WILD ONES JOURNAL
SUMMER 2025 • VOL. 38, NO. 2

WILD ONES®

A VOICE FOR THE NATURAL LANDSCAPING MOVEMENT

Photo Credit: John Magee

Being prepared and inspired

By Barbara A. Schmitz

It's one of those things that you never think will happen to you. But if climate change has taught us anything, it is that it will happen. The question is when.

This year started out with firestorms in California that scorched more than 40,500 acres. That was followed by large wildfires in Mississippi, Texas, New Mexico and Nebraska, to name just a few.

In fact, throughout the United States in 2025, dry conditions are predicted to contribute to wildfires that will burn up to 9 million acres. This summer, wildfires are expected in the Northwest, Northern Rockies, Southwest and South-Central states.

If you live in an area prone to wildfires, you'll want to pay particular attention to this issue. Deb Lebow Aal from the Wild Ones Front Range (Colorado) Chapter does an excellent job of telling you how to landscape for fire mitigation on Page 8. (It should come as no surprise that native plants are part of the solution.) Linda O'Brien, a member of the Wild Ones San Diego (California) Chapter next reminds readers that the best defense for safety is a well-developed, comprehensive fire pre-plan on Page 11.

But thankfully, there's some lighter reading in this issue, too. Inspirational reading, really.

As many of you may know, Lorrie Otto — known as the godmother of native landscaping — was the inspiration behind what is now the Wild Ones organization. Lorrie died 15 years ago, but the people, many who are the original garden club members, still recall her enthusiasm and her belief in their ability to create something bigger and better. I'm confident that her story will inspire you. Read more on Page 28.

Another inspiring story is that of Milwaukee, Wisconsin's Monarch Trail. It's a story about persistence over 20 years to save a monarch roosting site and surrounding natural areas. Read the story by Barb Agnew, a member of the Wild Ones Menomonee River Area (Wisconsin) Chapter, on Page 16.

Need more inspiration? Marta Manildi, a Wild Ones Ann Arbor Area (Michigan) Chapter president, writes about the chapter's success in creating a pocket forest, or Miyawaki mini forest, in a local park. It was Michigan's first pocket forest on public land, and already a second pocket forest was added this spring in another city park. Read about their efforts on Page 22.

But there are also helpful articles inside, too, that will inform you as you garden, such as stories about aphids on milkweed (Page 20), the importance of planting natives that provide both high-quality and low-quality fruits (Page 36) and soil testing, the second story in our series on soil. (Page 4).

So grab some iced tea and your tablet or laptop and go outside to read this issue. There's nothing more satisfying than reading about native plants, pollinators, animals and more — especially when those very same things exist in your own yard. Happy gardening!

Contents

Wild Ones Journal

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

— Contributing Writers —
Deb Lebow Aal • Barb Agnew • Renée Benage • Jeff Hoyer
Paul F. Hudak • Marta Manildi • Linda O'Brien
Sara Ressing • Mackenzie Seymour • Adam Varenhorst

— Design/Layout —
Kevin Rau

— Proofreader —
Mariette Nowak

Cover Photo: John Magee

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Learning About SOIL

SECOND IN A 4-PART SERIES

Are you ready to test your soil?

By Jeff Hoyer

Many gardeners and amateur restoration ecologists fall in love with the idea of creating mini nature preserves in their own yards. If you are planning a native plant garden, a soil test can help you understand your site's conditions and guide you to select plants that are most likely to thrive without heavy amendments. Plants, like a 3-year-old child, can be very finicky about what they want, and gardeners, like plant parents, spend a lot of time and money trying to figure out what's wrong. Luckily, soil scientists have many simple tests and solutions to make your garden behave like the best kid on the block.

What is a soil test?

A soil test is an evaluation of the structural and chemical properties of the soil, such as porosity, organic matter, pH and many essential plant nutrients. Anyone who has ever been to a native plant sale or ordered native plants online knows that one of the first growing characteristics listed for each species is soil type. Soil type refers to the size of the particles that make up the soil and how they are arranged. The ability of the soil to retain water and chemical nutrients is determined by the arrangement of the soil particles, and these factors are just as important as the amount of sun that a plant prefers. In part three of this series on soil, "Interpreting soil test results," I will give a detailed breakdown of the chemical and physical properties of soil so you can make sense of your soil test results.

A scientist grinds soil aggregates as part of the testing process. *Photo: Łukasz Bury, CC BY 4.0 <https://creativecommons.org/licenses/by/4.0>, via Wikimedia Commons.*

Why should you test your soil?

You should test your soil so you know which plants will grow on your site and how best to amend the soil to grow the healthiest plants.

Who should test their soil?

In general, homeowners, farmers and landowners should test their soil to ensure the sustainability of the plants and animals that grow there. Many species of native plants are readily available from plant nurseries or local sales. While they are all beautiful in different ways, each one evolved in a particular type of ecosystem with a particular type of soil. Plant the

Soil Test	Description	Cost
Basic garden test	A low-end measure of pH, nitrogen, phosphorus, potassium and some trace elements.	$15-$40
Basic soil profile	Soil compaction and texture of the soil down to the bedrock	$35-$75
Soil texture test	Composition of soil components (sand, silt and clay)	$50-$80
Heavy metal test	Measure of the amount of soil contamination from lead, arsenic, cadmium, chromium, nickel, selenium or copper	$70-$200

right plant in the wrong soil and you just lost your investment of time and money.

When should you test the soil?
Testing soil at the beginning of a project empowers gardeners to make informed decisions and choose the right plants for the right places.

Experts recommend testing the soil every 3-5 years, depending on your needs. Some people test their soil every year after making adjustments to save money on fertilizer, lime and other soil amendments. Soil samples should be taken in late summer or early fall to get the most accurate measure of the soil during the growing season. Avoid taking samples when the soil is wet or frozen, which makes the samples difficult to mix. Wait several months after a drought or after applying fertilizer, compost or lime before taking a sample. Soil samples can be taken in the spring, but since it often takes 3-4 weeks to get the results, gardeners will have less time to amend the soil before the growing season.

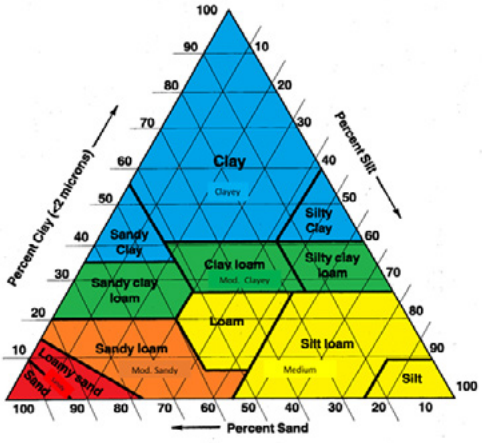
Soil testing options
Inexpensive soil tests — such as tests for pH, or the amount of nitrogen, phosphorus and potassium in the soil — can be purchased online or at a local garden center. However, these tests are not as sensitive. To ensure more reliable results, soil samples can be taken by the landowner and sent to professional soil labs for analysis. Most cooperative extension offices or universities with agricultural schools offer these tests to the public for a reasonable fee.

While professional soil tests will cost more, these tests also come with recommendations on how to correct specific problems your soil may have, depending on what you want to grow. Expect to pay $10-$40 per sample for basic home garden tests and 50 cents-$14 per acre for agricultural tests, according to North Carolina State Extension publications.

How to take a soil sample
Always follow the specific sampling instructions provided by the soil testing lab you choose, as requirements can vary depending on the type of analysis. According to the West Virginia Extension, soil samples need to be taken from at least 5-8 evenly distributed spots for small areas such as lawns and gardens. Be careful to avoid wet, bare or animal urine spots, eroded areas, areas under building eves, field edges, compost or brush piles or sites where trash has been burned. In addition, areas that have a significant slope should be avoided as these areas often have a different composition.

For the best results, use a stainless steel soil probe or spade. Avoid using brass, bronze or galvanized tools that may contaminate the samples with copper or zinc. First, scrape sticks, leaves, mulch or other debris off the soil surface with your hand. Next, use the soil probe or trowel to take samples to the depth the soil is tilled (6-8 inches). Place the samples in a clean plastic pail. Gently crush the samples and mix thoroughly, discarding any roots or stones. Do not send wet samples for testing; instead, air dry the soil samples in a shady spot. When the soil is dry, fill a zip-close bag with approximately 2 cups of the mixed soil to send to the testing laboratory. Areas with different soil types or areas to be planted differently should be tested separately. If you are testing different areas, be sure to label the samples using a permanent marker, (for example, front, back, side yard) and keep a map of where you took the samples. Finally, be sure to complete the form from the soil testing agency and include it in the package. You should get your results several weeks after mailing it in.

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, he enjoys volunteering with several prairie and woodland restoration projects and raising native plants for fundraising sales.



USDA-NRCS Soil texture triangle.

Coming next:

Fall: Interpreting soil test results
Winter: Invasive plants may be as disruptive to the ecosystem below ground as they are above ground

A PRACTICAL GUIDE TO PLANTING WITH PLUGS

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When planting a project, plugs are a smart choice. Traditionally, plugs were considered starter plants and sold mainly to wholesale customers in the nursery or landscape trade. Izel changed the model by making plugs from growers available directly to everyone via our website.
But just what is a plug, and what's all the buzz about them?

Plugs are young plants, usually less than a year old, with vigorous root systems. They're grown in plug trays, which are continuous sheets with individual cells filled with potting soil. Because their soil volume is limited, they store excess energy in their roots and establish quickly when planted.

Plugs are easier to install than plants in larger, finished pots, especially in established landscapes or difficult soils. There's a smaller hole, less soil disturbance, and no need to disentangle their roots. Plugs work better around established plants because their roots start small and intermingle with existing root structures. If you're planting underneath trees, plugs are the go-to size. And the cost per plant is low—a big advantage when covering large areas.

The best reason to use plugs? They make it easier to add more native plants, and that's better for everyone.

If you need a refresher or aren't familiar with plugs, get advice on handling them before, during, and after planting in our Practical Guide to Planting with Plugs.

Izel Native Plants
Every plant counts

Important note: *No plant is fireproof. Research by fire scientists shows that the fire safety of all buildings would be enhanced with at least a 5-foot non-combustible zone around the foundation. As a society, we need to change our approach to foundation gardens. Outside of the 5' zone, plants that are pruned, watered, and appropriately spaced are safer than those that are crowded together and have dead branches and dried leaves. Most evergreens should be placed at least 30', if not more, from homes, including junipers, pines, rhododendrons, mountain laurels, leucothoes, and many more.*[1]

Fire-resistant landscaping:
Native plants and smart design

By Deb Lebow Aal

The fire season is getting longer and hotter. It's of much greater concern if you live close to the rural/forest intersection, but it is now relevant even for urban and suburban dwellers. No landscape is fireproof, as we have seen in multiple fires. Some houses are spared while others burn to the ground.

While these tips are mainly for the Western U.S., some of the tips hold true no matter where you live. According to the National Interagency Fire Center, 64,897 wildfires were reported nationally in 2024, consuming 8,924,884 acres. Seven out of the 10 geographic areas saw above average numbers of wildfires and acres burned.

Here's some things we know to be true, but remember to consult experts when deciding how to landscape for fire mitigation:

Clearing your land entirely is not a good idea (other than in Zone 0, see below)

Bare earth allows hot air to travel fast, capturing embers, with nothing to slow it down. There are many examples where people felt that clearing their land would protect their homes only to find that it exacerbates the problem. Low, well-maintained native vegetation can reduce ember travel better than bare earth.

Native species are generally good plant materials for landscaping in defensible space

Kelly Grummons' garden in Lakewood, Colorado includes plants landscaped into an island with gravel mulch.

Research in California on native species versus exotic species found a distinct advantage to native plants for fire mitigation. See below for why.

