

The Leaflet

Wildflowers in Winter—Linda Murphy

SPRING 2021

Approximately 25 native plant enthusiasts joined the December 12 walk at the State Arboretum. The Arboretum, owned by the University of Virginia, is an environmental research laboratory. The fields at Blandy feature a variety of plants that provide interest to the winter landscape. Assistant Curator Jack Monsted led the walk through successional fields, managed meadow and wetlands.

The successional fields are left to the will of nature with a variety of native and non-native species. Invasive non-native trees included Tree of Heaven (*Ailanthus altissima*), Princess Tree (*Paulownia tomentosa*), and Dahurian Buckthorn (*Rhamnus davurica*). Spotted Laternfly has been discovered at



Jack identifying grasses and plants along upland field



Indian Grass

Karen Henderson

Blandy on *Ailanthus*, its primary host. Native trees included both Honey Locust (*Gleditsia triacanthos*) and Black Locust (*Robinia pseudoacacia*). Native warm season grasses included Switchgrass (*Panicum virgatum*) and Indian Grass (*Sorghastrum nutans*). Among the native wildflowers were Common Milkweed (*Asclepias syriaca*), Dogbane (*Apocynum* spp.) and Common Yucca (*Yucca filamentosa*). Among the non-native varieties were Common Mullein (*Verbascum thapsus*) and Catnip (*Nepeta cataria*), both prolific seed producers, and Tansy (*Tanacetum vulgare*), an escapee from the community garden. The successional fields provided a base for comparison to the managed fields.



Common Yucca

Karen Henderson

Moving on to the managed areas we learned that a 3-year rotational practice of burning with mowing is used to help regenerate native species and control woody and invasive species. Hand pulling is used as much as possible to control invasive species such as Japanese Stiltgrass (*Microstegium vimineum*), non-native thistles and brambles. If an area becomes a dense monoculture of an invasive, herbicide may be used. A low thicket of Wineberry (*Rubus phoenicolasius*) was noted as an example of one that may need to resort to this method.

The variety of plants in both the meadow and wetland habitats is almost overwhelming, too many to list here. The ones highlighted here provide interest to the winter habitat and may be worth consideration in the home native garden. Although selecting natives for the home garden can be (continued on page 2)



Wildflowers in Winter (continued)

The Virginia Native Plant Society (VNPS), founded as the Virginia Wildflower Society in 1982, is a non-profit organization of people who share an interest in Virginia's wild plants and habitats and a concern for their protection.

The Piedmont Chapter is a sub-group of VNPS in the northern point of Virginia east of the Blue Ridge Mountains. It includes Loudoun, Fauquier, Culpeper, Rappahannock, Warren, Clarke, and Frederick counties.

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The Leaflet can be seen online in color at www.vnps.org/piedmont

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Jack in front of Wineberry

tricky if they spread by rhizomes, are prolific seeders, and/or have massive deep, dense root systems such as Switchgrass. Coralberry (*Symphoricarpos orbiculatus*) was prevalent in dense swaths in the meadow area edges providing interest with its colorful berries that remain throughout the winter. Buttonbush's (*Cephalanthus occidentalis*) seed heads offer a display of natural ornaments in moist/wet areas. The seed heads of the warm season grasses add interest and structure to the meadow and wetland edges: Indian Grass, Switchgrass, Broomsedge (*Andropogon virginicus*), Big Bluestem, (*Andropogon gerardii*)

Little Bluestem (*Schizachyrium scoparium*) and Purpletop (*Tridens flavus*). The meadows are a patchwork of masses of seedheads of Narrow-leaf Mountain Mint (*Pycnathemum tenuifolium*), Black-eyed Susan (*Rudbeckia hirta*), Ironweed (*Vernonia*, spp.), Goldenrods (*Solidago* spp.), Asters (*Symphyotrichum* spp.), Wild Bergamot (*Monarda fistulosa*), Dogbane and Thistles (*Cirsium* spp.), to name a few.



