

Sempervirens

Summer 2022 The Quarterly of the Virginia Native Plant Society

Melody Starya Mobley

Society welcomes Diversity, Equity, and Inclusion Chair

Nature and the outdoors should be a welcoming place for everyone says Melody Starya Mobley, the Society's newly appointed Diversity, Equity, and Inclusion Chair. Melody has spent a lifetime breaking down barriers in order to fulfill that vision.

In 1977, Melody became the first African American female forester with the U.S. Forest Service. Two years later, she became the first Black woman to earn a degree in forest resource management at the University of Washington. Although she faced incredible obstacles because of her race and gender, she became a highly respected senior advisor in the science of forestry. It was not always easy, but she found strength from within – after all, her middle name is “Starya,” a word that draws from her Cherokee heritage and means “stay strong.”

After retiring from the Forest Service, Melody remained in northern Virginia where she enjoys getting out in nature, what she calls her “sacred spaces,” often as a volunteer at local schools or the Long Branch Nature Center in Arlington.

She is ready to embrace her newest volunteer project as VNPS's Diversity, Equity, and Inclusion Chair.

“ALL people must be involved in saving our native plants in our state, country and around the world. Historically, people of color have not been involved for several reasons and we must change that. It begins with education and understanding



Melody Starya Mobley is at home in the forest. Melody, who has been recently appointed as the Society's Diversity, Equity, and Inclusion Chair, is seen here at the Long Branch Nature Center where she is a volunteer. (Photo by Jay Westcott)

about why native species are critically important. Next, they must learn what they can do to help and why individuals play such a critical role. Finally, they must receive assistance as they plan what actions to take,” Melody explained of her new role.

“We must have the best minds involved in decision-making too and that includes people of color. I will work very hard to make sure that the board consists of members that are representative of the U.S. society as a whole,” she added.

Society president Nancy Vehrs expressed her enthusiasm about the board's newest member.

“I was impressed by Melody when I saw her as a panelist on a Zoom presentation held by the Northern

Virginia Conservation Trust this spring. I checked our VNPS records and learned that she is a member, having joined last year. My next step was to reach out to her to determine whether she was interested in joining our board. She was delighted to be asked, and the VNPS will be the richer for having someone of her groundbreaking background serving on our board,” Nancy said.

Of her new position on the board, Melody added, “I will work tirelessly to ensure that all people are included in decision-making and activities for natural resources. When everyone is represented and included, we have the most diverse ideas, suggestions, and management strategies and thus the best solutions to today's major challenges to native plants.” ❖

Visiting diverse natural area preserves a delight



From the President, Nancy Vehrs

Packera millefolium, which is found in only two counties in Virginia. This ragwort has a global conservation rank of G3, vulnerable, and a state rank of S2, imperiled, at high risk of extirpation from the state. We also observed American Barberry, *Berberis canadensis*, a welcome sight since the only barberries I see in Northern Virginia are invasive Japanese Barberries, *B. thunbergii*. On the preserve, we saw amazing plants growing in hot, dry conditions on limestone. We observed the globally rare Running Glade Clover, *Trifolium calcaricum*, still in bloom. In another part of the preserve, fire was used successfully to return Northern Rattlesnake Master, *Eryngium yuccifolium*, to the landscape. We were too early to see it in bloom, but this unusual flower, with a state conservation rank of S2, has become popular in native plant gardens. We also saw a restoration planting of our tallest native grass, River Cane, *Arundinaria gigantea*, along the Powell River. The biodiversity in this area is awe-inspiring, and it ranges far beyond plant life into mussels, bats, and more.

Happy summer! It was a busy and beautiful spring, and it passed in a flash. As we are beginning to normalize our routines in the age of Covid, we realize that the nation is moving toward coping with this virus and keeping people out of the hospital. Effective anti-viral treatment is available. Even I succumbed to a case of Covid this spring despite being vaccinated and double boosted. However, it was a very mild case resembling simple allergies. Knowing all this, the VNPS board recently decided to try a modified version of an in-person annual meeting the weekend of September 17. Details are still fluid, but we are planning to hold the event at the Natural Bridge Hotel and Conference Center across the road from the state park. We will post information online and notify you by email with the particulars, so stay tuned!