Consider limiting Juniper trees

While all vegetation is ultimately flammable, plants in the Juniperus genus seem to be highly flammable and some towns are considering banning Junipers around homes. In general, conifers tend to be highly flammable due to their oil and pitch content. That's too bad as it is a plant that is important to wildlife, but there are many other less flammable alternatives.

Colorado State University Exten-

Be prepared for wildfires

Get ready

• Create a family disaster plan that includes meeting locations and communication plans and rehearse it regularly.

• Plan to take the four P's: papers, prescriptions, pictures and pets.

• Have fire extinguishers on hand and train your family how to use them.

• Ensure that your family knows where your gas, electric and water main shut-off controls are and how to use them.

• Plan several different evacuation routes.

• Designate an emergency meeting location outside the fire hazard area.

• Assemble an emergency supply kit as recommended by the American Red Cross.

• Appoint an out-of-area friend or relative as a point of contact so you can communicate with family members who have relocated.

• Maintain a list of emergency contact numbers posted near your phone and in your emergency supply kit.

• Keep an extra emergency supply kit in your car in case you can't get to your home because of a fire.

• Have a portable radio or scanner so you can stay updated on the fire.

Get set

If you are aware that a wildfire is in the vicinity and are not in immediate danger, prepare for the worst case and do the following:

• Be ready to go when notified.

• Alert family and neighbors.

• Collect important personal items and place them in your vehicle.

• Park your vehicle outside the garage, facing the exit.

• Close all windows and metal shutters (if installed).

• Open window shades and curtains.

• Turn outside lights on to help firefighters see your house under smoky conditions.

• Remove flammable deck furniture and door mats.

• Put non-flammable ladders up against the roof.

• Turn on your garden hoses, with sprinklers attached.

• The idea is to saturate all around the base of your home and yard as best you can.

• Turn off propane tanks.

Go

By leaving early, you give your family the best chance of surviving a wildland fire. You also help firefighters by keeping roads clear of congestion, enabling them to move more freely and do their job in a safer environment.

• Take your emergency supply kit containing your family and pet's necessary items. Consider leaving your house/cabin unlocked with a note inside of who evacuated, where you are heading and the time and date.

• Leave early enough to avoid being caught in fire, smoke or road congestion. Don't wait to be told by the authorities to leave. In an intense wildland fire, they may not have time to knock on every door. If you are advised to leave, don't hesitate.

• Evacuate to a predetermined location (it should be a low-risk area, such as a well-prepared neighbor or relative's house, a Red Cross shelter or evacuation center, local school, etc.)

• Map out multiple travel routes in case one route is blocked by the fire or by emergency vehicles and equipment. Choose an escape route away from the fire. Drive with your headlights on.

Source: Wisconsin DNR

sion Service has a wealth of information on fire-resistant landscaping. ***But how you plant and where you plant is more important than what you plant!*** So, we won't include an exhaustive list of plants to include in your landscape as that will depend on your location. The bottom line is to plant in zones.

Zone 0

Defensible space around your home should be 3-6 feet, preferably 6, of non-flammable material. In this space it is advisable to clear your landscape of vegetation. Nothing under the eaves of your home, and particularly, no wood! There are lots of fire-safe choices – a cement apron; a flagstone walkway, pea gravel or any kind of rock gravel. Make sure that flammable debris does not collect near or on the home or other structures, and keep your gutters clean!

Zone 1

In the next zone, 6 to 30 feet from your house, plant low succulents and ground covers that are lightly irrigated and widely spaced apart. No wood piles or wooden fences – metal and

stucco are preferable. Do not plant in large masses. Rather, plant in small, irregular clusters or islands. Use rock gravel in pathways, which will slow a fire's progression. Even if small fires do start in this zone, they are unlikely to spread to the home if surface fuels are not continuous.

Zone 2

Beyond 30 feet, remove nonnative grasses and keep up on maintenance, meaning clearing weeds and brush and pruning dead branches. Prune up large shrubs and trees so that if the grass catches fire, it will have a hard time spreading to the shrubs and trees. That means, taking branches off to about three times the understory height. Don't clear vegetation – thin it and manage it. Run lots of paths and make some rock sitting areas. Landscaping this way can be really pretty. And irrigate. It's unfortunate, but a bone-dry landscape, which some of us have attempted, is not going to help in a fire situation. Obviously.

Houses can ignite from both an accumulation of embers and from flying embers, as well as from radiant heat and direct flame. So, to reduce risk get rid of areas where embers can accumulate and ignite. This would include wood decks, wood piles, even wooden or wicker furniture.

Beyond that, the more native plants the better, that is if it's the right plant, in the right place, with the right care. And the best design is planting in islands, surrounded by gravel or other non-flammable paths.

Why are native plants so much better than exotics? It has to do with the moisture content of the plants. Overall, native plants maintain a much higher "live fuel moisture content" (yes, that's a scientific term) than traditional ornamental plants. However, there are some exceptions. In chaparral, some plants have both deep and shallow roots. For example, California sagebrush (*Artemisia californica*) is shallow-rooted, while California buckwheat (*Eriogonum fasciculatum*) is more deeply rooted and, therefore, can bring water up from its roots into the layers of the soil co-occupied by *A. californica.* Thus, some plants have mutualistic capabilities to facilitate each other's interactions through moisture distribution.

Lower growing natives exhibit even better fire behavior as they're less likely to carry flames upward or create intense heat. Deep-rooted natives are also more likely to survive and regenerate after a fire. In other words, even though your landscape may look pretty much dead and burned after a fire, native plants will come back due to their root system that resprouts or through reseeding.

So, hydration takes precedence over plant lists. Fire resilience isn't just about what you plant, it's about how you maintain it. I am not going to include a list of natives that do best in fire. Again, that will depend on your location; you can search the internet to find out what plants are best for your region.

A few additional notes:

Mulch

Obviously, wood mulch is flammable, but if it is kept hydrated and not too deep, it can be a good mulch in a fire-resistant landscape. Overhead irrigation is preferred to drip as it gets all of the mulch wet. A better idea is to use non-flammable mulch and hydrated plants. Much better, of course, is pea gravel. Native plants tend to like being planted in pea gravel. You have to keep it weeded (if it's 4 inches deep it resists weeds pretty well), but other than that, it's pretty low maintenance and doesn't need to be replenished as often as wood mulch.

Shrubs

A note about shrubs. We love shrubs – native shrubs are important for the ecosystem**.** But the primary concern for shrubs in a fire-resistant landscape is that they are "ladder fuel." In other words, they guide the fire up. So, don't plant shrubs near windows, vents or tree crowns; keep the grass low around shrubs; and prune dead branches —and, in some cases, lower branches as well.

Oaks

We talk about oak trees having a very high ecosystem value. They support a myriad of caterpillar and moth species. Oaks are also good fire-resistant trees. There is no such thing as a tree that doesn't burn, ultimately, but deciduous trees like oaks and aspens, apples and plums, can be resistant. In the right place, they can protect a house. Oak leaf litter is also good to keep under an oak tree. It will keep the tree much healthier and therefore able to resist fire. Just keep it lightly irrigated, and never within 5 feet of a home or other structure

And one more note – this is from my permaculture class. If you're building a new house from scratch or have the luxury of constructing a house on a large property, fire almost always moves uphill. So, position a house down slope, preferably near a pond.

For more tips on fire smart landscaping, go to readyforwildfire.org/prepare-for-wildfire/fire-smart-landscaping/.

Deb Lebow Aal is vice president of the Wild Ones Front Range (Colorado) Chapter, and has been active in that chapter for over 6 years. She is a former EPA policy analyst and an enthusiastic native plant gardener.

Wild Ones Journal Editor Barbara A. Schmitz contributed to this report.

[1]*Kathy Connolly, Landscape Design, Horticulture Consulting, Mountain Laurel (CT) Chapter member.*

Photos: Linda O'Brien

Your best defense for safety: A well-developed, comprehensive fire pre-plan

By Linda O'Brien

California's wildland-urban interface (WUI) is where the rural chaparral biome meets human development, and wildfires can be deadly.

Chaparral is the shrubland on most of California's foothills and mountains. In 2007, the Witch fire, a fast-moving firestorm, engulfed my hometown of Ramona. This fire destroyed more than 1,000 homes and structures, including all of my neighbors' houses, and claimed two lives. Thankfully, the home I live in survived.

California is witnessing an increase in fire frequency outside this shrubland's typical 30–150 year return interval, according to Richard Halsey, director and founder of the California Chaparral Institute. Chaparral does not *need* to burn, and although chaparral plants do adapt after fire for survival, a high frequency of fires can convert chaparral to invasive weedy species such as black and field mustard (*Brassica nigra*, *Brassica rapa* L. ssp. *rapa*), yellow star-thistle (*Centaurea solstitialis* L.) and bromegrasses (*Bromus* spp.). These invasive species outcompete the natives and are highly flammable as they dry out. The California Mediterranean climate has hot, dry summers and cool, wet winters. However, when Southern California experiences multi-year droughts and more frequent Santa Ana wind events, it contributes to drier vegetation conditions.

After the Witch fire, I cleared acres of shrubland on my property to bare dirt for years, thinking this was the best way to maintain fire safety. At the time, I had little understanding of fire effects, how disturbed soil invites invasive species, or native plant landscapes. After several years of battling an onslaught of invasive weeds, I restored my land's chaparral and coastal sage scrub. Learning about native plants requires planning regarding when, where and what to plant. Gardening with native plants was a shift in mindset. Thankfully, there is information available for creating fire wise, native gardens from the California Native Plant Society. Restoration, native plants and fire safety have become central themes in my research and class papers during my biology master's program. A fire-resilient garden plan and understanding how to harden a home, or make it more resistant to wildfire damage by modifying the building and its immediate surroundings without working against nature, are critical.

Linda O'Brien has hardened her home to make it less likely to burn in a wildfire, including adding fire-resistant features such as a non-combustible patio, rock landscaping around the property, an asphalt roof and Hardie board siding—with no vegetation in Zone 0.

Current trends focus on protecting communities and fireproofing homes, even for those not living in WUI areas. In February, California Gov. Gavin Newsom signed an executive order expediting the implementation of "Zone 0" regulations, which mandate ember-resistant zones within 5 feet of structures in high-fire hazard localities. This new "Zone 0" requires removal of all vegetation, brush and flammable materials close to homes to reduce the risk of ignition from wind-driven embers.

Zones are defensible space areas designed to reduce fire risk and enhance wildfire resilience. Traditionally, these included Zone 1 (0–30 feet from structures), which focuses on reducing fuels, and Zone 2 (30–100 feet), which involves managing vegetation to slow fire spread. Embers, carried by the wind ahead of fires, can ignite anything in their path and are responsible for many homes catching fire. Halsey said, "Bare ground can be a bowling alley for embers." He recommends

Left: In spring 2022, vegetation is beginning to return to O'Brien's property, including invasive black mustard and a tobacco tree, along with native California buckwheat (*Eriogonum fasciculatum*). Right: O'Brien's yard in spring 2024 shows mostly California buckwheat (*Eriogonum fasciculatum*) and poppies (*Eschscholzia californica*) in the background mixed with deerweed (*Acmispon glaber*) and San Diego bird's-foot trefoil (*Lotus hamatus*).

people make sure no debris, dried plant material, dead shrubs or wood surrounds their homes. You should also ensure there are no stacks of firewood, lawn furniture, wood fencing or even a broom placed against a wall that could catch an ember.

My home has asphalt roof shingles, and the siding on my house is fire-resistant Hardie board, a fiber-cement material that can withstand higher temperatures. I also enclosed all roof eaves and covered the roof vents and small openings with ⅛-inch metal screening to prevent embers from entering. I suggest installing metal-framed double-pane windows. It is also important to establish a nearby, reliable water source that can be used during a fire if there is no electricity or city water. I have an elevated 5,000-gallon water tank. For trees, ensure there is adequate space so branches do not touch each other or any structures, and keep shrubs spaced adequately to reduce fuel continuity. Trees and shrubs should be well-maintained to prevent debris accumulation or dead material.

