VNPS 40 Year Celebration: 1982-2022

Sempervirens

The Quarterly of the Virginia Native Plant Society

Nicky Staunton
Early days of excitement, discovery remembered

My 40 years of botany with the Society have been full of mysteries, curiosity, research, learning, excitement, travel, and always with kind plant people. Therefore, our advocacy on behalf of Virginia's native plants, familiar, common or rare, has always been full of moments of noticing beauty, seeing unknown plants, wondering, learning, excitement, and the will to work for protection of flora wherever they live naturally, and wanting everyone to notice plants, beginning with what is around them.

My memories stretch back to 1981 when our Prince William Wildflower Society rescue team planned to save some wetland plants, and our first mission aimed to save spring wildflowers along Flat Branch in Prince William County. Development of the target area was imminent. Buckets, spades, gloves, boots…we were eagerly ready. Municipal permissions to collect had been granted. We had permission to transplant our rescued plants in a park. I recall Nancy Arrington leading us that day. We were new friends of spring wildflowers in Marion Blois Lobstein's Northern Virginia Community College (NVCC) biology class where we had learned about wildflowers in NVCC parking lot pavement cracks and a nearby natural woods edge. Our new wildflower field notebooks were ready to report our plants; *Newcomb's* was our handy pocket guide.

Dr. Robert Mueller and then VNPS President Nicky Staunton stand with the plaque designating Mueller's Marsh-Folly Creek Fen as the Society's second Registry Site. (Nicky Staunton)

The reality of effort, planning, strength to dig and tote plants with wet roots a respectable distance to parked cars, sowed seeds of enlightenment. We had buckets of heavy plants that now needed quick transplanting. At that time, it wasn't easy to locate natural areas for all we had rescued, and those extras were installed in home gardens to propagate for future chapter plant sales, providing a bonus round for gardening members.

The real "seeds" sown that day included the realization that rescue and relocation were not possible considering the rapid development in Northern Virginia, the need to locate suitable natural areas for displaced plants, and the manpower needed to accomplish the task quickly without losing plants.

"Conserving wildflowers in wild places" where the plants were already established was a better, more efficient goal. The tough work became advocacy to preserve the plants in their natural habitat communities.

In 1981, few people gave second thought to plants, much less understood why such a thing was necessary. Audubon birders, focus by the Virginia Department of Game and Inland Fisheries on fauna, and The Nature Conservancy were forming, but Virginia's Natural Heritage program was yet to be created. Garden clubs' conservation efforts had begun, but our "wildflowers" did not distinguish native and non-native plants initially.

We soon realized that native flora species needed flora advocates who would focus on preserving plants in situ, while partnering with other natural resource organizations in Virginia, the Mid-Atlantic and nationally. Mountains, waterways, animals, and other natural elements had advocates and with our founding, Virginia flora now had its dedicated advocates.

(See Places, Plants, People, page 2)

Places, Plants, People

(Continued from page 1)

The Virginia Wildflower Preservation Society, incorporated in 1982 by founder and president Mary Painter, focused advocacy for Virginia flora in natural habitats or established sites, and sought to protect especially flora on land in danger of destruction. A few years later, with an increased understanding of how native flora faced acute danger of survival, the society's board of directors voted to become the Virginia Native Plant Society.

In my 40 years of advocacy for native plants and habitat experiences, there are many plants, places and people I have met, shared efforts with and treasured. Here are just a few.

VNPS Registry Program

Our Registry program began with a partnership to protect millions of *Trillium grandiflora* at Virginia's G. Richard Thompson Wildlife Management Area on Blue Mountain, in Markham, Va. On a cold, wet spring day, Piedmont Chapter members Jocelyn Sladen, Gary Fleming, and I, as VNPS President, met with Jim Remington, Jerry Sims, and Bob Duncan of the Virginia Department of Game and Inland Fisheries (now Virginia Wildlife Resources) to discuss possibilities. Duncan, who later went on to become executive director of VDGIF, noted that he had enjoyed the Trillium flowers while hunting spring gobblers. The process of creating our first Registry was launched that day and culminated in The Marjorie Arundel Wildflower and Birding Trail, named for Jocelyn's deceased mother.

The second VNPS Registry site, on Robert and Elizabeth Mueller's private land in Augusta County, was Mueller's Marsh-Folly Creek Fen, now a Virginia Natural Area Preserve. Shenandoah Chapter members Jay Shaner, Jacob Kagy, Alvin Dove, and Doris True recommended the Mueller's VNPS registry.

Menyanthes trifoliata, Buckbean, (G-5 S-1) is one of the fen's rare plants. Years later, I next saw Buckbean far away in a fen on Canada's Bruce Peninsula during a VNPS weeklong tour of the Bruce that I co-led with Stan Shetler.

Discovering a rare plant

Yet another exciting native plant experience was the discovery of *Bartonia verna*, White Screwstem, (G-5 S-1), on a sand dune of False Cape State Park, Virginia. I learned the important lesson of looking at the plants you know, and seeking plants you do not know. One never knows where those plants might be or what they might be.

