

Trumpet Vine

Winter 2024-25



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Trumpet Vine

Knowledge for the Community from
Loudoun County Extension Master Gardeners

Loudoun County Extension Master Gardener Lecture Series

- Free and open to the public
- 7:00 p.m.
- Hosted by Loudoun County Public Library
- Planned by Loudoun County Master Gardeners

Upcoming Virtual Lectures

- **February 6: Respecting the Shenandoah** by Mark Frondorf, Shenandoah Riverkeeper
- **March 6: Jumpstart your Spring Vegetable Garden!** by Denise Palmer, former Loudoun County Master Gardener
- **April 3: Managing Pests while Protecting Pollinators** by Emily May, Pollinator Conservation Specialist with the Xerces Society's Pesticide Program

Check the event calendar on our [website](#) for virtual lecture links and updates on topics and speakers.

Also, visit us on Facebook: [VCE Loudoun Master Gardeners](#).

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Message From the Editor

Do You Hold on to Gardening Myths?

Carol Ivory, Loudoun County Extension Master Gardener

Being a gardener is a continuous journey of education and shifting interests. Along the way there is no shortage of misinformation and gardening myths. In 1992, I discovered hostas and decided they were the answer to all my shade. (That's before the herds of deer moved in.) I joined the local hosta society and was introduced to a seasoned member who had a formula for making his hosta gardens thrive. He had the local Starbucks save all their coffee grounds which he gathered up three times a week. He had an elaborate system for sifting the grounds to get out the coffee filters and other trash and then dumped the grounds around his hostas. That started my personal habit of saving coffee grounds and dumping them in my yard, putting them in the pots with my few surviving hostas, and also creating a deep layer around my basil plant to keep the slugs away. Imagine my surprise and consternation when I read Wendy Hiller's well researched article busting the myth of the beneficial coffee grounds.

I have been a Master Gardener since 2005, and I wondered how much misinformation I might still harbor. So I Googled "gardening myths" and started scrolling through the list. I recognized so many with a resounding NO! For example: Your garden must be neat. Stressed plants should be fertilized. Pruning wounds should be painted with tar or paint. Pine needles are acidic and will change the pH of the soil. Drought-tolerant plants don't need to be watered. Add sand to lighten clay soil. All young trees should be staked. Add banana peels to the soil to increase potassium. Add eggshells to your soil to increase calcium. Baking soda helps control powdery mildew. Braid the leaves of daffodil plants after they bloom. Sun on water droplets cause leaves to burn. Landscape fabric is an effective weed control. Vinegar is a good weed killer. Add amended soil to the hole when planting a tree or shrub. Organic pesticides aren't harmful.

And then I came to "Add a layer of gravel to the bottom of containers to improve drainage." What? This can't be a myth! I keep a bag of pea gravel close at hand just for that purpose. Plus, it can't hurt to add a little ballast to some pots. I had to take a deep breath and read this one closely. OK, I can dispense with the pea gravel and simplify planting in a container. I can grudgingly give this up to myth. Oh my!

14th Annual Gardening Symposium: Plant Nurture Grow

Loudoun County Extension Master Gardeners

Loudoun County Master Gardeners will hold their **14th Annual Gardening Symposium: Plant– Nurture– Grow** on Saturday, March 22, 2025, from 9 a.m. to 3 p.m. Please join us at the Academies of Loudoun, 42075 Loudoun Academy Drive, Leesburg, Virginia 20175, for this wonderful educational event. Four prominent speakers (see below) will share their knowledge and inspire us as we start preparing our gardens for the spring and subsequent growing seasons. The symposium will also feature a marketplace with gardening items from local vendors, a curated collection of lightly used books, and a raffle.

Tickets go on sale **Thursday, January 9, 2025**, and can be purchased on the symposium website at <https://loudouncountymastergardeners.org/events/annual-symposium/>. The cost of the event is \$65. Registrants will also have the option to order a Panera box lunch, and light refreshments (tea, coffee, baked goods) will be provided throughout the morning. Tickets tend to go quickly, so we recommend that you register and secure your ticket as early as possible.

Symposium Speakers

Thomas Bolles is an Agriculture and Natural Resources Agent with Virginia Cooperative Extension in the Prince William Unit in Manassas, Virginia. Food security and soil health are key emphases of his work. Thomas is also a Department of Conservation and Recreation certified nutrient planner. He oversees the BEST Lawns program and works with Extension Master Gardeners to educate homeowners about turf maintenance practices, soil health, and cover crop strategies that affect storm water management and soil fertility management.



Thomas Bolles

Mary Sketch Bryant is the Director of the Virginia Soil Health Coalition and is based in Roanoke, Virginia. Through her work with the coalition, she facilitates communication and collaboration among partners across the state to advance soil health. She has experience working with collaboratives and coalitions across the country at the intersection of economic and environmental wellbeing with a focus on working lands and rural communities.



Mary Sketch Bryant

Thomas and Mary will deepen our knowledge of soil as a critical resource and of how we can improve soil health over time in their session, **4 The Soil**. This session will also introduce participants to the Virginia Soil Health Coalition and its initiative 4 The Soil. Four key soil principles and five soil health priorities will be shared.

Bestselling author and gardening personality, **Brie Arthur** is widely known for her leadership with the national Foodscape movement and her lively information-packed presentations. With more than two decades



Brie Arthur
Photo credit: Zachary Pomeroy

of professional horticulture experience, she is a long-time contributor on the Emmy-award-winning PBS television show “Growing a Greener World.”

Brie will give two presentations at this year’s symposium. With ***Aromatic Symphony: Captivating Garden Fragrances***, you will be able to “discover a world of scents with Brie as your guide for a captivating program through fragrant wonders.” And with ***Foodscape Harmony: Embracing Natives and Edibles***, Brie will explain “the art of creating a foodscape that merges native plants with your beloved seasonal food crops. The best organic practices will be explained, and earth-friendly maintenance strategies will take center stage. Delve into the realm of native edible plants, unlocking their secrets and the pollinators they beckon for the vital task of ecological restoration.”



Janet Draper

It is said that nothing remains the same except for change, and this is also true for the way we garden, for the abundance of available information, and even for the purpose of a garden. Join us for a look back at these gradual changes and the thought leaders and technologies that have pushed us forward in **Janet Draper’s** talk ***Chasing New Knowledge Among Perennial Change***. Janet Draper, horticulturist for Smithsonian Gardens’ Mary Livingston Ripley Garden, has spent her career chasing information, only to discover that there is a huge difference between information and knowledge in the world of horticulture.

VCE Loudoun Master Gardeners Present:

Plant Nurture Grow

14th Annual Gardening Symposium



Tickets start at \$65

Saturday, March 22, 2025
9:00 a.m. to 3:00 p.m.
Academies of Loudoun
 42075 Loudoun Academy Drive
 Leesburg, VA 20175

Register and learn more: bit.ly/MGSymposium2025



The Enigma of Marcescence

Jeanette Gandhi, Loudoun County Extension Master Gardener

Shortly after completing Master Gardener training in 2019, I felt compelled to make my own compost bin from a large old lidded trash container. To facilitate good drainage, I armed myself with a cordless Makita drill fitted with a 2-inch drill bit and proceeded to drill about 200 holes in it. So far, so good, until...

A few days later, I could barely move my wrist. A quick visit to an orthopedist diagnosed the problem as De Quervain's tenosynovitis, a repetitive motion injury that causes inflammation of the tendons and the tendon sheaths in the wrist. I resigned myself to 10 to 12 sessions of physical therapy and started the sessions.

Sitting on the top floor of the medical building, picking up and dropping pennies into a jar, raising and lowering a dumbbell, I would gaze out onto the late-winter/early-spring snow-covered woods. I couldn't help but notice that a few seemingly random trees stubbornly held onto their brown, dead leaves. I thought no more of it, until...

A couple of months ago, one of my neighbors, a poet, shared one of his recently published poems on Facebook, titled "Marcescence." After I read it (the poem appears at the end of this article), I went back to the opening line, where he provides the definition of marcescence: "Noun: the winter retention of dead leaves normally shed by other trees." I was intrigued by the revelation that there's a word for that phenomenon I'd pondered while doing physical therapy!

Not only is there a word, marcescence, for when deciduous trees in temperate climates retain leaves that they should normally shed, there is a word for the aging process of leaves—senescence. All deciduous trees undergo the leaf senescence process, and most species undergo abscission, or shed their leaves, in the fall. Several other species retain their senesced leaves throughout much of the winter—*Quercus* (pin, red, and white oaks), as well as *Fagus* (beech), *Carpinus* (hornbeam), *Ostrya* (hophornbeam) and *Hamamelis* (witch-hazel). Marcescence is pronounced "mar-CESS-enss" and is from the Latin marcescence, "to fade."

