



# Wild News

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

Number 2020-02

March - April 2020

## Prince William Wildflower Society Membership Meeting

Thursday, March 5, 2020 7:30 p.m.

Bethel Evangelical Lutheran Church  
8712 Plantation Lane, Manassas

**Charles Smith will present "Herbivory: Why It Is Important That Plants Get Eaten"**

Charles will discuss native plants and their role as the foundation of ecosystems, coevolution with other organisms and importance for maintaining biodiversity.



Charles is a native of Arlington, VA, and a naturalist and ecologist with 27 years of experience in natural resource inventory, planning, management and monitoring. Charles is a US Army veteran; board member of the Virginia Native Plant Society, Prince William Wildflower Society and Prince William Conservation Alliance; and a certified Ecological Restoration Practitioner. He is a popular VNPS speaker and has served as an instructor for three chapters of the Virginia Master Naturalists.

## President's Column

Spring is almost here! Winter has been very mild for us as I write this, but March has been known to have some harsh weather. Most of our native plants can withstand such fickleness on the part of Mother Nature, but we would rather not test them.



Interest in native plant gardening continues to grow! On February 8 Prince William County government and nonprofits such as the Prince William Wildflower Society and Prince William Conservation Alliance partnered to produce the Second Annual Native Plants for Beginners Symposium held on the Woodbridge campus of Northern Virginia Community College. The all-day event featured native plant landscape designer John Magee as the keynote speaker, a segment of the film *Hometown Habitat*, and three blocks of breakout sessions. With more than 250 registered, the event was a grand success! PWWS had a table that was inundated with questions during each break.

The interest for our Doug Tallamy talk was overwhelming and left many disappointed people who had not registered. We hosted Tallamy just a few years ago and had nowhere near this response. Lesson learned!

Our speaker this month is well known to many of us, past PWWS president and accomplished ecologist Charles Smith. As he discusses native plant herbivory, you can learn more about the interconnected life forms of our ecosystems. You are sure to learn something new.

Spring brings the Bluebell Festival April 11, garden tours, walks, and our annual plant sale on May 9. The VNPS holds its annual workshop on March 14 in Charlottesville and this year's topic is climate change. So much happens in the spring; be a part of it all!

Nancy

## State Fruit?

Did you know that a local group of children was the inspiration for a bill down in our General Assembly to designate the Pawpaw (*Asimina triloba*) as our state fruit? They appealed to Prince William County Delegate Elizabeth Guzman (D-31) who introduced a bill, HB 592, to that effect. The children are members of Gainesville's 53rd Barred Owls, part of the Baden Powell Service Association (BPSA). BPSA promotes traditional scouting for all, encouraging good citizenship, self-reliance, loyalty, and outdoor skills. There are six groups in Virginia – four in Northern Virginia. One of the Virginia groups is named after the Pawpaw.



According to spokesperson Haley Skaer, the BPSA scouts spend most of their time outdoors in all kinds of weather exploring and learning about nature. Because of this, its members tend to see a lot of native plants and wildlife. Ms. Skaer and her husband have many pawpaws and persimmons planted on their property. She said, "The kids are pretty quick to point them out when we're out hiking. Most of our group of 2-8 year olds can quickly identify both the persimmon and the pawpaw when we're out now. The kids have tried both fruits, but like me, most agree that the risk:reward benefit is not in our favor with the persimmon. One unripe persimmon is enough to turn you off of the fruit. But pawpaws quickly became very popular with the kids and are much easier to determine when they're ripe."

Just how did the kids decide to pursue legislative action? According to Skaer, "On one of our hikes some of the kids were identifying state symbols – from the flag and license plates/mottos in the parking lot to the flower, tree, and bird. Someone asked about the fruit and when no one, including the adults, could think of what the fruit was, we decided to look into it more. One of our leaders, Ashley Jacobs, thought it would be a good idea for them to propose the pawpaw as the state fruit. It's a fun way for them to get involved with the local government and learn more about the government process and different ways of being an active good citizen, but it's still very much relatable to them. We reached out to Delegate Guzman who was very supportive and quickly got to work on the bill."