In the spring of 2001, a little group of VNPS members who shared a rescheduled VNPS field trip at False Cape also shared discovery of a rare plant not recorded since Fernald recorded it there in 1935. Until recently, that park remained the sole known location of *Bartonia verna*. Our trip leader that day, Vickie Shufer, president of South Hampton Roads Chapter, led us on a morning walk to nearby sand dunes where some pines shared the savannah community. A strange pine needle was upright in the sand near my foot. Curious. A closer look revealed a single, reddish-tinged four-inch thread stem with a tiny white bulge at its apex. There were no basal leaves, so that excluded a *Draba verna*, although it and our mystery plant shared the character of four petals. Leaf characters led to identification because we knew that *Bartonia* appressed scale-like leafs spaced alternately up the thread-stem, while *Draba*, developed basal leaves around its thicker stem.

Nobody in our group could identify it and we could not find it in our field guides. Elaine Haug and I spent several months searching *Floras* of northeastern U.S., W.Va. and Md. Suddenly, I had an overdue epiphany. We were on the North

My drawing of *Bartonia verna* that appeared in the VNPS newsletter. (NIcky Staunton)

Carolina coastal border. I checked *Vascular Flora of the Carolinas*, and there it was, *Bartonia verna*.

In the VNPS newsletter, my article about that False Cape State Park field trip included my pen and ink drawing of the plant, yet to have a confirmed identification. Allen Belden, VNPS DA for DCR-NHP, contacted me when he saw the article. That was when the rare little White Screwstem, *Bartonia verna* that was last reported by Merritt Lyndon Fernald in 1935, was confirmed. Subsequently, Johnny Townsend visited the site, established its *in situ* identification and located several more small communities of *Bartonia verna*. Citizen science is important.

It has been a wonderful 40 years. Yes, I speak aloud to plants in their presence, telling them how beautiful they are, and, puffing a bit of CO2, what I call a plant kiss, upon them, and then pass on to the next plant on my path.

I am grateful for being part of such worthy efforts reaching out from the native plant base of Virginia Native Plant Society members. ***Semper virginiensis***! was proclaimed by Larry E. Morse, NatureServe botanist, a charter advisor to Virginia Wildflower Preservation Society. ❖

Celebrating an amazing 40 years!

From the President, Nancy Vehrs

Forty years! What a milestone for our organization. With more than 2,500 members now and an amazing social media presence, we have made significant strides in "Conserving Wild Flowers and Wild Places" over the years. From our origin as the Virginia Wildflower Preservation Society to our identification as the Virginia Native Plant Society, VNPS has grown and evolved with advances in science and technology.

Many people have heard my story describing how I first came to love wildflowers – discovering acres of enchanting Virginia Bluebells along nearby Bull Run when I was out riding my bicycle as a girl. But what made me decide to join the VNPS? I credit two dear friends, my longtime school friend Kim Bowling Largen (an alumna of the University of Virginia), and my college roommate at William & Mary, Annie Walton Scherger.

After graduating from college, I rented a house with some high school friends, including Kim, who had introduced me to hiking and camping. Following a stint in the Peace Corps in Africa, Kim found a job with the Prince William Extension Office and decided to pursue a graduate degree in biology and environmental science at George Mason University. She took a botany class with Ted Bradley and went on field trips where students collected plant samples. She would press these plants on herbarium paper at home. She also told me how the students were expected to identify plants with scientific names on an exam. "How daunting," I thought! I never took biology on a college level and was an economics major who also took a lot of English and history classes. I did love flowers and planted a lot of them at our rental home. I mentioned to Kim that maybe I should join a garden club. She said that she would much prefer joining the Prince William Wildflower Society (PWWS). Hmm. A seed was planted.

In 1987, having lived in group situations since 1981, I had saved up enough money to buy my own house. However, having a good friend for a housemate appealed to me. At the time, my college roommate lived with her family in Wyoming and didn't have a career-type job. I invited her to visit me with the hope that she might want to move in with me. She visited for a few weeks in April. While I was at work in Fairfax, she explored the city of Manassas and visited its museum. There she picked up a brochure about a wildflower garden tour that PWWS was holding that weekend. Annie had always enjoyed gardening and was a Master Gardener out west. We visited three lovely woodsy gardens in the Manassas area, and two of the gardeners (Nancy Arrington and Marie Davis) are still active members today. The garden hosts and volunteers were so friendly and enthusiastic. The next weekend PWWS held its annual plant sale at a nearby church. Annie and I moseyed over to the sale on foot late on that Saturday morning. When we arrived, there were very few plants left, but I purchased two Bloodroot, a Black Cohosh, and a Lady Fern. It's a good thing that the stock was low, because we had only two sets of hands to carry those treasures home. I'd like to report that those plants are still thriving in my garden, but, alas, they have long disappeared. And my friend Annie decided to return to her native Wyoming where she still lives today after having raised two children there with her husband.

Did I join PWWS after those positive experiences? No, not yet. Over the next few months, I saw notices in the local newspaper (remember them?) about PWWS meetings, but often read about them too late to attend. In November of 1987, I saw a profile of Nicky Staunton in the *Manassas Journal Messenger.* I also saw a meeting notice and decided to hop in my car and attend the meeting that was to take place within minutes. This was a big step for me, a severe introvert. The people were friendly, the program interesting, and I finally joined by around the end of the year. The next year I became chapter secretary, and the VWPS was in the midst of becoming the VNPS. Later I served as VNPS corresponding secretary for a few years when Nicky was president and, before I knew it, I served a term as chapter president. I served in many other roles in my chapter over the years: plant sale chair, hospitality chair, membership chair, publicity chair, and newsletter editor. By serving several non-consecutive terms as chapter president, I attended VNPS board meetings as the chapter representative and, later, recording secretary. Once I retired from the working world, I was elected to the VNPS presidency later that year.

