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Bulletin

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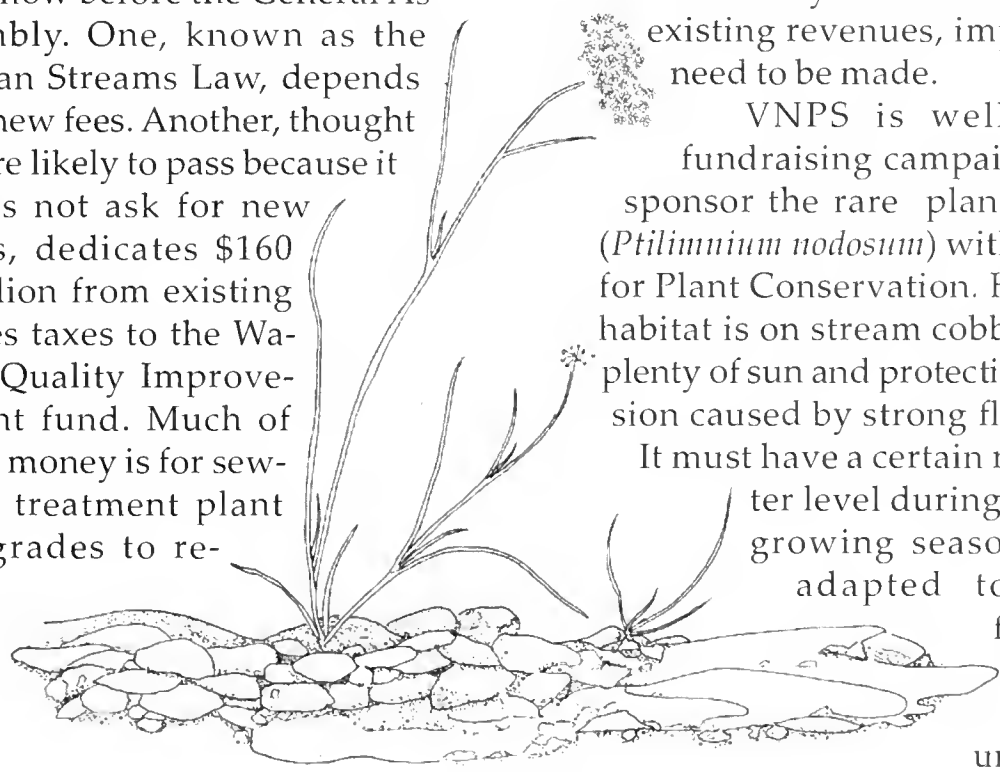
Conserving wild flowers and wild places

Harperella's future depends on environmental responsibility

Two proposals directed toward cleaning up Virginia's surface water are now before the General Assembly. One, known as the Clean Streams Law, depends on new fees. Another, thought more likely to pass because it does not ask for new fees, dedicates $160 million from existing sales taxes to the Water Quality Improvement fund. Much of this money is for sewage treatment plant upgrades to reduce nutrients in our streams. What our lawmakers need to hear is that, whether they do it with new fees or existing revenues, improvements need to be made.



VNPS is well into our fundraising campaign that will sponsor the rare plant harperella (*Ptilimnium nodosum*) with the Center for Plant Conservation. Harperella's habitat is on stream cobblebars with plenty of sun and protection from erosion caused by strong flood waters. It must have a certain range of water level during its summer growing season and it is adapted to periodic flooding in ways that are not well understood.

As a consequence of changes in stream character, some known habitats for harperella have begun to experience more frequent flooding of greater magnitude. In the Virginia location, massive deposits of silt have accumulated, which is also a danger to the plant's survival.

Choosing to sponsor harperella is only part of the picture. To help this endangered plant survive by supporting study of its genetics and growth requirements will be to no avail if we allow the habitat that supports it to be degraded.

The proposed legislation for clean streams addresses nutrient levels primarily, and other proposals for money for land conservation would address habitat as well. What else is needed?

(See Harperella, page 3)

Legislative priorities in the General Assembly

As we begin the new year, many environmental initiatives are being put before our state legislature. While all of these may in some way be important to preserving the flora of our state, I would like to focus here on one of the more directly relevant proposals. The *Virginiaforever* campaign is a grassroots effort to increase the commitment of state funds for natural resource protection. It was launched in 2002 by a coalition that includes environmental organizations, sportsmen, businesses and industry. According to literature provided by the campaign, more than half of Virginia's streams are polluted, tens of thousands of acres are developed each year, half of the state's wetlands are gone and the Chesapeake Bay remains in decline.

The purpose of the campaign is to earmark $50 million from the state's General Fund for land conservation. The coalition asks that this money be applied to three areas: 1. Acquiring new public lands, including wildlife management areas, state forests, state parks and natural area preserves. 2. Providing assistance to localities for Purchase of Development Rights programs, and 3. Providing matching grants to leverage private, local and federal investment for land conservation.

The first of these, new public lands, is the most direct way to save native habitat and protect native plants. The other techniques are often directed toward farm and battlefield land, but can also include good natural habitat.

The campaign is also trying to get $120 million from the general fund to improve water quality. This is mainly to cover the cost of upgrading sewage treatment plants to

(See Legislature, page 3)

From the president . . . . . .

Focus on environmental issues

Winter started out so warm that, when the Piedmont Chapter had its winter walk at Sky Meadows State Park, several of us veered off to look for skunk cabbage in some seeps, and it was out! Lots of it. I cannot imagine that skunk cabbage can keep itself very warm in the temperatures we have had since then.

So, I've been indoors more, looking through all of the printed material that piles up around here. I recently clipped two columns that relate to some of the articles in our winter newsletter, in which we focus on legislation that impacts native plant communities. One news commentary from our local paper claims that Americans have delivered a mandate in favor of conservation. It seems voters all over the country are passing ballot measures for parks and conservation. In Virginia, it was said, that since 1998 we have endorsed 12 ballot measures worth almost $249 million for these projects. Still, I keep reading that we have made little progress in terms of our Chesapeake Bay cleanup commitments. And it seems that matching fund sources are not tapped because there is no matching money from within the state. I hope that the attitude toward conservation described in the column will translate into success for proposals to fund even more parks and natural areas in Virginia, as outlined in the related article about the Virginiaforever *campaign.*

I found another article in a small box at the bottom of the health page in Time *magazine, and it's called Toxic-Hair Days. In an analysis of hair samples conducted at the University of North Carolina, Ashville, 21 percent of hair in women aged 16 to 29 had too-high levels of mercury. It is stated that the mercury comes from coal burning power plants and gets to us by way of eating seafood. We have legislation proposed that would address this too, and the same legislation would decrease pollution that affects plant communities in Shenandoah National Park. That seems like a good deal. Let's try to help these proposals every time they come before the Assembly.*

Your President, Sally Anderson

Fundraising campaign unqualified success

Our fundraising campaign this time is earmarked to sponsor the rare plant with the Center for Plant Conservation. I'm happy to report that we are very close to our goal, over $9,000, and with several promised gifts to come we will make our goal of being able to fully sponsor the plant. When we began, some people were heard to ask what we would do if we did not raise enough, but our ever-enthusiastic Nicky Staunton said, "what if we get more?" Well, we decided then that excess funds would still be used for rare plant work with CPC, but we did not feel confident enough to choose a second plant. In the near future then, the board will either choose a second plant, or give it as a gift to use as CPC feels it is needed. There are some great possibilities for other Virginia rare plants to sponsor, and we'll keep you posted.

Looking for old newsletters

Have you been saving the *Bulletin* compulsively since it began? Do you have a set of newsletters you would like to share? VNPS recently got a request for a complete set from a small library. Even the office does not have every issue. If you are cleaning out and want to let a set go, please contact Sally Anderson at 540-722-3072 or rccsca@visuallink.com. Even if you want to keep them, we might consider asking to copy them if you let us know you have them.

Work continues on a new flora for the Old Dominion

The Commonwealth of Virginia's only *Flora* since 1762 is in its fifth year of development. This mighty task is moving ahead deliberately and slowly toward a goal of publication by 2010. Co-authors Alan Weakley and Chris Ludwig are preparing text and Lara Gastinger is illustrating each plant species. Both text and illustration will reveal defining characteristics.

Have you wondered why VNPS is so excited about this project? Try asking yourself these questions and you will know what the excitement is all about.

Have you found a plant on a walk in Virginia and want to know what it is?

Have you asked, "Is there a list of plants in Virginia?"

Do you have a student in an SOL class studying natural areas, ecology, or botany?

Do you want to know the natural habitat of a Virginia plant you are considering for your landscape?

Are you a natural resource manager in Virginia recording endangered species on the land you manage and want to know if the plant is in your county?

Do you want to see a picture of a specific Virginia plant?

Is the abundantly growing plant you have a native or alien?

