

## What makes you happiest?



By Barbara A. Schmitz

I appreciate the variety that comes with all the seasons, but it's something about summer that makes me the happiest. Whether it's going for a walk around the neighborhood, fishing at the lake, camping at a state park, or just sitting on my back porch while I work on my laptop or read a book, it's simply being outside that makes me smile.

Like most of you, I also enjoy working in my gardens. This year, we've again expanded our na-

tive plantings, adding another smaller bed in the front yard. Besides planting, I've always been a mover — that is, moving plants that I decide don't look right where I originally planted them.

I've learned so much since becoming the "Wild Ones Journal" editor in 2016. And I definitely would have made a lot fewer mistakes — and moved a lot less plants — if I knew then what I know now.

But that's one of the main things I like most about Wild Ones. This organization provides you with a chance to learn from other natural landscaping enthusiasts. And the more native plant enthusiasts that there are, the better off our planet will be.

But I've also learned a lot from this issue's authors, and I think you will too. Chris Link reminds us of the benefits nature provides to our mental health on <u>Page 8</u>, while Emily Geest shows us that what we call our gardens and yards tells us a lot about ourselves on <u>Page 9</u>. Geest looked at the creative names gardeners give their Monarch Waystations; the timing of her article was purely coincidental as I had just registered my yard (No. 46,649) as a waystation. (My name was Pining for Pollinators. I wish I would have read her story before coming up with that, but I liked the alliteration!)

Linda Chalker-Scott tells us about research on paper-based sheet mulch, a story I read just as I was thinking about putting down cardboard on my new native bed. I never knew that cardboard and newspaper mulches will become hydrophobic, or repel or fail to mix with water, if allowed to dry out, causing rainfall or irrigation water to sheet away rather than percolate through. And that's just one of the problems with paper-based sheet mulch, Chalker-Scott says. Learn more on <u>Page 13</u>.

On <u>Page 6</u>, Daegan Miller tells us about research on the role that garden centers play in seeding future invasions of invasive plants, as well as how 144 common invasive plant species will react to a  $2^{\circ}$  C increase in temperature and just how quickly their range will shift.

And Janet Allen reminds us on <u>Page 15</u> that even though our age or gray hair may mean we're "elderly," we still have a lifetime of experiences to share, particularly when it comes to native plants. She writes: "As Robin Wall Kimmerer, scientist, author and a citizen of the Potawatomi nation says: '... elderhood is not a time for stepping back, but for stepping up, for stepping into your own power. Becoming an elder is both a precious gift and a serious responsibility — a responsibility for sharing knowledge, and for safeguarding the future of life."

Lastly, if you're thinking of doing a road trip this summer, Matt Ross gives you a fun idea: traveling the iconic Route 66 and visiting off-the-beaten-path botanic gardens. Read more on <u>Page 19</u>.

So whatever you do this summer, make time to "stop and smell the roses" — a native rose species, of course, and appreciate all the beauty and benefits native plants provide.



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Established in 1977, Wild Ones is a national nonprofit organization of members who teach the benefits of growing native plants and work together to grow and restore natural landscapes.

Wild Ones' definition of a native plant:
A native plant is a species that occurs
naturally in a particular region, ecosystem
and/or habitat and was present prior to
European settlement.

## **Contents**

| Nurseries, invasive species | 6         |
|-----------------------------|-----------|
| Monarch waystations         | 9         |
| Sheet mulching              | <u>13</u> |
| I'm elderly, so what        | <u>15</u> |
| Concert light poem          | 18        |
| Native edibles              | <u>25</u> |
| Book review                 | 32        |
| Seeds for education         | 33        |
| Weeding                     | 35        |

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Gray Hairstreak Butterfly on Mountain Mint flower (*Pycnanthemum muticum*). Photo taken with Canon 5D Mark IV, 100 mm macro lens by Silsbee, David, Mansfield, CT.

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settings. It supports native bees, grassland birds, and small mammals with food, nesting materials, and cover. Branching, fibrous roots and a dense crown help reduce erosion, increase water infiltration, and add organic matter to the soil.

Sporobolus heterolepis is worth the wait. To get details and best practices for growing it, read our full plant profile.

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# Study finds plant nurseries exacerbate the climate-driven spread of 80% of invasive species

By Daegan Miller

Researchers at the University of Massachusetts Amherst recently published a pair of papers that, together, provide the most detailed maps to date of how 144 common invasive plants species will react to 2° C of climate change in the eastern U.S., as well as the role that garden centers play in seeding future invasions.

Together, the papers, published in <u>Diversity and Distributions</u> and <u>BioScience</u>, and the <u>publicly available maps</u>, which track species at the county level, promise to give invasive species managers in the United States the tools they need to proactively coordinate their management efforts and adapt now for tomorrow's warmer climate.

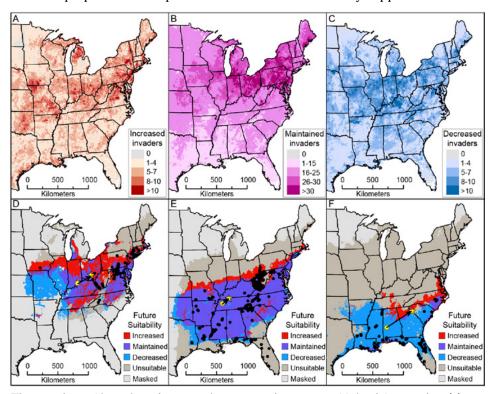
## Mapping future abundance

One of the major hurdles in addressing the threat of invasive species is in determining when and where a species crosses the line from being nonnative to invasive. A single occurrence of, say, purple loosestrife (*Lythrum salicaria L*), does not make an invasion. What invasive plant managers need to know is where a species is likely to take over, outcompeting native plants and altering the ecosystem.

Or, as Bethany Bradley, professor of environmental conservation at UMass Amherst and the senior author of both papers puts it: "Managers have very few resources to control invasions, so we don't want to waste time focusing on species unlikely to become invasive in a given area. But the question of what will become invasive and where has been surprisingly tricky to answer."

"If we can proactively identify these species and the regions they are most likely to become abundant in as the climate warms, then we can head-off a major ecological threat before it's too late," adds Annette Evans, a postdoctoral fellow at UMass Amherst's Northeast Climate Adaptation Science Center and lead author of the paper on abundance and future invasive hotspots.

To do so, the team combed through 14 current invasive species databases compiled by hundreds of natural resource managers in order to pinpoint which species are currently abundant and where, geographically, those abundance hotspots occur. They focused on the eastern U.S. (east of the 100th meridian, which runs from the middle of North Dakota through the center of Texas; a follow-up paper will focus on the western U.S.) and discovered that the hottest hotspots are around the Great Lakes, the Mid-Atlantic and along the northeastern coasts of Florida and Georgia. Each of these regions has the right mix of conditions to currently support abundant



The number of invasive plant species across the eastern United States that (a) increase, (b) are maintained, or (c) decrease abundance habitat with +2°C climate warming. The amount of abundance habitat for invasive plants also changes in the eastern United States given +2°C climate warming. Distribution models may predict (d) range expansion (wineberry, *Rubus phoenicolasius* Maxim.), (e) range maintenance (kudzu, *Pueraria montana* [Lour.] Merr.), or (f) range contraction (alligator weed, *Alternanthera philoxeroides* [Mart.] Griseb.). Abundance data points shown by black dots. Arrow indicates the average direction of abundance range shift from the centroid of current abundance habitat (yellow circle) to the centroid of future abundance habitat (yellow star). Credit: Evans et al., 2023

populations of more than 30 different invasive plants.

They then ran their data on 144 plants through a series of models that predicted where the hotspots would occur under 2° Celsius of warming.

What they discovered is that most of the species will shift their ranges to the northeast by an average of 213 kilometers, or just over 132 miles, a trend also reflected in shifts to abundance hotspot locations. In some states, warming temperatures will make currently unsuitable areas conducive for abundant infestations of up to 21 new plant species, and the range-shifting could exacerbate the effects of up to 40 currently abundant invasives. On the other hand, 62% of currently abundant invasive species will see a decrease in habitat for large populations in the eastern U.S.

But statistics aren't enough.

"We've created something even more user-friendly," says Evans: a <u>series</u> of publicly available range maps for individual species, which can help plant managers triage which plants most need their attention, <u>as well as state-specific watch lists</u>.

## How plant nurseries could seed invasion

"When people think of how invasive plant species spread, they might assume species are moving because of birds or the wind dispersing seeds," says Evelyn M. Beaury, lead author of the paper on horticulture and invasive species, as well as a postdoctoral researcher at Princeton who completed this research as an extension to her graduate studies at UMass Amherst. "But commercial nurseries that sell hundreds of different invasives are actually the primary pathway of invasive plant introduction."

Though researchers have long known that invasives are linked to the horticulture trade, Beaury and her co-authors, including Evans and Bradley, wondered how often invasives are sold in the same area in which they are abundant? And how might nurseries be exacerbating the problem of climate-driven invasion?

It turns out that the answer to both questions is a lot.

Using a case study of 672 nurseries around the U.S. that sell a total of 89 invasive plant species, and then running the results through the same models that the team used to predict future hotspots, Beaury and her co-authors found that nurseries are currently sowing the seeds of invasion for more than 80% of the species studied. If left unchecked, the industry could facilitate the spread of 25 species into areas that become suitable with 2°C of warming.

Furthermore, 55% of the invasive species were sold within 21 kilometers (13 miles) of an observed invasion - the median distance people across the U.S. go to buy landscaping plants. In other words, everyday gardeners who buy plants at their local nurseries could unwittingly help perpetuate invasion and associated ecological harm in their literal backyards.

