



WILD NEWS

Newsletter of the Prince William Wildflower Society

A Chapter of the Virginia Native Plant Society

Logo: *Mertensia virginica* (Virginia Bluebell)

Web site: www.pwws.vnps.org

January-February 2014

Number 2014-01

The Prince William Wildflower Society

kicks off 2014 with PWWS's "Deep of Winter" Annual Member Slideshow

Monday, January 20, 7:30 p.m.

Bethel Evangelical Lutheran Church, 8712 Plantation Lane
Manassas, Virginia 20110

Join PWWS members and friends to view, show, and talk about exciting plants and places and to celebrate Prince William Wildflower Society's 31 years of caring about native plants in our community. All are welcome. Our meetings are free and open to the public, so bring a friend or two! Refreshments will be served and doorprizes awarded.

If you are interested in participating in the program, **please contact PWWS Program Chair Carol Thompson** at carol8809@icloud.com or call (703) 596-6654.

Number of slides/time allowed will be limited depending on number of participants. Please plan to limit your photo presentation to no more than 15 minutes. Equipment will be provided or bring your own.

President's Corner

Happy 2014! Your PWWS board has been busy planning an exciting year ahead. To kick off the year, we start with our traditional membership slideshow program this month. We'll be treated to exquisite images that PWWS members have taken over the past year. With a ten-minute limit, I will have a hard time choosing the photos I can share. I have been fortunate to have visited many natural areas in 2013. The April VNPS trip to the Great Smoky Mountains National Park was definitely a highlight and should be well represented in what I present. Other members, who are more skilled photographers than I, will also show some of their best shots. With door prizes and tasty refreshments, we should have a thoroughly enjoyable evening.

Next month, with support from the Master Gardeners, we are proud to present Doug Tallamy, acclaimed author of *Bringing Nature Home*, in a

special Sunday afternoon program. Professor Tallamy, who is chair of Entomology and Wildlife Ecology at the University of Delaware, lectures far and wide on the importance of planting natives in our home landscapes. If you want lovely birds and butterflies, native plants are essential. If you are reading this newsletter as a member of PWWS, you probably already "get it." We need to spread the message beyond ourselves. Please invite your friends, neighbors, and colleagues to this February 16 program to be held at the Manassas Park Community Center. Promise them an inspiring program and tasty treats, and maybe we'll be rewarded with some native plant converts!

Enjoy the quiet, unhurried pace of winter before the frenzy of spring is upon us. Why not bundle up to enjoy breathing fresh, cold winter air on a leisurely walk in the winter woods? *~Nancy Vehrs*

Conway Robinson State Forest Management

By James McGlone
NOVA Work Area Team
Virginia Department of
Forestry

Conway Robinson State Forest is a 444-acre tract of public land just east of Gainesville managed by the Virginia Department of Forestry (DOF). The land was deeded to the state in 1938 with the provision that “No trees or timber shall be cut there except such as it may desirable to cut for the purposes of eliminating fire hazards, improving the growth and development of other nearby trees or vegetation, or elimination of dead, decaying, or unsightly growth.” This provision guides the development and implementation of management plans that are updated every ten years; the current plan will be revised this year.

When the land passed to DOF care in 1938, it comprised half upland mixed hardwood and half open space. The open space in the eastern part of the tract was planted in white (*Pinus strobus*) and loblolly pine (*P. taeda*). Since that time, the forest has seen mostly passive silvicultural management, but there was a six-acre harvest completed in the south central part of the forest—just east of the picnic pavilion—in 1992-93.

An evaluation of the forest in 2006 indicated the need for a change in the passive management regime. Standing dead trees, pockets of mortality, and an overall decline in the oak forest were evident. Additionally, there was virtually no regeneration in the forest due to a tight forest canopy and excessive deer browse. The 1992-93 harvest area was overcrowded with volunteer trees (it had not been replanted) and non-native invasive plants. The loblolly pine stand was overcrowded and trees were beginning to decline due to competition. The white pine stand was in decline with many dead, decaying, and wind-thrown trees creating unsightly growth



and the potential for extreme fire behavior. Finally, the physical, social, cultural, and demographic environs of the forest had changed since 1938, making typical forest management actions alien to the surrounding community.

