December 2019-Vol.5 No. 12

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Holiday Cactus Brings the Gift of Color

By Susan Martin | December 2019-Vol.5 No. 12

Schlumbergera is a small genus of cacti (of the family Cactacaea) with six to nine species found in the coastal mountains of south-eastern Brazil. In the wild, the species of *Schlumbergera* grow either on trees (epiphytic) or on rocks (lithophytic) in habitats that are generally shady with high humidity. Most species of *Schlumbergera* have stems which resemble leaf-like pads joined one to the other and flowers which appear from areoles (small light- to dark-colored bumps) at the joints and tips of the stems. They are leafless, the green stems acting as photosynthetic organs (carrying out the process of photosynthesis).

Schlumbergera truncata was in cultivation in Europe by 1818, and *S. russelliana* was introduced in 1839. The two species were deliberately crossed in England by W. Buckley, resulting in the hybrid now called *S.* × *buckleyi*, first recorded in 1852. By the 1860s, a substantial number of cultivars were available in a range of colors and habits, and were used as ornamental plants. They fell out of favor until the 1950s, when breeding resumed in Europe, North America, Australia and New Zealand. New plants were produced by crossing among the species and existing cultivars of *S. truncata*, *S. russelliana* and the hybrid *S.* × *buckleyi.*

Common names for these cacti generally refer to their flowering season. In the Northern Hemisphere, they are called **Christmas cactus**, **Thanksgiving cactus**, **crab cactus,** and **holiday cactus.**

The cultivars of the Christmas cactus fall into two main groups:

- The **Truncata Group** contains all cultivars with features derived mainly from the species *S. truncata:* stem segments with **pointed teeth**; flowers held more or less horizontally, usually above the horizontal, whose upper side is differently shaped from the lower side (zygomorphic); and yellow pollen. **Flowers come in red, purple, pink, white and yellow.** These cultivars generally flower earlier than members of the Buckleyi Group and, although common names are not applied consistently, may be distinguished as Thanksgiving cactus, crab cactus or claw cactus.

Schlumbergera truncata Photo: Dwight Sipler, Wikimedia Commons

Schlumbergera truncata Photo: Lukas Mizoch, Wikimedia Commons

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  Schlumbergera x buckleyi, Photo: Wayne Ray, Wikimedia Commons

The **Buckleyi Group** contains all cultivars with at least some features clearly showing inheritance from *russelliana*: **stem segments with rounded, more symmetrical teeth**; more or less symmetrical (regular) flowers which hang down, below the horizontal, in **bright magenta red to pink**; and pink pollen. These cultivars generally flower later than members of the Truncata Group and are more likely to be called Christmas cactus.

In the United States, cultivars are propagated in large numbers for sale before Thanksgiving and are often called Thanksgiving cactus. The name Christmas cactus is often restricted to cultivars of the Buckleyi Group. In Europe, plants are mainly sold later in the year, in the period before Christmas, and are usually called Christmas cactus.

Attempts have also been made to classify cultivars by color. A difficulty with this approach is that the flowers of many cultivars exhibit different colors depending on the temperature during bud formation and growth. In particular, temperatures below 57 °F produce pink tones in otherwise white and yellow cultivars, and deepen the color in pink and red cultivars. The availability of iron to the plant has also been suggested to affect flower color.

AN INTERESTING RELATIONSHIP: POLLINATION AND HUMMINGBIRDS

Although this relationship isn't important to our everyday care of *Schlumbergera*, it's an interesting example of adaptability. **The flowers have developed adaptations for pollination by hummingbirds:** flowers are tubular in shape with abundant nectar, and colors are towards the red end of the spectrum. Most species require cross-pollination to set seed. An exceptions is *S. microsphaerica*, a species found at higher altitudes where hummingbirds may be absent or less common. This species propagates vegetatively, that is asexually. Birds open the seeds by banging them against trees where the seeds will take root (epiphytic), or segments from the plant break off and root in the tree.

GROWING CONDITIONS

Schlumbergera grows best in **light shade**. Full sunlight is beneficial in midwinter, but bright sun during the summer months can make plants look pale and yellow. Members of the Buckleyi Group tend to be more tolerant of high light levels than members of the Truncata Group. Too much light causes stems to take on a reddish coloration; very low light levels will prevent flowering.

Ideal growth occurs at temperatures between 70° and 80° F during the growing season, which is April to September for *S. truncata,* and March/April to September for *S.* x *buckleyi*. Improve humidity by using gravel-filled saucers to place your plants upon and keep this moist.

The holiday cactus is tolerant of dry, slightly under-watered conditions, particularly during its rest period after blooming until spring, but do not let the soil dry out. Most problems arise from over-watering, especially during the dark days of winter. The advice sometimes given to withhold water to produce flower buds has been shown to be incorrect. **Keep the soil slightly moist throughout the year;** water when the top inch of soil in the container feels dry to the touch. Reduce fertilizing from fall until spring. Fertilize plants monthly from the time new growth starts in late winter or early spring, and throughout the summer, using a soluble fertilizer for houseplants.

Best container growth typically occurs in a **well-drained potting medium** containing one part potting soil, two parts peat moss, and one part sharp sand or vermiculite. Flower production is best when the plant is kept somewhat pot bound. **General poor growth** can be a sign of over-potting, i.e., the pot is too large for the plant; they like to be snug in a pot. Repotting is only necessary about once every 2-3 years; choose only a slightly larger container. The potting media must be well-drained with good aeration.