How do senescence and marcescence happen? Trees prepare themselves for the harshness of winter by trying to conserve resources. They create a separation zone (abscission layer) between the petiole (leaf stem) and the branch. When the abscission layer is activated, the leaves drop to the ground. In most deciduous trees, the abscission layer is activated in the fall. In marcescent trees, this layer is not activated until the spring.

Despite being observed as early as 1749 (by Swedish explorer and botanist Pehr Kalm, a protégé of prominent scientist Carl Linnaeus), marcescence has not been well researched. It is notably most common on younger trees (less than 5 meters in height). Few large trees exhibit marcescence and of those that do, marcescent leaves are restricted to lower branches.

There are a number of theories as to why marcescence occurs, but no clear answers.

1. There is no adaptive function (a null hypothesis).



Beech trees in winter
Photo courtesy of [Nicholas T](#)

2. Browsing herbivores (especially white-tailed deer) are deterred. The marcescent leaves are lower in nutrients and more difficult to digest than new buds.
3. Nutrient resorption and/or photosynthesis are improved by providing these smaller trees in the understory with sunlight after taller trees in the canopy have lost their leaves.
4. Litter decomposition is facilitated so the nutrients would remain in the soil instead of being washed away by spring rains.
5. Overwintering buds, which are present throughout winter, are protected.
6. Mutualism is supported through winter habitat, for example, providing shelter for birds.

Alas, no single hypothesis has complete support, and few tests of multiple hypotheses have been done. Marcescence raises many ecological and evolutionary questions that are still largely unanswered. While marcescence remains a mystery, enjoy this poem by Greg Friedmann which initially appeared in the "NOVA Bards 2024" anthology published by Local Gems Press.

Marcescence

Noun: the winter retention of dead leaves normally shed by other trees.

In winter woods of cold twilight,
 trees stand apart, naked and barren,
 defenseless against biting winds
 and sharp regrets.
 But the copper leaves of beech trees
 flicker bright in the forest understory,
 comforting the eye. We remember
 their summer shades of green,
 certain to return with spring,
 so we hold fast: winter cannot last,
 and all that dies does not fade,
 does not fall.

Bio: Living with his wife alongside a channel of the Potomac River in Northern Virginia, Greg Friedmann is occasionally inspired to write poetry that often reflects riparian themes, particularly on nature's power to console and inspire. His poetry has appeared in the Northern Virginia Review, the Maryland Literary Review, the Main Street Rag, the Sky Island Journal, and other journals and anthologies.

Resources:

- University of Maryland Extension, "The Mystery of Marcescence": <https://extension.umd.edu/resource/mystery-marcescence/>
- Penn State Extension, "Why Do You Keep Me Hanging On": <https://extension.psu.edu/why-do-you-just-keep-me-hanging-on>
- Ecosphere, An ESA Open Access Journal, "Not all temperate deciduous trees are leafless in winter: the curious case of marcescence": <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.4410>

Winter Interest in Your Garden

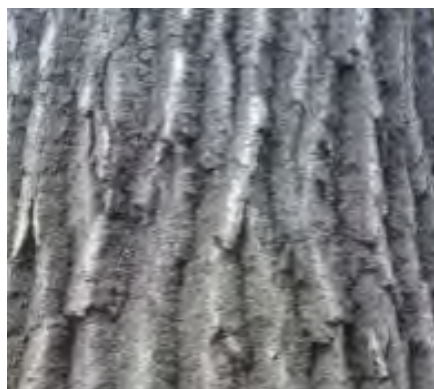
Carol Ivory, Loudoun County Extension Master Gardener

The term “winter interest” was undoubtedly created by plant sellers and landscape designers to entice people to buy more plants. It means that all or some part of the plant attracts attention and creates admiration even in the coldest, darkest season of the year, adding an aesthetic to your garden that will continue to please you. After the dazzling colors of the growing season, winter requires you to slow down and look closely to see the sometimes subtle appeal that is offered in the winter months.

Look closely at the bark of mature trees, each species provides its own unique visual pleasures. Even if you have a small or no garden, you can walk in a local park and enjoy the beauty of bark on large, mature trees. The lack of leaves allows you to fully see the bark as it extends up the trunk, sometimes changing in form and color. Here are some common native trees in Loudoun County that have notable bark.



White Oak
Photo courtesy of Carol Ivory



Northern Red Oak
Photo courtesy of Carol Ivory



Black Cherry
Photo courtesy of Carol Ivory

Now shift your gaze downward to your gardens. Even a glimpse of green might be all you need to feed your soul and remind you of the promise of spring. The following herbaceous plants: hellebores, ferns, and sedges, are easy to tuck into your garden and will be a bonus twelve months a year.

Hellebores or Lenten roses come in a variety of colors from white to yellow, pale rose to deep burgundy and even green! The newer hybrid hellebores have large flowers that turn upward rather than hang down and provide the added benefit of being sterile, saving you the trouble of forever removing all those pesky seedlings. The bloom period ranges from Christmas to Easter, depending on the variety planted. The new leaves appear after the blooms and then persist all year. Hellebores can be purchased and planted outside at holiday time. They prefer partial to full shade in a well-drained area.



Hellebores
Photo: congerdesign@pixabay.com

Evergreen ferns will also add a touch of life and often beautiful grace to your winter garden. Christmas ferns are well known evergreen ferns, but they flatten during the winter making them good for erosion control but not very attractive in the winter. Wood ferns such as the marginal wood fern shown here remain upright and are especially beautiful



Marginal Wood Fern
Photo courtesy of [Master Gardeners of Northern Virginia](#)

Explore other native sedges for your garden. Different varieties of sedges require varying amounts of sun including full sun.

in the winter garden. Other wood ferns for this area are autumn ferns, intermediate ferns, and male ferns. Evergreen ferns prefer rich deep moist soil in partial to full shade.

Sedges are evergreen and the smaller varieties hold their shape and are more likely to be attractive all winter long. *Carex flaccosperma* or blue wood sedge and *Carex Plantagenia* or seersucker sedge provide good color and form year around. They prefer shade to part shade.



Seersucker Sedge
Photo courtesy of Carol Ivory



Red twig dogwood 'Cardinal'
Photo: [Fairfax County Master Gardeners](#)

Many shrubs and small trees provide winter interest with interesting shapes, berries, and bark. Winterberry holly, *Ilex verticillata* is an ornamental holly that loses its leaves in the fall so that its spectacular berries are on full display. Various cultivars offer red, yellow, and orange berries. The same male plant will fertilize all your female plants regardless of berry color. This year, due to difficult weather conditions, birds have already stripped most of the fruit from these shrubs. Normally the berry display persists through mid-winter.

A native shrub that will provide your garden with spectacular winter color is red-osier dogwood, *Cornus sericea*, also known as red twig dogwood. This is a fast-growing upright shrub in the dogwood family that prefers full sun. It can be used as a border, in front of evergreens, or as specimen plants. When they lose their foliage in the fall brilliant stems in a range of reds and yellows remain. In addition to winter color in the garden, the stems make beautiful additions to outside containers or floral arrangements.

Your dogwoods will keep vibrant stems coming when you prune out old wood; the best stem color appears on the young wood. So, to encourage bright red, or yellow stems, hard prune one-third of oldest stems every year. Try doing so in late winter or early spring. As an alternative to annual 1/3 pruning, some gardeners prune all stems close to the ground (coppice to 8") in early spring every 2-3 years to renew.

There are many red osier dogwood cultivars with various foliage and stem colors. Explore these options through this article: [Types of red twig dogwood: 11 eye-catching varieties for your plot](#). Plants with winter interest will make your garden stand out in a normally drab season.



Yellow twig dogwood
Photo courtesy of [Micheal Neerie, Flickr](#)

Invasive Plants in Loudoun County

Part 3: Grasses and Forbs

Gaye Mara, Loudoun County Extension Master Gardener

The final article in this series focuses on the grasses and forbs (non-woody flowering plants) that are ranked “High” on the [Virginia Invasive Plant Species List](#)—hyper-aggressive plants that dominate and damage our natural ecosystems. It omits invasives that are aquatic or that grow only in Virginia’s sandy coastal areas.

These plants are herbaceous: after the growing season the annuals will die, and the tops of the biennials and perennials will die back, and their roots go dormant. Established stands of herbaceous invasives can, over time, be eliminated by repeated mowing during the growing season; eventually, the continuous resprouting will exhaust the plants’ reserves. Unfortunately, this can take years because seeds banked in the soil will keep coming up. And if other plants you want to keep are growing amid the invasives, you’ll need a more targeted strategy.