As a result of the 2006 evaluation, DOF saw a need to pursue more active management of the forest as well as an opportunity to reintroduce forest management to a rapidly urbanizing area of the state. Currently, the two overarching goals of managing Conway Robinson State Forest are to

1) restore a healthy, sustainable forest and 2) demonstrate sound forest management practices. These goals lead in 2007 to the development of six management objectives:

- 1) Develop a public information plan
- 2) Reduce the deer herd
- 3) Improve the stand quality in the 1992-93 harvest tract
- 4) Renovate or replace the white pine stand
- 5) Manage the loblolly to produce and old growth stand; and
- 6) Manage hazards within the forest.

Deer Herd Reduction

In 2007, DOF began planning its first deer herd reduction. After conferring with other natural resource management groups in the Northern Virginia Area, DOF decided on a compartmentalized shotgun hunt and set the rules for the hunt. The first hunt occurred in the fall of 2008 and annual hunts have continued since. Over this six-year span, 148 deer have been removed from the forest, 94 of them does. Initially, it was feared that the removal of deer from the forest would result in an influx of deer from the nearby Manassas National Battlefield, but this apparently has not happened, and we are beginning to see regeneration of oaks and hickories in the forest. The poor acorn crop of fall 2013 will provide a test of whether deer management has been successful, as

deer will be forced to rely more heavily on seedlings for food during the 2014 winter.

Timber Stand Improvement

Timber stand improvement is a practice employed to enhance the quality of a forest parcel. It is not unlike weeding or thinning a garden. In this practice, criteria are developed to rank trees and the 'best' trees are selected to be crop trees. Other trees, non-native invasive species, and other competing vegetation are removed to release crop trees from this competition and improve their growth. Usually good genetics—straight growth, good branch unions, a single leader—is part of the criterion. Trees exhibiting good genetics not only are likely to make good seed for future generations, but are also more likely to survive to maturity and old age. Other elements of the criteria depend on management goals. In the case of CRSF, wildlife value was another consideration, so some preference was given to trees with high wildlife value when selecting the crop trees. Currently, timber stand improvement work is being conducted on the stand that was harvested in 1992-93 by the NOVA area work team.

White Pine Stand

The white pine in the northeast corner of the forest was a mess. It was overcrowded, trees were in decline, there were many blow downs, it had heavy fuel loading, it was invaded by non-native species; and white pine was not the best choice for the site. Because of the many issues with the stand, DOF decided to start over. In the summer of 2013, the stand was cleared in a salvage harvest. This area was burned in November. Burning removed much of the slash remaining from the harvest, liberating nutrients from the debris and opening up the site for easier access for replanting. It also demonstrated that prescribed burning can be conducted safely in Prince William County, even in proximity to major roads and residential housing.

The clear-cut will be replanted with short leaf pine (*P. echinata*). Short leaf is a yellow pine similar to loblolly but is native to northern Virginia, unlike white and loblolly pine. It is also a diminished species in Virginia. Where it grew naturally, it was harvested for timber and either replanted with loblolly, which grows faster, or the site was allowed to revegetate with Virginia pine.

A small portion at the western end of the white pine stand was harvested as a shelter wood. In this area, some of the better trees were allowed to remain to provide some cover for the naturally revegetating stand. The remaining trees will act as a wind break and allow filtered sunlight to reach new seedlings as the stand regrows. This may result in a mixed oak/pine stand depending on the seeds' sources and germination.

Old Growth Loblolly

Old growth forest is relative term dependent on the species involved. For mid-successional species like oak or hickory, old growth means achieving a stable plant community that is unevenly aged and properly balanced by a fire regime that creates canopy gaps and keeps out later successional species such as maple and beech. For a pioneer species like loblolly pine, old growth is defined by the age of the stand relative to the longevity of the species. Loblolly pine is considered a medium-lived tree, with a possible life span of 200 years. Therefore, old growth loblolly would be a stand of 100 to 150-plus years. The trees at CRSF were planted about 75 years ago. The stand was overcrowded and trees were beginning to decline, so it was thinned at the same time that the white pine was harvested. The thinning opened up the stand and gave the remaining trees access to more light, water and nutrients. While old growth is still the management objective for this stand, that may have to be reevaluated. As the trees were thinned, and we got a better look at the remaining trees, we realized that they had live canopy on only a quarter or less of their height. Typically, loblolly needs about one-third live crown to respond favorably to a thinning.

