

# *Trumpet Vine*

## *Fall 2024*



*Volume XX, Issue 4*

[www.loudouncountymastergardeners.org](http://www.loudouncountymastergardeners.org)



# 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

- **October 3: What the Heck Is Nutrient Management? And Why Should I Care?** by Anita Tuttle, Retired Urban Nutrient Management Coordinator
- November: TBD
- No lectures in December & January due to holidays

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](#).

## Table of Contents

<b>3</b>	Message from the Editor: Assess Your Garden With an Eye to Next Year
<b>4</b>	How Can You Help Wildlife in Fall? Stems Up; Leaves Down!
<b>8</b>	The Beauty of Kale
<b>11</b>	Chard: A Vegetable for All Seasons
<b>13</b>	The Splendor of Northern Virginia's Native Trees in Fall
<b>16</b>	Want to Get Started With Native Plants? Plant Native Shrubs!
<b>23</b>	Invasive Plants in Loudoun County, Part 2: Trees and Shrubs
<b>28</b>	The Elderberry Shrub
<b>30</b>	<i>Amsonia</i> /Blue Star: Another Winning Native for Your Garden
<b>34</b>	Dense Stands of Native Trees: The Pocket Forest Concept
<b>38</b>	Come Along on My Road Trip Through Maine
<b>41</b>	Whiskey Barrels 101 Redux
<b>44</b>	Migrating Butterflies in Northern Virginia

# Message From the Editor

## Assess Your Garden With an Eye to Next Year

Carol Ivory, Loudoun County Extension Master Gardener

As the 2024 growing season draws to a close, we should observe our gardens, reflect on our actions, and consider what we might do differently next year. There's no way of knowing if this is the new normal or an anomaly. The late winter was warm and dry; the spring was chilly and damp; then the summer had record breaking heat and drought. How much did you water? How did the very closely growing plants fare versus those that were spaced out? Did mulch make a difference?

The weeds in my garden didn't seem to be fazed by the heat and drought; they tried to take over and succeeded in some spots. I weeded to keep them from overrunning new plantings of mountain mint, lyre leaf sage, and Joe-pye weed, but I have to admit they seemed to serve the function of green mulch, covering the soil and helping to cool the new natives. Now I know what good horticultural practice says: *Weeds are bad; they compete for moisture and rob the desirable plants of needed resources. Weeding helps the desirable plants get more water and survive.* But under some circumstances it's a challenging balance.

Which of your plants did well? Did any of your plants die? I lost three cardinal flower plants in two very different places. Both spots I thought were adequately watered, but right after a 3-day stretch of very high temperatures, they all died rather quickly. Did any of your plants experience a similar fate?

Black-eyed Susans, hyssop, and eastern bluestar were widely reported to be tough. Everyone growing wild petunia, *Ruellia humilis*, reported that it grew well in soil that was so dry that it cracked. In my garden, this is only its second year, and the deep-rooted seedlings prospered and spread like crazy in a garden that was not watered.

This fall, consider starting deep-rooted natives, planted closely so little soil is exposed. In the spring, fill any spaces with tough annuals such as low-growing zinnias, lantana, and wax begonias.



Profusion Zinnias  
Photo courtesy of Carol Ivory

# How Can You Help Wildlife in Fall? Stems Up; Leaves Down!

Barbara DeRosa-Joynt, Loudoun County Extension Master Gardener

Many gardeners are interested in helping pollinators and other wildlife in the garden. The good news is that helping them can help you save time, money, and labor. In fall, many home gardeners and landscape companies follow the traditional practice of emptying flowerbeds by pulling out the annuals and chopping back perennials all the way to the ground so nothing is left but some stubble and mulch. They remove every leaf in sight, bagging them and piling them at the curb to be taken away with the yard waste or trash. If you have been using these traditional practices but are interested in helping wildlife—including the bees and butterflies your garden has supported all year—you are encouraged to try some new practices in your perennial beds, namely leaving healthy perennial plants standing in the fall and leaving the leaves on your property.



Wood frog  
Photo courtesy of [Judy Gallagher](#)

These approaches may seem uncomfortable to those who like the traditional aesthetic of empty flowerbeds in winter, in which case you may want to try them in some less visible parts of your yard and add more areas in future years as you become accustomed to this new look. Your local wildlife will appreciate every effort you make to support them and your local ecosystem!

## Why?

Many people are familiar with the monarch butterflies that famously migrate south in the fall. While other local species migrate south to warmer climates, most of the butterflies and moths we see in summer also overwinter in our area. Butterfly and moth species have different strategies for overwintering, with some spending the winter as eggs, some as larvae, others as chrysalides or cocoons, and still others as adults. According to noted entomologist Doug Tallamy, 94 percent of moths drop off their host plant tree in the fall, landing below hoping for the cover of leaves, bark, and soil so they can nestle into them as eggs, caterpillars, or in their cocoons. The actions we take—or don't take—in our gardens can help increase the odds of our local wildlife surviving the winter.



Woolly bear caterpillar  
Photo courtesy of [batrangler](#)

## Stems up!

When you leave nondiseased plant stems in place you are creating places for butterflies and moths to overwinter. Many species have chrysalides or cocoons that are small and/or disguised as dead leaves or tucked alongside or in dead leaves on plant stems to camouflage them from predators as they wait for spring to arrive so they can emerge as butterflies or moths. As a result, they are intentionally very hard to spot, and



Black swallowtail chrysalis  
Photo courtesy of [Vicki DeLoach](#)

it is not likely you would notice them as you chop down the plant stems in your garden. Leaving the stems in place over the winter gives them a chance to complete their life cycles in your garden instead of being thrown out in the trash and lost forever. With insect populations crashing, this is an easy step you can take to help, and it removes a chore from your fall to do list—a win-win! If you also opt to leave the leaves in your garden over the winter, the stems help hold the leaves in place in the beds so they don't blow away. The seedheads on the stems left standing also provide winter food for birds and look stunning in frost and snow. Continuing to

leave these nondiseased stems partly standing in the spring will also provide nesting sites for cavity nesting bees to use for their larvae next year—you are encouraged to cut them back to 8 to 24 inches tall in spring instead of cutting them down to the ground.



Polyphemus moth cocoon  
Photo courtesy of [Mary Keim](#)

Butterflies and moths that attach their chrysalides or cocoons to plant stems and that will benefit from leaving the stems standing include black swallowtail butterflies (*Papilio polyxenes*), eastern tiger swallowtails (*Papilio glaucus*), polyphemus moths (*Antheraea polyphemus*), and cecropia moths (*Hyalophora cecropia*).

### Leaves down!



Firefly  
Photo courtesy of [Katja Schulz](#)

Leaving the leaves in your flower beds over the winter helps butterflies and moths that nestle their chrysalides or eggs at the base of plants left standing and/or in leaf litter. It also helps bumble bees. In fall the newly mated female bumblebees (called gynes), which will become next year's queen bees and start their own colonies in spring, need a place to wait out the cold winter months and will tuck themselves into the top layer of soil and they need the leaf litter to insulate them from the weather. Thousands of insect species, like fireflies, spiders, lace bugs, ladybugs, and millipedes use leaf



Ladybeetle  
Photo courtesy of [Katja Schulz](#)

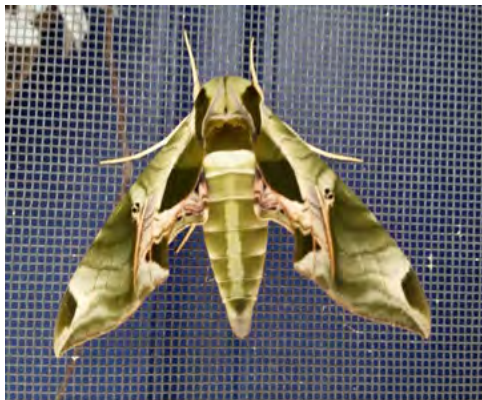
litter to protect themselves from winter's chill, as do wood frogs, toads, box turtles, salamanders, and other beneficial creatures. In addition to benefiting an enormous array of wildlife, your leaf litter can help protect plants from heaving during freeze-thaw cycles by providing additional insulation for their roots. Retaining the leaves on your property also keeps them from taking up space in landfills where they create methane, a potent greenhouse gas that contributes to climate change. This practice also improves the

quality of your soil as the organic matter from the leaves slowly breaks down and returns nutrients to the soil and feeds countless numbers of organisms in your garden.

Butterflies and moths that will benefit from leaving the leaves in your flower beds include the 14 species of greater fritillaries (*Speyeria spp.*) and 16 species of lesser fritillaries (*Bolloria spp.*) which lay their eggs in leaf litter near violets, their larval host plants, so when the larvae emerge in spring, they can have immediate access to food. Similarly, silvery checkerspot butterflies (*Chlosyne nycteis*) overwinter as caterpillars tucked in leaf litter at the base of their host plants, which include wingstem (*Verbesina alternifolia*) and native sunflowers (*Helianthus spp.*).



Mourning cloak butterfly  
Photo courtesy of [Lydia Fravel](#)



Pandorus sphinx moth  
Photo courtesy of Barbara DeRosa-Joynt

Many other butterflies and moths will tuck themselves into the leaf litter to insulate themselves from the winter cold as either larvae, chrysalides or cocoons, or eggs, including luna moths (*Actias luna*), whose caterpillars encase their cocoons in leaves to camouflage them, Isabella Tiger moths (aka woolly bears) (*Pyrrharctia isabella*), mourning cloaks (*Nymphalis antiopa*), commas (*Polygonia comma*), question marks (*Polygonia interrogationis*), pandorus sphinx moths (*Eumorphia pandorus*), and many other species. When you remove the leaves from your garden, you remove vital habitat for these gorgeous creatures.

In addition to butterflies and moths that will nestle **in** the leaves that you let remain in your garden, a number of species lay their eggs **on** or attach their chrysalides or cocoons **to** leaves that they ride down to the ground as the leaves drop and those species spend the winter as eggs or chrysalides or cocoons until they emerge in the spring. Examples of these species include tulip tree silk moths (*Callosamia angulifera*) and greater oak dagger moths (*Acronicta lobeliae*).



Tulip tree silk moth  
Photo courtesy of [Mike Chapman](#)

Still others use a slightly different strategy, like red banded hairstreaks (*Calycopis cecrops*), which lay their eggs on already fallen leaves of their host plants, including oaks (*Quercus spp.*), sumacs (*Rhus spp.*), wax myrtles (*Myrica cerifera*), and others.

## How?

Leaving the nondiseased stems standing in your flowerbeds is easy. Just walk away from the bed and do something else. Fall is a great time to plant, so you could add new native plants to your garden instead. You could go for a bike ride, watch a football game, take a nap, read a book, etc. The options are endless!

Leaving the leaves involves a few options and choices, all of which create free mulch and fertilizer and even compost. You can just leave the leaves wherever they fall since they will shrivel up and decompose. Though excessive amounts of leaves can cause challenges to turf, it is generally okay to leave leaves on your lawn. Many people remove at least some leaves from turf areas, and you can rake them into flower beds, under shrubbery, or at the base of trees. If you want to keep the leaves onsite but prefer that they be out of sight, you can rake them up and pile them in a quiet corner of the yard, which also helps wildlife. A yard full of leaves can create a fair amount of biomass, so some people chop the leaves before spreading them so they take up less room and are easier to manage. This is an option, but if you can leave the leaves whole it gives the greatest chance possible to the butterflies and moths that have attached their eggs or chrysalides or cocoons to or wrapped themselves in the leaves or who are tucked away inside piles of the leaves—this is especially true for leaves from native trees, which are the most likely to have eggs or chrysalides or cocoons attached to their host plants.

It can be overwhelming to figure out how you can make a difference to help the environment, but each of us has the potential to make a positive contribution to support our local ecosystem. As indicated at the beginning of this article, every little bit helps, so you are encouraged to do what you can to help native wildlife successfully make it through the winter in your yard.



Leaves in bed  
Photo courtesy of Barbara DeRosa-Joynt

# The Beauty of Kale

**Thersa Hutton-Sherman, Loudoun County Extension Master Gardener**

You can feel and see fall coming all around you. In the garden, tomatoes are no longer flowering, the pepper leaves look limp after a cool night, and the cucumbers and melons have given their last fruits. Even the prolific summer squash plant has started to fade away. Whether you are interested in extending your food garden harvest into the winter or are wondering what you might plant in some of your fading flowerpots, kale is a good choice.

