February 2022-Vol.8, No.2

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February in the Edible Garden

By Ralph Morini | February 2022-Vol.8, No.2

For edible gardeners who grow spring vegetables and fruit growers who need to prune before new growth starts, February is the month to kick off the season. The lengthening days and typically warming temperatures urge us to get things moving. Here is a suggested to-do list.

Planning

It makes sense to start with a plan:

- Decide what you want to grow, review best times to grow it, and where you want to place it in the garden. Crop rotation on a 3-year cycle is best for soil and helps minimize soil pest and disease issues.
- In Virginia we have options for spring, summer and fall plantings and harvests. Review VA Cooperative Extension's *Virginia's Home Garden Vegetable Planting Guide* to see best times to plant and harvest many popular crops.
- Start a journal that records what you grow, where you grow it, when you plant and harvest it. Also track any problems that arise to guide decisions next year.

Growing from Seed

Simple indoor seed starting setup. Photo: R Morini

Starting plants from seed is less expensive, offers more choices and gives gardeners the ability to control conditions and timing of transplanting. It also gets our hands in the soil earlier than purchasing transplants from garden centers.

- If you plan to start plants from seed, it's time to acquire seed for spring crops. There are plenty of on-line catalogs to choose from. Put some thought into varieties to grow, working to balance the appeal of heirlooms with the disease and pest resistance benefits of new hybrids.
- If you plan to use seeds from last year, check their viability, as recommended in the January 2019 Garden Shed article *Good Seeds, Bad Seeds*.
- Folks who are new to indoor seed starting can find good advice on everything from equipment to soil to timing from the Garden Shed article Starting Seeds Indoors.

Crops that can be started in early February for transplanting in mid-March include broccoli, cabbage, cauliflower, kale/collards and head lettuce. When these are moved outside, they can be replaced indoors with warm weather vegetables like tomatoes and peppers for transplanting in late April/early May.

Optimum time from germination to transplanting varies somewhat by crop, with 6 weeks being a general guide. Waiting too long leads to leggy plants that may not be as hardy when moved outside.

Light is important. Natural light requires a south facing window or solarium. Artificial light can work with either a grow light or a two-bulb fluorescent fixture that has one cool and one warm bulb. The internet is loaded with options for non-DIYers.

Most plants prefer a temperature of 65-75°F. If the growing area is cooler than this, a heating mat is a good idea for both germination and seedling growth.

Containers can be anything from purchased or homemade flats to vegetable cans to yogurt containers. It is essential that they have drainage holes. Space seeds in flats according to the package directions, and thin

overly dense seedlings soon after germination.

Be sure to use a fresh potting mix and follow fertilization guidance on the package. We recommend using non-peat based potting soils to reduce negative environmental impacts. See the Garden Shed article *Should we Stop Using Peat?* for guidance.

If you reuse pots or trays from last year, clean and disinfect them with a 10% bleach solution to minimize disease risks.

Plant seeds at a depth of 2-3 times their diameter (not length). Moisten thoroughly after planting. Keep moist, not soaked. If the seed dries out, it won't germinate. Too wet invites fungus and damping off.

To help maintain soil moisture while waiting for germination, cover pots or flats with clear plastic wrap or other clear cover. Keep soil below the top of the flat or container so that any cover is an inch above the soil. Remove cover immediately after germination.

Getting a Jump on Weed Control

If you are starting a new outdoor bed or want to minimize weed issues early in the growing season, consider solarization or occultation. These methods involve using clear or black tarps respectively to smother weeds prior to planting, as a replacement for tilling, manual removal or herbicide use.

Garden bed occultation. Photo: R Morini

The first step is to cut all growing vegetation in the garden bed as close to the ground as possible. Moisten the ground well. Then cover beds with plastic sheeting or tarps, well secured around the edges with bricks, stones, boards or soil. Clear tarps heat the soil a bit more while black tarps keep light out. Heat and moisture will cause weed seeds to germinate. The continuing heat then kills the vegetation. Leave the tarps in place for 4-6weeks, then remove them, rake off dead vegetation and rake the surface smooth to be ready to plant.

A thorough description of the these processes is offered in the article Using the Sun to Kill Weeds and Prepare Garden Plots from the University of Minnesota Extension.

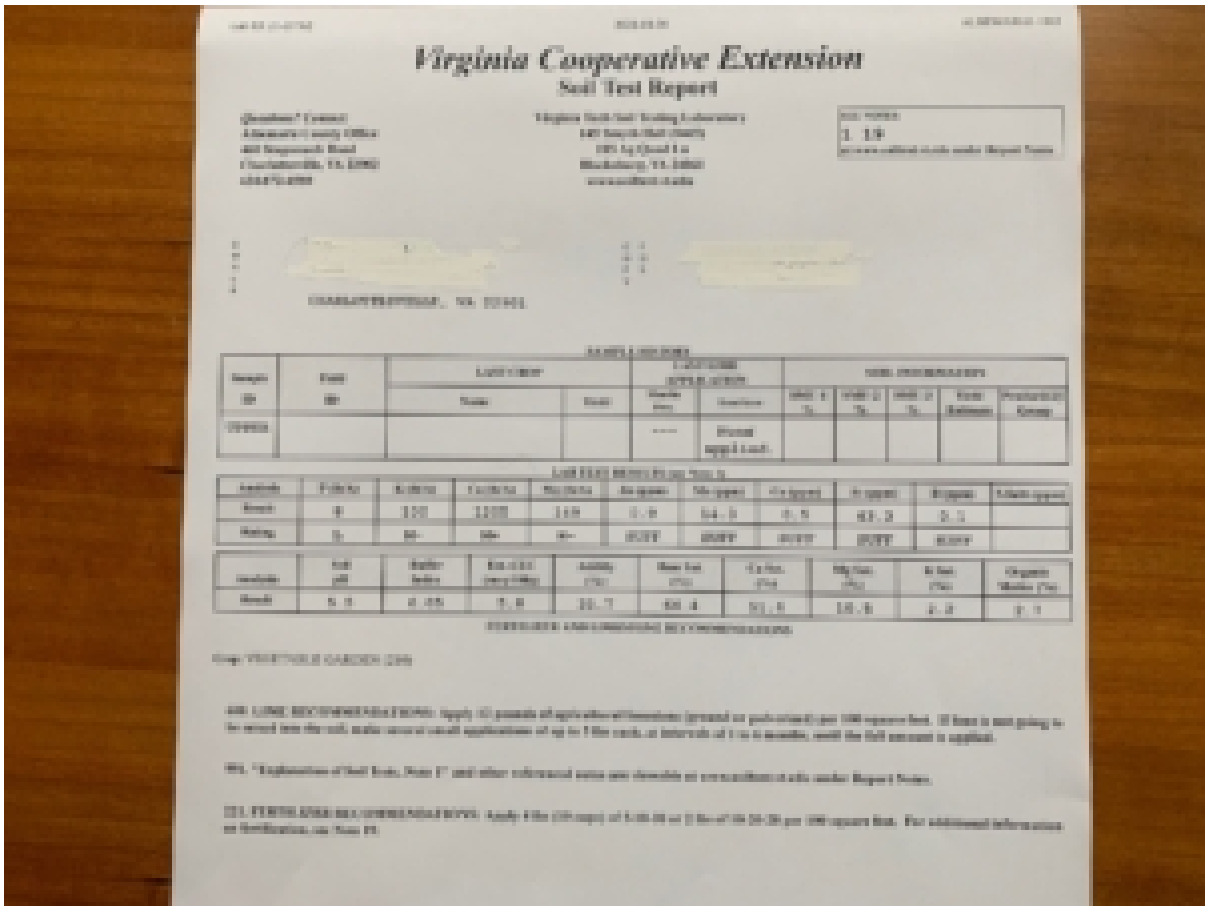
Fruit Grower Tasks

Small fruit growers should generally prune canes, bushes, or vines late in the winter, just before new growth starts. Pruning can be done to remove dead, weak, diseased, and damaged plant parts, thin centers for light penetration and air circulation, and to train grape vines and cane hedges. Detailed guidance for selection and care of blackberries, raspberries, strawberries, blueberries, and grapes is available in the VCE publication Small Fruit in the Home Garden.

