



A publication of the VIRGINIA NATIVE PLANT SOCIETY

Conserving wild flowers and wild places

<http://www.vnps.org>

Wild Places in Urban Spaces

PWWS to host VNPS Annual Meeting

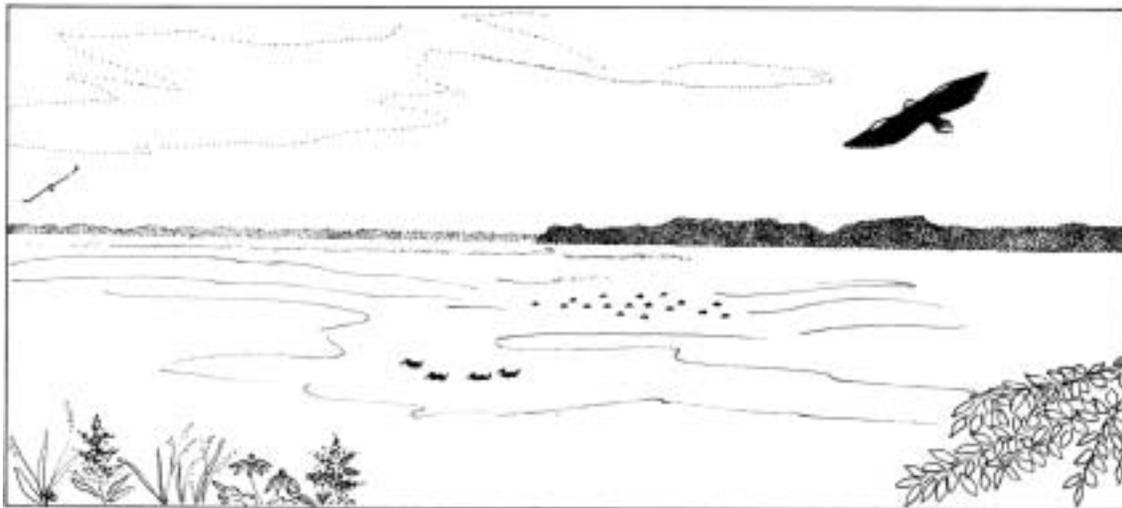
The Prince William Wildflower Society invites you to the Virginia Native Plant Society Annual Meeting September 16-18. This year's theme is Wild Places in Urban Spaces, emphasizing unique natural areas that are surviving in an increasingly urban landscape. To explore this theme we will hear Jim McGlone, Urban Forest Conservationist with the Virginia Department of Forestry, talk on Friday evening about "Managing Our Forest Lands for Ecological Health."

On Saturday evening our keynote speaker will be Karen Firehock, Director of the Green Infrastructure Center (GIC) and adjunct faculty member at the University of Virginia. Karen will address "Using Green Infrastructure Planning to Conserve Native Plant Communities."

Firehock co-founded the GIC and she brings 25 years of experience in environmental planning and natural resources management to her work. She oversees planning and research

projects at the regional, county, city and watershed scale. She has directed 10 green infrastructure planning field tests at the town, city, county and multi-county scale and is currently working on a green infrastructure plan for Northern Virginia and a Green Revitalization Plan for Richmond Virginia. She is also overseeing a planning field test called Headwaters to the Chesapeake Bay for the Chesapeake Bay Program and the Environmental Protec-

(See Annual Meeting, page 8)



Annual Meeting (Sept. 16 -18)
Registration materials inside





From the president

VNPS field trips prove successful

Dear VNPSers,

Once again, we are planning for our Annual Meeting, and all the details are included in this issue. My deepest thanks go out to the Prince William Chapter for the work they are doing to host the meeting. I'm sure we are all in for a great weekend.

I would also like to thank all of the board members who work on behalf of the society, and especially those being elected this fall. You will find names and information about of the generous individuals standing for office in this newsletter. We've got a great group running the organization.