I enjoyed seeing many of you at our annual meeting at Natural Bridge were we celebrated our 40 years of "Conserving Wild Flowers and Wild Places." As we head into the future, please encourage others to join in the fun. ❖

Alkaloids of *Cephalanthus* and Other Rubiaceae

Article by W. John Hayden, Botany Chair

Alkaloids constitute a category of plant-derived molecules that are of major importance to us humans. "Importance," of course, encompasses both good and bad qualities. Thus, some familiar examples of important alkaloids include nicotine from Tobacco (*Nicotiana tabacum*), caffeine from the Coffee Tree (*Coffea arabica*), cocaine from the Coca plant (*Erythroxylum coca*), atropine from Belladona (*Atropa belladonna*) used as an antidote to certain kinds of nerve gas poisons, and the multiple opiate alkaloids derived from the Opium Poppy (*Papaver somniferum*), some of which have beneficial medical qualities and others dangerously addictive. What these examples have in common is that these alkaloid molecules have the capacity to alter human physiology, and it is precisely because of that ability that alkaloids range from life-saving drugs to deadly poisons to pernicious agents of addiction.

The ability to synthesize alkaloids is not widespread in the plant kingdom. Plants classified in only a few flowering plant families have this ability. One of the alkaloid-producing families is Rubiaceae, the Madder Family. The 2022 Virginia Native Plant Society Wildflower of the Year, *Cephalanthus occidentalis*, (Buttonbush) (Figure 1) is classified in Rubiaceae and, like its closest relatives, *Cephalanthus* can make alkaloid molecules.

To introduce the chemistry of alkaloids, it is first necessary to understand the difference between primary and secondary metabolism in plant biology. Many aspects of plant biochemistry are widespread across diverse groups of plants. The molecules involved in photosynthesis, or cell division, or cell wall synthesis would be good examples of common molecules, nearly universally present in all plants; these molecules function in what is called primary metabolism. But these fundamental, common, basic agents of plant biochemistry are not the whole story of plant biochemistry. In addition to the molecules of primary metabolism, there exists a tremendous diversity of molecules that are found as special features present only in relatively small taxonomic groups of plants, categories of molecules that are unique to a family or unique to a genus. These specialized molecules, not widespread across plant diversity, are called secondary compounds and the biosynthetic pathways that make them constitute what is known as secondary metabolism. Plant secondary compounds include things like the terpenes responsible for the distinctive odors of mints, plant steroids similar to certain human hormones, and the oleoresins that make us itch when exposed to Poison Ivy, just to name a few examples.

Alkaloids constitute a category of diverse secondary compounds produced by plants. To be considered a typical alkaloid, the molecules must contain one or more rings of atoms arranged in ring-like structures with at least one atom of the ring being nitrogen (Figures 2-4). Also, these molecules tend to be alkaline or basic in water solution, hence the origin of the term alkaloid. And finally, as mentioned above, part of the definition of an alkaloid molecule is that it has the capacity to alter, in some way, the physiology of vertebrate organisms, such as us human beings.

How do alkaloids alter physiology? The details vary from example to example, but the general explanation is that a given alkaloid molecule has just the right size and just the right shape and just the right pattern of positive and negative charges to interlock with molecules in our bodies that control some sort of physiological process. Figuratively, adding plant-derived alkaloids can be like squirting oil into our metabolic machinery, making the physiology operate efficiently, OR it can be like throwing a monkey wrench into the well-oiled machine we wish our bodies would emulate. As drugs, alkaloids can have beneficial or negative, and even lethal, effects.

Figure 1. *Cephalanthus occidentalis*, Buttonbush, the 2022 VNPS Wildflower of the Year. (John Hayden)

Of the "important" alkaloids enumerated in the opening paragraph, caffeine (Figure 2) from coffee comes from the same family as *Cephalanthus*, i.e., Rubiaceae. Legend has it that the effects of consuming seeds of the Coffee plant (*Coffea arabica*) were first observed by shepherd boys in the mountains of Ethiopia. Whenever their goats foraged among Coffee plants with ripe fruits and mature seeds, the shepherds noticed that their flock became livelier. I suppose some adventurous goat herder decided that what seemed good for the goats might also be good for the shepherd! Eventually, cultural diffusion brought coffee use to the Arabian Peninsula, and from there, Arab traders brought coffee to port cities in the Mediterranean and, as Europeans spread across the globe, they established coffee plantations wherever their tropical colonies had sufficient moisture to support growth of the plant. Best known for its stimulant properties, the caffeine alkaloid of coffee exerts a stimulatory effect by blocking brain receptors responsible for the sensation of drowsiness—the opposite of drowsy is alert!