In the case of invasives—and the other uninvited visitors we call “weeds” —knowing whether they are annuals, biennials, or perennials helps determine how to control them. You have a range of options for dealing with all of them. The annuals and biennials are often possible to eliminate without chemicals; many of the perennials are all but impossible to get rid of without chemicals.

Note: The link embedded in each plant name below will take you to a downloadable fact sheet with photos and more detailed information about that plant and how to control it.

Annuals

Annuals sprout, flower, and set seed in a single growing season. They put most of their energy into quickly producing a prolific supply of seeds for the next generation, and they don’t typically put down much of a root system. Therefore, Plan A is to pull them out by the roots, which is especially easy with very young plants in wet and/or loose soil. Even if you leave some root in the ground, it’s not usually the type of root that can sprout new plants.

For annuals that have already matured, Plan B is to stop them going to seed by removing the flowerheads. Large stands can be mowed, weed-whacked, or sprayed with an appropriate herbicide. But if previous generations infested the same area, there will be seeds banked in the soil that will keep coming up, sometimes for many years. In that case, pre-emergent herbicide can stop the seeds from germinating if you are not planting other seeds there, or new seedlings can be scraped up by hand as soon as they emerge (in dry, sunny weather you can just leave them lying on top of the soil to dehydrate and die).

[Japanese Stiltgrass](#) (*Microstegium vimineum*) is the only “High” threat terrestrial annual in our area of Virginia. And it is indeed a threat here. It



A clump of Japanese stiltgrass that had seeded itself into my garden. There are acres of it in my community’s common areas. Photo courtesy of Gaye Mara

thrives in a wide range of conditions—sun to shade, wet to dry. It seeds prolifically and spreads aggressively; it also exudes chemicals that are toxic to other plants. Those characteristics allow it to take over large areas very quickly. Deer don't eat it, so it's happy to fill in where deer have browsed out the native plants. If it's allowed to remain, the natives will never return. On top of all that, the dense mat of dry foliage it leaves after it dies back is a fire hazard from late fall into spring.

Japanese Stiltgrass is also sneaky. Wind-pollinated flowers are visible at the tips of the stems in summer and fall, and mowing or weed-whacking can remove them. But hiding at the base of the stems is another set of flowers. To remove all the flowers, you must scalp the ground. It's also not hard to pull out by the roots. Alternatively, a general-purpose or grass-specific herbicide can kill the plant. (Grass-specific herbicides are more expensive, but safer if desirable broad-leaved plants still survive amid the stiltgrass.)

Biennials

Biennials have a two-year growing cycle. They grow roots and foliage in the first year, and they flower, set seed, and die in the second. Some put down a tap root and can be hard to pull out. But, as with annuals, you can easily pull out the young first-year plants. Second-year plants can be pulled or dug up, or the flower heads removed before they can set and disperse their seeds.

Garlic Mustard (*Alliaria petiolata*)

Like the stiltgrass, above, this plant is the only “High” threat terrestrial invasive in this category. (Just wait; there are lots of “High” threat perennials coming up.) Also, like stiltgrass, deer don't eat it, which gives it a big leg up in deer-browsed areas.



Patch of garlic mustard flowering in its second year.

Photo: Steven Katovich, Bugwood.org

Garlic mustard has medicinal and culinary uses and was brought here for those purposes by early European settlers (we have made pesto with the leaves of young plants). But its vices greatly outweigh its virtues. Its growth starts fast and strong in early spring, smothering emerging native plants before they can leaf out. It seeds prolifically, hundreds of seeds from a single plant. It exudes toxins that poison the leaves for butterfly larvae and poison the soil for other plants, including seedling trees that might otherwise regenerate a forest. In just a few years, it can completely cover the forest floor to the exclusion of all other plants.

Garlic mustard prefers moist semi-shade but is adaptable to other conditions; it is widespread in Loudoun County. The first-year plants are ground-hugging rosettes that are easy to hand-pull in spring after a rain. They grow a tap root that will be a little harder to remove later in the season; make sure to get it all or the plant will regrow from the root fragment left behind. Another trick this plant has up its sleeve: if you pull or dig it in flower and leave it lying on the ground, the seeds will continue maturing and become viable. So flowering plants should be bagged and disposed of after pulling. And finally, the appropriate herbicide properly applied is another option.

Perennials

Perennials will first put their energies into developing strong roots, which can spread horizontally or vertically or both. Many invasive perennials succeed by having exceptionally fast-growing, extensive root systems, with tap roots that can reach 10 feet deep and tuberous roots that store food in the dormant season and get spring growth off to a fast start. To eliminate these plants without chemicals, every fragment of root must be dug out or killed. Just mowing or cutting them down will stimulate abundant sprouting from the roots; it must then be done repeatedly until the plant's reserves are finally exhausted.

Those who have tried tackling these plants by hand or machine have ultimately reconciled themselves to using herbicides. In such cases, for the safety of the applicator, other creatures, and the environment, it is essential to diligently follow the instructions included with the packaging.

Canada Thistle (*Cirsium arvense*)

I became intimately acquainted with Canada thistle after a huge patch of it came up in my garden early this spring from a load of soil and mulch delivered by a landscaper. The new plants were so robust that they most likely came from root fragments rather than seeds in the soil. (As I write this in December, I am still fighting them, but I am winning. You definitely do not want this plant on your property!)



Colony of Canada thistle by our community pond.
Photo courtesy of Gaye Mara



Root sprouts of Canada thistle.
Photo courtesy of Gaye Mara

Later in the spring I came upon a few little seedling plants by the community pond and made a mental note to come back and get them out. Like too many of my mental notes, this one was forgotten until a few weeks later, when I came by that spot again and saw a whole colony there! (See the photo below.) I dug around to look at the root system, and the next photo shows how the plant can overrun an area by sprouting from the roots even before it's mature enough to produce seed.

Here is what a seedling plant looks like before it grows lateral roots—tiny above ground, deeply rooted below (bottom right photo).

The Purdue Extension fact sheet linked above recommends a variety of treatments over the growing season, repeated multiple times. It also notes that treatments will probably need to be continued at least into the following year.

Other Perennial Grasses and Forbs

The remaining grasses and forbs on Virginia's "High" threat list are all plants that spread rapidly and put down extensive root systems that are hard to remove.



Canada thistle seedling.
Photo: Gaye Mara

Deer don't eat them because they are distasteful or poisonous or have thorns or sharp edges, so they are primed to take over any ground that deer have laid bare. (They are listed below in alphabetical order of their botanical names, which is how you'll find them organized in most of the recommended resources.)

Italian arum (*Arum italicum*) is a shade-loving, poisonous groundcover that is green through the winter and dies back in summer. It is still widely sold as an ornamental.

Spotted knapweed (*Centaurea stoebe*) likes sun and primarily spreads by seeds—thousands of them.

Lesser celandine (*Ficaria verna*) is another shade-loving ground cover that will overrun the forest floor.



Italian arum.
Photo: Barry Rice, sarracenia.com,
Bugwood.org



Flowers of spotted knapweed.
Photo: Rob Routledge, Sault College,
Bugwood.org



Patch of lesser celandine.
Photo: Richard Gardner,
Bugwood.org

Cogon grass (*Imperata cylindrica*) infests 73 countries around the world. Its 'Red Baron' cultivar is still sold as an ornamental.

Sericea lespedeza (*Lespedeza cuneata*) likes sun and will dominate fields and roadsides. Its deep taproot makes it near impossible to remove completely.

Purple loosestrife (*Lythrum salicaria*) overruns wetland areas with dense stands that crowd out the plant species on which wildlife depend for food, shelter, and nesting sites.



Cogon grass.
Photo: John Ruter, University of
Georgia, Bugwood.org



Sericea lespedeza.
Photo: Richard Gardner,
Bugwood.org



Purple loosestrife.
Photo: Richard Gardner,
Bugwood.org

Wavyleaf grass (*Oplismenus undulatifolius*) densely carpets shady areas. Its sticky seeds attach themselves to passing creatures who carry them to new areas.

Japanese knotweed (*Reynoutria japonica*) forms dense stands 10–13 feet tall and spreads by strong rhizomes that can crack pavement and foundations.

Johnsongrass (*Sorghum halepense*) is a 6–8 foot tall, sun-loving, deep-rooted grass that seeds prolifically and also spreads by rhizomes.



Wavyleaf grass. Photo: Kerrie L. Kyde, Maryland Department of Natural Resources, Bugwood.org



Foliage and flowers of Japanese Knotweed. Photo: Chris Evans, University of Illinois, Bugwood.org



Johnsongrass. Photo: Howard F. Schwartz, Colorado State University, Bugwood.org

Ravenna grass (*Tripsidium ravennae*), also known as hardy pampas grass, is still sold as an ornamental. It forms dense stands up to 13 feet tall that crowd out other plants.