FLOWER PRODUCTION

When do you want blooms — for Christmas or Thanksgiving? Count backward eight weeks to determine the autumn date to begin to prepare the plant for reblooming. The secret of good **flower bud production involves temperature and dark (thermo-photoperiodic) control.**

For best flowering provide: bright daytime light, night temperatures between 55° and 65° F, and long nights. Long nights are defined as 13 hours of continuous darkness each day, starting in the middle of September. Continuous darkness means NO light during the dark period, including lamp light within the home. Cover the plant with a black cloth or place the plant in a totally dark room from 6 p.m. to 7 a.m. each day for 6 to 8 weeks. According to the Chicago Botanic Garden, flower buds will form if **ONE** of the following conditions is met:

- a cool night temperature between 50 to 55 degrees
- 13 hours of uninterrupted darkness (if the temperature is between 55 and 70 degrees)
- 15 hours of darkness (if the temperature is above 70 degrees)

For *S. x buckleyi*, even cooler nighttime temperatures are preferable. If indoor temperatures at night can be kept at 45-55 degrees F. (which admittedly can be difficult to do in a home), buds will usually form in autumn without employing the strict 13 hour darkness regimen. When we lived in Chicago, we had a huge *S. x buckleyi* plant that put on a spectacular blooming display year-after-year. I now realize that it had good indirect light, but more importantly, it was placed in a glassed entryway which was uncomfortably cold for us but perfect for the plant. In that case, the dark period was not met, but the cool temperature was.

The Christmas cactus will remain in flower for four to six weeks, with each flower lasting six to nine days. After the plant has flowered**, prune back each stem** by pinching off enough sections to achieve a uniform habit. (Use the pinched stems for propagation, described below.) Resume normal watering and fertilization when new growth appears.

If you want to put your plant outdoors in the summer, be sure to keep it in a shaded spot with indirect light, and bring it inside before the temperature falls below 45º. Check carefully for insects and clean off with water.

PROPAGATION

Schlumbergera can be **easily propagated with cuttings of 3-5 segments.** Different sources give slightly different rooting recommendations. Some say to plant stem segments in moist vermiculite; others

recommend placing the segments in a mix of sand/peat or soil/vermiculite/peat. Many sources recommend letting the segments dry for several days in a cool dry place until a callus is formed; this will help prevent root rot. One source emphasized pinching the segments rather than cutting. I think that there are so many minor variations because people have been successful using many different techniques. I've successfully rooted the segments in water and then planted them in potting soil but my research didn't show this as a recommended method.

PESTS AND DISEASES

Unopened flower buds may drop due to a number of factors, including: an excessive number of buds, a sudden change in temperature or light, or other environmental factors, such as drying out of the growing medium. The major disease is root rot, which can be prevented by avoiding excessive watering. Two significant insect pests are: aphids that feed on young shoots, buds, and flowers; and root mealybugs, which attack below soil level. Other insects include mealybugs (foliar-feeding), soft brown scale, and red spider mites. Stems and roots can be rotted by diseases caused by fungi and similar organisms. Aphids, mealybugs, and other invertebrate pests can spread viruses. Symptoms vary with the species, but a loss of vigor is usual. There is no treatment for virus diseases; it is recommended that infected plants be destroyed. See the article from Penn State Extension on Christmas Cactus Diseases.

There is an interesting Q/A regarding spots on a Christmas cactus and recommended treatment, which was sent to the Extension source, Ask an Expert.

EASTER CACTUS

Now that we have mastered the identification and care of Thanksgiving cactus and Christmas cactus, let's turn our attention to the third, lesser-known holiday cactus, Easter cactus. Originally classified as *Hatiora gaertneri,* it was reclassified as *Schlumbergera gaertneri,* although it is sometimes identified as *Rhipsalidopsis gaertneri* (by the Missouri Botanical Garden, for example). For our purposes, we'll recognize it as being very similar in appearance to the other two holiday cacti except that its stem segments are rounder at the tips and have soft, brownish bristles. Flowers are 2 inches across and made up of a uniform fringe of 12 to 15 pointed petals that radiate out like a hula dancer's skirt. Care and requirements are very similar to the other holiday cacti, with a couple of main exceptions: it does well in bright light (rather than in part shade), although not in direct sunlight, and it requires a longer, short-day period, 8-12 weeks, before blooming in late February to early March. Flower tones range from white to red, orange, peach, lavender, and pink.

Schlumbergera gaertneri Photo: John Rusk, Wikimedia Commons

SUMMARY

Although noted as easy-care houseplants, *Schlumbergera* require some steps for reblooming. Those steps mainly require controlled dark and cooler temperatures for about 8 weeks before bloom anticipated at Thanksgiving or Christmas. Watering requirements must also be monitored, and most problems arise from overwatering. Most of our holiday cacti are *S. truncata* cultivars, Thanksgiving cactus, which has pointed

segments and a range of colorful blooms in red, pink, purple, white, and even yellow. Christmas cactus, *S.* x *buckleyi*, has more rounded segments and its flowers are beautiful magenta red to pink. Both cultivars are gorgeous holiday additions, and are enjoyable throughout the year. A third holiday cactus, Easter cactus, will brighten the home in early spring in a range of colors.

SOURCES

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"Care of Specialty Potted Plants," Virginia Cooperative Extension, *ext.pubs.www.vt.edu › dam › pubs_ext_vt_edu › 426-101_pdf*

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The December Vegetable Gardener

By Ralph Morini | December 2019-Vol.5 No. 12

December is basically a transitional time for vegetable gardeners. Our engagement is some combination of cleaning up, extending this year's garden, and beginning preparation for next year. If we manage our time well, it is also a time to relax, reflect and replenish energy and enthusiasm for next season. So let's talk about some constructive things to do, should we feel like it.