The bill, HB 592, was considered in committee, but did not make it to a floor vote this year. It has been continued into the 2021 session. If you would like to register an opinion on this bill, contact your local delegate.

~ Nancy Vehrs

## Landscape symposium attracted more than 250 native plant enthusiasts

It was an excellent day to meet new friends and learn about native plants that improve habitats and attract wildlife to our backyards, neighborhoods and beyond. This February 8 workshop was also a great opportunity to meet people from local organizations and agencies who are making good things happen.

The day opened with a talk by Landscape Designer John Magee, who shared information on creating plant communities that welcome wildlife. Participants each selected three of the nine breakout sessions, which focused on a range of topics, from native plants for suburban yards to forest health, meadows, and permaculture.

You can also view native plant gardens in person. For locations, check the Plant NoVA Natives list of demonstration gardens in the Northern Virginia area, <https://click.icptrack.com/icp/relay.php?r=25751137&msgid=665831&act=7HJL&c=233937&destination=https://www.plantnovanatives.org/visit-native-gardens>.

The annual Stop Mowing Start Growing symposium is sponsored by PWC Watershed Management, PW Conservation Alliance, PW Wildflower Society, PW Soil & Water Conservation District, PW Cooperative Extension, and Plant NoVA Natives.

We'll all have volunteer opportunities this spring. At the Merrimac Farm Wildlife Garden we'll be getting the area ready for the [Bluebell Festival](#) on April 11.

Helping maintain this large garden is a great way to learn more about native plants and we could use your help! We'll be there on April 4, 9am, to get started. For more information and to RSVP, contact Prince William Conservation Alliance at [alliance@pwconserve.org](mailto:alliance@pwconserve.org), 703.490.5200.

*"If there is to be an ecologically sound society, it will have to come from the grass roots up, not from the top down."  
-- Paul Hawken*

### ***A Word about Doug Tallamy's talk, "Nature's Best Hope," at our annual author event on February 23***

The auditorium was full to capacity, and Dr. Tallamy gave everyone much to think about; calling on us to reverse — through the planting of native plants — the damage of years of misuse of land, water, and air, his message was clear: **"YOU are Nature's best hope."** Your home can become part of what Dr. Tallamy is calling "Homegrown National Park." Thanks to all who brought this event to fruition, and made it the success that it was.

Scenes from the Doug Tallamy "Nature's Best Hope" talk on February 23 on the back page of this newsletter.

**Prince William Wildflower Society Minutes**  
**Thursday, January 2, 2020 7:30 p.m.**  
**Bethel Lutheran Church, Manassas**

President Nancy Vehrs called the meeting to order and welcomed a new member, Kathy Webber. [Remember, if you are a new member you are given a free copy of *Native Plants for Northern Virginia* at your first meeting.]

**Announcements:** We are in need of a co-chair to help Beverly Houston with refreshments at meetings and special events, such as the winter author event and our garden tours. [Carol Thompson has since volunteered to help Beverly.]

We also need a membership chair - computer skills required. If interested, please call Nancy Vehrs at her home phone, 703-368-2898.

Nancy thanked Brigitte for the recent newsletter *Wild News*, and Nancy reminded all that in this January/February 2020 issue there was information about the Sunday, February 23 event with well-known author, Doug Tallamy. Dr. Tallamy's books will be available for purchase and signing.

The second annual Native Plants for Beginners-Stop Mowing, Start Growing is Saturday, February 8 at the Woodbridge campus of Northern Virginia Community College, 9 a.m. to 2:30 p.m.

Those members who brought refreshments were thanked. (We have some generous members who often bring snacks to meetings, and it is appreciated. Thank you to Dee Brown, Libby Pemberton, and others.)