"But there's good news here," says Beaury. "This is the first time that we have real numbers to show the connection between plant nursery sales and the spread of invasive species including invasions that occur down the street from nurseries, as well as across state borders. Now that we





Abundance range under current conditions Abundance range given 2°C of warming • Nursery sale

have the data, we have an incredible opportunity to be proactive, to work with the industry, consumers and plant managers to think more critically about how our gardens impact U.S. ecosystems."

The team has also put together a publicly available list of 24 commonly sold invasive plants with increased risk of spreading with climate change in the northeast, from butterfly bush (Buddleja davidii) to English ivy (Hedera helix), to be avoided and native alternatives, such as bottlebrush buckeye (Aesculus parviflora) and wild blue or woodland phlox (Phlox divaricata).

"These two papers together make it pretty clear that not only are we facilitating current invasions through the ornamental plant trade, but we are also facilitating future climate-driven invasion," says Bradley. "But with these papers, maps and watchlists, we can pinpoint which species are most worrisome where, both now and in the coming decades. These are important new tools in invasive plant managers' toolboxes."

Daegan Miller, Ph.D., is associate news editor, science in News & Media Relations at the University of Massachusetts Amherst.





Examples of nursery sales within current and future ranges of four ornamental invasive plants with high risk of spreading because of horticulture: (a) *Albizia julibrissan*, silktree; (b) *Pyrus calleryana*, callery pear; (c) *Ficus carica*, edible fig; and (d) *Daucas carota*, *Queen Anne's lace*. Credit: Beaury et al., 2023

## Nature, native plants and mental health



By Chris Link
Ever since I was
a child, I have
enjoyed nature.
Growing up
in Petersburg,
Michigan, smack
dab in the middle
of the Michigan

side of the Wild Ones Oak Openings (Ohio) Region Chapter area, I was always outside. I lived next to land owned by my grandfather, a farmer who grew specialty crops on land that was previously farmed for cranberries years ago. This land had comprised of small forest fragments, wetlands, ponds and land that would later become open prairies. Some of the wetland was mined for sand and later became a 50-acre lake. When the workers went home, I spent time in the pits looking for fossil rocks.

When I went to college at the University of Toledo, choosing a major was a no-brainer for me: environmental science with a concentration in ecology. However, getting to this point was not easy.

In my late teenage years, I was diagnosed with bipolar II disorder, although I didn't need a diagnosis to tell me I had struggles with anxiety and depression. I dropped out of high school because the anxiety was too much. But I fought through that and went back to earn my diploma. In high school, I had average grades, but in college when I was studying something I loved, I excelled.

After college, I applied for an invasive weed, monitoring and mapping technician position through Ameri-Corps and the Great Basin Institute, working for the U.S. Forest Service in Elko, Nevada. This started a lifelong campaign to remove nonnative, invasive plants and learn more about native ones. I found it amazing to work in rangeland habitats and glacier-carved mountains where we controlled plants like Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula* L.) and other invasives through mechanical

and chemical methods.

Next, I spent many years as a utility forester in Texas, Florida and Ohio. But the job was very difficult for someone who is bipolar, and it led to many medical leaves and, ultimately, going on disability because it became too much for me to deal with.

While living in Mount Gilead, Ohio, I volunteered with The Nature Conservancy and with the county parks department doing habitat restoration, again eliminating invasives, planting trees and doing trail maintenance.

When my mother became ill and died, I moved back to where I grew up. After some time had passed, I started working on restoring the 5 acres that the house stands on. I then purchased 25 acres from one of my uncles who did not have a house on the family land. I immediately started my conservation work on this property.

While nature had started reclaiming the land in the roughly 25 years after the mining had stopped, noxious, invasive plants were also claiming it and choking out natives. I started removing invasive plants like autumn olive (Elaeagnus umbellata Thunb.), Japanese honeysuckle (Lonicera japonica Thunb.), oriental bittersweet (Celastrus orbiculatus Thunb.) and many more. I also planted many different native species such as swamp milkweed (Asclepias incarnata), wild lupine (Lupinus perennis), dotted beebalm (Monarda punctata) and cardinal flower (Lobelia cardinalis). Many native plants were already here so just removing invasives helped them thrive.

While I loved working on my land, I needed time away. So, I started volunteering for Metroparks Toledo, cleaning native plant seed. Then it hit me. I wanted to grow native plants, but I knew that there would be much more to learn than how to clean seed if I was to grow natives.

So I applied and got a part-time job at a native plant nursery. I learned the other components necessary to growing native plants from seed, including how to stratify seeds by putting them in moist sand in my refrigerator (this simulates being outside and helps break the seed dormancy) and how to scarify seeds that require it (this helps seeds absorb water and improve germination). I also learned how to go through the steps of planting seeds in seed germination trays, then bumping them up into larger plug flats and finally into pots.

Next, I started practicing growing native plants from seed. I collected seed on my land, from the ditches near my house, and from ditches a few miles away. I also bought plants for species I could not find and traded seed I had for seed I did not have. Growing natives can be easy and also very difficult depending on the species. I learned from many failures. This year I bought a small greenhouse, 10 feet by 20 feet by 6.5 feet, to start the seedlings and things took off. I quickly realized that I would need another greenhouse and filled that up, too.

Despite my disability, I now feel confident growing native plants that will support pollinators and other wildlife, and I'm looking into how to start a business. Thankfully, there are many nonprofits that can help people with disabilities start businesses. I have days where I can get nothing done and others where I do too much. I sometimes doubt whether I can start a business. Nonetheless, I am going to give it my all.

I wrote this to share my story and explain why nature is so important to me. But I also hope that this story will get people more interested in learning about native plants and reduce the stigma of mental health conditions. Afterall, nature and native plants are not only therapeutic for those living with bipolar disorder or a physical disability, but are healing for all.

Chris Link is a member of the Wild Ones Oak Openings Region (Ohio) Chapter.





By Emily Geest

A common misconception I regularly hear about monarch butterflies is that the same monarch is making the trip from Mexico to the U.S. and Canada and then returning every year, when in reality it is a series of successive generations making the journey. Monarchs that have been overwintering in Mexico will head north in spring to mate and lay eggs. The generation that emerges, called the first generation, will then continue to move further north. The second and third generation repeat this behavior, essentially stair-stepping themselves up to the northern U.S. and portions of southern Canada as the summer progresses.

By the end of the summer the final generation (usually the fourth but sometimes the fifth generation) will emerge and this generation will be physiologically different than the earlier generations. This generation tends to be bigger and have narrower wings; they are solely focused on making the long journey back to Mexico where their great-grandparent butterfly left from the previous spring. For some butterflies this could be as far as 3,000 miles.

However, in order for the spring and fall migrations to occur, monarchs need to stop along their journey for food, rest and to lay eggs. In an effort to help monarchs, whose numbers have been declining since the mid-1990s, nature enthusiasts are proudly registering their gardens as Monarch Waystations through Monarch Watch. Founded in 1992 by Chip Taylor, Monarch Watch is a program of the University of Kansas. The idea of waystations comes from the Pony Express and steam-powered

A monarch caterpillar munches on its host plant, milkweed.



trains when horses, conductors and people could take breaks along their journeys to refuel and stock up on supplies for the long road ahead. For monarchs, garden waystations serve as places to fuel up on nectar and lay eggs on milkweed along their spring and fall migratory routes. Monarch Waystations can be any size, but Monarch Watch recommends at least 100 square feet, which can be split among several sites. Designated gardens must include nectaring and milkweed (Asclepias) plants for adult butterflies and for their caterpillars.

Since Monarch Watch's inception, more than 46,000 waystations have been created and the program is expected to cross the 50,000-garden threshold soon. Monarch Waystations are located throughout the United States and in 12 countries or territories worldwide. When registering a garden, applicants can give their garden a name, with more than 37,000 opting to do so. These names help reveal hidden themes, meanings and concepts gardeners associate with their gardens. I was part of a project from the University of Kansas and Oklahoma City Zoo and Botanical Garden that explored these names, and here are some major themes that emerged, as well as the stand-out names that made me laugh, smile and think.

## Spoonerisms, alliterations and wordplay!

Garden names emerged as a playground for showcasing literary and
linguistic skills with names embracing
spoonerisms (Flutterby Garden; Andy's
& Obie's Garden: Flutterbies, Mumble Bees & Hummingbirds Welcome!),
alliterations (Monarch Manor; Pollinator Paradise), puns (Beauty and the
Bees; The Monarchy; Abby's Habbytat),
as well as abundant references to pop
culture and literature (Got Milkweed?;
The Secret Garden; Abandon All Hope
Farm; Aiders of the Lost Monarch;
Raiders of the Last Monarch).

### **Animals**

While it is no surprise that the words monarch and butterfly are heavily featured in a monarch-themed garden program, other animals also appeared including bluebirds (Bluebirds and Butterflies On The Hill), squirrels (Weathers Feathers and Squirrel Emporium), rats (River rat lighthouse on the mighty Fox River), hawk (Hill of the Hawk), dog (3 White Dogs Garden), and even fish (Fat Fish Farm Monarch Glenn).

A Monarch Waystation signs sits among swamp milkweed (Asclepias incarnata) plants. Milkweed is a host plant for monarch butterflies.

## Diversity

How many ways can you say butter-fly? One of the most common words used in garden names was butterfly, which became a useful way to measure language diversity with butterfly appearing in 14 other languages. Maybe you know mariposa (Spanish) and papillon (French), but how about parpar (Hebrew), skoenlapper (Afrikaans), kelebekler (Turkish), memengwaa (Ojibwe), liblikas (Estonian), vlinder (Dutch) or borboleta (Portuguese)?

