



**Cover:** This photo of a <u>buckeye butterfly</u> on anise hyssop was taken in Fairfield, Iowa, in mid-October by nature photographer Vicki Bonk. It wasn't just the buckeye that caught her eye in a small native garden plot she had stumbled upon. "There were lots of butterflies and insects—a skipper, a painted lady, a praying mantis—visiting this little garden. It was heartening to see how lively a tiny native garden can be," explains Bonk. **Above:** A tawny-edged skipper visits the same small Iowa garden.

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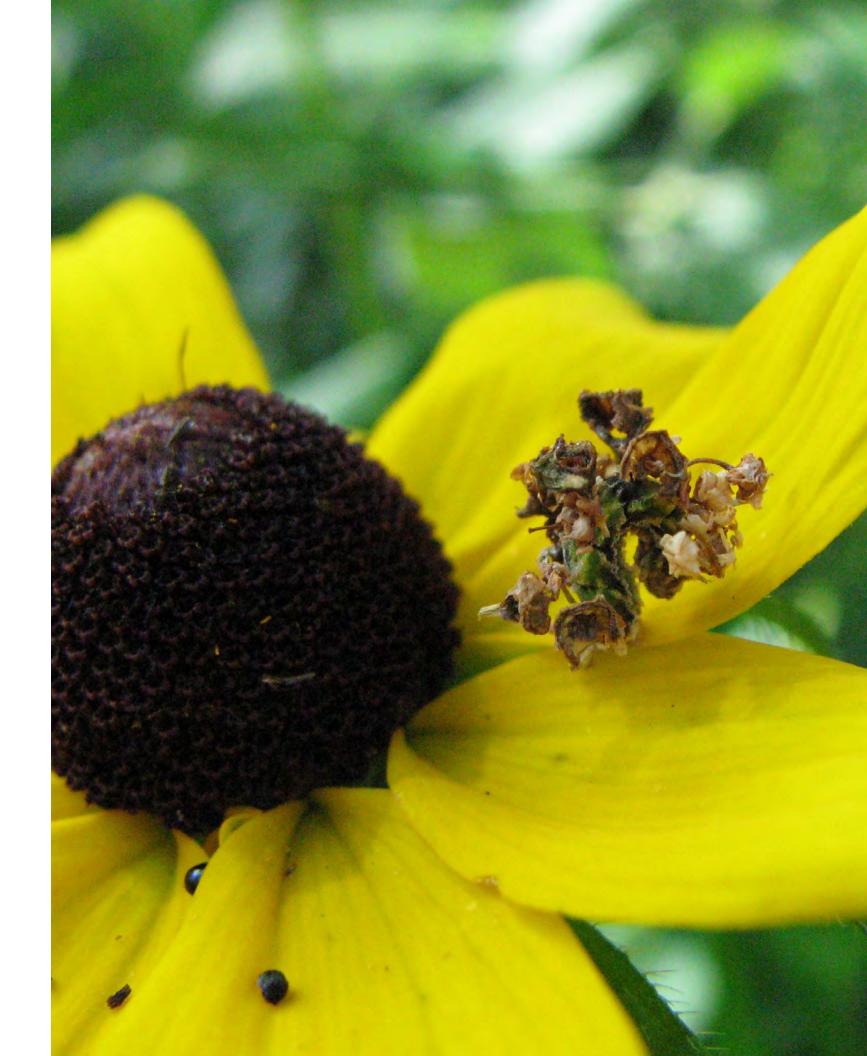
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# The Camouflaged Looper, Hexapod Master of Disguise

til it moved, I didn't know I was looking at a caterpillar. This common but rarely noticed species is known as a Camouflaged Looper when in caterpillar stage. These caterpillars glue bits of plant debris to themselves as camouflage protection while they're foraging. These loopers are often found on composite (daisy family) flowers like this black-eyed Susan, but also feed on many other plant species. If the camouflage helps this looper survive, it will one day become an adult moth called the Wavy-lined Emerald."

-Dave Crawford, photographer and naturalist







Nissa and Seth Tupper started growing fruits and vegetables in their yard over a decade ago—starting with just a few raised garden beds. Fast forward to a suburban home with a little more yard, the now family of four lovingly tends to an 800-square-foot garden in their backyard that includes a large vegetable garden, berry patches, chickens, and a few fruit trees. From June to November, the majority of the family's meals are comprised of backyard bounty. Following are Nissa Tupper's thoughts about creating a healthy backyard ecosystem that respects the Earth while producing fresh garden produce bursting with flavor.

Growing food holds a lot of nostalgia for me because I grew up helping tend our family food garden. I remember the joy of snapping ripe green beans off the vine with my mom. I felt such pride canning vegetables in late summer when the garden was exploding with goodness. My husband, Seth, and I wanted to bring that experience into our kids' lives to instill a connection to where their food comes from.

Our kids have been involved in growing fruits and vegetables in our yard since they were babies. The garden has opened up an amazing world of discovery for them. There's nothing better than watching their excitement after they pick a pint of sweet raspberries or how they beam with pride at how big the corn, snap peas, and pole beans have grown under their care. And, they love finding bugs in the soil to feed our chickens—everyone wins!