I had the distinct pleasure of visiting two amazingly diverse Virginia natural area preserves recently. In May I rented a farmhouse in Lee County with some friends, and we visited several areas of The Cedars Natural Area Preserve. Lee County is in the extreme western toe of Virginia, farther west than Detroit. We also visited a privately owned property that will soon be added to the adjacent preserve. It was a forested tract on an incline complete with a small vertical cave, spring ephemerals, and a large stand of Yarrow-leaved Ragwort,

The other extraordinary trip was the result of my winning bid in our fundraising auction last fall. I won a tour of Difficult Creek Natural Area Preserve led by *Flora* co-author Chris Ludwig. This preserve is in Halifax County near Staunton River State Park and Kerr Reservoir. As noted on the Department of Conservation and Recreation website that describes the preserve, "The ecological significance of this 820-acre preserve was first noted by botanists who discovered several rare plants growing along a roadside and beneath a wide power line clearing near Difficult



The critically imperiled Carolina Thistle, *Cirsium carolinianum*, was spotted on a powerline easement in the Difficult Creek Natural Area Preserve. (Nancy Vehrs photo)

Creek." The preserve "is managed by DCR using prescribed fire and loblolly pine removal with the objective of restoring the historic Piedmont savanna/woodland ecosystem with its open structure, high biodiversity and constituent rare species." We toured this rich habitat on a very hot day in early June. One of the first plants we encountered in the power line easement was Carolina Thistle, *Cirsium carolinianum*, with white on the back side of its leaves. This pollinator magnet has a state conservation rank of S1, critically imperiled, and is found in only three counties. The state rare Piedmont Barbara's-buttons, **(See Natural Area Preserves, next page)**

Natural Area Preserves

(Continued from page 2)

Marshallia obovata (S1), was also found in that power line easement that is managed under the watchful eye of DCR staff. Along the roads we saw New Jersey Tea, *Ceanothus americanus* (VNPS 2019 Wildflower of the Year), in bloom, the first time that I found that lovely small shrub in the wild. Rare treasures abounded! At our next stop, where trees had been selectively logged to allow for savanna-like conditions, we found the beautiful light pink Tall Barbara's-buttons, *Marshallia legrandii*, that carries a global conservation rank of G1, indicating that it is at a high risk of extinction. There were other uncommon species, but I enjoyed seeing eye-catching Pasture Rose, *Rosa Carolina*, and Butterfly-weed, *Asclepias tuberosa*, in good numbers. While in the

area, we also took the opportunity to see the huge adjoining Falkland Farm tract that was donated to the state last year and we checked out Staunton River State Park. I certainly hope that we can organize some Society-sponsored guided field trips to these botanical treasures soon. If you visit this area, (and it is open to the public though there are no trails or parking lots) be sure to do a thorough tick check afterward.

I know that a number of you watched on Zoom our special presentation in May, "Beyond Colonial Notions: New Plant Kinships" with Nikki Bass & Justin Robinson, organized by Education Chair Joey Thompson. If you were unable to view it in real time, it is available only to our members. Send an email to webadmin@vnps.org for the access link. ❖



Among the native plants encountered at Difficult Creek were (top) Tall Barbara's-buttons (*Marshallia legrandii*) and Piedmont Barbara's-buttons (*Marshallia obovata*). (Nancy Vehrs photos)



Two rare Virginia plant populations recently discovered

A recent Virginia Department of Conservation and Recreation's Division of Natural Heritage Report by Staff Biologist Johnny Townsend contained exciting news about the discovery of two rare plant populations.

On April 28 and 29, Townsend and Natural Areas Protection Manager Rob Evans discovered Virginia's fourth documented population of Blue Ridge Bittercress (*Cardamine flagellifera* – G3/S1) in Grayson County. Blue Ridge Bittercress has an extremely localized distribution in the Commonwealth



Blue Ridge Bittercress (*Cardamine flagellifera*)

(restricted almost entirely to along the New River) and the known Virginia populations are the

northernmost documented globally for this Southern Appalachian near-endemic. The newly discovered population consists of widely scattered plants on a steep, rocky bluff-line along the New River with numerous spring wildflowers. The private landowners invited staff to visit as part of an ongoing process to consider conservation options for the land.

Just a few days later, on May 5, Vegetation Ecologist Joey Thompson, with the help of Dr. Andrea Weeks and her graduate student Matthew Sheik from George Mason University, rediscovered a population of Ozark Milkvetch (*Astragalus distortus* var. *distortus* – G5/SH) on Short Mountain in Shenandoah County. Hundreds of individuals of the species were found on a large calcium rich shale barren, allowing the rank of the species to be changed from State Historical (SH) to state Critically Imperiled (S1).

The species is known from only six locations in Virginia, most from collections in the 1930s, and had not



Ozark Milkvetch (*Astragalus distortus* var. *distortus*) been observed at this location since 1987. Townsend collected samples of the plant to support a phylogenetic study of the species. Ozark Milkvetch is predominantly distributed far to the west of Virginia in the Ozarks region. Samples were also collected by Dr. Weeks to conduct a population genetics study.

