

# Wild News

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

Number 2020 - 05

#### Thursday, November 5, 2020, 7:30 - 9:00 pm PWWS Virtual Zoom Meeting "Insects and the Milkweed Community" with Judy Gallagher

Register in advance for this meeting: https://us02web.zoom.us/meeting/register/ tZMpc-2orzwvHtfWbSEuTSINpGor7VBOcy-y After registering, you will receive a confirmation email containing information about joining the meeting.

Judy's childhood interest in insects was re-awakened after a Master Naturalist insect class in 2010. She has been taking macro pictures of insects and spiders since then, and loves how small dull-looking insects blossom into colorful interesting creatures when they are enlarged. Her pictures have been used in museum exhibits on three continents and in a number of books. She is a charter member of the Prince William



Wildflower Society, and is particularly interested in how insects and plants interact. In *"Insects and the Milkweed Community,"* Judy talks about insects and their roles in one ecological community, the Milkweed Community. *Pictured: Judy with a Harvester Butterfly* 

## President's Column

As I write this column, we're in the midst of a beautiful autumn. Nighttime temperatures have been chilly and

## November - December 2020

daytime sunshine has been warm. Asters are still blooming beautifully and attracting pollinators; why do so many people plant chrysanthemums instead? There are asters for both sun and shade; what's not to love about these fall bloomers?

At our official annual meeting back in September, I was reelected for another term, and I thank you for your support. We welcome Val Neitzey to the PWWS leadership team as our new VP. Congratulations to secretary Karen Waltman and treasurer Valerie Kenyon Gaffney on their reelection to another two-year term. We're grateful to our new PWWS board members, Diane Liga, Jocelyn Meloy, and Lois Montgomery. We still have some open spots: Publicity Chair, Registry Site Chair, and Webmaster. Beyond some basic duties, these positions can be tailored to the volunteer's skills and interests. Contact me at <u>nvehrs1@yahoo.com</u> if you might be interested and would like more information.

Some of us are adapting well to Zoom and finding many new opportunities for lectures and classes online. I'm still challenged as a Zoom host. I planned to record Elena Maza Borkland's lovely presentation on Botanical Art at our September meeting, but forgot to press the record button until the lecture was well underway. What I did manage to record is posted on my YouTube channel, nancyvehrs.

An extraordinary macrophotographer and skilled amateur entomologist, Judy Gallagher is our presenter for our November 5 meeting. She will dazzle us with her knowledge and photography in her program *"Insects and the Milkweed Community."* She recently presented *"Mysterious Moths"* on Zoom for the Prince William Conservation Alliance (<u>www.pwconserve.org</u>). View this excellent presentation on the PWCA YouTube channel. If someone will shout out *"hit record"* at the beginning of our program on November 5, I will be sure to post the recording later.

As our pandemic drags on, we continue to find refuge in nature. Brigitte Hartke and I discovered a challenging (hilly) three-and-a-half mile paved trail at Blooms Park in Manassas Park. It was previously a golf course. We found some maidenhair ferns and lots of Beechdrops, some Partridge-berry, Asters, Goldenrods, Thoroughwort, and Wingstem in bloom in early October. Later in October, Janis Stone, Brigitte, and I visited Silver Lake Regional Park in Haymarket and found asters, goldenrods, New York Ironweed, and thistles in bloom as well as a raccoon in the hollow of a tree and a rough green snake in a shrub. We won't mention all the invasive plants we also saw. In mid-October I visited James Long Park in Haymarket in search of Closed Gentians and was successful in finding three plants with beautiful blue flowers. Years ago PWWS/VNPS designated that site as part of our Registry program, but stream disturbance, inappropriate mowing, and invasive plants seemed to wipe out the population. I was so pleased to see that some are still there.

If you are interested in a self-guided walk in a secluded park, check out Doves Landing, a county park not far from the intersection of the Prince William Parkway, Dumfries Road, and Brentsville Road. The guide can be downloaded from our website and should be useful through November because it does not focus on blooms. See <u>https://vnps.org/ princewilliamwildflowersociety/events/self-guided-walk-atdoves-landing-park/</u>. Enjoy! See you on Zoom!