Although it did not become popular as a food in the United States until the 21st century, kale has been grown and eaten by humans for centuries. It is thought that it originated in the Eastern Mediterranean and ancestors of today's kale can be dated to at least the 4th century. There are many types of kale but two of the most popular that are grown and found in the grocery store are the curly types (blue curled kale, scots kale) and lacino (dinosaur, cavolo nero, black kale, tuscan) differentiated by its long, straighter, dark green leaves.



Lacino kale

Photo courtesy of [USDA](#)

Lacino kale is generally milder and softer than the curly type. You will also see ornamental kale plants in beautiful shades of cream and purple at retailers and markets this time of year. These usually serve as fall decorations. Although technically they can be eaten, you wouldn't want to, as the taste is not desirable.

A low maintenance, hardy crop that is milder in taste and more tender when grown in the fall, kale is a great replacement for lettuces and other greens that do not tolerate the cooler weather. A member of the Cruciferous vegetable family like cabbage, Brussels sprouts, broccoli, and cauliflower, kale is considered a healthful food. Kale is nutritionally dense, low in calories (it has only 35 calories in one cup chopped), and packed with nutrients. It boasts high levels of beta-carotene, vitamin K, vitamin C, lutein, and calcium and is a good source of fiber.

Although kale can be grown in the spring, crops grown in the fall have some advantages like fewer pests, generally more consistent rainfall, no worry about them going to seed too early, and they do not have to compete for your attention with the vast number of spring and summer crops.

Kale can be grown in zone 7 in September from seed (early September) or as a transplant. Most seed companies recommend planting 4 to 6 weeks prior to the anticipated first frost date. Seeds can take between 55 and 70 days to harvest while a transplant will be ready to harvest in as little as 30 days. Many garden centers have the plants available and ready to go.

Kale can be grown in the garden or in a container that is at least 12 inches in diameter. Multiple plants should be spaced about 18 to 24 inches apart in a location that gets at least six hours of sunlight per day. As with most plants, check for the proper water level by testing the top one inch of soil. Plants generally need around one inch of water per week.



Although less likely than in spring, kale can suffer from a few problems depending on the weather and other growing factors. Hot spells can cause distress in the plant causing it to struggle and be more susceptible to problems. Pests include aphids, grasshoppers, harlequin bugs, and cabbage worms. As always, if you are having trouble identifying an issue while growing your kale, contact the Master Gardener help desk at [LoudounMG@vt.edu](mailto:LoudounMG@vt.edu).



Leaves ready to harvest.  
Photo: Thersa Hutton-Sherman

To harvest, cut the leaves closest to the base of the plant first ensuring that you leave the crown—four center leaves—intact so that the plant continues to grow and produce throughout the season. Discard yellowing and wilted leaves. If the temperature doesn't drop too low, kale can be harvested throughout the winter. If temperatures do drop too low (below 28 degrees) or protection is needed from high winds, you can extend harvest by using extended cold protectors like row covers. What fun it is to harvest kale after a snow! Plants that have grown all winter will bolt in the spring. That is the end of the plants' life cycle and time to discard them.

### **Some tips for enjoying your kale:**

- When shopping for kale, choose firm, deep green, bright leaves for the best flavor and shelf life. Kale will generally last for 5 to 7 days in the refrigerator.
- Although it is edible, most people like to remove and discard the tough center stem.
- When cooking kale, it is best not to overcook. Overcooking and adding too much liquid causes it to become mushy and soggy. Cook until just tender. A light sauté is a good option.
- Kale pairs well with many foods including vinegars, lemon, potatoes, onions, garlic, beans, rice, paprika, or a small amount of bacon.
- When using raw kale in salad, massage it with oil and a small bit of salt or lemon juice to break it down—making it softer and milder.

### **Two of my favorite ways to use kale:**

#### **Kale Lightly Sautéed With Tomatoes**

1. Massage 3 cups of kale with a teaspoon of extra virgin olive oil and a pinch of salt until it breaks down slightly.
2. Heat a sauté pan over medium heat and add a teaspoon of olive oil.
3. Chop and sauté a chopped shallot (yellow onion would work) in the pan for one minute, then add the kale and cook uncovered until it begins to wilt.
4. Add a handful of halved cherry tomatoes and cook until the tomatoes begin to fall apart.
5. Salt and pepper to taste or add a favorite Italian herb.
6. Serve as an easy and nutritious side dish or over short pasta with some fresh grated Parmesan.

## Basic Kale Salad

1. Massage kale with oil, a tiny bit of salt, and lemon juice until softened.
2. Add red onion, slivered almonds, dried cranberries, and shredded chicken and serve with a berry-flavored vinaigrette.

There are so many things you can add to a kale salad. Usually, I just add whatever I have on hand (some nuts, different types of cheese, chicken, or crumbled bacon).

If you are not a fan of this versatile vegetable and haven't had it in a while, you may want to give it another try. I myself did not like kale very much until I realized that it tastes different based on how it's prepared. So, grow or buy some kale and experiment. Try a few varieties, try it raw and lightly sautéed, and find out if there is a place for kale in your garden or kitchen.



Kale salad

Photo courtesy of Thersa Hutton-Sherman

# Chard: A Vegetable for All Seasons

Freyja Bergthorson, Loudoun County Extension Master Gardener

A good edible green may be hard to find in the winter garden, but if you're seeking to grow vegetables year-round, chard just may become a new favorite.



Late summer 4 varieties of chard (Ruby Red, Rhubarb, Fordhook Giant, and Swiss)  
Photo courtesy of Freyja Bergthorson

This incredibly versatile vegetable not only withstands temperatures as low as 20 degrees, but it can be planted once and harvested for up to 18 months. A member of the beet family, chard does not produce an edible root, but is grown for its leaves, stalks, and ornamental qualities. It is easy to grow, relatively pest-free, and available in dozens of varieties.

A few of my favorites are Rainbow chard with beautiful golden, red, white, and green stalks and veins, Rhubarb chard with deep red stalks and veins and dark green leaves, and Fordhook Giant, which has large, thick, tender, and juicy leaves held above tall, broad, white stalks. Each variety has leaves of a slightly different texture and a subtle difference in flavor. Chard leaves are more tender than their cousin,

kale, and have a milder, sweeter flavor. Although similar in taste to spinach, the leaves hold their shape when cooked and are delicious cooked until slightly wilted, served with a drizzle of balsamic vinegar or glaze and sprinkled with chopped nuts or seeds.

Tiny chard leaves are a delicious and colorful addition to salads, cooked greens may be used in the same way as spinach, and the stems may be added to stir-fry, soups, and stews, or steamed and eaten as stalks when young. The leaves are great in smoothies, quiches, and anywhere else you might use spinach or kale.

A nutritional powerhouse, chard packs a punch with an unusually high amount of vitamin A, as well as calcium, iron, magnesium, phosphorus, and potassium. [This article](#) from the University of Illinois Extension office provides detailed nutritional information and suggestions for preparation of chard. The article also has links to articles about dozens of other popular garden vegetables with similar content.

Chard may be planted at any time during the year except summer. I prefer to start mine indoors and transplant outdoors when the tender plants are too big for slugs and snails to destroy them. They can be grown close together—4 to 6 inches apart for most varieties if you plan to harvest mainly younger leaves—and they will continue to grow new leaves as the old ones are harvested. If larger plants are desired, or if growing Fordhook Giants, space the seedlings 12 inches apart. The plants prefer full sun but can also be grown in partial shade.

In Sterling, Va., I'm able to plant chard in the late winter indoors, then transplant outdoors in March depending on temperatures. If we have a freeze and the plants are small, I'll throw an old towel or blanket over them and they do fine. Another alternative is a cold frame, greenhouse, or other protection, but my plants generally thrive during the early spring, and I'm able to harvest small leaves for salads by mid-April.

Harvests continue through the spring and into July when chard may begin to struggle with the heat. As long as they have enough water, the plants will survive and produce a surge of new growth as the weather begins to cool. Growth slows during the cooler winter months, but plants that winter over will continue to produce new leaves if harvesting continues. As chard is a biennial, it will bolt as the weather begins to warm, and new plants may be planted as the older ones are removed. As with any vegetable, it is best to plant in a different location the following year to reduce the probability of species-specific diseases and pests. If a single plant is left to go to seed, the seeds may be collected and used for future plantings.

If you want to learn more about growing chard, [this article](#) from the University of Wisconsin Extension describes different varieties, shares interesting historical facts, and includes basic guidelines for growing chard successfully.

It's not too late to start some chard now to enjoy throughout the winter and into next spring. Plants started now will be ready to use in salads as microgreens in just over a month and can be enjoyed until it's time to plant again next spring.

# The Splendor of Northern Virginia's Native Trees in Fall

Amanda Fallon, Loudoun County Extension Master Gardener

As the crisp air of autumn descends upon Northern Virginia, the region transforms into a breathtaking tapestry of vibrant colors. This seasonal spectacle is largely thanks to the diverse array of native trees that grace the landscape. From fiery reds to golden yellows, these trees not only enhance the natural beauty but also play a crucial role in the local ecosystem. Here's a closer look at some of the standout native trees that put on a dazzling display each fall.

## Red Maple (*Acer rubrum*)

One of the most iconic trees in Northern Virginia, the Red Maple is renowned for its brilliant scarlet foliage. This tree thrives in a variety of soil types and conditions, making it a versatile addition to any landscape.

## Sugar Maple (*Acer saccharum*)

The Sugar Maple is another favorite, known for its stunning orange and red hues. This tree is not only beautiful but also valuable for its sap, which is used to make maple syrup!!!

## Black Gum (*Nyssa sylvatica*)

Often found on forested slopes, the Black Gum tree is a true autumn gem. Its leaves turn a brilliant red, almost glowing in the sunlight.

## Scarlet Oak (*Quercus coccinea*)

The Scarlet Oak lives up to its name with its deep red foliage. This tree is a significant contributor to the fall color palette in Northern Virginia.

## Sweetgum (*Liquidambar styraciflua*)

The Sweetgum tree is easily recognizable by its star-shaped leaves, which turn a mix of red, orange, and purple in the fall.

## Tulip Tree (*Liriodendron tulipifera*)

Also known as the Yellow Poplar, the Tulip Tree is one of the tallest native trees in Northern Virginia. In the fall, its leaves turn a bright yellow, adding a splash of sunshine to the autumn scenery.

## American Beech (*Fagus grandifolia*)

The American Beech is a majestic tree that offers a beautiful display of golden-yellow leaves in the fall. Its smooth gray bark and stately presence make it a standout in any forest.



Red Maple (*Acer rubrum*)  
Photo: [Cherokee Tree Care](#)

## Now for the FUN PART:

### The Science Behind the Spectacle: How Leaves Change Color in the Fall

As autumn approaches, the lush green landscapes of summer transform into a breathtaking mosaic of reds, oranges, yellows, and purples. This annual spectacle is a result of complex chemical processes within the leaves, influenced by environmental factors. Here's a closer look at how and why leaves change color in the fall.

Here you can marvel at how intricate the biology of a single leaf can be. We can visualize how these darker channels allow for systemic changes in growth and the leaf's demise.



Close up on a leaf  
Photo courtesy of [Adobe Stock](#)

### The Role of Pigments

**Chlorophyll** is the pigment responsible for the green color in leaves and is crucial for photosynthesis, the process by which plants convert sunlight into energy. During the growing season, chlorophyll is continuously produced and broken down, keeping leaves green. It masks the other color pigments in the leaf. However, as days shorten and temperatures drop in the fall, the production of chlorophyll slows down and eventually stops. This allows other pigments present in the leaves to become visible.



Sweetgum leaves display the range of fall leaf colors.  
Photo courtesy of [White House Natives](#)

### Carotenoids: The Hidden Colors

Carotenoids are pigments that produce yellow, orange, and brown colors. They are always present in leaves but are usually masked by the dominant green chlorophyll. As chlorophyll breaks down, the carotenoids become more visible, giving leaves their yellow and orange hues. Carotenoids are stable compounds and do not break down as quickly as chlorophyll, which is why these colors persist longer into the fall.

### Anthocyanins: The Autumn Reds and Purples

Anthocyanins are pigments that are produced in the fall in response to light and excess sugars within leaf cells. These pigments can appear red, purple, or blue depending on the pH of the cell sap. Unlike carotenoids, anthocyanins are not present in the leaf throughout the growing season but are synthesized in the fall. The production of anthocyanins is thought to protect the leaf by reducing the risk of damage from light and by deterring herbivores. They are produced in response to environmental factors like temperature and light.

