Wild News

The Bi-monthly Newsletter of the Prince William Wildflower Society
A Chapter of the Virginia Native Plant Society

Number 2022 - 01 **January - February 2022**

The Prince William Wildflower Society 2022 Winter Slideshow via Zoom

Thursday, January 6,
7:30 pm, 7:00 social time

(photos - Nancy Vehrs and Janis Stone)

The January 6 program is our annual slide show and we invite you to participate by sharing native plant and nature photos. If you have never shared your screen on Zoom and need some guidance, contact me, Nancy Vehrs, at least a few days ahead of the meeting so that you feel comfortable with the surprisingly easy technology. The Zoom will begin at 7 p.m. for Social Time, with the formal meeting and presentation scheduled for 7:30 p.m. Register at https://us02web.zoom.us/meeting/register/tZMpdOGqpj4rGNSfrItY5SKz23oHsCVNXJeC. After registering, you will receive a confirmation email containing information about joining the meeting.

From the President:

Happy New Year! May 2022 be the year that we make more progress on conquering this pandemic and returning to some sense of normalcy, whatever that may be now.

Like 2020, 2021 has been a challenging year. We haven't met in person, but we have managed to hold regular meetings with programs through Zoom. We held our annual plant sale *and* a spring wildflower garden tour. For the first time since its inception, we had to hold our annual author event by Zoom. Kim Eierman gave us an excellent presentation, but we didn't have an opportunity for a book signing. We had few opportunities for tabling events save for the fabulously successful Manassas Bee Festival held in June.

This past year has also presented conservation challenges. Our two national parks, Manassas National Battlefield Park and Prince William Forest Park, are threatened with adjacent development. The proposal for the "Digital Gateway" along Pageland Lane is for "Tech/flex" that can include industrial development in addition to massive data centers. A public hearing on that proposal is expected in February; watch your email for an action alert when we have the date. Together with the Prince William Conservation Alliance, PWWS will co-sponsor a First Day Hike at the Brawner Farm at the Battlefield where the impact of this proposal will be most visible. See details under Events.

The National Parks Conservation Association is sponsoring a day of service on Saturday, January 15, part of the the Martin Luther King, Jr. Day holiday weekend. Service projects include bobwhite quail habitat restoration and trail maintenance efforts. Sign up at Service Day at Manassas National Battlefield · National Parks Conservation Association (npca.org).

If you missed Warren Laws' November presentation on the American Chestnut tree and would like to view it, the video is posted on the VNPS website, www.vnps.org. From the home page, click on Video Gallery under the Resources tab.
(continued)

We are in the midst of scheduling native plant gardening events in February 2022. Saturday, February 12, is the 4th annual *Stop Mowing, Start Growing! Native Plant Symposium for Beginners and Beyond* to be held at the Woodbridge campus of Northern Virginia Community College. On Sunday, February 20, we plan to host renowned horticulturalist Kelly D. Norris, author of the 2021 book *New Naturalism: Designing and Planting a Resilient, Ecologically Vibrant Home Garden* for our annual author event. We will hold book sales and signings at this event to be held at Manassas Park Community Center at 2 p.m. Doors open at 1 p.m. Read about Norris at https://kellydnorris.com/about-kelly.

Become an official Tree Rescuer to survey and alert your neighborhood! The Plant NOVA Tree Rescuers Volunteer Education Program invites you to join a region-wide program of community volunteers to help save our native trees from invasive non-native vines. This is a public education program to inspire others to remove invasive vines (not to do it ourselves). For more information, see www.plantnovatrees.org/tree-rescuers-volunteer-program.

See you on Zoom!

Nancy

Prince William Wildflower Society Zoom Membership Meeting Minutes Thursday, November 4, 2021, 7:30 p.m.

President Nancy Vehrs opened the membership meeting at 7:30 p.m. She welcomed all and invited everyone to participate in the VNPS Online Auction which starts Monday, November 11, 2021.

Program: "The American Chestnut: The Tree That Made America"

Our speaker, Mr. Warren Laws, President of The Virginia Chestnut Foundation was introduced, and he spoke on the American Chestnut Foundation's work, including orchard maintenance, pollinations, the breeding project, genetic engineering, education projects, etc.

Before the late 1920s and 1930s, one in four trees along the Appalachian Trail was a chestnut, with nicknames such as King of the Forest, Mighty Giant (grew over 100 feet), One Tree-One House, The Perfect Tree, and The Cradle to the Grave Tree. Cradles and coffins were made from the chestnut tree.