Final Planting:

Early December is our last chance to plant garlic and shallots, as long as the ground isn't frozen. Mulch them well for best temperature, moisture and weed management.

Extending the Season:

"6-Cold Frame Complete" by Bosshard Surveying is licensed under CC BY-NC 2.0

If you planted cool weather crops in the fall in a **cold** frame or protected them with row covers, you are likely still getting some growth from them and still harvesting. If you missed your chance, you might want to consider doing some season extension next year. Cold frames provide a multi-season vehicle that can get things started earlier in spring and with some management, keep some crops healthy through our winters. Information on cold frames can be found in this VA Cooperative Extension publication.

Hoop-supported row covers

Row covers provide a less permanent but still helpful device for extending both ends of the gardening season. Floating row covers entail simply laying fabric on plants to be protected and placing heavy objects on its perimeter to hold it in place. They provide a few degrees frost protection, except for plant tissue that is actually touching the fabric. Supported row covers use some kind of support, typically a hoop system, to create a covered space within which plants grow. Such covers provide up to 5° frost protection and can extend growing time and protect cool weather plants through most winters. More information on row covers is available in the November 2019 issue of The Garden Shed.

Protecting and Improving your soil for next season

We've talked in the last couple of issues of *The Garden Shed* about cleaning up your gardens at the end of the season. Good hygiene is important to minimize pest and disease carryover from last year to next.

"Our compost bin" by Stowe Boyd is licensed under CC BY-NC 2.0

In addition, since fall is the time of leaf fall, their collection provides the opportunity to start a compost batch for next spring. Worst practice is bagging leaves to have them hauled to a landfill. Having them hauled off for dropping to a commercial composter puts the product to good use, but the carbon footprint is higher than if you compost them at home. Blowing them into piles and leaving them over winter can provide habitat for various bugs and critters that will add diversity to your local environment next year. Chopping with your lawn mower, now or next spring, and using them as mulch or composting them is also a great use for them. I like to load the compost bin with shredded leaves now and add kitchen plant scraps to the pile all winter, building the carbon/nitrogen blend so that decomposition will take off as the temperature rises in early spring, providing usable compost for summer plantings.

Other tasks and activities:

Be sure to drain your hoses. Disconnect them from faucets and lay them out on the ground, both ends open, to let them drain. Then roll them up for winter storage.

If you have rain barrels, drain them as dry as possible and redirect your downspouts to ground, rather than refilling the barrels during the cold months.

December brings the first new catalogs and communication from seed suppliers for next season's supplies. It is fun to browse them, looking for new items to grow and assessing different varieties that may help avoid disease problems that affected last year's selections. For help interpreting seed catalog and seed pack information, check out this article from the February 2018 issue of The Garden Shed.

By the way, I can't document it as fact, but my experience is that discounts on seeds and supplies are at their highest in December so that early buyers get the added benefit of low prices if we're prepared to move now.

Finally, take care of your tools. Winter is the time to clean, disinfect, sharpen, and generally prepare them for the work ahead. Also, it's a good time to clean pots and flats if you have a warm enough place to do the wet work. Come spring, you'll be happy you did it, promise.

In any case, enjoy your gardening, happy holidays, and hope to see you next month at *The Garden Shed*.

2019 in Review: Article Highlights from The Garden Shed

By Susan Martin | December 2019-Vol.5 No. 12

One of my resolutions at the end of the year is to either read those books stored in my "to read" pile, or donate them. But when the medium is an ebook, or in this case, an enewsletter, there is no physical prompt to action. Therefore, with end-of-year enthusiasm for making and keeping resolutions, we've put together a list of the articles from 2019. This will be an easy reminder of those articles you meant to read, or perhaps a whole issue that you intended to read, or perhaps a useful article that you'd like to reread. It's also a way for newsletter writers and readers to identify trends. The 2019 trend was to develop more sustainable gardening practices by amending the soil organically, reducing the use of chemical additives, and becoming more knowledgeable about the interdependence of native plants and insects.

JANUARY

Good Seeds Bad Seeds

This article includes a vegetable chart on the average number of years seeds may be saved and discusses how to test for germination rates.

The Soil Food Web: Nature's Way to Build Healthy Soil

A community of organisms combine with organic materials to form an interdependent system that builds and sustains healthy soils. Learn how to develop sustainable practices and reduce dependence on, or even eliminate the use of, a chemical-based approach.

FEBRUARY

Minimal Till Cultivation: What? Don't Turn Over the Garden Soil?

By using different shallow tillage tools and techniques, natural amendments are added to the top few inches of soil by loosening the soil rather than by inverting it. A healthy community of organisms in the top layer carries organic nutrients to deeper layers, improving soil texture and structure.

Creating a Bird-Friendly Garden

Wikipedia Commons

Insect species eat plants with which they have a long evolutionary history. Therefore, if we want to provide birds with their main food source of insects, we need to provide the native plants that feed these insects.

Refer to the National Wildlife Federation's Native Plant Finder website, based on the work of Doug Tallamy, that provides a listing, according to ZIP code, of native plants, grasses, trees, and shrubs and the number of insects supported by each.

MARCH

The Truth About Compost Tea: Making It, Using It, and What to

Expect From It

Actively Aerated Compost Tea (AACT) can be an effective means to strengthen the soil microbe population and assist in disease and insect resistance. This article presents a DIY approach that is practical for most home gardeners for making and applying AACT.