On a larger scale, being responsible stewards of the environment and connecting to our natural surroundings is important to us. A healthy environment is a big part of what allows us to live a healthy life. Sourcing most of our vegetables from right outside our back doorstep is a way for us to actively walk the talk on sustainability. We work hard to produce "clean" produce without the use of harmful chemicals. We try to manage the garden in harmony with nature. Companion planting, hugelkultur, chickens, and growing native plants for pollinators all contribute to this. (See the end of the article for more information on each.)

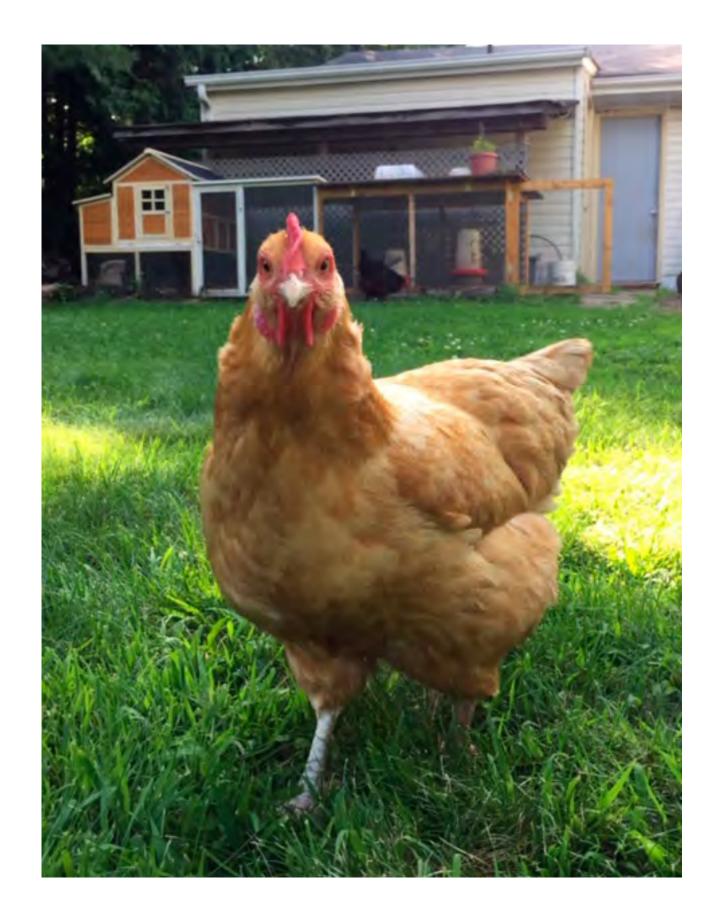
**Previous spread:** Blueberry bushes were some of the first edible landscape plants for the Tuppers. A number of varieties are planted, giving the Tupper kids, Billie and Nolyn, plenty of opportunity throughout the summer to snack. **Left:** Rows of carrots and beets grow throughout the summer next to pole beans and corn.

In recent years we've added hugelkultur and chickens to our "farming operation." As soon as our city started allowing homeowners to raise chickens for eggs (no, there are no crowing roosters allowed), we added Wrestler, Sparkles, Snuggles, and Midnight to the mix (yes, our kids named them!). In addition to enjoying their delicious eggs, they add to our ability to manage a low-impact/low-input process. They free range in the yard and eat bugs that could be a nuisance to plants. We compost their manure and bedding into new, rich soil for the garden.

Growing food using hugelkultur has been amazing. Plants grown in the hugelkultur mound are noticeably bigger than those grown in traditional row plantings. We added another mound last summer and were stunned by how much we could pack into the space and how much we harvested.

This past year, some friends gave us a "backyard farmer" sign that made us laugh. We've thrown a few fall "harvest parties" to bring friends and neighbors together to connect over good food. People have donated apples so we can use Seth's apple press for fresh apple cider. It's a really great time.

I always thought growing produce, composting, and raising chickens was a no-brainer because it is so rewarding. But it's not the typical scene in suburban America—yet. We hope our yard inspires others to participate in the food system and convert turfgrass into a thriving backyard farm. The process has been particularly rewarding because the kids are so proud of what they grow. Checking in on the growth of their plants is part of their daily routine during growing season. They are totally comfortable feeding the chickens worms they have dug up from the yard. The knowledge and experience of growing fresh food is something they will carry with them the rest of their lives.



**Right:** Sparkles, as her name suggests, poses for a cameo while ranging in front of the backyard chicken coop.



#### What's Growing in the Backyard Garden?

Raspberries and kale freeze up nicely for smoothies. We preserve or freeze salsa, pickles, relish, pasta sauce, tomato sauce, and sauerkraut to enjoy all year long. Our onions and garlic last in storage until spring. Each year we try to add another vegetable.

Each plant comes with its own learning curve, whether it's figuring out the "perfect" way to grow it or how to best preserve it. Much to our kids' disappointment, we have yet to nail down the best approach to growing pumpkins and watermelons—they're always so small. We'll figure it out. Creative problem solving is part of the adventure.

Fresh garden produce is packed with flavor that you can't get from store-bought food. We are blown away by the taste of the produce that comes from our backyard.