It's no wonder that the American Chestnut Foundation wants to bring back this valuable tree. Please visit the website for more information on their projects. American Chestnut Foundation or Virginia Chestnut Foundation. Thank you to Warren Laws for updating us on this important research and volunteer work. http://www.acf.org

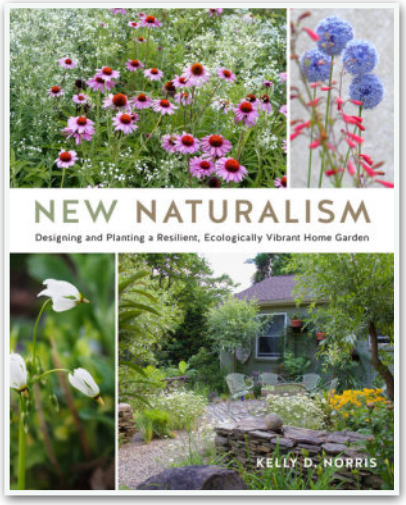
Karen Waltman, Secretary

February 20 Author Event

Kelly D. Norris

Kelly D. Norris is one of the leading horticulturalists of his generation. As a planting designer in public and private space, he explores the intersections of people, plants and place through ecological, site-specific design and art. An award-winning author and plantsman, Kelly has had his work in gardens featured in *The New York Times*, *Better Homes and Gardens*, *Martha Stewart Living*, *Fine Gardening*, *Garden Design* and in numerous television, radio and digital media appearances. His most recent book, *New Naturalism: Designing and Planting a Resilient, Ecologically Vibrant Home Garden*, debuted in January 2021 from Cool Springs Press.

He is former director of horticulture and education at the Greater Des Moines Botanical Garden, where for eight years he directed efforts in design, curation, programming, garden and facility management after serving as the owner's representative to nearly $20 million in capital projects.



In addition to his latest volume, Kelly has authored three other books: *Iowa Gardener's Travel Guide (2008), A Guide to Bearded Irises: Cultivating the Rainbow for Beginners and Enthusiasts* (2012; winner of the 2013 American Horticultural Society Book Award), and *Plants with Style* (2015).

Upcoming EVENTS

Please note:

For events not scheduled at the time this issue went to press, please continue to visit the PWWS web page: vnps.org/princewilliamwildflowersociety/. A few events may be subject to cancellation or may be restricted to ten people because of Covid-19.

January

Saturday, January 1, 2022, 1 pm,
First Day Walk at Manassas National Battlefield Park.
Meet at the Brawner Farm parking area,
6501 Pageland Lane, Gainesville.

Register HERE
https://www.eventbrite.com/e/first-day-hike-at-manassas-battlefield-brawner-farm-tickets-227772191757?fbclid=IwAR302WRcw6H_Y1RJC7DaK23oICL-YJW9aovaoNvQ_7_jmnqFVnsZjxk-VIg
Come enjoy the great outdoors. Learn more about Manassas National Battlefield Park as well as the current development proposals that threaten the quality of this National Park. The tour will cover about three miles on flat ground.

Thursday, January 6, 7:30 - 9:00 pm
PWWS Member Slide Show Meeting
Our Prince William Wildflower Society members will share their nature- and plant-related photos. If you wish to participate and share your photographs, please see page 1, first column of this issue, for details.

Saturday, January 8, 1 pm, Woodland Memories Walk at the State Arboretum at Blandy. Clarke County. Kim Strader, former assistant curator of the Blandy native plant trail, will lead a walk at the State Arboretum telling the background and natural history of trees on the trail. Register at piedmontvnps@gmail.com.

Thursday, January 13, 7:30 pm - 9:00 pm
The Healing Power of Nature, with Ecologist Charles Smith, via Zoom. Charles Smith will review how natural processes can heal not only ecosystems, but also people and communities, and the central role of native plants in this process. Free and open to public. Register here: https://us02web.zoom.us/meeting/register/tZUpduyspzsqHtd1wCzuDG4LL_xWsIFBtoKj

Sunday, January 23, Winter Speaker Series: Blandy Native Plant Trail Management. Assistant Curator Jack Monsted will talk about management of the Native Plant Trail at the State Arboretum at Blandy. Register at piedmontvnps@gmail.com.