My focus lately has been our travel schedule, and we have had three wonderful botanical trips this spring. I send my sincere thanks to Butch and Betty Kelly for the trip on the Blue Ridge, and to Linda and Larry Wilcox for taking us to Green Swamp, N.C., and the Kansas prairies. I have so many photos I don't know what to do! The individual plant that thrilled me most on my travels was the Venus flytrap (*Dionaea muscipula*), which was in full bloom. Its native range is limited to the coastal plain of North and South Carolina within about 60 miles of Wilmington, N.C. It has either been planted or naturalized in wet areas in Florida

and New Jersey. On the Blue Ridge, the magnificent flame azalea (*Rhododendron calendulaceum*) was special, and the elevation changes and going in and out of spring produced a wide variety of plants in bloom. My favorite Kansas plant would have to be the butterfly milkweeds (*Asclepias tuberosa*) on the prairies. We noticed the color range from yellow-orange to nearly red previously, but this year we also visited a sand prairie where the blooms were yellow. Close encounters with bison made for another highlight!

This is a first for our filling all available spaces on the trips so quickly. While the success is wonderful, I feel bad that not everyone who wanted to go got a space. All of our trips are limited, if not directly by housing opportunities in out-of-the-way places, then by the number of people who can be accommodated on the tour sites. Next year we plan to try a policy of not signing anyone up until the trip's registration date has been officially announced in the Bulletin, usually in the winter, and a deposit received.

Well, now it's back to summer in Virginia, and I look forward to every day in our mountains, woods, and fields! I hope I'll see a lot of you at the Annual Meeting.

Your President, Sally Anderson

Conway Robinson history revealed in early wildflower journal

A package addressed to the VNPS office arrived in 2004. Upon opening the package, we discovered a collection of journals published by The Wild Flower Preservation Society, Inc. (WFPS). We are grateful to have received this collection because in the journals is an interesting history of an early organization created with the mission of protecting and preserving our native plants. Our set begins in January 1937 when the offices of the early botanical group were at 3740 Oliver St., N. W. Washington, D.C. At that time, the Wild Flower Pres-

ervation Society called for a Wild Life Conference to include wild plants and stated that the new group's perspective on that term was that "Wild Life, like the term Biology, applies as much to plants as to animals."

The collection concludes with the last issue of the journal, published October 1944 (Vol. 21 No. 4) with the following announcement: "Wild Flower Magazine Will Be Discontinued Until After The War." [signed] P.L. Ricker, Editor; Associate Editors Clara M. Cheatham, Helen N. Upson, G. R. Fessenden and Dr. E.T. Wherry.

The Library of Virginia has expressed a desire to receive the collection from VNPS in order to preserve the original journals and digitally scan them so that they are available for study.

Readers might be able to make a modern connection to the wildflower editorial about the Conway Robinson Memorial Forest in the April 1938 issue of the WFPS journal. The entire article is found on the next page.

Nicky Staunton
VNPS First Vice-President.



EDITORIAL

A NEW WILD FLOWER PRESERVE

On March 19 [1938], there was given to the Virginia State Conservation Commission a tract of about 400 acres, about three fourths of which is woodland, to be known as the Conway Robinson Memorial Forest. The land was donated by Miss Agnes Robinson in memory of her father, who was a distinguished Virginia attorney, and is located near Gainesville, Va. It is the desire of the donor that the wooded portion serve as a sanctuary for wild flowers and birds and she has asked that representatives of the Wild Flower Preservation Society and the Audubon Society cooperate with the Commission, to be represented by the Virginia State Forester and perhaps others in the development of the place.

The growth is largely Oak, of which about 100 or more of the trees are about four feet in diameter. A much larger number are from twelve to fifteen inches in diameter, with a scattering of smaller deciduous trees, two species of pine and Red Cedar.

One hundred roots of the large Snow Trillium and fifty roots each of a dozen other attractive native wild flowers have already been planted with a fund provided by the Conway Robinson Memorial Association, through which Association the conveyance of the land was made. It is expected that nature trails will be laid out later and it is probable that the one hundred acres of open land will be used for a demonstration forest.