This is some of the information to be contained in the new *Flora of Virginia.*

Preparation for our new *Flora of Virginia* is at the beginning stage of

(See Flora, page 8)

Synoposis of the bills

• HB 2694 (Pollard, D-Whitestone), SB 1240 (Whipple, D-Arlington) Clean Streams Law

The Virginia Clean Streams Law will fairly, equitably and comprehensively finance the cleanup of all of Virginia's polluted waters through a dedicated user fee on Virginia households and industrial facilities. A fee of only $1 a week per household and less than $25 per week per industrial facility would raise $160 million per year to be distributed statewide through the already existing Virginia Water Quality Improvement Fund (WQIF). Funds would be targeted toward upgrading sewage treatment plants and providing financial incentives to farmers to reduce polluted runoff coming from farmland thereby attacking the two largest sources of nitrogen to Virginia's waters.

Localities may exempt low-income households, and funds to offset reasonable local administrative costs will be provided. This approach would substantially reduce the costs to Virginia citizens for required sewage plant upgrades and agricultural enhancements.

• HB 2777 (Louderback, R-Luray), SB 1235 (Quayle, R-Chesapeake) Dedicated Sales Tax

These two bills were introduced as alternatives to the Virginia Clean Streams Law. They achieve the same pollution reductions but instead of imposing a new fee, these bills would use existing sales tax revenues to dedicate $160 million per year to the Virginia Water Quality Improvement Fund (WQIF). As with the Virginia Clean Streams Law, this initiative would target funding toward upgrading sewage treatment plants and providing financial incentives to farmers to reduce polluted runoff coming from farmland.

Water Quality Improvement Fund

http://www.deq.virginia.gov/bay/multi.html

The Virginia Water Quality Improvement Act of 1997 (Section 10.1-2117 through 2134) was enacted by the Virginia General Assembly in response to the need to finance the nutrient reduction strategies being developed for the Chesapeake Bay and its tributaries.

Pursuant to the act, the Commonwealth established in the state treasury a special permanent, nonreverting fund, known as the "Virginia Water Quality Improvement Fund." The act directs the Department of Environmental Quality to assist local governments and individuals in reducing point source nutrient loads to the Chesapeake Bay with technical and financial assistance made available through grants provided from the fund. In providing this technical and financial assistance, the department shall give initial priority to local government capital construction projects designed to achieve nutrient reduction goals. Applicants for construction projects must first submit a grant application and, if successful, are listed as draft/public-noticed agreements.

Once a draft agreement for construction is ready for public review, a review period is posted and public comments are solicited during a comment period of at least 30 days. Following this period, the projects can then listed on the website as signed grant agreements. Draft agreements may be viewed at the respective DEQ regional office or the DEQ central office.

• Harperella

(Continued from page 1)

Protection of riparian zones along streams is the short answer. As citizens, we ought to support local ordinances that keep development a proper distance from streams. We need to encourage full riparian buffers instead of mowed grass going right to the banks. In rural areas, livestock needs to be fenced back off the stream banks and given an alternate water source. When you see sediment entering a stream or a silt fence failing, get in touch with your county or town's erosion and sedimentation (E & S) enforcers. These kinds of local actions, along with a greater commitment by the state, may mean the difference for harperella.

• Legislature

(Continued from page 1)

meet the state's agreements for cleaning up the Chesapeake Bay. Virginia has dedicated far less money to this cleanup than either Maryland or Pennsylvania according to charts produced by the campaign.

The Virginia Native Plant Society has long supported increased funding for our Natural Heritage program. We have noted for some years that less than one penny of each state dollar goes to protecting natural resources -- the lowest in the country. The way to change this is to make it known to your elected representatives that protecting land and water is important to you.

For more information contact: Virginiaforever Campaign, 530 East Main Street; Suite 1020, Richmond, VA 23219; phone 804-644-1680 or fax 804-644-1685; Info@virginiaforever.org or www.virginiaforever.org.

Clean smokestacks?

Last year a Virginia Clean Smokestacks bill (HB 2742) was introduced, but was set aside. Negotiations took place with industry, and new bills have been introduced for this session. This legislation is the most comprehensive of the air quality proposals, and its purpose is to reduce power plant pollution. Emission rates are set by the bill at levels needed to achieve reductions in nitrogen oxides, sulphur dioxide and mercury. Flexibility in achieving the reductions is part of the bill. It was recently stated that every $1 spent on emissions reduction amounted to $22 in public health cost reductions. That would be good for us. No one seems to have translated that money into ben-

(See Clean air, page 8)

Wildflower Calendar of Events

Coastal plain native plant conference

Norfolk Botanical Garden is partnering with Old Dominion University and the Virginia Native Plant Society to present a two-day conference on native plants of the Atlantic Coastal Plain. The conference, slated for September 16-17, will be held at the Norfolk Botanical Garden. The conference will address conservation and restoration of natives as well as look at ways of using native plants in the managed landscape. Discover the wide variety of native plants found from the coastal wetlands to the upland savannahs; learn about their natural habitats, and their uses in a garden setting. For more details please visit our website at www.norfolkbotanicalgarden.org.

Botanical art workshop to benefit Flora Project

Nancy Ross Hugo is organizing a weekend workshop at Flower Camp in Buckingham County from Friday, April 15 to Sunday, April 17. The workshop will benefit The Flora of Virginia Project. Botanical artist Lara Gastinger, creator of illustrations for *The Flora of Virginia*, will be teaching a form of botanical art that is more expressive than technical illustration but equally responsive to botanical detail. Lara's emphasis on observation and on depicting plants at all stages of their development will help participants experience a Piedmont spring through artists' eyes. Both beginners and experts are welcome. Tuition of $250 (10 percent is donated to the Flora of Virginia Project) includes instruction, five meals, and two nights' accommodations. A list of required materials will be mailed upon registration. Enrollment is limited to 15. To register or for more information contact Nancy Hugo at 804-798-6364; nancy@flowercamp.org. Or visit www.flowercamp.org.

Smithsonian symposium to explore the future

The Smithsonian Botanical Symposium 2005, sponsored by the National Museum of Natural History and the United States Botanic Garden, will present "The Future of Floras: New Frameworks, New Technologies, New Uses" April 15-16 in Washington, D.C.

For centuries botanists have created regional floras for the purposes of inventory, identification, description, and classification. But what will the floras of the future look like? Will there be a need for floras when a web-based "Encyclopedia of Life" becomes a reality? What will field taxonomists be doing in 20 years? New technologies are now being developed to facilitate the coupling of field work with access of data that exist in biodiversity institutions. The development of electronic field guides and image identification systems, as well as DNA barcoding methods to identify species in the field, have great potential to augment if not completely replace the traditional paper-based flora.

Some scientists are concerned that new technologies that further the inventory and classification of life may also threaten the field of taxonomy. Will new technologies replace taxonomists who work directly with specimens? Will new techniques provide faulty identifications? Proponents of the new technologies believe that the easier it is for end-users to employ good taxonomic data for identification, the more taxonomists will be appreciated for their skills and knowledge. As the debate continues, floras built on web-, image-, and DNA-based products are fulfilling new functions that paper-based floras have not been able to attain. All of these topics focusing on the floras of the future will be discussed and debated at the symposium.

For information and registration go to http://persoon.si.edu/sbs/ or email sbs@nmnh.si.edu.

Potowmack Chapter Spring Plant Sale

The Potowmack Chapter Spring Plant Sale will take place on Saturday, May 14 from 9 a.m. to 3 p.m. at Green Spring Gardens. Green Spring will be having its annual Spring Garden Day and there will be many vendors selling all kinds of plants, including natives. There will be woody plants, ferns, and perennials for shade and sun.

Directions to Green Spring: From I-495: Take Exit 52B (Little River Turnpike East.) Travel 3.5 miles. Turn left on Braddock Road. Drive 2/10ths mile and turn right onto Witch Hazel Rd.

Shenandoah plant sale

The Shenandoah Chapter Annual Plant Sale will be held Saturday, April 23. The chapter will be selling plants at two locations this year: Riverfest in Waynesboro and the Victorian Festival in Staunton. The two cities, located in Augusta County, are within 15 minutes of each other. Riverfest celebrates the environmental importance of the South River, a tributary of the Shenandoah River. The Victorian Festival, held in downtown Staunton, celebrates the restored architecture and late-19th century heritage of that city. The native plants being sold have all been contributed by chapter members.

Herbage CD available

The Herbage CD-ROM, Third Edition, is now available. It contains a database of over 28,000 concise monographs of medicinal plant species characteristics, claimed attributes and historical uses by cultures throughout the world.

Monographs are linked to hundreds of thousands of articles and images via the world wide web, providing an exhaustive tool for in-depth global herb research. Each species listing has links to powerful images and article searches. For more information, visit www.omnicopia.com/herbage/.