The shale barren, which had not been surveyed by Division of Natural Heritage staff since 1987, was confirmed and remapped. Central Appalachian Shale Barrens are globally uncommon ecosystems that host many locally rare plant and animal species, many which are only known from these habitats in west-central Virginia and adjacent West Virginia.

Cephalanthus and its Colleters

Article by W. John Hayden, Botany Chair

To be perfectly honest, despite all the botany courses that I have taken, I cannot remember ever learning about colleters in a formal classroom setting. At some point, however, I did become aware of their existence, probably by hearing a talk at a botany conference or by reading papers published in the *American Journal of Botany*. Colleters are not found in all plants, not by a long shot. But among certain plant groups, the family Rubiaceae, for example, colleters are present and abundant. Consequently, it should be no surprise to learn that *Cephalanthus occidentalis* (Buttonbush), the 2022 Virginia Native Plant Society Wildflower of the Year, classified in Rubiaceae, is a good plant from which to learn about these often overlooked, but distinctive, plant structures.

More honesty: despite how common they are in Rubiaceae, my first awareness of colleters in *Cephalanthus* came while preparing this year's Wildflower of the Year brochure. Among other sources, I consulted Tomlinson (1980), whose publication was one of the few I found that made specific reference to colleters in *Cephalanthus*. What caught my attention was a note indicating that each flower of *Cephalanthus* possesses four colleters located on the rim of the corolla tube, one each in the four sinuses between adjacent corolla lobes (Figures 1 and 2). That is an odd place in which to find colleters, but the corolla tube colleters of *Cephalanthus* are just the tip of the iceberg—at each node on its stems there are dozens of colleters located in the space between the interpetiolar stipules and the adjacent stem surfaces (Figures 3 and 4). Interpetiolar stipules constitute a diagnostic feature for many plants in Rubiaceae. Thomas (1991) surveyed the scientific literature on colleters across the diversity of flowering

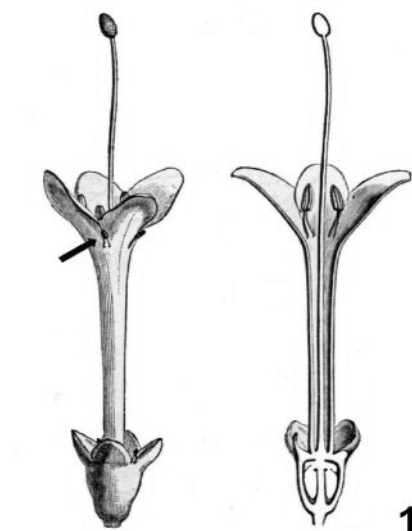


Figure 1. Flowers of *Cephalanthus occidentalis*. Left: intact flower, one corolla colleter at arrow. Right: longitudinally sectioned flower. Image reproduced from H. Baillon, *Histoire des Plantes* (1866-1895).

plants. For Rubiaceae, Thomas (1991), provided data on 142 genera known to make colleters, 97% of which have stipule-associated colleters; only 3% of rubiaceous genera in his compilation produce colleters on other plant parts, such as bracts, bracteoles, calyces (sepals), leaves, and/or petioles, but not on stipules.

So, what, exactly, is a colleter? Colleters constitute a special category of external secretory structures, perhaps best interpreted as a special subtype of glandular trichomes (hairs). Colleters have short stalks that support a larger, apical, glandular region and the glandular portion consists of an internal core of ordinary parenchyma cells surrounded by a layer of palisade-like secretory cells (Figure 5). Further, colleters typically occur in confined spaces such as the narrow crevice between stem and tightly adherent

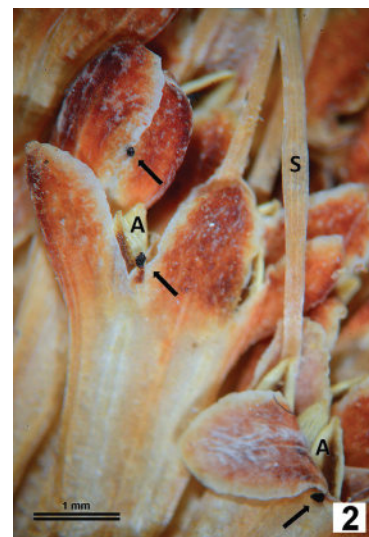


Figure 2. *Cephalanthus occidentalis*, floral details from an herbarium specimen, Hayden 3739 (URV); A = anther, S = style, arrows = colleters.

stipules, or between tightly packed bud scales. Less commonly, colleters can be found between sepals and petals of flower buds. In keeping with their presence in confined spaces, colleters tend to be laterally compressed, which is a formal way of saying “flat as a pancake.” And one final characteristic: materials secreted by colleters are, generally, hydrophobic in nature, i.e., water-repellant substances like oils or resins. In terms of colleter function, I think it is important to note that they are developmentally precocious, i.e., fully formed in what are otherwise actively developing and still growing portions



Figure 3. *Cephalanthus occidentalis*, three inflorescences at different developmental stages; arrow = interpetiolar stipule.

of the plant. Consequently, collectors may function in protection of tender buds against desiccation, microbial attack, or consumption by herbivores.