**Program: Annual Member Slide Show.**

Nancy Vehrs showed slides from two VNPS field trips in 2019: Texas Hill Country, March 24-30 and the Bruce Peninsula in Ontario, Canada, June 2-8.

Janis Stone shared photos taken at Riverbend Park, a Fairfax County Park in Great Falls.

Brigitte Hartke showed slides from the 2019 PWWS summer field trip to Longwood Gardens in Pennsylvania, Mt. Cuba Center in Delaware, and Chanticleer, a pleasure garden in Pennsylvania. It was a winter treat to see the colorful native plants and the scenery in these areas. Thank you, Nancy V., Janis and Brigitte!

**The following were donated as doorprizes:**

Three potted Amaryllis bulbs, *Common Native Trees of Virginia*, a dish towel with wildflowers on it, three walking sticks, a sign that says, Native Plants Live Here!, a spiced mug mat.

We adjourned at 9:05 p.m.

Karen Waltman, Secretary

## Upcoming Local Spring Native Plant Sales

Use Web Link below

Virginia Native Plant Society <https://vnps.org/potowmack/> sells natives on the first Wednesday of every month at their plot behind the visitor's center at Green Spring Gardens Park, from 10 am to 1 pm from April to October. Native plants are also available at most local garden centers (but rarely at big box stores). Be sure to ask for plants by their scientific name, as there are non-native versions of many popular plants. Ask if they are straight species. Look for red NOVA Natives stickers placed on plant signs by our volunteers at these [garden centers](#). Native plants are the basis of the ecosystem and are essential for our songbirds, frogs, butterflies, etc.

<https://www.plantnovanatives.org/local-native-plant-sales>

## Prince William Wildflower Society Newsletter

*Wild News* is the bi-monthly newsletter of the Prince William Wildflower Society, P.O. Box 83, Manassas, Virginia 20108. View *Wild News* in color at: [vnps.org/princewilliamwildflowersociety/](https://vnps.org/princewilliamwildflowersociety/)

Nancy Vehrs, President; Brigitte Hartke, Editor. Please submit article submissions to [BrigitteHartke@gmail.com](mailto:BrigitteHartke@gmail.com). Original Material in *Wild News* may be reprinted if credit is given to PWWS, to *Wild News* and to the author of the material, if named.

Next submission deadline: April 12

# Events: Save these Dates

For events not scheduled at the time this issue went to press, please continue to visit the PWWS's web page: [vnps.org/princewilliamwildflowersociety/](http://vnps.org/princewilliamwildflowersociety/) or PWWS Facebook page.

## March

### Thursday, March 12, 7:30 - 9 pm

Green Spring Gardens, 4603 Green Spring Road, Alex.  
"Piecing Together Nature's Puzzle" with Alonzo Abugattas



### Saturday, March 21, Nature is for Everyone — Black and Brown Faces in America's Wild Places

Northern Virginia Community College, Lakeside Theater, Woodbridge, VA.

An evening with Dudley Edmondson, author and photographer. There will be a 10 am to noon walk at Prince William Forest Park, and a 6 pm walk at Northern Virginia Community College followed by a 6:30 reception, 7:30 presentation with Q &A. Free, but space is limited. Please register at <http://GoOutside.eventbrite.com/>

### Saturday, March 21 Loudoun County Master Gardeners Annual Gardening Symposium.

Leesburg Community Church, 835 Lee Ave. SW, Leesburg, VA. Buy your tickets early as last year they sold out. The last day to register for the lunch-included option (\$72) is March 15, or bring your own lunch and the ticket is \$60. Register here:

#### Annual Gardening Symposium

<https://events.r20.constantcontact.com/register/eventReg?oeidk=a07egvwxl4l86d023b2&oseq=&c=&ch=>

### Sunday, March 22, 8:30 - 11:30 am,

**Spring Ephemerals Walk** with Margaret Chatham at Scott's Run Nature Preserve, McLean, Virginia. Go here to see if registration has open:

<https://vnps.org/potowmack/events/spring-ephemerals-walk-with-margaret-chatham-at-scotts-run/>

### Sunday, March 29, 8 am & Last Sunday of Every Month Birding and Nature Walk

Merrimac Farm WMA, Stone House, 15014 Deepwood Lane, Nokesville 20191

We'll 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. Dress for the weather, bring binoculars and cameras. More info and RSVP (appreciated) to PWCA, 703.499.4954 or [alliance@pwconserve.org](mailto:alliance@pwconserve.org).