#### Food the Tuppers Grow

Apples Kale Asparagus Lettuces Beets: red and yellow Onions Blueberries Parsnips Broccoli Pole beans Brussels sprouts Potatoes Bush beans **Pumpkins** Butternut squash Raspberries Cabbage Rhubarb Snap peas Carrots: orange and purple Cauliflower Strawberries Sweet peppers Corn Cucumbers Tomatoes Garlic Turnips

Herbs (such as chives, basil, thyme, mint)

Yellow Zucchini

Hot peppers

Watermelon

**Left:** So much backyard bounty! The kids have so much fun watching the goodies grow bigger, helping with harvest, and making smiley faces out of beans.



#### **Advice from the Tuppers**

**Small beginnings:** "Start with what is manageable. Don't rush the process. For us, that was a few small raised beds and purchased seedlings. From there, try a few new things each year (the challenge to learn something new is part of the fun). Think through how your planting area should be laid out, and then space things accordingly."

**Square foot gardening:** "This technique is fantastic for beginners because you can start with a small space. The technique removes a lot of guesswork out of the process and allows you to pack in as many vegetables as possible while allowing room for annual crop rotation for soil rejuvenation. A good book on this technique is <u>Square Foot Gardening</u>. <u>Squarefootgardening.org</u> is also helpful."

**Favorite seed source:** <u>Seed Savers Exchange</u>. "This is a non-profit that collects and distributes <u>heirloom</u> as well as <u>open-pollinated</u> varieties of seed to help protect the biodiversity of our food system. I trust their seeds, and we like to support an organization that provides stewardship of our land and resources."

**Companion planting:** "We try to companion plant in our garden. Companion planting focuses on pairing certain plants together in the garden to improve one another's health and yield. For example, we plant basil among our tomato plants because basil acts as a natural insect repellant for tomatoes. Companion planting also guides what plants should not be planted in proximity to each other. We keep our garlic and beans away from each other because beans can stunt garlic growth. Many resources are available on companion planting. But my favorite references are the planting charts, like this one."

**Seeds to seedlings:** "We've slowly transitioned from purchasing most of our seedlings to starting seedlings on our own. This has been quite the learning curve. The first few years that we started seedlings indoors, we were a little disappointed because they were so small and fragile. But we've been learning. By tweaking different combinations of light, location, and water, we are now growing sizeable seedlings that transplant into the garden without problems. In fact, we gave away many seedlings this past season because we had so many."

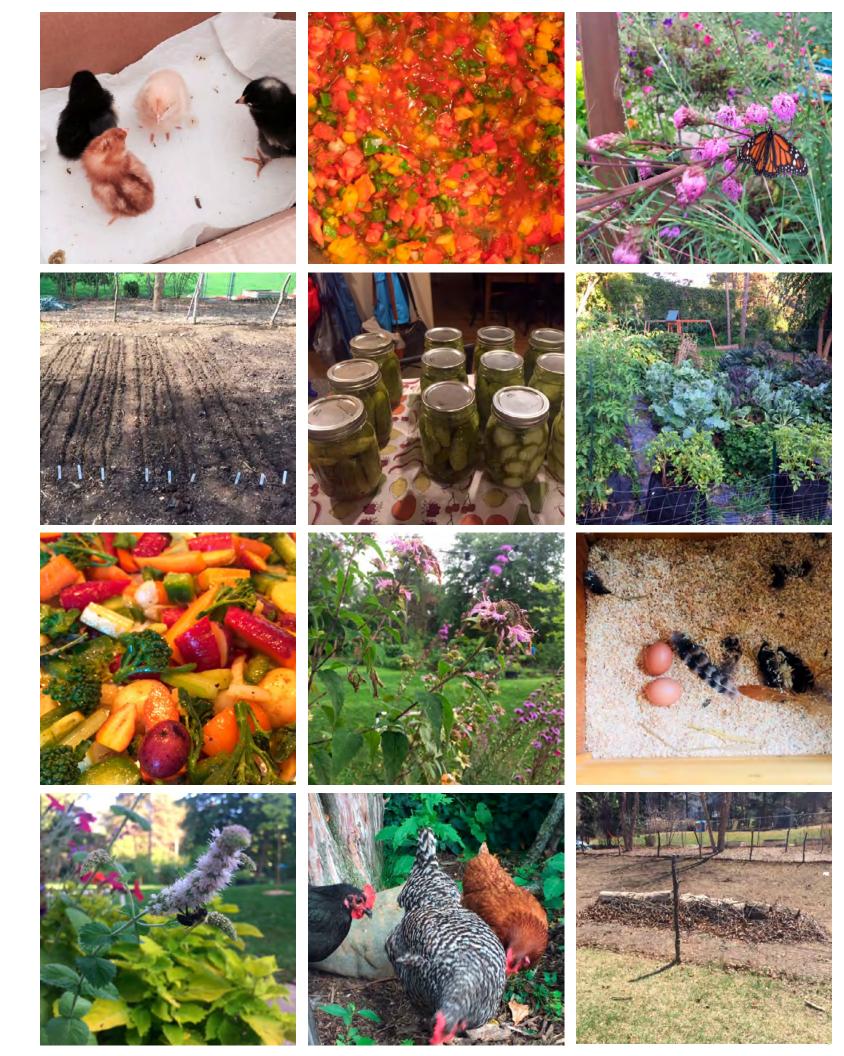
**Left:** Nissa, Seth, Nolyn, and Billie Tupper stand between two of their hugelkultur mounds with some fresh pickings and two of the chickens, Wrestler and Sparkles.