Nancy Photo: N. Vehrs, New England Asters in her garden



#### Prince William Wildflower Society Membership Meeting Minutes Thursday, September 3, 2020 7:30 p.m. on Zoom

President Nancy Vehrs welcomed all to the Zoom PWWS Annual Meeting.

Our bylaws require we send out a notice of the annual meeting 30 days prior to the meeting date, and that was not accomplished this year. Therefore, Janis Stone made a motion to waive the 30-day notice requirement for this year; Janice Beaverson seconded, and the motion passed unanimously.

Treasurer Valerie Kenyon Gaffney discussed the PWWS proposed 2021 budget. Suzy Harding moved to accept, Janice Beaverson seconded, and the proposed budget was approved unanimously.

Elections were held. Janis Stone moved to accept the proposed slate of officers, who would serve a 2-year commitment. Suzy Harding seconded, and the motion passed unanimously.

There had been 22 emailed approvals of the waiver, the proposed budget, and the PWWS slate of officers. With the emailed votes and the 31 participants in the Zoom meeting, our quota was more than met.

Nancy Vehrs introduced the officers and members of the PWWS board, and we are very appreciative of the PWWS members who are now new members of the board.

#### Announcements:

Nancy reported that we had a very successful author event on Sunday, February 23. Over 200 people attended to hear ecologist and author Doug Tallamy.

A 'weeding party' is scheduled for September 10 at the Hwy-95 Rest Area's native pollinator garden.

#### Program:

Nancy introduced the speaker, botanical artist Elena Maza Borkland. Elena explained that woodcuts were some of the earliest botanical art, and by the 1500s drawings were used to identify herbs and other plants, and the art was becoming more detailed. Elena showed her beautiful drawings of works from the 1500s on. Insects were included in some botanical art to show how certain insects interacted with plants. Usually done in water colors, the art could be copied cheaper than the early photography, and the detailed copies of fruits and vegetables were used to advertise for grocery stores and food vendors.

A 20<sup>th</sup> century botanical illustrator, Margaret Mee published a book, *In Search of Flowers of the Amazon*, and Elena discussed other painters who provided detailed art of plants and flowers from all over the world.

Elena is a member of the Botanical Art Society of the National Capital Region, and she and Marion Lobstein, our PWWS Botany Chair, belong to the Blandy Sketch Group. [The State Arboretum of Virginia is part of the Blandy Experimental Farm, operated by University of Virginia-in Boyce, Virginia.] Thank you Marion for asking Elena to speak with us, and thank you Elena for a delightful evening of the history and detailed art of the very talented botanical artists.

Karen Waltman, Secretary

# EVENTS

#### Self-Guided Plant Walk at Doves Landing Park.

Take our "20-flag" walk anytime through the fall to discover plants that grow there.

https://vnps.org/princewilliamwildflowersociety/events/selfguided-walk-at-doves-landing-park/

# November

#### Saturday, November 14, 2020, 1 - 3 pm Bull Run Mountain Natural Area Walk

17502 Beverly Mill Drive, Broad Run.

This is a Piedmont Chapter event.

Tour the north section of the Virginia Outdoors Foundation <u>Bull Run Mountains Natural Area Preserve</u>, not usually open to the public. While flowers will be gone, we should see many fungi and non-flowering plants. To register and for more details, contact <u>piedmontvnps@gmail.com</u>.

#### Tuesday, November 10, 7:30- 9:00 via Zoom *Plant Communities Shaped by Water* - Friends of Dyke Marsh Program.

Charles Smith is the presenter. To sign up, please email <u>info@fodm.org</u> and put "November 10 Program" in the subject line and your name in the body of the email.

#### Sunday, November 15, 1 - 3 pm via Zoom Potowmack Chapter 2020 Annual Meeting & Program

Dr. Andrea Weeks will discuss her research project, Recovering Native Plant Diversity in the Piedmont, that aims to initiate a long-term floristic study of Gilbert's Corner in Loudoun County to support ongoing habitat restoration at the site and educate the public.

