Sempervirens

Summer 2021 The Quarterly of the Virginia Native Plant Society

Earth Day 2021 in Va. — Yep, that just happened!

From Your Natural Heritage Program

By Chris Ludwig (retired)

On a beautiful cool, sunny, windy and glorious Earth Day in 2021, Governor Northam flew to South Boston, Virginia, for a spectacular announcement—the Commonwealth had just received a 7,300-acre gift from the head of Epic Games, Tim Sweeney, a noted conservation philanthropist who oversees the Fortnite and Rocket League video game franchises.

"This announcement represents one of the most significant conservation successes in Virginia history," Northam said in a statement.

The Governor went on to say that "Falkland Farms is exactly the kind of priority land we want to conserve and by setting it aside for conservation, we will protect the natural habitat and ecosystem, increase floodplain resilience, and preserve its scenic views."

Northam's announcement was not hyperbole. Falkland Farms, in Halifax County, Virginia, is about 11 miles north of the state line with North Carolina and it will become a holding of the Virginia Department of Conservation and Recreation (VaDCR). Its 7,300 acres stitch together some significant botanical sites that are already conserved: notably, Staunton River State Park; forests held for watershed protection surrounding Kerr Reservoir by the Army Corps of Engineers; and numerous Wildlife Management Areas. However, the botanical gem of all these lands is Difficult Creek Natural Area Preserve, directly contiguous to Falkland Farms.

A small portion of one of the grassland restoration units at Difficult Creek Natural Area Preserve. (Photo taken in June 2019 by Chris Ludwig.)

The story of Difficult Creek started with a botanical exploration by Dr. Alton Harvill of Longwood College in 1972 and is still being written. Since then, VaDCR Natural Heritage staff—from inventory biologists to land protection staff to land stewards—have explored, conserved, and nurtured the 819-acre Natural Area Preserve so that it now contains significant stands of diverse native Virginia grassland vegetation and 14 global- or state-rare plants. So much more is planned including the elimination of the remaining planted loblolly stands as well as continued burning and exotic species management needed to further restore and enhance the grasslands and rare species.

If you haven't yet visited Difficult Creek Natural Area Preserve, do so! In May you can observe some of the rarest plants in the Commonwealth flourishing along and near Allen's Mill Road including Carolina Thistle (*Cirsium carolinianum*), American Ipecac (*Gillenia stipulata*), and, if you are really attentive, you might find the Tall Barbara's-buttons (*Marshallia legrandii*), a spectacular wildflower known from only two sites in the world! Smooth Coneflower (*Echinacea laevigata*) blooms in June followed by Northern Rattlesnake-master (*Eryngium yuccifolium*). Later in summer, the grasses and composites put on a show. From May through July, keep your eyes peeled for our smallest and rarest duskywing butterfly, the Mottled Duskywing, found nowhere else in Virginia.

(See Falkland Farms, next page)

Falkland Farms

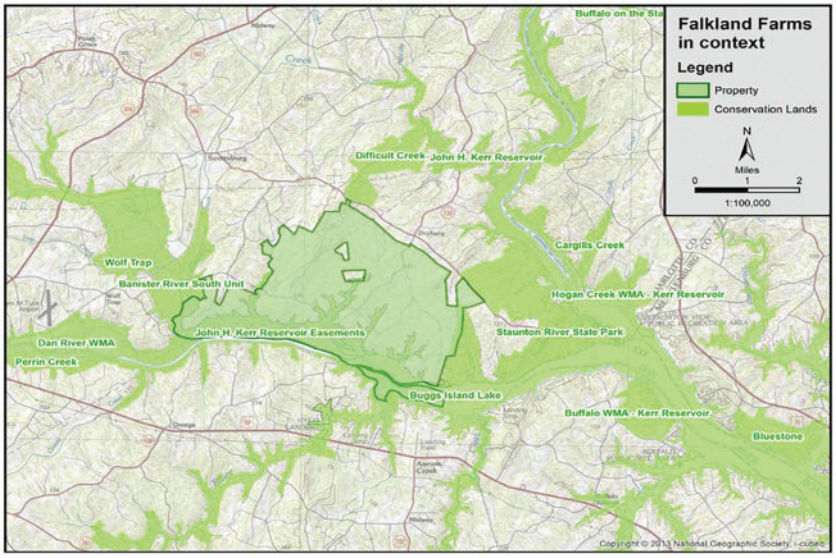
(Continued from page 1)

Here are all of the rare plants recorded from Difficult Creek Natural Area Preserve:

Anemone berlandieri	Eastern Prairie Anemone	G4	S1
Cirsium carolinianum	Carolina Thistle	G5	S1
Dichanthelium harvillii	Harvill's Witch Grass	G1	S1
Echinacea laevigata	Smooth Coneflower	G3	S2
Eryngium yuccifolium	N. Rattlesnake-master	G5	S2
Gillenia stipulata	American Ipecac	G5	S1
Lythrum alatum	Winged Loosestrife	G5	S2
Marshallia legrandii	Tall Barbara's-buttons	G1	S1
Marshallia obovata	Piedmont Barbara's-buttons	G4	S1
Matelea decipiens	Old-field Milkvine	G5	S1
Pycnanthemum torrei	Torrey's Mountain-mint	G2	S1
Rhynchospora harveyi	Harvey's Beaksedge	G4	S1
Sphenopholis filiformis	Long-leaf Wedgegrass	G4	S1
Sporobolus compositus	Tall Dropseed	G5	S2

But back to Falkland. The good news is that the same hardpan soils and grassland flora found at Difficult Creek Natural Area Preserve continue south onto Falkland Farms. This property hasn't yet been blessed with the attention and nurturing management as has been in place at Difficult Creek but when that happens (and it will), then watch out. While Difficult Creek has hundreds of acres with spectacular flora, Falkland Farms has the potential for thousands!

How can we be sure? Well, after one full field season of inventory work, small populations of many rare grassland species have been found by Natural Heritage staff. In addition, the bottomlands of Falkland Farms have their share of goodies. Here are some of the rare plants known from Falkland Farms, so far:



This map puts Falkland Farms in context of the surrounding area.

Cheilanthes castanea	Chestnut Lip Fern	G5	S2
Cirsium carolinianum	Carolina Thistle	G5	S1
Coreopsis delphiniifolia	Larkspur coreopsis	G3	S1
Echinacea laevigata	Smooth Coneflower	G3	S2
Eryngium yuccifolium	N. Rattlesnake-master	G5	S2
Gillenia stipulata	American Ipecac	G5	S1
Lipocarpha micrantha	Small-flower Halfchaff Sedge	G5	S2
Lythrum alatum	Winged Loosestrife	G5	S2
Marshallia obovata	Piedmont Barbara's-buttons	G4	S1
Mitreola petiolata	Lax Hornpod	G5	S1
Paspalum dissectum	Walter's Paspalum	G4	S2
Sagittaria calycina	Long-lobed Arrowhead	G5	S1

Remember we have barely scratched the surface!

As VaDCR works to restore Falkland Farms, there is no doubt that more botanical gems will make themselves known. The department will strive to provide compatible recreational opportunities while keeping focus on maintaining and enhancing the native plants of the incredible gift that is Falkland Farms. With this management, you can be among those who will explore the property very soon. Even better, over time, we all will be able to watch this southern Piedmont landscape change and biodiversity flourish, as it is managed along the way.

Yep, that just happened! ❖

A portion of the Falkland Farms property looking north towards Difficult Creek Natural Area Preserve. Photo taken from drone, March 2021 by Kevin Heffernan, VaDCR Natural Heritage.

Work group convenes to study invasives

From the President, Nancy Vehrs

Earlier this year I wrote about House Joint Resolution HJ 527 in the Virginia General Assembly that addressed the issue of the sale of invasive plant species. The Virginia Department of Conservation and Recreation (DCR) and the Virginia Department of Agriculture and Consumer Services (VDACS) were tasked with convening a work group. Specifically, the resolution requested that the departments work with several state agencies, conservation nonprofits, plant industry and agriculture groups, local government associations, and other stakeholders to develop recommendations regarding statutory and regulatory changes intended to reduce or eliminate the sale and use of invasive plant species in the Commonwealth and promote the sale and use of native plants.

That legislation passed, and a work group was created to study the issue and make recommendations by December of this year. We thank Delegate David Bulova and Senator Dave Marsden for their initiative on this issue. Nathan Burrell of DCR and Larry Nichols of VDACS are the staff coordinators for the new work group. Jim Hurley is the VNPS representative to this work group and other key conservation group members are Rod Walker of the Blue Ridge PRISM and Glenda Booth representing Audubon of Northern Virginia. All three are members of the VNPS.

The work group convened its first meeting digitally on June 9 and more than 70 people attended. David Gianino of VDACS provided an overview of the background of the noxious weeds law and related regulations. Kevin Heffernan of DCR presented on "Assessing and Ranking Invasive Plant Species in Virginia," which explained the criteria used to determine the 90 species as outlined on the Virginia Invasive Plant Species List. That presentation would be a worthy one to present to all of VNPS. Jim Hurley and the other conservation group representatives led the ensuing discussion. Industry representatives and others were in listening mode. I was one of six people who addressed the work group as part of public comment. All were in favor of more action to address the serious problem of invasive plants.

Invasive Callery Pears in late March 2021. (Nancy Vehrs)

Japanese Barberry, another invasive plant, can still be purchased at nurseries. (Nancy Vehrs)

The second meeting of the work group was held in person at Pocahontas State Park in Chesterfield County. With the lifting of the Governor's executive order regarding the pandemic, meetings are now in person only with no projected electronic access. Public comment will be scheduled at the end of each meeting. If unable to attend the actual meeting, members of the public can provide comments by email to Nathan Burrell at nathan.burrell@dcr.virginia.gov. To keep track of future meetings, look for information posted on the Virginia Town Hall website by googling "Virginia Town Hall." Our web admin Mark Murphy provides news and updates regarding House Joint Resolution HJ527 on our website; see https://vnps.org/action-alert-phasing-out-the-propagation-and-sale-of-invasive-plants/.