Managing the Tick Problem

Although ticks have fast become the pest of greatest personal health concern to gardeners and outdoor people of all stripes, there are steps we can take to reduce risk: understand the enemy and its habits, know how to react when bitten, and minimize the tick population in our yards and gardens.

Black legged tick looking for host Photo: CDC.gov

APRIL

Blueberry Cultivation in the Home Garden

Successfully growing blueberries requires attention from beginning to end: start by picking the right varieties; manage the soil pH; provide good drainage to avoid root rot; prune to maintain productivity; and manage pests, particularly birds. This superfood requires a commitment but offers tasty, healthful rewards.

MAY

Another Pesticide Controversy: Neonicotinoids and Pollinator Decline

A class of pesticides called neonicotinoids (neuro-active systemic insecticides), are currently under scrutiny for harming pollinators, and the data is only strengthening. Reaching for a pesticide at the first sign of damage is quick and easy, but is there a better way? Learn about Integrated Pest Management (IPM). This approach requires more work and acceptance of a certain amount of pest damage, but is definitely more sustainable over the long term.

Gardening for Hummingbirds

Hummingbird at cardinal flower, Brooklyn Botanic Garden. Photo: Steven Severinghaus

To create a hummingbird habitat, a gardener needs to provide for their basic needs: food, water, shelter from predators, perches, and nesting sites. Also included is a list of nectar-rich, native plants that will attract and sustain these tiny dynamos. See a really fun video on hummingbirds enjoying a water spot!

Container Gardening, Part I

Part I discusses the basic guidelines for growing plants in containers outside, including types of available containers, appropriate potting mediums, and factors to consider when choosing a location.

JUNE

Container Gardening II: What to Grow & How

Plant selections depend on your space, time, budget, and aspirations. Vegetable gardeners will appreciate a chart that shows the minimum container size and spacing needed for planting specific vegetables. Maintenance requirements such as watering, fertilizing, staking, grooming and pruning, and overwintering are also discussed.

JULY

Pollination: Flowering Plants, Pollinators, and the Wonder of It All

This article explores the basics of pollination and how it works, including plant structure, botanical terms, and different types of pollination (insect, animal, water, wind). Recognition of an evolutionary match between the pollinators that approach each flower, and the flower design that meets pollinator capabilities, makes us keenly aware of our responsibility not to jeopardize this interdependence.

AUGUST

The Bees in Your Backyard

Native bees are considered a “keystone” species, meaning they are central to the food web of an ecosystem, and the survival of many other species depends upon them**.** This article describes the developmental stages of native bees, identification characteristics, types of native bees, specialist bees, bee decline, and tips for creating a bee-friendly environment.

Sweat Bee
Photo: Thom Quine

SEPTEMBER

Weeds, Glorious Weeds

“Know thy enemy” is a proverb appropriate to many gardening challenges. After reading this article on identifying specific weeds and recommended treatments, you will be that much closer to reducing the weed workload.

Responsible Lawn Management in the Era of Climate Change

This article reviews grass choices and practices for cultivating lawns in the Virginia Piedmont with best practice tips for minimizing the damage from turfgrass monocultures. Environmentally-friendlier alternatives are also discussed.

OCTOBER

Plenty of Ways to Kill a Tree

Despite its heft, a tree is not impervious to harm. This article highlights the right way to care for trees, and the mistakes we should avoid.

NOVEMBER

Row Covers: A Gardening Season Extender With Benefits

Floating and hoop-supported row covers offers simple, inexpensive, and practical solutions that can extend both ends of the gardening season and provide other in-season benefits, such as insect protection. Learn how each type of cover suits particular objectives. Construction guidelines, with photos, are included.

Pesticide Storage and Disposal

At the end of the growing season, many of us are left with extra chemicals that must not be tossed into our trash barrels. This article defines different types of pesticides and points out the importance of reading the container labels on safe storage and disposal. We also learn what happens to those chemicals after they're dropped off at a Household Hazardous Waste Day event.

PLANTS

MARCH
Spicebush (*Lindera benzoin*)

APRIL
Blue in the Sun (*Amsonia, Baptisia Australis, Caryopteris*)

Amsonia tabernaemontana Photo: Gail and Hal Clark

JUNE
The Sedge Alternative

JULY
Mystery Plant of the Prairie: *Silphiums*

AUGUST
Black Cohosh (*Actaea racemosa*) and Doll's Eyes (*Actaea pachypoda*):
Tall, Shade-loving and Native

Eggplants: Easy to Grow With Surprising Variety and Versatility

SEPTEMBER
Camassias

OCTOBER
Viburnum – A Shrub for Many Settings

NOVEMBER
Aronias: Native Shrub for Fall Color

Aronia arbutifolia in a garden setting
Photo: Oregon State University

RECIPES

JANUARY
DIY Red Wine Vinegar

APRIL
Fried Zucchini Chili

JUNE
Innovative Ways with Garden Greens

JULY
Fresh Tomato, Basil & Walnut Pasta

AUGUST
Eggplant and Tomatoes with Caper-Shallot Vinaigrette

SEPTEMBER
Tea with Scones and Clotted Cream

Photo: Charmaine Zoe

OCTOBER
Fig & Goat Cheese Appetizer

NOVEMBER
Aronia Berry Smoothie

MONTHLY TASKS AND TIPS

Remember to check past issues of *The Garden Shed* for articles on task and tips for both the ornamental and the vegetable garden on a **monthly** basis.