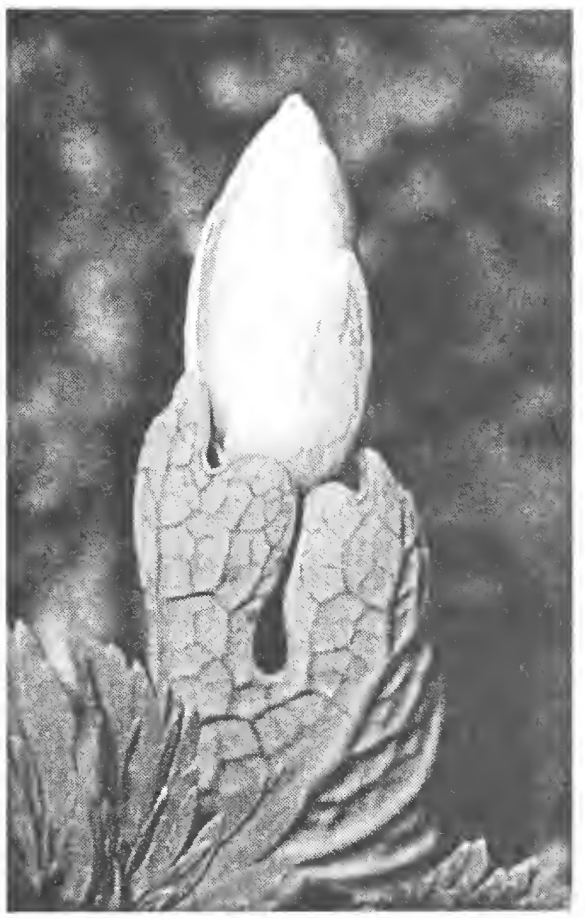
Bloodroot reproduction plan:

Hurry up and wait, and then hedge your bets

"Hurry up and wait." The phrase that epitomizes life in the military or any other large, bureaucratic, organization, applies surprisingly well to bloodroot and similar ephemeral wildflowers. Each year these plants race to flower as early as possible to assure sufficient time for fruits to ripen and seeds to mature while sunshine is abundant at the forest floor, for all too soon the forest floor will be draped in shadows cast by the trees' leafy canopy. Ephemerals do everything quickly: sprout, grow, flower, disperse seeds, and re-enter dormancy.

But flowering in very early spring can be risky. Some days will be fair and pleasant, but just as surely other days will be cool and drizzly, making successful pollination by insect visitors uncertain. In general terms, plant ecologists have proposed that self-pollination (autogamy) should be common in plants that bloom under unpredictably variable conditions. In fact, some ecological studies have concluded that bloodroot is autogamous (e.g., Schemske 1978). Bloodroots are, or can be, autogamous, but the full story is a bit more complicated.

Notably, bloodroot flowers are protogynous, meaning that the stigmas are receptive to pollen as soon as the flowers open, but the anthers do not shed pollen until sometime later. Literally, protogynous means a first phase female. Studies by D.L. Lyon (1992) show that the female phase can last from one to three days, which coincides with the open-period of any given flower. On day one, petals and stamens spread perpendicular to the pistil, forming a shallow bowl-like configuration. Only a few anthers open on day one. As daylight fades, petals and stamens re-orient upward, closing the flower for the night. Little self-pollination takes place as the flowers close because the anthers do not normally contact the stigma at this point. On day two, if conditions are favorable, flowers re-open and re-assume their bowl-like shape. More anthers dehisce, rendering their pollen available for transfer. As before, flowers close at the end of day two. The events of day three are subtly different: petals reflex, but stamens remain upright. Moreover, as day three progresses, stamens bend inward, bringing their anthers and pollen into



direct contact with the stigma. Thus, autogamy certainly can occur. A few stray pollen grains may reach the stigma on day one or two, but stamen action on day three assures abundant self-pollination. If, however, autogamy is the basic reproductive mode, why wait until day three to consummate the process?

The protogynous character of bloodroot flowers and their undeniable showiness suggest that bloodroot has potential, at least, for outcrossing (xenogamy). The above-mentioned study by Lyon convincingly demonstrates a role for native bees in bloodroot pollination. This study involved careful observation of bloodroot flowers in all sorts of weather, following the fate of individual flowers over multiple days, and a series of controlled experiments involving all combinations of bagged and unbagged flowers, flowers with intact anthers and with anthers removed, and both hand-pollinated and open-pollinated flowers. The bottom line is that when weather conditions are sufficiently warm and dry to permit insect flight, *Andrena carlini* bees are effective pollinators of bloodroot. Upon approaching an open bloodroot flower, the bee lands directly on the stigma and forages for pollen among the anthers surrounding this central spot. Bees spend little time on recently opened flowers with few open anthers; these visits are, however, sufficient to transfer pollen from a previously-visited flower to the stigma. On older flowers, a bee might spend as much as two or three minutes foraging for pollen and, while doing so, it accumulates a load of pollen on the underside of its thorax and abdomen. The bees exhibit good flower constancy, so, upon visiting the next bloodroot flower, pollen from the bee's underside transfers readily to the stigma. Since bloodroot stigmas are receptive from the moment a flower opens, any floral visit by a bee is likely to deliver pollen from another flower and in this way outcrossing (xenogamy) can occur. But if weather conditions are cool and drizzly, if the bees are grounded, after a few days, bloodroot flowers can pollinate themselves, assuring seed production for the year.

Genetically, self-pollination incurs some cost in terms of less genetic diversity among the offspring relative to outcrossed offspring. On average, two parents are likely to encompass more genetic diversity than one. For many reasons, genetic diversity is considered advantageous for the

(See Bloodroot love, page 6)

VNPS sponsorship gift offers hope to North Carolina botanical friends

Imagine our excitement when we heard that the Virginia Native Plant Society has chosen to "sponsor" a rare plant species that we have been concerned with here at the North Carolina Botanical Garden for many years. The federally endangered harperella (*Ptilimnium nodosum*) is a native of river islands and ponds in scattered locations in the eastern United States. "Sponsorship," in this case is Center for Plant Conservation (CPC) language for an endowment providing an annual sum for recovery efforts.

Harperella, a member of the carrot family (Apiaceae), has 13 remaining populations, down from 26 populations known in 1988. It is found in only one location each in Virginia and North Carolina. The last North Carolina population occurs on the Tar River in Granville County. Two additional North Carolina populations previously occurred along the Deep River at the intersection of Chatham and Lee Counties, but because of severe decline, the eight remaining individuals from this population were rescued in 1997 and brought to the North Carolina Botanical Garden. We now hold approximately 50 descendants of those plants.

Harperella has a number of interesting connections to the Garden. Publications Coordinator Laura Cotterman, while serving as North Carolina Natural Heritage Program botanist, first discovered the Deep River population in the 1980s. Herbarium Curator Alan Weakley contributed to research on the *Ptilimnium nodosum* "complex," conclusions of which support the belief that there are actually three distinct species in this group.

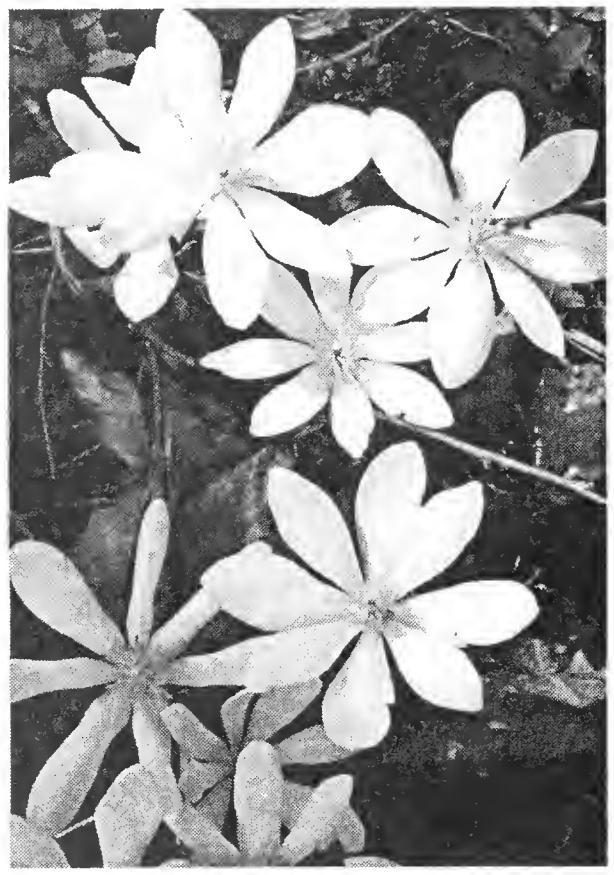
Garden director Peter White and I are supervising the research of University of North Carolina-Chapel Hill graduate student Sarah Marcinko, whose project will explore how land use changes and altered hydrology (e. g., flood water frequency and duration) have contributed to harperella's decline throughout its range. Sarah will also examine the plant's breeding system—or the various means by which this diminutive and reclusive species manages to propagate itself.

Let me not forget to mention that the Tar River Harperella site is just downstream from the home of Assistant Director for Finance Frances Allen! Finally, founding Garden director Ritchie Bell specialized, during his academic career, in plants of the Apiaceae, a family that includes worldwide weeds such as Queen Anne's lace as well as the extremely rare harperella. A recovery goal for Harperella is the successful reintroduction of individuals to the historical location on the banks of the Deep River.