Mountain Mint



Round-headed Lespedeza

The wetland habitat revealed the most interesting seedheads: Buttonbush, Common Cattail (*Typha latifolia*), Round-headed Lespedeza (*Lespedeza capitata*), Rattlesnake Master (*Eryngium aquaticum*) and Smooth Rose Mallow (*Hibiscus laevis*).

Not everything is brown in winter. Rosettes of both native and non-native plants were discovered. The native Common Yucca provided green spots in the fields. The seed heads of Sumac add a deep red. Brambles like Wineberry, Blackberry (*Rubus* spp.) and Black Raspberry (*Rubus occidentalis*), can add structure and interest with their arching canes of different colors.



Buttonbush



Rose Mallow

(continued on page 3)



Wildflowers in Winter (continued)

Other items of interest were noted on the walk. The branching thorns of the native Honey Locust (*Gleditsia triacanthos*) grow out of the trunk. In the low area of the native garden, Baldcypress (*Taxodium distichum*) knees have formed, the result of flooding in the area. The gray bark of the Common Hackberry (*Celtis occidentalis*) tree forms triangular ridges that produce an interesting textural effect. The Sycamore (*Platanus occidentalis*) sheds bark as it grows in height, revealing bald spots for photosynthesis to occur. Pennsylvania Sedge (*Carex pensylvanica*) provides a nice ground cover in shady areas of the native garden.

Blandy has a several walking trails through these areas and beyond. They are colorful in the summer months, providing opportunities to observe many pollinators attracted to these plants. The wetland area is also a favorite birding site year-round.



The Fascinating Flowers—Karen Hendershot

Bright colors, elegant shapes, or even a remarkable scent are often the traits that attract human interest to flowering plants. But in addition to a pleasant aesthetic happenstance, flowers are the reproductive structure of the plant, the result of millennia of evolution assuring successful procreation. On January 30, Chapter President Dr. Emily Southgate gave the first of her two-part Winter Speaker Series on *Plants Beyond the Basics*, focusing on *The Fascinating Flowers*. Or, as she put it “How flowering plants make babies.” This presentation was recorded and may be viewed at <https://vimeo.com/507089150>.

Within the kingdom of plants (*Plantae*), flowering plants (*Magnoliophyta*) are part of a superdivision *Spermatophyta*, plants which have pollen and seeds. The remarkable characteristics of the *Spermatophyta* is that the sperm, enclosed in pollen grains, do not need water to survive as they are in ferns, for example. They can float into the air. Also, the embryos are protected by a hard shell of the seeds. These features enable members of this superdivision to exploit dry conditions. The plants of the *Magnoliophyta* division also have seeds protected in fruit and pollen that is often borne by insects. Such plants became visible in the fossil record around 120 million years ago. Insects evolved rapidly around the same time, becoming partners in plant reproduction. Today flowering plants and insects represent the two most diverse groups of organisms on earth.

Some pollen grains are spread by the wind – a trait called anemophily. These grains tend to be smooth, sometimes having wings or a bladder to help them float. Because hitting their mark is highly unpredictable, this type of pollen tends to be produced in huge amounts. Pollen grains spread by insects, a trait called entomophily, are more complex, with spines or other rough exteriors to help them cling to insects. Less pollen is produced by such plants but they have to offer nutritious nectar and pollen and colorful petals to attract their pollinators.

The whole purpose of a flower is to get the sperm to the egg. Emily took us through an exploration of several different flower types and how their unique designs help in reproduction.

- Woodland Phlox (*Phlox divaricata*) has a simple structure. The lack of a style between the stigma and ovary means an insect must insert itself only a short distance to retrieve nectar around the ovary, easily bringing pollen from the anthers above.



(continued on page 4)



The Fascinating Flowers (continued)

- Dwarf Larkspur (*Delphinium tricornis*), by contrast, makes its Bumblebee (*Bombus* spp.) pollinators work hard, as the nectaries are actually in a spur formed by a sepal and two petals. As the bee enters the spur, the anthers hit them with pollen that is carried deep within the flower to the stigma.
- Pawpaw (*Asimina triloba*) flowers are pollinated by bees and flies, attracted by a scent like raw meat. The pollen is distributed as insects crawl around inside the flower.
- Some flowers, such as Wild Geraniums (*Geranium maculatum*), are able to reduce inbreeding through protandry. This means that they produce fertile anthers before the stigma has opened. As a result, pollen must come from a different plant.