#### Sunday, November 29 at 8 am Merrimac Farm Bird and Nature Walk,

Merrimac Farm, Stone House, 15014 Deepwood Lane, Nokesville. <u>directions</u>

We'll look for birds, plants, and more 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. View the bird list for Merrimac Farm <u>HERE</u>

# December

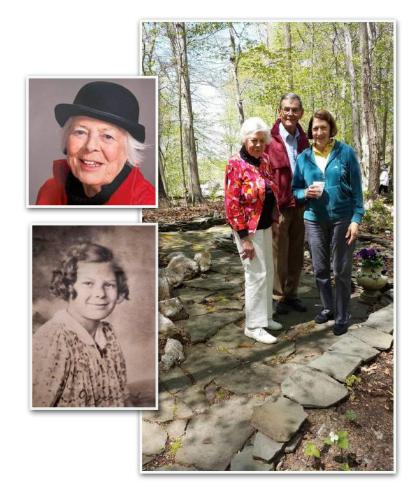
#### Saturday, December 12, 12 - 2 pm

Walk at the State Arboretum of Virginia, Boyce, VA. Check with the Piedmont Chapter for possibility of cancellations. https://vnps.org/events/

# In Memoriam

Charter member Jeanne Fowler passed away September 23 at the age of 94. She lived in Woodbine Woods in the central part of the county and maintained a lovely garden with many natives. Her garden was featured on our spring tour at least three times. Her late husband Stan grew an impressive vegetable garden and she was in charge of the flower gardens. Jeanne was a regular at our meetings and will be sorely missed. Our condolences go out to her family. <u>https://www.piercefh.com/</u> <u>obituaries/Jeanne-Fowler-2/#!/Obituary</u>

pictured right, Jeanne and Stan Fowler with host Tamie Boone at a spring garden tour.



# A PARASITIC LIFESTYLE: BEECHDROPS AND RELATIVES

#### By Marion Lobstein, Botany Chair,

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

Two primary characteristics of plants are the light-capturing pigment, chlorophyll, which gives most plants a green color, and the use of this pigment to capture light energy to carry out photosynthesis to produce energy-rich food from carbon dioxide and water. This kind of plant life style is known as autotrophic or self-nourishing. Indian Pipe (*Monotropa uniflora*), a species of flowering plants that lack chlorophyll is one you may have noticed growing in rich summer woodlands. It is a member of the Ericaceae (Heath family). This ghostly white species is saprophytic, which means it forms a symbiotic relationship with fungi to extract nutrients from dead plant material in the leaf litter or soil.

Another way for flowering plant species to obtain nutrients is to "steal" from a living host. This lifestyle, called parasitic, can be either holoparasitic, where species lack chlorophyll to carry out photosynthesis and depend totally on the host plant; or hemiparasitic, where a species has chlorophyll and is partially photosynthetic but still parasitizes a host plant for part of its nutrients. Three species of holoparasitic plants, members of the Orobanchaceae (Broomrape family), are under discussion here: Beechdrops (Epifagus virginiana), Squawroot or Bearcorn (Conopholis americana), and Oneflowered Cancerroot (Orobanche uniflora). In the Flora of Virginia and other modern treatments of Orobanchaceae, a significant number of hemiparasitic genera, formerly in the Scrophulariaceae (Figwort Family), are now included in the Orobanchaceae as well. They are listed in the accompanying taxonomy article, on the next page.

In the autumn, while walking in Beech woods, you may have observed Beechdrops (*Epifagus virginiana*), a parasite on Beech (*Fagus grandiflora*) tree roots, that blooms from September to October. *Epifagus* means "upon beech," derived from "epi," upon, and "fagus," the genus of beech; *virginiana* refers to "Virginia." Beechdrops ranges from New Brunswick west to Ontario and Missouri and south to the Gulf of Mexico. Beechdrops is an annual that forms thin, often purple-tinged, yellow-brown 12-inch or taller stems with scattered scales (reduced leaves). The upper flowers are so-called chasmogamous, or showy flowers, and are oneinch long and often sterile. The calyx of these flowers is four to five toothed, the white and purple corolla is bell-shaped and bilaterally symmetrical, with two lips on top and three on the bottom, the stamens are four in number, and the ovary is superior. The lower, smaller flowers do not open. They are self-fertile and are called secret or cleistogomous flowers. Research points to possibly bumblebees or ants as pollinators of the chasmogamous flowers. These flowers may even develop underground. The fruits that form are capsules containing many small seeds. The young seedlings begin to grow into the tissue of the host roots. Special short roots called grappers form, and structures called haustoria develop from the roots. The haustoria "suck" nutrients from the roots of the host plant.

