotting fruit. *Photo: PxHere*

By Kristine Nemec

With heatwaves becoming more common across the United States, butterflies are just some of the many wild creatures that may not be getting enough fluids and nutrition. Butterflies, as books and television have shown us, obtain a lot of their hydration from flower nectar. Yet sipping water from muddy soil, known as puddling, provides key nutrients for reproduction that nectar can't provide.

"It's mostly male butterflies who puddle, and you often see them in large groups," says Nathan Brockman, butterfly wing curator at Iowa State University's Reiman Gardens. The more males at a location, the more likely other males will stop to see if there's something they should be getting. Watering areas are often muddy soil or… other sources of fluid.

David Mizejewski, naturalist with the National Wildlife Federation and author of "Attracting Birds, Butterflies and Other Backyard Wildlife," said many people "have an image of butterflies being magical creatures that flit around drinking flower nectar." In reality, some butterflies sip liquid from dung, urine and rotting fruit. Males incorporate salts and minerals from these sources or mud into their sperm. Females absorb those nutrients during mating, increasing egg survival.

By adding a butterfly-friendly watering area near your pollinator garden or flower bed, you can provide butterflies with much-needed moisture and nutrients. Try your hand at one of these three easy-to-build watering areas.

Fill a dish with soil and water

If you like the idea of a contained watering area that roughly mimics a natural mud puddle, a simple dish may be a good option for you. Find a shallow bird bath or a saucer such as the drainage dish that goes under a flowerpot. Any container smaller than the size of a standard bird bath, or 15-20 inches wide, will be difficult for butterflies to find. Add organic garden soil since soil containing chemical fertilizers can harm butterfly health. Mix in compost, sand and even manure, which "sounds kind of gross but it's got a ton of minerals and other nutrients in it," says Mizejewski.

Next, add enough water to the mixture so it is muddy but does not have standing pools of water, which can encourage mosquitos to breed. Butterflies also have a hard time landing in water that is more than 1/4 to 1/8-inch deep and can get stuck. Place the dish on the ground or elevate it on a stand in a sunny spot in your yard.

Assemble a fruit feeder

Want to find a good use for overly ripe fruit you didn't get around to eating? Place rotting bananas, watermelon, oranges or apples in a shallow bowl or plate. Sprinkle some salt

on the buffet to make it even more enticing. Some people add water to the dish to repel ants; if you do this, keep the water shallow, around a quarter-inch in depth. If you keep the water any deeper because it is drying quickly in hot weather, add plenty of rocks to ensure there are places for butterflies to land. Brockman also recommends adding little footholds to smooth dishes by dispensing lines of hot glue perpendicular to where the water line will be so butterflies can climb out. Don't forget to bring your fruit feeder in at night—raccoons also like rotting fruit.

Create a muddy area in your yard

The most natural way to create a butterfly watering area is to maintain an area of exposed muddy soil in your yard. If you have an area that tends to be too wet, you could plant native wetland plants and turn it into a rain garden designed to absorb rainwater. To be most effective, the area should be roughly 5 feet by 5 feet, but "any little bit can help," says Mizejewski. Incorporate some areas of bare soil, too.

If you don't have a low-lying wet area or don't want a muddy spot in your yard, the soil mixture dish or fruit feeder may be better options for you.

What visitors to expect

When butterflies start using your watering area will vary. You may see them within a day, a week or a month. None may show up if there isn't enough butterfly habitat, like native host plants for caterpillars and nectar plants, around your yard and neighborhood.

Be prepared to also see many other types of insects such as beetles, wasps, flies and bees visiting your watering area. All have their roles in your backyard ecosystem. For example, insects are a large part of many songbirds' diets. Mud is a critical resource for ground-nesting native bees that use it to build a protective chamber wall for their eggs in underground tunnels. By helping native bees, you will also aid the many wildflowers, vegetables and fruits that they pollinate.

If you want to go further, the watering area you make can be part of an oasis for butterflies, especially when combined with other habitat features such as native plants and places where adults and larvae may safely shelter, such as under leaves, brush piles and rocks. Whatever you do, large or small, you're sure to get a close-up view of nature.

Kristine Nemec is a program manager at the University of Northern Iowa Tallgrass Prairie Center. She is also a freelance writer and editor, and a member of the Wild Ones Cedar Rapids-Iowa City Area (Iowa) Seedling Chapter.

Reprinted with permission from Popular Science, Sept. 3, 2021.