To harden your home and property, begin by assessing the view from your house outward. This perspective aids in developing defensible space, starting with the home itself. Outside of Zone 0, investing in native landscapes will ultimately equip your garden to withstand fires better. While no plant is fireproof, selecting native plants that retain moisture and have lower flammability when planting closer to home, such as California fuchsia (*Epilobium canum*), is advisable.

My landscape restoration consists of coastal sage scrub, which is characterized by low-growing aromatic plants, and borders a lowland area of chaparral. Without frequent fire, stands of chaparral can be 60+ years old and are impenetrable on foot, but they populate much of California's most extensive plant community, according to "Introduction to California Chaparral" (Quinn & Keely, 2006). Species in coastal sage scrub are primarily deciduous, while chaparral plants are generally evergreen. Some sclerophyllous plants in these habitats have a hard, waxy texture that helps them conserve moisture. Certain plants feature softer, lush leaves during the wet season, transitioning to tougher, drought-resistant leaves in the dry, hot summer. Some plants, such as chamise (*Adenostoma fasciculatum*), have long roots, allowing them to access water deep in the soil to conserve moisture.

Coastal sage scrub is home to many rare plant species and is a rapidly declining habitat. There is a wide variety of plants in the chap-

Left: In fall 2022, O'Brien began planting. Right: Just a few months later, black mustard (*Brassica nigra*), shortpod mustard (*Hirschfeldia incana*) and Maltese star thistle (*Centaurea melitensis*) returned with rapid growth. These are non-native, pioneer species commonly found in fire-prone areas.

arral biome, with some species like toyon (*Heteromeles arbutifolia*) occurring in chaparral and coastal sage scrub plant communities, depending on conditions. It is beneficial to research which plants to buy, their placement in your garden, and their specific water, sun and soil needs. Chamise (*Adenostoma fasciculatum*), laurel sumac (*Malosma laurina*) and manzanita (*Arctostaphylos* spp.) are dominant plants in chaparral shrubland. Coastal sage scrub plants include California sagebrush (*Artemesia californica*), salvias, California buckwheat (*Eriogonum fasciculatum*) and monkey flower (*Diplacus* spp.) For larger plant or tree options further away from a structure, consider California lilac (*Ceanothus* spp.), sugar bush (*Rhus ovata*) or native oak (*Quercus* spp.) trees. Creating natural landscapes and habitats will draw in birds, pollinators and wildlife, bringing your garden to life. Moreover, many native plants benefit from being planted near others, as their associated microbial communities can interact in ways that support one another, so choose plants that grow well together.

A well-developed, comprehensive fire pre-plan is your best defense for safety. This means taking proactive steps, both inside and outside your home. Ensure your home has fire-safe features and a nearby backup water source. Keep your garden tidy and select plants carefully, prioritizing weed control and pruning dead material. These actions, combined with home hardening, can help aid safer outcomes when battling the next firestorm.

Linda O'Brien will graduate at the end of the year with a master's in biology from Miami University. She completed the Chaparral Naturalist program with the California Chaparral Institute, and she volunteers in the Nativescapes chaparral garden at the San Diego Safari Park. She is membership chair of the Wild Ones San Diego (California) Chapter and reminds people that she is not an expert and that you should verify all fire safety suggestions with the proper authorities in your area.

O'Brien's yard in summer 2021, the last year she had bare ground, thinking it would deter fire from spreading.

All photos courtesy Barb Agnew unless noted

Persistence saves monarch roosting area and natural areas

By Barb Agnew

On a warm fall evening in 1999, I stood silently watching hundreds of monarch butterflies land in a tree on county grounds in Milwaukee, Wisconsin. At the time, the county's 295 acres had been largely spared from urbanization and still served as an environmental corridor of nature along the Menomonee River watershed.

People walking with friends along paths through the open space wondered why I was so mesmerized by an old American sycamore (*Platanus occidentalis*) tree. Of course, once shown the monarch butterflies on its limbs, each person became enamored by the sight. This was a roost site for migrating monarch butterflies every September.

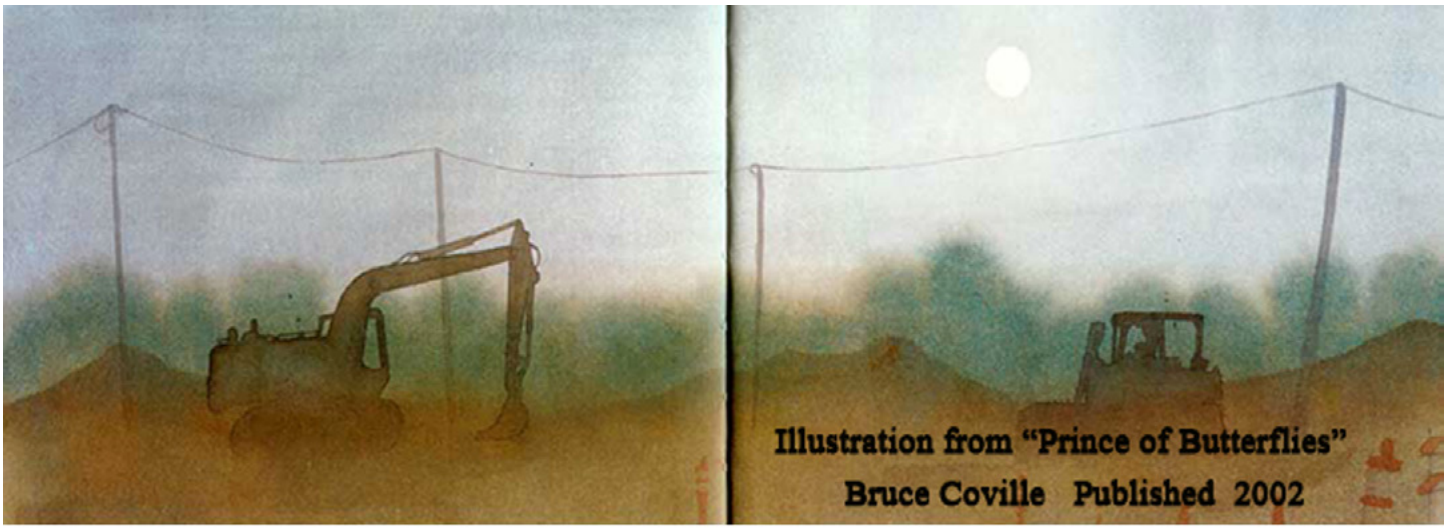
Two years later, the United States was shaken to the core on 9-11. Still in shock, I went to stand next to the sycamore after work as I witnessed once again the monarchs floating in to roost. I was reassured that this beautiful phenomenon would continue to comfort me.

However, rumors had started that in the near future the entire area was going to be bulldozed for retention ponds and development. I knew that without major public support, the whole area including the monarch roosting site would be gone. So, I turned to a staff photographer from the then-Milwaukee Journal newspaper to come out on Sept. 14 and document, in pictures, the incredible scene of monarchs coming over the hill and accumulating in this tree. The timing for witnessing this phenomenon was perfect, the wind shifted, and in a wild flurry the monarchs were swarming in. Dale Gulden put his camera down and watched, too amazed to focus on any single picture. A story was never printed.

In 2010, many people flocked to the roosting tree to see the robust monarch migration.

A few years later, the massive regrading project that threatened the entire natural area including this monarch migratory roosting site became a reality. The Milwaukee Metropolitan Sewerage District (MMSD) planned 95 acres of flood basins and eventual deposit of the earth on another 55-acre parcel. Armed with photos, I attended my first Wauwatosa Common Council meeting and successfully advocated the preservation of not only the sycamore tree, but also the surrounding stand of trees that created specific microclimates needed by monarchs.

Subsequent years brought challenges beyond saving a tree and included sale of the land and major development projects that



When an illustration in the book "Prince of Butterflies" closely resembled what was occurring on the Milwaukee County site, Barb Agnew contacted the author, Bruce Coville, for help. Coville wrote a letter in support of saving the land, which was read by a child at the Wauwatosa Common Council meeting.

again threatened this rare monarch site. Saving this monarch roost site was not just about going out and planting and counting, but it also meant becoming involved in local politics. Politicians had to endure being schooled by children about the lifecycle of monarchs and that it was not a "nesting site," but instead a roosting site.

At one point I was given a children's book, "Prince of Butterflies" by Bruce Coville. The book told a story about a young boy who was moved to help monarch butterflies. An illustration in the book was so familiar I couldn't help but reach out to the author and ask him for help with our effort to save the site. With a letter from him, read by a child at the Wauwatosa Common Council meeting, we hoped to tip the needle.

Years of gathering public awareness and support finally secured a future for the small 11-acre site, including the sycamore. It was preserved in perpetuity in 2009 when Milwaukee County adopted a habitat protection plan.

We were graced with a robust monarch migration in 2010 that brought out more people than ever before. Although the number of migrating monarchs fluctuated each year, the faces of those who saw them roosting in the trees became inspiration and testament of just how precious and rare the monarch conservancy would become in the community.

Unfortunately, we continued to face many more development projects like construction of the Wisconsin Department of Transportation's (DOT) I-41 Milwaukee Zoo Interchange. The interchange construction wiped out nearly all the remaining western portion of the county grounds that supported the monarch migration. But not before we advocated for the Wisconsin DOT to create a pilot project that would include an amended seed mix with common milkweed (*Asclepias syriaca*) and boneset (*Eupatorium perfoliatum*) in some of their reseeded

Before and after: The easement at planting and in 2017, now a monarch migratory corridor.

right of ways. At a number of public meetings in 2011, I befriended an engineer who had a sincere interest in the natural world, and he arranged a couple of guided tours with other engineers so I could demonstrate the microclimates on the site. This included wind and light patterns all formed by the topography and the stand of trees. Eventually, the plan reflected these formations as important and were left in place.

The associated line placement by the American Transmission Company (ATC) also posed a challenge, but ATC altered the line placement so it would skirt the grounds and follow the roadway instead of cutting through the open natural areas. However, subsequent meetings were unproductive, and they did not add native plants or seeds. (Coincidentally, in January 2025, ATC became one of Wisconsin's first utilities to join the National Monarch Butterfly Candidate Conservation Agreement with Assurances for Energy and Transportation Lands.)

But each new development project brought another cut into the ecosystem. A University of Wisconsin-Milwaukee research campus was on the books and construction began in 2012 by first slicing through the county grounds with a wide road from north to south. The earth was scraped except for the 11 acres we had preserved.

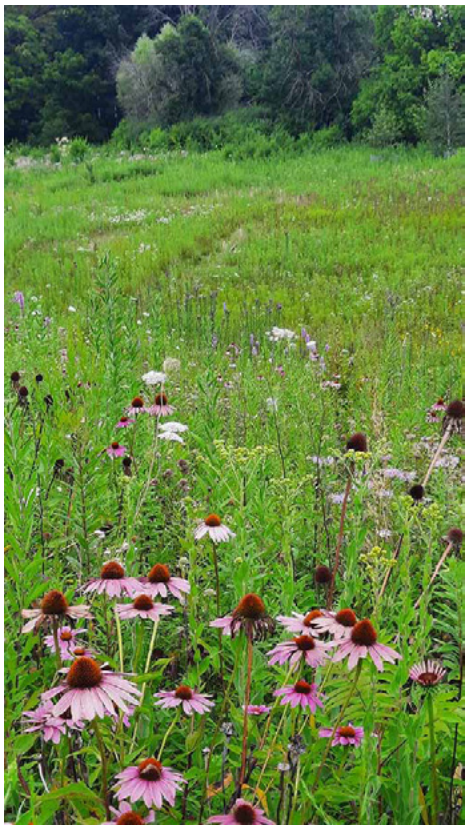
As development progressed, we formed Friends of the Monarch Trail, a troop of valiant volunteers, including Wild Ones members, who faced the barren land with optimism and seeds. Each new building project was déjà vu as we worked with the city and developers to improve plans with native plants and better outcomes for wildlife.