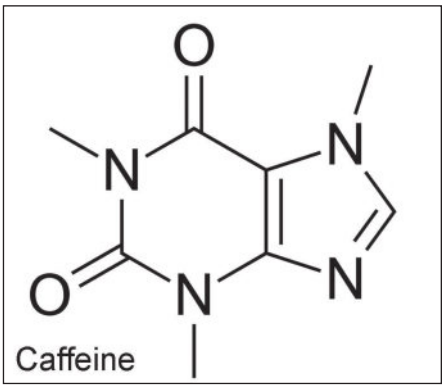

Figure 2. Molecular structure of caffeine, an alkaloid found in coffee. (Public domain image from Wikipedia)

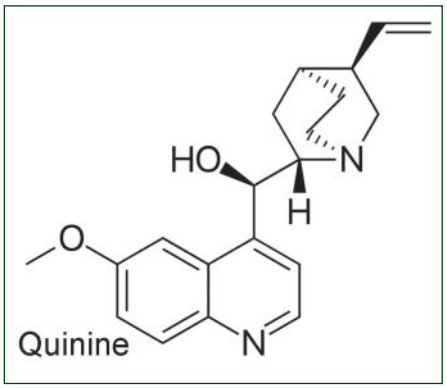

Figure 3. Molecular structure of quinine, the alkaloid used historically to cure malaria. (Public domain image from Wikipedia)

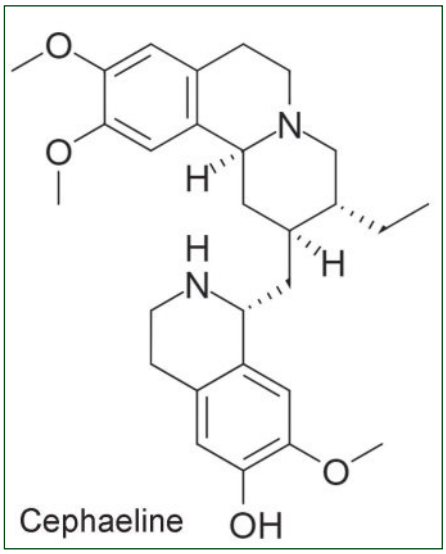

Figure 4. Molecular structure of cephaeline, an alkaloid, the active ingredient of syrup of ipecac derived from roots of *Carapichea ipecacuanha*, also one of several alkaloids found in *Cephalanthus*. (Public domain image from Wikipedia)

Quinine (Figure 3) is another "important" alkaloid from the family Rubiaceae. Quinine is derived from the bark of several species of *Cinchona* trees found in the Andean region of South America. One of the physiological effects of quinine is its ability to inhibit the muscle contractions responsible for shivering. Prior to the Spanish Conquest, malaria was unknown in the region, but once malaria became endemic, the indigenous people treated bouts of shivering caused by malaria with quinine. By a stroke of good luck, it turned out that the quinine alkaloid not only controlled malaria-induced shivering, it also is toxic to the malaria parasite. Eventually this folk medicine found its way into the pharmacopoeia of the day and, for several centuries, around the globe, quinine was medicine's most effective cure for malaria. Eventually, the parasite evolved resistance to natural quinine and medicine was forced to shift to synthetic variants of the molecule, and then to a completely different molecule, artemisin, derived from *Artemisia annua*, a Daisy family plant native to China but now of widespread distribution in North America. Historically, quinine saved millions of lives; clearly, quinine qualifies as an important alkaloid.

What can be said about the alkaloids of *Cephalanthus occidentalis*? One alkaloid, cephaeline (Figure 4), can be isolated from the bark of our 2022 Wildflower of the Year. This molecule is the active ingredient of ipecac, a drug that has, in the past, been used to induce vomiting as a treatment for the ingestion of poisons. The same molecule is present in a related tropical plant called Ipecacuanha (*Carapichea ipecacuanha*) that for many years served as the commercial source of the drug. Currently, however, the cephaeline alkaloid of ipecac syrup is no longer recommended for treatment of poisoning—it induces too many side effects that interfere with diagnosis of what poison was ingested. Further, treating cases of poisoning with activated charcoal is now considered more effective.

Other alkaloids have been isolated from other species of *Cephalanthus* and also from related genera of Rubiaceae. These additional alkaloids include tetrahydroalstonine, mitraphylline, and uncarine E. Small quantities of these alkaloids may well be present in *Cephalanthus occidentalis.* These three alkaloids are under active investigation for their potential beneficial effects in fighting cancer and improving heart and circulatory system function. But from what I can see after a quick perusal of the literature, biomedical science is just chipping away at the tip of a large iceberg here—much remains to be learned before any of these alkaloids can enter mainstream medical practice. But it is cool to imagine that some new anticancer drug or powerful heart medicine may emerge from research on Buttonbush and its close relatives.

But let's not get carried away. Nothing in the previous paragraph should induce anyone to consume tea from Buttonbush bark. There is more to the secondary compound chemistry of Buttonbush than alkaloids. The possibly beneficial alkaloids of Buttonbush co-occur with another secondary compound, cephalanthin, a glycoside known to dissolve red blood cells. And the medical implications should be clear: intact red blood cells are good, dissolved red blood cells are worse than useless.