We believe that the conservation of this endangered plant is at a critical juncture, given that extinction seems imminent without human intervention. As a result of our research, we hope to be able to suggest appropriate management techniques for the remaining harperella populations, inform land managers about the plant's recovery needs, and conduct a successful transplantation and restoration project. All of these actions are mandated by the "Harperella Recovery Plan" published by the U. S. Fish and Wildlife Service and are explicit in CPC's mission—"to conserve and restore the rare native plants of the United States."

In 1984 we became a founding Participating Institution of CPC, the only national organization solely dedicated to conserving the germplasm (seeds and whole plants) of the nation's rarest plants. As part of the CPC program, the Garden curates germplasm collections of 34 species from a seven-state area, from Maryland to Mississippi (see the Garden's listing under "Participating Institutions" at www.centerforplantconservation.org). Only 12 of these 34 imperiled plants are sponsored so far, and we welcome the interest of the

(See Harperella recovery, page 7)



• Bloodroot love

(Continued from page 5)

long term success of a species. For example, nature is often patchy; at any given location within a forest, some genetic types may function better than others. Also, the process of long-term adaptation to the environment involves the action of natural selection on genetically variable populations. Bloodroot pollination biology allows for the benefits of cross-pollination, but given the unreliability of the early spring weather and, consequently, the unreliability of its pollinator, self pollination (autogamy) exists as a default or back-up system that assures production of offspring, though these offspring may be somewhat homogeneous in their genetic make-up.

To summarize bloodroot pollination strategy: hurry, wait, and hedge against uncertain fate.

(For more reading, try Lyon, D. L. 1992. "Bee pollination of facultatively xenogamous *Sanguinaria canadensis* L." *Bulletin* Torrey Botanical Club 119: 368-375 and Schemske, D. W. 1978. "Sexual reproduction in an Illinois population of *Sanguinaria canadensis* L." *American Midland Naturalist* 100: 261-268.)

W. John Hayden, VNPS Botany Chair

Some medical notes on bloodroot

John Churchill, a medical doctor and past president of the Tennessee Native Plant Society, offered these notes on the medical qualities of bloodroot. The information came from the Tennessee Native Plant Society Newsletter (vol. 14, No. 2, April 1991).

Some notes about the chemistry and pharmacology of this pretty woodland poppy family (Papaveraceae), *Sanguinaria* contains alkaloides called isoquinolenes, among which morphine is the best known.

Bloodroot contains isoquinoline, called by the trivial name sanguinarine. For those who might think about getting a "a fix" from it, forget it. This plant has none of the pain-relieving, euphoria-producing high promised by the honorable poppy.

This plant when ingested will cause colic from inflammation of the stomach, pulmonary congestion compounded by respiratory depression, drooling with thirst, and staggering. Soon after falling to the ground, convulsions herald the final period of stupor and coma.

Surprisingly there have been very few deaths from this plant, in as much as the root suggests use for curing conditions of the blood. Perhaps it has been used by the Indians as a war paint, but painting the juice on one's skin is a bad idea because the chemical can be absorbed through skin.

A very dilute solution of the compound has been marketed in plaque-fighting toothpastes. The sanguinarine does fix to the protein cell walls of plaque bacteria and so kills them; it does work for this purpose. This is good news; but the bad news is that sanguinarine causes a rise in pressure within the eye, glaucoma. This poses a special problem for people who have any threat of this great silent thief of sight. Well, maybe this problem could be fixed by the extract of another plant — Pilocarpus.

Sanguinarine is most concentrated in the root rind, and its reason for being probably is to destroy the root rotting fungus *Phymatrichum*. I found that as little as 9.16 grams of wet root kills fish within one hour.

Well, plants with pretty spring flowers need to have defenses.

Book offers winter ID help

Plant lovers who enjoy winter in the outdoors might want to check out *Woody Plants of the Southeastern United States: A Winter Guide* by Ron Lance. The October 2004 publication by the University of Georgia Press offers tips on how to identify trees, shrubs, and woody ground cover in the winter using twig, bud, and bark characteristics. The guide has over 600 illustrations for about 900 plant species growing in the wild either as native or naturalized species. The geographic region covered stretches from eastern Texas and northern Florida to southeastern Kansas and southern Delaware. An index includes both scientific and common names. The hardcover book retails for $54.95 and can be ordered at www.ugapress.org.

•Harperella recovery

(Continued from page 6)

Virginia Native Plant Society in this obscure remnant of our vanishing flora.

This article originally appeared in the January-February 2005 issue of the North Carolina Botanical Garden's bimonthly Newsletter. *The Garden, part of the University of North Carolina at Chapel Hill, is a center for research, conservation, and interpretation of plants, with special emphasis on plants native to the southeastern United States and horticultural plants having traditional uses or special botanical interest. For information on NCBG or the* Newsletter, *please see www.ncbg.unc.edu or call 919-962-0522.*

See the address label for your membership expiration date

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The deadline for the next issue is **March 1.**

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•Flora

(Continued from page 2)

examining herbarium specimens held by Virginia's herbariums. This stage is one that could advance more rapidly by paying for some additional professional help. Can you imagine reviewing all 3,700-plus species of Virginia's highly diverse plant specimens?

To VNPS, whose mission is to protect natural habitats for native plants in Virginia through education and advocacy, there isn't a more important and exciting publication project underway. The *Flora of Virginia* will strengthen conservation efforts for our state's natural resources through education of all Virginians of all ages.

Nicky Staunton, VNPS 2nd VP and Co-Director of Development

•Clean air

(Continued from page 3)

efits for plants and natural communities. But with Shenandoah National Park always making headlines as one of our most polluted parks, the need for cleaner air must also be felt by the forests and roadsides. There are many good reasons to support this bill. Unfortunately this bill was killed in the House Committee on Agriculture, Chesapeake and Natural Resources.

Exactly what is a Flora?

Are you asking, "What is a Flora?" According to Encarta's Dictionary, **a Flora is:**

1. *Plant life, especially all the plants found in a particular country, region, or time regarded as a group.*
Plants found in Virginia, all regions, discovered, described, and recorded to date.
2. *A systematic set of descriptions of all the plants of a particular place or time.*
A systematic set of descriptions of all the plants of Virginia from 1700s through today, 2005.

The new *Flora of Virginia* will contain a written scientific description by co-authors Alan Weakley and Christopher J. Ludwig, with a scientific illustration, most by Lara Gastinger, of each of Virginia's 4,000+ species. Field botanists have been very busy in a highly biologically diverse state since the 1700s.

Field botanists collect specimens of plants they find on locations across Virginia. John Clayton, prior to 1742 was doing just that. His entire *Flora Virginica* was published in 1743 by Gronovius in Europe and remains to this day, the only Flora for the Commonwealth of Virginia!

Contemporary botanists in the field during growing seasons have a plant press over one shoulder, a back pack with floras from other states and regions, plastic bags, and a container for the plants not yet ready for the press. They are hearty and walk mountains, marshes, fields, and forests. That is the beginning. Once back at their scientific center, they prepare specimens for their **Herbarium. 1.** A collection of dried plants, especially one in which the plants have been mounted, systematically classified, and labeled for use in scientific studies. **2.** A building, room, or other place where an herbarium is kept.

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Bulletin

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www.vnps.org

Conserving wild flowers and wild places

Online!

Digital Atlas of the Virginia Flora

Learning that **www.biol.vt.edu/digital_atlas** would take me to the most up-to-date *Atlas of the Virginia Flora* with information on locations of each plant species in Virginia, I didn't wait a second to try it. The Digital Atlas home page opened immediately and within a few more seconds, I found the page, map and information for *Cypripedium reginae* in Virginia! This efficient access to a checklist of plants in Virginia and what counties host them has been anticipated ever since the 1992 publication of the 3rd Edition of "The Atlas."

Tom Wieboldt, Curator of the Massey Herbarium at VPI, is pleased to have this large and difficult task complete. He emphasizes that the Digital Atlas is a work in progress with corrections, updates, and new information being added regularly.

Being a work in progress is the nature of the digital atlas. For instance, 700 taxa not treated in Edition III are included, comprising new discoveries, newly described species, and varieties and subspecies not recognized in the 1992 publication.

The Digital Atlas is a welcome tool for botanists. Congratulations to Tom Wieboldt and the Virginia Botanical Associates.

Nicky Staunton, VNPS 2nd VP

Chapter formation meeting

On April 9, VNPS President Sally Anderson and Second Vice-President Nicky Staunton will visit members in Montgomery, Pulaski, Giles and Floyd Counties to begin the formation of a new VNPS chapter there. Included will be a discussion of the purposes and goals of the society and the role of chapters, as well as the process of forming a chapter. The meeting takes place in the classroom of the Virginia Tech Greenhouse Complex at 10 a.m. A postcard announcing the meeting (rescheduled from January) was sent out. If you are a member in the area and have not received information, please call the VNPS office (540-837-1600) or e-mail (vnpsofc@shentel.net) for details. We welcome members, and also potential members, so please bring other native plant friends along.