Sunday, January 30, 8 am. Bird and Nature Walk at Merrimac Farm, last Sunday of every month. Join us! We will look for birds as we travel through the uplands to the edge of the floodplain, covering a variety of habitats, including open fields and woodland edges. Everyone is welcome. We meet at Merrimac Farm, Stone House, 15014 Deepwood Lane, Nokesville. Dress for the weather, bring binoculars and camera. Info and RSVP, (703) 499-4954 or alliance@pwconserve.org View the bird list for Merrimac farm here: http://www.pwconserve.org/wildlife/birds/lists/merrimacfarm.htm.

February

Saturday, February 12, 4th Annual Native Plant Symposium: "Stop Mowing, Start Growing!" The keynote speaker is Matt Bright of Earth Sangha. Registration opens in early January.

Sunday, February 20, 2 - 5 pm. Manassas Park Community Center. February's Author Lecture featuring Kelly D. Norris

Sunday, February 27, 2 pm. Winter Speaker Series: Grassland at Clifton, via Zoom. Executive Director of Clifton Institute Bert Harris will talk about grassland habitat management at Clifton. Register at piedmontvnps@gmail.com.

March

Saturday, March 12, 1 pm. Phelps Wildlife Management Area Walk, Fauquier County. Ron Hughes, wildlife biologist of the Virginia Department of Wildlife Resources, will lead a walk through rolling low hills near the Rappahannock River. Register at piedmonvnps@gmail.com.

Round-Lobed Hepatica

Formerly *Anemone americana* Is Now *Hepatica americana*

Round-lobed Hepatica, *Hepatica americana* (formerly *Anemone americana* in the 2012 *Flora of Virginia* and the Flora App prior to the 2020 update), is one of the earliest signs of spring. Only Skunk Cabbage, Harbinger-of-spring, and a few undramatic mustards or speedwells bloom before Round-lobed Hepatica. In protected areas, Hepatica's lovely white, pink, or lavender flowers may begin unfurling from fuzzy buds in late February (occasionally early January) while other stands may continue blooming into April. Round-lobed Hepatica's habitat is dry deciduous woods and its range is from southeastern Canada down to northern Florida and west to Iowa and Missouri. This delicate perennial member of the buttercup or crowfoot family (Ranunculaceae) is often found in protected areas sheltered by a tree trunk or a rock on a sunny hillside. *Hepatica americana* is the more common species in our area and it can withstand fairly acid soil conditions whereas the less common *Hepatica acutiloba* (formerly *Anemone acutiloba* in the 2012 *Flora of Virginia* and the Flora App prior to the 2020 update), the Sharp-lobed Hepatica, prefers less acidic soil and is more common to the western counties of our area.

Both Hepatica species, also known as Liverwort or Liverleaf, have common names derived from the Greek word for liver and refer to the liver-like shape of its trilobed leaves. In our area we have two species of Hepatica — Round-lobed Hepatica, *A. americana*, with the species epithet meaning "American" and Sharp-lobed Hepatica, *A. acutiloba*, with the species epithet meaning "sharp-lobed." [The taxonomy of Hepatica will be covered in a separate article in this issue of *Wild News*.]

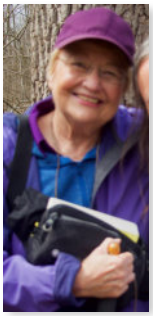
The 1/2 to 3/4" solitary flowers develop from four- to six-inch-tall scapes or flowering stems. The five to twelve (usually five or six) variously colored "petals" are not what they seem at first glance. These "petals" are actually a calyx of petaloid sepals; there are no petals! To further confuse the wildflower enthusiast, the three small green appendages behind the colored calyx are not sepals, but are bracts or reduced leaves. The stamens are quite numerous as are the separate pistils or carpels. Both stamens and carpels are arranged in a spiral pattern characteristic of the buttercup family. The variation in petaloid sepal color is probably due to a combination of genetic variations and soil acidity differences.

Individual Hepatica flowers may or may not have a delicate fragrance reminiscent of sweet violets. Flowers of this genus do not produce nectar but may be pollinated by various wild bees or fly species attracted by the fragrance, the disk-like shape of the flowers (that resemble other nectar producers such as Spring Beauty, *Claytonia virginica*), and by being one of the first species to bloom. If pollination does not occur after four to six days, self-fertilization may take place. Following fertilization, each carpel develops into a slender fruit called an achene, a dry one-seeded fruit that is indehiscent (that does not split open). Attached to the base of each achene is a fat saturated body called an elaiosome. Ants are attracted to these elaiosomes and serve as the seed dispersers (see article on myrmecochory in May-June 2018 *Wild News*). This explains a solitary clump of Hepaticas growing in a notch of an old tree trunk or in the crevice of a rock.