A thought in closing. Many important drugs have been derived from plant sources. But only a small fraction of the vast array of secondary compounds produced by the vast taxonomic diversity of plants have been evaluated for their potential medical value. Yes, yes, it is important to preserve native plants and natural habitats for their conservation and wildlife value. But in terms of potential medical benefits, conservation of plants and natural habitats is also of direct importance to us *Homo sapiens,* the dominant inhabitants of this good, green, Earth. ❖

Discovering late blooming ladies'-tresses

From Your Natural Heritage Program
By Zachary R. Bradford
Chesapeake Bay Region Steward

In the previous issue, I introduced Virginia's ladies'-tresses orchids that flower from spring into late summer. Despite some overlap in flowering time with those previously discussed species, the plants in the nodding ladies'-tresses complex ("the complex") covered here are decidedly late flowering (late August at the very earliest through November) and have flowers that usually occur along the stem in three or four distinct straight to slightly twisting vertical ranks. Compared to the species covered earlier, species in the complex are difficult to differentiate from each other. They are close relatives, some even being lumped together as a single species until recently. To minimize frustration, pay special attention to lip color and shape, lateral sepal shape and attitude, and habitat. It should also be understood that even the purely white-flowered species may have a faint bit of yellowish coloration near the bases of the lips where tissue is thickest. While it isn't a good practice to identify plants solely on geographic location, several members of the complex are strongly narrow in their ranges within the state. With this group, leaves are similar between species and generally aren't very helpful with identification, and the dry-site species sometimes lose their leaves by flowering time. Occasionally you will find plants that defy quick identification and require careful study of floral structures under a microscope. However, with the unique combination of characters (UCC) presented with each species you should be able to reach confident identifications for most plants you encounter without the need for special equipment beyond a hand lens. For this group, remember that late summer to autumn flowering time and flowers in multiple vertical ranks are parts of each species' UCC.

	Nodding	Atlantic	Marsh
Leaf length	8.7-20 cm	15-21.4 cm	13-51.7 cm
Leaf width	0.4-1.1 cm	1.4-1.7 cm	1.8-2.7 cm
Lip color	white	white	centrally pale yellow
Scent	no	yes	yes
Stolonous growth	no	yes	yes
Virginia range	statewide	Eastern Shore	Coastal Plain (excluding Eastern Shore)

Measurements from Pace M.C. (2021) *Spiranthes bightensis* (Orchidaceae), a New and Rare Cryptic Hybrid Species Endemic to the U.S. Mid-Atlantic Coast. Phytotaxa 498(3): 159-176.

Appalachian Ladies'-tresses (*Spiranthes arcisepala*) – Appalachian Ladies'-tresses is very similar to Nodding Ladies'-tresses. They are both have white flower lips and grow in the same sunny, wet habitats like seeps and roadside ditches. Complicating things, they even sometimes grow in close proximity to each other. Appalachian Ladies'-tresses flowers have lateral sepals that arch downward (hence the epithet *arcisepala*), while the lateral sepals of Nodding Ladies'-tresses sweep upward and

Appalachian Ladies'-tresses (Amanda Lee)

Atlantic Ladies'-tresses (Jason Hartke)

Nodding Ladies'-tresses

Great Plains Ladies'-tresses

Yellow Nodding Ladies'-tresses

meet the dorsal sepal and lateral petals. Additionally, the individual flowers of Appalachian Ladies'-tresses are more squat or square in proportion while Nodding Ladies'-tresses flowers are more elongate. As the common name implies, this newly described species is restricted to the mountain counties and should be actively sought in the hopes of increasing our understanding of the distribution of this species in Virginia. **UCC:** lips white, lateral sepals arching downward

Atlantic Ladies'-tresses (*Spiranthes bightensis*) – Atlantic Ladies'-tresses is our rarest member of the complex and was described as new to science in 2021. Restricted to the Mid-Atlantic coast, this species has faced precipitous declines due to the rapid development of the area over the last century. It is thought to be an ancient, self-perpetuating hybrid between Nodding Ladies'-tresses and Marsh Ladies'-tresses and appears intermediate between the two: generally larger than Nodding Ladies'-tresses but smaller than Marsh Ladies'-tresses. Like Marsh Ladies'-tresses, it has a sweet scent and stolonous growth while it shares white lips with Nodding Ladies'-tresses. (See the chart for a breakdown of the differences between these three visually similar species.) Our most readily available ladies'-tresses orchid in cultivation, the "Chadds Ford" cultivar, was previously thought to be Nodding Ladies'-tresses or Marsh Ladies'-tresses but is actually this species. In Virginia, Atlantic Ladies'-tresses is known only from Accomack County. It should be sought on the Eastern Shore in freshwater to slightly brackish marshes, waterfowl impoundments, and pond margins. **UCC:** lips white, scented, stolonous growth habit, growing on the Eastern Shore.

Nodding Ladies'-tresses (*Spiranthes cernua*) – Most of the species listed here were once lumped together within a broad concept of Nodding Ladies'-tresses. Closer inspection by numerous botanists as well as advances in genetic analysis have resulted in a considerable narrowing of what constitutes true Nodding Ladies'-tresses. Nevertheless, this species remains the most widespread of all our autumn-flowering ladies'-tresses. It can be found across the entire state in open, wet habitats like seeps, roadside ditches, and pond margins. Identifying Nodding Ladies'-tresses is largely an exercise in comparing with the lookalike species in the geographic area. In the mountains, Nodding Ladies'-tresses can be identified by its white flowers (versus centrally pale-yellow lipped Great Plains Ladies'-tresses and off-white Yellow Ladies'-tresses) and upswept lateral sepals (versus downwardly arching in Appalachian Ladies'-tresses). Along the coast, Nodding Ladies'-tresses overlaps with Atlantic and Marsh Ladies'-tresses. (See the chart for key differences between the three species.) **UCC:** white lips, upward swept lateral sepals, non-stolonous growth habit.