In the winter of 2014, the loblolly stand will be burned. As with the burn in the white pine stand, this will serve as a demonstration of prescribed burning as a means to reduce fuel loads from the slash and recycle nutrients for the benefit of the remaining trees. Understory burning also can stimulate native understory plants, particularly *Vaccinium* spp.

Risk Management

The DOF is aware of the recreational nature of the Conway Robinson State Forest and the need to make it safe for our visitors and neighbors. We removed several hazardous trees along the forest boundary of

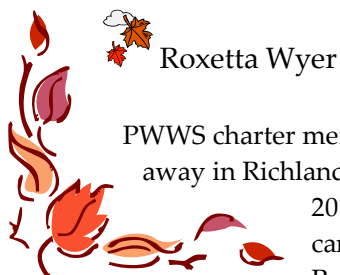
the Heritage Hunt community and around the picnic area, have repaired some particularly bad places along the trails, and periodically walk the trails and remove blocking and hazardous trees. We are developing a tree risk-management plan for the forest that will specify the level and frequency of risk assessment of trees in the forest.

Public Education and Other Activities

An informational pamphlet and series of signs were developed to inform the public about the forest and its history and the management activities taking place there. In addition to the pamphlet and signs, in 2009 we engaged with partners in an intern program. These partners are the MNBP, and VT Extension. The purpose of the program is to develop an interpretive program to present to the public. This program was unveiled at a nature walk for the public in the summer of 2013. We also have demonstrated habitat improvement by building brush piles near the pavilion, installing and monitoring deer exclosures, and participating in emerald ash borer monitoring studies.

Because of these management activities, the Conway Robinson State Forest is becoming a healthy, sustainable natural reserve that provides recreation, knowledge, and an opportunity to reconnect with nature at the edge of one of the fastest developing areas in the country.

[James McGlone is Urban Forest Conservationist at the Va. Department of Forestry, NOVA Area, Central Region].



Roxetta Wyer

PWWS charter member Roxetta Wyer passed away in Richland, Wash. on December 16, 2013. She had been treated for cancer since April 2012.

Roxetta served as secretary and plant sale chairman for PWWS. She was an avid gardener and her garden on Peabody Street was on the chapter's tour. Her family is planning a service in Manassas in the fall. *—Nancy Arrington*

Prince William Wildflower Society Meeting Minutes, Annual Meeting, Bethel Lutheran Church, 7:30 p.m., November 18, 2013

President Nancy Vehrs opened the meeting and thanked Jeanne Endrikat and Marion Lobstein, who brought refreshments. She then welcomed eight members of the audience who were attending one of our meetings for the first time.

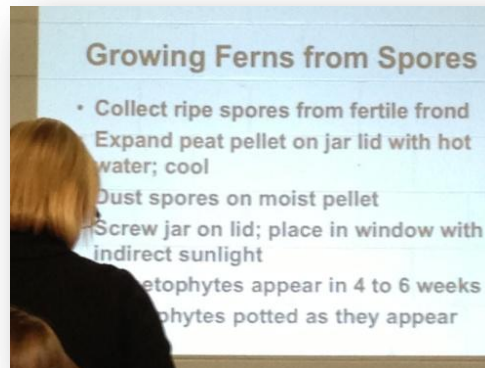
Program

Nancy introduced speaker Carl Taylor, along with his presentation, "Ferns in the Natural Landscape." Dr. Taylor recommended *Ferns for American Gardens* by John Mickel as a resource for those interested in learning about or growing ferns. Dr. Taylor's talk was divided into 5 sections: Recognizing Ferns, Structure of Ferns, Life History of

Ferns, Gardening with Ferns, and Growing Ferns from Spores. The pictures that accompanied the talk helped explain the differences between ferns and other plants and showed the variety of species that can be grown in our gardens. Dr. Taylor enthusiastically summarized "Why Grow Ferns": They are

beautiful and make great garden subjects; they are easy to grow as long as you have moisture, shade, and rich soil, such as in woodlands; and the mid-Atlantic region allows a wide diversity of species to be grown.

Following his talk, Dr. Taylor demonstrated some easy ways to grow ferns from spores.