Ravenna grass. Photo: John Ruter, University of Georgia, Bugwood.org



Stinging nettle. Photo: John Cardina, The Ohio State University, Bugwood.org

Stinging nettle (*Urtica dioica*) forms dense colonies in areas with damp soil. Its stinging hairs cause pain that can last for hours.

Garden Thugs

Native vs. non-native is not a simple, good vs. evil situation. Even native plants can be “garden thugs” —Common milkweed, for example, whose removal from the farms and gardens of North America eliminated much of the monarch butterfly’s food supply here. It was removed for a reason—like many of our invasives, it is poisonous and has a super-extensive root system that is very hard to get out once established. If you want to support the monarchs, make sure you confine your common milkweed to an area where it can’t overwhelm other plants you care about.

By contrast, many non-native plants are well-behaved and valuable, even essential. Apple pie may be quintessentially American, but apple trees are not—they originated in Kazakhstan.

The issue with invasives is their exceptional vigor and aggressiveness due to the absence of natural controls: the plants arrived, but the pests that restrain them in their native environment did not arrive with them. And U.S. Department of Agriculture scientists have learned from unfortunate experience to be extremely cautious about introducing those pests here; now they conduct years of research and testing before releasing a new pest into the wild, lest it also prove destructive.

We should also remember that plant invasions are a worldwide phenomenon. Species migrate in all directions, usually aided by humans. One particularly sad case is that of the beautiful pine forests of Japan; in the 1900s they were decimated by the pinewood nematode, which arrived on lumber imported from North America (see "[Forests are under attack from invasive species](#)" by Geoff Williams, a plant pathologist with the U.S. Forest Service).

Virginia's Approach to Invasives

I moved here from Delaware, which like a few other states has forbidden the sale or importation of plants on its invasive species list. Virginia has not done that. Instead, Virginia's [HB 47](#) passed this spring will require plant retailers in the state to put a warning sign on invasives and to encourage customers to ask about alternatives.

Virginia is counting on us all to be grownups. Should you choose to grow the invasive plants on Virginia's list, then you should take on the responsibility to keep them under control and stop them from escaping into the wild (and your neighbor's yard!).

Recommended Resources

[The Center for Invasive Species and Ecosystem Health](#) has comprehensive general information about and multiple photographs of all kinds of invasives—plants, insects and other animals, and pathogens. It is where I collected most of the photos for this article.

All the following publications are free downloads at the links provided:

- Virginia Department of Conservation and Recreation, "[Virginia Invasive Plant Species List](#)". September 2024. A two-page list of the plants identified as invasive in Virginia, ranked from High to Low threat based on their level of aggressiveness and environmental damage.
- Virginia Department of Forestry, "[Non-Native Invasive Plant Species Control Treatments: Timing, Methods and Herbicide Rates](#)". October 2018. A two-page chart that includes both chemical and non-chemical treatment options.
- Jil M. Swearingen and Judith P. Fulton, *[Plant Invaders of Mid-Atlantic Natural Areas: Field Guide](#)*. 2022, Passiflora Press. A 200-page guide to invasive plants in the Mid-Atlantic, with photos, descriptions, and control recommendations for almost all the plants on Virginia's list. Electronic copies are free; print copies are available for sale.
- Invasive plant fact sheets from [Blue Ridge PRISM](#) and the [Virginia Department of Conservation and Recreation](#). These contain photos (BRP) or drawings (VDCR), descriptions, and control recommendations for individual plants.

Got Milkweed?

Milkweed For Every Situation

Barbara DeRosa-Joynt, Loudoun County Extension Master Gardener

With pollinators in decline across the United States and around the world, the scale of the problem can seem insurmountable and doubtful whether an individual gardener could make any difference in such a large problem. The good news is that every bit helps! Planting native plants is a great way to help pollinators and other wildlife. And one genus—*Asclepias* (pronounced *ah SKLEE pee us*), the group of plants known as milkweeds—is a powerhouse that supports a tremendous number of insects and brings life and beauty to the garden. This genus was named after Asclepius (also written as Asklepios), the Greek god of medicine, likely because some species have been used in traditional medicine. Fun random fact: the silky fluff from milkweed seedpods was used as stuffing for life jackets and pillows during World War II.



Asclepias incarnata

Photo courtesy of Barbara DeRosa-Joynt



Pollinators on *Asclepias syriaca*

Photo courtesy of Barbara DeRosa-Joynt

Many people know that milkweed is the sole host plant for the monarch butterfly, *Danaus plexippus*, and that monarch populations are plummeting, so planting milkweed to help monarchs is really reason enough. But the story doesn't end there. Milkweeds support a vast array of wildlife, particularly insects, especially other pollinators like the many different species of bees, butterflies, moths, wasps, flies, and beetles that can be found feasting on milkweed pollen and nectar. Milkweed also attracts predatory insects like ladybeetles, assassin bugs, soldier bugs, lacewings, and the larval stage of syrphid flies, as well as arachnids like spiders, that feed on the pollinating insects plus milkweed pests like aphids. In Virginia, milkweed is also the host plant for the milkweed tussock moth, *Euchaetes egle*, whose

fuzzy, gregarious caterpillars often feed in groups. In addition, hummingbirds like milkweeds' nectar-filled tubular flowers.

[According to the Digital Atlas of the Virginia Flora](#), Virginia is home to 13 species of milkweed, and Loudoun County is home to seven of those. There really is a milkweed for every site – including patios and balconies! – and you are encouraged to help support your local wildlife by giving milkweed a try or adding more milkweed if you already have some in your garden. As always, the golden rule is right plant right place. Whenever possible you are encouraged to plant straight Virginia native species.

One milkweed you won't find on the list of suggested plants below is non-native tropical milkweed, *Asclepias curassavica*, which is often available from big box stores and garden centers. You are discouraged from planting this species because experts believe it is a source of the [Monarch parasite known as *Ophryocystis elektroscirrha* \(OE\)](#) that weakens and kills Monarchs, and may have negative impacts on their migration

behavior. While scientists are still learning more about these issues, why risk it when there are plenty of gorgeous native milkweeds to choose from instead?

Caring For Your Milkweed

Plant milkweeds in unamended soil, because they thrive in poor soil and will be weak stemmed or flop in soil that is too rich. Pay attention to their light and moisture needs and site them accordingly for best results. Smaller milkweed species can be grown in generous sized pots (2' diameter or larger). It is important to be aware that milkweed emerges notoriously late in spring so you may want to mark its location. Leaving healthy stems standing in fall is good practice anyway, and doing so will also help avoid accidentally disturbing the milkweed before it awakens. If you opt to plant milkweed from seed, they will need to be cold stratified (subjected to a period of cold temperatures) – you can simply sow them outdoors in the fall or early winter. If you decide to wait to sow them in spring you will want to [cold stratify](#) them in the refrigerator instead.



Monarch caterpillar on
Asclepias syriaca
Photo: Barbara DeRosa-Joynt

Importantly, you are strongly encouraged to avoid using pesticides, so you don't harm the very insects you are trying to attract and support. Remember that welcoming monarch butterfly caterpillars means you welcome their chewing on the milkweeds' leaves. That is the whole point – monarchs and milkweeds have evolved together, and the caterpillars' chewing won't cause long term harm to the plants. In fact, milkweeds often flush out new growth after the caterpillars have visited. And you can always consider the suggestion of Professor Doug Tallamy, noted entomologist: he recommends that if insect damage from chewing on plant leaves bothers you, use his “ten step rule” – because once you take ten steps away from the plant it is usually hard to see any damage.

Which Milkweed Is Best for You?

Below is a sampling of milkweeds native to Loudoun County except as otherwise indicated. Sources for finding these beauties are at the end of this article.

Butterfly weed, *Asclepias tuberosa*

Blooms: Orange, June – August

Natural habitat: Dry woodlands, clearings, fields, pastures, and roadsides

Uses: Garden beds, hillsides/slopes, rock gardens, container gardens

Size: 1-3' tall and 1-2' wide

Light: Full to part sun

Moisture: Dry to average

Characteristics: Single stems to loose multi-stemmed clumps

Spreads: Rhizomes, also spreads by seeds



Asclepias tuberosa
Photo: Barbara DeRosa-Joynt

Cultivars: *Asclepias tuberosa* 'Hello Yellow' has yellow flowers, 'Gay Butterflies' bears red, orange, or yellow flowers.

Notes: Third most favorite species for Monarch mommas to lay eggs. This species likes it dry and does well on sunny slopes. Seedlings transplant well and cuttings can be taken from the rhizomes when plants are dormant, but taproot makes them hard to transplant when mature. This is a slow spreading small milkweed that works well in small gardens.