Unlike most other spring wildflowers of deciduous woods, the leaves of Hepatica persist throughout the year. They become thicker and more mottled (or even solid reddish purple) over the course of the year. These older leaves, admittedly a bit bedraggled after a rough winter, are present at blooming time, but wither away as new leaves appear. The plant hairs or "fuzz" that covers the unfurling young leaves as well as the stems and flower buds are found only on the undersides of the mature leaf. In a very picturesque description, Nellie Blanchan, in her 1923 book *Wildflowers Worth Knowing*, wrote ". . .even under the snow itself bravely blooms the delicate hepatica, wrapped in fuzzy furs as if to protect its stems and nodding buds from cold." Individual plants have rhizomes with fibrous root systems that allows hepatica to thrive on shallow soils and to withstand summer droughts.

In Europe other species of *Hepatica* were used to treat liver ailments based on the idea known as the "doctrine of signatures" which was proposed by herbalists in the 1500s. According to this idea, plant parts resembling an afflicted human part or organ could be used to treat that ailment. An extract of the liver-shaped leaves was used to treat liver ailments. There were Native American tribes such as the Cherokees that employed similar uses. Such medicinal uses persisted in Europe and in America into the last century and are still used in Chinese medicine. Fresh Hepatica leaves can cause skin and internal irritation when ingested. However, when dried, the primary toxic compound proanemonin is converted to anemonin that can have antibiotic and anti-inflammatory properties at therapeutic doses. For a more complete list of medicinal uses of Hepatica, visit: http://www.herbal-supplement-resource.com/hepatica.html.

While Hepatica is no longer used to treat liver ailments in Western medicine, the first sighting of its exquisitely delicate flowers is an excellent "spring tonic" for the winter blahs and an assurance that spring cannot be far away! Keep a close lookout for this special plant when you are out in the woods this winter!



Hepatica americana and *Hepatica acutiloba* and Ranunculaceae (Buttercup Family) Taxonomy

By Marion Lobstein, Botany Chair,

Prince William Wildflower Society and Professor Emeritus, Northern Virginia Community College

In the cold of winter, wildflower lovers delight in spotting the purple-mottled trilobed leaves and the white to lavender to purple flowers of Hepatica. If the plant has round or blunt lobes, it is *Hepatica americana*, or if you are in more mountainous areas and see pointed leaf lobes, it is *Hepatica acutiloba*. In the 2012 *Flora of Virginia* and editions of the Flora App prior to the 2020 updates, the genus *Anemone* was assigned for Round-lobed Hepatica (*Anemone americana*) and Sharp-lobed Hepatica (*Anemone acutiloba*) and included in the Ranunculaceae or Buttercup Family. In the 2020 update of the Flora App, both species were moved back to the genus *Hepatica*.

European Hepatica (known as *Hepatica nobilis*) had been known to herbalists since the Middle Ages as a purported treatment for liver problems based on the Doctrine of Signatures, the idea that if a plant part resembled a human body part that plant part would be useful in treating ailments of that body part. The name Hepatica was used by Johann Jacob Dillenius in 1718, and in 1753 Linnaeus assigned the binomium of *Anemone hepatica* to the European Hepatica. The species epithet recognized the common medical name for Hepatica. John Clayton and most botanists in American Colonies considered the American round-leaf hepatica to be the same as the European Hepatica. John Clayton in the 1762 second edition of the Flora Virginia uses the description of Hepatica triloba verna. If you would like to view Clayton's herbarium specimen of Hepatica, visit: https://data.nhm.ac.uk/dataset/clayton-herbarium/resource/51e7a60c-cbda-4e88-8a68-ef93442643e6/record/1145. If you visit John Clayton's Herbarium, which is housed at the British Natural History Museum at http://www.nhm.ac.uk/research-curation/scientific-resources/collections/botanical-collections/clayton-herbarium/, search the database for the Clayton number 328, which is the number recorded in the Flora Virginica, second edition.