Announcements

- The PWWS co-sponsored talk by Doug Tallamy will be presented Feb. 16, 2014 at the Manassas Park Community Center Banquet Hall, 99 Adams Street, Manassas Park, Va. 20111
- Sunday December 29 is the Xmas Bird Count, with a variety of locations
- Marion Lobstein, PWWS botany chair and professor emeritus, NVCC, announced that the first printing of the *Flora of Virginia* has sold out. Visit www.floraofvirginia.org for information on ordering a second-printing copy.
- Marion donated 6 *Floras* to NVCC's 6 campuses, in honor of Nicky Staunton, and the books were accepted at a reception on Nov. 13, 2013 at the Manassas Campus.
- Marion gave a workshop for PWWS members on using the new *Flora* on Sept. 28, and a spring class is

also planned. Watch for the date and location in the *Wild News* or at a PWWS meeting.

- Marion said she was asked to support the native garden at NVCC, and she would find out more information on that in the spring.
- Nancy introduced Sue Dingwell, the Virginia Native Plant Society web master. Nancy and Sue hope that soon people will be able to join VNPS and renew memberships online.
- Nancy reported the possibility of partnering with Prince William Forest Park, and a meeting was planned for discussions.

Doorprizes: Brian McDougal, *Fern Growers Manual*; Suzy Stasulis, *Invasive Plants in Southern Forests*; Rima Vesilind, *Gardening with Water*. **Attendance:** Dr. Carl Taylor (speaker) and Jerry Taylor, Helen Rawls, Jeanne Fowler, Jeanne Endrikat, Nancy Arena, Arlene Stewart, Ron Singleton, Tamie Boone, Tom and Joyce Andrew, Joyce and Mike Wenger, Brian McDougal, Elaine Haug, Elena Meyer, Jack and Deanna High, Dee Brown, Glen Macdonald, Jane Dvonch, Sharon Figueroa, Chrisine Sunda, Annette Dobbs, Barbara Deegan, Janet Martinet, Rima Vesilind, Celia Vuocolo, Carol Thompson, Suzy Stasulis, Theresa DeFluri, Marion Lobstein, Rose Breece, Janet Wheatcraft, Nancy Arrington, Carol D.ueito, Harry Glasgow, Brenda Hallam, Beverly Houston, Sue Dingwell, Rick and Diane Flaherty, Nancy Vehrs, Karen Waltman, Tiana Camfiord. --Respectively submitted, Karen Waltman, PWWS Secretary

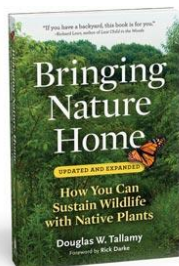
E~V~E~N~T~S

~ JANUARY ~

Monday, January 20, 2014, 7:30 p.m., Prince William Wildflower Society annual slideshow program and membership meeting. See first page of this newsletter for more on the program.

Thursday, January 23, 2014, 6:00 to 9:00 p.m., Rural Preservation Study Public Information Open House. The Prince William County Planning Office is hosting a public information open house on the Rural Preservation Study in Room 107A and 107B of the Development Services Building located at 5 County Complex Court in Prince William. Project staff will provide an overview of the Study, share results from public input to-date, present information about rural preservation tools available to the County, and seek additional input.

Sunday, January 26, 8:00 a.m., "Bird Walk at Merrimac Farm," Merrimac Farm, Stone House Visitor Center, 15020 Deepwood Lane. 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, not required) to PWCA, (703) 499-4954 or alliance@pwconserve.org.

~ FEBRUARY ~

Thursday, February 6, 7:30 p.m. to 9:00 p.m., "Wildlife of the Potomac River Refuges: A Seasonal Perspective" with **Randy Streufert**, Mason Neck photographer and naturalist. Bull Run Universalist Unitarian Church, 9250 Main St., Manassas, Va. Sponsored by the Prince William Conservation Alliance. Join us for a virtual trip through the seasons at Occoquan Bay and Mason Neck National Wildlife Refuges. Fabulous photos include Bald Eagles courtship and mating, a series of puffed up birds in winter and bird baths in summer. This interesting and funny presentation emphasizes wildlife behaviors and relationships, and personalities.

Saturday, February 15, 11:30 a.m. to 4:00 p.m. VNPS Geology Field Trip to Cumberland State Forest and Bear Creek Lake State Park with **David Spears**, state geologist. Geologically, Cumberland State Forest straddles the Spotsylvania Fault Zone, a major tectonic boundary. The group will study many interesting rock types representative of Piedmont geology, including volcanic rocks, faultsheared rocks, quartz- and mica-rich schists, and Triassic conglomerate and diabase. Some of these rock types form distinctive soils that support varied plant communities.