The trail, located on the Milwaukee County Grounds within Innovation Park at Discovery Parkway and Eschweiler Drive, allows people to walk the trail and view the monarch roosting site.

Once the highway interchange was completed in 2014, we next hunkered down to reestablish the entire DOT easement. With the help of a significant grant from the Fund for Lake Michigan and another from the MMSD, we were able to transform the easement from nothing into a functioning wildlife habitat —complete with wetlands, meadows, upland hills and stormwater streams —using native plants to recreate the monarch migratory corridor that once supported them.

With the addition of this 11-acre highway easement to the existing 11-acre parcel that protects the sycamore roost site, the monarch conservancy now spans 22 acres. The land is still in need of constant protection and preservation. Intense management of invasive species continues, as does careful planning of projects to engage more people each year help to reestablish high quality ecosystems.

The UW-Milwaukee development project did not materialize and the land, including the monarch conservancy, was sold to a developer, but not before we insisted on a



Native plants thrive on the new berm added to the monarch conservancy grounds.

continued agreement of protection with a deed restriction and management of the conservancy parcel. We also retained portions of the original land sale agreement that required native landscapes and some natural areas within the development parcels.

The Wauwatosa Common Council has continued to try to develop more of the county land, including the historic Sanctuary Woods — an old-growth hardwood forest —along with recovering woodlands and wetlands on the eastern side of the county grounds. But the Wauwatosa council members were not as persistent as the community. The Sanctuary Woods won an additional 50+ acres for wildlife, and in 2018 was added to the 55-acre County Grounds Park.

To this day, we meet with the landowners to ensure they are following agreements and not allowing their landscapes to be mowed or become infested with invasives, and that their contractors are not throwing debris into the conservancy.

The monarch conservancy is "home" to me now, and I find comfort and motivation working on the site and sharing it with others. Our collective goal is to keep all of the natural areas that have been fought for protected as healthy natural ecosystems. We hope for a succession of young people to preserve in perpetuity this precious conservancy for wildlife and humanity.

In between major developments, we solicit the media to keep the public's eye on what is happening, so they remember how amazing the monarch conservancy is. Friends of the Monarch Trail events, such as prairie walks and the monarch migration, help to educate people about native plants and monarchs, while our annual plant sale provides our main source of funds.

The lesson to take from our story is to never give up. For each new development and construction project proposed over nearly 20 years, we responded with facts about impacts, ideas for better ways of designing landscapes and arguments promoting how important monarchs, pollinators and birds are to this community and our world. We attend county and city meetings whenever proposals or discussions involve this land.

As Thomas Edison once said: "Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time."

Barb Agnew is a member of the Wild Ones Menomonee River Area (Wisconsin) Chapter.

Photos by Barbara A. Schmitz unless noted

Are aphids on milkweed really a bad thing?

Oleander aphids (*Aphis nerii*) on swamp milkweed (*Asclepias incarnata*).

By Adam Varenhorst

During this time of the season, many of us are closely monitoring milkweed in our yards and on our property for monarch caterpillars. However, it is not uncommon to notice large populations of small yellow insects covering the leaves and stems of the milkweed plants. In recent years, we've noticed large populations of oleander aphids (*Aphis nerii*), particularly on swamp milkweed (*Asclepias incarnata*) plants.

Oleander aphids are not a native species. They were first introduced into the U.S. on oleander, a shrub or small tree cultivated worldwide in temperate and subtropical areas. Oleander aphids are bright yellow with black legs, antennae and cornicles or tail pipes. They commonly infest oleander (*Nerium oleander*), common milkweed (*Asclepias syriaca*), swamp milkweed and butterfly weed (*Asclepias tuberosa*). Like other species of aphids, their populations can explode in a short amount of time. When large populations are present, the plants will appear shiny due to the excretion of honeydew, which can also promote the growth of sooty mold.

Unlike most other species of aphids, oleander aphids are sometimes left alone by predators. This is due to the oleander aphids sequestering the cardenolide toxins from the milkweed, which are toxic to predators. This, in turn, prevents predators from effectively feeding on their populations.

While these aphids are easy to spot because of their bright color, smaller numbers of them can be found by following ants as they move around the plant. Ants will tend these aphids and collect their honeydew as a food source.

So, what can be done to limit oleander aphids on milkweed? First and foremost, we do not recommend using foliar insecticides. The purpose

So are aphids on milkweed really a problem?

It depends on scale and context.

Aphids feed on plant sap. They do **not harm monarch eggs or caterpillars directly**, and monarchs will often still use lightly infested plants. In a diverse garden, a few aphids are often tolerable and may even reflect a functioning insect community.

But left unmanaged, large aphid populations can cause problems:

• Weaken young or potted milkweed.

• Promote sooty mold through excess honeydew, reducing photosynthesis.

• Attract ants that protect aphids and may disturb monarch eggs or larvae.

To keep things in balance:

• Avoid high-nitrogen fertilizers, which boost aphid reproduction.

• Water plants regularly to help them tolerate sap-feeding.

• Plant nectar-rich natives like yarrow (*Achillea millefolium*) and phacelia (*Phacelia spp.*) to attract hoverflies — whose larvae eat aphids. You'll also want to attract ladybugs, which just happen to also feed on nectar and pollen — thus, the same native plants you currently plant to attract butterflies, bees and other pollinators. (One ladybug can eat up to 5,000 aphids in its lifetime!)

• Monitor populations and remove aphids by hand if needed.

There is one other option if you don't like seeing aphids taking over your milkweed. Try planting flowers or scented herbs near your milkweed plants that naturally repel aphids or lure the pests away, such as marigolds, alliums, nasturtiums, dill, catnip and anise. (I've had limited success doing this, but I've found that I decrease the number of aphids taking over my swamp milkweed in years I plant marigolds, for example, versus years when I don't.)

Some aphids aren't a problem. But persistent, high numbers **c**an undermine monarch habitat if not addressed early.

Sara Ressing and Barbara A. Schmitz contributed to this story.

Photo: Anne Bernhard (Wild Ones Mountain Laurel (CT) Chapter)

of milkweed is to encourage monarchs to lay eggs and allow monarch caterpillars to develop. Spraying the plants would be detrimental to the caterpillars. Instead, water the plants to ensure that they are able to tolerate the aphid feeding. Also, it is important to not fertilize the milkweed plants. Aphids reproduce more quickly on plants that have high nitrogen concentrations.

If the population becomes too dense, use your fingers to squish the aphids. You might want to wear gloves when doing this as it will be a sticky mess. We don't recommend using high pressure water to remove the aphids as this could also remove any monarch caterpillars that are present on the plant.

Reprinted from the South Dakota State University Extension. Adam Varenhorst is an associate professor and South Dakota State University Extension field crop entomologist. Amanda Bachmann, Philip Rozeboom and Patrick Wagner contributed to this story.

Learn more about what to do about aphids at the Wild Ones West Cook (Illinois) website.

Small forests, big benefits: The Buhr Park Pocket Forest

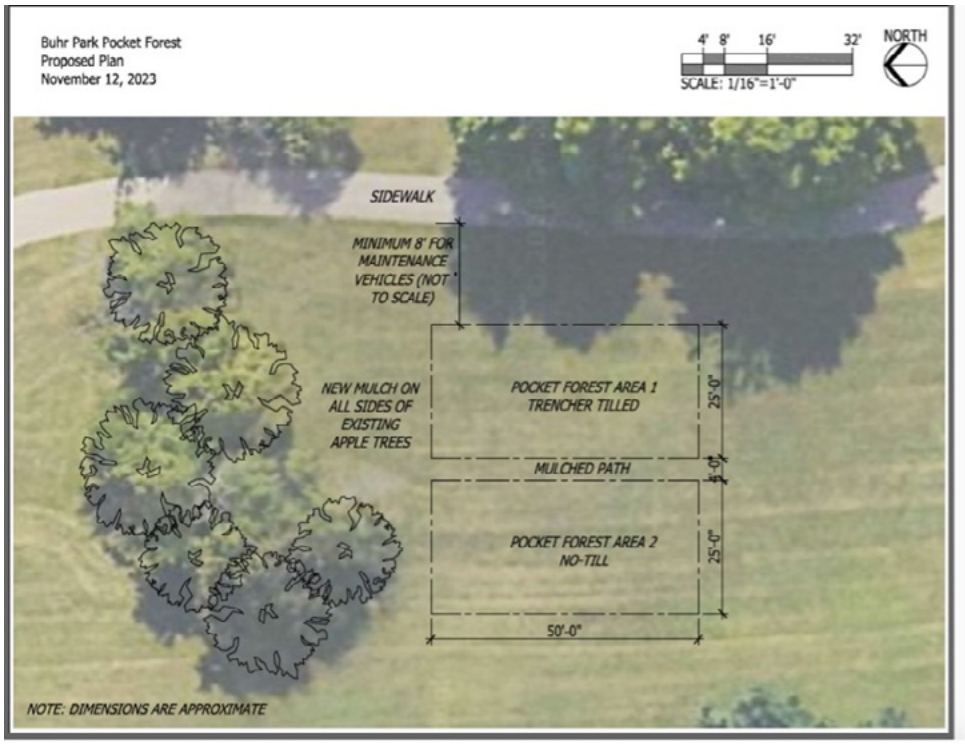
By Marta Manildi

Pocket forests are one more way to reduce lawns, establish healthy ecosystems and build community. They support Wild Ones' mission pillars of education, advocacy and collaborative action.

Introduction to the Buhr Park Pocket Forest project

One person can start an avalanche! One day in August 2023, Wild Ones member Barbara Lucas, also working with the Citizens Climate Lobby (CCL) Healthy Forests Initiative, contacted the Wild Ones Ann Arbor (Michigan) Chapter (now Wild Ones Ann Arbor Area Chapter) and another Ann Arbor native plant success, the Buhr Park Children's Wet Meadow Project (CWMP), to start a conversation about Miyawaki "mini forests."

The informal coalition of Wild Ones, CWMP and CCL began with curiosity and further research into Miyawaki forests, sparked by Lucas' online research and her visit to Hamilton, Ontario, where homeowners were planting small forests in their own yards. Miyawaki forests are small areas (in contrast to natural forest ecosystems), often in urban settings, that use an approach developed by Japanese botanist Akira Miyawaki. We ended up planting 300 native trees and shrubs in a 2,500-square-foot area in Buhr Park, one of Ann Arbor's largest and most used public parks. We are excited to have installed our little "pocket forest" and will be adding native ground cover plants this year. This is a short version of the story of how we did it.



Above: Buhr Park Pocket Forest Project Site Overview; Below: Spring Planning Meeting in Buhr Park.

The Miyawaki method

At the core of the Miyawaki approach is a very dense planting of native trees and shrubs that will grow to different heights. This imitates what happens in natural forests, and intentional soil amendments give everything a strong start. The result is very fast plant growth, and the time required for maintenance while plants get established is much shorter. The environmental benefits come sooner, too — healthy soil; multitudes of insects, birds and other wildlife; water management and recharge into the water table; locally cleaner and cooler air; and carbon sequestration. Variations on these little forests have been planted in places around the globe and they have been successful at creating environmental benefits similar to a large forest, but sooner, and on a small scale that is well suited

Left: Tilling the "Miyawaki" (eastern) bed; Right: Bare root plants in a home "nursery."

to homes, business campuses, public parks, urban open spaces — anywhere that there is access to sunshine and water.