In 1776 Andre Michaux, visiting Tennessee near the Cumberland River, recorded in his Journal finding Hepatica and listed it as *Anemone hepatica*. In 1788 Thomas Walter in his *Flora Caroliniana* also referred to *Anemone hepatica*. Dominique Chaix in 1776 proposed the binomium Hepatica *triloba*. DeCanolle and others in Europe accepted binomium for the European species. In 1814 Pursh proposed Hepatica *triloba var. obtusa* recognizing Round-lobed Hepatica as a variety. A British botanist John Ker Gawler in 1819 recognized the American species Round-lobed Hepatica as a separate species of *Hepatica triloba* and assigned the name *H. americana*. P. Miller in the 1880s proposed *Hepatica nobilis var. obtusa*. The Canadian botanist G. Lawson in 1884 used the binomium *Anemone obtusa*. The scientific name of Round-lobed Hepatica really has been moved around taxonomically. The same is true for Sharp-lobed Hepatica recognized by Pursh in 1814 as a separate species. To complicate the taxonomy, the Digital Atlas of the Virginia Flora still uses *H. americana* and *H. acutiloba* but does reference the Flora of Virginia binomia of *Anemone americana* and *A. acutiloba*. The USDA Database uses *H. nobilis var. obtusa* and *H. nobilis var. acuta*. Recent genetic research does seem to indicate that both Round-lobed and Sharp-lobed Hepatica are closely related with the European hepatica binomial nobilis.

Both Hepatica species are in the Ranunculaceae, the buttercup family. This family was described by A.L. de Jussieu in 1789. The name Ranunculaceae is based on the genus *Ranunculus*, the buttercups or crowfoots. European species of *Ranunculus* were used since ancient times to cause blistering to treat wounds or to treat inflammation. The genus *Ranunculus* is derived from the Latin word "rana" meaning frog. One possible explanation is that many buttercups are found in wet areas where there are frogs. In zoology, one of the largest genera of frogs is *Rana*. Ranunculaceae was the name assigned by A.L. de Jussieu in 1789. Earlier botanists, such as Pierre Magnol, recognized this family in the early 1700s.

World-wide Ranunculaceae includes roughly 60 genera and 2,400 species. In the Flora App 2020 update there are 16 general and 62 species. The major changes in the 2020 update of the Flora App are *Anemone canadensis* (Canada Anemone) now *Anemonastrum canadensis*, *Anemone americana* and *A. acutiloba* (Round-lobed and Sharp-lobed Hepatica) now *Hepatica americana* and *H. acutiloba,* and *Consolida ajacis* (Rocket Larkspur) is now *Delphinium ajacis*.

The remaining Ranunculaceae genera and species have no taxonomic changes from the 2012 Flora of Virginia and the versions of the Flora App prior to the 2020 update. The following chart is a summary of taxonomic changes in the 2012 *Flora of Virginia* compared to the Flora App 2020 update. *(Hepatica photo - Sherry Schellenger Parker)*

Ranunculaceae genera table update

Ranunculaceae Genera and taxonomic changes	Authority (who proposed the genus) & date proposed	Main group(s) in each genus (common name)	Ranunculaceae in 2012 *Flora of Virginia* and taxonomic changes	Ranunculaceae in 2020 update of Flora App and taxonomic changes
Aconitum	Linnaeus 1753	Monkshood	No changes	No changes
Actaea	Linnaeus 1753	Baneberry Black Cohosh	*Cimicifuga* (Black Cohosh species) (*C. americana, C. raremosa,* and *C. rubifolia*) are now *Actaea podocarpa, A. racemosa, and A. rubifolia*	No changes
Anemonastrum	Josef Holub	Canada Anemone	Canada AnemoneIncluded as *Anemone canadensis*	*Anemone canadensis* now *Anemonastrum canadensis*
Anemone	Linnaeus 1753	Anemone Hepatinca	*Hepatica americana* and *H. acutiloba* (Round-lobed and Sharp-lobed Hepaticas) are now *Anemone americana* and *A. acutiloba*	*Hepatica americana* and *H. acutiloba* (Round-lobed and Sharp-lobed Hepaticas) were *Anemone americana* and *A. acutiloba; Anemone canadensis* now *Anemonastrum canadensis*
Aquilegia	Linnaeus 1753	Columbine	No changes	No changes
Caltha	Linnaeus 1753	Marsh Marigold	No changes	No changes
Clematis	Linnaeus 1753	Clematis	No changes	No changes
Consolida	A. de Candolle 1821	Annual Larkspur	*Delphinium ajacis* (Rocket Larkspur) now *Consolida ajacis*	*Consolida ajacis* (Rocket larkspur) is now *Delphinium ajacis*
Delphinium	Linnaeus 1753	Larkspur	*Delphinium ajacis* (Rocket Larkspur) now *Consolida ajacis*	*Consolida ajacis* is now *Delphinium ajacis*
Enemion	Rafinesque 1820	False Rue-Anemone	*Isopyrum biternatum* (False Rue-anemone) now *Enemion biternatum*	*No changes*
Ficaria	J. Schaeffer 1760	Lesser Celandine	*Ranunculus ficaria* (Lesser celandine) is now *Ficaria verna*	*No changes*
Hepatica	Phillip Miller 1754	Hepatica	*Hepatica americana* and *H. acutiloba* (Round-lobed and Sharp-lobed Hepaticas) *Anemone americana* and *A. acutiloba*	*Anemone americana* and *A. acutiloba are now Hepatica americana* and *H. acutiloba* (Round-lobed and Sharp-lobed Hepaticas)