Biodiversity workshop a huge success

The University of Richmond was again the host for this VNPS annual workshop, which featured some of the most prominent plant conservationists in the country speaking on biodiversity.

Dr. Kathryn Kennedy, Executive Director and President of the Center for Plant Conservation, was the main speaker. She has been instrumental in mobilizing efforts to recover the vanishing flora of the United States through the work of the center, which is housed at the Missouri Botanical Garden.

So many plants are at risk. Of the 20,000 plant species in the country, 889 or 5 percent are on the endangered or threatened list. And another 5,000, or one quarter, are "species of concern." Dr. Kennedy spoke of the enormous value placed on these plants: ecological, educational, scientific, historical, recreational, and aesthetic.

The statistical information she shared was eye-opening.

• Although plants comprise over one half the listed species under the Endangered

(See VNPS Workshop, page 7)

See related Digital Altas information, page 5

From the president . . . . . .

In a recent article in ***Wild Earth****, the journal of the Wildlands Project, I read that biologists are split into two groups. One was characterized as 'for-profit' biology and is about molecular biology; the other was described as 'not-for-profit' and is the study of natural history. I guess that tells us a little about funding in the sciences. The authors feel that it is unwise for academic departments to leave natural history out of their departments and concentrate only on the well-funded molecular biology. They assert that both views are necessary and complementary.*

I've heard division mentioned in the native plant world too. There are those who garden with native plants and those who study plants in the wild. Some VNPS members do both. In a way, the issue of money applies even here. Plant sales make money; studying nature has some cost and pays little.

Some of us who grow native plants may be more aware of the characteristics of a plant at times when it is not in flower. Education can be had by observing a plant in all seasons, especially if you keep garden records, as I have done for several years now. Those who see plants in natural areas may not be able to return as frequently, and so might not recognize a winter rosette or a dried plant part. On the other hand, those who study plants in their natural setting may be better informed about the growth habit of a plant in the wild, its associations with soil, rocks, animals and other plants; in other words, its ecology. So I am glad we are united as a society that works toward two important goals. One is protecting natural occurrences of our native plants and supporting habitat conservation. At the same time, we try to find the best way to make the planted landscape functional for all living things. However you like to enjoy the natural world, I hope you will all enjoy the wealth of activities put on by our chapters this spring.

Your President, **Sally Anderson**

Millennium Seed Bank Project is underway

We have been through a complete plant season since eight members of VNPS chapters met in Buckingham County at the Hugo's Higher Ground Retreat Center to be trained to collect targeted Virginia native plants. Michael Way and Clare Tenner of Kew's Millennium Seed Bank Project came from England to train our group as well as representatives from Adkins Arboretum in Maryland and Meadowlark Garden Park in Vienna, Virginia.

Since then, five of our group completed a collection of seeds from our target list of common native Virginia plants with an S-4 or higher rating of rarity (S-1 being Endangered). Some plants whose seeds are now in the Millennium Seed Bank Project-Seeds of Success program are: *Baccharis halimifolia, Liatris pilosa, Vernonia noveboracensis,* and *Acalypha rhomboidea.* The team has assigned itself another 22 species to collect. There are currently 31 species available for assignment.

If you are interested in joining the SOS–VNPS team, let us know. We can arrange training to learn specific protocols set by Kew and assign you to a team to begin your collecting project. Contact: Nicky Staunton, nstaunton@earthlink.net or 703-368-9803.

Reintroducing harperella to cobblebars along the Potomac River (Maryland)

Harperella (*Ptilimnium nodosum*), a member of the Carrot Family, is the only federally listed endangered plant in the National Capital Region of the National Park Service. In 1990, there were 13 known populations in seven eastern states, including two populations on private and state lands located along creeks in western Maryland that flow through the Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP). Because stream waters disperse seeds and rooted plantlets, these occurrences of harperella are actually subpopulations of two dynamic metapopulations. During the past 90 years, subpopulations of harperella are known to have occurred three times on cobblebars along the Potomac River within the park, but were subsequently

(See Harperella reintroduction, page 6)

Annual Fundraiser overwhelming success

Thanks again for the generosity of VNPSers! At the Annual Workshop in Richmond, we were able to surprise Kathryn Kennedy, CPC president, executive director and our featured speaker, with a check for $10,000 to sponsor our chosen plant, *Ptilimnium nodosum* (harperella). We have actually exceeded our goal, so at our June 4 State Board of Directors meeting, we will continue to discuss how to designate the remaining funds for the CPC.

Virginia Wildflower Celebration 2005

The 12 chapters of the Virginia Native Plant Society celebrate the rich diversity of the native flora of the Commonwealth each spring. Society members will share their enthusiasm for wild plants and wild places on field trips and wildflower walks, and during garden tours, plant sales, and a variety of other programs throughout the state.

You are cordially invited to any of the activities listed below; they are all open to the public. As some events require reservations, fees or additional instructions, use the contact information provided to obtain further information. Plants propagated by members will be available at chapter plant sales.

As you travel about the state, watch for the 2005 VNPS Wildflower of the Year, bloodroot (*Sanguinaria canadensis*). A patch of bloodroot blooming on a woodland hillside is one of the early and widely cherished signs of spring. This herbaceous perennial grows from an underground rhizome. Early in the spring, while the forest canopy is still bare, each well-developed rhizome tip produces one leaf and one flower stalk.

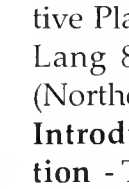

= Hike

Wildflower Calendar of Events

Sale = 

Hickory Hollow/Cabin Swamp Walk - Thursday, April 7, 9 a.m. Find early spring ephemerals with Rebecca Wilson (Virginia Department of Conservation and Recreation) and Ann Messick (past president, Northern Neck Chapter of the Virginia Native Plant Society). Limit 20. Contact Judy Lang 804-453-6605 or jandl@rivnet.net (Northern Neck Chapter).

Introduction to Wildflower Identification - Thursday, April 7 & Saturday April 9 (class & field trip to Carderock along C&O Canal), Stephanie Mason, Audubon Naturalist Society, Woodend Sanctuary, Chevy Chase. $33 for non-members. Call 301-652-9188 x16.



Spring Wildflowers of the Potomac River Gorge - Friday, April 8, Bear Island 10 a.m.-12:30 p.m., Cris Fleming, Audubon Naturalist Society, $20 for non-members. Call 301-652-9188 x16 (*Note: discount for more than one walk).

A Spring Morning on Roosevelt Island - Saturday, April 9, 9 a.m.-1 p.m., Stan Shetler, Audubon Naturalist Society, $28 for non-members. Call 301-652-9188 x16.

Spring Wildflower Sale - Saturday, April 9, 1-3 p.m., Long Branch Nature Center in Arlington. All plants freshly dug and site propagated. Nice mix of spring and summer bloomers and unusual specimens. Rain date April 10. Call 703-228-6535.

Scotts Run Wildflower Walk - Saturday, April 9, 9:30-11:30 a.m., Scotts Run Wildlife Preserve, sponsored by Riverbend Park, free but reservations required, wear sturdy hiking boots. Call 703-759-9018.

Walk with a Naturalist - Saturday, April 9, 10:30 a.m.-noon, Hidden Pond Nature Center, free. Call 703-451-9588.

Wildflower Walk - Sunday, April 10, Ellanor C. Lawrence Park, Walney, 703-631-0013. (10 years and up), free, but reservations required.

Spring Wildflower Identification - Wednesdays, April 13-June 1, 6:30-8:30 p.m. USDA Graduate School, Capital Gallery. (L'Enfant metro), Instructor Stan Shetler, classes plus field trips, $315. Call 202-314-3320 or register on line at www.grad.usda.gov.

Bushmill Stream Walk - Thursday, April 14, 9 a.m. History and wildflower walk with Henry Bashore (retired state forester) and Ann Messick. Limit 20. Contact Judy Lang 804-453-6605 or JandL@rivnet.net (Northern Neck Chapter).

Lilies and Bells Riverbend Visitor Center - Saturday, April 16, 9:30-11:30 a.m., free, reservations required, wear sturdy shoes, 703-759-9018.

Lake Accotink Wildflower Walk - Saturday, April 16, 10-11:30 a.m., Hidden Pond Nature Center, free, reservations required, 703-451-9588.

Earth Day Celebration - Saturday, April 16, 9 a.m.-4 p.m. Frontier Culture Museum, Staunton. Family activities and local earth friendly organizations such as Wildlife Center of Virginia and the Virginia Department of Forestry are on the agenda. VNPS Shenandoah Chapter will have a table. www.frontiermuseum.org

Bluebells at Bull Run - Saturday April 16, 1-4 p.m. with Bill Cour, Audubon Naturalist Society, $24 for non-members. Call: 301-652-9188 x16.

Great Falls Wildflower Walk - Sundays, April 17 & May 15, 10 a.m.-12:30 p.m. with Marion Lobstein, meet at the Visitor Center, free. Reservations www.mblobstein.com.