A survey of the plant life of the area is being made by several members of the Wild Flower Preservation Society as a preliminary to the planning of the nature trails. No roads will be constructed, or automobiles permitted in the Preserve except at one parking area near the main highway.

Horticulture course slated for early 2012

The 42nd annual Mid-Atlantic Horticulture Short Course, one of the nation's most comprehensive horticulture education programs, will be held Jan. 29-Feb. 2, 2012, in the Marriott at City Center in Newport News, Va.

The four-day conference is divided into industry-specific tracks, and participants can mix and match subject areas. National and regional speakers present new techniques, university research and advances in arboriculture, business, work crew management, horticulture skills, landscape architecture and design, landscape management, pesticide training and recertification and plants and production. Hands-on workshop topics include bonsai, landscape design, plant propagation and insect identification (with microscopes) for basic and beneficial insects. The course allows participants to qualify for many industry continuing education credits and certifications.

Programs and registration forms will be available in the fall. More information is available from www.mahsc.org on the event's Facebook page or by calling 757-523-4734. The course is produced by the Virginia Horticultural Foundation that provides educational programs to inform the general public and professionals in effective and efficient horticultural pursuits, landscaping, environmental concerns and gardening activities.

SNP volunteers fight back against invasive plants

Shenandoah National Park is home to beautiful and diverse native plant life. Introduced into an ecosystem, non-native plants (also known as exotic or alien species) become invasive when they spread quickly and compete against native plants for valuable resources, such as sunlight and soil nutrients. Their invasion disrupts the beneficial relationships that promote diversity, and at its worst can mark the end for species that are already rare or endangered.

Now the Shenandoah National Park volunteers are fighting back. The Volunteers-in-Parks program has arranged a series of exotic plant control workdays on Saturdays throughout the summer from 10 a.m. to 2 p.m. Workday events include hand pulling, cutting or lopping invasive exotic plant species. Shenandoah National Park will provide gloves, trash bags, loppers and any other needed equipment. Volunteers should come dressed for working

outdoors where it can be hot, humid, stormy, windy or cool. Other necessities include water, food, sunscreen and bug spray. Please be advised you may encounter poison ivy, ticks, insects, snakes and other wildlife.

Upcoming work days are July 23 (Dickey Ridge, meet at Dickey Ridge Visitor Center parking lot), Aug. 13 (Loft Mountain, meet at Loft Wayside parking lot), Aug. 27 (Big Meadows, meet at Byrd Visitor Center parking lot), Sept. 10 (Loft Mountain, meet at Loft Wayside parking lot), and Sept. 24 (National Public Lands Day, meeting place TBA).

Individuals or groups can also adopt a site in the park that is struggling under the invasion of exotic plants.

For more information about the work days or adopting a site, contact Cindy Blugerman, Natural Resources Volunteer Coordinator, at Cindy_Blugerman@nps.gov or 540-999-3500, x3437. Pre-registration is required for plant control workdays.

Oak galls: A strange biology indeed!

Anyone who takes the time to look closely at several branches of oak will soon find one or another peculiar anomaly among the leaves and twigs. One can easily find structures resembling Ping-Pong balls, hard knots, fluffy tufts, horns—either single or clustered, or irregular thickenings, to mention just a few possibilities. These abnormal growths are galls, structures caused by the presence of small insect larvae living inside the tissue of the plant. Galls can be found on a wide variety of plants. They are common, for example, on the stems of goldenrods, and the leaves of maples, but oaks are host to a bewildering diversity of these little parasites. As many as 400 species of gall-forming flies, wasps, and mites have been documented to occur on white oak alone; and some 700 species of gall-forming wasps have been recorded for North America. Many, but certainly not all, parasitize oaks. Some oak gall-formers are restricted to white oak (*Quercus alba*), the 2011 VNPS Wildflower of the Year, others may occur on other species within the white oak group, and still others parasitize the red/black oak group.