## **Family**

Gardens became a place to honor family with gardens named after mothers (Patricia's patch (after my mom who taught me to love nature), fathers (SEE LOOK DAD - MILK-WEED IS PRETTY), aunts (Trying Aunt Marge), uncles (Uncle Frank's Apple Town) and grandparents (GiGi's Garden of Eatin'; Pop Pop's Monarch Hangout; Nana 'Matriach Of The Monarchs'). Grandparents and the abundance of names for them featured including Papaw (Papaw's Garden), Mamaw (Mamaw's Flutterby Garden), Mema (Mema's Monarch Inn), Baba (Baba's Monarch Inn),

Grammy (Grammy's Milkweed Patch), Oma (Oma's Nectar Garden) and Opa (Opa's Butterfly Hostel at the Shore) among many others.

### Location

The most common name in the entire database is also the most literal being My Backyard, which was featured more than 200 times! Other literal names my yard or my front yard were also very common. Naming gardens after habitat and landscape features occurred with gardens named after prairies (Prairie Whisper), creeks (Dragonfly Creek), meadows (Cypress Meadow), and hills (Butterflies and Bees Hilltop).

## Mortality

Butterflies are unique in that in many cultures they are symbols of death due to the transition from caterpillar to butterfly. Monarchs especially have long been connected with death in Mexico due to their fall migration aligning with Day of the Dead cel-

ebrations. So, it is not all that surprising that some garden names lean heavily into this theme with names referencing deities or spiritual beings (Angel Butterflies), spirituality (Spirit in the Sky) or after someone who had passed. In fact, the longest name in the registry was a dedication: [Name] in honor of the coolest Mom that ever lived. She was so ahead of her time.

### **Positivity**

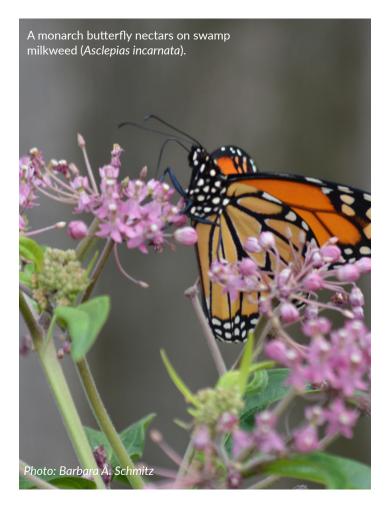
Positive feelings and emotions were frequently included in garden names such as love (For The Love of Pets and Sunsets (and Butterflies too)), wonder (Garden of Tiny Wonders), healing (The Mended Wing Healing Garden) and joy (Puddle Jumpers Joyful Place).

So, what does this all tell us about gardens? By looking into the naming aspect of gardens, we found that patterns of ownership, permanence, positivity and family are all associated with Monarch Waystations. These insights can help conserva-

tion programs like Monarch Watch better understand who is and who is not participating in these programs and ultimately tailor messaging to hopefully increase overall participation. The one common thread is that behind every name is a desire to help conserve monarch butterflies and that comes across no matter what name a waystation was given.

If you are interested in registering your garden as a monarch way-station, visit monarchwatch.org, fill out the application form, pay the fee and let your creative side shine when naming your garden. If you want to learn more about garden names visit doi.org/10.1002/pan3.10586, where the scientific paper is open access and freely available.

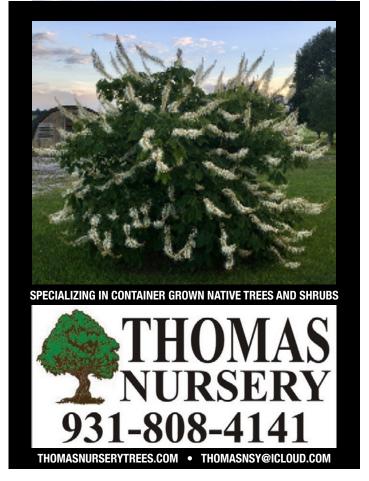
Emily Geest is a postdoctoral fellow in conservation and science at Oklahoma City Zoo and Botanical Garden researching butterflies in urban environments.











## The myth of newspaper and cardboard sheet mulch

By Linda Chalker-Scott **The myth** 

In their quest to create more sustainable landscapes – those that require fewer inputs of fertilizers, pesticides and other resources – gardeners, landscapers and restoration ecologists have focused on mulches. Of particular interest are organic mulches, and even more appealing are those that recycle materials that might otherwise contribute to landfills.

The use of mulches to suppress weeds and conserve soil water has a substantial agricultural history. Newspaper mulch, either as intact sheets or chopped and shredded, has been successful in reducing weeds and increasing yield in some row crops. Cardboard sheet mulch, however, has been less reliable. Many people believe newspaper and cardboard sheet mulches are excellent ways to reduce weeds and maintain soil health in permanent landscapes. But are they effective in suppressing weeds, maintaining soil water and aiding plant establishment in this context?

### The reality

Cardboard and newspaper mulches can induce anaerobic conditions, or conditions that affect plant productivity as well as organic matter and nutrient dynamics, if used on wet, poorly drained soils. When wet, the layers of paper are compacted, creating an impermeable barrier to water and gas exchange.

In addition, cardboard and newspaper mulches will become hydrophobic, or repel or fail to mix with water, if allowed to dry out. That causes rainfall or irrigation water to sheet away rather than percolate through. This is particularly true of regions with droughty summers or



New research shows that corrugated cardboard may not be the best option for stopping weeds from growing in your gardens. *Photo by Barbara A. Schmitz* 

well-drained soils.

They can also become past havens for termites and rodents. In fact, termites were found to prefer cardboard over wood chips as a food source, and rodents such as voles often nest underneath mulch sheets.

In addition, newspaper and cardboard sheet mulches often become dislodged by winds, especially if they are exposed, and are not as aesthetically appealing when exposed. In short, cardboard sheet mulches are often not as effective as other organic mulches (e.g. wood chips or bark) in preventing weed growth or improving yield. But the most compelling reason not to use cardboard sheet mulches is that corrugated cardboard contains high

levels of PFAs, also known as "forever chemicals."

I have also observed increased shrub death in restoration areas mulched with newspaper and cardboard sheet mulches compared to adjacent sites where wood chips have been used.

#### So what's the best mulch?

An ideal landscape mulch will...

- Enhance water infiltration and retention
- · Enhance gas transfer
- Moderate soil temperatures
- Reduce erosion and compaction
- Improve soil structure
- Provide mineral nutrients
- Neutralize pollutants and enhance soil life
- Suppress pathogens and pests
- Be cheap, easy to find and apply, while also not detracting from the aesthetics of a landscape

Arborist wood chips (AWC) are the best choice. Generated through chipping trees or parts of trees, they are not bark mulches. But they have many benefits, such as providing a sustainable level of nutrient availability and preventing nutrient leaching.

AWCs build organic matter slowly and sustainably, while also improving water and oxygen movement in soil. In short, they build soil, reduce evaporation, prevent soil erosion and compaction, and enhance beneficial microbes, especially mycorrhizae.

But they are also ideal for weed control, as they decrease nitrogen levels at mulch-soil interface, reduce light needed by photodormant seeds, and reduce light availability to root crowns of weeds.

It is best to begin arborist wood chip application before annual weeds are established. And you should never place cardboard underneath AWCs. Not only would the sheet mulch restrict water and gas movement, but remember that the corrugated cardboard also contains PFAS.

### What else should you do?

Before mulching, prune or mow perennial weeds at root crown; pulling

will destroy the soil structure. You should also be generous when applying mulch. Thick layers (6-8 inches for ornamental sites, 8-12 inches for restoration sites and aggressive weed control) of AWC are best for weed control and water conservation. Add more as needed to maintain 4-inch depth. Weeds will increase if you have less than 3 inches of mulch.

Linda Chalker-Scott is Washington State University's Extension urban horticulturist and a professor in the Department of Horticulture. She conducts research in applied plant and soil sciences, publishing the results in scientific articles and university Extension fact sheets. She is also the award-winning author of five books. Check out her website at <a href="http://www.theinformedgardener.com">http://www.theinformedgardener.com</a>.

## Which mulch is the best?

Ask three people what's the best mulch to use in your yard and you'll likely get three answers.

Even Bob Vila, best known as America's home improvement television host, will give you a different answer that can range from to cocoa mulch to cedar mulch to rubber mulch, depending on the situation.

Research from Linda Chalker-Scott, Washington State University's Extension urban horticulturist and a professor in the Department of Horticulture, shows there is one mulch that you shouldn't use, however: paper-based mulch like corrugated cardboard. (Read more about her research in the accompanying story.)

Transformative Adventures, whose website describes their organization as "learning experiences that transform our lives and the world by investing directly in the future we want to see," disagrees with some of her findings. They write that Chalker-Scott backs up her claim that corrugated cardboard contains environmental contaminants including dioxin and PFAs or forever chemicals "not with data from any study on the risk to soil from brown cardboard shipping boxes — but with data taken out of context from a study looking at the uptake of chemicals including PFAs from different chicken bedding materials. The data appears to have been misinterpreted, which is why it's generally a bad idea to take data out of context."

Chalker-Scott responded that nothing was taken out of context. "Corrugated cardboard is corrugated cardboard. The process of making it requires use of water resistant coatings that contain PFAs."

More research on this topic is ongoing and needed. It has been repeatedly documented there is widespread use of PFAS in paper and cardboard food packaging, but what about all other paper-based products?

The PFAS Free project, run by Fidra, a United Kingdom environmental charity working to reduce chemical and plastic pollution, recommends a <u>bead test</u> to determine if PFAS may be present on food packaging. Simply drop a small amount of olive oil onto the food packaging. If it forms a small bead, the packaging likely contains PFAS. However, Fidra cautions the test identifies the "likely occurrence" of PFAS, and is not a definitive result. If in doubt, don't use it on the landscape or in the garden.