Bull Run Regional Park Bluebell Walk - Sunday, April 17, 2 p.m. at Bull Run Regional Park. See bluebells and spring beauty by Cub Run and Bull Run. Proposed footprint of the six-lane Tri-County Parkway. (See www.nvrpa.org/bullrunpark.html#top) Meet in lot near pool before 2 p.m. Volunteers will lead groups on the trails. For information www.nvrpa.org or 703-631-0550.

Balls Bluff Walk - Tuesday, April 19, 2:30-4:40 p.m.; led by Marion Lobstein, www.mblobstein.com for reservations.

Bluebell Bonanza - Tuesday, April 19, 9 a.m. to 1 p.m. Bull Run river valley, sponsored by Hidden Oaks Nature Center, $10, reserve by 4/14, 703-941-1065.

Kayak Dragon Run River - Thursday, April 21, 9:30 a.m. Explore native habitats with Teta Kain (President, Virginia Society of Ornithology). Limit 10, *VNPS members only*. Judy Lang 804-453-6605 or jandl@rivnet.net (Northern Neck Chapter).

Spring Wildflowers of the Potomac River Gorge - Friday, April 22, 10 a.m.-12:30 p.m., Turkey Run Park , Cris Fleming, Audubon Naturalist Society, $20 for non-members. Call 301-652-9188 x16 (*Note: discount for more than one walk).

Soldier's Delight & Patapsco Valley Accotink - Friday, April 22, 10 a.m.-5 p.m., natural history field trip with Stephanie Mason, Audubon Naturalist Society, $38 for non-members. Call 301-652-9188 x16.

Pohick Wildflower Walk - Saturday, April 23, 10:30 a.m. to noon, Hidden Pond Nature Center, free, reservations required. Call 703-451-9588.

Shenandoah Chapter Annual Plant Sale - Saturday, April 23, at two locations: Riverfest in Waynesboro and the Victorian Festival in Staunton.

Woodpecker Ridge Nature Center Field Trip Saturday, April 23, 10 a.m. at the Daleville Park and Ride, bring lunch and binoculars,

Wildflower Calendar of Events

leader Butch Kelley, 540-384-7429 (Blue Ridge WS).

Calmes Neck Walk - Sunday, April 24, 1 p.m. Gary Fleming of the Virginia Division of Natural Heritage leads by this loop of the Shenandoah River. See Virginia bluebells and more. Contact Sally Anderson (Piedmont Chapter) at 540-722-3072 or rccsca@visuallink.com .

PWWS Annual Wildflower Garden Tour - Sunday, April 24, afternoon. Contact Nancy Vehrs nvehrs@attglobal.net or 703-324-2351.

Trillium Trek - Tuesday April 26, Linden, sponsored by Hidden Oaks Nature Center, 703-941-1065, $12, make reservations by 4/21.

Anne & Maurice Dickersons' native plant garden tour - Thursday, April 28, 10 a.m. Limit 20, *VNPS members only*, contact Judy Lang at 804-453-6605 or jandl@rivnet.net (Northern Neck Chapter).

Balls Bluff and Red Rock Wilderness Overlook - Thursday, April 28 and Saturday April 30, (class and field trip), Cris Fleming, Audubon Naturalist Society, Woodend Sanctuary, Chevy Chase. $33 for non-members. Call 301-652-9188 x16.

Mount Rogers - Friday & Saturday, April 29-30, overnight field trip, possible visit to Saltville. Contact Rich Crites for information, 540-774-4518 (Blue Ridge WS).

Potomac Heritage Trail Hike From Algonquian to Riverbend - Saturday, April 30, 8 a.m.-2 p.m., visitor center, wear waterproof shoes, bring lunch and water, $12, reservations required by 4/23. Call 703-759-9018.

Trillium Trek - Saturday, April 30, 8:30 a.m.-4 p.m., adults, travel to Linden, to see one of the largest and most impressive great white trillium displays in the East, and a registry site of VNPS, observe and learn about many other wildflowers, trees and wildlife. $20 fee. Reservations required, meet at Lubber Run Recreation Center parking lot, 300 N. Park Dr., Arlington. Call 703-228-4747.

G. Richard Thompson Wildlife Management Area Trillium Walk - Sunday, May 1, 1 p.m. VNPS President Sally Anderson leads walk at VNPS Registry Site to see trillium. Meet at the Trillium Parking Lot (old lot 6) on Rt. 638 north of Linden. Contact Sally Anderson at 540-722-3072 or email rccsca@visuallink.com (Piedmont Chapter).

PWWS Spring Walk at Conway-Robinson Memorial Forest - Sunday, May 1, 1 p.m. (located off I-66 at Rt. 29, Gainesville), half-day walk in 500 acres of urban state forest near battlefield, to rock outcropping overlooking Little Bull Run, contact Nicky Staunton nstaunton@earthlink.net or 703-368-9803.

Chilton Woods State Forest Walk - Thursday, May 5, 9 a.m. Search for showy orchis in bloom with Henry Bashore and Ann Messick. Limit 20, contact, Nick Ferriter 804-462-6242 or ferriter@aol.com (Northern Neck Chapter).

Spring Wildflowers of the Potomac River Gorge. Carderock, MD - Friday, May 6, 10 a.m. to 12:30 p.m. with Cris Fleming, Audubon Naturalist Society, $20 for non-members. Call 301-652-9188 x16 (*Note: discount for more than one walk)

PWWS Native Plant Sale - Saturday, May 7, 9 a.m. Contact Nancy Arrington for information narrington@starpower.net or 703-368-8431.

Barcroft Magnolia Bog Tour - Saturday, May 7, 1-3 p.m., Barcroft Park in south Arlington (off 4 Mile Run Drive). Join NPS Park Ranger Jim Rosenstock for tour of the globally rare magnolia bog and associated wetlands. Wear waterproof shoes and be prepared to encounter poison ivy and sumac. Meet at Barcroft Park, park in new parking garage and look for the park ranger uniform near the entrance. To register, call Long Branch Nature Center at 703-228-6535.

The Natural and Cultural History of Banshee Reeks Nature Preserve - Saturday, May 7, 9 a.m.-1 p.m. Loudoun County, Ron Circe, preserve manager, to lead easy 2-mile walk, $28 for non-members. Call 301-652-9188 x16.

Garden Fair at the State Arboretum of Virginia (Blandy Farm) - Saturday and Sunday, May 7-8, 10 a.m.-4:30 p.m. Come Mother's Day weekend to find and learn about special plants. Dozens of vendors may have just what you want for your garden, including native plants not widely available. Enjoy walks, workshops and activities for children. Parking $5/car. Call 540-837-1758.

John Clayton Chapter Plant Sale - Saturdays, May 7 & 14, Sunday, May 8, 9 a.m.-3 p.m., Sunday, May 15, 9 a.m.-noon,Virginia Living Museum, 524 J. Clyde Morris Blvd., Newport News, sterlingc.s@mailstation.com or 804-693-2953.

Potowmack Chapter plant sale - Saturday, May 14, 9 a.m.-3 p.m., at Green Spring Gardens during Spring Garden Day. Ferns, perennials and woody plants available. Green Spring is located in Alexandria just off Little River Turnpike at Braddock Rd. For information, www.greenspring.org or 703-642-5173.

21st Annual Spring Wildflower Sale - Saturday, May 14, 9 a.m.-noon. Blue Ridge Wildflower Society with Community Arboretum at Virginia Western Community College. Contact Cindy Burks, 540-977-0868.

Hickory Hollow/Cabin Swamp - Thursday, May 19, 9 a.m. Find Kentucky yellow lady slipper and other wildflowers in bloom with Ann Messick and Marie Minor (past President, Virginia Native Plant Society) Limit 20, contact Nick Ferriter at 804-462-6242 or ferriter@aol.com (Northern Neck Chapter).

Parkway South Walk - Saturday, May 21, 10 a.m. Meet at Buck Mountain Overlook, Blue Ridge Parkway milepost 123.2, lunch at Tuggle's Gap Restaurant. Leader Butch Kelley, 540-384-7429 (Blue Ridge WS).

Herb & Garden Festival - Saturday, May 21, 10 a.m.- 4 p.m. James Madison University, Edith J. Carrier Arboretum, Harrisonburg, www.jmu.edu/arboretum.

Mary Lloyd and David Lay's garden tour - Thursday, May 26, 10 a.m. Tour this garden of native and Japanese companion plants. Limit 20, *VNPS members only*, contact Nick Ferriter 804-462-6242 or ferriter@aol.com (Northern Neck Chapter).

Parkway North Walk - Saturday, June 4, 9:30 a.m. Meet at the Peaks of Otter Restaurant at 8 a.m. for breakfast, or at visitor center at 9:30. Travel north on parkway to see high elevation wildflowers, bring lunch. Leader Rich Crites, 540-774-4518 (Blue Ridge WS).