Pawpaw

Richard Stromberg



Dwarf Larkspur

Richard Stromberg



Stigma closed

4/29



Wild Geranium

5/29

Stigma open



6/1

Anthers gone

Richard Stromberg

A particularly interesting example of protandry is the Cardinal Flower (*Lobelia cardinalis*). It sends out a tube of fused petals at the top of the flower through which the fused anthers grow first. The anthers open in the middle of the fused petals and the closed stigma grows behind them, pushing the pollen out. At this point, the flower is in its male stage and dusts the flower's pollinator, the Hummingbird (*Trochilidae*), with pollen. The stigma opens after the pollen has been dispersed. The flower is then in its female stage, so pollen comes from a Hummingbird which has visited a different flower.

The Violet (*Viola* spp.) provides an example of two flower types, chasmogamous, or open flowers, and cleistogamous, or closed flowers. (continued on page 5)



Cardinal Flower

Richard Stromberg



The Fascinating Flowers (continued)

The Violet's showy and colorful open flower allows cross-pollination from other plants, promoting genetic diversity. The cleistogamous flowers, which look like a bud that has failed to open and tend to be near the ground, has both male and female parts and self-pollinates, assuring the survival of the plant in its existing habitat.

Another unique pollination system is found among the plants in the Heath Family (*Ericaceae*), such as Blueberries (*Vaccinium spp.*), and also the Nightshade Family (*Solanaceae*). Unlike most other plants that release the pollen laterally from the anthers, there is only a tiny hole at the top of the anther by which the pollen can exit and it will do so only in the presence of a sound at a certain frequency. That sound is provided by the buzzing of the Bumblebee, not by other bees.

Flowers within a flower might be the theme of the Aster Family (*Asteraceae*), also called Composites. They have multiple flowers on a single receptacle. Some of the flowers look like petals, like the ray florets of Sunflowers (*Helianthus spp.*), which also have tiny disk flowers in the center. If there is no pistil inside, the flower is sterile, and its function is to attract insects. Dandelions (*Taraxacum spp.*) have only ray flowers while Thistles (*Cirsium spp.*) have only disk flowers.

For an example of wind-pollinated flowers, Emily showed us Beadgrass (*Paspalum spp.*) The stigmas and the stamens on grasses are naked, unlike most flowers where they are surrounded by petals. Tiny hairs on the stigmas of grasses help catch the pollen.

Emily encouraged us to look carefully at flowers. Look for the stamens and pistils. Observe the insects around them. These are all parts of the remarkable story of how plants make babies.

VNPS Winter Tree Walk—Mitzi Fox

Richard Stromberg lead us on a walk at Shenandoah River "Andy Guest" State Park near Bentonville on January 9. After a week of dismal overcast skies, we had glorious weather - sunny, sixties, and still. The Park is over 1600 acres with 24+ miles of nice well-kept and well-connected trails and five miles of river frontage. We walked from the Visitor Center to Cullers Overlook. Hiking poles can be handy on some steeper portions of these trails. A big benefit of coming out this time of year is that tree forms and land topology are much easier to see.

A fast hike is not the point for VNPS hikers. Instead our goal is to maximize PPH (plants per hour), not MPH (miles per hour) with time joyfully allowed for "flora figuring" among our many knowledgeable members. You can say "Oh! Look at this *Plantias specificas!*" many times and PPH hikers will be fascinated, not annoyed! And you can learn SO much from experts Sally Anderson, Emily Southgate and Richard Stromberg who are Walking Flora Reference Books.

The Visitor's Center parking lot can get full, so Culler's Overlook is a more reliable place to meet during busy times. The river view from the overlook is beautiful.





The events below are subject to cancellation or may be restricted to ten people because of Covid-19.