Our statewide annual meeting is virtual again this year, but we plan to have our chapters offer field trips on Saturday, September 18. See page 8 for more information on the evening presentations planned for September 17 and 18. I hope that you plan to join us both online and in the field. Visit vnps.org/meeting21 for online registration. ❖

How to Know the Species of *Wisteria*

Article and photographs by W. John Hayden, Botany Chair

Over the 33 years that the Virginia Native Plant Society has designated a Wildflower of the Year (WOY), only twice has our featured native plant come from a genus that also includes one or more invasive exotic species. That was the case in 2011 when White Oak (*Quercus alba*) was the WOY and, notably, the same genus includes Sawtooth Oak (*Q. acutissima*), which is now regarded as an emerging invasive pest (Virginia Botanical Associates 2021).

We have a similar situation with the 2021 WOY, American Wisteria (*Wisteria frutescens*), a close relative of two Asian species, and their hybrid, that have rampantly escaped cultivation over much of eastern North America. Given that invasive Wisterias are much more common and more widely distributed across Virginia than our native American Wisteria, and given lingering questions about the taxonomy of native Wisterias, it is important to know how to distinguish the various species of *Wisteria* that one may encounter in either cultivated or natural landscapes of Virginia.

All species of *Wisteria* are woody, twining, vines with alternate, once-pinnately compound deciduous leaves, and pea-like, purplish-blue flowers in elongate racemes that produce slow-to-dehisce woody fruits. Different species of *Wisteria* are commonly distinguished from each other based on the following characteristics:

- Direction of stem twining – either clockwise (left to right, dextrorse) or counterclockwise (right to left, sinistrorse)
- Number of leaflets per leaf
- Phenology – whether flowers appear before leaves emerge, at the same time that leaves emerge, or well after leaf emergence
- Length of flowering raceme
- Sequence of flower opening per raceme – either sequential (proximal to distal) or essentially simultaneous (all flowers open at once)
- Floral fragrance
- Pubescence (hairiness) of mature fruits

Asian Wisterias

There are three Asian species cultivated in eastern North America, two of which have naturalized to the extent that they ae widely considered invasive and detrimental to native flora.

Wisteria sinensis – Chinese Wisteria. Stems twine in a clockwise direction; leaflets 7–13; flowers appear before leaves emerge from winter buds; racemes ca 6–12 inches long; flowers open in rapid succession or essentially simultaneously and are not particularly fragrant; fruits are velvety pubescent. Locally common in the Piedmont and Coastal Plain of Virginia, rare in the mountains; considered invasive throughout much of eastern North America.

Wisteria floribunda – Japanese Wisteria (Figure 1). Stems twine in a counterclockwise direction; leaflets 13–19; flowers appear simultaneously with leaf emergence from lateral buds; racemes commonly 8–24 inches (but cultivated specimens in ideal conditions have produced racemes up to 48 inches in length); flowers open sequentially and are fragrant; fruits are velvety pubescent. Infrequent in the Piedmont and Coastal Plain of Virginia; also considered invasive throughout much of eastern North America.

Wisteria x formosa – Hybrid Wisteria. This hybrid originates via crosses between Japanese (*W. floribunda*) and Chinese (*W. sinensis*) Wisterias. As should be expected, these hybrids exhibit characteristics intermediate between the two parents. In their native lands, of course, Chinese and Japanese Wisterias are good, scientifically defensible, species; it is virtually impossible for spontaneous hybrids to form in plants living on opposite sides of the Sea of Japan. But it is a different story when Chinese and Japanese Wisterias are grown in proximity to each other here in North America. Weakley et al. (2012) and Weakley (2020) comment that hybrids are common in the populations that are naturalized in North America and that they exhibit complex arrays of the features that define the two parent species. Hybrids may well be more commonly naturalized in North America than either parent species.

It is worth noting that Donald Wyman (1949) and Weakley et al. (2012) indicate that stems of *W. x formosa* twine in the counterclockwise direction. It may well be possible, therefore, to distinguish most Wisterias encountered in the wild as Asian or American based on their twining stems (see also below).

Wisteria venusta – Silky Wisteria. Stems twine in a counterclockwise direction; flowers appear simultaneously with leaf emergence from lateral buds; leaflets 9–13; racemes 6 inches or less in length; flowers open sequentially and are moderately fragrant; fruits are velvety pubescent. Whereas most *Wisteria* leaves are glabrescent (pubescent when young, becoming glabrous or nearly so at maturity), mature leaflets of *Wisteria venusta* are notable for retaining relatively long silky hairs. *Wisteria venusta* is not recorded to have escaped cultivation in North America.