Spring wildflower symposium

The Wintergreen Nature Foundation's annual Spring Wildflower Symposium is set for May 13-15. The foundation's location in the Blue Ridge Mountains makes it an ideal place to enjoy the beauty the spring has to offer. In the early spring before the trees are full, the hillsides are warmed by the sun and the wildflowers are in full bloom. Instructors for the weekend include well known botanists, authors, and artists, each prepared with a full weekend of activities and lectures all located within the mountain and valley. Explore the uses of medicinal plants, learn the art of designing attractive native gardens and enjoy the beauty that surrounds us. Contact Jen Jenkins, Marketing and Development, Wintergreen Nature Foundation, at info@twnf.org or www.twnf.org.

Digital Atlas of Virginia: A work in progress

The "Digital Atlas of the Virginia Flora" is very much a work-in-progress. The digital format allows for continual updating of distributional records; but more than this, numerous issues regarding taxonomy and nomenclature remain unresolved. The digital atlas includes nearly 700 taxa not included in *Atlas of the Virginia Flora*, 3rd Ed. While many of these could easily be mapped, many others could not without revisiting the actual herbarium specimens from which the original record was derived.This endeavor will go on for years. In the meantime, some maps will be blank while others will be incomplete. New information will be added as it becomes available.

Taxonomic concepts - Family designations follow those of the Angiosperm Phylogeny Group (APG2), with the exception of some of the more controversial realignments and the segregation of some closely related families.

One of the results of *Synthesis of the North American Flora* (John T. Kartesz, 1999) has been to bring to the surface many names that, for our region, had gone out of use for many years, especially at the infraspecific level.

Virginia status - An atlas doubles as a checklist of the flora. Consequently, a concerted effort has been made to clean up the list of what is actually known to occur in the state. *The Virginia Flora* by Massey (1961) has been a source of confusion for many years by reporting many plants without county designation or vouchered documentation. The "Comments" field is used to report the status of many plants, especially where uncertainty exists as well as for a wide variety of other information.

Your comments - One hope is that this atlas will spur others to their own investigations and result in new and better information than we presently have. Comments, corrections, new data, and any thoughts you may have are most welcome. Please send them to Tom Wieboldt, Massey Herbarium, Virginia Tech, Blacksburg, VA 24061 or 540-231-5746 or wieboldt@vt.edu.

Virginia Botanical Associates was formed by Dr. Alton M. Harvill, Jr. in the mid-1970s to gather individuals with similar interests in Virginia's flora. It grew gradually as individuals who demonstrated this interest through their field collections were invited to "join the flock." In 1989 the organization incorporated as a nonprofit entity with the mission of furthering knowledge of the state's flora. To this end, the Barbara J. Harvill Fund for Botanical Research was established to provide research grants to individuals for advancing knowledge of the phytogeography of Virginia. Dr. Harvill's dedication to this effort resulted in three editions of the *Atlas of the Virginia Flora* (1977-1981, 1986, and 1992).

Present membership includes Dr. Donna Ware (president), Gary P. Fleming, Charles E. Stevens, Johnny F. Townsend, Thomas F. Wieboldt, and Robert A.S. Wright. Dr. Ted Bradley recently retired after many years of service to the organization. Other past members are Douglas W. Ogle and Gwynn W. Ramsey. The focus of VBA in recent years has been to update the atlas with new distributional records and bring it closer to current trends in nomenclature and classification.

Acknowledgments and Credits: A few people deserve special recognition for this *Digital Atlas of the Virginia Flora.* First and foremost, Rob Hunter, systems administrator for the Department of Biological Sciences at Virginia Tech, is responsible for developing the entire system for the internet.

Developing a county-level database for the maps involved assistance. Douglas Slotta developed the automated map-reader that allowed us to scan the hardcopy maps and assign dots to the correct county. Dhruv Manek wrote the program allowing us to quickly and easily populate the database. Lara Call Gastinger produced the VBA logo. Tom Wieboldt developed the database structure, compiled and maintained the checklist of plants at the herbarium, and implemented the automated map reader to populate the initial database. New records were added by VBA, especially by Ted Bradley. The Department of Biological Sciences hosts the site and allows the use of its resources.

The Massey Herbarium is affiliated with the Virginia Tech Department of Biology and the Virginia Tech Museum of Natural History, has additional support from Virginia Cooperative Extension. The collection is now just over 100,000 specimens and 30,000 dried fungal collections. Facilities are open 8 a.m. to 5 p.m., Monday through Friday.

Lobstein botany class

Marion Lobstein will be teaching a field botany course at Blandy Experimental Farm and State Arboretum this summer. The three-credit field botany course covers basic principles of botany with emphasis on the classification, identification, and evolution of flowering plants. It integrates lecture and laboratory with emphasis on fieldtrips concentrating on identification and ecology of flowering plants of the Mid-Atlantic region. Classes are 9 a.m.-4 p.m. the three weeks of June 27-30, July 5-8, and July 11-14. Call 703-257-6643.

Invasives control work parties

Gear up for some great outdoor projects this season! The VNPS Potowmack Chapter has teamed up with The Nature Conservancy to help control invasive plant species on National Park Service lands in the Potomac Gorge. The gorge, from Great Falls to Georgetown, is one of the most biologically significant natural areas in the eastern United States. The site harbors more than 400 occurrences of 200 rare species and many globally rare plant communities. Over 130 non-native invasive plant species threaten plant biodiversity in this 15-mile stretch.

Starting in March, join us the fourth Thursday of every month from noon to 4 p.m. at Turkey Run Park. This spring we focus on two new problem species, higan cherry and linden viburnum, but will have the chance to tackle wisteria, honeysuckle, English ivy, garlic mustard, and others depending on the season. All skill levels are welcome. If you cannot help cut or pull, there will be some opportunity to help with identification and flagging the more obscure invasives.

Meet at the park headquarters lot along the George Washington Parkway at Turkey Run Park and either walk from there or carpool.

• Harperella reintroduction

(Continued from page 2)

extirpated (Bartgis 1997). In this note, we discuss our efforts to better understand harperella habitat and reproduction, and to aid park staff in reestablishing this species within C&O Canal NHP.

Harperella requires stream cobblebars in full sun during most of the day, protection from severe erosion due to rapidly moving water, a limited range of water depth tolerance during the growing season in mid- to late summer, and a cool climate to establish successfully. In recent years, the habitat of harperella along the Potomac River and a few of its tributaries has been degraded as a consequence of changes in hydrology, which resulted in more frequent flooding and greater flood amplitude that have caused erosion and rapid turnover of subpopulations.

In 2001, we began searching the Potomac River shoreline in western Maryland and two of its tributaries, Sideling Hill Creek and Fifteen-Mile Creek, to locate and evaluate populations of harperella, identify habitat for reintroduction, and collect (with permits) about 300 viable harperella seeds for later germination experiments and long-term storage. In 2002, we began seed germination experiments in facilities at the George Washington University and continued to search for potential reintroduction sites.

To determine the optimal germination conditions for propagating harperella, we conducted experiments on 20 seeds in each of three sets of light and temperature conditions (the small sample size was due to restrictions imposed on collecting this endangered species). We found that the greatest number of seeds (an average of 83 percent) germinated at 71-96 degrees F (22-35 degrees C) with 13 hours of light, which represented late summer conditions in Washington, D.C.

In October 2003, we transplanted five small plants from our germination experiments into each of five 2-foot x 6-foot plots along the Potomac River on parkland. The plots were covered by about 3 inches (7.5 centimeters) of water. We covered each plant with a 6-inch (15-centimeters) square of thin felt cloth with a hole in the center, and held down with fence staples. We have not found these plants growing in the marked plots in 2004, leading us to suspect that these transplants failed. In July 2004, we transplanted 40 small, greenhouse-grown plants into 8 plots. Prior to planting, we cut back the existing vegetation to the soil surface in four of the plots. The site was subsequently inundated with 1 to 3 feet (0.3-0.9 meters) of water during two flood events. Although most of the plantings survived the flooding, we have found that they seem to be surviving in slightly greater numbers in the uncut plots. It is possible that the deeper root systems of the existing plants protect the shallow-rooted harperella from erosion.

During the dry year of 2002, the natural populations of harperella plants along Sideling Hill Creek thrived and flowered profusely throughout late summer and autumn with their soil line just above the surface of the creek. However, we observed that none produced rooted plantlets at their nodes. The year 2003 was notable for frequent, massive floods in the Potomac watershed, and the same cobblebars were submerged by 1 to 2 feet (0.3-0.6 meters) of water much of the time. We noted that most plants produced one robust, rooted plantlet at every node of the submerged stems by late September.

The consequences of flooding during various stages of harperella's life cycle are not well understood. Harperella tolerates or even requires some flooding during the winter and spring to keep competitors from establishing on the cobblebars. However, flooding in late summer and autumn has mixed consequences. Minor floods of low volume appear to have beneficial roles in seed dispersal by establishing and augmenting new subpopulations downstream. In contrast, floods of extended duration and great amplitude during this period appear to wash away the seeds entirely. We have found that prolonged immersion seems to greatly enhance vegetative reproduction. In future experiments, we plan to explore conditions that induce vegetative reproduction.