In many cases, galls begin to form early in the season as new stems and leaves emerge from winter buds. What seems significant about this time frame is that host tissues are already in a state of growth; many plant cells are dividing and their daughter cells are enlarging as part of normal development. Concurrently, gall insects hatch from eggs that were deposited by adult female wasps or flies, either in late winter within the dormant bud itself, or in the newly emerging stems and leaves. Somehow, the presence of the insect alters the normal course of plant development so that, within a limited radius in the vicinity of the insect, more than the usual number of plant cells are

formed and these extra cells become arranged in patterns unlike that of uninfected tissue. Insect larvae responsible for the gall can usually be found near its center. The gall provides the larva with food and protection. Usually, gall-forming parasites are described as having only a minimal negative impact on their host trees, especially if the infestation is not dense.

The spotted oak apple gall, found on leaves of white and post oaks, provides one example of gall structure. These galls are spherical and roughly the size of a Ping-Pong ball. The gall is thin-walled and its surface green with darker spots. Most of the volume of the sphere is composed of threadlike cells that radiate from a denser central mass containing the gall insect. These “oak apples” fall from the tree in autumn, and mature wasps (*Atrusca quercuscentricola*; synonym *Cynips centricola*) emerge before winter weather arrives. After mating, female wasps deposit eggs in the winter buds.

Details of how gall insects control growth of plant cells that form galls are not well understood. Secretions from the insect alter the plant’s normal control of cell division and cell maturation. The secreted substances are sometimes described as “acids” or “enzymes,” but such simplistic explanations are silent on what these alleged control substances do. In theory, one can imagine that insect secretions could alter gall-

forming plant cells at genetic, biochemical, or physiological levels; i.e., various genes in the host plant may be turned on or off, synthesis of various plant molecules (e.g., hormones) may be enhanced or inhibited, or the cellular receptors for plant hormones may be rendered more or less sensitive. Almost certainly, control of gall growth is a complicated process, and, with equal certainty, one is tempted to assert that the details must vary depending on the taxonomy of the parasite (fly, wasp, or mite), taxonomy of the host (species of oak), location of the gall (stem, twig, or leaf), and morphology of the gall itself. In some cases, bacterial

(See *Variety*, page 5)



Two different oak galls. Top photo by John Hayden; bottom photo by Nicky Staunton.

• Variety in galls is huge

(Continued from page 4)

symbionts or viral parasites of the gall-forming insects have been reputed to play a role in gall formation. Regulation of gall development should be a fertile area for research.

Many oaks, of course, are deciduous; it follows that insects forming leaf galls in deciduous oaks necessarily complete their life cycles within a single year, as described above for the oak apple gall. On the other hand, stems and twigs are perennial, and galls that form on these organs can harbor insects with longer life cycles, up to three years in some cases. In another life cycle variation, some insects start their life on leaves, emerging from leaf galls as larval instars that then infect twigs of the same plant where they form yet another gall (stem gall) before completing their development. The wasp that makes oak fig galls inhabits twigs and roots in alternate life-cycle stages.

It is a given that normal plant structure is altered in the formation of galls. Chemistry, too, can be altered, and in the case of oaks, galls often contain higher than usual concentrations of tannins. In fact, tannin-bearing stem galls from several species of oak have a long history of use in making ink. The recipes vary in detail, but require extracts of gall tannins to be mixed with solutions of ferrous iron (Fe^{2+}) in the presence of a binder substance (usually gum arabic). The resulting ink is initially somewhat pale, but it gradually darkens to an intense purplish black that adheres very well to paper, vellum, or parchment. Unless neutralized, however, the acidity of oak-gall inks can degrade the writing surface. Galls from several European oaks (*Q. robur*, *Q. petraea*) are most prominent in this regard. Tannins from the gall oak (*Q. lusitanica*) of the Iberian Peninsula and

Morocco are well known as sources of black dyes, and Native Americans had similar uses for oak galls from various species in North America.