Cultivated specimens of Asian Wisterias are sometimes trained by extensive pruning to grow as a stand-alone, shrub-like habit, or "standard" form. Also, each of the cultivated Asian species listed above include white-flowered cultivars and white-flowered forms of *W. floribunda*, *W. sinensis*, and *W. x formosa*, their hybrid, are also known in naturalized/invasive populations.

North American Wisterias

Wisteria frutescens – American Wisteria, *in the broad/inclusive sense.* Stems twine in a clockwise direction; leaflets 5–15; racemes 1–12 inches long; flowers open sequentially and are of variable degrees

Figure 1. *Wisteria floribunda*, Japanese Wisteria.

Figure 2. *Wisteria frutescens*, American Wisteria.

Figure 3. *Wisteria macrostachya*, Kentucky Wisteria.

of fragrance; fruits are smooth (not hairy). Widely distributed in eastern North America from the Coastal Plain of southeastern Virginia to eastern Texas and more interior regions (Arkansas, Missouri, Illinois, Kentucky, Tennessee).

Alternatively, some botanists have divided North American Wisterias into two entities, as follows:

Wisteria frutescens in the narrow sense, or *W. frutescens* var. *frutescens* – Atlantic Wisteria (Figure 2). Leaflets acute to acuminate but tips blunt;; flowers open shortly after leaves are fully expanded and are not particularly fragrant; racemes up to 6 inches long; pedicels and calyces bear few, if any, club-shaped glands; calyx teeth shorter than the calyx tube. As defined in this narrow sense, *W. frutescens* occurs on the Atlantic Coastal Plain, from southeastern Virginia to Florida and along the Gulf Coastal Plain to east Texas.

Wisteria macrostachya, or *W. frutescens* var. *macrostachya* – Kentucky or Mississippi Wisteria (Figure 3). Leaflet tips acuminate; flowers appear several weeks after leaves are fully expanded and are fragrant; racemes up to 12 inches long ("*macrostachya*" means large-spiked); pedicels and calyces bearing abundant club-shaped glands; calyx teeth about as long as the calyx tube. If considered distinct from *W. frutescens*, the natural range of *W. macrostachya* extends from eastern Texas, Louisiana, and Mississippi, north to Missouri and Illinois and east to western North Carolina.

Of course, be they distinguished as distinct species or varieties, both North American Wisterias are cultivated, and experience shows that they do well outside the native ranges summarized above. In fact, *W. frutescens* in the narrow sense, is known to grow well as far north as Rhode Island, and the Digital Atlas of the Virginia Flora shows naturalized populations of *W. macrostachya* to have been documented in 17 counties of Virginia, well east of its traditionally accepted natural range. In garden settings, just like the cultivated Asian species, both *W. frutescens* (in the narrow sense) and *W. macrostachya* (if recognized as distinct) can be grown in the "standard" form, which is achieved by assiduous pruning of all long, vine-like, stems.

The question of whether to "lump" or "split" *W. frutescens* and *W. macrostachya* is unresolved. The *Flora of Virginia* (Weakley et al. 2012) lumps them, including *W. macrostachya* as a synonym of *W. frutescens*, whereas the Digital Atlas of Virginia Flora (Virginia Botanical Associates 2021) maps these entities as distinct varieties, with a comment that, perhaps, status as two distinct species may be warranted. Weakley (2020) also treats these plants as varieties of *W. frutescens*. Another source, Isely (1990) notes only "diffuse" correlations among the supposedly distinguishing characteristics listed above to distinguish *W. frutescens* and *W. macrostachya*. Ultimately, the decision whether to "lump" or "split" *W. frutescens* and *W. macrostachya*, boils down to: 1) how much variability one is inclined to accept in a single species, 2) how much fuzziness one is inclined to accept at the boundary between two species, and 3) how well patterns of morphological disparity map to distinct geographic regions. Based on the relatively superficial summary presented here, my opinion is that the question remains open.

In summary, my effort to distinguish the species of Wisteria that may be encountered in Virginia has exposed what a good friend of mine might call, with a note of sarcasm, "a fine kettle of fish." The two Asian species appear to exist for the most part as a complex hybrid swarm and there are multiple ways to interpret the status of the two North American taxa. There is a lesson here. Sometimes, instead of revealing clarity, learning more merely illuminates the ambiguities of complex situations. ❖

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Tom Wieboldt
Pleased to live life as a botanist

Once again Society President Nancy Vehrs goes behind the scenes to introduce us to those volunteers whose hard work and enthusiasm make VNPS such a success. In this chat, Nancy checks in retired herbarium curator and native plant enthusiast Tom Wieboldt.

Tom Wieboldt retired five years ago as the longtime curator for the Massey Herbarium at Virginia Tech. He grew up near Covesville in Albemarle County and currently lives in Giles County just west of Blacksburg with Ali, his wife of 38 years. Let's learn a little more about him.