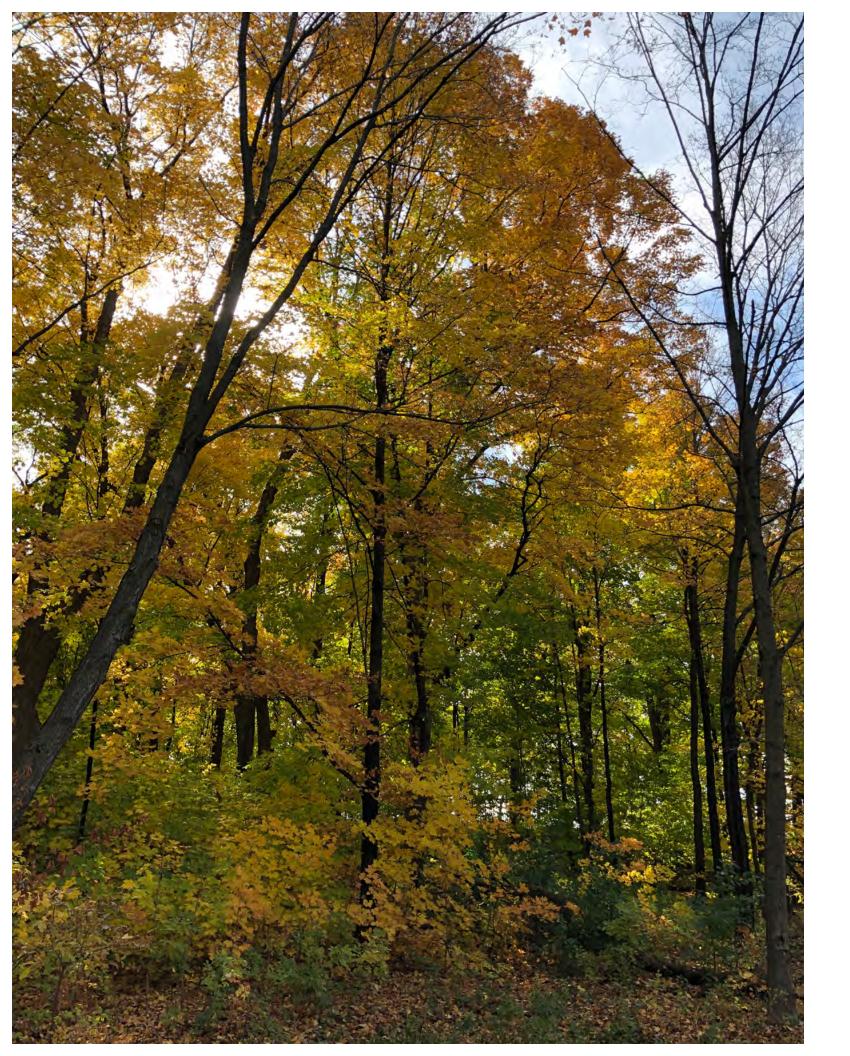
**Native perennials and shrubs:** "We planted native vegetation because we wanted to attract beneficial insects and pollinators; they help improve our garden yield. Natives have also attracted butterflies and more song birds. It's been transformational for us and a lively difference from the sterile turf grass yard that was here when we bought our home."

**Hugelkultur:** "Hugelkultur sounds intimidating, but it's simply making a mound layered with logs, branches, leaves, grass clippings, and soil. [Note: see image in the lower right-hand corner on opposite page.] The technique helps improve soil fertility, water retention, air pockets, and soil warming—all things that plants love. Hugelkultur beds can be constructed in a variety of shapes and sizes. The setup allows materials to break down inside the mound, releasing nutrients and moisture for plants that cuts down on fertilizer and water. The process is also lower maintenance because you can plant on all sides of the mound. Start with low-nitrogen-demand plants, or plants that put nitrogen back into the soil at first. Over time, nitrogen will naturally build as materials break down. Bush beans, kale, broccoli, cabbage, herbs, zucchini, and squash are good starter plants for hugelkultur. Tomatoes do better later when nitrogen has built up. This video offers a quick overview of <a href="https://hugelkultur.com/hugelkultur-basics">hugelkultur basics</a>."

**Chicken-keeping groups:** "No matter where you live, you will no doubt find a local Facebook group that offers support and learning. In Minnesota where we live, <u>Minnesota Backyard Chickens</u> is a very active Facebook group of chicken owners who offer advice and share experiences."

**Right:** Some snapshots of the process over the years—from bringing home baby chicks to the joy of finding our first eggs, to the promise of what seedling rows and hugelkultur mounds hold, to roasting and canning garden goodness.