### The Chemistry of Autumn Leaves

The vibrant colors of autumn leaves are a result of a complex interplay of chemical processes. Here's a simplified description:

- **Chlorophyll Breakdown:** As daylight hours shorten and temperatures drop, plants reduce the production of chlorophyll. This allows the other pigments to become visible.
- **Sugar Accumulation:** As photosynthesis slows down, sugar accumulates in the leaves. This sugar can react with certain compounds to produce anthocyanins.
- **Environmental Factors:** Factors like temperature, light intensity, and soil conditions can influence the production of anthocyanins and carotenoids, affecting the final color of the leaves.

### Environmental Factors

Here are the several environmental factors that influence the intensity and duration of fall colors:

- **Temperature:** Cool—but not freezing—temperatures promote the formation of anthocyanins, enhancing red and purple hues. Early frost can damage leaves and reduce color vibrancy.
- **Sunlight:** Bright sunny days increase the production of sugars in leaves, leading to more vibrant reds and purples. Overcast days can dull the colors.
- **Rainfall:** Adequate rainfall during the growing season ensures healthy leaves, which can lead to a more brilliant display in the fall. Conversely, drought conditions can cause leaves to fall prematurely or produce less intense colors.

### The Resulting Display

The interplay of these pigments and environmental factors creates the stunning array of colors we see each fall. The specific colors and their intensity can vary widely depending on the species of tree, the weather conditions, and the health of the leaves. For example, maples are known for their brilliant reds and oranges, while oaks tend to turn brown or russet.

### Conclusion

The native trees of Northern Virginia offer a spectacular show each fall, transforming the region into a vibrant mosaic of colors. These trees not only enhance the beauty of the landscape but also support local wildlife and contribute to the health of the ecosystem. Whether you're a resident or a visitor, taking the time to appreciate these natural wonders is a rewarding experience that connects us to the changing seasons and the enduring beauty of nature.

The changing colors of fall leaves provide a beautiful reminder of the intricate and dynamic processes at work in nature. This transformation is not just a visual delight but also a critical part of the life cycle of trees, helping them prepare for the winter months ahead. Understanding the science behind this phenomenon adds an extra layer of appreciation for the natural world and its seasonal rhythms.

Isn't it amazing how chemistry and nature come together to create such a spectacular display?



Fall foliage  
Photo courtesy of [Northern Virginia Magazine](#)

# Want to Get Started With Native Plants? Plant Native Shrubs!

**Barbara DeRosa-Joynt, Loudoun County Extension Master Gardener**

Many people are interested in adding more native plants to their gardens, but they are often unsure how to start, and the amount of information available online can be overwhelming. At the end of the day, every little bit counts, so start small and see where it takes you! Noted entomologist Professor Doug Tallamy recommends that if we do just one thing, we plant an oak tree because they support an incredible number of wildlife species. However, some of us—in the eastern part of the county in particular—have smaller lots that mean planting an oak may not be practical in the space we have available. Instead, shrubs can be a great and very practical place to start your native plant journey because they provide excellent habitat for wildlife as well as structure for our landscaping. A lot of shrubs have tremendous wildlife value, providing nectar sources and caterpillar host plants for pollinators, and offering birds places for shelter and nesting plus food from the aforementioned caterpillars that they will feed to their babies as well as fruit for the adults. Shrubs can also serve as a specimen plant or an anchor in a garden bed, whether it be a foundation bed or at your property's border or somewhere in between. They can screen undesirable views, they can absorb water in a rain garden, and many can also be used to stabilize hillsides and prevent erosion.

Fall is a great time to plant—the heat of summer is mostly behind us, we typically have more rain, yet the soil is still warm. These conditions enable shrubs to put their energy into growing strong roots instead of focusing on leaves or flowers, which gives shrubs planted in the fall a head start over those planted in spring. The same is also true for trees and perennials. Some awesome native shrub options are found below, all of which are native to Virginia, and most are native to Loudoun County. But first, a few important things to remember to help increase your potential to succeed in making these wonderful plants happy in your yard.

## **Spacing Considerations**

The first rule when adding shrubs to your garden is to pay attention to their fully mature size—both width and height. It can be hard to imagine how large they will get, especially since we often purchase plants in one-gallon or five-gallon pot sizes, but this is a really important consideration. Many people plant their shrubs way too close together, in part because it is difficult to picture how big shrubs will eventually grow and in part because we want the instant gratification of our garden beds looking full and finished. Be patient and plant them properly spaced for their eventual size. To avoid having a sea of mulch between small newly planted shrubs, you can improve the look while they are small by filling in the gaps with annuals or perennials that you can move later as needed as the shrubs grow larger.

## **Siting Considerations**

The phrase “right plant right place” is often repeated for a reason: it really is true and can help set you up to succeed. How do you know what shrubs would work in your particular conditions? Look to nature to give you clues as to where shrubs will be most happy so you don't put one that is naturally found in shady wooded streambanks as the anchor plant in a garden bed that is hot and dry in full blazing sun all day. When sited in the right conditions, most natives are pretty low maintenance; however, low maintenance doesn't mean no maintenance, and the reality is that you will need to water your new shrubs—or any other



planting—for the first year or more to ensure they get a good start and to monitor them thereafter during drought or exceedingly hot weather.

### **Cultivar Considerations**

Below we highlight some smaller cultivars of shrubs where the straight species (a plant species that is as you would find it in the wild) can grow large. Studies have shown that plants bred to have a smaller size generally do not create problems for pollinators that use the flowers for pollen and nectar or the leaves for caterpillar food. Plants and wildlife have evolved together over long periods of time to develop relationships that enable them to coexist. However, plants that have been bred by humans to change attributes—such as the leaf color—often can no longer be eaten by caterpillars because of the resulting changes to the leaf chemistry. Sometimes changing the flower color or structure means that pollinators can no longer access the nectar or the nectar is no longer present, and sometimes changing berry size or color means the birds that would otherwise eat them can no longer do so. If your intention by planting native plants is to help wildlife and support your local ecosystem while beautifying your property, carefully study whether the cultivar you are considering will still fulfill that intention. This [article](#) from *HortTechnology* is a good place to start.

### **Wildlife Considerations**

All the shrubs listed below are native host plants for butterflies and/or moths, which means their caterpillars will eat the leaves and sometimes the flowers. This is a good thing, since as the saying goes, “if something is not eating your plants, then your garden is not part of the ecosystem!” Native butterflies and moths evolved with their host plants over many many years, and these native caterpillars will not destroy the native host plant on which they are feeding—otherwise these plants would have gone extinct a long time ago. This means that when you see caterpillars on your shrubs, you will know that you are contributing to your local environment and its food web. Professor Tallamy, the noted entomologist mentioned above, recommends that if damage from insects chewing on leaves bothers you, you use his “ten step rule,” because once you take ten steps away from the plant it is usually hard to see any damage. Deer are another matter. Though they are also native—unlike butterfly and moth caterpillars that have many predators to keep their numbers in check—deer don’t really have any predators left, and our area is vastly overpopulated with them. Hungry deer will sometimes eat even those plants generally considered to be deer resistant, and you may want to consider protecting young bushes until they are large enough to be able to withstand deer browsing.

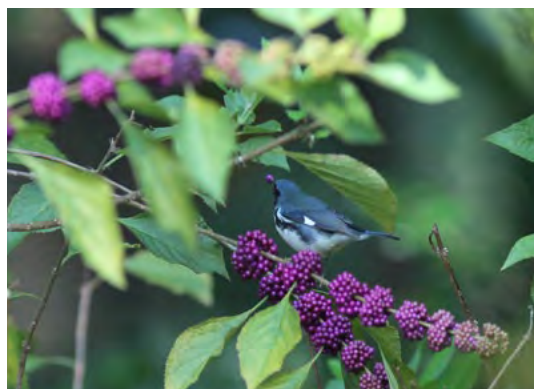
### **Foundation Bed Considerations**

In addition to ensuring you have planted foundation shrubs far enough from each other to enable them to reach their mature size, you also need to ensure you plant them sufficiently far from the foundation for the same reason. Also, remember that some straight species of native shrubs will grow quite tall and wide, which can be perfect for those of us with windowless sides to our homes, but otherwise they may eventually grow to cover windows, porches, and lights in unintended ways. Not all shrub species grow really tall. Some are naturally shorter or have shorter cultivars available, and planting these can provide a solution if desired. There is no point in planting something that will grow too large for your space and cause you to have to frequently prune hard to keep it in check. It is also possible that concrete from foundations, sidewalks, and driveways can raise the soil pH in foundation planting beds, making the soil more alkaline and thus more difficult for some acid-loving shrubs to thrive.

## Border or Privacy Screening Considerations

In some ways, consideration for borders and privacy screenings are the opposite of those for foundation beds since for privacy screening purposes in particular, you may want to select shrubs that will grow as tall and large as possible. However, if you are planting against your or a neighbor's fence or property line, just as with foundation plantings, you still need to pay attention to the mature size and width of the shrub when you install it. It is also useful to remember that shrubs used for screening can do more than just cover something you don't want to see. They can also serve as a focal point in and of themselves to draw the eye to something beautiful instead of away from whatever you are screening. You may want to opt for evergreens—though there are not as many choices native to our region—or more dense deciduous shrubs to have the best coverage possible.

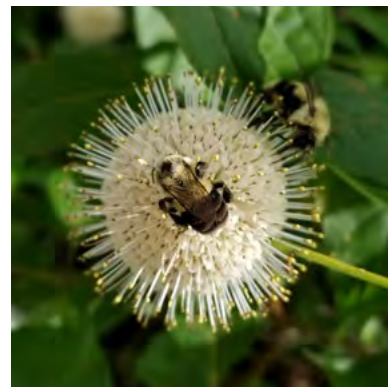
### A Dozen Amazing Native Shrubs:



American Beautyberry  
Photo courtesy of [Mary Keim](#)

**American Beautyberry** (*Callicarpa americana*) is a rounded deciduous shrub with arching upright branches. It has small somewhat inconspicuous light pink to purple flowers in June-July that turn into strikingly bright magenta-colored fruits. Beautyberry is the host plant for multiple butterflies and moths including the spring azure butterfly (*Celastrina ladon*), snowberry clearwing moth (*Hemaris diffinis*), and rustic sphinx moth (*Manduca rustica*). In nature, beautyberry can be found on forest and wetland edges, moist slopes, and woodland openings. **Uses:** Foundation plantings, stabilizing hillsides and/or erosion, garden beds. **Size:** 2 to 6 feet tall and wide. **Light:** Full sun to part shade. Though it tolerates light shade, fruiting is best in full sun.

**Buttonbush** (*Cephalanthus occidentalis*) is a multibranched deciduous suckering shrub with spherical white flowers that are covered in pollinators of all kinds when in bloom in June and July. It is also the host plant for multiple moth species, including some of the largest and showiest such as the titan sphinx moth (*Aellopos titan*), the hydrangea sphinx moth (*Darapsa versicolor*), the cecropia silkmoth (*Hyalophora cecropia*), the royal walnut moth (*Citheronia regalis*), and the promethea silkmoth (*Callosamia promethea*). In nature, buttonbush can be found along streambanks and in other wet and low-lying areas, but buttonbush can also thrive in regular garden bed conditions. **Uses:** Foundation plantings, screening, hedges, rain gardens, stabilizing hillsides and/or erosion, garden beds. **Size:** 5 to 12 feet tall and wide. **Light:** Best in full sun to part shade but can also tolerate moderate shade. **Smaller option:** *Cephalanthus occidentalis* 'sugar shack,' which grows only to 3 to 4 feet tall and wide.



Buttonbush  
Photo: Barbara DeRosa-Joynt

**Common Elderberry** (*Sambucus canadensis*), also called American black elderberry, is a sprawling, deciduous, multistemmed suckering shrub with white, lemon-scented flowers arranged in large flat-topped clusters in June and July and clusters of black fruits that are highly attractive to wildlife in late summer. Common elderberry shrubs have male and female reproductive parts on each flower but two or more shrubs are needed

for good berry production. The flowers attract pollinators when in bloom, and it is the host plant for a number of moths, including the elderberry moth (*Zothea tranquilla*), the elderberry pearl moth (*Anania coronata*), and the yellow slant line moth (*Tetracis crocallata*). In nature, it is found along streambanks, in moist woodlands, and can also be found along fence rows and roadsides, which gives a hint as to its versatility. **Uses:** Foundation plantings, screening, hedges, rain gardens, stabilizing hillsides and/or erosion, garden beds. **Size:** 5 to 12 feet tall and wide. **Light:** Full sun to part shade.