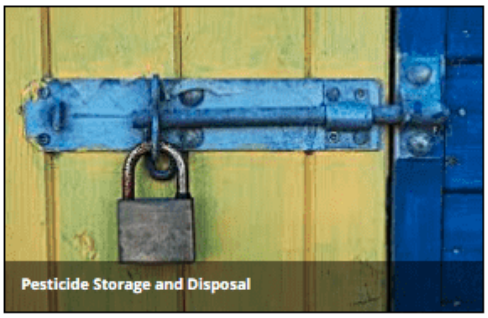
USE THE PAST ISSUES TO SOLVE GARDEN QUESTIONS

Speaking of **past issues**, they contain a wealth of information, and they are **searchable**! So when a gardening dilemma presents itself, try searching the past issues of *The Garden Shed*. To browse prior issues or to search them, go to the right-hand menu on the main page of *The Garden Shed,* as shown in the photo below.

The Garden Shed

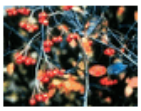
A Community Newsletter published by the Piedmont Master Gardeners

November 2019-Vol.5 No.11



Pesticide Storage and Disposal

Row Covers: A Gardening Season-Extender With Benefits



Aronias: Native Shrubs for Fall Color

Aronia Berry Smoothie

For comments, questions or suggested topics for future Garden Shed articles contact us at: garden-shed@piedmontmastergardeners.org.

If you have specific gardening questions or need help to solve a gardening problem, our **Horticultural Help Desk** is a free community resource and can be contacted at 434-872-4583 or by email: albemarlevcehelpdesk@vt.edu.

Who We Are

We are members of the Piedmont Master Gardeners, which simply

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BACK ISSUES

Cranberry-Apple-Orange Sauce

By Cathy Caldwell | December 2019-Vol.5 No. 12

Merry Christmas!

This month, I've chosen cranberry sauce because most families have their highly-prized, top-secret recipes for their turkey, ham, stuffing, potatoes, and especially gravy. (Refer to November 2019 for my all-purpose chicken gravy/cheese sauce recipe.) Yet, I always notice that at the family table, among everyone's finest culinary presentations, there is that one dish of maroon-colored gelatinous, can-shaped, cranberry-flavored, corn starch blob – which looks about as appetizing as a the giant blood clot that killed the Woolly Mammoth. Folks, if this applies to you, there is a severe deficit of love on that plate which resonates with sadness. You've suffered for long enough; it's time for a change.

In full disclosure, this recipe is sort of a non-gourmet variation of Gordon Ramsay's cranberry-apple sauce from his holiday special on the BBC, where he uses all fresh produce and makes difficult concepts look easy. His recipe is NOT easy. I've made it many times, which is why I swapped out all the fresh produce and unnecessary prep that goes with it so you can whip this up quickly with shelf-stable products. It should be made a few days ahead of being served since it takes a few days for the flavors come together. It tastes absolutely amazing, and it need not be limited to turkey dinner; it works very well inside a crepe, on a waffle, in a cobbler, or my favorite… with a Monte Cristo sandwhich!

Assemble your ingredients.

We start by draining into a stock pot **one whole liter bottle of red wine,** I prefer Cabernet Sauvignon (pardon my French). Add a few spices (just a pinch of each): **Bay leaf, Star Anise, Cardamom, Cinnamon, Allspice, and black peppercorns**. Bring this to a boil to remove the alcohol, steep the spices, and **reduce by half its volume.**.

You will need to sweeten things slightly, so half a cup of either **caramel, honey, maple syrup, unsulfered molasses, or brown sugar** are equally good**.** Just remember that this is supposed to be tart.

Next, fill a second pot or pan with **three cans of Bold Rock Hard Cider** and again bring to a boil to both reduce it and set it on the straight and narrow. At this point, you can break out your **bag of Ocean Spray Craisins (dried cranberries)** and dump them into the Bold Rock as it comes to a boil. This will rehydrate the cranberries and make them soft. As the hard cider reduces in volume, **zest and juice three oranges** into your cranberry-cider mix. Cut some of the rind up into julienne and save until the end just for visual appeal (pun intended).

Cranberry sauce served with Shepherd's Pie.
Photo: Tom Wilson

Strain the red wine reduction to remove the large pieces of herbs. If both liquids have reduced enough to fit into one pot, combine them and **add two packages of Knox gelatin or two tablespoons of powdered pectin**. Don't use corn starch in this or it will reduce the flavor. Add salt and pepper to taste. I prefer pink Himalayan sea salt for dishes such as this one.

I'd like to reiterate that the tartness of the berries and cider is magnificent, so taste it toward the end. I don't think it's possible to over power with orange, so if you prefer more orange flavor go for it, and see what your family thinks.

I'm really curious: what would you do differently? Zest a variety of citrus? Try white wine? Use mulling spices? Use only fresh cranberries? Add cherries? Blueberries? Service Berry? Oh, admit it; gardeners are the best cooks, and I really enjoy the wisdom among you, so write me a note in the Comment section.

Have a very wonderful holiday season! — Thomas Wilson

Upcoming Events

By Susan Martin | December 2019-Vol.5 No. 12

Ivy Creek Foundation First Saturday Bird Walk
December 7
7:30-8:30 a.m.
Ivy Creek Natural Area
1780 Earlysville Road, Charlottesville 22903

Join us for an early morning bird walk with Jenny Gaden of the Monticello Bird Club. Beginners always welcome. Binoculars are available to share. Meet in the parking lot of Ivy Creek Natural Area.