Photo, right: Merrimac Hike participants enjoying birds

## April

### April 11 Annual Bluebell Festival at Merrimac Farm WMA,

**10 am - 4 pm.** Merrimac Farm WMA, Stone House, 15014 Deepwood Lane, Nokesville 20191. Family-friendly and free of charge. Meet local organizations and people who are working to improve our community. With some of the best Northern Virginia naturalists leading tours and activities, we're looking forward to a special day at an outstanding natural area. And, you can buy garden-propagated bluebells!

<http://www.pwconserve.org/merrimacfarm/bluebellfestival/>

<http://www.pwconserve.org/merrimacfarm/index.htm>

### Saturday, April 18, 9:30 am - 12:30 pm, Conway Robinson

**State Forest Walk with Charles Smith.** Conway Robinson State Forest, Gainesville, VA

### Sunday, April 19, 12 noon to 5 pm. Prince William

**Wildflower Society's Native Plants Home Tour.** Look for details upcoming on our website or on PWWS Facebook page.

## May

### Thursday, May 7, PWWS Meeting, 7:30 pm,

**Bethel Lutheran Church, Presentation by bee expert Sam Droege. Find photos of Mr. Droege's bees here, which you are free to use:**

<https://www.flickr.com/photos/usgsbiml/>

### Saturday, May 9, 9 am - 12 pm,

**Prince William Wildflower Society's Annual Native Plant Sale,** Bethel Evangelical Lutheran Church, 8712 Plantation Lane, Manassas, VA For information, call Nancy Arrington, 703-328-9729

### Saturday, May 16, 9 am - 12 pm,

**Master Gardener Plant Sale.** Teaching Garden – Virginia Cooperative Extension Prince William, 9535 Linton Hall Rd, Bristow, VA



# VIRGINIA BLUEBELLS

By Marion Lobstein, botany chair,

Prince William Wildflower Society and professor emeritus, Northern Virginia Community College

Edited by Deanna High in 2014

Reprinted from *Wild News*

March-April 2014

The blue and pink haze of flowers and flower buds of Virginia bluebells (*Mertensia virginica*) is one of the most beautiful sights of spring. This perennial member of the Boraginaceae (the Borage or Forget-me-not family) is a true spring ephemeral, as the vegetative parts appear, along with flower buds, in early to mid-April. By the end of May, the leaves and stems have yellowed and soon no trace of these plants can be seen above ground. During the brief time one has to enjoy this lovely spring wildflower, the leaves and stems are photosynthesizing, and energy is being stored underground in rhizomes (underground stems) for next spring's spectacular show of color.

Virginia bluebells is usually found on flood plains or in rich damp woods. Their range is from Ontario and Quebec Provinces in Canada west to Michigan and Kansas and south to Alabama and Georgia. According to the Digital Atlas of the Virginia Flora, Virginia bluebells is found in most counties of the piedmont and mountain geographical provinces of Virginia, but only in a handful of coastal plain counties.

Linnaeus first described *Mertensia virginica*, assigning the binomial *Pulmonaria virginica*. The genus name *Mertensia* originated with Albrecht Roth in the late 1700s. The genus *Mertensia* was in honor of Franz Karl Mertens, a botanist of the eighteenth century, and the species name *virginica* for the colony of Virginia. (Additional information is covered in the taxonomy article on this species and changes in the Borage family). Other common names for this plant are Virginia cowslip, Mountain cowslip, Lungwort, Roanoke bells,

Oyster leaf, and Mr. Jefferson's Blue funnel flowers. Thomas Jefferson planted Virginia bluebells on the grounds of Monticello.