## I'm 'elderly'? So what!

By Janet Allen

When I read the news, one word leaps off the page: "elderly." Articles matter-of-factly describe as "elderly" people who are MY age — sometimes even younger! Me, elderly? Hmmm. Aches and pains that weren't there a decade ago? Check. More than a few strands of gray hair? Check. Learning new skills a bit more slowly? Check. OK, I admit it. I'm "elderly."

Compared to most of human history, our current elderly generation has led fortunate lives indeed, but our lifestyle, though unintentionally, has led to climate change and loss of biodiversity. The world will probably hang together long enough for our generation, but what about the future? As Wangarī Maathai, a Nobel Prize-winning Kenyan environmental activist, said: "The generation that destroys the environment is not the generation that pays the price. That is the problem."

Babies born now will be "elder-ly" by 2100. If we continue on our current path, what kind of world will they be living in? What about their grandchildren, great-grandchildren and beyond? We're already seeing unsustainable declines in biodiversity and life-threatening weather extremes.

## Elderly?

Maybe instead of "elderly" my age group could be described as "elders," rich with experiences and skills we've acquired over the years. There are a lot of us elders, too, and as birth rates fall, our percentage of the population is increasing. Free from child-rearing and often from paid work, we can be a priceless resource for restoring a healthy planet.

Recognizing this, elders have formed new organizations, such as Gray is Green, Th!rd Act, Elders Climate Action and others. Most focus on climate action — certainly worthy and necessary work. But what good

is a stable climate on a dead planet?

Of course, climate change contributes to biodiversity decline, but stabilizing climate doesn't automatically protect biodiversity. And in fact, restoring healthy ecosystems itself can help mitigate climate change.

We, the elders of Wild Ones, can complement the work of others and help solve the twin crises of biodiversity decline and climate change yards, we're continually learning about plants, wildlife and the environment, we have a sense of purpose and we're participating in a group of people with similar interests. Our Wild Ones motto "Connecting people and native plants for a healthy planet" summarizes it well!

Use your own skills and passions We each have a lifetime of experience revealing which activities

"We are the first generation to know that we face unprecedented global environmental risks, but at the same time we are the last generation with a significant chance to do something about it. Time is running out for us to leave a legacy of which we can be proud."

 Johan Rockström, as quoted in "The Good Ancestor" by Roman Krznaric

that jeopardize the future of today's children, of future generations and of all life on earth.

## Benefits for us, too

Preserving life on earth may feel like too big a task for us "elderly" people, but environmental work directly benefits us, too. Research finds that:

- Being in nature is good for the mind, body and soul.
- Life-long learning improves cognitive health and staves off decline.
- Having a sense of purpose benefits older adults both physically and cognitively.
- Participating in groups connects us with other like-minded people and improves mood and cognitive health.

Participating in Wild Ones and in other environmental action activities provides all of these benefits. We're out in nature even if only in our own and roles we're best at and enjoy doing. We can probably find a good fit with one of the many activities and roles available in Wild Ones and in environmental action in general. We might even discover some new pursuits and skills we didn't know we'd enjoy.

Some ideas to consider:

- Be brave! Expand your natural landscape of native plants even though it may not fit the picture-perfect lawns and ornamental plants your neighborhood may currently favor. Share your enthusiasm and knowledge about native plants and healthy landscapes with passersby. Display signs that explain why native plants and natural landscapes are important.
- Of course, not all of us can get out there and garden as we used to, but we can support a shift to sustain-





Left: Janet Allen's yard is more than just a garden. It is a living landscape for birds, butterflies, bees, toads and much more. Right: Some of the signs displayed on Allen's property make it clear to passersby why her landscape looks as it does. *Photos by Janet Allen*.

- able landscapes by hiring one of the many new native plant-oriented nurseries and designers to design, plant and maintain our natural landscapes much more beneficial than supporting the conventional lawn care/pesticide industry!
- Don't underestimate the power of a conversation. Share your joy in seeing a bird or hearing its song, in seeing a bee busily foraging among the flowers. Point out to passersby who may see a butterfly nectaring in your flowers that there are no butterflies without caterpillars, and no caterpillars without their host plants.
- Work with your homeowners association or municipality to update weed ordinances to reflect the importance of native plants. Wild Ones has helpful resources to assist you in this important work.

- Be the eyes and ears of scientists by participating in community science programs, which gather information needed to design effective conservation efforts. Some of these can even be done sitting by a window. (Here's a list of some projects.)
- Take an active role in your local Wild Ones chapter. The more people helping, the more we can accomplish.
- Keep Wild Ones vibrant and growing by encouraging more "young" people to join us in our mission.
   (And for us elders, "young" could be anyone under 60!) Invite friends and neighbors to your next Wild Ones meeting or event.
- Respond to action alerts about proposed nature-friendly legislation.
   Our lawmakers need to know that a lot of us care about the world we're leaving our children.
- Donate to Wild Ones and other environmental groups.

## So what if we're "elderly"?

As Robin Wall Kimmerer, scientist, author and a citizen of the Potawatomi nation says: "... elderhood is not a time for stepping back, but for stepping up, for stepping into your own power. Becoming an elder is both a precious gift and a serious responsibility — a responsibility for sharing knowledge, and for safeguarding the future of life."

Our earth is rapidly reaching biodiversity and climate tipping points. We elders can and must work to pull us back from the edge and leave the precious legacy of a living planet for today's children, for future generations and for all life on earth.

Janet Allen is president and co-founder of the Wild Ones Habitat Gardening in Central New York Chapter and a speaker on native gardening. Check out her website at <a href="https://www.ourhabitatgarden.org">www.ourhabitatgarden.org</a>.



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**Concert Lights**By Christel Maass, Milwaukee

Dusk arrives and I settle into my seat—a patio chair under the heavens surrounded by gardens and shrubbery backing into the shadows. As light dims and easy-listening harmonies quiet, a cardinal announces the show's commencing. Cicadas buzz with electricity as fireflies take the stage executing flirty blips show-offy lines—lights of temptation.

Elsewhere an audience holds lighters aflicker begging for more.

Previously published in Portage Magazine, 2023.

Photo: Mike Lewinski from Tres Piedras, NM, United States, CC BY 2.0, via Wikimedia Commons

Christel Maass is a member of the Wild Ones Milwaukee-North (Wisconsin) Chapter and can usually be found in her garden or at the nearby nature center, often gazing in wonder at the colorful variety of insects on native plants.

## Celebrating the flora of California at the Botanic Garden just off Route 66



By Matthew Ross

California is known for stunning Pacific Coast beaches, majestic redwoods and an expansive terrain covering everything from snow-capped mountains to deserts. For many of us in the botanical realm, it truly is a gold mine of endemic species and breathtaking landscapes. I have had the pleasure of exploring the Golden State multiple times and traversed the "wilds" of Catalina Island, trekked through Sequoia National Park and visited tons of public and private gardens.

But my latest California adventure was different. This time I had the chance to share the experience on a bucket list trip with my father. After receiving a cancer diagnosis (he's doing great and fully recovered) my father reached out to me to see if I would be interested in joining him on a cross-country trek along historic U.S. Route 66. Naturally, I jumped at the chance to spend time with him. He had a checklist of historical mark-

ers, jukebox-filled diners and other muscle car-related attractions he wanted to visit. For me, preparation included looking for gardens, national parks and nurseries we could explore. Ultimately, I think he enjoyed a few of my selections more than the endless array of sideshow attractions and gift shops that dot along the Mother Road.

We started at the famous Santa Monica Pier and logged all 315 miles of Route 66 through the southern California landscape, marveling at the transition through mountains as we traveled deep into the Mojave Desert. Between hamburger hotspots and cliché automotive experiences, we found a gem of a botanic garden. Often, the nation's top gardens – like The Huntington, Los Angeles County Arboretum and Botanic Garden, South Coast Botanic Garden and even the thought-provoking grounds of The Getty Museum - overshadow smaller gardens in their region. Prior to our trip, I had reached out to colleagues from the area, inquiring

One of the first feature gardens upon arrival at the California Botanic Garden blends a meadow garden with an intriguing ground plane articulated as a reptile. This garden is best viewed from the upper path where its serpentine shape is accentuated with a very cool hardscape element.

about where I should take my dad to experience the diversity of native flora. It was a resounding endorsement to have several of them mention <u>California Botanic Garden</u> in Claremont and they were spot on.

It took a few passes, but we finally found the entrance and parking lot despite our GPS telling us we were at the wrong location. While we only had a handful of hours to explore the garden, I was amazed at their commitment to highlighting the native plants of California. The gardens themselves have an unassuming entrance through the Claremont College campus, but their collection and mission speak volumes. We strolled through the gardens during the golden hour and experienced the most



Above: A grove of towering California fan palms (*Washingtonia filifera*) delight visitors with their massive fronds that act like curtains and further enclose the walkway. RIght: Matt and his father, Eric, pose for a selfie after they entered the California Botanic Garden in November 2023.

glorious sunset illuminating the San Gabriel Mountains in the distance, which were full of snow on a colder November evening. It was a magical moment despite a significant portion of the collection being dormant during our visit.

One of the aspects of the garden that stood out immediately was their innovative plant groupings and the alternation in design within each of the garden collections. It wavered between a more formal style in feature gardens to a more naturalistic and romantic collection of plants in the wilder areas. The array of plantings included a mixture of conventional native plants like chaparral yucca (Hesperoyucca whipplei) and California fuchsia (Epilobium canum) that have a widespread distribution throughout the state and are widely commercially available, to plants like the giant tickseed (Leptosyne gigantea) which I last encountered on



a trip to the James Ackerman Native Plant Nursery on Catalina Island (totally worth exploring!) that is a bit more limited in spread. I think one of the big revelations for me came while standing beneath the towering collection of California fan palms (Washingtonia filifera) and realizing this was the only palm tree native to the 49er state. For many it can be hard to believe that the iconic palm-lined streets of Hollywood and Pasadena are, in fact, far removed from the gorgeous girth and stature of the California fan palms dotting the Sonoran and Mojave deserts.