Common milkweed, *Asclepias syriaca*

Blooms: Light pink, June – August

Natural habitat: Fields, pastures, roadsides, and other open, disturbed habitats

Uses: Garden beds, fence lines

Size: 2-7' tall and 3-5' wide

Light: Full sun

Moisture: Moist to dry

Characteristics: Tall single stems

Spreads: Rhizomes, also spreads by seeds

Notes: Flowers are highly fragrant with notes of vanilla, irresistible to pollinators. Number one favorite species for Monarch mommas to lay eggs on its large leaves. This is a pioneer species that is naturally found in disturbed areas. Common milkweed can be aggressive in favorable conditions and needs room to run; it is useful for filling in large areas, site it carefully. Seedlings can be transplanted, but taproot makes them hard to transplant once they are mature.



Asclepias syriaca
Photo courtesy of Barbara DeRosa-Joynt

Four leaved milkweed, *Asclepias quadrifolia*

Blooms: Light pink, May – July

Natural habitat: Mesic to dry forests and woodlands

Uses: Garden beds, rock gardens, container gardens

Size: 1-3' tall and 1-2' wide

Light: Full to part shade

Moisture: Moist to dry

Characteristics: Single stems

Spreads: Rhizomes, also spreads by seeds

Notes: Flowers are fragrant, likes hot dry soils.



Asclepias quadrifolia
Photo courtesy of [Eric Hunt](#)

Green milkweed, *Asclepias viridiflora*

Blooms: Soft green, June – August

Natural habitat: Dry soil of fields, pastures, and roadsides

Uses: Garden beds, rock gardens, container gardens

Size: 1-3' tall and 1-2' wide

Light: Full sun

Moisture: Dry to average

Characteristics: Single or double stems

Spreads: Clumps slowly expand, also spreads by seeds

Notes: Leaves are variable in shape with plants from dry sites having long narrow leaves and those from moist sites having round leaves.



Asclepias viridiflora
Photo: [Doug McGrady](#)

Poke milkweed, *Asclepias exaltata*

Blooms: Soft greenish white, May – July

Natural habitat: Mesic to dry forests, clearings, and meadows; most common at middle to higher elevations

Uses: Garden beds, shade gardens

Size: 3-5' tall and 2-3' wide

Light: Full to part shade

Moisture: Average

Characteristics: Loose clumping, can be single or multi-stemmed

Spreads: Clumps slowly expand, also spreads by seeds

Notes: Not native to Loudoun County, but native in Fauquier, Clarke, and other Virginia counties. This is one of the few milkweeds that prefers shade. Unusual drooping shaped flowers.



Asclepias exaltata
Photo: [Will Pollard](#)

Purple milkweed, *Asclepias purpurascens*

Blooms: Rose pink to purple, May – July

Natural habitat: Openings in floodplain forests, wet meadows and clearings, stream banks, upland depression swamps, and clay flatwoods

Uses: Garden beds, container gardens

Size: 2-3' tall and 1-2' wide

Light: Full to part sun

Moisture: Moist to dry

Characteristics: Loose clumping, can be multi-stemmed



Asclepias purpurascens
Photo: Barbara DeRosa-Joynt

Spreads: Clumps slowly expand, also spreads by seeds

Notes: While their natural habitat shows that they are comfortable in wet soil, they also do fine in normal to dry garden soil. When happy they will slowly spread around the flowerbed.

Swamp milkweed, *Asclepias incarnata*

Blooms: Pink, mauve, June – August

Natural habitat: River and stream shores, wet fields and meadows

Uses: Garden beds, rain gardens, container gardens

Size: 1-5’ tall and 3-4’ wide

Light: Full to part sun

Moisture: Moist to wet

Characteristics: Loose clumping, can be multi-stemmed

Spreads: Clumps slowly expand, also spreads by seeds

Cultivars: *Asclepias incarnata* ‘ice ballet’ has white flowers, ‘Soulmate’ has rosy purple flowers, and ‘Cinderella’ has soft pink flowers.

Notes: While their name and natural habitat show that they like it wet, swamp milkweed also thrives in normal garden moisture levels. Flowers are fragrant, popular with pollinators. Second most favorite species for Monarch mommas to lay eggs. Clumps can be divided. This slow spreading milkweed is suitable for most small and medium sized gardens.



Asclepias incarnata
Photo: Barbara DeRosa-Joynt

Whorled milkweed, *Asclepias verticillata*

Blooms: White, June – August

Natural habitat: Dry woodlands, barrens, clearings, and rock outcrops

Uses: Garden beds, rock gardens, container gardens

Size: 1-3’ tall and 1-2’ wide

Light: Full sun

Moisture: Moist to dry

Characteristics: Loose clumping, can be multi-stemmed

Spreads: Clumps slowly expand, also spreads by seeds

Notes: Clumps can be divided.



Asclepias verticillata
Photo: [George F. Mayfield](#)

Where To Find These Beauties

There are a number of [native plant nurseries](#) in Virginia, including in Loudoun County, and others from outside the state sometimes come in for [native plant sales](#). In addition to these sales, most of the native plant nurseries have open hours for shopping and some may sell their plants at farmer’s markets or other venues that aren’t included in the list above—please check their individual websites for details, including lists of



Pollinators on *Asclepias syriaca*
Photo courtesy of Barbara DeRosa-Joynt

plants they grow. Also note that the [Loudoun Wildlife Conservancy](#) has an annual milkweed sale in June, check their website for details.

While regular bench nurseries and big box stores sometimes carry straight species of native plants, they won't necessarily know whether their plants have been treated with systemic or other pesticides, which can harm the pollinators and other wildlife you are trying to support—you don't want to attract Monarch caterpillars only to poison them. Native plant nurseries are typically small and often family-owned, and they will know exactly what has gone into and onto their plants—and as a bonus you are supporting a locally-owned small business.

Succession Planting of Native Plants in Loudoun County, Virginia

Cynthia Falconer, Loudoun County Extension Master Gardener

Introduction

Succession planting is a strategy used in gardening and landscaping to maximize space and resources by planting different species in phases. This method ensures that there is a continuous flow of growth, bloom, and harvest. In the context of Loudoun County, Virginia, a region rich in biodiversity and home to many native plant species, succession planting can help restore ecosystems, support local wildlife, and enhance the beauty and resilience of landscapes. By choosing native plants that thrive in the region's varied climates and soils, gardeners can ensure a sustainable, low-maintenance approach to gardening that benefits both the environment and the local community.

What Is Succession Planting?

Succession planting involves growing different plants in stages to maintain a constant cycle of production. It can be used to extend the blooming season, manage pests and diseases naturally, and encourage biodiversity. In the case of native plants, this process can also mimic natural growth cycles and support ecological restoration efforts.

Succession planting typically works by:

1. **Choosing plants with different blooming or growing seasons:** Plant species are selected so that when one blooms or produces fruits or seeds, others begin to grow, creating a dynamic and ever-changing garden.
2. **Allowing plants to self-seed:** Native plants are often adapted to local conditions and can spread naturally by seed, maintaining biodiversity and minimizing the need for replanting.
3. **Rotating planting areas:** Planting in stages or using multiple garden beds or sections over time.

Why Succession Planting With Native Plants in Loudoun County?

Loudoun County's diverse landscapes range from rolling hills and forests to wetlands and meadows. This creates a perfect environment for a wide array of native plants, including wildflowers, shrubs, trees, and grasses. By incorporating succession planting techniques, residents of Loudoun County can help enhance local habitats and ecosystems while ensuring their gardens thrive year-round.

Some of the benefits of succession planting with native plants in Loudoun County include:

- **Increased Pollinator Support:** Native plants often attract pollinators such as bees, butterflies, and hummingbirds. By using succession planting of species that bloom at different times of the year, you can support these vital creatures throughout the entire growing season.
- **Soil Health:** Native plants are adapted to local soil conditions and are generally more resilient to pests

and diseases. By planting native species in succession, gardeners can reduce the need for chemical fertilizers and pesticides.

- **Wildlife Habitat:** Native plants provide food and shelter for a variety of local wildlife, including birds, insects, and small mammals. Succession planting ensures that there is a steady supply of resources for these species throughout the year.
- **Water Conservation:** Many native plants in Loudoun County are drought-tolerant once established. With proper planning, succession planting can help conserve water by selecting plants that are well-suited to local rainfall patterns and growing conditions.