A core planning group of six started with a lot of ambition and no direct experience. We applied for and received four generous grants: two from nonprofit membership groups, the Wildflower Association of Michigan and Ann Arbor Farm & Garden; one from the Elizabeth Dean Fund, a charitable trust with a mission to support trees in Ann Arbor; and one from Sustaining Ann Arbor Together, a city neighborhood grant program to support sustainability and climate goals. Our total budget for the first year was $13,250 and, thanks to many in-kind contributions of plants, tools, soil, mulch and water, we finished the year with a balance of $174.52. We may engage in future fundraising for water, signs, public days and some non-woody plants.

Our foundational group did not have a hierarchy. Planning, volunteer recruitment, purchases, solicitation of in-kind loans and donations (e.g. tools, plants), documentation and communication were carried out in a collaborative and cooperative approach. The 100-plus volunteers who helped at various stages of the project — including both adults and school-age children — were recruited from WO, CCL and CWMP members and participants, the neighborhood around Buhr Park, personal friends, individuals passing by the pocket forest site while out in the park, the Seeds to Community Project (a partner of the Wild Ones Ann Arbor Area Chapter), the Washtenaw County Conservation District, Allen Elementary School, Michigan native plant growers and landscapers and the city of Ann Arbor.

In the fall of 2023, we applied for a permit from Ann Arbor to install the forest in Buhr Park. In February 2024, we presented our proposal to the Ann Arbor Parks Advisory Commission and our application was granted. Wild Ones' national organization, on behalf of the project, entered into a renewable General Service Agreement with the city. National Wild Ones also provided essential liability insurance for our workdays and created a Memorandum of Understanding with the chapter regarding the pocket forest.

What we did

• *December* 2023: Created pocketforests.org/, a website introducing our project and the concept of pocket forests, and providing references to information and other resources. Popular features include a 7-minute video, an FAQ button and a "Pocket Forest Principles" flyer.

• *Throughout*: Recruited volunteers, researched best practices and discussed and resolved procedural and substantive issues, including species selection factors and the distribution of plants within the beds.

• *Spring*: Purchased and temporarily planted 100 bare root plants in "nursery" holding beds until fall; of these, 80 plants survived. Wild Ones members donated 140 tree saplings and shrubs, and we purchased 80 plants from local native plant nurseries, for a total of 300 plants.

• Learned how to make compost tea and sourced ingredients. Sent soil samples to Ward Laboratories in Kearney, Nebraska, and received an analysis showing, among other things, low carbon levels in the soil. Periodic soil samples will be taken going forward to assess the effect of the pocket forest on soil health.

• *May/Summer*: Decided to experiment using three different soil preparations. In the "Miyawaki" area, a contractor tilled the soil about 2 feet deep, mixed in woodchips and compost, and returned the mix to the bed. Volunteers leveled and smoothed the mounds, raked in compost tea, added a winter rye (*Secale cereale*) cover crop, and finished with a straw mulch. In the untilled areas, half was layered with cardboard,

Below: Donated saplings waiting to be planted; see pocketforests.org for more!

compost and woodchips, and the other half was covered directly over mown grass with 8 inches of woodchips. Grade-school students were instrumental in spreading and raking woodchips. We posted temporary informational signs.

• *June 18*: Co-sponsored a webcast forum to discuss the benefits of pocket forests. Panelists were Douglas Tallamy, Giuliana Casimirri, Christine Dannhausen-Brun, Neelan Patil and Maya Dutta. More than 400 people registered nationwide. A link to the broadcast is on the website at pocketforests.org.

• *Fall:* Developed a planting grid designed to randomly locate the tree and shrub species of various mature heights. We borrowed and leased equipment and developed a planting day workflow. We held a practice planting day to test equipment and workflow with 11 different species in three planting "squares," protected by temporary chicken wire fencing.

• *Oct. 22. Planting Day!* 65 volunteers planted 300 plants of 45 different species, marking each with a color-coded stake to indicate its expected height category (tall/canopy, big, medium or small) when mature. We watered the beds with borrowed hoses running from a generous neighbor's spigot. Two 8-foot deer fences were erected, each with a gate — 300 linear feet in all — with a major path running north-south between them, and two smaller access paths running east-west through each side. The major path terminates at the north end with an adjoining old-tree apple grove, where one Kentucky coffee tree (*Gymnocladus dioicus*) was planted. We plan to place a bench there as well, offering a beautiful forest-immersion effect for future visitors.

• *Fall:* Created a water brigade to periodically water each plant in the forest. As a future benchmark, we measured the height of each sapling.

• *Fall:* Washtenaw County was inspired by our project, so Lucas, from the core planning group, supervised the soil preparation of a much smaller pocket forest in County Farm Park, assisted by a grant from the Dexter Farm & Garden Club. The plants were installed in spring 2025. Other planning group members are advising homeowners who have expressed interest in putting a pocket forest in their home yards.

What we plan for the next 2 years

We are currently assessing the best approach to watering over the next 2 years, creating informational signs and identifying tests, measurements and observations to help us evaluate the success of our project. These will focus on factors such as air temperature, soil health, insect biodiversity, pollinator support, bird sightings, tree growth rates and human health and well-being. We will also carry out basic maintenance, such as watering and weeding, fence security and any culling made necessary by invasive insects, fungal diseases or other pests or pathogens.

We hosted a joyful pocket forest dedication for the public in conjunction with Earth Day 2025.

Mistakes and lessons we have learned

We ended up being 100 plants short of our planting goal. We had expected 400 woodies, but on planting day we had just 300. The shortfall was the result of losing 20% of our bare root plants. Other shortfalls occurred when growers had some seeds that did not germinate, and some plant donors lost seedlings before they could be transferred to us. We recommend planting any bare root plants immediately upon buying them.

We also recommend walking the site with any contractors to ensure both parties understand the scope of the work.

In conclusion

Please be sure to visit the project's website — pocketforests.org — for more information. We hope you will consider building a small forest in your landscape. If you do, we very much want to know about it!

Charter school's new garden offers STEM-focused learning

Green Charter Elementary School added a garden in a central courtyard that provides students STEM-focused learning opportunities in areas including soil health, water conservation, pollinator and native bird habitat and more.

Made possible thanks to a Wild Ones Lorrie Otto Seeds for Education grant, the garden is an active space that is utilized daily by students and faculty, according to Project Coordinator Christina Bates.

The Spartanburg, South Carolina school officially dedicated its Green Garden on Earth Day, April 22, 2024. During the dedication ceremony, students planted a native downy serviceberry (*Amelanchier arborea*) tree, and several students spoke about the importance of native plants.

The students love seeing hummingbirds, monarchs, bees and other pollinators in the garden, as well as the hundreds of tiny tadpoles in the small pond that includes a solar-powered fountain, Bates said. The pond also provides birds with a water source, she added.

About 30 students planted about 25 varieties of native plants in the new garden, including milkweeds (*Asclepias* spp.), coneflowers (*Echinacea* spp.), bee balm (*Monarda fistulosa*), yarrow (*Achillea millefolium*), and others, she said. Over the summer of 2024, the garden was maintained by PTO volunteers, and by August 2024, it was fully established, according to Bates.

"Multiple pollinator species have been spotted in the garden, much to the delight of students and visitors," she said. "The Green Garden is a beautiful space enjoyed by all."

Bates said some of the objectives of the garden are to provide a rich sensory experience for students and to foster a healthy appreciation and fascination with the living world around them. As part of that, aromatic herbs were planted along the edges of the garden, allowing students to use their sense of sight, smell and touch to discover the wide range of smells and textures provided by herbs.

Green Charter Elementary School's new garden immediately after being planted in 2024. About 30 students helped plant 25 varieties of native plants last spring and more native plants were added this spring.

For others planning similar projects, Bates recommended organizations have a group of dedicated individuals who can see the project through from start to finish, as well as involve students and teachers as much as possible.

Bates said future plans include adding more species of native plants, installing a rain barrel and adding more mulch to keep weeds down.

Chapter creates, shares native plant food chain graphic

By Renée Benage

During our 2024 spring wildflower market, members of the Wild Ones St. Louis (Missouri) Chapter were surprised by how many shoppers were unfamiliar with the concept of native plants as host plants. Many had never heard the term "host plant" or understood the connection between native plants, caterpillars and the life cycle of butterflies, moths or even songbirds. As you might imagine, that is a lot to take in while you are having a quick conversation at a plant sale.

Our chapter discussed the need for a graphic that clearly illustrates this native plant food chain and could be used at future outreach events. When we couldn't find an existing graphic that communicated these interconnections well, we enlisted local St. Louis artist Nathan Pionke to design one. With feedback from our board members, final designs were created in three sizes, including one size for a tabletop display.

While no reasonably sized graphic could provide a comprehensive list of host plants, we feel this graphic is a good representation of the concept and a starting point for conversation.

Wild Ones chapters may download this graphic in three sizes — 8.5" x 11", 15.75" x 32.125" and 24" x 36" — for use in their own events and outreach. Please limit edits to essential changes, such as adding your chapter logo.

Renée Benage is a chapter board member and the membership chair of the Wild Ones St. Louis (Missouri) Chapter.

Laurie Henderson of the Wild Ones Southwest Illinois Chapter works the display table at an event where the Wild Ones St. Louis (Missouri) Chapter's new graphic is on display. Three Wild Ones chapters shared the table. *Photo: Renée Benage*

Tips for chapters: Creating your own outreach materials

Visual tools can help volunteers quickly convey complex ideas at plant sales, tabling events and community talks. **Start with the questions you hear most.** What are people confused about? What do they pause at your table to ask? These common questions make great prompts for visuals.

- **Use native plant principles as your guide.** Wild Ones values evidence-based information, so be sure to research and share the latest evidence-informed strategies and advice.
- **Collaborate locally.** Don't be afraid to bring in a graphic designer, artist or photographer from your community.
- **Think about scale.** Will this be used on a table? A lawn sign? A social post? Create formats for different uses. Tools like Canva's free version allows users to design graphics, websites and videos using a variety of free templates, images and other design elements. Be sure to save graphics as high-resolution PDFs or PNGs (300 dpi) for print use.
- **Use Wild Ones branding.** Access official logos, templates and branding guidance at branding.wildones.org. Email support@wildones.org if you have questions.
- **Use visuals to communicate fast.** A clear, focused image with bold headings, minimal text and intuitive illustrations can convey complex ecological relationships in seconds. Aim for simple layouts, high contrast and species that people can recognize at a glance.
- **Test and revise.** Ask volunteers or visitors what they take away from the graphic. Refine it over time.

If your chapter has created a visual resource or is interested in doing so, email support@wildones.org to share it with Wild Ones National. Your work will inform new outreach tools for chapters across the country.

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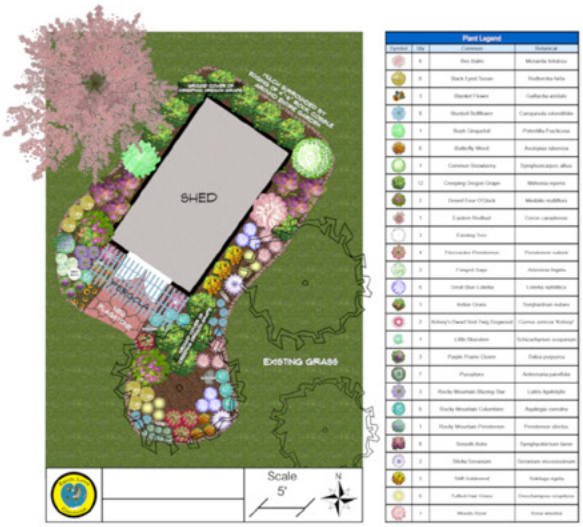

• **We remotely design your landscape** utilizing an abundant variety of beautiful regionally-native plants that provide as low-water habitat for pollinators and birds. We focus on plants that are available at nurseries, to make the implementation of the design as simple as possible.

• 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.