Why, then, are there isolated single collectors in well-exposed positions at the apex of floral tubes of *Cephalanthus occidentalis*? Frankly, I really do not know because it seems to be an odd place for collectors to occur. Typical collector locations are tight, confined spaces. Perhaps, the corolla-associated collectors of *Cephalanthus* will make sense when we consider early developmental stages of its flowers, which occur in large numbers, 120 to 200 per globose cluster. In early developmental stages, the flower buds are tightly packed together (Figure 3, center); in these early stages, secretions from corolla tube collectors might function to assist smooth and uniform expansion of inflorescence growth. Because each flower bud experiences limited radial expansion during later stages of inflorescence growth, a modicum of space is present between individual flower maturity—compare, for example, the tightly packed

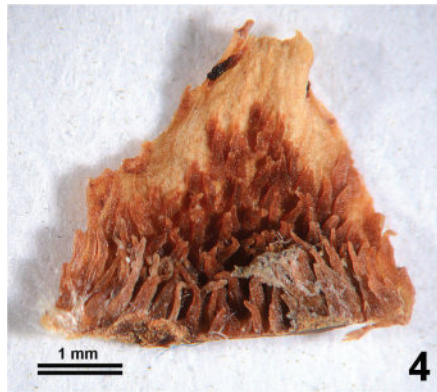


Figure 4. *Cephalanthus occidentalis*, inner (adaxial) surface of a stipule from an herbarium specimen, Kostadinov 152 (URV).

group of flower buds (center) and fully open flowers (right) in Figure 3.

What about the stipule-associated collectors of Buttonbush? These, I think, likely function in ways generally attributed to stipule-associated collectors. I would surmise that they function in growing tips of the shoot system when the youngest, most recently formed stipules enclose the apical meristem, facilitating its growth, or protecting it against microbial or herbivore attack.

Thus, we have an introduction to an

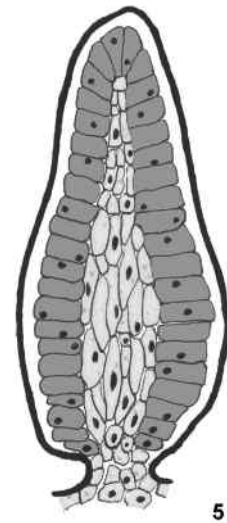


Figure 5. Generic collector in longitudinal section; redrawn from Thomas (1991).

often-overlooked and somewhat unusual plant structure, the collector. And we have Buttonbush to thank for bringing it to our attention. ❖

References

Thomas, V. 1991. Structural, functional, and phylogenetic aspects of the collector. *Annals of Botany* 68:287-305.

Tomlinson, P. B. 1980. *The Biology of Trees Native to Tropical Florida*. Harvard University Printing Office, Cambridge, MA.

Sidebar #1 The Value of Herbaria

The corolla-borne collectors of Buttonbush are small and, though always present, are easily overlooked. It is not surprising that finding images of these structures is like finding the proverbial needle in a haystack. And while I was writing these lines in mid-March, there were no fresh Buttonbush flowers to be had for study. Consequently, I turned to specimens in the University of Richmond Herbarium in order to make my own photomicrographs. Every specimen in the collection with open flowers showed the collectors, but depending on the vagaries of how the flowers were pressed and to what degree corollas had discolored with age, only a few were selected as potentially photogenic subjects. These three included: one specimen collected on campus in 1935 by one of my predecessors at UR, Dr. R. F. Smart; another was collected by a former student, Tiho Kostadinov, also from campus, in 2001; and, finally, one of my specimens from Charles City County, collected in 1995. In the middle of March, these three specimens provided me with what I needed to see. All I had to do was open the right cabinet door, find the *Cephalanthus occidentalis* folder and, *voilà*, specimens from multiple different points in time and multiple different locations were at my disposal, easily placed side-by-side for study and photomicroscopy. This is why herbarium specimens are so important, they transcend space and time. In addition to all the scientific information they contain, herbaria are downright magical places! ❖