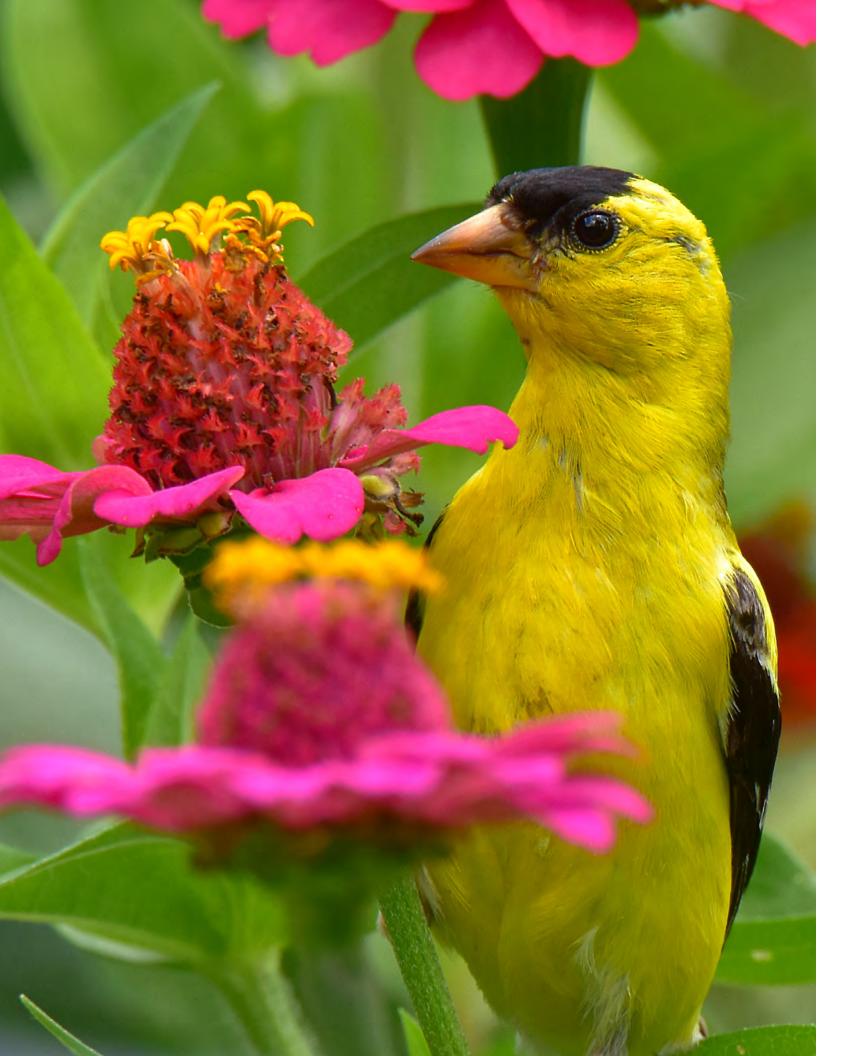




## Life in a Woodwide Web

Tree's most important means of staying connected to other trees is a 'woodwide web' of soil fungi that connects vegetation in an intimate network that allows the sharing of an enormous amount of information and goods. Scientific research aimed at understanding the astonishing abilities of this partnership between fungi and plant has only just begun. The reason trees share food and communicate is that they need each other. It takes a forest to create a microclimate suitable for tree growth and sustenance. So it's not surprising that isolated trees have far shorter lives than those living connected together in forests."

—From the book *The Hidden Life of Trees* by Peter Wohlleben



## A Bird in an Avian Candy Store?

The ubiquitous American goldfinch can be found just about anywhere, at least sometime during the year, throughout the U.S. and southern Canada. This dazzling yellow male was photographed in what may be a finch version of a candy store. Except the "candy" preferred by finches are healthful seeds. According to The Cornell Lab of Ornithology, "Goldfinches are among the strictest vegetarians in the bird world, selecting an entirely vegetarian diet and only inadvertently swallowing an occasional insect." The all-vegetarian diet of the goldfinch is a rarity in the bird world.

Photographer and avid birder Travis Bonovsky couldn't resist taking this vibrant photo. "I'm surprised the goldfinches were after the zinnia seeds as these flowers still had petals. But sure enough I caught a few frames where the bird had a nice plump seed in its bill. Recently, I have seen goldfinches visiting wild bergamot, thistle, goldenrod, cup plant, and garden-variety sunflowers."

Note to gardeners: If you plant zinnias this spring, be certain they have been grown without the use of neonicotinoids (both systemic and topical). This pesticide is known to be <a href="https://harmful.to.birds">harmful to birds</a>, insects, pollinators, and more.

-Travis Bonovsky, photographer and avid birder



### Wellness One Yard at a Time

How Eco-Friendly Landscaping Can Improve Human Health

by Kelly Cartwright, Ph.D.

Kelly Cartwright, Ph.D., is a biology professor at the College of Lake County in Grayslake, Illinois where she teaches environmental biology, general biology, botany, and introduction to sustainability. Her research centers on the concept of "people and nature" and she is an enthusiastic supporter of native and environmentally friendly landscaping.