Fruit trees are also best pruned just prior to starting spring growth; pruning helps to build a strong frame while encouraging light penetration and air movement. Specific help with selection and care of various fruit trees is given in the VCE publication Tree Fruit in the Home Garden.

A broader-based article on good pruning practice is available in the Garden Shed article A Pruning Primer: Tools, Techniques and Timing.

Soil Test


Virginia Cooperative Extension
Soil Test Report

Typical soil test result summary. Photo R Morini

If the garden is due for a soil test (we recommend about every three years), now is a good time to do it. Healthy soils that provide the right amount of macro and micro nutrients yield larger harvests from healthier plants with less effort from the gardener. The process is summarized in the VCE publication Soil Sampling for the Home Gardener. Sampling kits are available at the local extension office. In Charlottesville/Albemarle the office is located at 460 Stagecoach Rd, Charlottesville. Phone is 434-872-4580.

Spring is Coming

It is time to launch the 2022 gardening year. The garden can be a place where the noise of the world goes away and we reconnect with mother earth. It is that way for me, and I hope it is a place of enjoyment and learning for you, too. See you next month at The Garden Shed.

It’s All About the Soil

By Ralph Morini | February 2022-Vol.8, No.2

Regenerative farming is a movement aimed at changing farming practices to repair the environmental damage done by chemical-based agriculture over the past 100 plus years. Going beyond the *stop the harm* strategy of sustainability, it advocates rebuilding environmental health by focusing on building soil health naturally. Practitioners claim success in both crop production and environmental impact. It is based on a few basic principles and practices that are readily adaptable to home gardening.

Principles and Practices

At its core, regenerative growers work to improve soil health by:

- Keeping the soil covered
- Minimizing soil disturbance
- Maximizing living roots in the soil
- Building diversity, above and below ground.

The specific means to these ends are:

- **Minimize tillage**. While tillage temporarily fluffs up soil and offers short term weed control, it breaks up soil aggregates and beneficial fungal communities, reducing soil life and ultimately leading to compaction and increased runoff. It also mixes oxygen into the soil, leading to higher CO2 emissions. While deep tilling may be beneficial to break up hard pan or mix organic matter into new beds, continued tilling does more harm than good.
- **Utilize cover crops, crop rotation, composts, and manures** to restore soil microbes while providing the organic matter that the microbes cycle into essential plant nutrients. This is counter to the use of synthetic fertilizers that disrupt the natural cycles, create a chemical

dependency for needed nutrients and pest control, and ultimately weaken soils.
- **Build ecosystem diversity**, below and above ground, by regular organic matter additions, keeping live plants in the soil full time, intensively planting mixed crops, including cover crops and pollinator plants in and around the growing areas.
- **Managed grazing,** which can stimulate plant growth and increase soil fertility by increasing carbon-based nutrients in the soil, as well as through the manures that animals leave behind. For home gardeners without grazing animals, regularly adding organic matter is an appropriate substitute practice.

Let's look at how home gardeners can implement regenerative practices.

Minimum Tillage

Not tilling can seem counterintuitive to those of us who grew up tilling. No-till benefits are proven however, so let's figure out how to handle the weeds and compaction that can be problems if we don't till.

First, the exception. For new beds or where ground is seriously compacted, it may make sense to do an initial till to break it up. Be sure to work in organic matter like finished compost or composted leaves to gain some soil building benefit.

Sheet mulched garden plot with organic materials over paper base and compacted clay soil.
Cultivate Charlottesville CATEC Garden. Photo R Morini

An alternative for new beds is to use sheet mulching. This typically means covering the bed area with newspaper or corrugated paperboard and building a thick layer of organic materials on top, letting it decompose for a few months before planting directly into the composted materials. The video *Sheet Mulching: Lawn to Garden in 3 Steps* from the Penn State Extension shows how to do it.

In future plantings, minimize soil disturbance. Surface weeds can be removed mechanically, with a hoe and rake. Or use solarization or occultation with plastic tarps, the hot sun and a few weeks time to kill surface weeds, seeds and pathogens. After removing tarps, with minor surface prep, transplants can then be planted

directly. For seed beds, shallow raking or use of a *tilther* (a light-weight tiller that only tills the top two inches or so of soil) can prepare a smooth, welcoming seed surface by loosening only the top couple of inches of soil. The article Reducing Tillage in Your Garden from the University of Minnesota Extension provides good guidance.

A broadfork at work, from the video, "The broadfork – Jean-Martin Fortier – The Market Gardener's Toolkit,"

To reduce compaction, drive a broadfork or sturdy digging fork into the ground, inserting it as deeply as possible and rock it back and forth. The effect is to loosen the soil without destroying structure. Work your way across the garden area. Converting from row planting to wider beds accessed from from permanent paths, reduces unnecessary compaction as well as the size of the area needing to be worked.

Adding compost to the soil surface after weed removal and before broadforking is a good way to get organic matter into the top few inches, making it available for soil organisms to go deeper over time.

Plant Diverse Crops Intensively

There are a lot of elements to this point:

- **Wide beds**, rather than rows, allow close planting in two dimensions. **Crop spacings** should be such that at maturity, plants will just touch, so they don't crowd, yet cover the soil. Find guidance on plant spacing in the publication Planning an Intensive Garden from the University of California Extension.
- **Companion planting**, which means planting different plant families together, is a good way to add diversity and potentially to get some benefit from pest reduction by repelling or confusing pests. There is a lot of questionable information about good companions, but the article Trap Crops, Intercropping and Companion Planting from the University of Tennessee Extension has a good discussion of principles. The article Cool Season Planting for Companion, Interplanting and Square Foot Gardening from Washington State University provides a chart for cool season

vegetable companions.

- **Crop rotation**, i.e., not placing plants in the same family in the same garden location more than once every three years, helps disrupt pest and disease carryover.

Keep the Soil Covered

Keeping soil covered at all times is a key principle in regenerating soil health. Moderating temperature and moisture variation, minimizing carbon loss, and reducing runoff and erosion are all important benefits.

Diverse winter cover crop growing through winter-killed buckwheat. Photo: R Morini

Cover crops are the recommended option during times when a regular crop isn't growing. While they can be used any time a crop is not planted, or even alongside row crops, winter is a prime time. Planting is typically done in late summer/early fall to give the cover crop time to establish. Winter-kill crops, like buckwheat, grow until hard frost, then die. In spring their residue can be used as mulch; alternatively, it can be collected and composted to be added back later. Winter hardy cover crops will go dormant but survive winter and resume growth in spring, to be cut just prior to going to seed. Cutting them flush to the ground with a flail mower or string trimmer, allows the vegetation to be used as a mulch, composted, or tilled in as a green manure, as long as planting can be delayed for a few weeks to allow for decomposition. If cutting is done after flowering but before seed formation, root energy is largely exhausted and root and stem will die. Residue can be left as mulch and transplants inserted into it, or stalk remnants can be removed as described above.