Sidebar #2 Wild Coffee: Coolest Collecters

Psychotria is a genus of tropical plants classified in the family Rubiaceae. Because some species resemble *Coffea arabica*, *Psychotria* species are often known as Wild Coffee. As might be expected, stipule-associated collectors are abundant in *Psychotria*. Further, some species of *Psychotria* also have special leaf nodules that contain nitrogen-fixing bacteria. Much like the nitrogen-fixing bacteria of legume root nodules, the bacteria found in *Psychotria* leaves convert atmospheric nitrogen gas to ammonia, which *Psychotria* uses to make all sorts of nitrogen containing molecules (proteins, nucleic acids, alkaloids, etc.). In return, the plant keeps the bacteria alive by providing carbohydrates from photosynthesis. According to published papers by Horner and Lersten (1968, *American Journal of Botany* 55: 1089-1099) and Lersten, (1974, *ibid* 61: 973-981), the nitrogen-fixing bacteria also live among collector secretions occurring near apical meristems but in this position, nitrogen-fixation is not possible because atmospheric oxygen inhibits the nitrogenase enzyme. Nevertheless, bacteria living among the collector secretions are of crucial importance, because they constitute the reservoir of bacterial cells which “inoculate” developing leaves and subsequently establish the oxygen-free nodules that permit the nitrogen-fixation reactions to proceed. Collectors of leaf-nodulated species of Wild Coffee get my vote for the coolest collectors ever! ❖

Virginia's spring and summer ladies'-tresses

From Your
Natural Heritage
Program

By Zachary R. Bradford
Chesapeake Bay
Region Steward



Ladies'-tresses (*Spiranthes*), colloquially named for their resemblance to braided locks of hair, are undoubtedly the toughest of our native orchids to identify. Sure, the genus lacks dizzying numbers like in the true sedges (*Carex*), and it doesn't require a compound microscope like in the quillworts (*Isoetes*), but ladies'-tresses flowers are small and the differentiating characters are often difficult to describe in writing or too nuanced to adequately depict with botanical line drawings. However, careful consideration of a handful of characteristics including flowering time, location, leaf shape and presence, and lip color can make this group of orchids accessible for anyone willing to take a closer look.

This article covers about half of Virginia's ladies'-tresses. The other half are in what is known as the nodding ladies'-tresses (*Spiranthes cernua*)

complex. Members of this complex are quite closely related, with some even being the result of ancient hybridization between other species in the complex. These species will be covered in a later *Sempervirens* installment. As a rule, members of the nodding ladies'-tresses complex are late bloomers (late August at the earliest), and almost always have flowers in three or four clearly discernable vertical ranks. If your specimen has those two characteristics, and doesn't seem to fit any of the species described here, wait for the later article.

What follows is a list of Virginia's spring and summer blooming ladies'-tresses species. A few of these species may even flower into early autumn in some areas. Each summary below provides information on range, ecology, and tips for identification. Following the summary of each species is the unique combination of characteristics (UCC) for that species. A species' UCC is the minimum group of traits that, collectively, differentiate it from all other ladies'-tresses in the state (including the fall-blooming species not summarized here). The UCC is essentially the bare

minimum you need for a confident species identification.

Eaton's Ladies'-tresses (*Spiranthes eatonii*) – Eaton's Ladies'-tresses was first observed in Virginia by Harvard botanist M.L. Fernald on June 17, 1935, in a sandy pineland at what is now First Landing State Park in Virginia Beach. It is a very rarely encountered species here at the northern tip of its range in southeastern Virginia and should be sought in moist, sunny habitats subject to occasional mowing or prescribed fire. This is a very diminutive species with 4-5mm long tubular flowers loosely spiraling on wiry stems. Leaves generally senesce right at flowering time, so flowering plants may still be holding on to a basal rosette of wide, lanceolate leaves. This is a somewhat controversial species and it is a member of the slender ladies'-tresses species complex, so see additional notes under Southern Slender ladies'-tresses. **UCC:** flowering late May into early July in the Coastal Plain, central splotch of green on flower lips.

Shining Ladies'-tresses (*Spiranthes lucida*) – Shining Ladies'-tresses is a rare, early-flowering species of our mountains



Eaton's Ladies'-tresses (*Spiranthes eatonii*)



Shining Ladies'-tresses (*Spiranthes lucida*)



Southern Slender Ladies'-tresses
(*Spiranthes lacera* var. *gracilis*)

Grass-leaved Ladies'-tresses (*Spiranthes praecox*)Little Ladies'-tresses (*Spiranthes tuberosa*)Spring Ladies'-tresses (*Spiranthes vernalis*)

and adjacent piedmont foothills. Shining Ladies'-tresses flowers have a large splotch of bright, vivid yellow that takes up nearly the entire area of the lip. Plants tend to be quite short-statured and can easily hide among sedges and grasses in the sunny calcium-rich seeps, streambanks, and gravel bars it prefers. Its leaves are a little too wide and blunt to be described as grass-like, and their waxy shininess is referred to by the common name. The distinctive yellow-lipped flowers of this species make it Virginia's most readily identifiable ladies'-tresses. **UCC:** Flowering late May into early July, lips centrally bright yellow.