Mountain Laurel  
Photo courtesy of [Vicki DeLoach](#)

**Mountain Laurel** (*Kalmia latifolia*) is a slow-growing, multistemmed, rounded evergreen shrub with twisted branches and large clusters of umbrella-shaped, pinkish-white flowers in May and June. The flowers attract pollinators, and it is the host plant for the laurel sphinx moth (*Sphinx kalmiae*). In nature, mountain laurel is found in varied habitats including open rocky woods, meadows, mountain slopes, and woodland edges. **Uses:** Foundation plantings, screening, hedges, stabilizing hillsides and/or erosion, garden beds. **Size:** 5 to 15 feet tall and wide. **Light:** Part shade. **Smaller options:** *Kalmia latifolia* ‘tiddlywinks’ grows 2 to 3 feet tall and 3 to 4 feet wide, and *Kalmia latifolia* ‘tinkerbell’ grows to 4 feet tall and wide.

**New Jersey Tea** (*Ceanothus herbaceus*) is a small, upright mounding deciduous shrub with small fluffy white clusters of flowers. New Jersey Tea is the host plant for butterflies and moths including the spring azure butterfly (*Celastrina ladon*), the mottled duskywing butterfly (*Erynnis martialis*), and the summer azure butterfly (*Celastrina neglecta*). In nature, New Jersey Tea can be found on rocky slopes and in woodland openings. **Uses:** Foundation plantings, rocky slopes and banks, rock gardens, stabilizing hillsides and/or erosion, garden beds. **Size:** 2 to 3 feet high and 1 to 2 feet wide. **Light:** Full sun. **Other:** Tolerates drought.



New Jersey Tea  
Photo courtesy of [John Oyston CC BY 1.0](#)



Ninebark  
Photo courtesy of [Alexandria Szakacs](#)

**Ninebark** (*Physocarpus opulifolius*) is an upright, spreading, deciduous shrub with clusters of small white flowers in May and June. It is popular with pollinators when in bloom and is the host plant for multiple moth species including the glorious habrosyne moth (*Habrosyne gloriosa*), the bluish spring moth (*Lomographa semiclarata*), and the hitched arches moth (*Melanchra adjuncta*). In nature, Ninebark can be found alongside gravelly streambed edges and on rocky banks. **Uses:** Foundation plantings, screening, hedges, stabilizing hillsides and/or erosion, garden beds. **Size:** 5 to 8 feet high and 4 to 6 feet wide. **Light:** Full sun to part shade. **Other:** Can tolerate drought and wet soil.

**Pinxterbloom Azalea** (*Rhododendron periclymenoides*) is a dense, bushy, deciduous suckering shrub with delicate, lightly fragrant pink to white flowers in spring. It is the host plant for a number of moths and

butterflies, including the azalea sphinx moth (*Darapsa choerilus*), the hydrangea sphinx moth (*Darapsa versicolor*), and the brown elfin butterfly (*Callophrys augustinus*). In nature, Pinxterbloom Azaleas are found in the dappled shade of woods, wetland edges, and woodland clearings. **Uses:** Foundation plantings, hedges, stabilizing hillsides and/or erosion, garden beds. **Size:** 3 to 6 feet high and 4 to 7 feet wide. **Light:** Full sun to part shade; protect from afternoon sun to avoid leaf scorch; tolerates heavy shade. **Other:** Needs good drainage in clay soil.



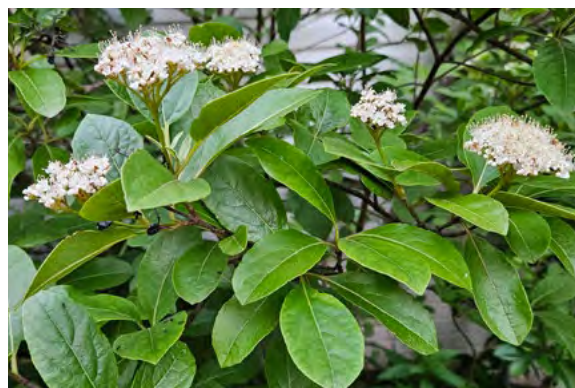
Pinxterbloom Azalea  
Photo courtesy of [Doug McGrady](#)



Shrubby St. John's Wort  
Photo courtesy of [Becky Laboy](#)

**Shrubby St. John's Wort** (*Hypericum prolificum*) is a small, upright rounded deciduous shrub with bright yellow fuzzy flowers. Shrubby St. John's Wort's flowers have no nectar, only pollen, but bees and other pollinators visit them nonetheless. It is the host plant of several species of butterflies and moths, including the gray hairstreak butterfly (*Strymon melinus*), whose caterpillars feed on the leaves, and the wavy-lined emerald moth (*Synchlora aerate*), whose caterpillars feed on the flowers and attach pieces of flower petals to their bodies as camouflage. In nature, Shrubby St. John's Wort is found on rocky ground, dry wooded slopes, and gravelly streambed edges. **Uses:** Foundation plantings, hedges, stabilizing hillsides and/or erosion, garden beds. **Size:** 1 to 5 feet tall and 1 to 4 feet wide. **Light:** Full sun to part shade.

**Smooth Witherod** (*Viburnum nudum*), also known as smooth viburnum and possumhaw viburnum, is a dense, upright, rounded multistemmed deciduous shrub with flat-topped clusters of small white flowers in May and June and clusters of berries ranging from pink to blue to purplish black in the fall. It is the host plant for a number of moth species, including the crocus geometer moth (*Xanthotype sospeta*), the green marvel moth (*Acrionicta fallax*), the hummingbird clearwing moth (*Hemaris thysbe*), and the azalea sphinx moth (*Darapsa choerilus*).



Smooth Witherod  
Photo courtesy of Barbara DeRosa-Joynt

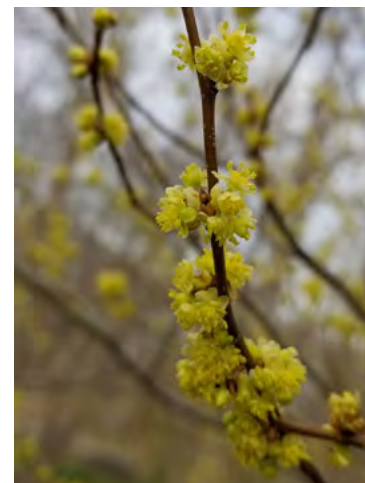


Southern Bayberry  
Photo: [Suzanne Cadwell](#)

In nature, Smooth Witherod is found in woods and wetlands, but it is also adaptable to regular garden soils. **Uses:** Foundation plantings, screening, hedges, rain gardens, garden beds. **Size:** 5 to 12 feet tall and wide. **Light:** Full sun to part shade. Smaller option: *Viburnum nudum* 'Brandywine' grows 5 to 6 feet tall, and *Viburnum nudum* 'Winterthur' grows 6 feet tall.

**Southern Bayberry** (*Morella cerifera*), also called wax myrtle, is a large, irregularly shaped, multi-trunked, densely branched, suckering, fast-growing, evergreen shrub. The inconspicuous greenish flowers are fragrant

and become light blue berries, and the leaves have a spicy fragrance. Male and female plants are needed for good berry production. Bayberry is a host plant for multiple butterflies and moths, including the red-banded hairstreak butterfly (*Calycopis cecrops*), the banded hairstreak butterfly (*Satyrium calanus*) and the Io moth (*Automeris io*). In nature, bayberry is found in a wide range of locations including wetlands, streambanks, hillsides, and upland forests. **Uses:** Foundation plantings, screening, hedges, rain gardens, stabilizing hillsides and/or erosion, garden beds. **Size:** 10 to 15 feet high and 8 to 10 feet wide. **Light:** Full sun to part shade.



Spicebush

Photo: Barbara DeRosa-Joynt

**Spicebush** (*Lindera benzoin*) is a broad upright rounded multistemmed deciduous shrub with clusters of small bright yellow flowers in March and April and red berries in September and October. Male and female plants are needed



Spicebush swallowtail butterfly caterpillar  
Photo courtesy of Barbara DeRosa-Joynt

for good berry production. It is most commonly known as the host plant of the spicebush swallowtail butterfly (*Papilio troilus*) but is the host of several other butterflies and moths too, including the tiger swallowtail butterfly (*Papilio glaucus*), the promethea silkworm (*Callosamia promethea*), and the ailanthus silkworm (*Samia Cynthia*). In nature, it is found in woods, ravines, valleys, and along stream banks. **Uses:** Foundation plantings, hedges, rain garden, stabilizing hillsides and/or erosion, garden beds. **Size:** 6 to 12 feet high and wide. **Light:** Full sun to full shade; forms more berries with more sun. **Other:** Tolerates wet soil and drought.

**Sweet Pepper Bush** (*Clethra alnifolia*), also called summersweet, is a rounded deciduous suckering shrub with fragrant elongated white flower clusters. It draws tremendous numbers of pollinators when in bloom in July and August. Be sure to plant it where you can enjoy its wonderful scent. In addition to being very attractive to pollinators, it is also a host plant for multiple moth species, including the sweet pepperbush nola moth (*Nola clethrae*) and the bold-feathered grass moth (*Herpetogramma pertextalis*). In nature, Sweet Pepper Bush can be found in wetlands and along streambanks, but it will also thrive in regular garden conditions. **Uses:** Foundation plantings, screening, hedges, rain garden, stabilizing hillsides and/or erosion, garden beds. **Size:** 3 to 8 feet tall and 4 to 6 feet wide. **Light:** Best in full sun to part shade but can tolerate heavy shade. **Smaller option:** *Clethra alnifolia* 'hummingbird' grows 2 to 4 feet tall and 3 to 5 feet wide.



Sweet Pepper Bush

Photo: Barbara DeRosa-Joynt

### Invasives and Their Native Alternatives

A word about invasives. Yes, butterfly bush attracts pollinators, nandina has bright berries, and burning bush and Japanese barberry have nice leaf color. But when we know better, we can do better. Below are some native alternatives to these problematic invasives.

**Butterfly Bush** (*Buddleia davidii*) is invasive and a host for the invasive brown marmorated stinkbug. **Native**

**alternatives:** buttonbush, common elderberry, New Jersey Tea, red chokeberry (*Aronia arbutifolia*), smooth witherod, spicebush, staghorn sumac (*Rhus typhina*), sweet pepper bush, Virginia sweetspire (*Itea virginica*).

**Nandina** (*Nandina domestica*), also known as heavenly bamboo, is invasive, and its toxic berries can poison birds like cedar waxwings which tend to gorge themselves on berries. **Native alternatives:** American beautyberry, buttonbush, inkberry (*Ilex glabra*), strawberry bush (*Euonymus americanus*), sweet pepper bush, sweet shrub (*Calyanthus floridus*), Virginia sweetspire (*Itea virginica*), winterberry holly (*Ilex verticillata*), yaupon jolly (*Ilex vomitoria*).

**Burning Bush** (*Euonymus alatus*) is invasive. **Native alternatives:** black chokeberry (*Aronia melanocarpa*), black haw viburnum (*Viburnum prunifolium*), fragrant sumac (*Rhus aromatica*), highbush blueberry (*Vaccinium corymbosum*), red chokeberry (*Aronia arbutifolia*), smooth witherod, spicebush, Virginia sweetspire (*Itea virginica*).

**Japanese barberry** (*Berberis thunbergia*) is invasive, and some [studies](#) have shown it to be a likely tick vector. **Native alternatives:** American beautyberry, buttonbush, highbush blueberry (*Vaccinium corymbosum*), ninebark, Virginia sweetspire (*Itea virginica*), winterberry holly (*Ilex verticillata*).

### Where to Find These Beauties?

There are a number of [native plant nurseries in Virginia](#), including in Loudoun County, and other native plant nurseries 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 farmers markets or other venues. Check their individual websites for details, including lists of plants they grow. 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. 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.