Squawroot or Bearcorn, also known as Cancerroot (Conopholis americana), a better known member of the Broomrape Family, is a perennial that blooms from May into June. Conopholis means "cone-scale," derived from Greek for "conos," for cone, and "pholos," meaning scale; americana translates as "America." Squawroot's habitat is rich woodlands, ranging from Maine to Michigan and south to Tennessee and Florida. It forms a four- to six-inch tall brown, thick stem covered with brown scales that actually are reduced leaves. This cone-shaped structure arises from a thick underground tubercle. The tubercle also forms short roots with haustoria that invade host tissue. The roots of oak species are thought to be the most common host of Squawroot. The less than one-half inch long flowers located on the thick stem are pale yellow, with a toothed calyx, a corolla with two lips on top and three lips on the lower surface, four stamens, and a pistil with a superior ovary. Bee and fly species are possible insect pollinators, but the flowers may be self-pollinated (autogamy). The fruit is a capsule with many small seeds maturing while the capsule is still sticky, attracting animals to disperse the fruit and seeds. When the plant is in fruit, it resembles an ear of corn and is eaten by black bears and white-tailed deer. Images: (1) Beechdrops, WikiCommons, (2) Bearcorn, B. Hartke (3) One-flowered Cancerroot,



WikiCommons



#### A Parasitic Lifestyle, continued ~

A third member of this family that may be seen in our area is One-flowered Cancerroot (Orobanche uniflora), an annual that blooms from April into June. Orobanche derives from the Greek "orobos" for vetch, and "ankhō" to strangle; uniflora means "one-flowered." European species of this genus often parasitize vetches or other members of the pea family. The habitat of O. uniflora is rich woodlands; it is found in all of the continental states of the U.S. and in most Canadian provinces. One-flowered Cancerroot forms an underground ten- to twelve-inch long stem that gives rise to several flower stalks-each with a single flower. Reduced roots originate from the underground stem and form short haustoria called "wart" haustoria. Root systems of various woodland plants are parasitized by this species. In our area, I have often seen it on Eurybia divaricatus (formerly Aster divaricatus), the White Wood Aster. The one-inch long, bellshaped flower has a toothed calyx, a white and violet corolla with two upper lips and three lower, four stamens, and a superior ovary. Even though this species' flowers have nectar lines that would indicate insect pollination, the flowers may also be autogamous. The fruit of this species, like its cousin Squawroot, is also a capsule containing numerous small seeds.

Few edible or medicinal uses of these species currently are used. All three species may be eaten as "survival" food, but are not sought out by wild foods enthusiasts. Traditional medicinal use of Beechdrops has included treating stomach problems, such as diarrhea and dysentery, as well as mouth and cold sores. Squawroot once was used by women to ease menstrual or afterbirth pain and as a uterine stimulant to induce miscarriage. Squawroot also was thought to have sedative and laxative properties and to make poultices for wounds. Oneflowered Cancerroot is purported also to have laxative and sedative properties.

Members of this strange family are indeed unusual flowering plants. The stems and leaves lack chlorophyll, the leaves are usually reduced to scales, and the root system is much reduced with haustoria formed to invade host tissue. These species are dependent on invading the host plant for all nutrients and water. Even their seeds cannot germinate without the stimulation of fungal species associated with the root systems of the host plants. Although these species have little use to humans as food or medicine, they are worth finding to enjoy their eerie beauty and to contemplate their parasitic lifestyle.