Other highlights included checking out the thatched roofs in the Tongva Village, taking in the massive spread of the majestic oak, the very deliberate downward lighting on their pathways and the intentional use of textural contrast.

Many of the formal gardens look new at first glance, so I was surprised to learn the garden was actually the vision of an early pioneer in the native garden design movement. With its roots dating far beyond the transecting highway it abuts, the 86-acre botanic garden was part of land set aside by Susana Bixby Bryant in 1927 with the mission of growing and fostering an appreciation of native flora. In addition to their living collection, the California Botanic Garden is a leader in research and the preservation of rare and endangered species and was a founding member of the Center for Plant Conservation. The garden also helps support a number of graduate researchers focused on plant systematics and evolution.

Although it was a short trip, it is one that I will treasure. Fear not, my dad and I still had time to capture photos at the famed Rancho Cucamonga Service Station a few miles up the road before it got too dark. In all, we covered nearly 3,000 miles of highway and offshoots of Route 66 on the first leg of the adventure, which took us from Santa Monica to Alburquerque. I look forward to planning the second leg of our trip, which I am sure will be full of national parks, a few novelty diners from the 50s and certainly a few more underrated gardens to share with all of you.

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



By Kim Smith

I've been struggling with my transition to native gardening on a couple of levels. The first and most obvious is trying to manage the more aggressive plants while nurturing those that need more space, light or water. I had been told that beebalm/bergamot (Monarda fistulosa) is aggressive, but I was stunned when it virtually took over my entire flower bed in its second year.

In my first year, I was so enthusiastic that I got too many plants and just put them in the ground without enough consideration of their mature heights. That means I've got some shorter plants that are being bullied by taller plants around them. I knew better, but enthusiasm won out over reason.

But on another more troubling front, I've been feeling conflicted about what this transition means in terms of the opinions of my neighbors.

It's no secret that native plants aren't as "neat" as the cultivars sold in most garden stores. As I already mentioned, some of them get tall ... really tall. Most don't have obvious clumping forms that indicate where one plant begins and another ends. In other words, they can look messy. Or,

Above: Author Kim Smith's first native bed in July 2018. In year one, the beebalm/bergamot (Monarda fistulosa) were barely visible. Below: A fork-tailed bush katydid (Scudderia furcata), one of about 250 species of katydids that range throughout the Lower 48 states, on purple coneflower (Echinacea purpurea).



dare I say it, weedy.

I'm certainly not the first person to struggle with this dilemma, and if I lived in a neighborhood with a homeowners association (HOA), I'd likely not be as free to experiment as I am here. Not long ago I lived within the confines of an HOA and I had to get written permission to replace a rose bush with a purple coneflower beside my mailbox. No kidding.

Native plant gardeners have discovered that we need to be careful to design our gardens so that it's obvious that we have a plan. We must include clearly marked pathways, bed outlines and sometimes even educational signage so our gardens won't be mistaken for neglected weeds.

By deciding to transition to native gardening, I knew I would be going against what's accepted



as normal gardening in our culture. We're *supposed* to have pristine green lawns and neat beds of flowers lining sidewalks and foundations. But once I learned how unhealthy that type of environment is for us as well as for the earth that sustains us, I had to make some changes.

These days, when I drive through neighborhoods of cookie-cutter, non-life-supporting barren lawns, I feel sad. It's unfortunate that we've gotten so far detached from the natural world that we try to kill any signs of it that dare to encroach on what we've claimed as "ours." As a culture, we have forgotten that humans are part of the natural world. We need to rethink our connections to the rest of the life forms on this planet or be prepared to suffer the consequences when we break critical links in the web of life because we don't understand or care about them.

As an example, we have red foxes living in our urban Toledo neighborhood, and I occasionally delight to see one of them trotting down my front sidewalk early in the morning. Recently my neighbor told me of a minor disagreement between two other neighbors. Apparently one person said they should be feeding the

foxes, and the other said they should be trapping them. My reaction to all this: Why in the world would you do *either* of those things?! Why not *let them be*, and just be glad that they're here to help control rodents in our neighborhood?

This isn't the first time I've been a nonconformist. When I'm eating a vegetarian or vegan diet, some people are uncomfortable with and judgmental about my choice. I think that's because they think that my decision not to eat meat is an implicit criticism of their choice to continue to eat meat. They're curious about my choice, and ask questions about it, but then want to argue when I explain it to them. It's frustrating and exhausting.

Humans are social animals, and we evolved to understand that we needed the approval of other humans to survive. We no longer need that approval for sheer physical survival, but it's still painful to be misunderstood by others. Being a nonconformist is a difficult choice, but it's usually driven by a belief that we are doing something that is less detrimental than the accepted traditions of our society. But even with a strong conviction that we're making the right choice, it can be difficult to endure the harsh judg-

By July 2019, there was an explosion of beebalm/bergamot (Monarda fistulosa).

ment of others who don't understand our motivations.

Those of us trying to grow native plants often face criticism from neighbors who may not understand there's a higher purpose to what we're doing. They may assume we're lazy, or that our gardens will attract insects that they deem pests. I've learned that a garden buzzing with a variety of bees and flies is a sign of a healthy ecosystem, but most people still try to swat the bees or run away in fear or disgust. Or they may think that we're trying to be rebels just for the sake of being different. And many people don't like those who violate the norms of society.

I'm lucky that my backyard is mostly shielded from view by a fence, so I feel free to do what I want there. But my choice to forgo chemical lawn care means that my lawn isn't anywhere near what would be considered proper by most people. I've got tons of weeds in the lawn and it's a little bit embarrassing when someone wants to see the garden. I mean, I'm SO proud of my native garden, but I understand that other people won't see it the way I see it. Where I see



pollinator habitat, they see messiness and insects. But am I willing to put toxic chemicals on the lawn just so people will approve of me? Nope.

I recently read an article about nonconformity that suggested people will perceive you differently based on whether they think you're breaking the norms on purpose or out of ignorance. If they think you're doing it with full understanding that you're breaking the norms, they'll be more accepting, and may even respect you for it. But if they think you just don't know any better, well, you're destined to be scorned.

I'll end this little rant with my favorite advice about being a non-

conformist, which comes from Evan Tarver, a writer and entrepreneur with a background in technology and content marketing: "Realize that you're a monkey in clothes."

He writes: "The best way to beat social pressure is to realize that deep down, all you are is a monkey in clothes. You're a primate, an animal and all your fears about not fitting in with society are silly when you think about it in these terms. For me, it creates a bit of absurdity that allows me to laugh in almost any situation, making it easier to do what I want, even if other people won't get it.

"So what if you don't follow society's defined path?" Tarver continues.

An Eastern calligrapher fly (*Toxomerus geminatus*) in Smith's garden is a great pollinator.

"Who cares if you ignore the social pressure you feel and march to the beat of your own drum? Ultimately, all you are is an advanced primate who finds him or herself playing house every day. So, where is the real risk when deciding whether or not to go against the grain? The worst that can happen is that a bunch of other monkeys in clothes get mad at you for not fitting into a box they understand."

Silly monkeys.

Kim Smith is a member of the Wild Ones Oak Openings Region (Ohio) Chapter and author of the blog, <u>Nature is my Therapy</u>, from which this article is reprinted from.



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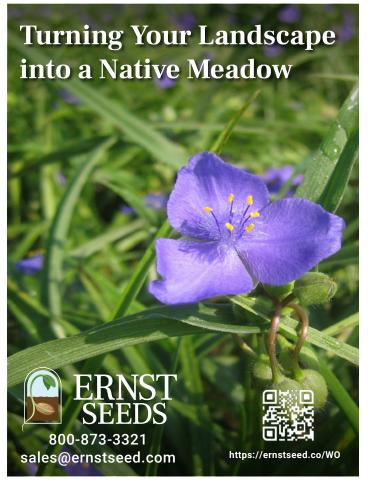


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# Exploring the bounty of native edible berries: A culinary journey

By Brenna Pixley

The most inviting prospect of a woodland stroll must be the treasure of a berry harvest. Prickly pokes and a few pesky bug bites are an even trade for the juicy jewels of the land. Berries beckon with the promise of sweetness and challenge you to respect boundaries.

Telling time by wild food harvest is woven into all humans' biological clocks. There is an American folk song that points to this titled "Hopalong Peter." The lyrics go "Hopalong Peter, won't you bear in mind, I ain't coming back to the gooseberry time."

Giving rhythm to your life in cycle with the seasonality of food goes deep into your bones. Besides memories of morel hunting with my father, nothing conjures a snapshot in time, like the ripening of wild blackberries (Rubus spp.). It is a reminder of the days when I was courting my spouse. The smell, taste and color of my fingers during harvest brings it all back.

Berries have been a staple of the Indigenous peoples of North America for all of history. The seasonal abundance, medicinal qualities, spiritual significance and trading importance made and keeps berries a central food source.

"Berry" is a colloquial term used for any smallish fruit growing on a bush like cranberry (Vaccinium subg, Oxycoccus) or elderberry (Sambucus spp.). Botanically speaking, berries are fleshy fruit growing from a single ovary or single flower like mayapple (Podophyllum peltatum). Culinary berries include aggregate fruits that have a single flower with many ovaries or clumps of berries such as strawberries (Fragaria spp.), mulberries (Morus spp.) and salmonberries

(Rubus spectabilis). Some "berries" like juniper (Juniperus spp.) are not fruits at all, but rather female seed cones from an evergreen.