Nancy: As I like to ask everyone I interview for* Sempervirens*, how did you develop an interest in native plants?

Tom: It started early as my father taught me some trees and shrubs. Then as a teen, my neighbor, Peter Mehring, introduced me to birding. When he moved on to learning plants, I remember thinking, "Whoa! That's just too much!" But that didn't last long. We were teenage boys on adjoining farms with access to thousands of acres of field and forest and none of the distractions that kids these days face. We divided up plant families to learn so we could teach each other when we were out exploring. We learned from field guides at that time, but then my brother-in-law gave me a copy of *Gray's Manual of Botany*, 8th edition. I was hooked.

Nancy: Tell us a little about your academic training and how you launched your botanical career.

Tom: I took my first botany course my second year at The College of William & Mary from J.T. Baldwin who was a great encouragement to me. The next year, I was really in my element learning plant taxonomy from Gus Hall. I already knew most of the plants we were quizzed on, much to the chagrin of the other students who claimed it wasn't fair, but I used the opportunity to delve into families and genera I didn't know, especially grasses. I also took plant ecology from Stewart Ware whose new wife, Donna, soon had a devoted following of helpers in the herbarium where we volunteered. Thus began a lifelong friendship of doing botany. I don't know how it started, but we were both aware that there were numerous plants and places on the landscape that had not been revisited since Fernald and Long explored them in the 1930s and 40s. We read his papers in *Rhodora* and picked some species to go after on what came to be termed "Fernaldizing" expeditions. It was great fun and, of course, resulted in many interesting re-discoveries. A number of those sites are now state natural area preserves.

This period extended past graduation during which time I moved back to Albemarle County and hooked up with my birding friend, Mo (Charles E.) Stevens, who was now passionately collecting plants all over Virginia as part of a coordinated plan by Alton Harvill to map out the plants of Virginia by counties. Mo became a mentor in the truest sense of the word. The way I came to do botany was in every way greatly influenced by what I learned from

Tom Wieboldt outdoors. (Nancy Vehrs)

him. We both loved ridiculously long hikes to get to remote places. His use of topo maps, knowledge of geology and soils, special interest in ferns, and intrepid desire to see what was around the bend are just a few of the ways he influenced me. For the years when I lived near Charlottesville, we made almost weekly collecting trips together.

I spent a couple of years in school in Utah which didn't work out for me. My heart was with Virginia botany and collecting plants, but a seemingly near-death experience from malaria on a trip to Mexico didn't help either! I came back to Virginia and resumed botanizing with Mo and Donna. After a few years working for a surveyor and occasionally doing some volunteer work for The Nature Conservancy, I had a chance to work as a botanist when the Virginia Chapter of TNC hired Steve Croy and me to develop a list of rare species and target some sites for TNC to acquire. This fledgling effort was called the Virginia Biodiversity Information Program. We were given office space at the herbarium at Virginia Tech due to the good graces of Dr. Duncan Porter, Curator. In less than a year, the position of Assistant Curator of the herbarium opened up and I applied and got the job.

Nancy: Tell us about the herbarium and what your position entailed.

Tom: I was employed at the Massey Herbarium for 35 years, first as assistant curator, then as curator when Dr. Porter retired. I was responsible for the vascular plant and fungal collections initially. Later, bryophyte and lichen collections were added. Beside standard curatorial duties, we provided identification and information services to the university as well as the Commonwealth, state and federal agencies, and conservation organizations. I especially wanted the Massey Herbarium to well represent the flora of the central Appalachian and mid-Atlantic regions. I saw my mission as growing the collection through personal collecting and trading specimens with people I knew who were making important discoveries. There were many deficiencies to be filled, but it was a bit of a heyday for botanical collecting in Virginia due in large part to Alton Harvill's atlas project.

As in every discipline, computers began to change the herbarium. The "Information Age" was upon us and expectations were changing quickly. Herbaria were ideal for the creation of specimen databases, and nearly everyone jumped on the bandwagon. Georeferencing and imaging soon followed. This was a mammoth task, of course, especially for a regional collection with limited resources, so I dragged my feet at first. Moving the Massey Herbarium into this new era was my "new" job. The National Science Foundation poured federal money into programs to help, and we were able to hire students and introduce a lot of people to botany and systematic collections, in particular.

I shouldn't neglect to say that this whole time, the Massey Herbarium enjoyed a very fruitful collaboration with the Virginia Natural Heritage Program, sharing knowledge and discoveries, helping one another with taxonomic problems, and continually refining our knowledge of the Virginia flora.

Nancy: Where are some of your favorite places to botanize?

Tom: I love rock outcrop communities of all types and have always expended considerable effort to get to and explore them. Shale barrens, in particular, are a favorite not only because of the endemic species, but almost more because of rare species sometimes found there. Recently, I've learned that includes some bryophytes not previously known about in Virginia. I also love wetlands, especially marl marsh wetlands. The reasons are twofold. First, they abound with my favorite genus of plants, *Carex*, and secondly, many weren't very well explored. A third would be the fresh tidal marshes of the rivers entering the Chesapeake Bay. They are such pristine and idyllic places, especially when explored by canoe.