Tom Dierauf, retired chief of research for the Virginia Division of Forestry, knows the area well, and will collaborate with Spears in order to help the group understand the relationship between the soils and the plants that grow there. Participants should bring a lunch to eat at 11:30 while Spears gives a short lecture and shows some maps. The trip will include several half-mile walks. There is a \$20 fee for the field trip. To register, call the VNPS office or download a registration form from the VNPS website. Registration will open January 6.

February 16, 2014, 2:00 to 4:00 p.m., Presentation by Doug Tallamy, Manassas Park Community Center, 99 Adams Drive, Manassas Park, Va. 20111

You are invited to a presentation by **Doug Tallamy**, author of *Bringing Nature Home*. This event is free of charge, and the general public is invited. Refreshments will be served, and Professor Tallamy will sell and sign copies of his book. Registration is strongly suggested to ensure adequate seating. Please RSVP to (703) 792-7747 or master_gardener@pwcgov.org. This event is sponsored by the **Prince William Wildflower Society and the Master Gardeners of Prince William**.

[Photos: Skunk cabbage leaves with moss, courtesy of John Hayden; skunk cabbage inflorescence, Albert Vick, NPIN image id #10063, accessed at [National Wildflower Center](http://NationalWildflowerCenter.org) www.wildflower.org; Water lettuce, courtesy of Marion

Lobstein; Skunk cabbage spathes, Gerry Moore, Brooklyn Botanic Garden, accessed at www.bbg.org; Path at Conway Robinson, Deanna High.]

~ MARCH ~

Saturday, March 1, 9:15 am to 3:30 pm., VNPS Annual Winter Workshop, "Taking the Heat: A Look at Plants and Climate Change." University of Richmond campus, Jepson Hall, Richmond, Virginia. Speakers include Jerry Stenger, research coordinator for University of Virginia's Climatology Office; Richard Primack, professor of biology at Boston University; Kristina Anderson-Teixeira, a forest ecologist at the Smithsonian Institution; and Carl Hershner, director of the Center for Coastal Resources Management at the Virginia Institute of Marine Science of the College of William and Mary. Session topics include "Understanding Weather and Climate," "Climate Change Comes to Thoreau's Concord," "Forest-Climate Interactions in an Era of Global Change," and "Sea Level Rise Impacts on Virginia Coastal Habitats." Registration will open in early February. Watch for the flyer that will be sent to all PWWS members later this month or contact Karen York at (540) 837-1600 or vnpsofc@shentel.net for more information.

Monday, March 17, 7:30 p.m., "Forest Communities in the Potomac River Coastal Plains," with Rod Simmons. Prince William Wildflower Society Membership Meeting, Bethel Lutheran Church, Manassas. You won't want to miss this program, so mark your calendars!

Skunk Cabbage (*Symplocarpus foetidus*)

By **Marion Lobstein**, Botany Chair, Prince William Wildflower Society and Professor Emeritus, North Virginia Community College

The maroon and green hood of skunk cabbage (*Symplocarpus foetidus*) is one of the first signs of early spring. In swamps, on stream banks, and in bogs along the East Coast, these leathery pointed cowls begin pushing through the snow or swamp "muck" as early as mid-February.

If there is snow or ice present, you may notice melting patches as the sharp-pointed hoods begin to poke through the icy cover.

Skunk cabbage, a perennial member of the Araceae or arum family, is found from Nova Scotia to Florida and west to Minnesota and Iowa. Jack-in-the-pulpit, green dragon, arrow arum, and golden club are other members of this predominately tropical family native to our area. The scientific name of skunk cabbage (*Symplocarpus foetidus*) is very appropriate: *Symplocarpus*, meaning compound fruit

referring to the fruit structure; and *foetidus*, meaning fetid referring to the unpleasant smell of bruised or crushed plant parts. The smell has been described as a combination of skunk, putrid meat, and garlic odors. I personally think the smell is reminiscent of rubber tires and is not that unpleasant.