The benefits of cover crops are many. In addition to protecting the soil, the plants and roots provide organic matter, and carbon residues are deposited in the soil from photosynthesis. Diverse plantings provide diverse

benefits. Legumes, like clovers, peas, and beans fix nitrogen in the soil. Forage radishes penetrate the soil, reducing compaction, plus their roots add organic matter after cutting. Various grasses and grains add organic root mass and carbon-based photosynthetic compounds while helping crowd out weeds. Cover crops require some work, but bring many benefits and are considered essential by regenerative farmers.

Mulches are the second best way to protect soils between crops. They help stabilize soil moisture and moderate temperature variation while reducing erosion and runoff and providing valuable organic matter. Compost, mulched leaves, straw, aged wood chips, and sawdust are all good mulches.

Some regenerative farmers advocate leaving chopped up crop residue on the soil as a mulch or "armor" to protect the soil between crops. As home gardeners, we typically don't have the equipment to do the chopping efficiently, and in my view at least, the risk of leaving pest or disease remnants in place argues for removing crop residues and replacing them with clean mulch.

Minimum Chemical Use

Regenerative farming isn't necessarily organic. But utilizing natural practices and creating diverse ecologies is fundamental to the movement. This means working to minimize use of synthetic fertilizers and pesticides.

Integrated Pest Management (IPM) is an ecologically based process for treating pests as sustainably as possible. It specifies:

- Regular observation
- Early recognition of pest and disease issues
- Accurate identification of the problem
- Investigating alternative ways to treat the problem
- Accepting low level damage, taking action when problems progress to unacceptable levels
- Treating with the least toxic means first:
    - Preventive cultural practices
    - Mechanical methods
    - Bio-control methods like building beneficial insect populations
    - Chemicals, preferably organic, as a last resort.

The article Integrated Pest Management in the May 2020 Garden Shed explains it.

No doubt, adhering to IPM principles takes more time than simply reaching for a pesticide. But, given the damage that excessive chemical use has caused, to both environmental and human health, there is a compelling argument for this practical approach.

Pollinator plantings around the garden perimeter improve pollination and pest control. Photo: R Morini

Pollinator plantings add beauty and diversity to a landscape while helping build a beneficial insect population that supports reduced chemical use. They can include trees, shrubs, and perennials. Native plants are preferred since they provide food and habitat for more native insects than do non-native plants. They can be inter-mixed with food crops, established as borders, or worked into the landscape wherever appropriate. Diversity is key, and the goal is to have blooms from early spring through late fall to maximize benefits to pollinators and the garden. *The Garden Shed* article Plant a Pollinator Paradise provides helpful guidance. The Virginia Native Plant Society and Xerces Society offer resources to support building native habitats.

It's Important

It's hard to deny the environmental damage we have done over the last hundred-plus years. At the same time, it may be hard to see how we as individual home gardeners can have a measurable impact on improving things. Beyond our home gardens, the fact is that widespread change in public commitment and consumer demand is likely essential to drive a change in commercial agricultural practices. But applying regenerative agricultural practices gives us a way to help. And besides, it can improve both our garden production and our health. Why not give it a try?

Sources:

Feature photo: "Healthy Soil Maximizes Moisture, Boosts Profits for Oregon Farmer" by NRCS Oregon is licensed under CC BY-ND 2.0

"Intensive Gardening: More from less (space)," University of Missouri

Extension: https://ipm.missouri.edu/MEG/2018/4/intensive_gardening/

“Using the Sun to Kill Weeds and Prepare Garden Plots,” University of Minnesota Extension, https://extension.umn.edu/planting-and-growing-guides/solarization-occultation

“Trap Crops, Intercropping and Companion Planting,” University of Tennessee Extension, https://extension.tennessee.edu/publications/documents/w235-f.pdf

Xerces society: https://xerces.org/publications

Virginia Native Plant Society: https://vnps.org/#

C. Colston Burrell: Gardening for Beauty and Ecology

By Susan Martin | February 2022-Vol.8, No.2

Although Charlottesville and its surrounds proudly claim Cole Burrell as a local talent, he truly is known the world-over. He is an acclaimed lecturer, garden designer, photographer, and writer. The author of 12 gardening books, Cole has twice won the American Horticulture Society Book Award. He has been at the forefront of gardening with native plants from the very start of his career in the 1970s. Included on the list of his publications are *A Gardener's Encyclopedia of Wildflowers* (1997) and *Native Alternatives to Invasive Plants* (2006). Cole is principal of Native Landscape Design and Restoration and leads garden tours in the U.S. and abroad through Garden and Nature Tours with C. Colston Burrell. Many of us have had the opportunity to tour his 10-acre Albemarle County garden, Bird Hill. The garden is a magical demonstration of his lifelong devotion to landscape design that pairs beauty with ecological benefit. This interview is of compelling interest at a time when so many gardeners are learning about the benefits of using native plants and designing home gardens as home ecosystems.

YOU HAVE BEEN STUDYING AND WORKING WITH NATIVE PLANTS THROUGHOUT YOUR CAREER. IN FACT, YOU WERE A FOUNDING MEMBER OF THE VIRGINIA NATIVE PLANT SOCIETY. WHAT ARE SOME OF THE CHANGES YOU'VE SEEN?

The **definition of native has changed over the last 40 years.** You can talk about a plant being native to the East, West, or Midwest. A plant can be native to your state or your county. In fact, some believe a plant should be from no more than 50 miles down the road. The definition of native is complex, and I think it also depends on what we're trying to achieve. The distribution of some native plants is huge, covering an area east of the Rockies. Others are restricted to very specific conditions in just a few localities. As climate warmed and glaciers retreated further north about 4,000-6,000 years ago, plants moved back to northern regions and plant communities reestablished themselves, so that what we define as native today is new in geologic time. **A more recent definition of native recognizes** that native plants don't occur in a vacuum; **they have a context within an ecosystem.** We can use Virginia sweetspire (*Itea virginica)* as an example. It is native to only one of the four major bioregions in Virginia. It is not native to the Piedmont region, but it is a beautiful and useful landscape plant. **In the wild, Itea grows in swamps and other wetland environments, and is mostly restricted to the coastal plain.** If we think of the narrowest definition of gardening with native plants, we would be mindful of this niche environment when we plant Itea. **But most of us define native more broadly as we choose plants for our gardens here in the Piedmont.**

Virginia Sweetspire (Itea virginica) in a cypress swamp Photo: C. Colston Burrell

Virginia sweetspire (Itea virginica) in a garden. Photo courtesy of Missouri Botanical Garden PlantFinder.

IS IT HELPFUL TO LABEL NURSERY PLANTS AS "NATIVE TO VIRGINIA"?

I applaud the effort to introduce more gardeners to the idea of gardening with natives, and to make this easier for them to do. Let's be aware, however, that some native plants, as described above, are native throughout an area as big as Eastern North America while others, such as Itea, are native only to a particular ecological niche. **When we define a plant as a Virginia native, I believe the seed source or cutting source should be from Virginia.** If not, perhaps it might be more useful information if we say it is a North American native or an Eastern U.S. native.