### Even More Resources

- Native shrubs for hedges and screens: <https://www.plantnovanatives.org/hedges-and-screens>
- Native shrubs for foundation plantings: <https://www.plantnovanatives.org/foundation-plantings>
- Native shrubs for shade: <https://www.plantnovanatives.org/shade-gardens>
- Evergreen native shrubs: <https://www.plantnovanatives.org/evergreens>
- Fragrant native shrubs: <https://www.plantnovanatives.org/fragrant-native-plant>

# Invasive Plants in Loudoun County

## Part 2: Trees and Shrubs

Gaye Mara, Loudoun County Extension Master Gardener

This summer, homeowners associations in Loudoun County, including mine, reported seeing Spotted Lanternflies (SLF) in large numbers for the first time. These invasive insects, which first showed up in Virginia in 2018, are a devastating pest of orchards, vineyards, and other valuable croplands.

There is a plant accomplice to this invasion. Tree-of-heaven (*Ailanthus altissima*) is SLF's preferred host. One reason for that appears in a recent Audubon Society report, which indicates that SLF that feed on tree-of-heaven are not preyed upon by birds because the toxins in its leaves make the bugs distasteful. Eliminate tree-of-heaven, and the birds will help us eliminate SLF. (Thanks to Natali Walker at Blue Ridge PRISM for tracking down this report. You can find it at <https://www.audubon.org/news/birds-are-one-line-defense-against-dreaded-spotted-lanternflies>.)



Adult Spotted Lanternflies  
Photo: Lawrence Barringer, Pennsylvania Department of Agriculture, [Bugwood.org](http://Bugwood.org)



Tree-of-Heaven root sucker, dug at the edge of the retaining wall, over 30 feet from the grove of mature trees at the top of the slope. Photo courtesy of Gaye Mara

### Why Remove Tree-of-Heaven

There are many reasons besides SLF to remove tree-of-heaven. The tree is an aggressive spreader, both by roots and by seeds. The roots can extend 50 feet and send up baby trees all along their length. A mature female tree can produce hundreds of thousands of seeds that sail on the wind to new locations. As if that weren't enough, toxins in the roots and leaves poison other plants, enabling tree-of-heaven to quickly dominate any area where it has established itself. And the roots can damage foundations and sewage systems.

I learned first-hand about its aggressiveness after finding tree-of-heaven popping up all over my lawn and beds this spring and summer

from a stand of mature trees at the edge of the property we moved into last fall. One, a root sucker, was over 30 feet from the parent tree at the top of the slope (see photo).

### How to Identify Tree-of-Heaven

At first glance, tree-of-heaven can be mistaken for some of our native trees like walnuts and sumacs because of its size and long, feathery compound leaves with leaflets lining



A female Tree-of-Heaven loaded with seeds. Photo: Leslie J. Mehrhoff, University of Connecticut, [Bugwood.org](http://Bugwood.org)



Tree-of-Heaven leaf showing “thumbs” at the base of some leaflets.  
Photo courtesy of Gaye Mara



Tree-of-Heaven bark  
Photo: Richard Gardner,  
[Bugwood.org](http://Bugwood.org)

both sides of the leafstalk. But there are two distinct differences that aid identification:

- Many of the leaflets have one or more small notches or “thumbs” at their base, next to the leafstalk, that is not present on the leaflets of native trees, and
- The bark is not prominently ridged or plated like the bark of native trees but instead shallowly etched, somewhat like the skin of a cantaloupe.

### How to Remove Tree-of-Heaven

Anyone who has tried to remove a large tree-of-heaven by chopping it down has soon regretted it as dozens of new trees sprouted from the roots. Instead, the following methods are recommended:

- **Manual:** Hand pull or dig small seedlings, making sure to get all the roots. This works best in wet soil.
- **Foliar Spray:** Spray the foliage of seedlings and small trees in summer or fall with a recommended herbicide.
- **Basal Bark:** For smaller trees (under 4 inches in diameter), in late summer or early fall, spray the bark all around the lower 12 inches of the trunk with concentrated herbicide mixed with an oil-based carrier to help it adhere to the trunk.
- **Hack & Squirt or Injection:** For larger trees (4 inches or more in diameter), again in late summer or early fall, make downward-angled cuts with a hatchet, or drill downward-angled holes with a wide drill bit, through the bark and just into the sapwood at about waist height. Space

the cuts or holes about 2 inches apart around the trunk, and **immediately** fill them with concentrated herbicide (the tree will start sealing off the wounds in about 30 seconds).

Applying herbicide in summer or early fall—after the tree is fully leafed out and before the leaves start to change color in the fall—takes advantage of the time of year when the tree is moving nutrients down from the leaves to the roots; it will carry the herbicide down to the roots as well. It is essential to kill the roots.

See the Penn State Extension video, [Tree-of-Heaven: Control Strategies](#), for a demonstration of control techniques, and the NC State Extension [Fact Sheet on Tree-of-Heaven](#) for photos and general information.

See also the Virginia Department of Forestry chart, [Non-Native Invasive Plant Species Control Treatments](#), for



Tree-of-Heaven trunk after Hack & Squirt treatment. Photo: [Steven K. Rettke, Rutgers Cooperative Extension](#)



the timing of treatments (manual, mechanical, and chemical) and for recommended herbicides and concentrations. And, if using an herbicide, read the product label (this is not optional!) for guidance on when and how to apply it safely for other plants and the environment and on what protective gear to wear to keep yourself safe.

## Other Invasive Trees and Shrubs

Tree-of-heaven is at the top of the [Virginia Invasive Plant Species List](#) for its aggressiveness and ecological damage. Here are other woody plants that rank high on the list (click on the link for each species below to go to a downloadable fact sheet with pictures, descriptions, and control recommendations):

### Trees:

#### [Callery/Bradford Pear](#) (*Pyrus calleryana*)

You've probably seen Callery pears dominating highway edges around the state; they're especially noticeable when blooming in the spring. Widely planted as a landscape tree for its fast growth, spring flowers, and narrow oval shape, the 'Bradford' cultivar long ago escaped into the wild and has since been joined there by more recent cultivars.

Birds eat the fruits and widely disperse the seeds, which remain viable in the soil for at least 10 years. Young trees quickly form thickets that crowd out desirable plants. Besides its invasiveness, the tree is a hazard because its tight, vertical branching structure is fragile, with limbs breaking off in storms and at other times for no apparent reason.



Callery pear  
Photo: Richard Gardner,  
[Bugwood.org](#)

Control is similar to that for tree-of-heaven—hand pulling and/or digging of seedlings and saplings at any time of year or herbicide treatments (foliar spray, basal bark, hack & squirt/injection) in summer to early fall. You can also cut the tree down at ground level and paint the stump with concentrated herbicide (this is called the “cut stump” treatment), but you'll need to check back later and treat any resprouts with foliar spray.

Again, for herbicide use, refer to the Virginia Department of Forestry chart, [Non-Native Invasive Plant Species Control Treatments](#), for recommended chemicals and concentrations, and refer to the product label for safety guidance. Foliar sprays should only be used where no desirable plants will be affected.



An Infestation of Autumn Olive.  
Photo: Chris Evans, University of Illinois,  
[Bugwood.org](#)

### Shrubs:

For most shrubs, their many small trunks make hack & squirt/injection treatment impractical. But all the other treatments for trees described above can be used effectively on shrubs. In addition, regular mowing of open fields will stop seedling plants from establishing themselves

[Autumn Olive](#) (*Elaeagnus umbellata*) thrives in poor soil in sun to semishade. It has invaded most of the eastern United States in fields,

roadsides, forest edges, and open woods, where it quickly forms a dense stand, eliminating other plants. Birds consume its prolific fruits and spread the seeds to new areas. It is very hard to eradicate once established; my community has been battling it for 10 years.

[Burning Bush or Winged Euonymus](#) (*Euonymus alatus*), another popular landscaping plant, forms massive shrubs in the wild and, like other invasives, eliminates other plants in the areas it invades. It seeds prolifically, and it thrives in sun or shade and most soil types. It is easy to identify in fall when its foliage turns bright red. If you like the red fall color, try our native highbush blueberry (*Vaccinium corymbosum*) instead and enjoy the delicious fruit as a bonus!



An Infestation of Burning Bush.  
Photo: Richard Webb, [Bugwood.org](#)



Bush Honeysuckle (*Lonicera maackii*) in bloom. Photo: Richard Gardner, [Bugwood.org](#)

smothering, evergreen thickets in any area it invades. It can thrive in any soil type in sun or part shade. Besides its aggressiveness, its fruits are poisonous to humans and the fragrance from its flowers can cause respiratory distress in thickly infested areas.

[Bush Honeysuckle](#) (*Lonicera maackii*, *L. morrowii*, and other species) is another super-aggressive invasive that crowds out other plants with its rampant growth; some species also poison the soil for other plants. Birds widely distribute the seeds. The flowers are similar to the familiar blooms of the Japanese honeysuckle vine. When digging or pulling the plants, all roots must be removed. In my community, successful removal has been followed by the welcome reappearance of native plants that had previously been choked out.

[Chinese Privet](#) (*Ligustrum sinense*) grows so fast and reseeds itself so prolifically that it quickly forms dense,



Chinese Privet Infestation.  
Photo: Nancy Loewenstein, Auburn University, [Bugwood.org](#)



A cane of Multiflora Rose.  
Photo: Rob Routledge, Sault College, [Bugwood.org](#)

[Multiflora Rose](#) (*Rosa multiflora*) adds vicious thorns to rampant, smothering growth; it can stand on its own as a shrub or climb over nearby trees and smother them along with the understory. The flowers are white, as distinguished from the pink flowers of our native roses. The arching canes root where they touch the ground and produce new plants; the abundant fruits are eaten and their long-lived seeds are spread by birds. Multiflora also hosts rose rosette disease, a virus that kills garden roses and infects fruit trees in the rose family.

[Wineberry](#) (*Rubus phoenicolasius*) is a raspberry relative and similar in appearance and habit, with thorny canes that root where they

touch the ground and juicy red, aggregate fruits that are eaten, and the seeds spread, by wildlife. The canes appear reddish because they are covered with prickly red hairs as well as sharp thorns, and the fruits are smaller and darker red than garden raspberries. Wineberry thrives in all types of soil and in all but the densest shade, quickly forming impenetrable thickets that are hazardous to any creature trying to push through them.

### **About This Series**

This is the second of three articles on invasive plants in Loudoun County. The first article, in the previous issue, addressed invasive vines. The third and final article, in the next issue, will discuss the control of invasive grasses and flowering plants.



Wineberry cane and foliage.  
Photo courtesy of Gaye Mara

# The Elderberry Shrub

Sharon Perryman, Loudoun County Extension Master Gardener

The elderberry, genus name, *Sambucus nigra*, comes from Greek sambuce, an ancient musical instrument, and refers to the soft pith, easily removed from the twigs and used to make flutes and whistles. Nigra refers to the color of the berries when they ripen. Elderberry is native to the warmer parts of Europe, North America, and Africa.

The elderberry bush is a loose, graceful, deciduous shrub with both woody and herbaceous branches. It grows to 12 feet under optimal conditions. Multiple long stems rise from the base, arching at the top. The elderberry bush can be left to grow into a ticket-like shrub—appropriate for the back of a larger property—or it can be pruned to a few large stems with lateral branching cut to raise the profile of the shrub, making it look more like a small tree. Constant pruning is required to keep suckers from growing from the roots.



Elderberry Bush, May 30

All photos courtesy of Sharon Perryman from [Master Gardeners Demo Garden](#)



Elderberry flowers and immature berries, June 20

The leaves are pinnately compound up to 12 inches long, opposite, consisting of a central axis with 4 to 10—usually 4 to 6—paired leaflets, and a terminal one often larger. Leaflets are ovate to elliptic or narrower, up to 7 inches long, with an extended tip and a broadly wedge-shaped base. Leaf margins are toothed except at the tip and toward the base. The teeth are narrow and pointed toward the tip.

The tiny flowers are white, 3/16 to 1/4 inch across. The sweet-smelling flowers appear



Ripe berries, August 3

in lovely broad, flat, conspicuous clusters (umbels) up to 10 inches or more in diameter, appearing from May to July, usually May in our area. The fruit is berrylike, dark purple when ripe, 3/16 to 1/4 inch wide and is edible.