Southern Slender Ladies'-tresses (*Spiranthes lacera* var. *gracilis*)

– Although tough to spot at 55 miles-per-hour, this is a fairly common orchid of roadsides in Virginia, especially the Piedmont. Individual plants within a population can show considerable variation, with some plants having a tight spiral of flowers, others with the flowers lined up in a single vertical rank on one side of the same, and others transitioning from ranked flowers down low to tight spiral higher up. This species flowers in August and September and can trail off into October. The rosette of

short, lanceolate basal leaves withers by flowering time. Various authors have attributed Northern Slender Ladies'-tresses (*Spiranthes lacera* var. *lacera*) to Virginia but I have not seen any particularly convincing evidence of this. The supposed differences between the two varieties are quite small and a recent genetic study suggests that Southern Slender Ladies'-tresses, Northern Slender Ladies'-tresses, and the previously discussed Eaton's Ladies'-tresses are likely just one variable, wide-ranging species. For this article I am treating them as distinct entities. **UCC:** Flowering August-September, leaves lacking at flowering, lips with central green splotch.

Grass-leaved Ladies'-tresses (*Spiranthes praecox*) – As its name implies, this robust species has relatively long, grass-like leaves. It's not a particularly useful name given the number of other ladies'-tresses with similar leaves, but the fine green lines on the white lips of this species do offer a distinctive characteristic. Grass-leaved Ladies'-tresses was once thought to be relatively abundant across the eastern half of the state. However, recent review of available herbarium specimens found that many had been misidentified

and represented other more common ladies'-tresses species. Grass-leaved Ladies'-tresses is largely restricted to moist power line corridors in areas that would have been subject to frequent natural wildfire, but it also known from coastal interdune swales and high-quality mesic mixed hardwood forests in the far southeastern corner of the state. There is also a record of unknown provenance from Augusta County. While such a record should be considered suspect, it remains plausible given the numerous coastal species with disjunct populations in the Shenandoah Valley sinkhole ponds of the area. Giant ladies'-tresses (*Spiranthes sylvatica*) is a very similar southeastern species that is likely just a woodland shade-grown form of Grass-leaved ladies'-tresses. Regardless of its validity as a species, previous attributions of Giant ladies'-tresses to Virginia were based on misidentifications. **UCC:** flowering in May-June in the Coastal Plain, grass-like leaves present, flowers with fine green stripes on lips.

Little Ladies'-tresses (*Spiranthes tuberosa*) – Little Ladies'-tresses is perhaps Virginia's only native orchid that has a clear affinity for the central

(See *Orchids*, page 10)

Native Peoples, native plants connected

Article and photos by Nancy Sorrells, *Sempervirens* Editor

We speak often at the Society about the close relationships between native plant and animal species that have evolved together over eons. A recent trip to Yosemite National Park in California reminded me that these symbiotic relationships also developed between our country's indigenous peoples and the plants that surrounded them. Nestled behind some of the main buildings in the Yosemite Valley is the Indian Village of Ahwahnee (the Native American word for Yosemite). The recreated village and the interpretive signs reveal the important story of how the Miwok people and the native plants are intertwined.

The Miwok people have made the Yosemite area their home for at least



This acorn granary is made by driving four poles in the ground and weaving grapevines and buckbrush around the poles to create a container that can be lined with wormwood and filled with acorns. The entire granary is covered with conifer boughs and cedar bark to protect it from the weather.

4,000 years. One tree that they found in abundance was the Black Oak (*Quercus kelloggii*), probably the most versatile and important plant in their world as it provided both food and shelter.

Black Oak acorns provided a large part of the diet of California's Indian groups. Although Black Oak acorns were favored over other species of acorns, the trees do not produce a consistent mast crop every year. Luckily, properly stored nuts will keep indefinitely. When the acorns were abundant, each family gathered up to a ton of the nuts in the fall and stored them in the granaries until they were ready to be ground and turned into meal for mush. The Miwok built granaries that resembled nests of grapevines and buckbrush that were strung between poles. The storage structures were weatherproofed by covering them with conifer limbs and cedar bark.

When it came time to eat the acorns, they were cracked, their thick skins were removed and women ground them on large stumps or in mortar holes in rocks to produce a fine meal that was consumed as an acorn mush. Still seen in the park today are large flat rocks with shallow holes in them where women ground the acorns.

Although considered inferior to Black Oak, the acorns of Canyon Live Oak (*Quercus chrysolepis*) were also used to make the acorn mush that was the staple of the people.