As I write this, the goldfinches are noisily bouncing around the cup plant, the yard is filled with butterflies feasting on the nectar of fall asters, and the female hummingbirds are putting on an acrobatic spectacle. I start the day drinking tea on my deck. I often finish it there, sitting and enjoying the last rays of light as the sun sets. My yard has become my community and sanctuary.

When I started researching native landscaping and eco-friendly yard care, my primary motivation was in its ecological and wildlife benefits. As I researched the topic further, I became interested in the connection to human well-being. Much of this was driven by personal experiences in my own yard. I never imagined the soul-supporting connection I would form with this space and the species with whom I interact.

This last summer I was house-bound due to an injury. For an avid gardener, hiker, and bird watcher, this was a crushing blow. My saving grace was my yard. Due to the work I had put into it over the last decade, my yard provided the interaction with nature I craved. Every day I would hobble outside and sit on the deck, sometimes for hours at a time. My quarter-acre yard became my world.

In the course of my doctoral work, I researched the benefit of interacting with nature. Typically, these studies focus on large-scale natural or wilderness areas. More studies are starting to focus on metro nature because of its accessibility. The take-home idea of all these studies is that time spent in nature is good for us—the more frequent, and the longer, the better. The benefits of interacting with nature range from improved physical fitness and cognitive function, decreased levels of stress, better coping skills, and an increase in altruistic tendencies (humans are nicer to each other when they interact with nature).

Recent studies have attempted to quantify how much time in nature people need to function well; recommendations have ranged from five hours a month to two hours a week. Sadly, the modern lifestyle does not allow for even these modest amounts of time. If people could find nature outside their door, these recommendations would be easily attainable and even surpassed.

After reviewing multiple publications, I set out to evaluate native landscaping and eco-friendly yard care from a wellness perspective. Depending on which model is used, there are between two to 12 dimensions of wellness. For my analysis, I selected Dr. Frank Ardito's "Prevention through Wellness" framework which includes 10 dimensions of wellness.

**Left:** One of my first projects was to create prairie plantings along the fence lines. The height and density of the plants has created an aesthetically pleasing landscape that provides privacy. The diversity of plants support a plethora of pollinators all season long, and American goldfinches flock to the cup plant in late summer.



**Physical:** Digging, weeding; hauling compost; crawling on hands and knees to lay out cardboard, soil, and mulch; contorting yourself to squeeze just one more plant into an existing bed. This addresses physical wellness in spades, literally. In addition, the eco-friendly gardening approaches tied to planting native species reduces a person's long-term exposure to synthetic lawn and garden chemicals.

**Spiritual:** I find a sense of peace when I am in nature. I feel connected to other species and their natural cycles. Not just seasonal or daily changes, but the cycles of life and death. I get a sense of things changing. Sometimes when I rail against change, my yard reminds me that I am a piece of something larger, that there are many working pieces and that much of life is beyond my control. I do not follow a specific religious doctrine, but I am spiritual, and I find a strong spiritual connection in nature. When I researched conservation gardeners and their motivations for planting native species and using eco-friendly approaches, a number of people wrote that it related to their connection with God. Multiple people stated it was their responsibility to take care of God's creatures, or to create a piece of heaven and to connect to people and pets who had passed away. Whether it is a general spiritual belief or a specific religious doctrine, our yards can be an outlet for spiritual growth.

**Emotional:** I worry about the world. From environmental issues to social injustice, I worry about our future. My yard allows me a tangible outlet to know that I am making things better. Our problems often seem huge and unsolvable. Creating this personal haven has given me a sense of purpose and calm, and it shows me what I can do. New terms being used are eco-anxiety, eco-grief, and solastalgia. We have such an unsecure future that people are in a state of anxiety about pollution, loss of biodiversity, and the looming threats of global climate change. Providing people with an easy outlet to nature can work to alleviate eco-anxiety and related states because it empowers them. It is easy to feel isolated and overwhelmed by the issues we face. After all, what can a single person do? Every individual can have an impact; they can work to make things better, and they will meet others trying to do the same.

Nature also gives our brains a break. The mechanisms are debated, but the conclusion is that we humans have a higher emotional/mental capacity when we have access to nature. Being in nature allows the ever-present technological intrusions to fade away. Our minds clear; our blood pressure lowers. We gain a better perspective and can contemplate the big picture. My yard has become my sanctuary. I can decompress after a stressful day. I can take comfort in the routine behaviors of the species I watch. Sometimes I laugh at their antics, sometimes I sit and cry, and either way, my yard allows me the space to process emotions and deal with the outside world.

**Environmental:** This is the prevailing reason that draws people to create native residential habitat. By using eco-friendly options, a person can decrease their fossil fuel use, improve water quality, and reduce the use of synthetic chemicals. All of these changes make a tangible improvement in environmental quality for other species and for the humans who play and live in these areas. It is one of the most direct ways to have a beneficial impact on the environment.

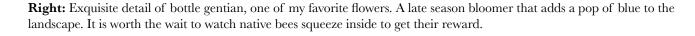
**Left:** The Prevention through Wellness model was developed by Dr. Francis Ardito, Professor, Health and Wellness Promotion, Division of Biological and Health Sciences at the College of Lake County, Grayslake, Illinois.