Elderberry is an important caterpillar host for Imperial and Cecropia moths and 29 other species of butterflies and moths. Its nectar-rich flowers attract bees and butterflies, as well as mining, little carpenter, and little sweat bees. Broken stems offer nesting sites for bees. The berries are a favored food source for as many as 45 bird species, including Brown Thrasher, Gray Catbird, and Northern Mockingbird. It also provides nesting places for warblers, grosbeaks, and American Goldfinch. Additionally, groundhogs, rabbits, squirrels, and turtles consume its berries. It is considered a deer-resistant plant. However, deer will feed on elderberries if they are hungry enough.



Berries stripped from the bush by birds, August 17

Elderberry normally produces harvestable fruit in the second or third year of growth. Wait to pick the fruit until it is dark purple, nearly black, in mid-August to September. The easiest way to harvest the fruit is to clip the entire berry cluster from the shrub and then gently remove the berries from the cluster. The berries spoil quickly, so they should be immediately refrigerated, frozen, or dried. If you plan to use the fruit, be aware that it is prized by birds and wildlife, so you will have competition.

Elderberry fruit is high in vitamins A and C, phosphorus, potassium, and iron. It is also rich in antioxidants and has immune-supporting properties. The fruit makes tasty jellies, juice, and wine. Raw unripe elderberries and other parts of the elder tree, such as the leaves and stem, contain toxic substances (lectin and cyanide) that can cause nausea, vomiting, and diarrhea. Large quantities of the toxins may cause serious illness. Cooking the berries eliminates the toxins. Ripe berries should be boiled for at least 30 minutes to safely remove the toxins.

Choosing an appropriate location for an elderberry shrub is important. Because of its suckering habit, it may not be ideal as a foundation or specimen planting. It is a good choice for the edge of a rain garden, pond, drainage swale, shrub border, or natural buffer area where its growth habit is a benefit. Regardless of the location, it's best to ensure access for maintenance purposes.

Elderberry grows in full sun to shade. It tolerates a wide variety of soils but prefers rich, moist, slightly acid soil. It does not like drought conditions. During its peak growing season, particularly during extremely hot or dry weather, elderberry requires about an inch or two of water per week. Elderberries should be irrigated thoroughly the first year after planting since the roots grow near the soil's surface. Because they have shallow roots, do not cultivate deeper than 2 inches. After the first year, it is best to avoid disturbing the soil at all because the slightest injury can damage the fibrous root system.

Elderberry is fast-growing and requires pruning to keep it attractive and productive. The wood is relatively soft, so pruning is not difficult. Pruning can be done in three different ways: annually removing dead or weak stems; or, shortening stems by about 1/3; or, cutting all stems to the ground to entirely rejuvenate the plant. Cutting the whole bush to the ground every other year may be required to keep the bush in check. Elderberry blooms on new growth of the current season, so pruning should be completed in late winter or early spring. Individual plants may be short-lived, but the root mass produces new shoots.

Propagating elderberry can be done quickly from cuttings. It roots easily from softwood cuttings taken from year-old seedlings. The seeds must be pretreated to germinate in the first year. Untreated seeds will germinate the second year.

#### Sources:

1. [Elderberry | NCCIH \(nih.gov\)](#)
2. [What is the best way to grow elderberries? | Extension \(unh.edu\)](#)
3. <https://plantly.io/plant-care/elderberry-bush/>
4. [www.wildflower.org](http://www.wildflower.org)

# Amsonia/Blue Star: Another Winning Native for Your Garden

Wendy Hiller, Loudoun County Extension Master Gardener

I'm not going to sugarcoat this past summer. How could I? The extreme heat and severe drought we experienced in Northern Virginia was a literal killer for many gardens and lawns. Those of us without irrigation systems struggled, watching our gardens suffer, while doing what we could to help our plants survive, even if they did not thrive as we intended.

While I was fighting to keep my stressed garden alive, my *Amsonia tabernaemontana* (aka Willowleaf Bluestar) took care of itself. It was hands down the most successful plant in my garden and was completely unscathed by the extreme heat and lack of normal rainfall. I only gave it supplemental water twice, because I instead expended most of my resources to ensure that newly planted woody perennials made it through the drought. Now I'm singing *Amsonia's* praises for all to hear.



*A. tabernaemontana* in full bloom.  
Photo courtesy of Wendy Hiller

*Amsonia* is also known as Blue Star for its fragrant, usually blue, star-shaped flowers. After blooming in the spring, the flowers then develop into slender seedpods that are usually removed. Throughout the summer, *Amsonia's* deep green foliage and mounded form provides structure to the garden and serves as a backdrop for summer flowers. In the fall, *Amsonia* puts on its final show when it turns a striking yellow before dropping its leaves.



*A. tabernaemontana* beginning to turn yellow in the fall. Photo courtesy of [University of Wisconsin-Madison Extension](#)

Care is simple. *A. tabernaemontana's* main requirement is at least six hours of sun per day. (Other varieties have different sunlight needs, as explained below.) Too much shade will cause it to flop over. *A. tabernaemontana* prefers well-drained moist loamy soil, but is tolerant of Virginia's clay, and is drought resistant once established. After blooming, deadhead the flowers or they will mature into seedpods, the weight of which will pull the plant down. If seedpods have already formed, simply remove them. To promote bushy growth and maintain a rounded form, cut back by one third to one half after blooming. For cleanup, either cut the plant down to its crown in the late fall or wait until early spring and cut down old growth before new growth appears.

*Amsonia* has few pest problems. Deer and rabbits will not browse it due to its white latex-like sap that seeps from damaged leaves and stems. The sap can also irritate skin, so wear gloves when pruning.

*Amsonia* has a tap root and its tough roots are challenging to dig, so it is best propagated by seed. Seeds need moist stratification (a period of cold temperatures to simulate winter) for 4 to 6 weeks for good germination. Alternately, seeds can be sown outdoors in the fall for growth in the spring. Seedlings should

be transplanted while very small before the tap root grows deeply.

*Amsonia* comes in several types with varying styles of leaves. Many may be identified simply as “Blue Star,” so ask questions at the nursery and pay close attention to the leaf shape to help determine which *Amsonia* you are purchasing. A reputable native plant nursery should be able to answer your questions.

### *Amsonia tabernaemontana*

Phonetic Spelling: am-SO-nee-uh tab-er-nay-mon-TAY-nuh

Common Names: Blue Star, Willowleaf Bluestar, Willow Amsonia, Blue Dogbane, Blue Star-Willow, Eastern Bluestar, and Woodland Bluestar.



*A. tabernaemontana*'s willow-like leaves.

Photo: [University of Wisconsin-Madison Extension](#)

Native to the southeastern United States, from Texas to Florida and up to southern Missouri and Illinois to southern New York.

Best in full sun (six or more hours). In shade, blooms reduced and foliage will require pruning or staking to remain erect.

Prefers well-draining, moist, loamy soil, but can be grown in most soils, tolerating clay soils very well. Plant will flop over when growing in rich soil.

Prefers one inch of rain per week but is drought resistant once established.

Blooms for 3 to 4 weeks in midspring to early summer. Blooms last well as cut flowers. Foliage turns bright yellow in the fall. Cut back by one third to one half after blooming.

Hardy in zones 3 to 9.

Grows 2 to 3 feet tall and wide.



*A. tabernaemontana* var Blue Ice with flowers beginning to open. Photo: [University of Wisconsin-Madison Extension](#)

Some Cultivars:

- ‘Blue Ice’ – Often listed as *A. tabernaemontana*, but may be a hybrid with another species. A more compact variety that grows 1 to 2 feet tall and 2 feet wide. Hardy in zones 4 to 9. Has larger, darker, lavender blue flowers in smaller clusters.
- ‘Montana’ – A similar species that may or may not be just a low-growing form of *A. tabernaemontana*. A compact variety that grows 1 to 1½ feet tall and less than a foot wide. The flowers are a deeper blue and bloom earlier. Has slightly wider leaves than the species.
- ‘Short Stack’ – a very compact selection introduced by Plant Delights Nursery that only grows about 1 foot tall and 1½ feet wide. Hardy to zone 5.

## *Amsonia hubrichtii*

Phonetic Spelling: am-SO-nee-uh hew-BRIK-tee-eye

Common Names: Blue Star, Hubricht's Amsonia, Threadleaf Blue Star, Arkansas Amsonia

Native to the Ouachita Mountains in central Arkansas and Oklahoma, where it was discovered in the early 1940s by Leslie Hubricht. Found in the southcentral United States.

Distinguished from *A. tabernaemontana* by its feathery green foliage. Leaves are very narrow, soft and needle-like, and 2 to 3 inches long. For a great look at the foliage, see this video from the Department of Plant Sciences, University of Tennessee.

Best in full sun (six or more hours). In shade, blooms reduced and foliage will require pruning or staking to remain erect.

Prefers average, medium, well-drained soil, but will tolerate poor soil and some drought. Plant will flop over when growing in rich soil.

Blooms for 3 to 4 weeks in midspring to early summer. Blooms can be blue or white, and last well as cut flowers. Foliage turns yellow in the fall.

Hardy in zones 5 to 8.

Grows 2 to 3 feet tall and wide.

Cultivar:

- 'String Theory' – a more compact variety that grows 18 to 22 inches tall and 3 feet wide. Hardy to zone 4.



*A. hubrichtii* with white flowers.  
Photo: [Cathy Dewitt CC BY 4.0](#)



*A. ciliata* in bloom.  
Photo courtesy of [Susan Strine CC BY 2.0](#)

## *Amsonia ciliata*

Phonetic spelling: am-SO-nee-uh sil-ee-ATE-uh

Common Names: Blue Star, Downy Blue Star, Downy Amsonia, Fringe Blue Star, Creeping Bluestar, Blue Milkweed, Sandhills Bluestar

Native to the southeast and west to Texas.

Distinguished from *A. tabernaemontana* by its feathery green foliage, similar to *A. hubrichtii* but with a fringe of fine hairs on new leaves giving rise to its "Downy" names. Leaves are very narrow, soft and needle-like, and 1 to 2 inches long.



Best in full sun (6 or more hours) or partial shade (2 to 6 hours of direct sun). In too much shade, foliage will require pruning or staking to remain erect and fall color will be poor.

Prefers sandy very well-drained soil. Plant will flop over in rich soil.

Blooms in spring to early summer. Blooms last well as cut flowers. Foliage turns bright yellow in the fall.

Hardy in zones 5 to 9.

Grows 2 to 3 feet tall and wide; however, some references state only 1 to 2 feet.

Cultivar:

- ‘Georgia Pancake’ – A groundcover form of *A. ciliata* that is up to 5 inches tall and 24 inches wide with tiny pale blue flowers. Has narrower, linear foliage with margins that tend to be strongly revolute (rolled downward toward the underside).

While native plants are inherently more likely to survive challenging conditions when planted in their preferred habitat, this year *Amsonia tabernaemontana* far surpassed other natives in my garden. I hope you will consider it for your garden, too.

#### References:

1. <https://youtu.be/tTNw2kvy-lw>
2. <https://www.provenwinners.com/plants/amsonia/string-theory-blue-star-amsonia-hybrid>
3. <https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c703>

# Dense Stands of Native Trees: The Pocket Forest Concept

David Rohrbach, Loudoun County Extension Master Gardener, Tree Steward

In late May, I happened to walk by the Manhattan Healing Forest, a pocket forest planted seven weeks earlier on Roosevelt Island in New York City. Local signage indicated that 1,500 native trees, shrubs, and ferns had been planted on this 4,000 square foot plot. This is an area a bit smaller than one and one-half tennis courts. The natives encompassed 47 different species including white oak (*Quercus alba*), shagbark hickory (*Carya ovata*), eastern white pine (*Pinus strobus*), beach plum (*Prunus maritima*), black cherry (*Prunus serotina*), and butternut (*Juglans cinerea*). Most strikingly, the trees and shrubs had been planted a mere 2 to 5 feet apart. The bed was then covered with a thick layer of wood chip mulch.



Manhattan Healing Forest, Roosevelt Island,  
New York City, May 2024  
Photo courtesy of David Rohrbach

I previously read about two similar pocket forests planted in the Boston area. With a little further investigation, I learned that thousands of these “mini” or “tiny” forests had been planted around the world over the past 50 years. Most seem to be still in existence.

But I was left with the question, how could these trees survive such dense planting? Wouldn't the crowding lead to unhealthy groves with narrow canopies? Or might this be a complement to the gravel bed experimentation being pursued by our VCE Loudoun County Master Gardeners?