Great Plains Ladies'-tresses (*Spiranthes magnicamporum*) – The presence of Great Plains Ladies'-tresses in Virginia is truly remarkable. It is one of the more recent orchid discoveries in Virginia, having been first discovered in the state by Chris Ludwig in 1996. Great Plains Ladies'-tresses begins flowering in early October at the few known Virginia sites, all of which are located on dolomite or limestone barrens or open woodlands in the southwest mountains. The Virginia occurrences of this species constitute a significant disjunction from the main range of this species in the Midwest, and our populations often grow alongside other decidedly Midwestern species. Great Plains Ladies'-tresses is readily identifiable by its gracefully arching lips that are centrally pale yellow. Additionally, its lateral sepals sweep outward before curving back in at the top of the flower. Our only other autumn-flowering ladies'-tresses with yellow lips is Marsh Ladies'-tresses, which is restricted to the coast. **UCC:** lips centrally yellow, growing in dry habitats underlain by dolomite or limestone.

Yellow Nodding Ladies'-tresses (*Spiranthes ochroleuca*) – As the name implies, Yellow Nodding Ladies'-tresses orchid flowers are off-white or yellowish and have a distinct dollop of butterscotch

(See Late bloomers, page 8)

Late bloomers among state's ladies'-tresses

Marsh Ladies'-tresses

October Ladies'-tresses

(Continued from page 7)

coloration on the upper surface of the base of the lip. The lateral sepals are sharp-tipped and usually point straight forward as opposed to sweeping up toward the top of the flower as in Nodding Ladies'-tresses. Yellow Nodding Ladies'-tresses prefers sunny, dry, and often acidic situations in the mountains and adjacent inner piedmont, and frequently grows in association with ericads like blueberries (*Vaccinium*) and huckleberries (*Gaylussacia*). Two places to see this species in abundance in Virginia are Big Meadows in Shenandoah National Park and the upper flanks of Whitetop Mountain in the Mount Rogers National Recreation Area. **UCC:** Off-white flowers with butterscotch coloration at base of lip, growing in dry and usually acidic habitats in the mountains and rarely piedmont.

Marsh Ladies'-tresses (*Spiranthes odorata*) – Marsh Ladies'-tresses is Virginia's tallest ladies'-tresses orchid, with especially robust stems reaching about a meter in height. Across its range, Marsh Ladies'-tresses prefers habitats that are frequently inundated, be it from lunar tides, wind tides, or periodic flooding. In Virginia, Marsh Ladies'-tresses is largely restricted to freshwater tidal marshes along the Chesapeake Bay's major tributaries, but there are also some older records from swampy sloughs in the Chowan River watershed. Additionally, this species can be found in abundance in the vicinity of False Cape State Park and Back Bay National Wildlife, with the trails around the visitor center of the latter being excellent places to view it. Marsh Ladies'-tresses starts flowering around the first of October and can flower deep into November in the far southeastern corner of the state, making it, along with Nodding Ladies'-tresses, our latest-flowering native orchid. While Marsh Ladies'-tresses is fairly distantly related to the other species here, it strongly resembles some members of the complex and its ancient hybrid with Nodding Ladies'-tresses was recently discovered and named Atlantic Ladies'-tresses. See the table above for a summary of the differences between Marsh Ladies'-tresses and its closest lookalikes. **UCC:** lips centrally yellow, growing in freshwater tidal marshes or flooded swamp sloughs.

October Ladies'-tresses (*Spiranthes ovalis* var. *erostellata*) – Of all the members of the complex in Virginia, October Ladies'-tresses is most distinctive and easy to identify. Unlike the other species that uniformly occupy open, sunny areas, October Ladies'-tresses is found in a variety of moist, often base-rich forests like floodplains and mesic woods underlain by calcium-rich or mafic rocks. This species is most abundant in the central and southern piedmont but can be found in all physiographic provinces. October Ladies'-tresses is a plant on the move; it is rapidly expanding its range, both within Virginia and across eastern North America. Flowers of October Ladies'-tresses self-pollinate and therefore do not fully open and are much smaller than those of the other species in the complex. In some individuals, the distinct pointed lips shrivel up and turn brown long before the rest of the flowers. **UCC:** flowers relatively small (6mm long at most), growing in moist to mesic forested habitats. ❖

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Celebrating 40 years | 1982 - 2022
VIRGINIA NATIVE PLANT SOCIETY
Conserving wild flowers and wild places

E-mail items to Nancy Sorrells at lotswife@comcast.net.

Next submission deadline: Oct. 31, 2022

Newsletter records conservation success story

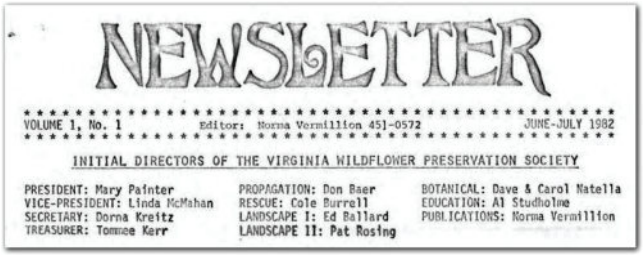
The Virginia Native Plant Society was organized in 1982 as the Virginia Wildflower Preservation Society by a small group of Northern Virginia residents, including Mary Painter, the Society's first president. She and Mary Pockman, the Society's second president, were instrumental in growing the young organization and shaping its future directions. An appreciation of these dynamic and influential women was featured in the Fall 2019 *Sempervirens*.