Before cooking the acorn meal, however, it had to be leached with water for several hours to remove the bitter tannins. The flour was then mixed with water and placed in a watertight cooking basket into which red-hot stones were dropped. After stirring constantly for 20



Black Oak leaves and acorn

minutes while the stones did the cooking, the mush was ready to eat.

Another essential tree to the Miwok way of life was the Incense Cedar (*Calocedrus decurrens*). Finely-ground bark was used to start fires and high branches were used to make the bows for the hunters.

Perhaps the most important use for Incense Cedar was in building houses and granaries. Cedar poles, cedar bark, and cedar boughs were all used in the construction of the various structures. The bark houses of the Miwok resembled teepees of the Plains Indians in their conical appearance, but bark was used instead of animal hides to provide the walls.

Manzanita (*Arctostaphylos viscidia* ssp. *mariposa*) is another important plant. Manzanita is the hardest wood of the region, providing quality firewood for cooking and baking. The leaves, when sucked, stimulate saliva, thereby quenching thirst, and in late summer Manzanita berries were picked and allowed to dry before being pounded into a meal that makes a cider-like drink.



The sweathouse of the Miwok people was used for ceremonial and health purposes by the men of the village. Incense Cedar poles provide the framework of this structure that was then covered with layers of buckbrush, wormwood, pine needles, cedar bark, and soil.

There were many other important plants. Spicebush (*Calycanthus occidentalis*) shoots provided lightweight shafts for arrows, however, the Miwoks preferred making their arrow shafts out of another important tree, Mock Orange (*Philadelphus lewisii*).

Mistletoe (*Phoradendron villosum*), a parasitic shrub that grows in the Black Oaks, was also used by the Miwoks. They harvested Mistletoe bunches and carved the plant rootballs into hard balls used in a game similar to field hockey. Although

the plant's leaves and berries are poisonous, the Indians did boil them into a tea for some medicinal purposes. The young, supple shoots of Creek Dogwood (*Cornus sericea* ssp. *sericea*) were used to make baskets for a variety of uses.

California Buckeye (*Aesculus californica*) provided several medicinal uses for the Native Americans. The Miwoks drank a tea made from the leaves to help with lung ailments, while the nuts were crushed and used as a poultice for hemorrhoids.

If you are ever in Yosemite, stop by the Ahwahnee Village, walk the circular path to learn more about the daily life of the Miwoks and their close, personal relationship with the plants of the valley. ❖



The houses of the Miwok people were made by using grapevines to lash cedar or pine poles together and then covering the entire structure with bark from Incense Cedar trees.



Pounding Rocks – Large rocks with mortar holes like this one can be seen throughout Yosemite National Park. The holes were created over long periods of time by Native American women who were making meal by pounding mounds of acorns into these holes using a heavy pestle.

Orchids

(Continued from page 7)

part of the state. Piedmont roadsides with thin soils, bordered by Virginia pine (*Pinus virginiana*), and direct sun for at least a few hours a day are a favorite of this species. It is frequently found with reindeer lichen (*Cladonia*) and delicate fern moss (*Thuidium delicatulum*). Compared with most of our other ladies'-tresses, this species is a bit more shade tolerant and can also be found in wooded clearings, cemeteries, old fields, and more natural settings like dry, open woodlands. The tiny and pristine-white flowers of this species are rivaled in their diminutive size by only the green-lipped Eaton's Ladies'-tresses. Their tiny size, thin stems, and lack of leaves at flowering make little ladies'-tresses difficult to spot because there simply isn't much plant material to catch your eye. Much like Southern Slender Ladies'-tresses, this

species has a rosette of wide-lanceolate basal leaves that withers before flowering. **UCC:** flowering in dry sites in late summer, perfectly white flowers, no leaves present.

Spring Ladies'-tresses (*Spiranthes vernalis*) – Spring Ladies'-tresses has phenological and ecological breadth unmatched by any of our other native orchids. It flowers as early as late May along the coast and as late as September in the mountains. Along the western shore of the Chesapeake Bay it often grows on sea-level roadsides dominated by saltgrass (*Distichlis spicata*) and shares turf with fiddler crabs. Conversely, it is also frequent on the grassy upper reaches of Whitetop, the second-tallest mountain in the state. In between, Spring Ladies'-tresses can be found in a wide variety of open, sunny habitats, including infrequently mowed meadows, fallow fields, moist lawns, roadsides, and utility

corridors. Flowers are carried in a tight to loose spiral on the stem and are white with pale yellow lips that often have a pair of orange spots caused by necrotic tissue. It is sometimes confused with Grass-Leaved Ladies'-tresses with which it occasionally co-occurs in the southeast, but is easily distinguished by the large, diamond-shaped bracts with translucent white margins that subtend each flower. Most dichotomous keys separate Spring Ladies'-tresses from our other species by its sharp-tipped hairs that cover most surfaces of the flowering stem. While this is indeed a good characteristic, it is tough to see hair tips without magnification. Given their affinity for lawns and fields, Spring Ladies'-tresses and Southern Slender Ladies'-tresses are Virginia's most frequently encountered *Spiranthes* species. **UCC:** diamond-shaped floral bracts with translucent white margins. ❖