However, the diversity of edible native berries is vast. From the scorching deserts come the saguaro cactus (Carnegiea gigantea) fruit, prairies are prolific in buffalo berries (Shepherdia spp.), mountains ripen berries by the gallons, and the Arctic tundra hosts crowberries (Empetrum nigrum) and cloudberries (Rubus chamaemorus). Bog dwellers, like cranberries, have a place on almost everyone's fall harvest menu. The juniper and sloe berry (Prunus spinosa) had a central role in the flavor profiles during alcohol prohibition. Further examples of abundant and delicious native berries include serviceberry (Amelanchier spp.), blackcap raspberry (Rubus leucodermis), blackberry, fox grape (Vitis labrusca), blueberry



Prunus virginana berries have a more bitter taste, which is why the large deciduous shrub was named the common chokecherry.

(Vaccinium spp.), mulberry, salmonberry, black currant (Ribes nigrum), gooseberry (Ribes hirtellum), spicebush (Lindera benzoin), chokecherry (Prunus virginiana), mayapple, dewberry (Rubus flagellaris), persimmon (Diospyros virginiana) and pawpaw (Asimina triloba).

Flavors range from tart to tangy to juicy. Sweet to bright, citrusy and even tropical. Some are crunchy with seeds, while others are pulpy

## **Catching Wild Yeast**

Mix together 2 cups flour (any will do) and 2 cups non-chlorinated water Add a 2-inch to 4-inch snip of a berry cane or stem of wild grape. (Any bramble will do, but blackcap raspberries have a high yeast content.)

Cover lightly and keep in a warm space for a few days until the slurry is bubbling

Can be used as base for pancakes immediately or rebatch for sourdough starter

### Starter:

Discard half of the slurry and add equal parts flour to water. Repeat until it doubles in size.

"Feed" the starter every day till you see vigorous bubbling and rising of the starter.

Can use it as a base for any dough like pizza crust, pancakes or bread.



Author Brenna Pixley says her favorite berry is the blackcap raspberry (*Rubus leucodermis*) since it is a generous producer that grows low to the ground for easy picking and tastes delicious.

and custard rich. All berries have immune-protective and health-promoting compounds. They are rich in powerful antioxidants and flavonoids that are an important part of human and animal diets.

Pemmican is a historically important recipe incorporating berries, made by mixing finely ground dried meat and powdered berries into tallow to create a traditional staple used by Indigenous communities, travelers and traders. It is also used by professional survivalists and for long-term hiking trips. You can enjoy it as is or use it as a base to fry up just about anything you find edible on the trail.

Besides blitzing foraged berries into your smoothies, enjoy these wild treats as you would any commercial berry. Expand your jam repertoire with salmonberry, juneberry (Amelanchier spp.) or wild grape (Vitis spp.). Experiment with a combination of foraged, farmers market or commercially grown fruit. Berries give us the ability to add tang to a compote adorning pork roast, infuse a homemade soda with bubbles brought on by natural yeasts or provide the filling for a raw nut pie.

Blueberries are the most numerous of all North American wild berries, as well as the most cultivated. Smaller than commercial berries, low bush wild blueberries can be found in open fields all over the Eastern Coast. Also common is the woodland strawberry (*Fragaria virginiana*), which got its name either from the way the wild hay falls and naturally mulches around them or from the fact that they were once pierced with straw and hung at market for a tasty treat.

Aggregated fruits and berries are usually edible, like blackberries. Single fruits on a stem are usually considered safe to eat, like hackberry (Celtis occidentalis). But this is only a guideline; if you can't positively identify a berry, do not eat it. Do not rely on identification apps in the field. Be sure to correctly identify berries before consuming them, especially when giving them to others. Ways to

## **Simple Compote**

Ingredients

1 pound fresh or frozen foraged berries (such as black currant, raspberry) Sweetener of choice

Dash of salt

Instructions

For fruit, cut into small pieces if the fruit is large or use as is if berries are frozen.

Add all ingredients to a medium pot and bring the mixture to a boil over medium-high heat, stirring occasionally.

Once boiling, reduce the heat to medium. Stir often. Mash fruit to desired texture. Simmer to reduce to half the original volume of liquid.

Remove from the heat.

Let the compote cool for a few minutes before serving.

Drizzle onto pork loin, grilled meats, ice cream, as topping for cakes: the options are endless.

#### Fruit leather

Ingredients

Any blend or combination of berries

Dash of lemon juice

Sweetener of choice (optional)

Instructions

Mash or blend ingredients together until smooth. If desired, strain to remove seeds

Pour the mixture into a parchment paper-lined jelly roll pan, then smooth to an even layer.

Dehydrate. This can be in a food dehydrated on low for 3 hours, low oven or baked in the hot sun. (I've even seen someone put the pan on a summer dashboard to bake.)

When dry and sticky, cut with scissors into desired shapes leaving paper on. Store rolled in glass jars for 1 month.

learn your local flora include hiring a local guide who is an expert in your area, getting info from your local extension agent, going to wild food gatherings or keying plants out in a guidebook for your bioregion.

The environment where we collect can range from our backyards, edges of hedges, our favorite hiking trail or local and state parks. Each park has their own set of foraging guidelines, so be sure to check those before you set out. Luckily, berries, like mushrooms, are mostly a legal item to forage on government land.

Confirm that the ground is free from contaminants when possible. Contaminants originate from pollutants such as lead, poisoned waterways, unclean groundwater, agricultural runoff, overspray from road salts, mining, glyphosate used in commercial agriculture and residential areas as weedkillers. When picking tree fruits like mulberry and persimmon, avoid the windfalls due to contamination from browsing wildlife scat.

Many places that are prime foraging grounds are not open to the public. It is important to gain permission if you are interested in harvesting from any land that is privately owned.

How much we harvest is important for the continuation of a thriving plant community. Knowing the berries are there for us and many other

life forms is a good start. By leaving plenty to be gorged upon and cached with seeds dispersed by animal droppings, we ensure that continuation. Being mindful not to trample plants underfoot or heavily impact adjacent areas is another way to preserve future harvests.

A tangible way to enjoy your favorite variety is to plant your own food forest, keeping in mind that you should plant varieties suitable for your light conditions and soil preference. For instance, the choicest brambles are the ones growing in dappled shade.

But protection from wildlife is also key. How vexing to watch your mayapples ripen, knowing you will soon taste a tropical treat, only to be beaten by hungry critters.

Fencing up to 8 feet tall is suggested for deer. In my urban garden we put up a 6-foot fence and then attached a perimeter of string two feet up to prevent deer from jumping into the garden. Bird netting is paramount for elderberries. Simple plans are easy to find online to build a structure that fences in your berry patch. Or cage a single plant or two with ripening fruit to ensure harvest in the late summer.

Indigenous cultures have always known how to use berries as medicine and taught the colonists. Today, some cold and flu remedies like elderberry syrup are so mainstream they are sold in most pharmacies. Berries that contain many antioxidants are touted for their protective effects against many diseases like diabetes.

Cultivated berries in U.S. diets like blueberries and raspberries (Rubus spp.) serve as our central players in the culinary world, but there are a plethora of flavors to consider as complementary spices. Take the humble sumac. Non-poisonous sumac like both Staghorn sumac (Rhus typhina) and winged sumac (Rhus copallinum) are found in the upper Midwest and Northeast, while smooth sumac (Rhus glabra) is

## Raw pie

Crust

2 cups of any raw nuts, hickory, walnut, almond or seeds like pepitas or sunflower

1 cup dates, pitted (or raisins, apricots, persimmons) Pinch sea salt

### **Filling**

6 cups fresh fruit (blueberries, mulberries, brambles, pawpaws)

2 Tbsp lemon juice

1 cup dates soaked (water discarded)



#### For crust:

Blitz the nuts in the food processor until they are meal texture. Add the dates and salt until there are no chunks Pat mix into a 9-inch pie pan until an even crust forms. Pop in the freezer for 15 minutes while making the filling.

### For filling:

Take two cups of fresh fruit (frozen is fine but thaw and drain first.) Add soaked dates and lemon juice.

Blend in the food processor until smooth.

Chop the remaining 4 cups of fruit and mix together.

Pour over the crust and chill for a few more hours. Enjoy!

## Sumac Dressing

- 1 clove garlic crushed
- 1 tsp salt
- 1 tsp sweet paprika
- 2 tsp sumac
- 4 Tbsp extra virgin olive oil
- 2 Tbsp lemon juice

## Instructions

Add all ingredients to a lidded jar and shake well to combine. Use with Fattoush-style Mediterranean salad, any tossed salad, a baste or dip for grilled meats or veggies.

found across all of the east, central and western regions of North America. Tropical and showy in its display, medicinal in quality, traditionally smoked in its leaf form as "Kinnikinnick," sumac is unmatched in its acidic offerings.

Sumac is a classic spice addition to many of the main dishes in Middle Eastern cuisine. The fuzzy berries, when dried and deseeded, add a wonderful lemony, yet earthy sprinkle onto meat, salad dressing and bread dips. The sour flavor from the berries comes from malic acid, the

same acid found in candies. Luckily, it is easy to tell edible sumac varieties from poison sumac (Toxicodendron vernix). Poison sumac has white berries and grows all over the eastern U.S. in wetlands and along streams. Non-poisonous sumac grows in open and edge habitats and has red berries.

My favorite wild berry plant is blackcap raspberry (Rubus Leucodermis). Not only is it a generous producer that grows low to the ground for easy picking and tastes delicious, but it also has medicinal, herbaceous

fruity leaves. Starting in early spring until about August, these vibrant leaves are chock full of minerals and vitamins C, E and A, as well as calcium, iron, potassium and magnesium. You may have heard of using red raspberry leaf tea as a nourishing tonic. You may replace any of the Rubus varieties in your tea blends. I've been known to toss leaves into my bone broth pot when I have it handy. The most mysterious and magical qualities of this bush is found on its canes. If you guessed that the canes host yeast you would be correct! At any time of year, you may snip a few inches of cane to start your wild-harvested sourdough starter, wild yeast for wine, vinegar or soda. The yeast can be seen with the naked eye as a white film that is easily wiped off with a finger.