Nancy: Do you garden with native plants, and, if so, what would we find in your garden?

Tom: I'm not much of a native plant gardener. I have a small fern garden with a few select species, but other than that, have only a few things that are special to me for one reason of another. Seeing the natives in their natural environs is what really interests me.

Nancy: What have you been doing since you retired?

Tom: Since retiring in October, 2016, I've turned my attention to bryophytes and lichens. Although I collected and tried to identify specimens occasionally as much as 30 years ago, I never had the time to really get to know these groups. Working on both was fun, but now bryophytes have gained the upper hand! I'm collecting and donating specimens to herbaria, mostly the Massey Herbarium. I'm also still active with the Virginia Botanical Associates and, along with Johnny Townsend and Gary Fleming, administer the Digital Atlas of the Virginia Flora website.

Tom Wieboldt indoors. (Nancy Sorrells)

Nancy: What advice can you give students interested in a career in botany?

Tom: Over the years at Virginia Tech, I've told students that learning plants is a lot of work, but if it's something they enjoy, it's a great skill to have. But more than that, it opens one's eyes to the great diversity of species on the landscape. This is, I think, the single most unappreciated aspect of nature in our culture today. So, even if you cannot find a job as a botanist, it's well worth being one's avocationally. There is certainly a need for more botanists, but whether our society will acknowledge and value it is an open question. I'm a firm believer in following ones passions as much as possible. It took me quite a few years to find out I could actually make a living as a botanist!

Nancy: Thank you, Tom! ❖

Virtually Sept. 17-18

Annual Meeting: Virginia is for Conservation Lovers

Virginia is for Conservation Lovers is the theme for this year's virtual annual meeting September 17-18. Nikki Rovner, Associate State Director of The Nature Conservancy, will kick off our weekend on Friday night. She is a conservation force to be reckoned with in Richmond, especially with members of our General Assembly. She will speak to us about conservation successes, challenges, and legislative issues. We are fortunate to hear from a real conservation legal pro.

During the day on Saturday, we hope that you will participate on field trips that your local chapters may offer or go on a nature walk with friends or family. This will allow us to have both virtual and "real life" components of the weekend event and duplicate how our "normal" annual meetings are organized.

Saturday evening we will conduct our annual business meeting on Zoom. It will include the election of board members and the presentation of the budget for 2022. An electronic communication will announce the slate of nominations and annual budget.

To cap off our Saturday night, Natural Heritage Director Jason Bulluck will team with Rob Evans, the Natural Areas Protection Manager, for a program entitled "A New Chapter for Virginia Natural Heritage Program and Natural Area Preserves." They will share briefly what is new with budgeting and staffing and provide a more in depth review of recent land conservation successes resulting in a new Natural Area Preserve and many new additions to existing NAPs.

Visit
vnps.org/meeting21
for online registration.

With the purchase of 820 acres of old-growth forest, a portion of which is seen in this photo, the size of the Chestnut Ridge Natural Area Preserve expanded. (Courtesy DCR)

NIKKI ROVNER

Nikki Rovner is the Associate State Director of The Nature Conservancy. Nikki works to foster strong partnerships with government agencies and other organizations while advocating for the Conservancy's policy priorities with state and federal decision makers.

Nikki gained experience as a legislative staffer prior to joining the Conservancy, and then later served as Deputy Secretary of Natural Resources in the administration of Governor Tim Kaine. Nikki has served on the executive committee and as board chair of Virginia's United Land Trusts.

On the VaULT website she says, "Conservation is my passion, both because of its importance for the future of our planet and because it's endlessly fascinating. It's what I've wanted to do ever since I started reading Ranger Rick as a child. I feel incredibly lucky that my career centers on learning about and advocating for the natural world." Nikki has a B.S. in wildlife science from Penn State University and a J.D. from the University of Richmond School of Law.

The Nature Conservancy's Nikki Rovner

JASON BULLUCK

Virginia Natural Heritage Director Jason Bulluck

Jason Bulluck has served as Director of the Virginia Natural Heritage Program since 2017, after leading the Information Management section of the Program for 10 years.

A graduate with a degree in biology from Appalachian State University, he earned a master's degree in avian ecology in 2003. There he studied the use of southern Appalachian wetlands by breeding neotropical migratory songbirds, in order to learn how these declining species are utilizing these rare and disappearing habitats.

After his masters research, Jason contributed to other bird research in Nevada, Ohio, and Tennessee, including bird and vegetation data collection and analysis, and use of GIS for products to help prioritize conservation work of various entities.

Before joining the Virginia Natural Heritage Program in 2007, Jason was an ecologist/project manager at a private environmental firm in Tennessee, where he focused on a variety of NEPA-related fieldwork and reporting involving wetlands, and threatened and endangered plant and animal species throughout the Southeast.