In the 1600s, Rev. John Bannister introduced seeds of this lovely species to Europe, but the plants did not survive. In the 1730s, John Custis of Williamsburg sent rhizomes of Virginia bluebells to John Collinson in England, resulting in the establishment of the species in Europe. Peter Kalm collected the specimen that Linnaeus based his description on as *Pulmonaria virginica*.

The trumpet-shaped flowers of Virginia bluebells are about one inch long and vary in color from pink to bright blue to white. The buds are usually pink, with the most common color of the mature flower blue, with a return to pink following pollination. This color change in bluebell flowers from pink to blue back to pink is based on pH (acidity vs. alkalinity) affecting anthocyanin pigments within the cells of the flower. Color variation of all white or all pink flowers in individual plants is probably due to

genetic variation. Like most other members of the borage family, the inflorescence of Virginia bluebells is that of a coiled raceme or helicoid cyme with up to a dozen flowers gracefully arranged on one side of the pedicle or flowering stem.

Each flower has five sepals fused together to form a green calyx; five fused petals that form a longer tube with a shorter bell-shaped limb; five stamens, which are inserted inside the corolla near the summit; and a pistil with an elongate, slender style. The flowers in mass are fragrant, and pollination is accomplished primarily by bees, bumblebees, butterflies, moths, and even hummingbirds. The fruit that forms following fertilization is a schizocarp which splits to release four nutlets approximately 1/8

inch long with a roughened surface. These nutlets, which contain the seeds, resemble mouse feces, which may serve as a protective adaptation to make the seed less visible or obvious to seed predators. Like many other spring ephemerals, seeds are ant-dispersed.



(continued) Virginia bluebells' alternate basal leaves are up to seven or eight inches long and are elliptic to oval in shape. Smaller leaves on the one- to two-foot tall stems are two to five inches long and are oval to oblong. The somewhat succulent leaves and stems are glabrous (smooth) but may be glaucous (having a thin coat of bluish-white waxy covering). The underground storage structure of this spring ephemeral is its russet-colored rhizomes with numerous fibrous roots. These rhizomes are significant in size (perhaps up to a foot or more long) in mature plants. The rhizomes store energy for the next spring's burst of photosynthetic activity in the above ground plant parts, as well as anchor the plant in the ground to survive periodic spring floods. Spring flooding might be seen as a negative, but flood waters bring in nutrients, such as nitrogen and phosphorus, which are taken in by and stored in the rhizomes of the plant. These rhizomes can produce new plants and can be divided to asexually propagate new plants for the garden.

Human uses of this beautiful plant have been limited compared to that of many other spring wildflowers. The Cherokees, however, used it to treat whooping cough, consumption, and even venereal diseases. The rhizomes also have been used as an astringent. Leaves and flowers are considered edible by some, but is probably unwise to eat them, as their plant tissues may contain liver toxins known as pyrrolizidines.

Virginia bluebells is the logo flower of our own Prince William Wildflower Society. In the Northern Virginia area, there are excellent, large stands of flowers along Bull Run below Stone Bridge in the Manassas National Battlefield Park, Bull Run Regional Park, Riverbend Park, and Great Falls Park. Wherever you enjoy the beauty of these special wildflowers, they will bring you much pleasure. The distinctive blue of bluebells is very difficult to capture on camera, but your eyes instead can feast on the "real thing." Note: The Virginia Bluebell is also the official flower of Prince William County.