TELL US HOW YOU'VE USED NATIVE PLANTS IN YOUR GARDEN, BIRD HILL

One of my projects during Covid was to replace my 3-acre plastic deer fence around my house with a 10-foot metal fence around the entire property. I now get to see many of my plants uneaten by deer and in bloom for the first time! I have been planting thousands of native plants in meadows and woods. When sourcing the plants, I try to stick as close to home as possible. I've used the **Flora of Virginia app as my source of identifying native ranges and soil preferences.** I haven't counted out the numbers yet exactly, but of the 90 native species I've added, about 30 are local to Albemarle County. I have made exceptions for several showy genera that are favorites, including Trillium, Phacelia, and Kentucky lady's slipper (*Cypripedium kentuckiense*) that are native farther afield.

ALTHOUGH YOU WERE ONE OF THE EARLY LANDSCAPE DESIGNERS IN THE NATIVE PLANT MOVEMENT, YOU ARE KNOWN ALSO FOR INCLUDING NONNATIVES IN YOUR GARDENS. HOW DID THIS COME ABOUT?

Bird Hill in Spring Photo: C. Colston Burrell

I am a firm believer and proponent of using **native plants**. They **are beautiful and they give a sense of regional character and identity that makes my Virginia garden unique.** I have always been interested in the **coevolution of plants, insects, birds, and other living things.** This coevolution is **dependent on the inclusion of native trees, shrubs, and herbaceous plants**

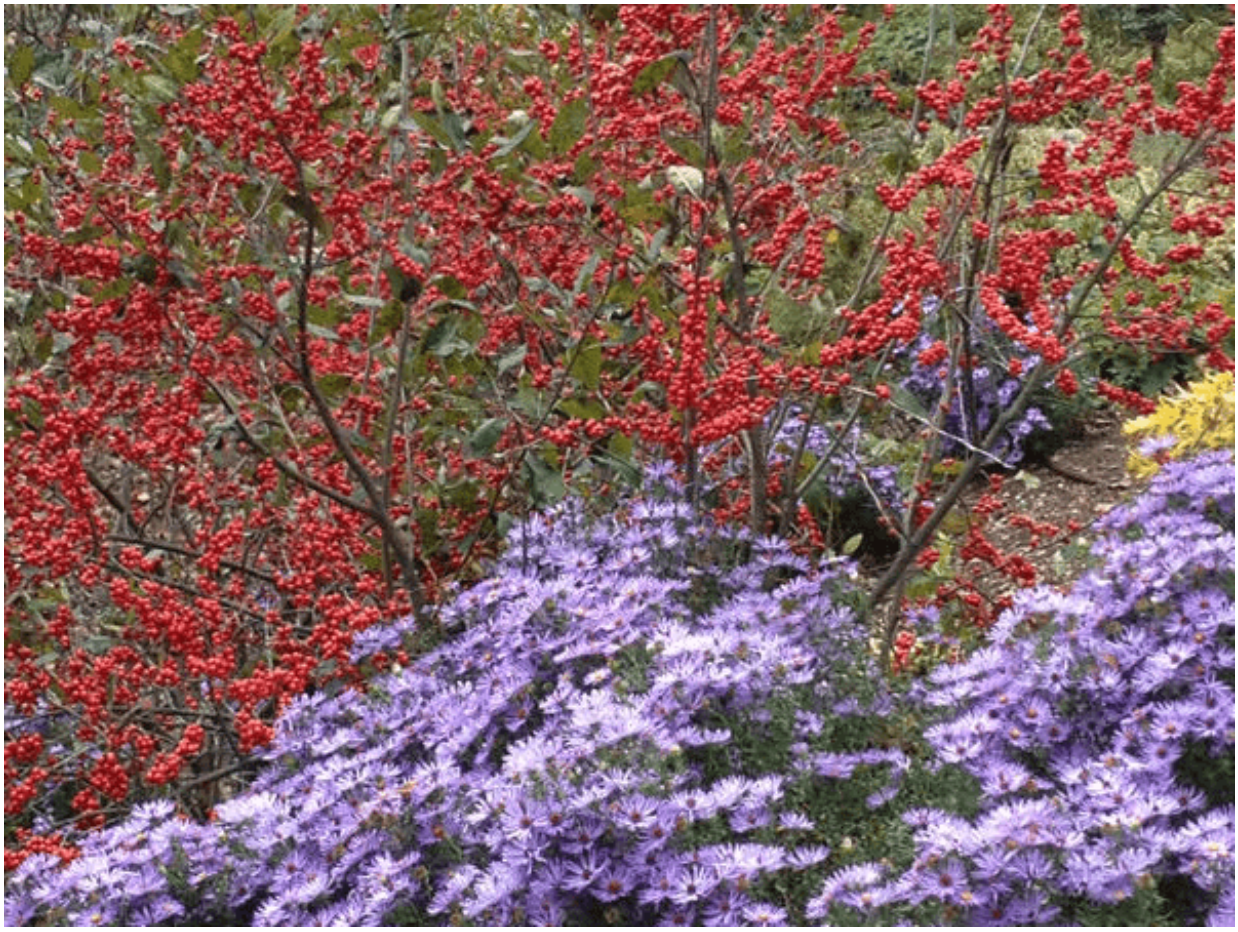
that are highlighted as "keystone" plants, a term that is now familiar to many through the work of Doug Tallamy. **Nonnative plants can also be used to achieve different goals, both aesthetically and functionally.** There are so many wonderful plants grown across the globe, and these nonnatives will thrive in our gardens when conditions are like their original environment. Many of these plants appear

earlier in spring than our natives, and some bloom later, extending the bloom season and making pollen and nectar available to insects when there are no native flowers available.

Let me give you an example from my previous garden in Minnesota. I started my garden in late summer, and that autumn was very mild. I had done lots of soil amending and, as a result, some plants were spurred into unexpected growth. Nonnative 'Mary Stoker' chrysanthemums bloomed profusely in November and were covered by bees that were looking for nectar due to the unseasonably warm weather. This showed me that nectar and pollen can come from many different sources, including nonnative plants. This garden was 1/8 of an acre and I planted over 600 species of plants. If I had limited myself to using plants native to this flyway along the Mississippi, I would have had 40 species. The diversity of plant life attracted a huge number of pollinators and 172 species of birds.

WHAT DO YOU THINK OF THE USE OF CULTIVARS?

Every garden is a novel ecosystem, with a novel plant community created or modified by humans. How we choose to structure and populate that garden is what makes it our own and gives us joy. Many believe that you should never plant cultivars. Again, **you must consider your goals and balance aesthetics with ecology. If you are simply putting a name on a plant found in the wild, it is still a "straight species" even though it has a name attached**



Winterberry (Ilex verticillata) and aromatic aster (Symphyotrichum oblongifolium 'Raydon's Favorite') Photo: C. Colston Burrell

to it. Some cultivars have been demonstrated through research to be superior to the species tested as far as nectar or pollen production. Often selections are made to preserve a unique flower color, but may also relate to a distinctive leaf or fruit color variant. Any of these variants may alter the perception of a nectaring pollinator, a caterpillar feeding on the foliage, or a bird consuming a fruit. Tallamy's research demonstrated decreased insect grazing on colored

foliage. Sometimes the converse is true. Research with phlox cultivars found that nonhybridized cultivars of *Phlox paniculata* were more attractive to pollinators than were the species. Hybrid cultivars are a different story, and consider your goals when choosing to use them.