A giant swallowtail (*Papilio cresphontes*) puddles near a Texas park as it takes in salts and minerals from the moist soil. *Photo: Flickr*

For pollinators' sakes, don't spring into garden cleanup too soon

By Justin Wheeler

Spring is here. A time when warmer weather naturally turns a winter-weary homeowner's thoughts toward tackling outdoor chores. The first warm weather of the season may coax us out into the yard, but pollinators in your garden aren't ready to take a chance on the first warm day.

Chrysalides still cling to last season's dried standing plant material. While you may begin to see bumblebees and ground-nesting bees emerge as flowering trees and shrubs burst into bloom, they still need cover during chilly nights and heavy spring showers. While mining bees, mason bees, carpenter bees and bumblebees may be out and about by early April, other species such as sweat bees are still hiding out, waiting for the warmer days that arrive in May. Meanwhile, last year's leaf litter is still providing protection for both plants and invertebrates against late-season frosts.

So when is the right time to unleash your itchy green thumbs and reach for the rake? Unfortunately, there isn't a hard and fast answer to this question, and the exact date will vary based upon where you are in the country. To offer some guidance, consider asking yourself the following questions:

Have I put away the snow shovel, mittens and winter coats?

If you haven't tempted fate yet by relegating the snow shovel to the back of the garage, and if you're still wearing wool socks and long underwear, it's too early. Go make some hot chocolate and keep knitting that scarf you've been working on all winter.

Would I plant tomatoes now?

Any gardener will tell you it's not a good idea to plant your tomatoes outdoors until evening temperatures are reliably in the 50s. The tender tomato will shut down and suspend growth and fruiting if subjected to temperatures below 50 degrees or above 90 degrees. If it's still too early to plant tomatoes in your area, chances are conditions are too cold for pollinators to be out and about.

This black swallowtail (*Papilio polyxenes*) is ready to emerge as some butterflies overwinter as pupae attached to brush, dead plants and fallen leaves. So don't clean up last year's yard waste too soon, or you may disturb pollinators. *Photo: Vicki DeLoach, Flickr.*

Is the lawn growing tall?

Cool-season lawns begin growing when soil temperatures reach 50 degrees. In all but the warmest climates, if grass is growing enough to justify regular mowing, it's probably a safe bet that most pollinators have emerged.

To help pollinators the most, wait a little longer to mow. No Mow or Low Mow May is a movement of creating habitat and forage for early season pollinators when floral blooms can be less common. If you do mow before then, consider reducing intensity or frequency.

Have I paid my taxes?

In northern states, mid-late April should be the earliest you consider cutting back perennials and clearing garden debris. Keep in mind that some bees don't emerge until late May, so the longer you can tolerate your "messy" garden, the better.

Are apples and pears finished blooming?

Apricot, peach, plum and cherry trees are the earliest to bloom, coinciding with the emergence of many ground-nesting bees. If you can manage to wait until apple trees are no longer in bloom, then you should be safely in the clear from disturbing those pollinators that emerge a little later than the rest.

Waiting to clean up the garden until after pears and apple blossoms have faded will protect a strong majority of native bees from losing overwintering resources. However, timing is generalized for the eastern U.S. and

will vary according to your latitude and microclimate.

Resist the temptation of spring fever

We get it, it's tough to turn a blind eye to the "messy" garden, especially when gardening magazines, catalogs and TV ads provide temptation daily. Each spring we beg gardeners and homeowners to press pause and find other ways to occupy their weekends.

Instead of disturbing critical habitat, read a book, do a jigsaw puzzle, do your taxes, tidy up the garage or clean the gutters. While you may be eager to get outside and play in the garden – there will be time enough to toil in the soil before you know it!

Justin Wheeler was formerly the Xerces Society's web and communications coordinator. As a Penn State Extension Master Gardener, he now provides education and outreach to his community on a range of gardening-related subjects such as sustainable and pollinator-friendly gardening practices. He lives in State College, Pennsylvania.

Reprinted with permission from Xerces Society for Invertebrate Conservation.

Editor's Note: Current best practices are suggesting "mow-less-overall May (and all year)," but that has less of a fun ring. Allowing grass to grow 6-8 inches rather than cutting it to 3 inches or less will improve the health of your soil and offer a better habitat for insects.

Book Review

Title: "This is How a Robin Drinks: Essays on Urban Nature"

Author: Joanna Brichetto

Published: September 2024

Rating: ★★★★★

By Christine McCarthy

"This is How a Robin Drinks: Essays on Urban Nature" awakens wonder. Every page is a painting, a startlingly visual, vibrant look at, and *into*, the secrets of the world — the same world we all walk through, and we all might see into. But somehow, mostly, we just don't manage to do so. We drift along, all unaware, of the astonishments that daily surround us.