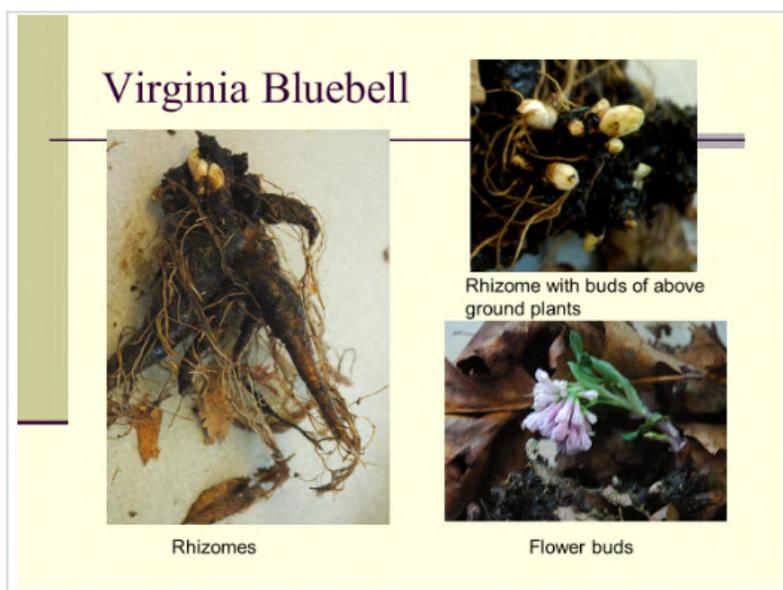
### Bluebells and Virginia Waterleaf: Together Again... in Boraginaceae

*Mertensia virginica* (Virginia Bluebells) is included in the Boraginaceae or Borage or Forget-me-not family. European borage (*Borago officinalis*) has been recognized as a medicinal plant since ancient times by Pliny, the Roman historian, and by Dioscorides, Greek physician of the first century A.D. Later herbalists, such as John Gerard in the

1500s and John Evelyn in the 1600s, recognized borage as a special, medicinal plant. *Mertensia virginica*, the scientific name of Virginia Bluebells, has undergone many permutations. Based on a specimen sent to him by Peter Kalm, Linnaeus in his 1753 *Species Plantarum* assigned the binomium *Pulmonaria virginica* based on the resemblance of the flower shape and color to that of the European lungwort, *Pulmonaria officinalis*. In the 1762 *Flora Virginica*, Virginia Bluebells is described as a *Pulmonaria* for the genus and was given the common name of Mountain cowslip. (In 1764, John Hill questioned the placement of *Mertensia virginica* in the genus *Pulmonaria* and proposed the genus *Pneumaria*). Albrecht Roth in 1797 renamed Virginia Bluebells *Mertensia pulmonarioides*—*Mertensia* to honor the German botanist Franz Carl Mertens. Johann Heinrich Friedrich Link (1767-1851) proposed the binomium *Mertensia virginica* using the species epithet *virginica* from Linnaeus. In the new *Flora of Virginia*, the authority is given as "(Linnaeus) Persoon ex Link." This gives credit to Linnaeus for the species epithet, and "Persoon ex Link" recognizes the work of Link and Christian Persoon (1761-1836). It is interesting to note that *Mertensia* has been used also as the genus of a group of red algae and as a genus of ferns. *Mertensia* is a synonym for the algal genus *Champia* (Little Fat Sausage Weeds) and for the fern genus *Dicranopteris* (Fork or Net Fern)—but these are not modern recognized genera. The Arctic Comb Jelly (*Mertensia ovum*)—also known as a Sea Nut—

is placed in the genus *Mertensia*. This is still a valid scientific name since it is acceptable to use the genus name for both a botanical species and an animal species. In the case of the red algal genus, *Mertensia* was applied to honor Karl Heinrich Mertens, the son of Franz Carl Mertens.