## A Little History

The concept of the pocket forest is widely viewed to have originated with Akira Miyawaki, a Japanese botanist specializing in plant ecology. During the early 1950s, Miyawaki was mapping native vegetation in Japan. But he began to question what constitutes a true native. Shortly thereafter, Miyawaki was introduced to the concept of “potential natural vegetation” (PNV) by Reinhold Tuxen, head of the Federal Institute for Vegetation Mapping in Germany. PNV involves the identification of plants that would naturally grow in any given environment in the absence of human intervention or natural disaster. These plants are said to be indigenous to the local ecology.

Miyawaki returned to Japan and continued his mapping efforts. He concluded, however, that only 0.06 percent of contemporary Japanese forests are “indigenous” or made up of true natives. He noted that much of the vegetation commonly believed to be “native” had, in fact, been introduced into Japan over a period of hundreds of years. He then worked to identify plants, and particularly trees, that would have existed in particular environments before human habitation. He argued that these plants could provide the basis for quickly establishing ecologically sustainable climax forests. Rather than waiting hundreds of years for these forests to evolve, a new climax forest could be created in as little as 30 years.

Miyawaki went on to develop and test a method of ecological engineering aiming to restore small plots of native forest, particularly in areas with degraded soils. He argued (Miyawaki, 1999) that these forests would be easier to establish and maintain than many of the plantings commonly promoted in afforestation or reforestation projects. In addition, these could provide greater CO<sub>2</sub> (carbon dioxide) absorption and disaster prevention benefits.

In the early 1970s, Miyawaki received support from Nippon Steel Corporation to test his methods by establishing a series of native mini forests on degraded land owned by the company. Some of this land had been previously planted in failed reforestation efforts. The early success of these efforts brought support from a range of additional Japanese industries and government agencies to plant what became known as Miyawaki forests across more than 900 sites in Japan.

## **The Method**

What is now commonly known as the “Miyawaki Method” for establishing pocket forests encompasses five basic steps.

1. An initial site survey linked with the identification of “potential native vegetation”.
2. The establishment of a nursery of identified plants (if not otherwise obtainable).
3. The preparation of the soil substrate with the addition of substantial amounts of organic matter or mulch.
4. Dense planting of a diverse array of seedlings, e.g., 3 to 5 plants per square meter in temperate zones; higher in tropical zones. These include native trees and understory plants (e.g., at least one tree, one shrub, and one ground cover per square meter).
5. Maintenance of the site with timely watering and weed control for an initial 2 to 3 years. After this, the forest is expected to be self-sustaining.

See Waddington (2022) for a good description of the basic Miyawaki forest creation method.

## **Adoption**

In the late 1970s, Miyakawa received support from the Mitsubishi Corporation to test his method on the restoration of tropical rainforests in Malaysia. Over the next 20 years, this experimentation continued in collaboration with local companies, government agencies and universities in Indonesia, Thailand, Malaysia, Brazil, Chile, and China. Miyawaki ultimately led more than 3,000 planting efforts distributed across 18 countries (Sjolander, 2022). While most of these efforts supported the establishment of small mini forests at urban parks, schools, and universities, some were much larger. Perhaps the largest was an effort to re-green areas along China’s Great Wall.

In recent years, a number of small companies have sought to expand on Miyawaki’s efforts. Afforestt, an Indian company promoting the adoption of the Miyawaki method, has facilitated the planting of 118 pocket forests in India and 29 elsewhere in the world, including two in the United States (Afforestt, 2024).

The pocket forest on Roosevelt Island in Manhattan was created under the leadership of SUGi, a London-based company. According to [SUGi’s website](#), this company has supported the creation of 216 pocket forests around the world, including 16 pocket forests in the United States.

A company called [Urban Forests](#) has created almost 100 pocket forests in France and Belgium using the Miyawaki method.

## **Assessment**

A wide range of assessment criteria have been proposed (see websites of implementing agencies) to justify the existence and continuing expansion of these pocket forests. Organizations involved in establishing the forests commonly cite the numbers of forests completed, the numbers of trees planted, the number of different species planted, and the number of volunteers participating. Emphasis is placed on the fact that these are community projects meant to be maintained by the local community through volunteer labor. Many assessments also highlight a learning mission – especially teaching city children about tree planting, biodiversity, and nature.

The implementing agencies also commonly refer to the rapid growth rates of the trees in these pocket forests with estimates ranging from 3 to 7 feet per year over the initial three years of forest establishment. The company literature is filled with before and after pictures, with the “before” scenarios showing empty ground, and the “after” scenarios displaying dense stands of trees.

Practitioners also commonly cite the value of an array of more generic gains associated with the establishment of forests in populated settings. These include the reduction in ambient temperatures, improved air quality, noise reduction, improved community health and well-being, biodiversity, soil stability, and carbon sequestration (e.g., Manuel, 2020). Most such claims seem to be drawn from a wider expanse of literature on the value of tree production.

The continuing existence of pocket forests offers one practical measure of success. The literature suggests that most of the forests planted over the last 50 years remain in existence.

What about the potential problem of tree density? Available measures of tree survival rates are commonly high. For example, SUGi publishes an annual impacts report (e.g., SUGi, 2024) citing mean survival rates of 87 percent. However, clues in the literature suggest that much depends on the timing of this calculation. A few observers argue (e.g., Manuel, 2020) that pocket forests are not expected to retain trees at the level of their planting density. Rather, the trees compete with one another as happens in the wild, with the strongest sub-set of plants dominating the forest. This may reduce survival rates to less than one-half of the planted stock.

A main gap in the literature is the lack of longitudinal studies highlighting how these pocket forests truly evolve over a 10- to 30-year period. The Miyawaki method is said to aim for establishing stable “climax” forests of “indigenous” plants within a few decades. But the data confirming this are difficult to find.

Finally, some sources (e.g., Waddington, 2022) highlight the fact that these pocket forests are relatively expensive to create. While volunteer labor is commonly used to plant the trees and maintain (water and weed) the forest through its initial 2 to 3 years, the establishment of these forests requires significant expertise for the initial site evaluation, the selection of trees, and sometimes the production of the initial seedlings. In addition, the preparation of the planting beds can require large investments in topsoil and mulch. However, these investments are expected to end within 2 to 3 years, when the forest becomes self-sustaining.

## Where to See a Pocket Forest in the United States

The examples of SUGi's pocket forests closest to Loudoun County are found 1) on Roosevelt Island in Manhattan, New York; 2) in Cambridge, Massachusetts planted on a former landfill in September 2021; and 3) in Boston, Massachusetts planted on the grounds of an inner-city high school in October 2023. More specific location data are available on the SUGi website (<https://www.sugiproject.com/forests>).

The [Afforestt](#) website identifies 4) a pocket forest site in Seneca, South Carolina and 5) another in western Missouri, both planted in 2015.

### References:

1. Afforestt. 2024. <https://www.afforestt.com/>.
2. Alexander, G. 2023. Is the Miyawaki Method the Answer to Deforestation? <https://earth911.com/living-well-being/is-the-miyawaki-method-the-answer-to-deforestation/>.
3. Giseburt, A. 2023. Miyawaki Forests are a Global Sensation, but Not Everyone's Sold on Them. <https://news.mongabay.com/2023/06/miyawaki-forests-are-a-global-sensation-but-not-everyones-sold-on-them/#:~:text=Over%20the%20past%20decade%2C%20the,%E2%80%9Cnative%2C%20natural%20forests.%E2%80%9D>.
4. Manuel, C. 2020. <https://urban-forests.com/wp-content/uploads/2020/05/Urban-Forests-report-The-Miyawaki-method-%E2%80%93-Data-concepts.pdf>.
5. Sjolander, S (2022). Laying Fast Tracks Toward Climax Forests. <https://extension.psu.edu/laying-fast-tracks-toward-climax-forests>.
6. SUGi, 2024. Impact Report, 2023. <https://cdn.sanity.io/files/oyzyxa8/v2/a7715a2c920694b98393a172df93316770fea349.pdf>.
7. Waddington, E. (2022). The Miyawaki Forest Creation Method. <https://earth.fm/earth-stories/the-miyawaki-forest-creation-method-step-by-step/>.

# Come Along on My Road Trip Through Maine

Pamela McGraw, Loudoun County Extension Master Gardener

Come with me on my road trip through Maine amidst beautiful venues of the Atlantic Ocean as we made our way up the coast and through an abundance of small towns (Salem, Kennebunkport, Falmouth, Kittery, Portsmouth, Rockport, and Gloucester).

First, a most lovely public park (Prescott) in Portsmouth. I could have strolled around for several hours, except that the next “adventure” awaited—and three restless males! The framework of this tree was undeniably spectacular, woven by time and a very careful eye.

With the challenging temps we’ve had this summer, I had almost forgotten how a cool breeze refreshes and lush plants look. No overlooking them in this garden. Featured here were Sun Coleus and Dragon Wing Begonias at their peak and closely planted.

Generous borders and an ample mix of native plants, such as the Joe Pye Weed in the foreground and Black-eyed Susans in the left curve, filled out the beds beautifully.

The head gardener just happened to be working and gave me his secret; yes, of course, it’s compost. Every spring they truck in a sufficient amount to cover all the beds with 4 inches of compost (and “not the bagged kind!” he emphatically stated).

They also employ a group of 4 to 5 people with varying intellectual disabilities, one of whom was deadheading like a machine. I was fascinated to watch him! Maybe I can pick up his technique which he called “enjoyable and calming.”



Tree with Sun Coleus and Dragon Wing Begonias  
Photos courtesy of Pamela McGraw



Native plant bed with Joe Pye Weed and Black-eyed Susans



Anemones, Cleome, and Gomphrena

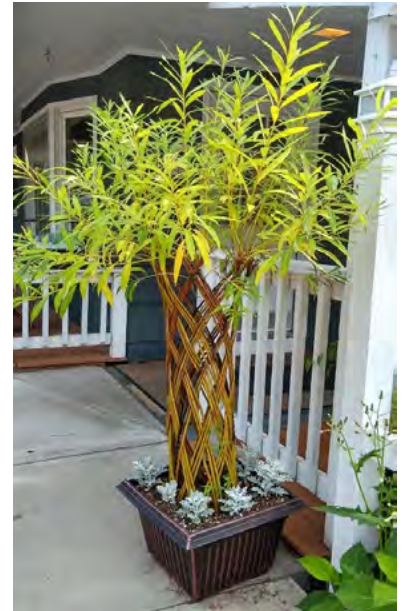


Black-eyed Susans and Red Geraniums

Anemones and Cleome (a common annual in our area) join forces and overshadow the Gomphrena in the lower right corner, but nevertheless co-exist nicely.

Now this is how Bamboo should be grown: captive, never to leave its pot! But I did admire the twisted trunk so delicately woven over time and, no doubt, with great patience; taken in Kittery. And, yes, those are the stems—I checked it out personally!

I do believe these were rose hips on a Carolina Rose, a native to our area, which basks here in full sun and can reach 6 feet in height and 10 feet in width, so this lovely specimen is well on its way to reaching its goal! It is a favorite of bees, butterflies, and, of course, birds. A quick look and one might mistake the “fruit” for a small cherry tomato (Peaks Island).



Bamboo



Carolina Rose Hips

And then there was the lovely Summersweet (*Clethra 'Rosea'*), a deciduous shrub, native to our area, that grows 3 to 8 feet in height and 4 to 6 feet in width. It grows in full sun to part shade and features these stunning blooms in July and August. We should all have one of these!

And last but far from least was Acadia National Park. Photos do not do it justice, so add this national park to your bucket list!

On a hike, one of the strangest sights was in the photo below, which I have no explanation for! I thought initially it could be a gall, but it's unlikely. Maybe you can share with me what has happened here.

The last photo shows the actual foliage on the tree, which did not appear stressed in the least. Mmm, I do wonder.



Summersweet (*Clethra 'Rosea'*)



Tree with deformities, trunk and branches



# Whiskey Barrels 101 Redux

Lina Burton, Loudoun County Extension Master Gardener

Some of us have had the sad experience of creating a beautiful whiskey barrel garden only to have the barrel rot away at the bottom and eventually fall apart after only a few years. While no whiskey barrel garden will last forever—they are made of wood, after all—we can construct our gardens so that they last longer, at least

ten years, and are easier to use. It's not hard or time-consuming, but it's a job you'll want to do in cool weather, not in the heat of summer. October, November, March, and April are ideal, weatherwise.