More than 100 charter members were identified in the June-July 1982 *Newsletter* and the organization's first native plant sale was held in October of the same year. Hand-drawn illustrations accompanied an article on the featured wildflower, Pink Lady's-slipper (*Cypripedium acaule*). Annual dues were $7.50.

The Society's mission was clear from the beginning: to increase awareness of the conservation and appreciation of Virginia's native plants and habitats.

VNPS chapters soon began forming to further the Society's goals across the state. The Alpha (Potowmack) chapter was followed by the Prince William Wildflower Society in 1983. Over the years, more chapters formed across the Commonwealth: the Blue Ridge Wildflower Society, John Clayton, and Piedmont chapters in 1984; Pocahontas in 1985; Jefferson in 1986; Shenandoah in 1987; South Hampton Roads in 1990; the Northern Neck Native Plant Society and Upper James River in 2002; and New River in 2005. Today, VNPS celebrates more than 2,500 members in 12 chapters.

In the early years of the Society, goals and activities reflected the growing interest and concern about protecting the environment and the natural world. Hundreds of Society and chapter meetings, programs, workshops, communications, plant rescues, brochures, publications, and other outreach activities made significant impacts all over Virginia. VNPS worked closely with government agencies and like-minded organizations and partners across the state to advocate for conservation and preservation programs.


NEWSLETTER

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INITIAL DIRECTORS OF THE VIRGINIA WILDFLOWER PRESERVATION SOCIETY

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BOTANICAL: Dave & Carol Natella
EDUCATION: Al Studholme
PUBLICATIONS: Norma Vermillion

These efforts continue today, and many new programs have been initiated in the years since.

The Native Plant Site Registry was established in 1989 to identify and preserve outstanding examples of Virginia native plants and their habitats, Today, VNPS recognizes 21 Native Plant Registry sites. The Quarry Gardens at Schuyler was the most recent Registry Site selected in 2020.

The Wildflower of the Year program was also introduced in 1989. Each year since then, VNPS has highlighted a native plant in botanical detail and produced a brochure for public educational use. Most recently, the 2022 Wildflower of the Year, Buttonbush, was featured on a T-Shirt fundraiser for VNPS.

Until the VNPS website (https://vnps.org) was established in 1999, the beginnings of social media communications were relatively simple. The Society's quarterly *Bulletin,* published from 1982 through 2014, became the quarterly *Sempervirens* in 2015, and continues to be the official publication of the Society. Archives of the *Bulletin* and *Sempervirens* are available on the website and are an excellent source of information about our history.

VNPS was instrumental in the development, funding, and publication in 2012 of the *Flora of Virginia,* recognized as the authoritative botanical reference for Virginia native plants. Many VNPS members and supporters provided leadership, scientific, technical, and financial support for the project from its beginnings in 2000 through the development of the Flora Mobile App for Android and IOS in 2017.

The VNPS Research Grant Program was started in 2015. Funds are awarded each year for well-defined research projects whose results can be evaluated, and which address the VNPS Mission and Goals. Since its founding, the Research Grant Program has provided over $130,000 to fund research projects related to Virginia's native plants.

VNPS has also been a long-time supporter of the Virginia Natural Heritage Program, advocating and fundraising for the agency and the Natural Area Preserves. The VNPS Natural Area Preserves Fund, created in 2021, has raised more than $62,000 to protect and preserve natural resources across Virginia—most recently Bush Mill Stream, The Cedars, and Lyndhurst Ponds Natural Area Preserves.

Our Society's impacts and accomplishments over the past 40 years deserve a full recounting. Perhaps we can look to the future for a book-length acknowledgement of the contributions made by our VNPS leaders, members, volunteers, and supporters.

For now, we acknowledge with gratitude the leadership and contributions of members who served as Society President since our founding in 1982: Mary Painter, Mary Pockman, Nicky Staunton, Frank Coffey, Marie Minor, Sally Anderson, and Nancy Vehrs.

--Mark Murphy is the Society's Technology guru and serves as a Director at Large. We thank Mark for this trip back in time and his wife, Donna Murphy, for the anniversary seal on page 1.

Shenandoah Chapter returns in anniversary year

Mixing a bit of the old and a bit of the new, the Shenandoah Chapter has been born again in the anniversary year of the Society, to become our 12th chapter.

VNPS was just a few years old when the Shenandoah Chapter, consisting mostly of members from Rockingham and Augusta counties, launched in 1987. The chapter was very active, taking field trips, hosting programs, producing an informative newsletter, and even publishing a book. As members grew older, however, the chapter found itself having to disband in 2017.

Thanks to a large enthusiastic group of younger folks coupled with some of the chapter stalwarts from the past, the new and improved version of the Shenandoah Chapter is back, drawing from Shenandoah, Page, Rockingham, Augusta and Highland counties.

Earlier in the summer, a steering committee consisting of Anna Maria Johnson (coordinator), Elaine Smith (original chapter member), Isaac Matlock, and Lora Steiner put together the idea of having an in-person event to discuss a revived chapter. The result was an early August gathering of 35 persons in the native plant gardens of VNPS members Lucy and Kean Ivey who live in Waynesboro. Of those gathered, seven were from the original Shenandoah Chapter.