Master Naturalist Information Session
Sunday, December 8, 2:00 p.m.
Wednesday, December 11, 9:00 a.m.
Ivy Creek Natural Area Education Building
1780 Earlysville Road, Charlottesville 22903

The Rivanna Chapter of the Virginia Master Naturalists is accepting applications for the 2020 training class. We are a volunteer corps dedicated to preserving our natural heritage. The training will run on Wednesday mornings from February 10 to May 20, with Wednesday afternoon and Saturday field trips. Sessions will be held at Ivy Creek Natural Area. Application forms are available at vmn-rivanna.org. **DEADLINE for applying is January 3.** Check the instructions for mailing the application. For more information, email Sandy at rma.curriculum@gmail.com, or call Ida Swenson at 434-996-8405 or email at idathefriz@gmail.com.

Virginia Native Plant Society (VNPS) Jefferson Chapter Meeting
Tiger Swallowtails and Flame Azalea Pollination
Wednesday, December 11
7:00-9:00 p.m.
Education Building at Ivy Creek Natural Area
1780 Earlysville Road, Charlottesville 22903

Dr. Mary Jane Epps will join us to discuss tiger swallowtails pollinating flame azalea. Mary Jane is an Assistant Professor of Biology at Mary Baldwin University, and is the daughter of our chapter president Mary Lee Epps. Mary Jane earned her undergraduate degree at Duke University and a PhD in ecology and evolutionary biology at the University of Arizona. Free; all are welcome.

The Nature Foundation at Wintergreen
Living With Nature at Wintergreen Hike
Saturday, December 14
1:00-3:00 p.m.
3421 Wintergreen Drive, Roseland, VA 22967

Hike begins at 1pm (winter hours). Join a Naturalist for an interpretive hike. Explore Wintergreen's natural environment! These hikes are rated moderate. Registration is required; fee is $8 for nonmembers; free for members. Phone: 434-325-8169; Email: info@twnf.org

Climate Change is Happening in Central Virginia

By Cathy Caldwell | December 2019-Vol.5 No. 12

The red stripes tell the story. After explaining the science of global climate change, Jeremy Hoffman brought it home with a boldly colored infographic: a series of vertical bars, ranging from dark blue to deep red, that show departures from average annual temperatures in Charlottesville since 1895. The pileup of red bars to the right in the graph, signifying the last decade or so, confirmed what we've all been feeling. It's getting warm in here.

That was just one of many wakeup calls from the Piedmont Master Gardeners' 30th anniversary commemoration at the Paramount Theater on September 8. Titled "The Future of Our Landscapes in a Changing Environment," the program offered insights into what's happening to the planet, what it means to us and to our community, and what we must do now to stave off harmful impacts in the years ahead.

Hoffman, chief scientist at the Science Museum of Virginia, was part of a roster of distinguished speakers and panelists our program brought to the stage. It also featured Dennis Dimick, whose 35 years at *National Geographic* included stints as a photography editor and as environment editor.

With stunning images from the magazine's pages, he presented a visual journey through a world that now strains to support more than 7.5 billion people. He framed his narrative with the concept of the Anthropocene, or human age, a proposed geologic epoch defined by our transformation of the planet and the mark it will leave in the geologic record long after we are gone.

Dennis Dimick

The climate disruptions already upon us — extreme temperatures, heavy precipitation events, rising sea levels, coastal flooding, and lengthening growing seasons—are among the effects of this transformation. They are largely a product of our reliance on fossil fuels that have made our way of life possible but now pose threats to its future.

Revving Up the Greenhouse Effect

The second volume of the Fourth National Climate Assessment, published last year, spells out the physics of what's occurring:

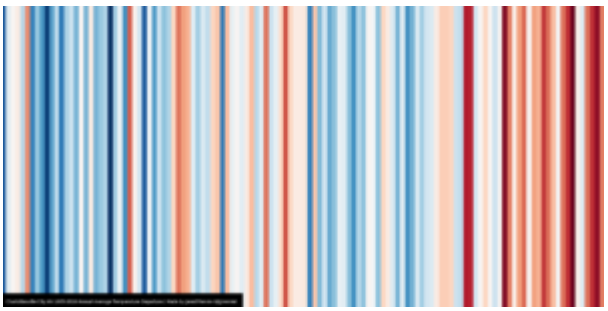
"Gases in the atmosphere prevent some of the heat radiating from Earth's surface from escaping to space. … This natural greenhouse effect warms the planet's surface about 60°F above what it would be otherwise, creating a habitat suitable for life. Since the late 19th century, however, humans have released an increasing amount of greenhouse gases into the atmosphere through burning fossil fuels and, to a lesser extent, deforestation and land-use change. As a result, the atmospheric concentration of carbon dioxide, the largest contributor to human-caused warming, has increased by about 40 percent over the industrial era. This change has intensified the natural greenhouse effect, driving an increase in global surface temperatures and other widespread changes in Earth's climate that are unprecedented in the history of modern civilization."

Dr. Jeremy Hoffman

In his presentation at the Paramount, Hoffman noted that French physicist Joseph Fourier recognized the greenhouse effect as early as the 1820s. By the 1890s, as the Industrial Revolution was hitting full stride, scientists were already predicting rises in global temperatures as coal-fired factories pumped more carbon dioxide into the atmosphere. That was only the beginning. Since 1900, concentrations of atmospheric CO2 have jumped from under 300 parts per million to 408 parts per million. And the bulk of that increase has occurred just since 1960.