WHAT IS THE DIFFERENCE BETWEEN AN INVASIVE PLANT AND A PLANT THAT IS AGGRESSIVE?

Many people consider any plant invasive if it performs too well. Monarda (*M. didyma* and *M. fistulosa)* is a good example. When we make a garden, we often prepare the garden soil and provide perfect growing conditions to give our plants a good start. Monarda is stoloniferous and responds by growing aggressively, often outcompeting less vigorous companions, which makes us unhappy. Monarda doesn't escape its garden boundaries, however, and cause harm. **An invasive plant is generally not native to a region or country, escapes cultivation, and causes ecological harm by outcompeting native species in the wild.** This is very different from a plant that grows profusely in cultivation. Some invasives, such as Callery pear, come from horticulture, and others, such as stilt grass and garlic mustard, come from other sources.

WHEN WE INCLUDE NONNATIVES IN OUR GARDENS, HOW DO WE PROTECT AGAINST PLANTS SHOWING INVASIVE CHARACTERISTICS, THAT IS JUMPING THE LINE AND CAUSING HARM?

This can be difficult to predict. Some invasive plants escape and establish readily, while others take years to show up. If a plant is a prolific self-sower and begins to show up on the fringes of the garden, it may become invasive.

WHAT ADVICE DO YOU HAVE FOR ESTABLISHING DENSE PLANTINGS IN LESS-ESTABLISHED GARDENS?

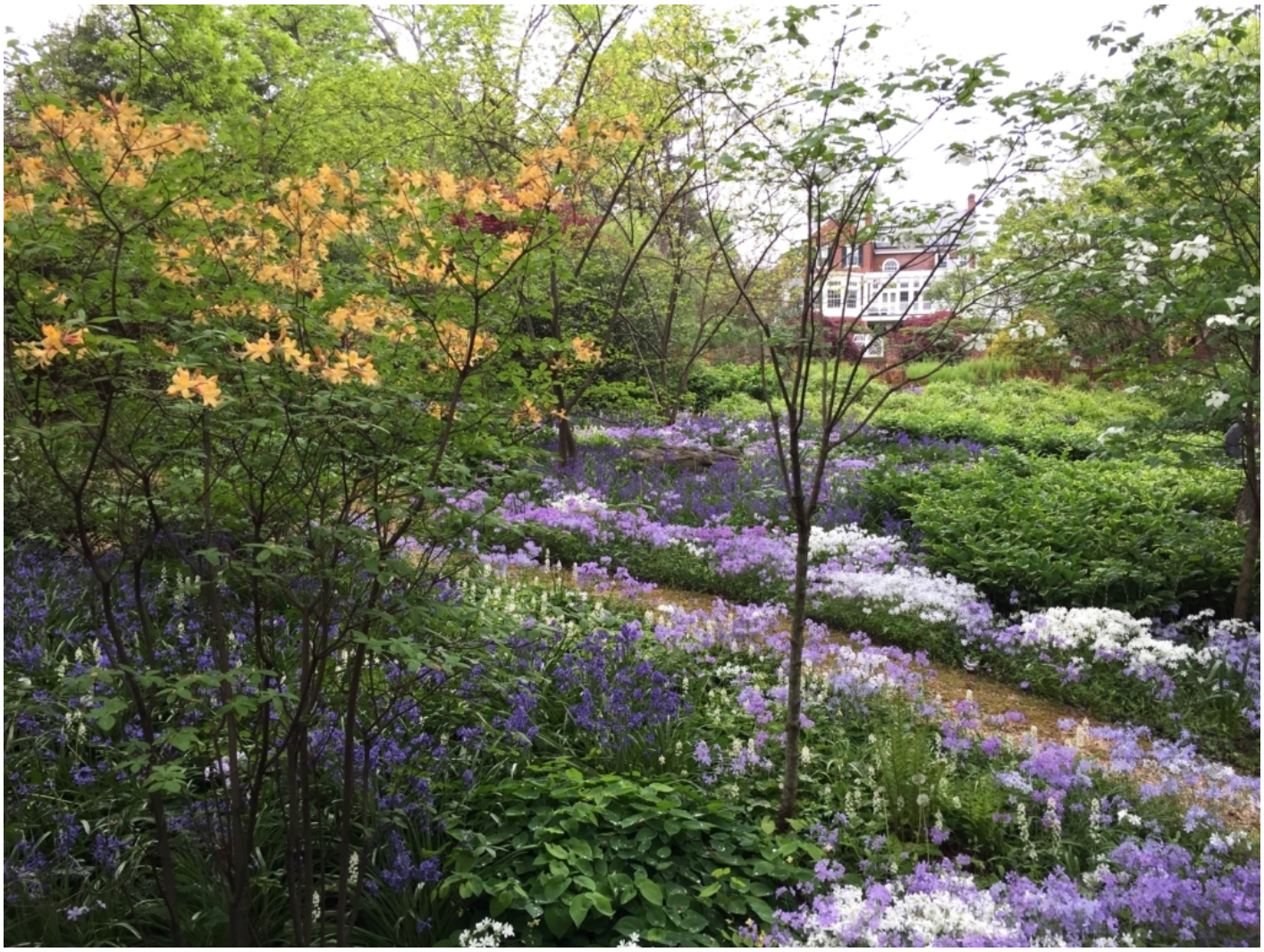
Plant "lot line to lot line." If you have existing native vegetation, leave it and work in front or around it. Use the biology of plants when composing combinations—bulbs fit in neatly with plants that have deep tap roots and fibrous roots. **Work with layering to form dense veget**

Dense Planting Photo: C. Colston Burrell

ation that will keep out the weeds and invasives. You could plant annuals the first year, such as zinnias or something for nectar/pollen balance. Plant low-growing, spreading perennials such as green-and-gold (*Chrysogonum virginianum*), pussytoes (*Antennaria*

planta ginifolia and *A. neglecta*), and snow flurry white heath aster (*Symphyotrichum ericoides* var. *prostratum* 'Snow Flurry'). Spread a seed packet of alyssum, or a cover crop such as alsike clover (*Trifolium hybridum*) or buckwheat. Underplant a woodland garden with blue phlox (*Phlox*

divaric
ata).



Dense planting, woodland setting with blue phlox (Phlox divaricata) Photo: C. Colston Burrell

WHAT DO YOU MEAN BY VERTICAL INTEGRATION AND HORIZONTAL INTEGRATION?

Every plant community, forest, or meadow has a recognizable structure which creates layers. **In a woodland setting, provide structural diversity with trees at different heights and shrubs that provide a layer beneath the canopy.** Trees and shrubs of different densities and forms also contribute to diversity. For example, if you clip a hedge so that it is very dense, the density will help birds avoid predators. It has been well documented that 5 species of arboreal warblers (MacArthur's warblers) each utilize a different area at a different height within the same tree (spruce, fir, and pine) for feeding. Overall, the study concluded that "the birds behave in such a way as to be exposed to different kinds of food." In addition to this vertical layering, **plants are distributed in horizontal patterns created by differences in growth habit, soil, and moisture. You easily see these patterns as you gaze across a meadow.** In a woodland, they are less obvious, but thickets of shrubs, glades filled with ferns, and sweeps of Virginia bluebells on a floodplain, are good examples.