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Lorrie Otto: Godmother of natural landscaping

Milwaukee-area woman was the inspiration for Wild Ones

By Barbara A. Schmitz

She was a mother, a friend, a gardener and an environmentalist. But for those early Wild Ones members nearly 50 years ago, she was an inspiration.

Lorrie Otto, who died in 2010 at age 90, may be best known for her activism which played a crucial role in Wisconsin being the first state to ban DDT in 1970 and, two years later, in the United States.

But she was also the inspiration for what would become Wild Ones. According to Wild Ones archives, nine people attended a natural landscaping workshop offered by the Schlitz Audubon Center of Milwaukee in 1977 and became interested in the new concept of landscaping with native plants. Their enthusiasm launched the "Wild Ones Garden Club" in 1979, eventually becoming the Wild Ones Milwaukee-North (Wisconsin) Chapter and blossoming into today's national nonprofit educational organization whose mission is to promote native landscapes through education, advocacy and collaborative action. Today, Wild Ones has about 100 chapters and 36 seedlings in 36 states totaling nearly 12,500 members.

The nine founding members relied on Otto as their resident expert, and she took responsibility for programming.

Rochelle Whiteman, who hosted the first Wild Ones membership meeting at her Glendale, Wisconsin home, said her gardening hobby turned into a mission thanks to Otto.

Whiteman, who gave the eulogy at Otto's funeral, said she didn't know anything about native plants when she first met Otto. But Otto, in her gentle way, persuaded others to do things for Wild Ones that they never would have done without her influence, she said.

Lorrie Otto. *Photo: The Milwaukee Journal Sentinel*

"I loved Lorrie more like a mother," Whiteman said. "I felt that she raised me to do something. We were just gardeners, but Lorrie taught us to be leaders. But the most wonderful thing happened. It gave me a purpose. I was into gardening before I met her … but she allowed me to spread the philosophy about natives. She told us to pass along the word (about natives) just as she did for us."

Otto asked Whiteman to speak to small gardening clubs, school groups, men's groups and educational groups about native plants and how they differ from nonnative species.

She would also send people to Whiteman's or other members' homes with little or no advance

warning. "Once she sent British photographers to their homes for a TV program about the revolution of landscaping that started in the Midwest," Whiteman said, adding that she was surprised when, about a year or so later, she heard from a cousin living in Israel that she had just seen Whiteman's yard on TV.

When some of the members questioned if they had the skills or could do whatever task that was given, Otto always believed in them, Whiteman said. "She collected people who had talents, and she used their talents. I don't think she could have imagined that Wild Ones could grow as large as it is."

In fact, she didn't even imagine it would become a national organization in the beginning, Whiteman said.

Whiteman said Otto often urged people to rescue valuable plants if they saw them being dug up or discarded. "I remember driving by a street that was being widened when I saw a plant, so I stopped and dug it up," she said. "But as I was digging it up, I was stopped by a police officer who asked what I was doing," she said. "I told him, 'I'm doing God's work.'"

In other words, Otto's work.

Rae Sweet, a founding Wild Ones member, recalls how Otto would have parties in her backyard to show people native landscaping and tell them how to do it.

"She was just a wonderful woman," Sweet said. "Lorrie was powerful, quiet and poetic and led by example and storytelling. She always had something to tell us at our early meetings at the Audubon, and she was also in charge of choosing speakers and planning our yearly seminar."

Lorrie told the garden club members about her childhood walks when she often would discover rare native plants — including one she later found in the ravine behind her home.

Wild Ones member Carol Chew, right, visits with Lorrie Otto at her daughter's home in Bellingham, Washington. *Photo: Carol Chew*

"She taught us to follow her on bulldozer alerts and pointed out the natives and how to bring home some of the soil filled with microbes surrounding these plants," Sweet said. "Years later she sent a Ph.D. student to my home to do her thesis on the very topic, comparing my wild yard microbes to the neighbors' lawn microbes."

Sweet recalled that Otto's home was usually filled with good smells as she liked to cook and bake. "She was this neat, easy-to-talk to person. She'd talk about her daughter, marriage and food. I have Lorrie's pie crust recipe, and I can't replicate it even though I'm a baker. Her hands were just the right hands to work the dough."

Otto often wore a big hat and a square poncho. "She always wanted to look the same so people would recognize her when they saw her," Sweet recalled. "She was tall, stately with gray hair and just gorgeous."

Sweet said she met Otto around 1982 when the members, who all lived near the Schlitz Audubon Center, would meet regularly to talk about plants and tour each other's properties. In 1985, Otto decided they should re-do someone's yard with natives, billing it as an alternative to traditional landscaping.

"I raised my hand the highest," Sweet said. So not long after, Otto, Mark Feider and Margo Fuchs came to her home in the spring. Borrowing water hoses from friends, they laid out paths in her yard and dug out circles of Kentucky bluegrass to convert her front yard to natives.

Since PBS was just getting

Otto at her Milwaukee-area home landscaped with native plants.
Photo: Milwaukee Journal Sentinel.

started in the Milwaukee area, Otto approached the station, which would loan out cameras in hopes of encouraging local programming. "Lorrie created a series of eight to 10 programs for PBS," Sweet said. "The half-hour programs showed people how to use garden hoses to make paths and plug in native plants…"

Sweet recalled that she would often go to work in the morning and notice one of her native plants had died. But by the time she returned home, Otto had already replaced it.

"She really wanted my yard to be a showplace for people to come and see," Sweet said. Schlitz Audubon Center also held tours, and Lorrie would hop on the bus and stop by all these different houses. It really developed into a group of people who were following Lorrie."

Sweet said Otto helped Wild Ones grow by delegating responsibilities. "She became our programming chair because she knew so many people in Milwaukee. She'd write articles for the Wild Ones Journal, then known as the Outside Story, plan trips and constantly tell us things to do. Lorrie was just special to talk to. When she would describe a butterfly flitting around, you just listened. She used her hands to talk, but she was flowery in her speech."

Otto also liked to tell the story of her fight to get DDT banned, which began when she found a bird dead outside while it was building its nest. "Those were the years when you'd see planes going over low to spray DDT," she said. "I can still see her telling people how birds were dying because of it… She just wanted to be remembered for wanting the earth to be a better place for people to live, and for people to respect the earth and the land."

Sweet said going over to Otto's house was fun. "We'd sit, watch the birds, talk and drink an iced tea," she said. "She had some type of chicken wire netting that was soft so the birds wouldn't fly into her windows. It would really bother her to see a bird fly into glass."

Otto also had a couple of cats that enjoyed watching the birds as well, Sweet recalled.

Carol Chew knew those cats and even adopted one when Otto moved to Bellingham, Washington to be near her daughter. Now a member of the Wild Ones Nation's Capital Region (Maryland) Chapter, Chew said her husband Dan and Lorrie's ocicat Sam got along well. So well, that Otto was determined Dan was the right person to take care of the cat when she no longer could. In 2018, the cat moved with the Chews to Rock Creek Woods, near Washington, D.C.

Chew said she met Otto in 1987 during one of the first weekends after her family moved from Portland, Oregon, to Milwaukee. "I had been doing native landscaping in 1971 when we bought our first house in Sonoma, California, but I never had anyone to work with. When I arrived in Milwaukee and found out there was a group called Wild Ones, it really filled a need."

Once she and Dan planted about 90 native species in their yard, Lorrie started bringing people to their home on Wild Ones bus tours. Chew said she fondly recalls seeing Otto's car regularly pulling into her driveway.

"She was either bringing someone to show them our yard or coming with materials she wanted me to read through," she said. "I had given her a computer, but she didn't use it. Everything she did was hand-typed." Chew became her computer helper, often editing material for her.

Chew said Otto was extremely knowledgeable. "She really delved into studying various species of native plants. She had the kind of personality where she could work with many different people and help them get started on their native landscaping."

But Otto was also politically engaged, recognizing how laws could impact native landscaping. "We had an ordinary sized house, but once we had 50 people in our living room with a speaker from the Al Gore campaign because of Lorrie. She

was kind, but honest, and would let someone know if they were overstepping or not contributing. She was passionate about all she was doing."

Otto also helped people fight for the right to plant and keep natives in cases where city or village ordinances or homeowners' associations considered them weeds, Chew said, adding that her yard was one that was cited. "Lorrie had to work hard to overcome attitudes, but people liked her infectious laughter and her warm personality."

Chew said Otto was ahead of her time. "Back in the 1970s and '80s it wasn't easy to find native plants," she said. But gradually, garden centers began to sell more native plants because of Wild Ones members in the area.

Throughout her life, Otto was humble, Chew said. "I gradually was able to piece together in my mind the story of her earlier work to get DDT banned," she said. "She had arranged for scientists and researchers to come from a great distance to meet and to stay at various homes. But this was before the internet, so the scientists wanted to stay together at her home to talk about their studies. They'd eventually fall asleep in her living room, and she'd have to tiptoe around them in the morning."

Paul Ryan remembers Otto telling those stories of scientists and researchers at her home. Ryan met Otto as an undergraduate student at the University of Wisconsin-Milwaukee and ended up working for her and taking care of her property for over a decade.

She took dead robins to the city to show them what has happening due to DDT, Ryan said. "The scientists camped out at her house, stayed up late assessing data and had a big pow wow to put it all together."

Ryan said Otto always encouraged him by being supportive and affirmative. "Almost every time I came over, we'd go inside and sit by her big picture window, and we'd look out on her backyard bird feeders," she said. "We'd talk about anything; she was an interesting person … and I respected her a lot. She kept me going down the path I started by pointing out the strengths she saw in me."

When he was young, he did more than just maintain her property. "I'd wash her windows with vinegar and newspaper, and she hired me to dust all her books in her library and exercise the spines. But that also gave me exposure to every book and magazine she owned" — including newsletters from the Botanical Club of Wisconsin.

Ryan said Otto could be critical, but not meanly so. "She had experience in things I didn't have, and I respected that. In the beginning, I didn't know anything." But Otto told him stories about how she didn't know much in the beginning, too.

"Once she saw plants on the side of the road that she liked so she dug them up and it was purple loosestrife (*Lythrum salicaria*). She quickly learned that was not the right thing to plant," Ryan said, laughing.

Otto was funny, liked to laugh, and was good natured. He said, "She was generous with her time and serious about what she was trying to accomplish."

Otto had lived in her Wisconsin home for 45-50 years, and when she decided to move near her daughter, she knew she had a lot of stuff — unique artwork, rugs, everything she had collected through her lifetime — that she had to get rid of, Ryan said.

"She had some stuff at her daughters because she would go there to visit, but she took few of her belongings with her," he said. "I drove her to the train; she had a brown paper bag with a few things in it. She told me, 'I'm wearing two bras and two pairs of underwear so I don't have to carry so much.' Everything else was sold or left behind."

Some parts of Otto's landscaping still exist on her former 2-acre property. "Parts of it have been reworked, portions have been largely neglected… But things of value are still there."

Ryan also said that Otto was politically progressive. When she was younger, she spent a lot of time working on projects like berms in her neighborhood, which was one of the first Wild Ones initiatives.

One time she was working on those berms when someone started spraying pesticide and she fell down and passed out.

"She said she remembered lying

Otto's awards & accolades

- 1991 recipient of the Margaret Douglas Medal for Conservation from the Garden Club of America.
- 1993 recipient of the Canadian Wildflower Society award for significant contributions to the conservation and appreciation of our native wild plants.
- Received the 1996 National Achievement Award from the National Wildlife Federation and nicknamed the Godmother of Natural Landscaping.
- In 1996, the Wild Ones national Board of Directors created the Lorrie Otto Seeds for Education grant program in her honor. Since then, Wild Ones has provided more than $125,000 to support youth-focused native landscaping projects throughout the nation.
- Inducted into the Wisconsin Conservation Hall of Fame in 1999.
- Creator of "one of the 32 most beautiful gardens in America," selected by The American Woman's Garden.