How Climate Change Affects Our Area

We are now seeing the impacts in our region. For example, hardiness zones are creeping northward. According to a National Oceanic and Atmospheric Administration analysis reported recently by the *New York Times*, western Virginia will join the Piedmont in Zone 7 by 2040, and Tidewater will move from Zone 7 to Zone 8. Hoffman referred to a study by Old Dominion University's Michael J. Allen documenting that spring and summer are starting earlier and autumn and winter are starting later in many urban areas around the country. Some of the most pronounced changes in seasonal start dates are occurring in Richmond.



Yearly departure from average temperature in Charlottesville from 1895-2018. Graph courtesy of Dr. Jeremy Hoffman and Jared Rennie.

Looking at data from Charlottesville, Hoffman's colorful visualization made plain that where we live is getting hotter. He also noted that first freeze dates have gotten later since the 1890s, and last freeze dates have moved up about a week, from April 8 to April 1. That sounds like good news for gardeners and growers, but research shows that such changes have made budding plants and early-sprouting crops more vulnerable to late cold snaps. So-called "false springs" can lead to crop failures.

Moreover, Charlottesville now has 20 more annual mosquito days than we did in 1980, and spikes in tree pollen counts are happening earlier in central Virginia, making allergy seasons longer. As for wildlife, Hoffman noted that the National Audubon Society has projected major changes in the geographic ranges of North American birds as the planet warms. For instance, the winter ranges of the common loon and wild turkey will slip out of most of the South by 2080,

and the purple finch is expected to all but disappear from our winter feeders in Virginia by that time. Bees are in trouble as well; scientists have found that bumblebees are failing to adjust their range as the climate heats up and could face decline.

What the Future Holds

According to the Fourth National Climate Assessment, more damaging impacts are in the offing for Virginia and other southeastern states:

> "Changing winter temperature extremes, wildfire patterns, sea levels, hurricanes, floods, droughts, and warming ocean temperatures are expected to redistribute species and greatly modify ecosystems. As a result, the ecological resources that people depend on for livelihood, protection, and well-being are increasingly at risk, and future generations can expect to experience and interact with natural systems that are much different than those that we see today."

Panelists Lawrence Band, Karen Firehock, and Carol Heiser join Hoffman and Dimick

Lawrence Band, the Ernest Ern Professor of Environmental Sciences at the University of Virginia and a panelist for PMG's event at the Paramount, was a technical contributor to the National Climate Assessment. He sees such changes starting to occur in our area. As an example, he cites greater incidence of heavy rainfall and flooding. These intense rain and flooding events can, in turn, lead to higher levels of nutrient and sediment runoff in our streams and rivers and further harm to downstream waterbodies such as reservoirs and the Chesapeake Bay. The risk of drought is expected to increase as well.

He also points to rising temperatures that can result in a greater number of very hot days, with health consequences for people who work outdoors or who lack access to air conditioning. "The maintenance and growth of green space — urban tree cover, green infrastructure — can be a useful solution to mitigate these impacts, if carefully planned with an involved community," he said. However, climate change is also imperiling the trees that give us shade. He noted that warmer winters may have hastened the spread of the woolly adelgid, the insect that has wiped out most of the hemlock canopy in the mountains. Likewise, the spread of the emerald ash borer threatens the cover provided by ash trees.

Seeking Solutions, Globally and Here at Home

The National Assessment outlines ways our society can fend off the impacts of a changing climate, but we must act quickly to curb greenhouse gas emissions and other contributors to the problem. Dimick sees promise in the work of Project Drawdown, a research organization dedicated to identifying the most viable solutions. It advocates dozens of options, ranging from transitioning to wind and solar power to measures such as refrigerant management as rising temperatures increase global demand for air conditioning and cooling.

Master Gardener and environmental consultant Frank Reilly, who served as master of ceremonies for the Paramount event, urged adoption of climate-conscious horticultural practices, such as planting carbon-absorbing trees and shrubs, scaling back lawns (and all that mowing), and no-till cultivation that keeps carbon in the soil. “Best are practices where we can both reduce our use of fossil fuels to mitigate climate change and do things to help us adapt to climate change,” he said after the program. As an example, he suggested “planting the right plant in the right place while realizing that the right plant might be changing for each of our places.”

Frank Reilly, Master of Ceremonies

Hoffman emphasized the need for better communication and greater public engagement on this issue. He pointed to a climate opinion survey showing that 71 percent of Virginians believe global warming is happening, and 78 percent support regulating CO2 as a pollutant, but only 42 percent believe global warming will harm them personally, and just 21 percent recalled hearing about climate change in the media every week.

For our part, the Piedmont Master Gardeners have a new tool for educating the public about ways to reduce our environmental footprint. Titled “Be a Steward of the Environment,” this guide to sustainable practices and helpful websites was unveiled at the Paramount and will be used in PMG’s outreach in the months ahead. A copy is included — in two formats — at the end of this article.

As it happens, PMG’s 30th anniversary event came together at a time when the City of Charlottesville, Albemarle County, and the University of Virginia are each making new commitments to climate action and are developing or updating their plans and goals. These efforts have borne fruit in recent months: City Council and the Board of Supervisors have both adopted a greenhouse gas reduction target of 45% by 2030 and have pledged to reach carbon neutrality by 2050. The University is ahead of schedule in pursuing its goal to reduce greenhouse gas emissions 25% below 2009 levels by 2025. It is also in the process of setting a new reduction target and developing a new sustainability plan for 2030.

As educators and environmental stewards, Master Gardeners have a role to play in helping our community fulfill these commitments. Please join us.