This barrel, with pond liner and plant dolly with six wheels, has been in place for eleven years and is still in good shape. Photo courtesy of Lina Burton one barrel is now missing.

In 2013, I combined wooden whiskey barrels, plastic pond liners, heavy duty plant dollies, and planting medium to create barrels that are not exposed to damp soil, contain moisture efficiently but also drain well, and are easily movable. I put them on a sunny, unused sidewalk on the west side of our house where they were totally unprotected from the elements, year after year.

How have they held up? It's been 11 years, and of the four barrels I created in 2013, three are still solid. One has deteriorated (although it's not visible now that plants are spilling over its sides) and at the end of this growing season I'll dismantle it and discard its contents. The other three will probably be good for at least another year or two. Since the barrels are on plant dollies, I'll push the remaining barrels into a new configuration to hide the fact that

## For the whiskey barrel:

Whiskey barrels (or rather, half barrels) are widely available at many garden centers. They come in a fairly standard size, generally 16 inches tall by 26 inches wide at the top. Look around until you find one you like—some of them may be extremely discolored or even in poor physical condition. Hoops should be securely attached to the barrel, and staves should be tight, not loose. When I made my barrel gardens, I looked at three garden centers before I found four barrels that all had the same basic color tones and were in good condition. Since they were going to be very close together, this was important to me.

Occasionally, you may find barrels with holes already drilled in the bottom. You'll still need to drill more holes. The goal is to drill eight ½-inch holes evenly spaced around the bottom of the barrel to provide good drainage.

## For the liner:

Pond liners come in one color: black and are widely available at many nurseries or garden centers and at least one big-box store. They are made from UV-resistant polyethylene (plastic). The liners nest inside the whiskey barrel with the lip covering the edge of the barrel and protect the wood from contact with wet soil. Since liners are generally used for growing water lilies,



Pond liners protect the wooden barrel from damp soil. Be sure to drill holes in the bottom for good drainage. Photo: [MacCourt Products Inc.](#)



Pond liners fit nicely inside whiskey barrels.

Photo: [www.KentuckyBarrels.com](http://www.KentuckyBarrels.com)

they naturally don't have drainage holes in the bottoms, so you'll have to drill them. It takes only a minute to do. Be sure to drill plenty of holes for good drainage; I find that eight holes, ½-inch in diameter, evenly spaced do the trick. During a rainy spell, they will be needed. Your liner may not fit perfectly, but it should be a reasonably good fit. The main points are to keep damp soil away from the wood and prevent the wood from leaching moisture from the soil during dry weather.

### For the base:

Years ago, when I made my first whiskey barrel planters, I bought casters at the hardware store and attached them directly to the bottoms of the wooden barrels, then filled the barrels up with soil, without using a liner.

Bad idea! The wood deteriorated after only a few years, the staves loosened and started to fall off, the bottoms rotted, and the barrels ended up resting on the sidewalk, with the casters inside the barrels. It was impossible to move them; they were a mess. In 2013, I did it differently—I put the barrels on heavy plastic dollies, and it worked out perfectly.

Ideally, the dolly should be heavy, solid plastic, 24 inches in diameter, with shallow (about one inch) sides to prevent the barrel from slipping from the dolly. It should have six rubber (not plastic) wheels with steel ball bearings—they roll easily and the barrel won't tip over. With a planter of the size and weight of a whiskey barrel, it's important to have that sixth wheel in the center to help support the weight of the barrel, soil, and plants. With this configuration, the 24-inch size will generally hold up to 500 pounds, which is more than adequate for your whiskey barrel garden.



Heavy duty plant dollies enable you to move the barrel easily.

Photo: [www.KentuckyBarrels.com](http://www.KentuckyBarrels.com)

Generally, dollies are available in either clay-pot red or brown. At least one big-box store does have dollies available in stock in this size, and some garden centers may as well.

Over the past eleven years, my brown dollies have gradually faded and now are a very pale, unobtrusive tan. My favorite style doesn't have drainage holes, but it was easy to drill half a dozen ½-inch holes in the dolly to prevent standing water (a sure way to attract a family of mosquitoes) and cause the barrel bottoms to rot. The dollies roll easily on our aggregate sidewalk and they undoubtedly would roll even more easily on a deck or porch. You may not think portability is important, but these planters are **really heavy**. Whiskey barrels alone weigh 45 pounds or more; add wet soil and plants and they become impossible to move if you change your mind about placement.

### Finishing off:

With whiskey barrel, liner, and dolly all in place, it's time to cover the drainage holes and fill the barrel with your favorite potting soil, and each barrel will take a lot. I didn't measure how much I used, but on-line references say about 20 gallons per barrel. I like to use paper coffee filters over drainage holes to prevent soil from washing out. It's helpful to dampen the filters before you start to add soil; they'll stick to the liner

better and won't be as easy to displace as soil is dumped on top of them.

Some people recommend putting Styrofoam packing peanuts or other filler in the bottom of the barrels, but I prefer to use growing medium all the way to the bottom for two reasons. First, some of the roots of plants in the barrel may be very deep and need that soil and, second, when you do dismantle the barrel 10 to 12 years down the road, you don't want to have to kneel on the ground picking Styrofoam peanuts or other debris out of the soil before you use it elsewhere in your yard or garden.

After filling, I like to let the barrel rest for a few days to let the soil settle before I plant. Sometimes it does and I have to add a little more soil.

And now the fun begins—planting time! And perhaps time to experiment with new ideas. We're all familiar with barrels brimming with annuals such as petunias and herbs, and they're a natural for this environment. But perennials? Vegetables? Even trees? We don't think of them as often, but they are definitely a good possibility. For some ideas, search images using the search terms "perennials in containers," "vegetables in containers," and "trees in containers" for inspiration.



This barrel full of calla lilies, liatris, and petunias is magnificent. Photo: [perennialpassion.blogspot.com](http://perennialpassion.blogspot.com)

# Migrating Butterflies in Northern Virginia

Heather Swanson, Loudoun County Extension Master Gardener

Virginia is home to 54 species of butterfly, making it one of the top four states in the United States in which to find them. The various species have a wide variety of host plants and nectar sources. Some do not obtain nectar from flowers at all. All butterflies have a 4-stage life cycle (with three of those stages looking nothing like a butterfly): egg, caterpillar, chrysalis, and adult butterfly. Different species have vastly different lifespans and experience the stages of their lifecycle at different times and in different ways. For some species, how and where they overwinter is unknown.

We all know how monarchs migrate to Mexico and then return the next year. We also know how their numbers are rapidly declining due to loss of habitat and pesticides. But other butterflies native to Northern Virginia also fly to warmer places for the winter. Here are five butterflies that are native to Virginia that migrate, including two that also make the journey to Mexico.

## Red Admiral

The Red Admiral is the most widespread butterfly in Virginia. Look for this butterfly near the edge of forests in moist habitats. Its host plants are nettles and hops. It likes to obtain nectar from rotting fruit, sap, carrion, and dung.

The Red Admiral flies south toward warmer climates in winter, and then moves north again in late spring, when food is more plentiful.



Red Admiral butterfly

Article photos: [Bird Watching HQ Blog](#)

## Painted Ladies



Painted Lady butterfly

This butterfly is rated “uncommon” in Virginia. It prefers thistle as its host plant and obtains nectar from many native flowers. Painted Ladies migrate south to Mexico over winter and return in the spring. Because of the perils of this migration, the population of Painted Lady butterflies can be drastically different from year to year. It’s common for them not to be seen for years in a row in some places, then suddenly show up in more significant numbers.

The Painted Lady is the only butterfly that mates year-round. Because of its constant migration pattern, it spends its entire life in areas that are suitable for its eggs to hatch.

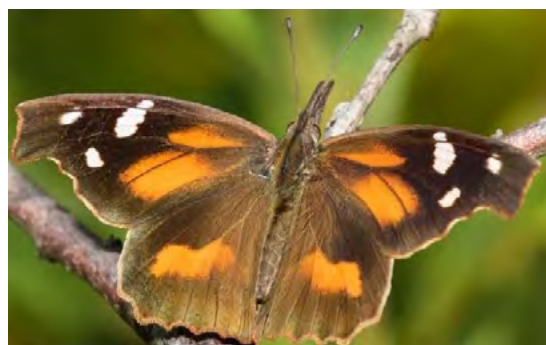
## Common Buckeye

Common Buckeyes are abundant in Virginia. They prefer open spaces like pastures, old fields, and roadsides in Virginia. Its host plants are in the snapdragon family, vervain, and plantain. Their favorite nectar sources are aster,



Common Buckeye butterfly

chicory, sunflower, and dogbane. Common Buckeyes in Northern Virginia migrate south for the winter and return in the spring for mating. These northern individuals can produce two to four generations each season!



American Snout butterfly

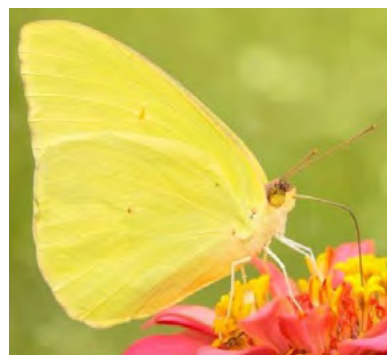
### American Snout

This species' long, beak-like “snout” is used as camouflage, making the butterfly look more leaflike. The American Snout is the only species in Virginia with this feature. This species is not commonly seen, due in part to its excellent camouflage as a dead leaf. Its host plant is the hackberry tree, and it obtains nectar from aster, dogwood, sweet pepperbush, dogbane, and goldenrod. The American Snout flies south, mainly to Texas, and overwinters as an adult, returning to Virginia in June.

### Cloudless Sulphur

This butterfly is rare in Northern Virginia and makes its appearance in late August and September. Its host plants are Senna and other members of the pea family. It likes to obtain nectar from tubular flowers such as the cardinal flower and lantana. Later in the fall, these butterflies form a massive migration to Florida for the winter.

The annual butterfly count, sponsored by the Loudoun Wildlife Conservancy, is held in early August to capture the highest number of butterflies. This year's count was the lowest yet. Severe drought was a big factor this year in the Loudoun County count. The drought caused nectar-rich flowers to go to seed or die earlier than usual. This additional stressor added to climate change, habitat loss, and pesticide spraying including herbicide spraying along power line right of ways contributed to a plummet in the butterfly population.



Cloudless Sulphur butterfly

Avoid pesticides because they can kill all insects indiscriminately, including butterflies. Avoid spraying any insecticides in your yard, including those that are supposedly targeting mosquitoes. They too can kill all insects within the area sprayed.

Avoid pre-treated plants and keep in mind that not all pesticides are sprays. Neonicotinoids are a class of systemic insecticides. That means that when treated, a plant absorbs the insecticide into all of its tissues—including the nectar—making it toxic to any insect that feeds on it. Before plants are purchased, ask your local nursery if the plants have been treated with neonicotinoids.

We can help all butterflies—those who migrate and the vast majority who stay right here—by planting native plants to serve as host and nectar plants. We all know that. But what about protecting the vast majority of butterflies who overwinter right here when they are at their most vulnerable and least visible? Butterflies overwinter here in Northern Virginia in all four stages of the life cycle. Some as eggs, others as caterpillars and chrysalises, and some as adult butterflies. All of these stages depend on dead plant stems, leaves, tree bark, brush piles, wood piles, etc. We need to be mindful of how we clean up our property in the fall and how we treat the all-important leaves. Please heed the message in the “Stems Up; Leaves Down” article.

## Sources:

1. Field Guide to the Butterflies of Loudoun County, Nicole Hamilton, Loudoun Wildlife Conservancy, July, 2012.
2. [41 Common Butterflies Found in Virginia! \(ID Guide\) - Bird Watching HQ](#)
3. An Introduction to Virginia's Butterflies, Virginia Department of Wildlife Resources, <https://dwr.virginia.gov/blog/an-introduction-to-virginias-butterflies/>



Virginia Cooperative Extension is a partnership of Virginia Tech, Virginia State University, the U.S. Department of Agriculture, and local governments. Its programs and employment are open to all, regardless of age, color, disability, sex (including pregnancy), gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, military status, or any other basis protected by law.

If you are a person with a disability and desire assistance or accommodation, please notify the Loudoun Extension office at 703-777-0373/TDD\* during business hours of 8:30 a.m. and 5:00 p.m. \*TDD number is (800) 828-1120.