Photo Essay: Southern Slender Ladies'-tresses

Southern Slender Ladies'-tresses (*Spiranthes lacera* var. *gracilis*) bloom profusely every August on a sandy tract of land in southeastern Augusta County. (Nancy Sorrells photos)



REMEMBERING MARIE MINOR



Northern Neck Chapter members fondly remember times they refer to as “Ask Marie” sessions such as this one at a native plant sale. Marie would use field guides and her own extensive knowledge to identify plants that curious members of the public had been encouraged to bring with them when they came to a native plant event. (Photo by Northern Neck former president Carol Hammer)

We are very sad to report that Marie Minor of Miller’s Tavern (Northern Neck) passed away suddenly of a heart attack on May 16. She was VNPS President from November 1997 to November 2000. It was during her tenure that the Society established a paid office manager position and Marie worked toward creating a place for VNPS in the larger conservation community.

Although a private person, Marie enjoyed the natural world and meeting those who shared her interest in plants. As VNPS president, she wrote a letter in the state newsletter encouraging members to attend the Annual Meeting. “For years I did not attend these annual meetings because aside from the scheduled wildflower walks, I did not think that

there was anything else of interest. But I was wrong! Since I have been attending these events, I have met some wonderful members, enjoyed the camaraderie and, of course, the wildflower walks, as well as the other events. It is a wonderful way to meet members of other chapters, or in the parlance of the business world, network,” she wrote.

On the chapter level, Marie began as a member of the Pocahontas Chapter but joined the Northern Neck Chapter when it formed in 2004. She served as Northern Neck Chapter president in the group’s early years from 2009-2010.

Current Northern Neck Chapter member Betsy Washington shared that Marie was a contributor to the research of the *Native Plants of the Northern Neck* guide and was still helping maintain the beautiful native plant gardens at Wilna tract of the Rappahannock River Valley Refuge where she helped biologist Lauren Cruz identify plants on the refuge.

Marie also botanized at Chilton Woods State Forest for many years and generously shared an amazing spreadsheet/list of plants that she and others identified there, leaving a valuable legacy for Master Naturalists and native plant enthusiasts currently working in the forest.

Although there has been no information about a memorial service, members who would like to honor her memory may make a donation to Rappahannock Wildlife Refuge Friends online or at P.O. Box 1565, Warsaw, VA 22572-1565 or to the Richmond SPCA, which has rehomed her pet beagle.

Nancy Garvey

Northern Neck Chapter President



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:
July 30, 2022

Correction from last *Sempervirens*

An alert reader of *Sempervirens* spotted an error in the article, “A Just So Story: Is *Wisteria frutescens* an Ecological Anachronism?” The article grossly underestimated the end of the Pleistocene (Ice Ages), which can be approximated as 12,000 years ago (not 1,200 years). We regret the error." ❖

In-person VNPS Annual Meeting returns in September



Natural Bridge in the fall. (Nancy Sorrells photo)

For the first time since the pandemic, a modified in-person Annual Meeting is being planned for the Society on Sept. 17. The meeting celebrates VNPS's 40th birthday (1982-2022)! The venue is the Natural Bridge Hotel and Conference Center adjacent to Natural Bridge State Park in Rockbridge County.

The 215-foot natural limestone Natural Bridge, once owned by Thomas Jefferson, is the highlight of the park. Cedar Creek flows under the massive limestone arch and a one-mile trail passes under the bridge and terminates at Lace Falls.

The 1,500-acre park includes six more miles of trails beyond the bridge itself, featuring mountain vistas and forests. The park recently received its dark sky designation and offers nighttime stargazing activities as well.

The tentative agenda is to gather between 9 and 10 a.m. at the hotel, hear a speaker, hold a business meeting, and elect board members. Breakfast snacks and a box lunch will be included. After the meeting, there will be field trip options at the state park and nearby trails.

A block of rooms has been reserved for those wishing to stay either Friday or Saturday night (or both). E-mail kburd-adams@naturalbridgeva.com by Aug. 2. Use VNPS to identify yourself and include name, phone number, number of occupants, arrival and departure dates, and room preference (standard double-main hotel, double in veranda, cottage, king).

Stay tuned for more details, but mark your calendars for Sept.17. We are looking forward to seeing everyone there. ❖

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