Left: Lorrie Otto loved teaching children about native plants. *Photo: Tapestry of Learning video* Bottom left: Lorrie Otto at her Wisconsin Conservation Hall of Fame induction in 1999 with Bret Rappaport, then Wild Ones national president, and his son Conor, then 2. Rappaport served as president from 1997-2006. *Photo: Wisconsin Conservation Hall of Fame*

there and thinking she would die," he recalled. "But she said she couldn't because so-and-so was still president, so she couldn't die today. I can imagine vividly what she'd say" about today's world.

Bret Rappaport, Wild Ones' first lifetime member, started working with Otto in the late 1980s when he volunteered with the then Sierra Club Lawyer's Roundtable. "We got together once a month with a sack lunch and helped people with environmental problems they didn't know how to solve," he said. One of the cases revolved around a Chicago resident who was being prosecuted for violating the city's weed ordinance since she was growing native plants.

He soon heard about a "woman in Milwaukee" who had successfully helped a New Berlin homeowner battle that city's weed ordinance and won after bringing in experts who testified that the homeowner's plants weren't weeds. So Rappaport reached out to Otto, who sent him a package of information and gave him advice.

On behalf of five residents with native landscaping, Rappaport ended up suing the city of Chicago to declare their weed ordinance unconstitutional. "The case got unbelievable press," he recalled, with national media interviewing him and Otto.

Rappaport said he ultimately lost the Chicago case, but he became known as a national expert on weed laws. In the 1990s, he flew throughout the country giving speeches, often sponsored by native plant societies or municipalities, and writing law review articles, including one put on the Environmental Protection Agency website that gave native plants much-needed legitimacy.

"We lost the battle of litigation, but we won the war," Rappaport said. "Today, there are fewer weed cases that aren't actually weeds and people with native plants aren't being prosecuted for violating weed laws."

Otto continued introducing Rappaport to other Wild Ones members, and soon he and his wife, Jina, started replacing parts of their lawn with native plants in their 1-acre suburban Illinois yard. As time passed, the Rappaports continued to develop their yard and become more active in Wild Ones. He recalled a visit to Lorrie's home with Jina and their two sons, Jeremy, then 4, and Conor, then 2, to tour her yard.

"We sat in her house and talked …. but the boys became antsy, so she said, 'Let's go walk around the yard,'" Rappaport recalled. "For the next hour or so, the boys followed her around. She even showed them a little bird house that had a mouse living in it."

Visitors tour the Chew yard to learn more about native plants. *Photo: Carol Chew*

The boys were smitten with nature.

"It was a magical day, but what makes it even more special is that the little 4-year-old boy is now secretary on the Wild Ones national Board of Directors," Rappaport said. "Jeremy went on to earn a degree in wildlife biology, then a master's degree in restoration ecology, and now is the land manager at Riverside Park in Milwaukee."

And coincidently, the main prairie in that park was started by Wild Ones.

Eventually, Otto asked Rappaport to become the national Wild Ones president.

"I told Lorrie I don't have the experience to run a national organization, that I wouldn't know what I was doing," he said. "But Lorrie said: 'None of us know what we're doing. We really need your organizational skills.' She had more faith in me than I had in myself."

He eventually agreed to take the president's role and began drawing up bylaws, setting up the structure for the local chapters, creating budgets and more. On June 8, 1990, Wild Ones Natural Landscapers Ltd. was organized under Articles of Incorporation — Non-stock Corporation Law, Chapter 181 of the Wisconsin Statutes. On April 11, 1995, Wild Ones was granted exempt status under Section 501(c)(3) of the Internal Revenue code for educational purposes.

In hindsight, Lorrie knew that someone with a background in business and law was who was needed at the time.

Rappoport said Otto was humble about her accomplishments. "She felt her role was more of a teacher than of an advocate," he said. "She focused on one-on-one interactions and whoever she was with at the moment.

"From little acorns, large oak trees grow," Rappaport said. "That Lorrie's magic. Her encouragement to others wasn't like a mentor or cheerleader. It was like a guardian angel."

Rappaport said Otto was a source of inspiration for many. And despite not being one of the nine original members who started the organization, her guidance helped guide and grow the group.

"Lorrie's legacy is that preservation and appreciation of our natural world can and should be done on the smallest scale," Rappaport said. "We think of native and environmental organizations as saving national parks and fighting climate change. But Lorrie taught us we can all do our part, no matter how small the plot of land you own," he said. "The question becomes what we do with that plot of land. Until I met Lorrie, I didn't look at my own front yard and realize I could make a difference by … planting a butterfly garden or … leaving dead trees standing as snags. Lorrie opened my eyes to all the possibilities…"

Perhaps one of her best-known quotes was the one printed in her obituary: Otto said: "If suburbia were landscaped with meadows, prairies, thickets or forests, or combinations of these, then the water would sparkle, fish would be good to eat again, birds would sing and human spirits would soar."

Otto has inspired so many in Wild Ones to soar.

Editor of the Wild Ones Journal, Barbara A. Schmitz continues to expand the native landscaping in her yard with each passing year.

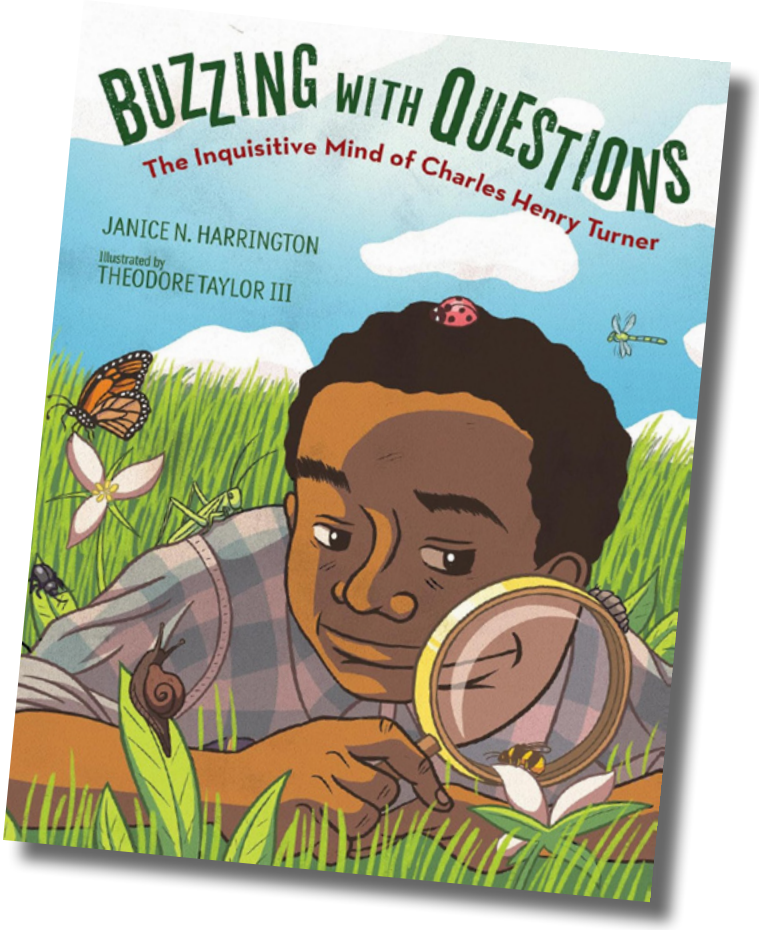
Book Review

Title: "Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner"

Author: Janice N. Harrington

Published: 2019

Rating: ★★★★★



By Sara Ressing

"Questions that itched like mosquito bites, questions that tickled like spider webs, questions you just couldn't shoo away! Questions hopped through Charles Henry Turner's mind like grasshoppers." That's how Janice Harrington opens "Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner," and it might be one of the most personally reflective opening lines I've read in a book. This one I read aloud to my children.

A vivid memory from second grade still stings: my teacher, exasperated, stopped class to mock me for always asking "why?" I remember the heat in my face, the ringing silence and the feeling that curiosity was somehow a problem. So, to open a book that not only defends but celebrates curiosity, especially in a Black scientist who had to fight even harder to pursue his questions, felt deeply affirming. Look at me now, Mrs. K., I'm a scientist too!

But "Buzzing with Questions" isn't just cathartic; it's a beautifully crafted gift to parents, educators and anyone trying to nurture curiosity in young minds. Harrington tells Turner's story with clarity and care, while also weaving in the realities of the racism he faced as a Black scientist in the early 20th century. Harrington's background as a poet and storyteller shines through in her use of metaphor, rhythmic cadence and well-placed repetition, making this book a delight to read aloud. Best suited for elementary-aged readers, the book is accessible to younger students while still offering plenty for older kids (and adults) to reflect on.

Indefatigable. A word my family had to look up together in the Merriam-Webster Dictionary. It means incapable of being fatigued — untiring. Harrington uses the word purposefully and repeatedly because it perfectly captures Charles Henry Turner's story. It also speaks to what it takes to keep asking questions in any field where answers don't come easy.

That word has stuck with me, not just as a parent, biologist or someone who likes a good, long word, but also as I reflect on our work in the native plant movement. In science and conservation, persistence matters. Change is slow. Resistance is inevitable. But progress depends on people who keep asking questions, who keep showing up and who keep working toward something better, especially when the answers matter.

Harrington traces Turner's relentless drive to learn, from his childhood in post-Civil War Cincinnati to his groundbreaking research in insect behavior, particularly demonstrating that insects can learn and exhibit complex behaviors. Every page encourages young readers to stay curious, keep questioning and never accept "because that's the way it is" as a final answer.

Sara Ressing is the education and program coordinator at Wild Ones, where she blends her love of native plants, learning and storytelling to support community-based conservation. She holds master's degrees in both zoology and education. She's also a parent of two, a cat enthusiast and a big fan of muddy hikes and good books.

High- and low-quality fruits support wildlife year-round

An eastern kingbird (*Tyrannus tyrannus*) eats fruit from a dogwood (*Cornus sp.*) tree. Birds need both high-quality and low-quality fruit to survive, particularly through the migratory season and cold winter months. *Photo: Gary Shackelford*

By Mackenzie Seymour

As native plant gardeners, many of us design our landscaping with the well-being of wildlife in mind. One important way we can support wildlife is by planting fruit-producing species. However, not all fruits are created equal – fruits vary in sugars, proteins and other nutrients, but lipid (fat) content is the best predictor of use by migratory birds in the fall. There is a difference between high-quality and low-quality fruits. Understanding this distinction helps us better support wildlife year-round, especially during migratory seasons and the cold winter months.

High-quality fruit

High-quality fruits are those rich in lipids, or fats, which are essential for energy storage. These fruits typically contain more than 20% fat by dry weight. Fat is a calorie-dense energy source, containing about nine calories per gram compared to just four calories per gram in sugar. In fact, spicebush (*Lindera benzoin*) pericarps are among the richest in lipids, with values reaching nearly 48% crude fat by dry weight — one of the highest recorded for any temperate forest fruit (Stiles, 1980).

This makes these lipid-rich fruits a top-tier fuel source, especially for migrating birds. According to Smith et al. (2007), high-fat fruits provide the most efficient fuel for migrating birds building up energy reserves in fall, and for overwintering species preparing for the food-scarce months ahead. Migrating birds actively select fruits with higher fat content, and studies have shown that lipid levels are a stronger predictor of fruit preference than sugar or protein content.

Because of their high energy value, high-quality fruits are often consumed immediately once ripe. The fat content itself, along with high water content and the presence of certain enzymes, accelerates degradation processes, making high-quality fruits prone to spoilage. To us, these types of fruits may be unappealing and not particularly flavorful due to their oiliness and low sugar content. But, for wildlife, these fruits are superfoods.