Vertical Integration Photo: C. Colston Burrell

Horizontal Integration, Marsh Meadow Photo: C. Colston Burrell

YOU EMPHASIZE THE NEED FOR GARDENERS TO BE AMATEUR ECOLOGISTS. WHAT SHOULD I LOOK FOR WHEN SURVEYING MY YARD?

The saying, **“Plant it and they will come,”** is actually true. As we’ve discussed, the garden structure should include keystone tree species such as oak, cherry, maple, and shrubs such as blueberry, rose, and viburnum. But insects will use nonnative trees as well. Look at the genus of the keystone plants. For example, a nonnative cherry will make a greater contribution than a nonnative ginkgo. But if you love a ginkgo for aesthetic reasons, include it. Gardens are about both ecology and beauty.

ANY LAST WORDS FOR OUR READERS?

Gardens should be both functional and aesthetically pleasing. They are also a lot of work! No one will want to put in all that work of creating and maintaining plantings unless the garden is a place of beauty. Start small and set achievable goals. It is easier to move the goalpost forward than to never make it to the post. When I think people feel discouraged or guilty about their plant choices and don’t want to keep trying, it makes me sad. Don’t be discouraged! Plant for joy. Try different things. I have a banana tree in my garden! (Cole’s garden also famously has a blue-painted tree.) It’s YOUR garden to enjoy.

Feature Photo: Bird Hill’s Blue Tree by C. Colston Burrell

February in the Ornamental Garden

By Patsy Chadwick | February 2022-Vol.8, No.2

Although the weather is wintry outside, the days are getting noticeably longer, signaling the time to start gearing up in earnest for the spring gardening season. In the meantime, lots of actions can be taken now to prepare for spring planting.

Complete orders for new seed from catalogs and on-line resources. Order early to improve the chances of getting the seeds you want. Once the seeds arrive, label the front side of each packet with the year so that, in the future, you can see at a quick glance how old any unused seeds are.

Inventory your seed-starting supplies to make sure you have ample quantities of cell packs, transplant pots, potting mix, trays, plant tags, fertilizer, etc. Don’t forget to check the light bulbs in grow lights to make sure they are in good operating order.

To get a head start on this season's garden, think about starting seeds indoors and plan accordingly. Follow the recommendations printed on seed packages for how far in advance of the last frost date (which falls between April 15 – 25 on average) to start seeds indoors. It's important not to start them too soon. Otherwise, the seedlings may be spindly and weak and will not transplant well. Also, some seedlings that are started too early could grow too large for their containers and require re-potting before it is safe to plant them outside. For more information on seed starting, check out this *Garden Shed* article on How to Start Your Garden Seeds.

Seed starting. Photo: Satrina0, CC BY-NC-ND-2.0

If you have seeds left over from previous years, **do a germination test** to make sure they are still viable. Viability often depends on the plant species, the quality of the seed, and the conditions under which the seeds have been stored. According to Johnny's Selected Seeds Seed Storage Guide, zinnia seeds are viable for about 5 to 6 years, whereas phlox seeds are only viable for about 2 years. To test seeds for viability, moisten a paper towel and place about 10 seeds of the same variety on it. Roll up the paper towel and put it in a plastic bag but don't seal the bag. Place the bag in a warm area. Check the seeds daily and keep the paper towel damp but not soggy. After several days or so, see how many seeds have sprouted. If at least half of them did, then the rest may sprout as well. If not, then it may be best to buy new seed.

This is the ideal time of year to prune most deciduous trees while they are dormant. Prune to remove dead, weak, diseased, or crossing branches. If you are a novice at pruning, see Virginia Cooperative Extension (VCE) Publication 430-455, Pruning Basics and Tools, VCE Publication 430-460, Deciduous Tree Pruning Calendar, and VCE Publication 430-457, Pruning Evergreen Trees.

This is also the ideal time to prune late spring or early summer-flowering shrubs such as Abelia, beautyberry, Buddleia, or Caryopteris. Spring-blooming shrubs such as forsythia and flowering quince should not be pruned until after they finish flowering later in the spring. Before making that first cut, see VCE Publication 430-462, Shrub Pruning Calendar, for basic guidance on when and how to prune selected shrubs.

Inspect stored tender bulbs, tubers, or corms periodically and lightly moisten them if they are shriveled. If any appear soft or diseased, discard them now. Otherwise, keep checking them periodically until time to plant them in spring.

Check evergreen trees for drought stress caused by either frozen soil, which prevents the plant from taking up water, or from lack of rain or snow over the winter. If water is needed (check the soil around the tree for dryness), wait until the outside temperature rises above 40°F and use a soaker hose to water the root zone. If possible, do this early enough in the day to allow the water to soak in before the soil re-freezes.

Monitor trees and shrubs for deer, rabbit, or vole damage. Look for scraped or gnawed bark. Pull back mulch a couple of inches away from the trunk to discourage vole damage.

Cut back ornamental grasses before spring growth occurs. If you wait until spring, you may damage the newly emerging grass blades. An easy way to cut back large clumps of dormant grasses is to tie a bungee cord around the clump and use pruning shears or an electric hedge trimmer to cut back the foliage to a few inches above ground. Try not to cut too close to the crown. Otherwise, moisture may settle in the crown causing it to rot.

Look for emerging foliage of early blooming daffodils, snowdrops, hyacinths, and other spring bulbs. If daytime temperatures are above freezing, the foliage can tolerate short periods of frosty temperatures without harm. If prolonged freezing weather is predicted, protect the foliage with frost covers, a layer of newspaper, light mulch or chopped leaves.

Carefully trim away old foliage from hellebores so that you don't damage new emerging foliage and flower buds.

Arrange to have your lawnmower serviced now if you didn't get around to it at the end of the last growing season. By taking care of this task during the dormant season, you can beat the crowds at the repair shop before warm weather arrives.

Avoid walking on ice or frost-covered lawns. Foot traffic on frozen grass can damage the grass blades and compact the soil.

Keep tabs on the health and well-being of your houseplants. Inspect them for pests every time you water them. Common pests include white flies, scale, fungus gnats, spider mites, and mealy bugs. Treat as needed at the first sign of a problem. The University of Minnesota extension publication on Houseplant Insect Control offers sound advice on houseplant pests and includes photos of the most common ones. Clemson Cooperative Extension publication HGIC 2252 Common Houseplant Insects is another useful source for advice.

This is a good time to **start new houseplants from cuttings**. Use a sharp knife to sever a 2" to 6" long cutting just below a node on a stem. Remove all but the top 2 or 3 sets of leaves. Many cuttings may be rooted in water, but for more advice on this and other plant propagation methods, see VCE Publication No. 426-002, Propagation by Cuttings, Layering and Division.

As berries, seeds, and other natural food sources become scarcer in the landscape, **continue providing supplemental food and fresh water** for the birds and don't forget to keep the feeders clean. See these tips from the Audubon Society Three Easy But Important Ways to Keep Your Bird Feeder Disease-Free. Also, join the annual **Great Backyard Bird Count**, which is a free, fun, and easy event that engages bird watchers of all ages in counting birds over a four-day period later this month and reporting their sightings online. For further information and to register for this event, see birdcount.org.

Invasive Watch: Paradise Tree or Tree of Heaven (*Ailanthus altissima)* is a dreaded nonnative invasive that threatens natural areas, agricultural fields, disturbed areas, and homeowner properties. For trees with trunks 4 to 6 inches in diameter, a basal bark treatment with an herbicide is effective from **February 15 to April 15.** See the Blue Ridge PRISM (Partnership for Regional Invasive Species Management) Factsheet for information on how to identify and eradicate this invasive. The nonnative insect pest, **Spotted Lanternfly,** prefers, and may even require, *Ailanthus altissima* trees to complete its lifecycle.