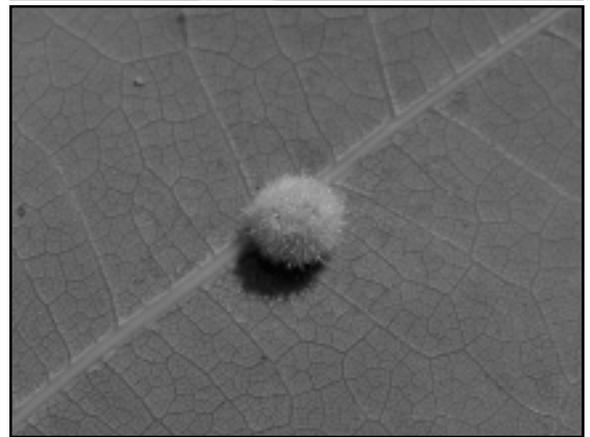
Returning to natural themes, the ecology of oak galls often extends beyond direct interaction between insect and tree. Depending on the gall and its stage of development, some are eaten by wildlife. For example, certain small twig galls found on white oak are eaten by field sparrows and goldfinches in winter. More bizarre, however, are the surprisingly numerous hyperparasites, generally wasps that prey upon different species of gall-forming insects while resident inside their gall. The hyperparasitic female wasp has a long ovipositor with which she inserts her egg directly into the center of the gall; the egg hatches and the hyperparasite consumes the insect that formed the gall. How galling it must be for the gall insect to have its elaborate defenses breached! One is reminded of a famous bit of doggerel by Jonathan Swift, "So, naturalists observe, a flea has smaller fleas that on him prey; and these have smaller still to bite 'em; and so proceed *ad infinitum*."

There is no doubt about it, the web

of life is intricate. Next time you enjoy the shade of a spreading oak tree, keep an eye out for oak galls and marvel for a moment about the complexity of the world we inhabit.

John Hayden, VNPS Botany Chair

The author claims no special expertise in the biology of plant galls. The overview presented above was distilled from several sources found on the Internet, which will serve as a good starting point for anyone wishing to pursue the subject further. Websites of Agricultural Extension Services of several states in the eastern U.S. were found to be particularly useful. Any errors in the above, however, should be attributed to me. WJH.



Top photo, Leaf galls on white oak (*Quercus alba*); scale bars equal 1 mm. Below that is a wool sower gall and an oak apple gall, bottom. Top photo John Hayden and bottom two photos Nicky Staunton.

New book on Appalachian plant communities a useful source

Wildflowers & Plant Communities of the Southern Appalachian Mountains & Piedmont by Timothy P. Spira

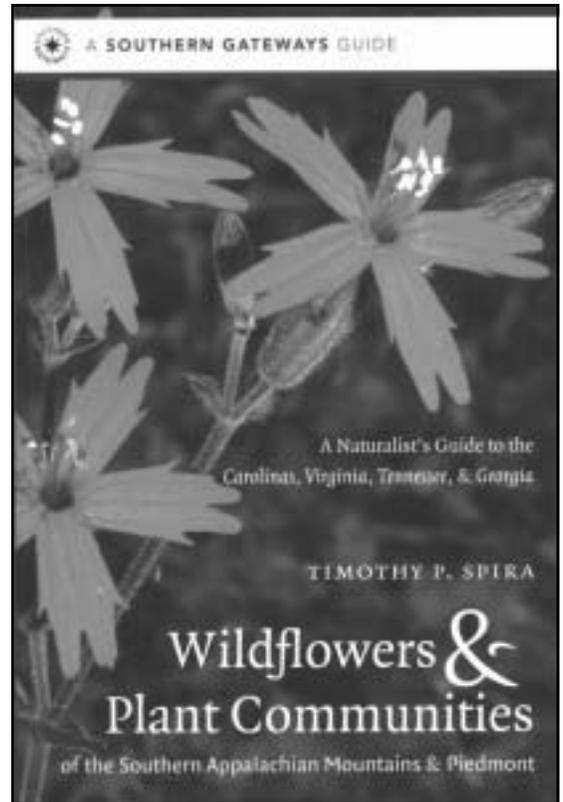
This plant guide organizes plants into 21 communities occurring in the southern Appalachians and Piedmont. Contrary to the title, it covers not only wildflowers, but 340 trees, shrubs, herbaceous plants, and ferns found in the region. The plant communities are described in detail, ranging from High Elevation/Spruce-Fir Forest to Piedmont/Roadside and Field. The largest section of the book is Species Profiles, which covers description, habitat, taxonomy, ecology and uses of the 340 species.