*Images:* (1) *Botanical print, Orobanche uniflora* — <u>antiqueprints.com</u>, (2) *Beechdrops, Wikicommons,* (3) a cluster of Beechdrops, B. Hartke







The Broomrape Family (Orobanchaceae), Formerly Composed of Only Holoparsites, now Includes Hemiparasites from the Figwort family (Scrophulariaceae)

In the July-August, 2012 edition of *Wild News*, Marion Lobstein wrote an article on the breakup of the Figwort family, Scrophulariaceae. She wrote this article before the December 2012 release of the *Flora of Virginia*. This is an update (first published in the November-December 2015 *Wild News*) of the status of the fate of the traditional *Scrophulariaceae* with expanded information on the broomrape family, *Orobanchaceae*. The focus is on the taxonomic changes of three holoparasites (flowering plants lacking chlorophyll and totally reliant on their host plants for nutrients) common in our area: beechdrops (*Epifagus virginica*), squawroot (*Conopholis americana*), and Oneflowered Cancerroot (*Orobanche uniflora*).

As late as the 1990s, most taxonomists placed roughly 275

genera and 5000 species worldwide in the *Scrophulariaceae*. Based on DNA research and other factors such as lifestyles and morphology of former species of this family, this number has now shrunk to 52 and 1680 species. A chart is included at the end of this article to summarize changes in the breakup of the *Scrophulariaceae* specific to the species in the *Flora of Virginia*.

The Orobanchaceae swelled from 15 genera and 210 species to 65 genera and 1540 species worldwide. All members of this family are either holoparasites (totally reliant on host plants for nutrients) or hemiparasites (contain chlorophyll and only partially rely on host plants for nutrients). The broomrape family, Orobanchaceae, was named by a French botanist Etienne Pierre Ventenat in 1799 based on the

genus Orobanche designated by Linnaeus in 1753. Orobanche is derived from ancient Greek words "orobos" for vetch and "ankhō" to strangle. This name was proposed by Dioscorides, the Greek physician of the first century A.D. There are about 150 species of the broomrape genus worldwide. Species of European broomrape have been a problem in parasitizing crops such as vetch and other members of the legume family Fabaceae since Greek and Roman times. Theophrastus, the ancient Greek philosopher considered the "father of botany", in his writings mentioned broomrape as a weed. Pliny the Elder, a Roman writer and naturalist of the first century A.D., was the first ancient writer to recognize parasitic plants when he wrote about the European mistletoe (in the Sandalwood family Santalaceae). In his *De Materia Medica*, Dioscorides included uses of broomrape as a potherb. Nicholas Culpeper in his *Complete Herbal* (1653) described medicinal uses of broomrapes for urinary tract problems, treating wounds, and other maladies.

In 1753 Linnaeus assigned the name of *Orobanche virginiana* to beechdrops and *O. uniflora* to One-flowered Cancerroot. He used specimens from John Clayton as type specimens to name both of these species. John Clayton included both of these species in the 1762 edition of the *Flora Virginica*. In 1767 Linnaeus named squawroot (*O. americana*) and may have used a specimen from South Carolina. In 1818, Thomas Nuttall recognized differences between the now genus *Epifagus* (also spelled *Epiphagus*) and *Orobanche* and renamed beechdrops *Epifagus virginicana* which is the only species of this Genus. That same year William Barton published same binomium but gave Nuttall credit. In the *Flora of Virginia* Nuttall is listed

as the authority, but in other floras or sources, credit is given to Barton. Constantine Rafinesque later that year proposed the genus Leptamium but the legitimate name is still E. virginiana. One-flowered Cancerroot today is placed in the genus Orobanche but has also been placed in other genera as proposed such as *Aphyllon* by Asa Gray in 1848 and Thalesia by Nathaniel Britton in 1894. In 1825 the German botanist Karl Wallroth proposed the genus Conopholis, and squawroot was included in this genus as C. americana. Conopholis is a small genus of only 2-4 recognized species.

Since the early 1990s, continuing DNA research on members of the Scrophulariaceae has resulted in this family being disintegrated into a minimum of five families for genera occurring in Virginia. The listing below shows the hemiparasitic genera formally included in Scrophulariaceae now assigned to Orobanchaceae:

Agalinis (False Foxgloves) Aureolaria (Yellow False Foxglove) Buchnera (Bluehearts) Castilleja (Indian Paintbrushes) Melampyrum (Cow Wheats) Pedicularis (Louseworts) Three other hemiparasitic genera (Dasistoma, Schwalgea, and Seymeria) are rare in Virginia and not found in our area.