The presence of crystals of calcium oxalate in the vegetative parts of skunk cabbage is typical of members of the arum family. These crystals cause a burning, peppery sensation if plant parts are eaten raw. This characteristic and the cabbage- or tobacco-like leaves and showy hood have given rise to

other common names such as stinking cabbage, swamp cabbage, parson-in-the-pillory, and polecat weed. Thoreau referred to skunk cabbage as "hermits of the bog."



Actual skunk cabbage flowers are numerous, small, and inconspicuous. They are imbedded in the spathe, a brownish-yellow oval structure surrounded by the leathery cowl-like pointed hood, the spathe. This spathe is the most visible part of the flower, correctly referred to as the inflorescence. The flowers on a single spathe are either

male or female at any given time. Even though this family is a monocot one, the flower parts occur in 4s rather than the usual 3s. Both male and female flowers lack petals but do have fused sepals forming a calyx. Male flowers have four stamens; female flowers have a single ovary semi-buried in the spathe.

The spathe or hood surrounding the spathe is formed from two fused leaves. Aerobic respiration, the same process by which we breakdown our food to obtain energy and maintain our body temperature, is the source of heat from the hood. The metabolic level of this process in skunk cabbage is comparable to that of a small shrew or hummingbird. Heat and other chemical processes, such as fermentation, which also occurs in the hood, result in the release of malodorous organic compounds such as amines, indoles, and skatole that mimic the smell of dung or carrion. The combination of

heat and smell attracts thrips, carrion flies, and beetles that serve as the primary pollinators. The heat generated may be as high as 36 to 39°F above the surrounding air temperature. A constant temperature range of 70 to 72°F can be maintained inside the hood for two weeks or longer. The arum family of plants is the only one known to turn on an "internal furnace" to release disagreeable (to some human noses!) odors that attract pollinators. This phenomenon was recorded as early as the late 1700s by the French naturalist Lamarck. Insects attracted to a hooded inflorescence fly into a heated chamber with very slippery walls that will send them sliding to the area of the small flowers to either pick up pollen if male



flowers are mature, or transfer pollen if the female flowers are receptive. Insects such as bees, though not potential pollinators, have been seen entering skunk cabbage hoods—perhaps to warm up on a chilly spring day!

The buds of Skunk Cabbage inflorescences are formed in autumn—and may be visible then—but most appear in mid-February and continue to be visible through April. The fruit, resembling a dirty tennis ball, is a spongy mass up to five inches in diameter in which spherical seeds are imbedded. It develops after pollination and fertilization and is visible by autumn. Most of these seeds will germinate near the parent plant, but squirrels and other rodents acting as seed dispersers may gather and store seeds.

Large, cabbage-like leaves begin to appear like fat fingers by late spring, and persist through late spring and summer. They may reach one foot in width and are borne on 2 to 4-foot tall petioles. Unlike other monocots, the veins of the leaves are in a netted pattern rather than parallel. The vast rhizome and root system needed to secure the plant in the soft swamp muck makes transplanting very difficult. After the leaves disappear in late summer, the roots contract, drawing the rhizomes and shoot buds under the ground or muck. When a seed germinates, its developing roots will pull the young plant deep underground, so that it may be 5 to 7 years before a first inflorescence is produced above ground. Once established, however, skunk cabbage is long-lived, with colonies surviving for up to a thousand years.

This early portent of spring historically has had a number of medicinal and edible uses. Extracts from the rhizomes and roots have purported diuretic, emetic, narcotic, stimulant, and antispasmodic properties. Various preparations have been used by various Indian tribes and/or herbalists to treat asthma and other respiratory ailments, epilepsy, tetanus, cramps, and spasms. An ointment made from dried powdered root has been used to treat ringworm, rheumatism, and skin irritations. Various Indian tribes used roots and leaves as a poultice to treat sores and swelling as well as to draw out thorns and stickers. The odor of crushed plant parts supposedly can be inhaled to relieve headaches. Young leaves have been parboiled with several water



changes and eaten as greens as well as the rhizomes dried and eaten (this drying may take up to six to seven months). False hellebore (*Veratrum viride*) often grows in the same swampy setting, vaguely resembles skunk cabbage, and if eaten may cause violent poisoning.

In February, keep your eyes and nose open for this strange sign of the coming of spring. The Swamp Trail at Great Falls Park (Virginia) is an excellent site to see skunk cabbage. Take time to become acquainted with and enjoy one of the most unusual and fascinating early spring wildflowers!