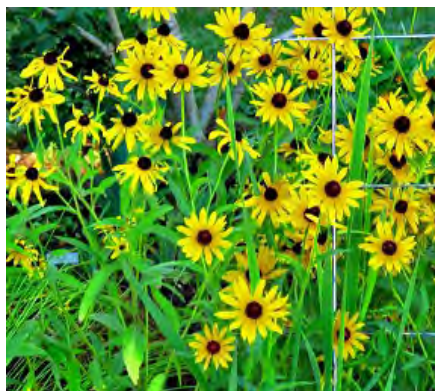
Steps for Implementing Succession Planting With Native Plants in Loudoun County

1. **Research Local Native Plants:** The first step in succession planting is to identify which native plants thrive in Loudoun County's climate and soil. Loudoun County's USDA hardiness zone is generally 6b to 7a, which allows for a wide range of plant species. Some excellent examples of native plants to consider include:

- **Early Bloomers:** Virginia Bluebell (*Mertensia virginica*), Spring Beauty (*Claytonia virginica*), and Bloodroot (*Sanguinaria canadensis*).
- **Mid-Season Bloomers:** Black-eyed Susan (*Rudbeckia hirta*), Purple Coneflower (*Echinacea purpurea*), and Butterfly Weed (*Asclepias tuberosa*).
- **Late Bloomers:** Goldenrod (*Solidago spp.*), Asters (*Symphyotrichum*), and New England Aster (*Symphyotrichum novae-angliae*).



Bloodroot
Photo courtesy of Carol Ivory



Black-eyed Susans
Photo courtesy of Carol Ivory



Asters
Photo courtesy of Normalee Martin

2. **Plan Planting Stages:** Group plants based on their bloom times, growth habits, and heights to create a visually interesting garden with continuous color. Plan your planting in phases: early spring, midsummer, and fall. You can also consider planting a mix of grasses, shrubs, and trees that provide structure and seasonal interest.

- **Early Spring (March–April):** Include early-blooming plants that provide a burst of color after the cold months, such as Virginia Bluebells and Trillium.
- **Summer (June–July):** Add midseason flowers like Purple Coneflower, Wild Bergamot (*Monarda fistulosa*), and Bee Balm (*Monarda didyma*).

- **Late Summer/Fall (August–October):** Plant later bloomers like Goldenrods and Asters that provide a late-season nectar source for pollinators.



Virginia Bluebells
Photo courtesy of Carol Ivory



Purple Coneflowers
Photo courtesy of Carol Ivory



Moth on Goldenrod
Photo courtesy of Luisa Grant

3. **Prepare the Soil and Garden Beds:** Native plants often thrive in well-drained soil with minimal fertilization. Prepare garden beds by removing invasive species, amending the soil with organic matter, and ensuring adequate drainage. Raised beds or mounds are a great way to prevent waterlogging and improve root health.
4. **Implement Crop Rotation and Companion Planting:** For an even more diverse planting, consider rotating plants in different parts of the garden each year. Companion planting, which pairs plants that have mutually beneficial relationships, can help increase plant health and reduce pest issues.
5. **Maintain and Monitor:** Once established, native plants require less water, fertilization, and pruning than non-native species. However, it's important to monitor the garden to ensure the plants are thriving and are not being overrun by invasive species. Mulching around the plants can help conserve moisture and keep weeds at bay.
6. **Encourage Self-Seeding:** Many native plants naturally reseed themselves. Allowing plants to go to seed at the end of the growing season can provide food for birds and create new plants for the following year.

Native Plant Communities in Loudoun County

Loudoun County features several types of plant communities, each offering unique opportunities for succession planting:

- **Woodland Gardens:** Plant native ferns, trees like Eastern Redbud (*Cercis canadensis*), and understory plants such as Wild Ginger (*Asarum canadense*) or Jack-in-the-Pulpit (*Arisaema triphyllum*). These species can thrive in shaded or partly shaded areas, and succession planting can provide seasonal interest as the woodland garden transitions through spring, summer, and fall.
- **Prairies and Meadows:** Grasses such as Little Bluestem (*Schizachyrium scoparium*) and Wild Rye (*Elymus virginicus*) mixed with wildflowers like Coreopsis (*Coreopsis lanceolata*) and Black-eyed Susan create dynamic landscapes that change with the seasons.
- **Wetlands and Rain Gardens:** Planting native wetland species such as Swamp Milkweed (*Asclepias incarnata*) and Joe Pye Weed (*Eutrochium purpureum*) can help manage water runoff and attract

pollinators. Succession planting in these areas can increase biodiversity while improving soil health and water quality.

Conclusion

Succession planting with native plants in Loudoun County offers a wealth of benefits for gardeners, the environment, and local wildlife. By selecting plants that bloom in different seasons and adapting the landscape to mimic natural growth cycles, residents can create beautiful, sustainable gardens that support the local ecosystem. Not only will this approach provide year-round interest and vibrant landscapes, but it will also contribute to a healthier, more resilient environment for generations to come.

Coffee Grounds in the Garden

Wendy Hiller, Loudoun County Extension Master Gardener

In the US alone, the retail coffee industry is worth \$18 billion annually. The enormous global demand makes coffee one of the most traded commodities in the world, just behind crude oil and precious metals. (1) That's a lot of coffee, and a lot of coffee grounds.

A friendly coffee aficionado asked me if he should apply coffee grounds to his houseplants. While I had some general ideas based on my knowledge of composting, I didn't really know the full answer, which led me to this research. Fortunately, likely due to the vast amount of coffee consumed world-wide combined with researchers' desire to improve agriculture and to keep coffee grounds out of the waste stream, there are a considerable number of scientific studies devoted to determining appropriate agricultural uses for spent coffee grounds (SCGs) and composted spent coffee grounds (CSCGs).

To compost or not to compost?

The safest approach is to compost your coffee grounds. While SCGs contain nitrogen, they also contain toxins such as polyphenols, tannins, and caffeine which can be harmful to both plants and soil microorganisms. (2) While one study found neither harm nor benefit to lettuce growth from the use of small amounts of SCGs (6), various studies on different types of plants (such as broccoli, leek, radish, viola, and sunflower) demonstrated that the use of SCGs greatly reduces plant growth, with or without added fertilizer, and in different types of soil. Researchers, including those in the lettuce study, concluded that SCGs are likely phytotoxic, in other words poisonous to plants. (5) Therefore, SCGs should be composted first instead of directly applying them as a soil amendment or mulch. The composting process greatly reduces the toxins found in SCGs, and since uncomposted SCGs inhibited seed germination in some studies, gardeners will likely find fewer weeds and volunteer seedlings in their compost when it includes coffee grounds. (2)

How should we compost them?

To compost SCGs, combine them with other organic matter and then compost that mixture for at least several months in a pile that is turned periodically and kept moist. (2) Feel free to throw coffee filters into the mulch pile too. To avoid slow decomposition, use no more than 20 to 35 percent by volume of coffee grounds. Adding more than that may result in the wrong carbon to nitrogen ratio in a compost pile. (3) The compost is ready to use when it has a dark crumbly appearance and an earthy odor.

How should we use CSCGs?

Once composted, CSCGs may be used as a soil amendment to promote good soil structure and drainage. They may even be substituted for up to 10% of the soil in a raised bed. (2) While CSCGs also provide minor amounts of nutrients such as potassium, phosphorus, calcium, magnesium, iron, copper, manganese and zinc, these nutrients are not supplied in sufficient quantity to be of benefit to plants. (4)



Photo courtesy of [Pixabay](#)

Aren't coffee grounds acidic?

It is a common misconception that coffee grounds are acidic. Immediately after brewing they are actually close to a neutral pH, between 6.5 and 6.8; therefore, CSCGs will not make soil acidic. (3)

So go ahead and enjoy your morning cup of Joe, then compost your coffee grounds, but use them in moderation. With literally tons of coffee consumed each day, plus coffee grounds free for the taking from local coffee shops, it could be tempting to use too much. (3)

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Discovering Alpine Plants in New Hampshire

Dave Torraca, Loudoun County Extension Master Gardener

Appalachian Mountain Club and The Alpine Environment

On a mild mid-September evening I found myself with a group of like-minded hikers learning about the flora and fauna of the high mountains in the White Mountains National Forest (WMNF) of New Hampshire. Our guide was Rayna Carner, the naturalist with the [Appalachian Mountain Club's](#) (AMC) Lake of the Clouds hut. AMC is the oldest outdoor group in the United States and has 12 chapters stretching from Maine to Washington, D.C.



Lake of the Clouds hut and lake
All photos courtesy of Dave Torraca

We were at the Lake of the Clouds (LOTC) hut, at 5,012 feet. The hut is located 1.5 miles below the summit of 6,288-foot Mount Washington, the highest peak in the Northeastern United States. The hut sits on a shoulder of the mountain below the nearby summit of Mount Monroe (5,372 feet) and is the highest of [eight huts operated by AMC](#). The huts provide room and board to hikers across the region in addition to educating hikers and preserving the White Mountains.