BE A STEWARD OF THE ENVIRONMENT
PLANT NATIVE SPECIES IN YOUR GARDEN.
Native plants save water and provide food and habitat for wildlife. Find out what plants are native to our area.
www.albemarle.org/nativeplants/
www.plantvirginianatives.org/plant-piedmont-natives
REMOVE INVASIVE SPECIES.
Invasive plants can out-compete native species and reduce biodiversity. Learn to identify invasive exotics and how to remove them.
www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf
blueridgeprism.org/factsheets/
REDUCE THE USE OF TOXIC CHEMICALS FOR LANDSCAPING.
Adopt techniques for controlling pests and invasive species that reduce the need for toxic chemicals. Avoid products that harm beneficial species, such as pollinators.
www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/450/450-725/450-725.pdf
ADD NATIVE TREES TO YOUR LANDSCAPE.
Trees add beauty and shade to your yard while reducing heating and cooling costs and removing carbon dioxide from the air.
www.dof.virginia.gov/infopubs/Native-Tree-ID-spreads_2016_pub.pdf
PREVENT SOIL LOSS DUE TO EROSION.
Wind and water can sweep soil away, particularly on slopes. Cover bare soil with ground covers, shrubs, grasses and trees.
www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-722/426-722.pdf
GROW YOUR OWN FOOD AND SUPPORT LOCAL FOOD PRODUCERS BY GOING TO FARMERS MARKETS AND RESTAURANTS THAT SERVE LOCALLY SOURCED FOODS.
Choose organic and local foods that are in season. Compost food waste to provide nutrients for the garden.
www.buylocalpiedmont.org/
CONSERVE WATER.
Use a rain barrel or cistern to water your plants. Select plants and landscape design strategies that minimize water use.
www.vdh.virginia.gov/drinking-water/office-of-drinking-water/water-conservation-tips/
MORE TIPS ON BACK >

The Guide is reprinted below with easy-access links:

BE A STEWARD of the ENVIRONMENT

Created by Piedmont Master Gardeners for the 30th Anniversary Commemoration at the Paramount Theater

- **Plant Native Species in Your Garden.** Native plants save water and provide food and

habitat for wildlife. Find out what plants are native to our area. www.albemarle.org/nativeplants/ www.plantvirginianatives.org/plant-piedmont-natives

- **Remove Invasive Species.** Invasive plants can out-compete native species and reduce biodiversity. Learn to identify invasive exotics and how to remove them. www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf, , www.blueridgeprism.org/factsheets/
- **Reduce the Use of Toxic Chemicals for Landscaping.** Adopt techniques for controlling pests and invasive species that reduce the need for toxic chemicals. Avoid products that harm beneficial species, such as pollinators. www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/450/450-725/450-725.pdf
- **Add Native Trees to Your Landscape.** Trees add beauty and shade to your yard while reducing heating and cooling costs and removing carbon dioxide from the air. www.dof.virginia.gov/infopubs/Native-Tree-ID-spreads_2016_pub.pdf
- **Prevent Soil Loss Due to Erosion.** Wind and water can sweep soil away, particularly on slopes. Cover bare soil with ground covers, shrubs, grasses and trees. www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-722/426-722.pdf
- **Grow Your Own Food and Support Local Food Producers by Going to Farmers Markets and Restaurants that Serve Locally Sourced Foods.** Choose organic and local foods that are in season. Compost food waste to provide nutrients for the garden. www.buylocalpiedmont.org/
- **Conserve Water.** Use a rain barrel or cistern to water your plants. Select plants and landscape design strategies that minimize water use. www.vdh.virginia.gov/drinking-water/office-of-drinking-water/water-conservation-tips/
- **Reduce Your Home's Energy Use.** Find out how much energy your home consumes and how to make it more efficient. Most assessments help homeowners save from 5 to 30 percent on their energy bills. Also, consider the benefits of installing solar panels. www.leap-va.org/ www.cvilleclimate.org/home-energy-moneysaving-tips
- **Use Energy-Efficient Products and Appliances.** These save money and reduce heat-trapping greenhouse gas emissions. www.pecva.org/our-mission/energy-solutions/energy-efficiency-a-conservation
- **Reduce Light Pollution.** Light pollution wastes energy and interferes with wildlife migratory and breeding patterns. Turn off outdoor lights at night or use motion sensors on essential outdoor lamps. www.jmu.edu/planetarium/light-pollution.shtml
- **Drive Smart.** Avoid unnecessary braking and acceleration. Some studies have found that aggressive driving can result in using 40 percent more fuel than consistent, calm driving. https://learn.eartheasy.com/guides/fuel-efficient-driving/
- **Drive Less.** Driving less will reduce your transportation costs while helping to alleviate traffic and decrease pollution. When buying a vehicle, choose the smallest and/or most fuel-efficient model to meet your family's needs. www.epa.gov/transportation-air-pollution-and-climate-change/what-you-can-do-reduce-pollution-vehicles-and-engines#choose_fuel

- **Reduce, Reuse, Recycle.** A small change in your daily lifestyle can decrease the amount of waste going to the landfill and reduce your carbon footprint. Also, buy products made of recycled materials. www.rivanna.org/recyclables-accepted/, www.betterworldbetty.org/
- **Become a Citizen Scientist.** Citizen science can help document the impacts of climate change on plants and animals. Many organizations need volunteers to gather local data. www.vaworkinglandscapes.org/get-involved/participate-in-vwl-wildlife-surveys/citizen-scientist
- **Get Involved.** Engage with your family, friends and people in your community and encourage them to follow your lead and become a Steward of the Environment. Stay informed.