I took this book along on a trip to the Appalachian Trail (AT) in Giles County. On Salt Pond Mountain, I tried to identify a known "unknown" using this community approach. I failed. Either I couldn't identify the plant community—it looked like high-elevation red oak forest to me—or the halberd-leaved violet didn't know where it was supposed to be. This book is not your best bet for an identification guide, but identification is just the first step. The next step is learning how plants fit into communities. A privilege of living in the Appalachians is that a day's hike or an hour's drive takes us through a handful of different, distinct plant

communities, and all are described here.

I liked the community descriptions, with distinguishing features, seasonal aspects and plant lists. They put me in mind of the classic *Deciduous Forests of Eastern North America* by E. Lucy Braun. The photographs, by the author, are technically adept, with lighting that isolates the featured plants from distracting backgrounds. The Species Profiles give more than leaf arrangement and number of petals, delving into natural and human history and wildlife use of the plants described. Finally, this book made me confront the changes in nomenclature that have taken place since the Peterson and Newcomb's guides and my beloved *Flora of West Virginia* were published.

Author Timothy Spira is a botany professor at Clemson University. His home turf seems to be the high mountains and balds of North Carolina, but the book is applicable to our region as well, and Johnny Townsend, a staff botanist with the Division of Natural Heritage of the Virginia Department of Conservation and Recreation, was a contributor. On my visit to Giles County, I met an AT



through-hiker, a Clemson retiree, who knows Dr. Spira and endorsed him warmly.

At a beefy 520 pages, this book won't go in my backpack, but it will go with us in the car and be a home reference. Anyone who is ready for the next step after identification will enjoy this book.

*Mark Gatewood
Shenandoah Chapter*

Trees and trains partnership aids in reforestation projects

Underscoring its leadership in "conservation capitalism"—the growing understanding that environmental progress and American business are closely linked—Norfolk Southern (NS) signed a \$5.6 million, five-year reforestation and carbon sequestration agreement with GreenTrees LLC and

planted a ceremonial first tree at the Rick Lowery Farm in Yazoo City, Mo., recently.

Under the program, NS and GreenTrees® will plant 6.04 million trees on 10,000 acres in the Mississippi Delta area served by the railroad, significantly offsetting the company's CO₂

emissions while creating a national environmental legacy.

GreenTrees is the leading reforestation program on private lands in the United States today. Recognized as one of the most innovative developments in the fight to revitalize the nation's

(See Reforestation, page 7)

• Reforestation

(Continued from page 6)

ecological health, GreenTrees is at the cutting edge of the new industrial revolution—making conservation a business.

The NS–GreenTrees program calls for planting native hardwoods and cottonwoods on privately-owned acreage in Mississippi and Louisiana. The land is in a region served by NS and its predecessors since the earliest days of railroading in the U.S. To put it in perspective, the plantings will represent 211 trees for every NS employee, 299 trees for every mile of NS track, or 1,450 trees for every NS locomotive.

Chandler Van Voorhis, GreenTrees managing partner, added, “We take one acre at a time and compress time and space to accelerate forest growth by six to eight times in the critical first fifteen years, creating an ecologically healthy and permanent forest in an area that is central to our national ecosystem interests.”

Over time, the trees should deliver more than a million carbon offsets. Restoration will support the commercial, climate, and energy interests served by America’s longest river. At the same time, it will protect wildlife habitats, improve water quality, and forestall soil erosion and nutrient run-

off. The trees will be planted on private tracts under long-term leases.