The berries of North America are richly diverse and we should do our best to protect their diversity. The native range for many of these plants is shrinking, leading to less genetic diversity. This could impact the plants' ability to hybridize in the wild and create defenses for our fast-changing climate. Planting berry patches, attending plant swaps, patronizing native plant nurseries, supporting local berry farms and engaging with your local tribal communities are great ways to bolster native berry plant communities.

We look to Indigenous foodways to learn to cultivate a relationship with our wild-sourced foods and to learn both old and modern practices that we can tie together to make berry harvesting sustainable for many generations to come. Obtaining significant parts of our diets from wild sources cuts down on the space and fuel required to commercially farm, warehouse and ship these foods. Each meal is a chance to reconnect with our local bioregions and reduce the impact of global berry markets. My hero and the prolific author of many highly esteemed wild food books, Sam Thayer says, "Gratitude grows when we eat, but none builds



Mulberries (*Morus spp.*) are often small, so one of the quickest way to pick a lot of berries to take an umbrella, large bag or blanket and shake a limb.

## Red raspberry (Rubus idaeus) Leaf Tonic Tea

1 oz dried rubus leaf (equals about a "handful") or 2 oz fresh rebus leaf 1 quart boiling filtered water

### Instructions

Add ingredients to the jar (leaves first) with a lid and cover gently.

Let steep for 6 + hours on the counter. Strain and enjoy iced or warm Store rest in the fridge. Good for 1 week.

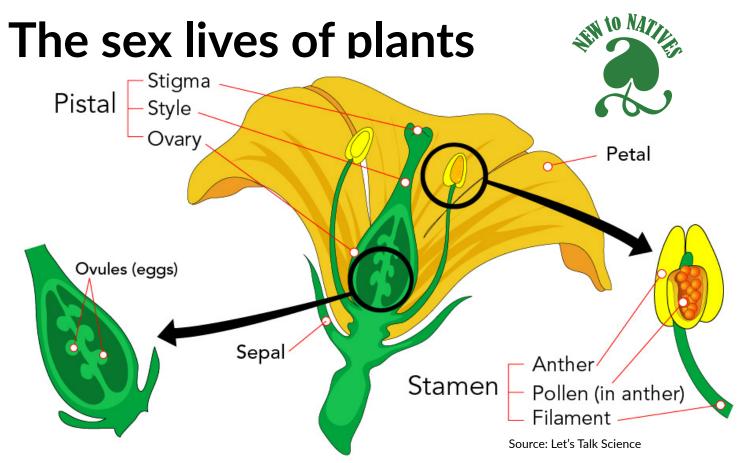


Can add other flavors to this like fresh berries, mint, lemon balm, nettle, etc.

as strongly, firmly and keenly, as foraging."

Brenna Pixley is a gatherer of people, plants and ideas. Her roots are deeply planted in Kalamazoo, Michigan where she lives with her family on their urban farm and is a member of the Wild Ones' local chapter. She is also the founder of Earthcraft, an ancestral skill-share gathering focused on sharing hands-on reconnection with tools and nature. Pixley has taught foraging and herbalism classes at her local community college and Tillers International for almost a decade.

All recipes from Brenna Pixley. Consume at your own risk.



By Carol T. English

Have you ever wondered about the sex lives of native plants? It is easy to understand how mammals like us reproduce. We are mobile, moving around freely as we choose our mates and deciding just how and if we want to make zygotes that grow into babies. But plants, for the most part, are locked into position and depend on an outside source to transfer male gametes (pollen) to the female egg cells, and ultimately form zygotes that develop into fruit and seeds within the flowers.

Plant sex cells are known to be transferred by flies, ants, bees, beetles, moths, butterflies, bats, rodents, lizards and now possibly a frog. But in some parts of the country, pollen is moved primarily by insects like native bees and a few hummingbirds.

There are 20,000 species of native bees on the planet, with approximately 4,000 in North America. Native bees are attracted to flowers because the pollen is rich in protein,

and the nectar offers a sweet, tasty source of energy to the bees. When the bee lands on the flower, the pollen is sticky and adheres to the bee's body. As the bee moves from flower to flower, the pollen is inadvertently placed on the tip of the stigma or female portion of the flower. After the pollen germinates on the stigmatic surface, a pollen tube is formed from the pollen and extends down the style into the ovule; nuclei from the pollen travel through the pollen tube to fertilize the ovule.

Take native bees in Colorado, for example. Of the 950 species of native bees there, 70% are solitary, meaning they do not build social nests like bumblebees or the nonnative honeybees. Solitary bees include leafcutter, mason and resin bees (family Megachilidae), masked and plasterer bees (family Colletidae), digger bees (family Apidae) and mining bees (family Andrenidae). Solitary bees, which show different degrees

of social interaction between adults, range from ¼-inch to ¾-inch and they emerge in spring and early summer in temperate climates.

The males emerge first and immediately begin searching for the emerging females. After mating the females choose a nest site and begin nest construction. There is an amazing diversity of nest construction among all these different solitary bees. About two-thirds of solitary bees dig holes and nest in the ground, and most of the other species nest in holes within wood or plant stems that have been carved by beetles or other insects. Different bees will line the holes with an assortment of material including cut leaves, leaf pulp or little sand grains.

One time I observed a leafcutter bee in my native garden arrive on an evening primrose (Oenothera biennis) and cut a perfect circle from a petal, position it in her mandibles, and fly off only to return about 90



seconds later to cut another perfect little petal circle. I could imagine her lining her tiny cells with these soft cushy evening primrose petal parts. She creates five or six compartments that are complete with a nutritious sticky ball composed of pollen and nectar and lays an egg next to each pollen/nectar ball. Her life duties are now finished, and her life is over. The eggs will typically hatch the following spring; however, multiple generations will occur with some native solitary bees.

In Colorado, there are 24 species of social native bumblebees in the Apidae family, within the genus Bombus. Bumblebee colonies are not as organized as the eusocial nonnative honeybees introduced to the New World about 400 years ago from Europe.

Unlike honeybees, adult bum-

blebees do not feed each other, although they do feed from common food sources. Additionally, unlike the perennial nests of honeybees, bumblebee colonies are annual and each year the newly emerged bumblebee queen will search for a new nest within a dry cavity such as an abandoned mouse nest or below a tussock of grass. The queen produces wax from glands in her body and lays a few eggs to produce worker bees. The worker bees take over the nest building work. If it is a good year for flowers, her nest will be quite large by late summer.

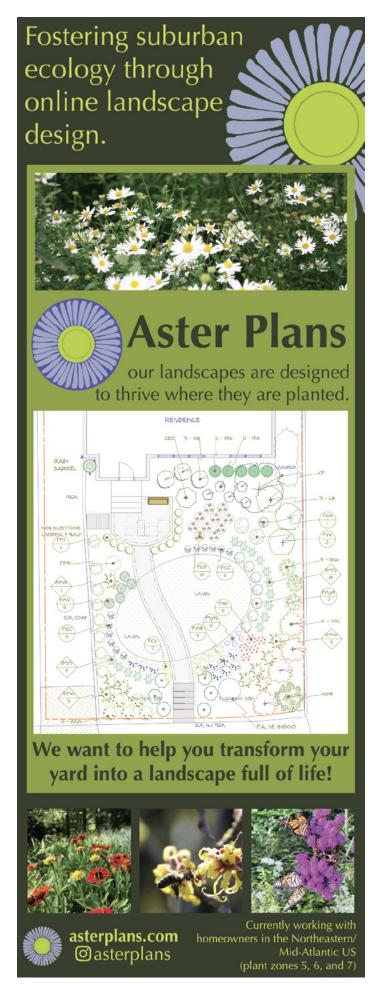
There are so many ways to help native bees in your garden. The most important way is to plant native plants. Many bees have co-evolved with particular native flowers.

Beardtongues (Penstemon), columbine (Aquilegia) and many native

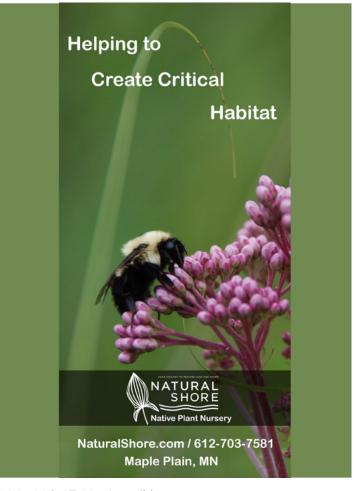
It's no surprise that the worker bees do all the work in building the nest. Photo: Todd Huffman from Phoenix, AZ, CC BY 2.0 <a href="https://creativecommons.org/licenses/by/2.0">https://creativecommons.org/licenses/by/2.0</a>, via Wikimedia Commons

asters (Asteraceae) are easy to grow in our gardens. You can also add some structures that provide cavity nests for bees. In late summer and fall it is best to leave the stems of plants for bees to nest in, and let the leaves remain on the ground for insects that like to burrow underneath and hibernate throughout the winter. Check out the Xerces Society for excellent suggestions on how to provide nesting resources for native bees and other insects.

Carol English is a member of the Colorado Native Plant Society, San Luis Valley Chapter, and a former member of the Wild Ones Front Range (Colorado) Chapter.







## **Book Review**

Title:

"The Garden Next Door"

**Author: Collin Pine** 

Published: 2022

Rating: ★★★★★

native gardeners?