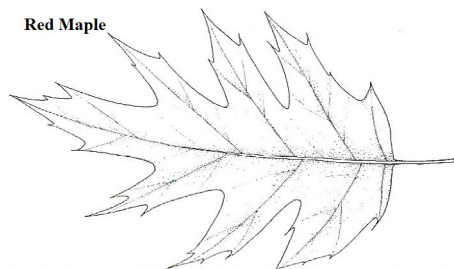
Saturday	Mar 13	1pm	Weston Wildlife Management Area Walk
Fauquier County. Walk to be led by Virginia Department of Wildlife Resources employee Ron Hughes. For more information and to register, contact piedmontvnps@gmail.com			
Saturday	Mar 27	1pm	G. Richard Thompson WMA Invasive Removal
Fauquier County. Joint effort with members of the Potomac Appalachian Trail Club. Bring gloves and drinking water. We will look for early signs of spring while we work. For more information, email piedmontvnps@gmail.com .			
Saturday	April 10	10am-noon	Calmes Neck Bluebell Walk
Clarke County. VNPS members and Calmes Neck residents only. Join chapter board members Dr. Emily Southgate and Sally Anderson for a guided walk to see early spring wildflowers along the Shenandoah River. Walk is moderate and a walking stick is recommended. Bring lunch, water and insect repellent. Limit 20, register at piedmontvnps@gmail.com to get driving directions.			
Thursday	Apr 15	10am	Balls Bluff Regional Park Walk
Loudoun County. Join Phil Daley to discover some of our earliest ephemerals like Bluebells, Harbinger-of-spring, Bloodroot, Dutchman's Breeches and others on a trail overlooking the Potomac River near Leesburg. For more information, email piedmontvnps@gmail.com .			
Saturday	Apr 17	1pm	Royal Shenandoah Greenway Walk
Warren County. Join Master Naturalist Richard Stromberg for a walk along the Royal Shenandoah Greenway in Front Royal to see spring flowers. Register at piedmontvnps@gmail.com to get meeting instructions.			
Friday	April 30	5pm	G. Richard Thompson WMA Trillium Walk
Fauquier County. Master Naturalist Sally Anderson will lead a walk to see millions of Trilliums and other spring flowers. Register at piedmontvnps@gmail.com .			
Saturday	May 8	1pm	Reddish Knob Walk
Augusta County. Sally Anderson will lead a driving and walking tour of one of the highest peaks in Virginia to see wonderful views and interesting flowers. Register at piedmontvnps@gmail.com to get meeting instructions.			

VNPS Winter Tree Walk (continued)

Hickories, oaks and pines are well-represented here. We saw several Table Mountain Pines (*Pinus pungens*, 2 or 3 stout needles) with their distinctive crooked trunks and twisted branches (see picture on page 8). The cones with broad tough points on their scales remind me of armadillos. Virginia Pines (*P. virginiana*, 2 slender needles) and White Pines (*P. strobus*, 5 needles) were numerous. We saw quite a few Pitch Pines (*P. rigida*, 3 needles, pitch often showing and needles sprouting from the trunk).

Hemlock Hollow is aptly named, although it's bittersweet to see the cottony egg sacks of Hemlock Wooly Adelgids on the undersides of Hemlock branches.

Red Maple



Weakley, A.S., J.C. Leubig, J.F. Townsend, and G.P. Fleming. 2020. Flora of Virginia. With significant additions and updates. Blind Crows, ed. Mobile app. Foundation of the Flora of Virginia Project Inc., Richmond, and High Country Apps, Bozeman, Montana.

Emily Southgate pointed out the stiff pins on the end the lobes of surviving leaves that distinguish the red oak group from the white oaks. She reminded us that it pays to be aware that the leaves at the base of a tree are not always from that particular tree.