Skunk Cabbage and Duckweed: Strange Bedfellows in Arum Family?

By **Marion Lobstein**, Botany Chair, Prince William Wildflower Society and Professor Emeritus, NVCC

Symplocarpus foetidus (Skunk Cabbage) is a member of the Arum family (Araceae). The family name Araceae is based on the genus *Arum*. Typically, members of this family have an inflorescence (grouping of multiple flowers) of a spadix subtended by a spathe (a modified leaf). The spadix is typically an elongated finger-like or globular spike in which the flowers are embedded. The arums were recognized as a unique group of plants in the 300s B.C.E. by Theophrastus, the Greek philosopher who is considered to be the “father of botany.” In the 1500s, herbalists such as Fuchs also realized the relatedness of this special group of plants; perhaps this was the beginning of the concept of the Arum family. The formal name of Araceae for the Arum family was proposed by A.L. de Jussieu in 1789.



The family is composed of almost 110 genera and 3,000 to 4,000 species worldwide. This number is slightly

larger because it includes the former Lemnaceae or Duckweed family, now placed in the subfamily Lemnoideae of the Araceae. (In the *Flora of Virginia* (FOV), there are 10 genera and 15 species in Araceae with 5 genera and 8 species in Lemnoideae.) Scientific names of species in the genera *Arisaema* (Jack-in-the-pulpit and Green Dragon), *Orotium* (Golden Club), *Peltandra* (Arrow Arum), *Pistia* (Water Lettuce), and *Symplocarpus* (Skunk Cabbage) are unchanged in the *Flora of Virginia* from “traditional” scientific names.

There are three subspecies of *Arisaema triphyllum* (Jack-in-the-pulpit) included in the *Flora*. Among the duckweed subfamily, the species of the genera *Lemna* (Duckweed), *Spirodela* (Greater Duckweeds), *Wolffia* (Water Meal), and *Wolffiella* (Bogmat), there is one change of genus for a Larger Duckweed — *Spirodela oligorrhiza* to *Landoltia punctata* (Dotted Duckweed).

The decision to include the duckweeds with the arums has been proposed for over 135 years based on morphological similarities of the flowers to *Pistia* or Water Lettuce. In *Pistia* the flowers are reduced to only a single pistillate (female) flower and a whorl of several stamens subtended by a spathe (modified leaf), compared to a single pistillate (female) flower, and two stamens subtended in some Duckweed species by a modified leaf or spathe. Over the last two decades, DNA research has led to the decision to combine the Duckweeds with the traditional arum family members. It is interesting that the relatedness of Water Lettuce and Duckweeds, however, has not been supported by DNA research. Skunk Cabbage, based on DNA research, is more closely related to the Duckweed subfamily than is water lettuce.

It is interesting that the scientific name for Skunk



Cabbage has not changed since the 1800s, but earlier did undergo quite a few changes. In the mid-1700s, Mark Catesby used the name *Arum americanum* in his *Natural History of the Carolinas, Florida, and the Bahamas*; and in 1753, Linnaeus assigned *Dracontium foetidum* to Skunk Cabbage. Both of these scientific names were included in the 1762 *Flora Virginica*. Also in the 1762 *Flora*, the common names of “Skunk-

weed” and “Pole-Cat-weed” were used.

In the late 1700s and early 1800s, C.S. Rafinesque proposed the genus *Spathyema*, while Andre Michaux and Frederick Pursh both placed Skunk Cabbage in the genus *Pathos*. New Englander Jacob Bigelow suggested the genus *Ictodes* referring to the smell of the plant. The current *Symplocarpus* genus was proposed by Thomas Nuttall

in 1818 based on a genus used by R.A. Salisbury. The species epithets for all of these genera were variations of *foetidum* assigned by Linnaeus.

The Araceae is one of the most unique families of flowering plants ranging from some of the largest inflorescences of Titan Arum (*Amorprophallus titanum*) with a spadix that can exceed nine feet in height to the smallest, almost microscopic inflorescences in duckweeds and water meal. DNA research is revealing some very interesting plant family relationships!



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

Next Meeting: Monday, January 20, 2014, 7:30 p.m.

“Annual Winter PWWS-Member Slideshow”

Bethel Lutheran Church, 8712 Plantation Lane, Manassas, Virginia 20110