As noted earlier, Virginia bluebells is in the Boraginaceae, the Borage or Forget-me-not family. Based on modern DNA research and the work of the Angiosperm Phylogeny Group III, the *Flora of Virginia*, and other modern taxonomic treatments, Boraginaceae now includes species of Hydrophyllaceae, the Waterleaf Family, and Heliotropiaceae, the Heliotrope Family. Of the total 13 genera described in Boraginaceae in the Flora, there are four genera—*Ellisia* (Waterpods), *Hydrophyllum* (Waterleaves), *Nemophila* (Baby-blueeyes), and *Phacelia* (Miami-mists), which was formerly placed in Hydrophyllaceae; and one genus, *Heliotropium* (Heliotrope), from Heliotropiaceae. The eight other genera traditionally placed in Boraginaceae and still included in the Flora treatment of this family are:



**(continued)** Buglossoides (Corn Gromwell, formerly in Lithospermum); Cynoglossum (Comfrey); Echium (Viper's Bugloss); Hackelia (Stickseed); Lithospermum (Puccoons); Mertensia (Virginia Bluebells); Myosotis (Forget-me-nots); and Symphytum (Comfrey).

Boraginaceae was first described by A.L. de Jussieu in 1789: Genera of the Hydrophyllaceae, the Waterleaf Family, such as Hydrophyllum (Waterleaf), Ellisia (Waterpod), and Phacelia (Miami-mist) were included in Boraginaceae. De Jussieu also placed Hydrolea and Nama (Fiddleheads) (another former genus of the Hydrophyllaceae) in

Convolvulaceae, the Morning Glory Family.

Hydrophyllaceae was proposed by Robert Brown in 1810, when he moved all of these genera into Hydrophyllaceae. Heliotropium (Heliotrope), now in the Boraginaceae, was once placed in its own family, Heliotropiaceae, by Fredrich Berchtold & J. S. Presl in 1820.

As with many of the name or taxonomic changes at the family level, as well as genus and species levels, changes in the Boraginaceae and Hydrophyllaceae have gone full circle from de Jussieu to current nomenclature. The genus and species of *Mertensia virginica* has had fewer changes, but it is still fascinating to review the history of the naming and classification of this beautiful native species.



## Marion Lobstein Spring 2020 Activities

**Thursday April 23 and Friday, 24:** Marion Lobstein and Sally Anderson will offer a two-session **Spring Wildflower Identification Workshop**. Both sessions will be from 9 am to 2 pm at the Blandy Community Classroom and grounds.

Participants will use Newcomb's Wildflower Guide, the Flora of Virginia, and Flora of Virginia app to identify spring wildflowers in the lab and field. Participants should bring lunch and a 10x ocular, books, and app if they have them. The cost of this workshop is: FOSA & VNPS members, \$35; non-members, \$40. Registration through Blandy is required, and space is limited. Registration assumes attendance both days. For information on how to register for activities at Blandy Farm, call 540-837-1758, ext. 224.

**Date TBA:** Marion will also lead a **spring wildflower walk at Stone Bridge** in the Manassas National Battlefield Park. Please check the PWWWS Facebook page for details and how to reserve a spot.

**Saturday, May 2:** Marion Lobstein will lead a **Trillium Field Trip to Thompson Wildlife Management Area** to explore a spectacular wildflower display featuring a sea of trilliums. Participants will meet at the Blandy library to carpool to the trillium site. The cost of this field trip is: FOSA members, \$10; non-members, \$15. Reservations are required, and space is limited. For additional information on how to register for activities at Blandy Farm, call 540-837-1758, ext. 224.

# Prince William Wildflower Society

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



Next Meeting: Thursday, March 5, 7:30 - 9:00 pm  
Charles Smith: "Herbivory: *Why It Is Important That Plants Get Eaten*"  
Bethel Lutheran Church, Plantation Lane, Manassas, Virginia 20110



PWWS  
ANNUAL  
AUTHOR  
EVENT &  
BOOK  
SIGNING

DR.  
DOUG  
TALLAMY

PROGRAM  
AND BOOK:

"NATURE'S  
BEST  
HOPE"

If insects were to disappear...

- 1) Most flowering plants would go extinct
- 2) That would change the physical structure and energy flow of most terrestrial habitats

...which would cause the rapid collapse of the food webs that support amphibians, reptiles, birds, mammals

The biosphere would rot due to the loss of insect decomposers

...humanity would be doomed!