The tree line, the elevation above which trees do not grow, is about 4,400 feet in the White Mountains, nearly 2,000 feet below the summit of Mt. Washington. The area above tree line is called the alpine zone. This area is known for the worst [weather](#) in the world due to the mountain range's prominence, exposure, and the storm tracks that tend to meet here. You will find vegetation that survives and thrives in this rocky, harsh environment.



Pincushion plant

Our first plant we investigate is the low lying [diapensia](#) (*Diapensia lapponica*). Also known as the pincushion plant with white flowers that bloom in May/June, it forms a blanket-like ground cover with the leaves often turning purple in winter. It is found in wind swept places and will die if you step on it!

Closeby, near a rocky mound, we find [mountain cranberry](#) (*Vaccinium vitis-idaea*), notable by its waxy, tiny leaves and bearing an edible fruit. Though it looks like diapensia, it tends to be a slightly taller trailing shrub.

Plants on Rayna's Nature Walk

Our walk, though only several yards from the hut, revealed a multitude of plant life. Given the number of hikers that traverse this region, AMC is able to help preserve and protect the natural environment by educating hikers in the [leave no trace principles](#), advising all to especially travel and camp on durable surfaces only, i.e., stay on the trail!



Mountain cranberry



Labrador tea

Next up is [labrador tea \(*Rhododendron groenlandicum*\)](#). A much smaller member of the rhododendron family, with leaves that look like a starfish with orange fuzz underneath the leaves, it was used for tea by native Americans.

Nearby we spy the yellow flowers of the [mountain avens \(*Geum peckii*\)](#), a wetland plant that is often found near streams. The plant has fan-like leaves that are now, in September, orange brown. In this case, the nearby tarn (small mountain lake) has a small outflow, providing the perfect environment for this species (right plant, right place!). This plant exists in the White Mountain National Forest, and Nova Scotia and nowhere else!



Mountain avens (top & bottom)

Lastly, we find the [three-toothed cinquefoil \(*Sibbaldiopsis tridentata*\)](#). While not flowering currently, it typically has white flowers, and its three-pronged leaves are now turning a brilliant red.

Rayna explained that AMC is working to document the flowering times of plants in the WMNF. AMC is particularly interested in flowering times in the context of climate change and will review plant and flower submissions to use in their phenology (timing of biological events) studies. There is concern that global warming is increasing the tree line elevation and altering the life cycle of plants and animals that survive in this unique environment. Outdoor enthusiasts can add to the catalog using the [iNaturalist app](#) to submit their photos.



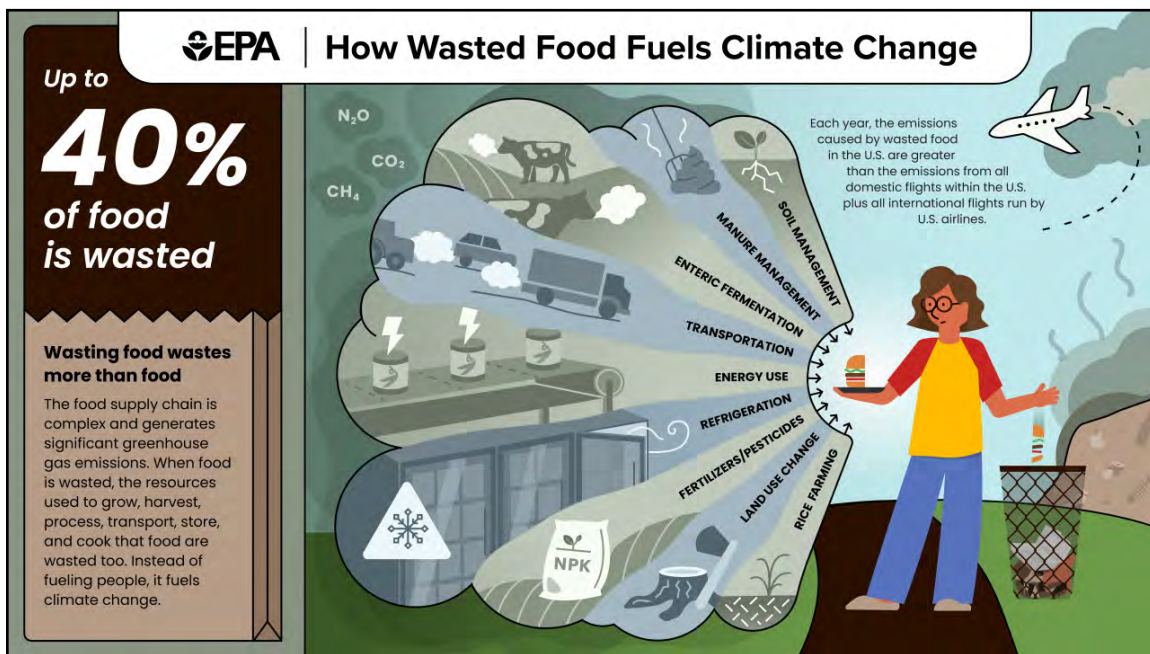
Three-toothed cinquefoil

As the sun began to set (and our stomachs growled), our group returned to the hut for a great dinner and some entertainment provided by the hardworking and talented “croo” ([video link](#)) who keep the place operational. We all now have a much better understanding of this unique environment and the plant life we pass by on our hikes, often without a second notice. We owe much appreciation to AMC, Rayna, and the croo, for their efforts in helping to maintain and protect this area and in educating all. Many thanks for their valuable services.

Food Waste in Our Landfills

Loudoun County Extension Master Gardeners

Wasted food is a major global environmental, social, and economic challenge. According to research, approximately one-third of the food we produce in the U.S. and globally is never eaten. In the U.S., much of this food ends up in landfills. In 2019, 66.2 million tons of wasted food were generated in the food retail, food service and residential sectors in the U.S. Only 5% of that wasted food was composted. Food is the single most common material we send to landfills, comprising 24.1 percent of municipal solid waste (MSW). When yard trimmings, wood and paper/paperboard are added to food, these organic materials comprise 51.4 percent of MSW in landfills.



How Wasted Food Fuels Climate Change
[Graphic courtesy of EPA](#)

More recent U.S. Environmental Protection Agency (EPA) reports indicate our landfills receive about 73 billion pounds of food waste yearly. When food is produced but wasted, all the resources used, from farms to our tables, to grow the food--agricultural land, water (over 25% of fresh water or over 45 trillion gallons), labor, energy, pesticides, fertilizers--and the resources used to transport, process, prepare, store, and dispose of it are wasted as well. And there are environmental impacts, including greenhouse gas (GHG) emissions, consumption and degradation of freshwater, loss of biodiversity, harm to ecosystems, and degradation of soil and air quality. 96% of food waste in the U.S. goes to landfills.

When food and other organic materials are deposited in a landfill, they don't biodegrade, instead they rot and decompose under hot, anaerobic (oxygen-less) conditions, where bacteria break down the materials and generate methane (CH_4), a powerful GHG, and carbon dioxide (CO_2). Methane is 28 times more potent in its short 7 to 12-year lifetime than carbon dioxide in trapping heat in the atmosphere. MSW landfills are the third-largest source of methane emissions from human activities in the U.S., accounting for approximately 14% of all methane emissions in 2021. In 2020, wasted food was responsible for approximately 58% of the

fugitive (escaping to the atmosphere) methane emissions from MSW landfills, emitting approximately 55 million metric tons of carbon dioxide equivalents (CO₂e).

Most U.S. landfills install systems to capture landfill gas, including methane. However, food waste decays more rapidly than many other kinds of organic waste, thereby often escaping to the atmosphere before it is captured, contributing to more methane emissions than any other landfilled materials. According to the EPA, emissions from landfilled food waste are equivalent to the annual emissions of 15 coal-fired power plants (or 7 million homes' energy use). For every 1,000 short tons (907 metric tons) of food waste that was dumped in a landfill in 2020, 838 million metric tons CO₂e were emitted (over a 30-year time span) into the atmosphere, which is equivalent to the GHG emissions of burning five railcars' worth of coal. Food waste in our landfills causes GHG emissions equivalent to more than 50 million gas-powered passenger vehicles, making food waste the leading contributor to landfill methane emissions. Therefore, reducing the amount of food waste disposed in landfills would be an effective way to reduce methane emissions from landfills.

There are management options for food waste other than landfills that are significantly less deleterious. Landfilling food waste does not promote a circular economy because it fails to use the food waste's nutrient value. The most environmentally preferable approach is to prevent food from being wasted in the first place. But given the significant resources needed to produce and deliver food to consumers, to then have it go to waste and be disposed of in a landfill, generating methane emissions, compounds its environmental impacts.