But it isn't so easy to see so very clearly. That intense clarity of seeing happens only in those moments when we are caring so very deeply about our world that we stop in our tracks, just to see. Joanna Brichetto, a member of the Wild Ones Middle Tennessee Chapter, has that gift of caring so much as to be able to see.

"This is How a Robin Drinks" is a collection of season-by-season short essays, 52 in number, 238 pages overall in length. Throughout the pages, Brichetto coaxes, wheedles and carries us along with her, so we too can see the world as it so wonderfully is. As luck would have it, we don't need to go far. No African safaris here! For this is a book about urban nature, the very world most of us live in day by day.

It is the story of a dragonfly, who flew, by mistake, into the giant sterile maw of a Goodwill store. Who stops on a hat, as if in horror, to wonder what now? A long slow death will surely ensue for him unless he somehow can be saved. Brichetto sees his plight and turns herself into a beneficent predator, baseball cap in hand, to seize him, carry him outside and save his life.

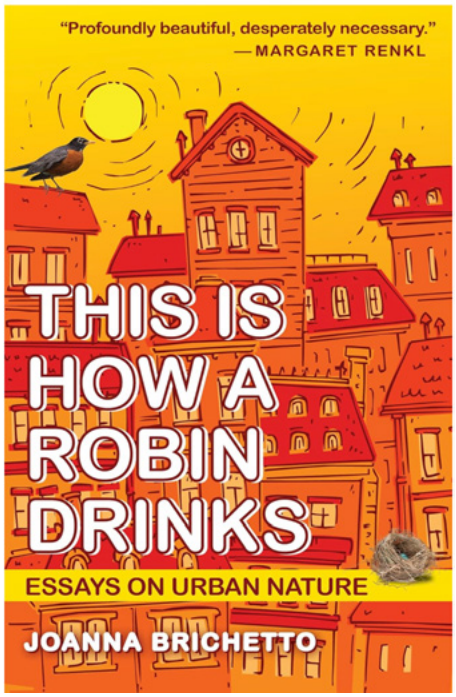
Have you ever happened upon a discarded cicada skin? I have. But not like this: "The morning sun shot through it…Sunshine poured through the eye bubbles, sluiced from the front claws, pricked each chin whisker, and lit the whole miraculous thing on fire…It was gorgeous."

Cicadas, Brichetto explains, live for 2 to 17 years underground, busy with living, never ever being seen. But, for one glorious transitional moment, this one cicada was truly, amazingly seen.

In reading this book, I find myself recommitted to loving nature, and finding myself, ourselves, in-and-of nature. Brichetto gives us — we humans — a sense of the intricate connection we share with the world. "I hunt for marvels," Brichetto explains. In particular, she hunts for those extraordinary marvels of nature that can *somehow* tolerate the almost intolerable conditions we humans so feverishly create.

We are the ones who have the power to save or to destroy nature. What will we all do, what will we be in the future, if we do not find the strength and the will, now, to save nature? We have the power to destroy, but if we choose, we also can save nature. With all the glories she writes about, Brichetto does caution us explicitly not to mistake her meaning, not to imagine "that I don't realize our world is burning quicker that we can put out the fire."

The wild things hanging on against the odds, maintaining life amidst the neglected and crumbling paved lots, are doing us all a great service. For look at the alternative we (so many of us) gravitate toward. "Let's clean it all up!" We'll put in edge-to-edge nonnative turf grass. Spray it with pesticides, rake up the leaves, aim for a nonnative designer look. A place where no insects, no birds, no caterpillars, no butterflies, no wild things of any sort, can live. This is the true danger.



"A dandelion is to blow." What is X, Y or Z "for" to me? How do I relate to all these things in the world, and how do *they* fare, despite my lack of regard? There is a self-directed obligation here to examine our relationships in the world. To ask ourselves where we will direct our care, our empathy, our regard.

This is a book I will continue to reread, chapter by chapter, with tea, for quite a long while!

I will close with a particularly compelling quote: "What a joy," Brichetto writes, "to witness secrets weird and wonderful. What a big deal to see creatures doing their thing, busy with their own wild and precious lives, oblivious to mine."

But there is one more lively piece of homespun wisdom I must share. It is this: "Once you start stealing Christmas trees, it's hard to stop." Read this wonderful book — you must know the story that follows!

Christine McCarthy is a philosopher by profession, a naturalist by heart, living along with a naturalized suburban yard, chock full of butterflies, birds and bees. And fish and dragonflies, too! She is a member of the Wild Ones Quad Cities (Illinois/Iowa) Chapter.