February is a cold and wintry month, but Valentine's Day, which traditionally occurs mid-month, provides welcome respite from the weather with its promises of candlelight, hearts, and flowers. **To keep those Valentine's Day flowers – or any floral display – going strong**, see this *Garden Shed* article on How to Keep Cut Flowers Fresh.

Feature Photo: Snowdrops (*Galanthus nivalis*), Courtesy of Missouri Botanical Garden PlantFinder

PMG Gardening Resources/Monthly Gardening Tips/February

PESTICIDE WARNING

Pesticides (which include herbicides, insecticides, rotenticides, etc.) are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock. Consult the pesticide label to determine active ingredients, signal words, and proper protective equipment.Pesticides applied in your home and landscape can move and contaminate creeks, lakes, and rivers. Confine chemicals to the property being treated and never allow them to get into drains or creeks. Avoid drift onto neighboring properties and untargeted areas.

Upcoming Events

By Cathy Caldwell | February 2022-Vol.8, No.2

Forest Farming In Focus: A Deeper Dive

Beginning FEBRUARY 10, 2022, this series of 5 webinars takes a deeper dive into forest farming species, topics and practices, and will cover tree saps and syrups, ramps, fungi, ginseng, and goldenseal. **Sponsored by the Appalachian Beginning Forest Farmer Coalition**

Find out more: https://www.appalachianforestfarmers.org/forestfocus

Sustainable Landscape Design: The Basics

- **Friday, FEBRUARY 11**, 10:00 am — 11:30 am, on ZOOM
- presented by Master Gardeners of Northern Virginia
- To register, visit this link.

Winter Pruning for Woody Plants

- **Friday, FEBRUARY 18** @ 10:00 am – 11:30 am on ZOOM
- presented by Master Gardeners of Northern Virginia
- To register, visit this link.

How to Start Flower and Vegetable Seeds Indoors

- **Monday, FEBRUARY 21**, 3:00 pm
- presented by Piedmont Master Gardeners
- Visit https://thecentercville.org/calendar/event/14643 for a link to the session

The Center at Belvedere will host this free, online presentation by the Piedmont Master Gardeners that will show you how to start plants from seeds indoors, which is easy, inexpensive, and satisfying. In this presentation, a Master Gardener will teach basic techniques and demonstrate:

- how seeds work;
- mistakes to avoid when starting seeds;
- tests and tricks for quick germination; and
- how to care for seedlings.

Tree Identification by Season: Winter

- **Tuesday, FEBRUARY 22**, 7:00 to 8:30 p.m. **Register here.**
- presented by Charlottesville Area Tree Stewards

Vegetable Gardening Without Fear, Part 1

- **Friday, FEBRUARY 25** @ 10:00 am – 11:30 am
- presented by Master Gardeners of Northern Virginia
- To register, visit this link.

Invasive Plant Species: Management and Control

- **Saturday, FEBRUARY 26**, 2022, 1:00 PM – 4:30 PM
- presented by Blue Ridge Prism and hosted by Oak Spring Garden Foundation at Rokeby Farm – 8622 Mill Reef Road, Middleburg, VA 20117
- To register, visit this link

Coming up in March ⇒⇒ PMG Spring Lecture Series

Mark your calendar now: Thursdays @ 7:00 pm, March 3, 10, 24, 31

C. Colston Burrell: *Beauty, Integrity and Resilience—Can a Garden Have Everything?*

Thursday, MARCH 3 @ 7:00 pm via Zoom. Admission: $10. Registration opens mid-February.

Do our gardening practices harm the environment? Can we change them to meet our aesthetic goals while supporting the insects and birds we love? Can we create healthy habitats with a mixture of native and exotic plants?

Cole Burrell, an acclaimed garden designer, lecturer, author, and photographer, helps gardeners address such questions as they create landscapes that meld beauty with ecosystem form and function.

Find out more »

Renée Gokey & Christine Price-Abelow: *The Three Sisters — Indigenous Origins and Best Growing Practices*

Thursday, MARCH 10 @ 7:00 pm via Zoom. Admission: $10. Registration opens mid-February.

Renée Gokey and Christine Price-Abelow of the Smithsonian Institution's National Museum of the American Indian (NMAI) will explore the history of "The Three Sisters" (beans, corn, and squash teach us how best to grow this powerhouse combination and learn from indigenous gardening practices.

Find out more »

Jayesh Samtani: *Home Garden Berries—Selection, Cultivation, and Growing Alongside Ornamental Plants*

Thursday, MARCH 24 @ 7:00 pm via Zoom. Admission: $10. Registration opens mid- February.

Jayesh Samtani of Virginia Tech's School of Plant and Environmental Sciences will provide an overview of berry production in the home garden and will cover such crops as strawberries, raspberries, blackberries, blueberries, and figs. He will also offer ways to integrate these attractive plants with ornamentals.

Find out more »

Elisa Meara & Alex Thompson: *The New Sustainable Garden—Native Plant Garden Designs for Your Home*

Thursday, MARCH 31 @ 7:00 pm via Zoom. Admission: $10. Registration opens mid-February.

Garden designers Elisa Meara and Alex Thompson of Native Plant Landscape Design Corp. in Falls Church will offer strategies for combining native trees, shrubs, and perennials in ways that replace exotic invasives, control erosion, and reduce stormwater runoff—all while making the garden shine throughout the year.

Find out more »

Best Practices for Pollinators Sixth Annual Summit

MARCH 1–3, 2022
Sponsored by Pollinator Friendly Alliance and The Xerces Society

> Learn ecologically sound land stewardship practices that promote pollinators, climate resilience, clean water and lands. Summit topics provide practical knowledge and innovation on pesticide reduction, habitat installation, soil health and more.
>
> Join every talk, or attend just your favorites
> All three days $30; VIRTUAL
> March 1, 2022: Tues, 9:00 AM – 2:00 PM
> March 2, 2022: Wed, 9:00 AM – 2:00 PM
> March 3, 2022: Thurs, 9:00 AM – 2:00 PM

Find out more »

Yellowwood: A Rare and Beautiful Tree

By Cathy Caldwell | February 2022-Vol.8, No.2

***Editor's Note**:* William Cocke is a longtime gardener and native plant enthusiast with an interest in the relationship between gardening and the natural world. For more than 10 years, he wrote a monthly natural history column, "Blue Yonder," for *Blue Ridge Outdoors.* He also provided editorial assistance for the regional guide, *Piedmont Native Plants: A Guide for Landscapes and Gardens*.

On a cold winter day, the first of March 1796, French botanist André Michaux found himself on a bend of the Cumberland River not far from the northwest escarpment of the Cumberland Plateau. He was in Tennessee, exactly three months before it became the 16th state, in present-day Jackson County.

A tree in the forest caught his eye. Perhaps he noticed a vaselike silhouette against the sky, or on closer inspection, he ran his hand across thin, mottled dark gray bark that resembled a beech tree. Later, when he inspected the yellow heartwood, he recognized the tree's commercial potential as a source for infusing dye.