The announcement complements other components of Norfolk Southern’s carbon mitigation strategy, including partnerships and financial support for non-profits and coordination and collaboration with government and non-government organizations.

In 2008, for example, NS permanently protected some of the most ecologically significant land in the world when it granted a conservation easement on 12,488 acres of its Brosnan Forest timber and wildlife preserve northwest of Charleston, S.C. The easement, one of the largest in the Southeast and the largest ever by a corporation in South Carolina, protects the dwindling longleaf pine ecosystem and endangered bird species, preserves forever the rural character of the area, and conserves the

Four Holes Swamp ecosystem and Edisto River watershed.

Relatedly, NS is supporting research by the Longleaf Alliance, which seeks to restore the tree’s forest ecosystem. The longleaf pine once dominated the landscape of the South and to some extent even its culture, occupying 90 million acres in nine southeastern states. Over-exploitation has reduced that footprint to 3.5 million acres—a loss comparable to that experienced in tropical rain forests, redwood forests, or America’s wetlands.

NS also supports the American Chestnut Foundation in its efforts to reintroduce that tree species to native forests. Before being decimated by blight, the American chestnut was an integral part of the lumber economies of many eastern U.S. communities, and it was a key source of food for wildlife.

Paint Bank field trip offered by BRWS

The Blue Ridge Wildflower Society will travel to Paint Bank in the mountains of Craig County on Saturday, Aug. 20. Participants on the day-long trip should see grass-of-Parnassus, purple fringed orchid, cardinal flower and more. The group will stop at a wetland along the way. For more information, contact Rich Crites at 540-774-4518. Participants will enjoy an early dinner at the Swinging Bridge Restaurant in Paint Bank before heading home.

See the address label for your membership expiration date
VNPS Membership/Renewal Form

Name(s) _____

Address _____

City _____ State _____ Zip _____

Individual \$30

Student \$15

Family \$40

Associate (groups) \$40*

Patron \$50

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*Please designate one person as delegate for Associate membership

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Check if you do not wish your name to be exchanged with similar organizations

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Membership dues are tax deductible in the amount they exceed \$5. Contributions are tax deductible in accordance with IRS regulations.

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Annual Meeting features diversity of habitats

(Continued from page 1)

tion Agency's Healthy Watersheds Initiative. She helped the Virginia Department of Forestry create its five-year strategy and is currently field testing the state's InForest Model to review the nitrogen, phosphorus and sediment loadings to watersheds under different development scenarios. Her skills include teaching, research, land use planning, environmental assessments, water quality monitoring, mediation and facilitation, fundraising, writing and photography.

Field trips Saturday and Sunday will allow participants to explore the diversity of flora and fauna in Prince William County—Virginia's only county that spans three geologic provinces, from Bull Run Mountain to the coastal plain on the Potomac River. Participants can choose from trips that will allow them to reminisce on last year's mountainous venue by hiking in the Bull Run Mountain Natural Area Preserve; go back in time while exploring the natural and cultural history of Manassas National Battlefield Park 150 years after the First Battle of Manassas; or visit the state's newest and north-



ernmost wildlife management area, Merrimac Farm, in Nokesville.

The town of Occoquan's website includes the following information: "Occoquan is derived from a Dogue Indian word meaning 'at the end of the water.' It is believed that the Dogues stayed close to the Occoquan River because of the abundance of fish and ease of traveling by canoe." Participants in the Occoquan River field trip will follow the path of Native Americans and early explorers by canoe and kayak while observing the diverse flora found along this unique riparian corridor.

The trip to Featherstone National Wildlife Refuge will allow participants

a unique opportunity to explore a Potomac River refuge that has been closed to the public for 40 years. Featherstone contains a diverse complex of tidal and non-tidal freshwater wetlands and associated uplands that is currently being inventoried by members of VNPS and other groups in partnership with refuge staff.

Please join us for these and other exciting field trips, speakers, a Saturday night banquet, and social events with fellow society members. A complete listing of events for the annual meeting and registration information are included in this issue of the *Bulletin*.

Charles Smith, PWWS