As Information Manager and Director at Virginia Natural Heritage, Jason helped lead many efforts, notably development and implementation of Virginia ConservationVision, a statewide land conservation prioritization; Virginia's Conservation Lands database; predictive distribution modeling for rare, threatened and endangered species; land conservation goals of four governors, including Northam's now-codified ConserveVirginia; the development of a forest fragmentation mitigation approach and grant programs; the Virginia Pollinator-Smart Solar initiative; development and evolution of the Virginia Natural Heritage Data Explorer for environmental review and conservation planning; and data sharing with hundreds of partners. Virginia Natural Heritage is long recognized as a leader in a Natural Heritage network of over 80 programs, based on the program's commitment to the Heritage methodology and continually innovating to stay relevant, impactful and successful in the conservation of Virginia's biodiversity.

ROB EVANS

Rob has served as the Natural Area Protection Manager for the DCR's Natural Heritage for six years. Prior to this, he led the North Carolina Plant Conservation Program's efforts to conserve that state's imperiled flora through many novel restoration projects, scientific assessments, and protection projects. He has also worked for both NatureServe and The Nature Conservancy as a southeastern regional vegetation ecologist, and plant ecologist for the United States Forest Service in Texas and botanist for the National Forests in Florida.

He holds a master's from Stephen F. Austin University in Texas, and an undergraduate degree from Northland College, where he was selected for the first Sigurd Olson Fellowship Award. A native of the midwest, Rob spends his free time controlling invasive species in the James River Park in Richmond and visiting natural areas across the eastern U.S.

Natural Areas Protection Manager Rob Evans

VIRGINIA NATIVE PLANT SOCIETY

Sempervirens (ISSN 1085-9632) is the quarterly newsletter of the Virginia Native Plant Society, Blandy Experimental Farm, 400 Blandy Farm Lane, Unit 2, Boyce, Va. 22620, 540-837-1600, info@vnps.org. Nancy Vehrs, President; Nancy Sorrells, Editor; Karen York, Office Manager. Original material in *Sempervirens* may be reprinted if credit is given to the Virginia Native Plant Society, to *Sempervirens*, and to the author of the material, if named. Readers are invited to send letters, news items, and queries for consideration. E-mail items to Nancy Sorrells at lotswife@comcast.net.

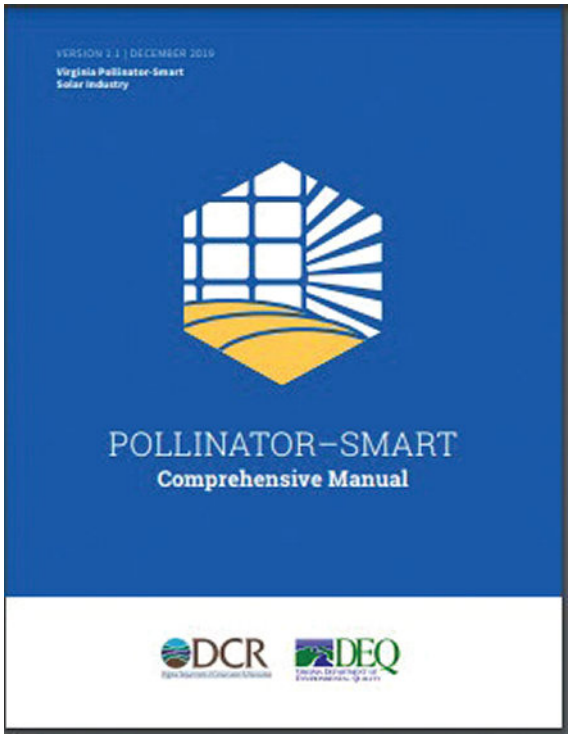
Next submission deadline: Oct. 15, 2021

'Pollinator-Smart' enhances green energy

In September 2019, the Virginia governor signed Executive Order 43 establishing ambitious statewide clean energy goals including 30 percent of Virginia's electric system powered from renewable sources by 2030 and 100 percent of electricity from carbon free sources by 2050. This, among other incentives, has been the driving forces behind renewable energy development in the Commonwealth. Since 2015, the Department of Environmental Quality (DEQ) has issued 60 permits generating a little over 2,924 megawatts impacting a total of approximately 34,630 acres. An additional 69 new projects have been proposed (3,186 megawatts), totaling an additional 61,131 acres. With the requirement of over 16,000 megawatts of solar and onshore wind through the Virginia Clean Economy Act, there is potential for the development of over 200,000 acres in Virginia.