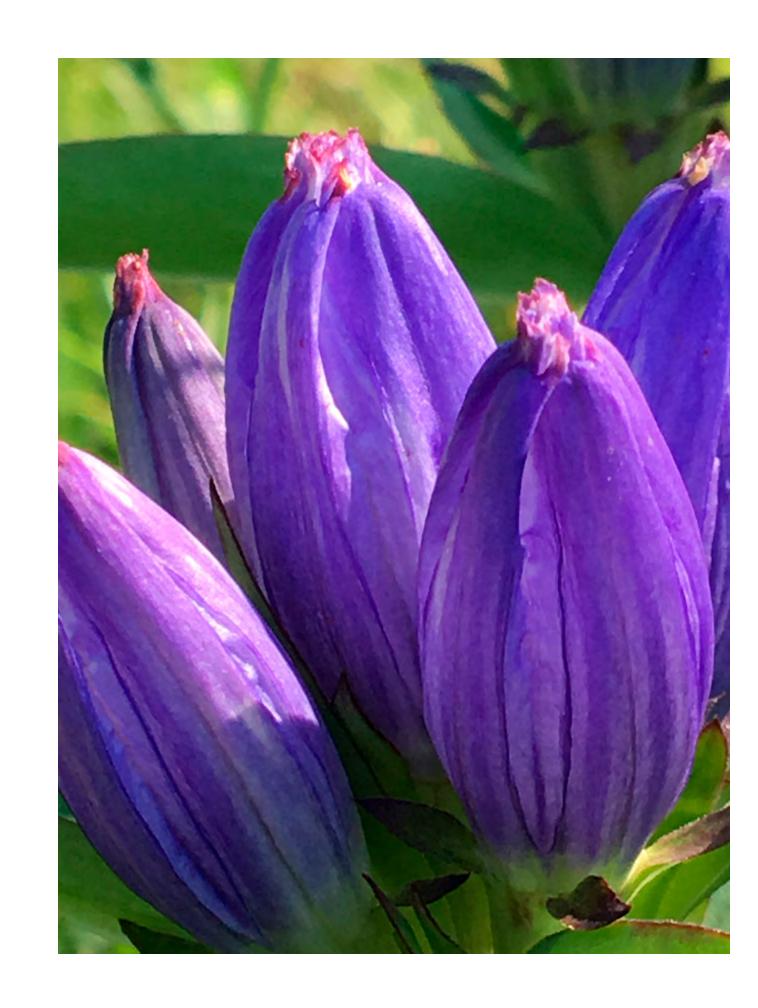
Intellectual Stimulation: A great thing about native landscaping is that it spurs a thirst for knowledge. People want to find out what plants are the best and which species they should use in their yard. If a plant does not thrive, it is a mystery to solve. The goal of creating habitat inspires people to research new things. Winter nights are spent trolling through plant catalogs in anticipation of spring weather. Once a person becomes hooked by the idea of planting natives, they will spend time researching plants and the species that use those plants. I have taken many biology/botany classes and still, I learn new things every day just from observing my yard. Some of the most plant-informed people I have met have no formal botanical training; they learned by trial and error and enthusiasm about native plants. Native landscaping and eco-friendly gardening provide an outlet for a curious mind that can be met through either a solitary or social approach.

**Nutritional:** Our residential areas can have a positive influence on our nutritional health. I grew up eating vegetables fresh from the garden. This was a way of life. We lived in a typical suburban development, but my parents created a fantastic garden. In the summer we had tomato season and squash season. My grandfather in Texas would send us boxes of okra every week. This was the norm. While the space I use for food production is less than my parents had, I do grow a few things. I grow lots of herbs and attempt tomatoes and tomatillos in pots. The chipmunks often eat more than I do. This spring, my asparagus was finally old enough for me to harvest. I never cooked it. I ate it raw while I was outside; it was the sweetest, juiciest asparagus I have ever had. I started kale when I moved into my house and just let it reseed itself—this is the first year it didn't come back.

For those who don't have easy access to farmers markets, at-home production can be a source of fresh produce. We are seeing a growth in urban agriculture, and I applaud the individuals who are turning our food deserts and abandoned lots into swaths of community gardens. Growing food has the potential to improve everyone's well-being, and not just because of the nutritional benefit.

**Protectorate:** From a landscape perspective, protection can apply to different concepts. I feel secure in my home and in my yard. Some people don't like fences, but I like the feeling of security that a fence provides, and it allows me to have my dog or a foster dog (who might not like other dogs) in the yard without worrying that another dog could come onto the property. Plant selection can help create privacy through screening and creating enclosures within your yard. My cup plant, which lines the fence, is over 10 feet tall and provides a visual shield of neighboring houses. In addition, I have several spruces (planted by the former owners) that do a nice job of providing privacy year-round.







**Social:** There were days this past summer when I became a part of my backyard community. My pagoda dogwoods were fruiting; the yard was filled with activity. The birds and mammals had become acclimated to me, and they went about their business with little care to my presence. I became a part of *their* community. I could tell individual birds and chipmunks by their coloring or behavior. Each individual had a unique approach to gathering (and hiding) the berries, and I was amazed by the constant whirlwind of activity. Those were some of my favorite moments of the summer. Ecological landscaping also facilitates a human-based social community. There are many organizations focused on native landscaping and eco-friendly yard care as well as talks, conferences, local plant sales, and an active online community. The people who attend these programs are passionate about creating habitat in their yard and improving environmental quality. They are eager to bring new people into the fold.