By Jen Medon

Are you wondering how you can introduce the children in your life to your passion for native plants and land stewardship? Are you hoping to inspire the next generation of

"The Garden Next Door" is a quick, easy-to-read children's book published in 2022. In 32 pages beautifully illustrated pages by Tiffany Everett, Collin Pines's book will encourage readers with a gentle call to action about the impact of planting natives to support wildlife, the value of building community and how even children can make a difference. I have no doubt this book will teach children about how tiny actions can significantly benefit the bees, butterflies, birds and more in

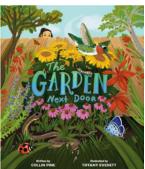
"The Garden Next Door" tells the story of three curious children who follow insects to their neighbor's garden and discover a rich, diverse habitat where wildlife thrives. The tone is playful, curious and inspiring. I love how the relationships between several native plants, insects and birds are highlighted throughout the story.

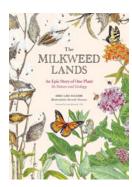
their backyard — and hopefully their

parents or guardians as well!

Each page is bright and detailed, perfectly capturing the colors of purple coneflower (Echinacea purpurea), a monarch caterpillar and wild rose (Rosa acicularis). It also gives me hope that maybe I, too, can inspire some neighbors in my community.

This book would be enjoyed by children of all ages. I rate this book as a 5. I appreciate how "The Garden Next Door" delivers a subtle message that is accessible to young children and I'm glad to keep it in my little free library in my own native garden.





Jen Medon has been a member of the Wild Ones Greater DuPage (Illinois) Chapter since 2022, works full time in community corrections and enjoys gardening, bowling and spending time with her dog and three cats.

Title: "The Milkweed Lands: An Epic Story of One Plant: Its Nature and Ecology"

Author: Eric Lee-Mäder

**Published: September 2023** 

Rating: ★★★★★

By Lynn Stuart

"The Milkweed Lands: An Epic Story of One Plant: Its Nature and Ecology" is a delightful and impressively thorough book celebrating the wonder of milkweeds. Packed with extensive research and charming illustrations, its 100 pages explore milkweed's rich history, underground ecosystems and full seasonal life cycle. Author Eric Lee-Mäder's obvious passion for his subject shines through in the book's comprehensive detail and is perfectly complimented by Beverly Duncan's whimsical artwork. A must-read for anyone wanting to grow their appreciation and knowledge of this fascinating plant.

The early pages establish that the milkweed genus, Asclepias, has many species that grow all over the world with over 90 in North America alone. The plant's rich history includes how its powerful chemical properties were used in pharmaceuticals and for making delicious honey.

Milkweed's place in nature during each of the four seasons compris-

es the second section of the book. Winter is the first season covered with an emphasis on what happens below ground where the rhizomes serve as food for a multitude of underground life. Spring follows with a focus on milkweed repopulation efforts and the aphids, beetles and other pests that try to get in the way. Next is summer when milkweed serves a multitude of feeders well beyond monarch butterflies. The summer section also includes detailed pictures of milkweed flower parts as well as illustrating its full life cycle. Rounding out the year is autumn, with a focus on how seeds spread and foliage diseases that threaten milkweed.

The illustrations titled, "Life Cycle of Rust Fungi" followed by "Invasion by Rust Fungi" are especially delightful in that they perfectly capture the heart that was put into this book. I mean who includes not one, but two, detailed, accurate, beautifully rendered illustrations of rust fungi in a book about milkweed? Only someone who thinks it is truly important to know everything about milkweed. The book ends with a stand-alone page on how to grow milkweed from seed.

There is a secret place in my heart for people who take a seemingly simple topic and consider it fully and then cast that information out into the world for anyone lucky enough to stumble upon it. My only disappointment was the lack of information about specific milkweed varieties. The book mentioned both Hedgerow Farms, which grows milkweed and is a good source for milkweed seeds from Winters, California, and the Xerces Society, a science-based nonprofit organization that protects wildlife through the conservation of invertebrates and their habitats. I looked at the Xerces website and found a lot of information about milkweed varieties, but I wish more of that had been included in the book.

Nonetheless, it is a remarkable thing to bear witness to someone's love so unapologetically. And it is a privilege to have the opportunity to love that thing, too.

Lynn Stuart is a member of the Wild Ones Fox Valley Area (Wisconsin) Chapter.

# SFE funds native garden used for mindfulness activities

The <u>Urban and Environment</u>
<u>Policy Institute at Occidental College</u>
in Los Angeles reimagined its school
garden for mindfulness activities, in
part thanks to a Wild Ones Seed for
Education grant.

Project Coordinator Rosa Romero said the process started in fall 2021 when they engaged parents, teachers, students and administrators to create a campus environment known for being green and native, a place where students could participate in mindfulness activities, such as drawing and writing activities.

The following spring, the institute partnered with Northeast Trees to reconstruct their school garden space, adding seating, signage, native plants, trees, a water feature and a privacy screen.

Since then, the native mindfulness garden has been a space for student activities including yoga, meditation, reading and art, Romero said.

"Our partners at <u>InsightLA</u> provide monthly mindfulness workshops for students and parents, as well as continued support and training for teachers," she said.

While most shrubs were planted by adult volunteers including teachers and parents, 320 students were able to plant native flowers individually in cups and then place them in the garden and throughout campus on Earth Day, a tradition that has continued annually.

Romero said students were most excited about learning how native plants can also have healing properties, including some they can use in their own culture and traditions. "They also really enjoyed learning about how natives attract local wildlife," she said. "They loved seeing the birds and butterflies visit their garden."

She said they view greening their schools and communities as an environmental justice issue. "Our communities are in dire need of climate



A kindergartner takes part in a mindfulness sound session.

resilience mitigation, and although this project is a small step toward that, it is meeting part of a larger school greening plan. The community engagement component of the project resulted in the entire school community of students, teachers, parents and administrators feeling invested in keeping this momentum going."

The group planted shrubs, grasses, sedges and 25 native flowers, such as common yarrow (Achillea millefolium), sticky monkey-flower (Mimulus aurantiacus) and others.

Romero said the main challenge was caring for the garden over its first summer, which was extremely hot. "The irrigation system in the space needed serious repairs, but thankfully our school's grounds manager and principal were able to get someone to come out and fix it,"

she said, adding that classrooms took turns caring for and maintaining the space.

The garden space is now a site for community building and enrichment activities at the school. Romero said they are applying for more grants to expand their outdoor spaces throughout the Loreto campus.

The space is used weekly as a mindfulness garden for students and teachers. Many teachers use the space as an outdoor extension of their teachers lounge and frequently eat lunch in the garden. Others use it with their students.

"Our special education teacher uses that space very often with her students, especially when they need a break," she said, adding that the students love pulling weeds and finding little bugs.



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## Weeding: When, how, why not to and the importance of patience

By Benjamin Vogt

When you disturb a site and plant a new garden you will have weeds. These weeds are usually annuals, but they can get pretty thick in certain circumstances (especially in seeding projects where it takes longer for plants to mature, and where germination isn't always guaranteed if dependent on timely rains).

It's important to rethink weed management in gardens the first one or two years. For example, hand pulling every last intruder is both impractical and problematic. This means that every time you pull a weed you create more soil disturbance, bring up more weed seeds to germinate and potentially exacerbate the issue.

In a sown meadow space, some folks recommend keeping the area mowed at about 6-12 inches the first vear to reduce weed seed germination. I've worked on projects where this was helpful and detrimental. Why detrimental? The space was sowed at such a high rate (over 200 seeds per foot) and using a healthy dose of biennials and annuals, that letting those early-succession species take off provided superior weed control - even though we still had plenty of weeds. Luckily, it's harder for most to tell what is a weed and what isn't when there are so many flowers in bloom early on.

When there are more manicured / intentionally planted beds using potted material, there are some traditional strategies to reduce weed competition in years one or two, such as adding a thin mulch layer

(we recommend just 1-2 inches so there are / will soon be more soil gaps to allow desirable plants to self sow and fill in, thus creating a living green mulch sooner while fighting weeds sooner). Some pros try a pre-emergent granular herbicide, especially for spring plantings. But the best strategy you can take is plant density – planting at 12 inches apart or less - and deadheading problematic weeds. The goal is always to cover the site ASAP and not allow invasive weeds — like musk thistle (Carduus nutans) - to get a foothold, and that's where deadheading really helps.

If you're planting into a known weedy site, especially one with aggressive species like creeping Charlie (Glechoma hederacea), it might be a good idea to prep the area for an entire growing season before planting. If you solarize, this means four weeks on, two weeks off with the plastic (kill plants, let new weeds germinate, kill, repeat), or similar treatment with glyphosate (let weeds grow to 4-6" then kill a few times each time it will be less and less). Using cardboard may not be always be practical if you have large areas or are seeding.

2023 was one heckuva year for weeds: a super dry winter and spring and early summer, followed by much rain in July. This produced a bumper crop of weeds later in the season. Luckily — and as is most typical — the weed pressure was mostly from annuals such as crabgrass and foxtail, both of which are almost always outcompeted by desired plants with-

in one or two years as those annual seeds need light to germinate (and often won't get it if shaded by warm season bunchgrasses and forbs if planted densely in layers).

Unfortunately, we never know what's in the weed seed bank when we prep a site by killing lawn. (Spray-killing lawn is preferred vs. sod cutting or tilling because more site disturbance will equal more weeds by the truckload.) Each space is unique, with unique hydrology and weather and even microclimates. When you run into hiccups in your landscapes, being patient and staying the course is critical. When you are ready to give up that's usually just about the point when the corner is being turned.

Remember, a weed is an undesirable plant in a place we don't want it. And weeds thrive where there's an opportunity — open gaps with little competition. Nature abhors a vacuum. In a new garden, whether planted or sown, desirable and necessary plant competition may be one to three years away. Patience is critical as the ecosystem rebalances and heals itself from a long history of colonization.

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Benjamin Vogt is author of the bestselling "Prairie Up" as well as "A New Garden Ethic." His garden designs have appeared in Dwell, Fine Gardening, The Globe and Mail, Horticulture, Midwest Living, The New York Times, and The Wall Street Journal.

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