EPA's Wasted Food Scale

By reducing food waste, we can help feed the hungry (by donating our overages), save money for families and businesses, and protect our environment from climate change.

With composting, facilities engage in organics recycling by collecting and processing organic materials (that would otherwise be landfilled or incinerated) into new products, such as soil amendments. When we dump food and other organic materials in landfills or combustion facilities, we waste the valuable nutrients and carbon contained in those materials. By composting our food scraps and yard trimmings, we can return those nutrients and carbon to the soil to improve soil quality, support plant growth and build resilience in our local ecosystems and communities.



Wasted Food Scale
Graphic courtesy of EPA

Composting

Composting is the managed, aerobic (oxygen-required) biological decomposition of organic materials by microorganisms. Compost is a biologically stable soil amendment produced by the aerobic decomposition of organic (carbon-based) materials. Organic materials include grass clippings, leaves, yard and tree trimmings, food scraps, crop residues, animal manure and biosolids. Compost products for commercial sale typically go through thermophilic composting, where compost reaches high temperatures that reduce pathogens.

It is nature's way of recycling and among the most significant actions we can take to reduce our food waste and build healthy soil. By turning our food scraps and yard trim into compost, we transform our waste streams into a beneficial, value-added soil amendment and use it to protect the environment and create resilient communities.

The ingredients for composting include a proper balance of the following materials:

- Carbon-rich materials (“browns”).
- Nitrogen-rich materials (“greens”).
- Water (moisture).
- Air (oxygen).

Nitrogen-Rich Materials (“Greens”)	Carbon-Rich Materials (“Browns”)
Fruit and vegetable scraps	Dry leaves
Grass clippings	Plant stalks and twigs
Coffee grounds and paper filters	Shredded paper (non-glossy, uncolored) and shredded brown bags
Paper tea bags (no staples)	Shredded cardboard (no wax coating, tape, or glue)
Eggshells (crushed)	Untreated wood chips

Note the items to avoid in compost: <https://www.epa.gov/recycle/composting-home#options>

Resources for composting basics:

- <https://www.epa.gov/sustainable-management-food/composting>
- <https://www.epa.gov/recycle/composting-home>
- https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-703/SPES-393.pdf
- <https://www.usda.gov/sites/default/files/documents/usda-food-waste-infographic.pdf>

Benefits of Using Your Finished Compost

You can add compost to your flower and vegetable beds, window boxes, and container gardens; incorporate it into tree beds; mix it with potting soil for indoor plants; or spread it on top of the soil in your yard.

Compost can be used as a soil amendment or as a mulch. As a soil amendment, mix in two to four inches of compost to the top six to nine inches of your soil. As a mulch, loosen the top two to three inches of soil and add a three-inch layer of compost on the surface, a few inches away from plant stems and tree trunks.

Alternatives to Backyard Composting

While home composting is one of the best ways to use food scraps and waste, what can residents do if there isn't outdoor space to compost?

Loudoun County has launched a pilot program to accept food waste at its new Food Waste Composting Drop-Off Center located at the **Loudoun County Landfill**. Simply empty your bag/reusable container into their food waste collection bin and it will be put to good use. Discarded food leftovers, scraps, spoiled food can all be composted into a beneficial fertilizer used to enrich soil. <https://www.loudoun.gov/5945/Food-Waste-Composting>

Loudoun County Landfill, located at 21101 Evergreen Mills Road, Leesburg, VA 20175, is open Mon- Sat: 8:00 a.m. - 4:00 p.m. For holiday schedule, check their website: <https://www.loudoun.gov/landfill>
Email: oswm@loudoun.gov Tel: 703-771-5500. There is no charge for this service.

Accepted for Composting: FOOD WASTE ONLY

- Fruits and vegetables
- Pasta, bread, cereal
- Rice, beans
- Eggs, eggshells
- Meat (raw or cooked, bones)
- Seafood (meat and shells)
- Dairy, cheese, yogurt
- Baking ingredients
- Herbs and spices
- Coffee grounds and filters, tea bags, popcorn
- Plate scrapings, food scraps and leftovers
- Not on this list? Please ask first

<https://www.loudoun.gov/DocumentCenter/View/204537/Food-Waste-Composting-Rack-Card>

Let's all do our part to keep food waste out of the landfill.

The Theory of Evolutionary Anachronisms

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In the 1970s, biologists began to focus on solving a puzzle. It had long been noted that the fruits of certain trees had no takers; they simply sat on the ground and rotted. Since food is a precious commodity in nature, it didn't make sense that a food source would be ignored. There were many theories over the years as to why this happens, but none seemed to satisfy the growing collection of evidence. Other features under discussion added to the mystery; for example, why some trees retain attributes for which no purpose can be found. Finding plausible reasons for rotting fruits and useless attributes led to intriguing concepts that are now being offered in the context of a new theory and a new term, "evolutionary anachronisms."

Anachronisms are all around us, in our neighborhoods and along the towpath. We have become accustomed to them to the point where we take no notice. For example, we often see Osage orange trees, but we rarely note that the large, solid fruits sit on the ground for extended periods, uneaten. We often see honey locust trees and never wonder why such lovely trees have an array of very nasty thorns extending along the trunk. Fruits too big to swallow and dagger-like thorns are now thought to be anachronisms: attributes that evolved in response to pressures over the long history of species that are no longer present.

These pressures began long ago, when huge animals roamed the Earth. Megafauna, animals weighing over 100 pounds and perhaps as much as 1,000 pounds, were the norm millions of years ago. Fossil evidence indicates that huge bears, giant sloths, mastodons, woolly mammoths, and even camels were once present in North America. These animals formed a partnership with the trees of that time. The trees provided food; the animals ate their fruit and dispersed their seeds. The partnership was essential for animal survival and tree reproduction. Then, about 13,000 years ago the great glaciers of the Pleistocene epoch began to melt. The climate changed and the megafauna eventually became extinct. Some species of trees survived the extinction, those fortunate enough to find new seed dispersal partners or new reproduction strategies. Biologists now think this survival came at a cost. Many tree species adapted in important ways but still retained features of a bygone day; a time when large animals could eat and digest large fruits or fruits encased in hard containers, a time when large herbivores could topple a tree simply by rubbing against it or were tall enough to browse immature fruit before the seeds were ready to germinate. Since trees populated the planet long before we did, and they live much longer than our life span, it seems reasonable that such attributes could have once been an important part of a species' life cycle. The fact that these features have not been discarded over many thousands of years is a new concept.

Rotting fruit and thorns that could skewer any type of potentially helpful reproduction partner illustrate two of the major characteristics that are now thought to be anachronisms: needlessly aggressive defense mechanisms and fruit that can only be eaten by animals large enough to swallow it. Thorns are hard to miss on a honey locust tree, *Gleditsia triacanthos*, and on several species of hawthorn (*Crataegus*). They are long, nasty, and sharp. The Osage



Honey Locust thorns
Photo courtesy of Marj Richman

orange, *Maclura pomifera*, thorns are more subtle, but they are there. You have to look carefully on new branches to see a small thorn under each leaf stem. In all three cases, these thorns contribute little to the functioning of the tree, yet they must take a great deal of energy to produce. Since energy is in short supply in nature, it is a question as to why a tree would retain attributes that don't give any survival advantage and in fact might deter mutually advantageous relationships with animals. Biologists now think the thorns were an important defense mechanism when these trees shared the environment with large megafauna. The thorns were designed to control the habits of animals much larger than those in our environment today, animals that no longer exist.



Osage orange thorns on tree, south branch of Catoctin Creek, Purcellville, VA
Photo courtesy of Carol Ivory

The Osage orange tree offers a good example of a fruit that is ignored by most present-day wildlife. Besides being too big to swallow in one bite, the fruit contains a latex substance that is sticky and messy. Long ago these same characteristics were probably quite attractive to mammoths and mastodons, animals with large mouths and efficient digestive systems. For today's wildlife, the fruit is too large for one mouthful and too hard to penetrate. Today, the tree survives because people value its wood which is highly resistant to rot. Native Americans used it to make bows; settlers used it as building material. It also helps that Osage orange trees can reproduce vegetatively by sprouting new stems.

Similarly, the fruits of the honey locust are long, hard-shelled pods containing multiple seeds. These pods dangle on tree branches sometimes for an entire season. To free the seeds, a browsing animal must eat and digest the pod or crack the hard shell. It seems current wildlife prefer food sources that are easier to deal with. Today, honey locust trees survive because we plant them, or they are found on floodplains where water can take over the job of seed dispersal.

To learn more about evolutionary anachronisms, see Connie Barlow's book, *The Ghosts of Evolution*.



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