With the coming of age of the solar industry in Virginia, momentum is building nationwide to combine green renewable energy with other environmental benefits including reduced soil and water runoff, the capture of atmospheric carbon, and the establishment of pollinator habitat on these solar sites. Most of our native pollinator species have co-evolved with native plants and are dependent on them for food and shelter. Similarly, insect predators that reduce insect pest species that impact agriculture and native bird species depend on native plants to support a diverse food supply. The economics of solar projects are also increased by more intensive use of a diversity of native plant species. For instance, evapotranspiration rates of native broadleaf species compared to cool-season grasses have been shown to reduce air temperature at a solar site and thus increase panel productivity. Annual costs of mowing non-native grasses remain static over time, while mowing for expertly selected native plant species mixes go down as the plants become established.

To encourage solar developers and operators to consider this ecologically responsible approach, in 2019 the DEQ and the Department of Conservation and Recreation-Division of Natural Heritage (DCR) teamed up with other experts to establish a Pollinator-Smart Program for Virginia. (www.dcr.virginia.gov/natural-heritage/pollinator-smart) The voluntary program allows developers to assess their proposed project including the planting plan and other ecological assets of the facility using a scorecard to determine if they are meeting Pollinator-Smart criteria to benefit pollinators. Other resource tools include a comprehensive manual on how to establish native pollinator habitat including the use of the DCR solar native plant finder application (www.dcr.virginia.gov/natural-heritage/solar-site-native-plants-finder) to develop the native seed mix for a particular physiographic province. This database application derived from the Flora of Virginia, a project sponsored by the Virginia Native Plant Society, includes over 1,600 native species. Developers can query the database providing results of commercially available native species suitable for a particular locality and other site conditions such as light, moisture, blooming period and height requirements. There is also a monitoring plan to sustain the Pollinator Smart certification once established and a business plan including a grower's network to facilitate the development of a native seed industry in Virginia including Virginia ecotypes. The proposed Virginia native seed program is similar to the Arkansas Natural Heritage Commission Native Seed Program established as a collaborative effort among federal, state and local agencies, non-profits and private organizations in 2016.



The cover of Virginia's Pollinator-Smart manual.

In March of 2020, the Cople Elementary Solar Project in Westmoreland County was designated as the first Pollinator-Smart Solar Site by the new program. The project achieved the highest Pollinator-Smart designation by including over 75% cover for the open area and panel zone of the facility in native pollinator species, using a diverse seed mix of over 20 native species, selecting pollinator plant species that bloom throughout the growing season, developing an approved vegetation management plan and providing habitat for native pollinators. Through

BEFORE & AFTER PLANTING POLLINATOR PLANTS

Cople Elementary School in Westmoreland County, Virginia, became the state's first gold certified pollinator-smart facility in Virginia. The top photo shows the ground under the newly-built project being prepared for planting. The bottom photo is of the project this summer during the second growing season. (Photos courtesy of Ernst Pollinator Service and VHB)

the development of solar energy, the elementary school expects to save $3.6 million in energy costs over the lifespan of the project. In addition, the initiative project designed by Sun Tribe Solar, in collaboration with the Westmoreland School System, will provide educational and research opportunities for students, faculty and the Westmoreland community. For questions about the Virginia Pollinator-Smart Program, please send an email to the pollinator-smart team at pollinator.smart@dcr.virginia.gov.

—S. René Hypes, Project Review Coordinator
DCR, Division of Natural Heritage

Pollinator Plants & Solar Arrays in the Shenandoah Valley

(Photos courtesy Nancy Sorrells)

Rare bumble bee visits retirement community

Over the last three years, Westminster Canterbury on Chesapeake Bay in Virginia Beach has converted considerable amounts of turf to native plant gardens. The primary goal of this transformation has been to create wildlife habitat while beautifying the campus.

Recently, a Southern Plains Bumble Bee, *Bombus fraternus*, bore witness to our success (Sam Droege, a bee expert from USGS confirmed this ID).

Buckeye Butterfly on Seaside Goldenrod.

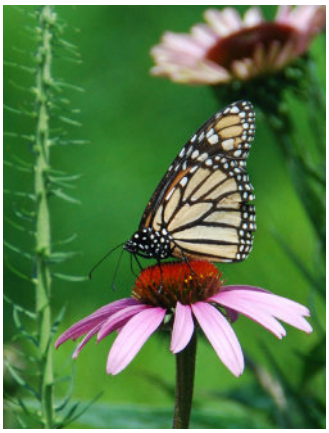
(Photos courtesy Janet Pawlukiewicz)

The species has experienced dramatic decline in both population (abundance down to about 14% of historic numbers) and distribution (range reduced by approximately 30%) over the past decade. As a result, the Commonwealth of Virginia lists it as an "imperiled" species.

Despite the vulnerable status of its species, this individual turned up to take pollen and nectar from the Joe Pye Weed planted in the new wildlife gardens. The Southern Plans Bumble Bee is not alone. Numerous species of butterflies and other native bees draw sustenance from the gardens. Just goes to show that planting natives really can help preserve our natural heritage!

—Janet Pawlukiewicz

Southern Plains Bumble Bee, *Bombus fraternus*



Monarch on Coneflower

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