Examples of high-quality fruit species include:

- Spicebush (*Lindera benzoin*)
- Flowering dogwood (*Cornus florida*)
- Sweetbay magnolia (*Magnolia virginiana*)
- Sassafras (*Sassafras albidum*)
- Tupelo (*Nyssa sylvatica*)
- Arrowwood viburnum (*Viburnum dentatum*)

Low-quality fruit

Low-quality fruits are defined as having less than 10% fat content by weight. Instead, these fruits are higher in water and sugar content and are not in immediate demand. They often hang on shrubs or trees long into winter, and even into early spring. For example, a study of *Viburnum acerifolium* showed that over 70% of its fruit remained uneaten on the branch by January, highlighting the role of these fruits as emergency resources in late winter (Stiles, 1980). Their slower rate of dispersal means much of the fruit may simply fall uneaten

and is usually only consumed after high-quality fruits in the area are gone. However, they still provide an essential food source for many wildlife species.

Rather than being lesser, low-fat fruits are part of a complementary fruiting strategy. Low-fat fruits serve as a vital food source for overwintering species. In late winter and early spring, before insects have emerged and new growth begins, many birds returning from migration rely on these fruits to survive.

Examples of low-quality fruit species include:

- Hawthorns (*Crataegus* spp.)
- Greenbriers (*Smilax* spp.)
- Grapevine (*Vitis* spp.)
- Holly (*Ilex* spp.)
- Eastern red cedar (*Juniperus virginiana*)
- Chokecherry (*Prunus virginiana*)
- American mountain ash (*Sorbus americana*)
- Maple-leaf viburnum (*Viburnum acerifolium*)

The economies of fruit production

Plants face evolutionary tradeoffs in allocated limited resources (energy, nutrients, time) toward fruit production. These tradeoffs are reflected in fruit traits like fat content, fruit quantity and persistence, all of which influence both seed dispersal success and the fruit's value to wildlife.

Producing high-fat fruit is energetically costly to plants. For lipid synthesis, this requires more carbon, ATP and enzymatic machinery than synthesizing sugars, so only a relatively small number of plant species invest in this strategy.

High-fat fruits also spoil more quickly due to lipid oxidation and microbial breakdown. This makes them a short-lived, but highly valuable food source. These fruits tend to ripen and drop during peak bird migration, when animals are most likely to consume them immediately.

This difference in energy allocation presents a tradeoff for fruit-producing plants: either make fruit that is energy-rich and quickly eaten, or create more plentiful, lower-fat fruit that might stay on the branch longer.

Arrowwood viburnum (*Viburnum dentatum*) is a high-quality fruit that is rich in lipids or fats, making it a top-tier fuel source, especially for migrating birds. *Photo: Flickr*

Some persistent fruits also contain compounds like tannins that deter decay or selective foraging—adding another layer to the plant's strategy to extend availability. This approach reflects a classic ecological quantity vs. quality tradeoff in terms of energy input and dispersal efficiency.

Studies show that migratory birds preferentially forage on lipid-rich fruits during stopovers, while overwintering birds rely more heavily on the water- and sugar-rich fruits that persist into late winter (Stiles, 1980). This partitioning highlights how fruit chemistry shapes bird behavior and survival strategies across seasons.

In short, fruit chemistry is as much a product of plant survival strategy as wildlife need. Understanding the economies behind fruit production and seed dispersal helps explain why native habitats depend on both lipid-rich fall fruits and lower-fat winter fruits to support full seasonal biodiversity.

Choosing the right fruit

If you are planting your garden with wildlife in mind, you might be tempted to fill your garden with only high-quality fruits to provide the richest fuel available. But doing so can create an unbalanced food supply.

High-quality fruits are invaluable in fall and early winter, but they are unavailable by late February or March. Birds undergoing migration or struggling through the tail end of a cold winter will find little to eat if only fast-spoiling fruits were planted. Migrating birds "must consume a variety of fruits with different energy and protein content, or consume some insects along with fruits to satisfy their protein and energy requirements" according to a 2007 study that assessed fruit quality and consumption by songbirds during autumn migration.

A diverse garden supports biodiversity. Birds, mammals and insects rely on a variety of fruit-producing plants throughout the year, each with different nutritional needs and preferences.

Planting tips: Optimize fruit availability for wildlife

- Mix both high-quality and low-quality fruit-producing plants to maximize benefits for wildlife that utilize both types.
- Select species that ripen at different times to ensure fruit is available throughout the year.
- Incorporate a variety of trees, shrubs and vines to create layered habitats that offer multiple foraging opportunities.

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.

Common buttonbush: A hardy choice for wet landscapes

Common buttonbush (*Cephalanthus occidentalis L.*) is easy to propagate by seed dispersal. *Photo: The Cosmonaut, CC BY-SA 4.0, via Wikimedia Commons.*

By Paul F. Hudak

Many plants available at nurseries struggle to survive in wet landscapes. But common buttonbush isn't one of those.

Native to wetlands and lakeshores across North America, common buttonbush (*Cephalanthus occidentalis* L.) thrives in wet soil, including sand, loam or clay substrates, while also tolerating dry spells. Buttonbush can be pruned to a desired form and contribute to the overall aesthetic of a garden, especially when in bloom. This hardy shrub also provides ecosystem services including carbon uptake, erosion control and wildlife habitat.

Various birds eat seeds from the fruit balls of buttonbush, and wood ducks (*Aix sponsa*) nest in its canopy. Hummingbirds (*Trochilidae*), along with bees and over 20 species of butterflies and moths consume buttonbush nectar or use buttonbush as a larval host plant.

Buttonbush can be propagated by transplanting seedlings or cuttings, as well as by seed dispersal. Recently, I propagated buttonbush along a segment of lakeshore by seed dispersal; these same techniques can be used in gardens to enhance their overall function. The study took place at the northeastern edge of Lewisville Lake in northcentral Texas. Used for flood control, water supply and recreation, the lake level fluctuates widely.

Seeds from 60 fruit balls harvested from nearby buttonbush were spread over a rectangular plot on Nov. 6, 2022. The plot was approximately 3.9 feet wide and 55.1 feet long, with the long axis (midline) at an elevation of approximately 522 feet. After spreading the seeds over a thin layer of sandy alluvium, the ground was lightly raked and tamped by foot. The alluvium was damp at planting; however, the lake was approximately 4 feet lower than the conservation pool. While survival might be enhanced by hand watering, supplemental water was not added because the aim of the study was to test survivability under natural conditions.

Over the next two years, the lake level fluctuated widely, rising nearly 10 feet above and falling nearly 6 feet below conservation pool, defined as lake premium water storage volume, thus subjecting seeds and seedlings to prolonged flooding and dry conditions, as well as wave action. Additionally, driftwood occasionally uprooted seedlings in the study area. Despite a harsh environment, 27 buttonbush seedlings were thriving on Aug. 27, 2024, and continued to thrive as of March 10, 2025.

Although natural survival rates are low, they are sufficient to sustain large stands of buttonbush (in many places) along the lakeshore. Such persistence attests to vast numbers of seeds released by shrubs and their capability to withstand harsh conditions once established. In less extreme environments, such as moist or wet areas of backyard gardens, buttonbush could potentially thrive, while also enhancing the aesthetic of a garden, anchoring soil and providing habitat for various birds and insects.

Paul F. Hudak is a professor in the Department of Geography and the Environment at the University of North Texas. He received a B.S. from Allegheny College, M.S. from Wright State University and Ph.D. from the University of California at Santa Barabara. Paul's teaching and research covers various subjects in water resources, lakes and wetlands and environmental geology.

Left: A brown belted bumblebee (*Bombus griseocollis*) nectars on yellow wild indigo (*Baptisia sphaerocarpa*). *Photo: Ann Schreifels.* Right: *Bombus impatiens* with *Echinacea purpurea. Photo: Chris Kosin.*

How to help our native bees

By Barbara A. Schmitz

Every little bit helps.

Planting native plants — even one or two in a pot on your patio — will help native bees if more people do the same. Getting rid of turfgrass or mowing it less often can also help, especially when blooming plants like native clover are mixed in with grass.

There are more than 4,000 species of native bees in North America, according to Sam Droege, a wildlife biologist with the U.S. Geological Survey's Eastern Ecological Science Center and one of three speakers at a Wild Ones webinar, "*Bees Beyond Honey: Understanding Native and Managed Pollinators*." (You can view the webinar here.) And wild bees are important as they are often more efficient pollinators of native plants.

What can you do?

"Bring in native plants, and as long as they're blooming, the more native bees you'll bring in, too," Droege said. Pick plants of different colors and flower shapes to attract a wider variety of native bees. And remember that bee species are only out for a limited part of the growing season, so make sure you have the plants specific bees need when they need them, he said.

"Bees are picky eaters," Droege said. "They only gather pollen from a particular family, species or genus of plant."

Laura Morandin, associate director of Pollinator Partnership, a nonprofit organization dedicated to the protection and promotion of pollinators and their ecosystems, said honeybees can have a negative impact on native bees in three ways: direct competition for pollen and nectar, competition in floral communities and pathogen spillover.

"Be cautious where and how many honeybees you put in specific areas," she said. "Don't pit honeybees against other bees since you need both."

The best way to support both is to create more habitat, she said. But it's also important to manage bee habitat, Morandin added.

"Do a Google search for a local native plant nursery, put one or two native plants in your yard and then watch what happens. You don't have to do everything at once. Small actions can make a big difference."

Dave Hunter, owner and founder of Crown Bees, has a tip for deciding which plants or shrubs to purchase. "As you walk into a nursery, find a shrub or bush that is buzzing and buy that one. You need to garden for wildlife, not just humans."

Droege said the more native plants people add to their landscapes, the more bees they'll attract. "They may not be bee people, but they have a sense that native plants are the right thing to do," he said. Research

has shown that a bee will fly up to 16 floors to find a native plant on a patio. "All things do add up," he said.

During Morandin's post doc work, she examined native habitat and compared it to nearby ornamental gardens. "We saw 100 times more bees in the native beds rather than in the ornamental gardens nearby," she said.

Another study at a Washington, D.C. parking lot showed that native bees could easily find a plant in the middle of the large concrete lot. "It's amazing how they will show up in an area that seems to have little habitat … yet the bees will find the native plants almost immediately," Droege said.

Droege also encouraged people to get rid of more grass. It will not only help bees, but it will also save time and money, he said.

Morandin added that replacing lawn with native clover is better than not doing anything, but she cautioned that most people add in nonnative clover instead. (Native to Europe, white clover (*Trifolium repens*) is probably the best-known clover in the U.S. because it has been introduced worldwide, and it can become invasive and outcompete native plant species. However, native clovers provide both aesthetic appeal and ecological benefits. Some examples include foothill clover (*Trifolium ciliolatum*), wormskold clover (*Trifolium wormskioldii*), small-toothed clover (*Trifolium microdon*), Carolina clover (*Trifolium carolinianum*) and peanut clover (*Trifolium polymorphum*).

"Every step you make to add to the diversity …will help," Morandin said. "You don't need to put in 40 types of native plants to make a difference."

The three also discussed the risks and benefits of insect homes or hotels.

Many solitary bees nest in the ground or in holes in dead trees. Once they leave the holes, the holes deteriorate so bees find new holes the following year and don't worry about disease and pests, Hunter said. But with many bee homes or hotels, the holes are glued in so they can't be cleaned or replaced. "While this style of house sounds like a good idea, it actually ends up killing more bees than doing good," he said.

The group advocated using natural habitat over bee boxes. But if people do use bee boxes, they said the boxes need to be cleaned every year.

"A farmer can't put cows in a barn and not clean it out," Morandin said. "People need to understand what they are doing."

However, bee boxes can be helpful for educational purposes, particularly boxes that allow you to see what is happening, she said, since those boxes help people better understand bees.

"If you get a bee box, don't put it out in your back yard," Droege added. "Put it next to the kitchen window so you can see the action!"