**Occupational:** My interest in residential habitat is related to my profession, but that is not the case for most. Becoming interested in environmentally friendly landscaping techniques and native plants might lead some to a new career path. It might also offer enjoyment of a hobby that is removed from one's daily job.

**Financial Security:** Native and eco-friendly yard options are often touted as being cheaper and may be true once the plants are established. I am not there yet. I spend more money on plants than I do on clothes, and the clothes I bought this year were for working in the yard. Maybe one day, when I literally run out of room, my costs will decrease. For now, I am happy spending my money on plants and accessories to create habitat for other species. As with any hobby, passion, interest, or obsession (if we are honest), becoming proficient takes time and often money. I may spend more than required, but I am trying to bring in an abundance of diverse species, and those costs add up. The money I have spent has yielded great rewards that serve my peace of mind, so I look at it as money well spent.

When examined from a wellness perspective, environmentally friendly landscaping supports a holistic view of wellness. The ways we use and manage our residential landscapes can support our physical health, our emotional resilience, and our intellectual pursuits. By recognizing the benefits of incorporating native plants and alternate landscaping options, we will allow this movement to reach new audiences. Imagine a world where more people interact with nature daily, people become acquainted with the other species who share their space, and people are nicer to one another. We can leverage the space around our homes to improve the health of people and ecological communities.

**Left:** Butterflies, such as this stunning swallowtail, are frequent visitors to Joe Pye weed, a known butterfly magnet.





#### Amanita Muscaria and Boletus Edulis:

Two of 10,000 Kinds of Mushrooms to Notice on this Planet

Last fall, my brother and I took our parents to the North Shore of Lake Superior to celebrate their 60th wedding anniversary. We wanted to show them the beautiful Boundary Waters—a million-acre wilderness area with over 1,000 remote lakes, mostly accessible only by canoe and portage. My parents are in their 80s, so the traditional paddle, portage, camp, repeat wasn't an option. Instead, we stayed near the wilderness area at a lodge 44 miles up the Gunflint Trail from Grand Marais, Minnesota. The lodge hugs Gunflint Lake, half of which is in the U.S., the other half, Canada. The last night of our mini-vacation, we checked into a quaint resort with adorable little red cabins on the shore of Lake Gichigami (aka, Lake Superior). To our delight, huge families of these fanciful, free-spirited mushrooms were clustered throughout the resort's manicured landscape. I felt like a kid in a candy store photographing these vibrant decomposers. I just love getting down to the ground level and up close, immersing myself into a completely different world. I can only imagine all of the connections happening underground. Stunning to see so many in one area. A great ending to a wonderful getaway."

-Rich Harrison, landscape architect, photographer, volunteer

**Previous spread:** *Amanita muscaria* is often found growing in association with firs and spruces. **Left:** *Boletus edulis* is associated with a wide variety of trees, including both conifers and broadleaf trees.

## About This Journal

In mathematical chaos theory, the butterfly effect is the concept that a *very small difference in the initial state of a physical system can make a significant difference to that state at some later time.* What can this theory offer to the communities in which we live? We think it offers a lot. The cumulative effort of individual actions can positively impact the local ecosystems that comprise our lakes, streams, wetlands, yards, gardens, recreational areas, open spaces, roadsides, schools, and places of worship, and much more.

Neighborhood Greening, a non-profit organization dedicated to environmental education and stewardship, publishes *The Butterfly Effect* twice per year. In the journal, we celebrate community successes, examine small but impactful changes we can make to become better stewards of our local ecosystems, and tell the stories of those who are striving to green their neighborhoods. By harnessing the spirit of community, we believe focused efforts will make our neighborhoods better places to live for both humans and wildlife. There is much we can do together to positively impact our shared environment. House by house. Block by block. Neighborhood by neighborhood.

We hope you enjoyed *The Butterfly Effect* and that you look forward to receiving this free publication in your inbox twice per year. You can sign up by visiting www.neighborhoodgreening.org. Be sure to connect with Neighborhood Greening on <u>Facebook</u> to keep learning how to help green your neighborhood throughout the year.

Do you have a story or idea to share about how you or someone you know is making your neighborhood greener, more environmentally sustainable, or wildlife friendly? Please send your ideas to Green@neighborhoodgreening.org. Want ideas to green your neighborhood year round? Be sure to check out "42 Ways to Green Your Neighborhood" on Neighborhood Greening's website.

Thank you to this issue's contributors: Carole Arwidson, Vicki Bonk, Travis Bonovsky, Kelly Cartwright, Dave Crawford, Rich Harrison, Nel Pilgrim-Rukavina, and Nissa Tupper.

"In order to contribute to the creation of the world, rather than its destruction, an individual must act on behalf of the collective. Humankind takes leaps when individuals take steps."

-Jonathan Safran Foer, We are the Weather