Approximately 35 persons gathered in the native plant gardens of Lucy and Kean Ivey to reboot the Shenandoah Chapter of the Society. (Nancy Sorrells)

The evening began with a potluck meal and was followed by a group brainstorming session before being capped off with a tour of the Iveys' garden led by botanist Isaac Matlock. The turnout and enthusiastic discussion was enough to convince all that the next step was to formally ask the VNPS board to become a chapter again.

One of the many good ideas that came out of the chapter reboot is to begin a regional plant guide to help showcase and encourage the use of Ridge and Valley native plants in home landscaping, gardens, and ecological restoration.

Other ideas included working with VDOT on ways to protect native plants through better mowing policies, promote the sale of more native plants at businesses, advocate for more pollinator and native plant gardens with local officials, and conduct a plant survey of the Shenandoah Mountain Crest.

Group leaders moved forward with petitioning the Society's board for reinstatement and on Monday, September 12, the board voted to welcome the Shenandoah Chapter back to the fold.

The new chapter has also received its 501(c)3 status and can accept tax-deductible donations to help fund upcoming projects.

The interim chapter leadership is as follows: Anna Maria Johnson, president; Isaac Matlock, treasurer and plant specialist; Katy Melton Simpson, vice president; Lora Steiner, vice president and membership coordinator; and Elaine Smith, secretary and newsletter coordinator.

A chapter plant and seed swap and membership meeting will be held Oct. 15 from 1-4 p.m. in Oakdale Park in Bridgewater. For more information or to join the chapter, visit www.vnps.org and go to "chapters" in the drop down menu. You can follow the Shenandoah Chapter of the Virginia Native Plant Society on Facebook as well. ❖

Botanist Isaac Matlock leads a tour of the Iveys' native gardens during the first gathering of the new Shenandoah Chapter. (Steven David Johnson)

VNPS Grant Program

Native lianas and Native Grasslands receive funding

The VNPS Board is thrilled to announce the awardees of the 2022 VNPS Grant Program. The Society received nine proposals requesting over $76,000. Five reviewers carefully read and scored each proposal on its merits and projected contribution to Virginia's native flora as well as the research design, involvement of other researchers including undergraduate and graduate students, and such. All received proposals were worthy of funding, but the Society's funds allow around $15,000-$20,000 to be awarded each year.

The reviewers' scores were close. Several proposals were worthy of funding and the research proposed was deemed valuable to the understanding of Virginia's flora. However, two proposals stood out above all the others and the board choose these two to support in 2022. One award for $5,305 was made to Dr. Lynn Resler of Virginia Tech for a study of Native Lianas in Virginia's Appalachian/Blue Ridge Forest and another award for $14,750 was made to Devin Floyd of The Center for Urban Habitats and Dr. Mary Jane Epps of Mary Baldwin University for a study of Native Grasslands in the Eastern Half of the Central Virginia Piedmont.

Mary Jane Epps of Mary Baldwin University takes a close look at a native grass plant.

Dr. Lynn Resler of Virginia Tech has received a VNPS research grant to study Native Lianas in Virginia's Appalachian/Blue Ridge Forest.

Native Lianas

Dr. Resler's research on native lianas (climbing woody vines) will focus on analyzing their distribution, density, and diversity at six study sites in our Ridge and Valley ecosystems. This will be the first formal study to address the diversity, relationships to host trees, and preferred habitat of Virginia native lianas. The projected results should be of interest to botanists, ecologists, land managers and the general public, whose perception of woody vines may not consider their ecological benefits. The study is also inspiring as the field work will involve three Virginia Tech students (grad and undergrad). The board looks forward to this pioneering project.

Native Grasslands

The second project focus is an extension of a previous VNPS grant made to Floyd. His initial research grant focused on an assessment of the quantity, distribution, and condition of unplanted, high quality grassland communities in eight counties of the central Piedmont (a previous article in *Sempervirens* reviewed some of his preliminary findings). That initial research identified over 400 remnant (native) grassland in the area surveyed, not previously identified as such. This 2022 grant award expands this baseline assessment of unplanted, high quality grassland communities to nine additional counties in the eastern Piedmont. Together these researchers, along with a highly motivated team of budding botanists, both undergrad and grad students, will survey grasslands ranging from wet prairies to dry upland

(See VNPS Grant Program, page 12)

VNPS Grant Program

(Continued from page 11)

savannas. Researchers will again be seeking out the overlooked and forgotten remains of natural Piedmont grasslands that have escaped human modification over the past 500 years. With development of all kinds expanding every day in the Piedmont and the cloud of climate change blowing over our state, VNPS realizes that this project is being undertakien none too soon. The board applauds this work on these rare communities harboring some of our native, and often, rare flora and looks forward to the results.

VNPS began this grant program in 2015, with a goal to "advance our understanding of the biology of native plants and their relationship to their ecosystems; teach students about the importance of native plants and habitat preservation; measure the benefits of native plant habitats to the economic and environmental health of the Commonwealth; or address similar topics."

VNPS has awarded over $100,000 to principal investigators from a variety of academic institutions and non-profit organizations. Information about the research grant program can be found under Resources on the VNPS website at https://vnps.org/research-grant-program/.

—Kevin Howe, First Vice President and Acting Grants Manager

Mary Jane Epps of Mary Baldwin University, left, and Devin Floyd, of The Center for Urban Habitats, will use a Society research grant to study native grasslands in the eastern half of the central Virginia Piedmont.

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