Ranunculaceae genera table update, continued

Myosurus	Linnaeus 1753	Mousetail	No changes	No changes
Ranunculus	Linnaeus 1753	Buttercup, Crowfoot, Spearwort	*Ranunculus ficaria* (Lesser celandine) is now *Ficaria verna*	No changes
Thalictrum	Linnaeus 1753	Meadow-rue	*Anemonella thalictroidies* (Rue-anemone) is now *Thalictrum thalictroidies*	No changes
Trautvetteria	Fischer and C.A. Meyer 1835	Tassle-rue	No changes	No changes
Xanthorhiza	Marshall 1785	Yellowroot	No changes	No changes

Thanks to the Potowmack Chapter of VNPS and to Margaret Chatham for the following article with useful web links:

So Many Websites, So Little Time . . .

Hopefully you got your plants in this fall! Woody plants especially like to be in the ground over the winter to get a good start in the spring.

Winter is a good time to take a step back and plan for the future of your yard. What plant community belongs there? You may want to spend some time with Glenn Tobin's website on the Natural Ecological Communities of Northern Virginia (see novanaturalcommunity.com) or Earth Sangha's Native Plant Compendium (see earthsangha.org) to help you figure it out. Not that there is only one right answer. Then take another look at the Plant Northern Virginia Natives Guide (see plantnovanatives.org) or the U.S. Fish & Wildlife Service's Native Plants for Wildlife Habitat and Conservation Landscaping (see fws.gov). The PNN guide is in the process of revision, and FWS says its guide was last updated in 2020: did they make any changes that are important to you?

Or maybe you'd rather just visit special places via the Web or plan a visit in person. Some ideas and enticements can be found through the Old Growth Forest Network (see oldgrowthforest.net), where all the listed forests are open to the public. Then there are all those lovely Virginia Natural Area Preserves (see https://www.dcr.virginia.gov/natural-heritage/natural-area-preserves/). You can download a guide to Nature Conservancy properties that are open to the public at https://www.nature.org/en-us/about-us/where-we-work/united-states/virginia/stories-in-virginia/va-preserve-guidelines/. Or how about Virginia's State Parks? See https://www.dcr.virginia.gov/state-parks/ and click on "Find a park."

Have I left out your favorite native plant website? Flora of Virginia app — and the guides to using it at vnps.org? Visiting or revisiting past talks for VNPS now archived there? Virginia Master Naturalists "High Five from Nature" series? capitalnaturalist.blogspot.com? Plenty of occupation for long, cold nights and wintry days.

Prince William Wildflower Society

A Chapter of the Virginia Native Plant Society
P.O. Box 83, Manassas, Virginia 20108-0083

Next Meeting: Thursday, January 6, 7:00 - 9:00 pm via Zoom
Annual Members' Slide Show

Where to Locate Future Data Centers, from the Rural Crescent to the Occoquan Reservoir — Not Beside National Parks! Stay tuned for future action alerts!

From Prince William Conservation Alliance, www.pwconserve.org :

Landowners on Pageland Lane have filed a data center development proposal to create an industrial corridor through the Rural Crescent, covering more than 2,000 acres next to Manassas National Battlefields Park and Conway Robinson State Forest.

Although the plan appears to focus on data centers, it also opens the door to other industrial uses, such as warehousing, that generate truck traffic and the need for a major new road connecting I-66 with the back side of Dulles Airport (Bi-County Parkway).

This proposal offers a false choice between building data centers to boost our commercial tax base OR protecting our national parks, Rural Crescent, and drinking water supply. We can do both! Land is available in the Data Center Overlay District, which means we can build more data centers in the right spot AND protect our environmental assets.

Protecting the Rural Crescent and our national parks helps us meet climate change goals. These assets encourage tourism, create attractive, desirable communities, protect our water supply, direct infrastructure improvements to underserved areas, and safeguard high quality habitats for wildlife