VNPS Winter Tree Walk (continued)

When many plants are skeletons in winter it is very useful to remember their basic distinguishing traits, such as the square stems of mints, the growing pattern of trees, the mottled bark of the Sycamore. Even without petals and leaves, the remaining sepals or tougher parts of flowers enable identification by sharp-eyed VNPS folk. On the Overlook Trail we saw two of the square-stemmed mints: Dittany (*Cunila origanoides*) and American Penny Royal (*Hedeoma pulegioides*), betrayed by the strong mint smell of its dry leaves when crushed. Along the same trail we spied a solid stand of St. John's Wort (*Hypericum* spp.) with lots of dried leaves, but looking plain without their yellow flowers.

My daughter Sarah, her boyfriend Ben (both in VA Tech environmental programs) and I topped off our hike with great food and drink at the Front Royal Brewing Company.

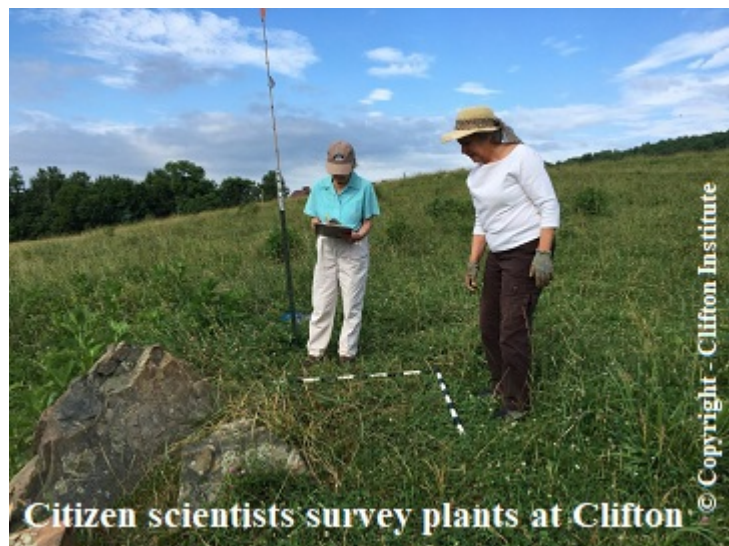
The Cathy Mayes Memorial Pollinator Garden—Jocelyn Sladen

Native plant seedlings are beginning to emerge in the warmth of a small greenhouse at The Clifton Institute, near Warrenton in Fauquier County, while locally collected seeds of other wildflowers are being stratified in the farmhouse refrigerator. They will find home in the earth this spring as the Cathy Mayes Memorial Pollinator Meadow gets them up and growing. VNPS members and friends of Cathy are fulfilling the promise of this visionary project through contributions to a fund established in honor of Cathy Mayes, a longtime champion of native plant conservation and board member of the Virginia Native Plant Society Piedmont Chapter.

A friend of Clifton Institute offered a \$5,000 challenge as an incentive to help make it happen. Our donors have met the challenge and exceeded it. The fund's total, including the \$5,000 from the donor's matching grant, has reached well over \$12,000. The fund is still open, encouraging further donations both for the meadow and Clifton's native plant program research initiatives.

The Cathy Mayes Memorial Pollinator Meadow will use an area of the Clifton Farm's property around its pond and spillway where no native seed bank remains in the disturbed soil. Instead, the site will be restored using locally collected seeds of regionally appropriate native species. Several uncommon plants of the Piedmont grasslands will have a home there as well as the more common grassland natives. Most plants will be grown from locally collected seeds. A bench and a plaque will name the Meadow after Cathy. As funds are available, the fund is intended to support other significant native plant projects under the auspices of Clifton Institute, all centered on native plant communities of the region. One project will survey plants to study the use of fire as a management tool in a special habitat called a greenstone barren.

Bert Harris, Executive Director of Clifton Institute, reports that ground has already been broken at the site chosen for the pollinator meadow. "We are so honored to receive this grant," he said. "As with so many other organizations in the state, Cathy Mayes made a huge difference to the Clifton Institute as a volunteer and board member. We are excited to be able to use the new wildflower meadow to introduce people to the impressive diversity of plants found in northern Piedmont prairies."



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Curlyheads (*Clematis ochroleuca*)