His journal entry records the moment of discovery and, incidentally, provides a glimpse into an 18th-century plant gatherer's fieldwork:

"The 2nd remained over in order to pull young shoots of a new Sophera I had remarked in the vicinity of Fleen's Creek about 12 miles from the Fort [Fort Blount, on the north bank of the Cumberland River near the present town of Gainesboro, Tennessee]. Snow covered the ground and I was unable to get any young shoots but Captain Williams, the young [officer] stationed in the Fort, cut down some trees and I found some good seeds. I also pulled up some roots of those trees to replant them in my garden in Carolina. The same day I had occasion to write to Governor Blount."

The tree that elicited such prompt correspondence with the governor was the yellowwood (*Cladrastis kentukea*). Michaux was the first European to encounter this tree and collect it for further study. He most likely never saw a yellowwood in full leaf and in bloom, for the 1796 expedition was his last to North America. He died of a tropical fever in Madagascar in 1802. A few years later, his son, François André, successfully collected and shipped seeds to France, where they may have been planted in the Tuileries gardens in Paris.

A Mysterious Backstory

Yellowwood is the sole *Cladrastis* species in North America, with the remaining species located in China and Japan. Though endemic to the eastern United States, the trees were uncommon even before European settlers began their assault on the great Eastern hardwood forest. On a map, the tree's native range looks like a spray of paint across the Southeast and Midwest, from western North Carolina into extreme north Georgia, spanning Tennessee and Kentucky, continuing west to Missouri, Arkansas, and Oklahoma, dipping into north Mississippi, reaching down into Alabama, with a couple of splats in southern Illinois, and one disjunct splotch in Indiana, the northernmost extent of its range.

The relatively small Indiana population is far removed from larger ones in Kentucky, Tennessee, and Missouri. A DNA study conducted by the Hardwood Tree Improvement and Regeneration Center at Purdue University found that the Indiana trees are genetically distinct from the trees in those states, meaning that they are true relicts (a formerly widespread species that persists in an isolated area) rather than trees brought to Indiana by early settlers.

The odd distribution pattern remains a mystery, though we can speculate. The tree is hardy from Zones 4-8 and performs well when planted far outside its native range. It is a legume that does not fix nitrogen, so it favors habitats such as those found in bottomlands or southern Appalachian cove forests. It's not particular about soil pH. Perhaps its rarity in the wild and scattershot distribution suggests a wider range that was pushed ever south as the result of eons of glaciation, with isolated populations pocketed in islands of favorable habitats—a living archipelago of yellowwoods.

Video: Yellowwood in Bloom

Such scarcity can be bad news for a tree. Fortunately, for the yellowwood, its

tendency to fork close to the ground allowed it to escape widespread commercial logging operations. It was used primarily for dye making, first by Native Americans and then by settlers. The wood is strong and heavy, easily worked and polished, which made it desirable for gunstocks and small articles of household furniture.

A Tree for All Seasons

Today, we desire the yellowwood less for utilitarian purposes and more for its nearly unmatched all-season beauty in the landscape. Let's start with spring. If Michaux had encountered his yellowwood after it broke dormancy, he would have delighted in seeing the pale green growth of the year unfurling from buds encased on zigzag twigs. The new shoots quickly enlarge into pinnately compound leaves that have 7-9 ovate leaflets alternating along the *rachis*, or primary stem of a compound leaf. The terminal leaflet is larger than the lateral ones. Growth is rapid, resulting in a 10–15-inch compound leaf that turns a lush green by midsummer. By fall, the leaves turn a rich golden-yellow.

Photo: John Ruter, University of Georgia, Bugwood.org, CC BY-NC 3.0

Yellowwoods begin to flower after about 10 years, usually in May and June, transforming the tree's appearance from sturdily attractive to knockout gorgeous. The tiny inflorescences emerge with the leaves along the branch tips to form pendulous, panicled chains of fragrant, white, wisteria-like flowers that can reach lengths of 14 inches. The presence of a mature yellowwood in full bloom, on a warm June day, with perfumed garlands of flowers swaying in the breeze, attended by the gentle drone of thousands of honeybees, is an all-sensory delight that must be experienced to be believed.

Yellowwoods in bloom. Photo: William Cocke

There is a pink-flowered variety named ‘Rosea’ — synonym, ‘Perkins Pink’ — that was apparently discovered on the grounds of the Perkins Institute for the Blind in Massachusetts during the 1930’s. It’s unclear whether it is a variety or a hybrid.

Pink-flowered yellowwood. Photo courtesy of JC Raulston Arboretum at NC State University

Prune or Die

Yellowwoods flower every two to three years. It’s as if the tree can only intermittently sustain such a showstopping production. Fairly slow growing, it achieves a wide crown and, in the open, can reach a height of 30-50 feet, with a similar spread. Trees found in woodlands tend to grow tall, with flattened crowns, their blooms hidden high in the forest canopy. In the landscape, unless you’re working on a capacious, estate-sized canvas, yellowwood is best used as a specimen rather than as a mass planting. While an allée of yellowwoods would have a stunning effect, most of us can content ourselves with one or two.

Nursery grown balled-and-burlapped trees transplant well into fertile, well-drained garden soils. However, pay particular attention to the branch structure. Perhaps the biggest challenge when growing a yellowwood is dealing with its tendency to fork low on the trunk. Proper pruning technique is a must and may hold the key to the tree's longevity in the garden. An unpruned tree may begin to develop problems after about 30 years, with weak crotches and heavy limbs that are prone to splitting from the trunk. Begin pruning a young sapling to favor a single lead, spacing wide-angled branches along the trunk, favoring strong U-shaped crotches. Yellowwoods are prolific sap-producers, so make sure to prune in late summer or early fall to avoid excess weeping.

Yellowwod trunk habit. Photo: T. Davis Sydnor, The Ohio State University, Bugwood.org, CC BY-NC 3.0

Decline and Fall

My wife, Sally, planted a pair of yellowwoods on a southwest-facing slope of our yard in 1995. When I arrived on the scene in 2005, they were already sizable trees, with rounded canopies and cool, deep shade in the heat of summer. True to form, they bloomed intermittently, with consistent mellow gold fall foliage.

Then, in the spring of 2020 we had two hard freezes—the first one in late April. During the second, in early May, temperatures plunged into the 20s for two excruciating nights. This double whammy killed the delicate new growth on our trees twice within a few weeks. The larger tree took a long time to leaf out afterward, while the smaller one seemed to recover.

By the following spring, and as the year progressed, the larger yellowwood started showing signs of severe stress. Its canopy began to thin. Some branches died, while water sprouts developed low on others. The bark split open on the trunk like cracks in old, dry leather. Insects moved into the openings. Shelf fungus appeared. The ground around the tree was littered with dead twigs and small branches.

On January 3, 2022, the heavy, wet snow that destroyed thousands of trees in our area also damaged the smaller yellowwood, perhaps fatally. It took us a few days to notice that the trunk had developed a quarter-inch crack in the trunk just below the first set of limbs. Some of the limbs were themselves cracked and split.

A series of extreme weather events, over the course of two years, were enough to deal death blows to our yellowwoods. We're not sure of our next steps, but it's obvious that we may have to take the trees down. I do know that, in the future, I'll never take a yellowwood for granted.

Looking at them now, on a winter day, in their gray dormancy against a snowy backdrop, they appear almost as if nothing's amiss. If I try, I can conjure up a June day when the leaves are green, the flowers buzz with life, and the fallen petals carpet the ground like snow. I guess that will have to be enough.

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Featured Photo by William Cocke

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