## Best Native Perennials for Gardens by Nancy Arrington

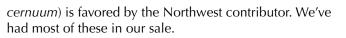
The editors of *Fine Gardening* magazine asked native plant experts across the U.S. to name the five native perennials they would recommend to gardeners in their area. The results were published in their November/December issue.

Close to home (Mid-Atlantic region), Jack Monsted, assistant curator of the native plant trail at the State Arboretum of Virginia, listed bee balm (*Monarda fistulosa*) as his number one choice. Other garden favorites are blue mistflower (*Conoclinium coelestinum*), white wood aster (*Eurybia divaricata*), great blue lobelia (*L. siphilitica*) and foxglove penstemon (*P. digitalis*). We have had all these in our past plant sales, but only the lobelia and penstemon sold well.

For the Northeast region, Bill Cullina, executive director of the Morris Arboretum in Pennsylvania, picked maidenhair fern (Adiantum pedatum) as his favorite, followed by great merrybells (Uvularia grandiflora), bottle gentian (G. clausa), Canada lily (L. canadense) and roundleaf liverleaf (Hepatica americana, syn. anemone americana). We always have maidenhair fern in the plant sale along with a smaller merrybells, (U. perfoliata). I think his other three choices need specific growing conditions and might be too difficult for most of us.

Curiously, the editors did not include an entry for the Southeast, but almost every other region contained natives familiar to gardeners in our area. The horticulturist at the Lady Bird Johnson Wildflower Center listed lyre leaf sage (*Salvia lyrata*).

Sundrops (*Oenothera fruticosa*), green dragon (*Arisaema dracontium*) and our old friend wood poppy (*Stylophorum diphyllum*) are Indiana favorites; nodding onion (*Allium*)



I grow many of the plants mentioned here. White wood aster and beebalm are so aggressive that they're relegated to areas with the worst growing conditions. I like blue lobelia, but it needs to be divided often and/or cut back in early summer or its flops terribly. Maidenhair is one of my favorite ferns, and most years I bring it to the plant sale. I have small clumps of nodding onion and green dragon that never increase enough to be shared. I love the cheerful wood poppies and pull out lots of them, since they would grow everywhere if I let them. I used to consider blue mist flower an undesirable, but now it's one of my favorite fall wildflowers because it is such a pretty blue that combines beautifully with most other colors, and it attracts so many small butterflies. Jack Monsted did warn that it's a spreader, so I'll watch it.

> I was disappointed that none of the experts mentioned any of my many favorites, narrowed down here to three for each season:

**Spring** – foamflower (*Tiarella cordifolia*), wild blue phlox (*P. divaricata*) and wild geranium (G. maculatum).

**Early summer** – 'Pink Profusion' bowman's root (*Gillenia trifoliatus*), meadowrue (*Thalictrum pubescens*) and black cohosh (*Actaea racemosa*). **Summer** – American bellflower, biennial (*Campanula americana*) 'Jeana' summer phlox (*P. paniculata*) and cardinal flower (*Lobelia cardinalis*).

**Fall** – white topped aster (*Doellingeria umbellata*), 'Avondale' heart-leaved aster (*Symphyotrichum cordifolium*) and pink turtlehead (*Chelone Iyonia*).

A new favorite, hoary skullcap (*Scutellaria incana*), starts blooming in late June, and, if deadheaded, will

continue through late fall. We have most of these in our plant sale.

How about you? Tell me about your favorite garden natives, and we will list them in a future *Wild News*. Also, plan to donate them to our plant sale, which we hope to have in some form in May 2021.

Nancy Arrington, Plant Sale Chairman, narrington1@verizon.net

Images: B. Hartke, (1) Nancy Arrington's Garden, PWWS 2017 Spring Tour (2) Blue Phlox at Chanticleer Gardens





# Prince William Wildflower Society

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



Next Meeting, Thursday, November 5, 7:30 - 9:00 pm via Zoom Program: *"Insects and the Milkweed Community,"* with Judy Gallagher

## PRINCE WILLIAM WILDFLOWER SOCIETY

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Chartered: January 10, 1983 Logo: Mertensia virginica - Virginia Bluebells

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