...nces: Bartgis, R. 1997. "The distribution of the endangered plant *Ptilimnium nodosum* (Rose) Mathias (Apiaceae) in the Potomac River drainage." *Castanea* 62:55-59.

Wells, Elizabeth Fortson, et al. "Reintroducing Harperella to Cobblebars along the Potomac River (Maryland),"* Ecological Restoration, *Vol. 22, No. 4,

Natural wetland ecology

On Saturday, June 11, from 10 a.m.-6 p.m. Fredericksburg Chapter member John H. Hummer will host an all-day event centered around ecological awareness and enlightenment regarding the natural wetland ecology at his property. Lectures at noon and 3 p.m. with a tour of the 5+ acres of wetland follow each talk. Program will cover the relationship between plants, insects, and amphibious life, and on how the natural ecology is maintained and enhanced without changing or disrupting the existing habitat. Wear sandals when walking around the wetland habitat. For on-line directions, the address is 23500 Old C.C. Rd. Ruther Glen, Va. 22546. For information, contact lbc289@aol.com.

Healthy forest, healthy tree symposium

The Piedmont Chapter is hosting a Healthy Trees, Healthy Forest Symposium on Thursday, April 14 at 5:30 p.m. Arborist Ed Milhous will talk about keeping healthy trees in developed landscapes; Shenandoah National Park botanist Wendy Cass will speak about the threats to trees in the park and the strategies to reverse the pattern; award-winning environmental writer Chris Bolgiano will talk about the people and the practices that define 'sustainable' in our postindustrial woodlands. Fee (includes meal) is $45 members/$55 nonmembers. Registration and payment to: Piedmont Chapter, P.O. Box 336, The Plains, VA 20198 by April 7. Contact Michael Calley at mgcalley@aol.com or 540-338-4830, Mary Ann Gibbons at 540-253-5409 or Mary Olien at meo9r@virginia.edu or 540-837-1758 ext. 230.

• VNPS workshop

(Continued from page 1)

Species Act, they receive less than 5 percent of all federal funding spent for ESA species.

• The number of botanists in the Fish and Wildlife Service was 26 for 93 million acres; the number in the Park Service was 28 for 84 million acres; the number for the Bureau of Land Management was 42 for 262 million acres.

• 74 percent of listed plant species have less than 100 individuals per site and without intervention will likely be extinct in 20 years.

• 87 percent of endangered species recovery plans recommend reintroduction or augmentation to achieve recovery in the wild.

The North Carolina Botanical Garden at the University of North Carolina is one of the major partners of the Center for Plant Conservation. Its Assistant Director for Conservation, Johnny Randall, presented a program on the work his organization is doing for plant conservation.

While its national reputation for plant conservation and its regional interests are commendable, the environmental ethic of the NCGB in its own gardens is worth emulating: to do no harm to plant diversity and to do no harm to natural areas. The staff performs risk assessment for introductions; removes invasives from plant collections; controls invasives in natural areas; develops non-invasive and native plant alternatives and certifies non-invasiveness for the trade; does not distribute seeds/plants that will be invasive elsewhere; educates the public; becomes partners with conservation organizations; obeys import rules, and enacts strong procedures to minimize the risk of introducing disease and pest organisms.

NCGB is a "conservation garden" and a world model for ecologically sustainable garden practices and "green" building. Within no more than a four-hour drive for most of Virginia, it is a place well worth visiting, particularly after the completion of its new visitor education center.

The final speaker of the day was Jil M. Swearingen of the Center for Urban Ecology in the National Capital Region of the National Park Service. Her role in native plant conservation is to help save them from their worst enemies. Her focus was on how invasive exotic plant species affect biodiversity in natural areas.

She demonstrated how some of the worst invasives in the country affect ecosystems. For example, buffel grass and cogon grass have intensified natural fires and native species cannot survive. Japanese stiltgrass, with which we are all familiar in Virginia forests, impedes the natural succession of native flora.

Finally, she spoke about the direct effect of invasive plants on wildlife. They are likely to be repellent, unpalatable or toxic to our native insect fauna because insect herbivores can only develop and reproduce on the plants with which they share an evolutionary history.

Each of the panelists inspired us to become even more active in our support for native plant conservation. Particularly, we are called to "preserve our native species in nature." And as Stan Shetler always says: "Save habitat; save habitat; save habitat!"

(Special thanks to Shirley Gay for securing these nationally known speakers.)

Mary Ann Lawler, Potowmack Chapter

Video profits go to Flora

Nearly one hundred species of spring wildflowers are covered in the video/DVD, *Spring Wildflowers of the Mid-Atlantic Region*. Information includes identification of common spring wildflowers, their medicinal and edible uses, life cycles, and conservation. The coauthors are Marion Lobstein, John DeMary, and Suzanne Lohr. Video is $16, DVD is $18 (includes tax and 20 percent discount for VNPSers) plus $3 s&h. To order this colorful and informational video, call Marion Lobstein at 703-536-7150 or write her 1815 N. Roosevelt St., Arlington, VA 22205. **All profits from the sales of the video or DVD will be donated to the Foundation of the *Flora of Virginia* Project.**

In the *Bulletin* Winter 2005 reprint from North Carolina Botanical Garden, the author was John Randall, Assistant Director for Conservation. We apologize for this omission.

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*

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___Life $500

*Please designate one person as delegate for Associate membership

To give a gift membership or join additional chapters: Enclose dues, name, address, and chapter (non-voting memberships in any other than your primary chapter are $5)

I wish to make an additional contribution to ___VNPS or_____Chapter in the amount of ___$10___$25___$50___$100___$(Other)_____

_____Check if you do not wish your name to be listed to be exchanged with similar organizations in a chapter directory

Make check payable to VNPS and mail to:

VNPS Membership Chair, Blandy Experimental Farm, 400 Blandy Farm Lane, Unit 2, Boyce, VA 22620

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Sally Anderson, President
Nancy Sorrells, Editor

 Readers are invited to send letters, news items, or original articles for the editor's consideration. Items should be typed, on disk in Microsoft Word or e-mailed to: Editor, 3419 Cold Springs Rd., Greenville, VA 24440, or lotswife@adelphia.net
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Progress continues on Flora Project

There is a sense of excitement surrounding the activities of the Flora of Virginia Project (FOVP), with $225,000 received recently from Virginia foundations. Two volunteers, Bonnie Fulford-Nahas (Prince William Wildflower Society) and Fran Bonniti (Jefferson Chapter) have brought their grant writing and fund-raising skills to FOVP. Board member Suzanne Wright, with Dahne Morgan, is organizing three fund-raising events. A Donor Category Card has been developed matching the levels of donation with a Virginia native plant icon. These will be sent with fund-raising letters this spring and used at events.

The board of directors has grown, with the addition of Bill Bolin, manager in environmental biology at Dominion Resources. Learn more about board members' backgrounds and updates on progress at www.dcr.virginia.gov/dnh/vaflora.htm -- this is the new address on the Flora website, although the VNPS link still works.

Alan Weakley has completed 25 family treatments and Lara Gastinger worked on the first level of review and writing are: Marion Lobstein, Johnny Townsend, Allen Belden, Chip Morgan (with help from Charles E. 'Mo' Stevens) and John Dodge.

Lara Gastinger had an exhibition at Charlottesville's McGuffy Art Center during March. Lara creates beautiful watercolors in addition to her botanical line drawings for the Flora.

The FOVP goal is to raise $1,300,000 over the next four years in order to publish in 2010. Generous gifts have been given by VNPS members to support the project. The spirit of the Flora board is that it can be done.

Nicky Staunton
VNPS 2nd VP, FOVP Director

Exotic pest conference

The Mid-Atlantic Exotic Pest Plant Council Conference and annual meeting will be August 16-17 at the University of Pennsylvania in Philadelphia. The theme will be "Invasive Plants: Perspectives, Prescriptions and Partnerships." Topics include herbicide use, national invasive plant ranking, biological control and nursery industry's perspective on invasive plants. For a brochure contact the Morris Arboretum at 215-247-5777 ext. 156 or e-mail jlm@pobox.upenn.edu.

A special thank you!

Many thanks to our hard-working VNPS volunteers who make our society a success. Special thanks to Dauné Pokis, who organized our booth at the Maymont Flower and Garden Show and did much of the work. Helping out at our booth were Richard Moss, Irene Caperton, Judy Wyatt, Marie Minor, Donna Finnegan, Linda Chaney, Catharine Tucker, Katherine Smith, Ruby Jane Robertson, Pat and Owen Brodie, Martha Slover, Virginia Hamilton, Francis Melton, Ginny McNair, Mary Argyriteau, Chris Seibert, Kristy Orcutt, Nick and Jackie Ferriter and Maren Lindberg.

Also important was the support provided by VNPS president Sally Anderson, Pocahontas Chapter president Dean Walton, photographer Richard Moss and map maker Noreen Cullen.

These volunteers made 1,156 contacts with patrons at the Maymont Flower and Garden Show. Each contact represents a personal interaction or an exchange of information either verbally and/or in the form of pamphlets and brochures.

The volunteers at the winter work-

June 2005

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Bulletin

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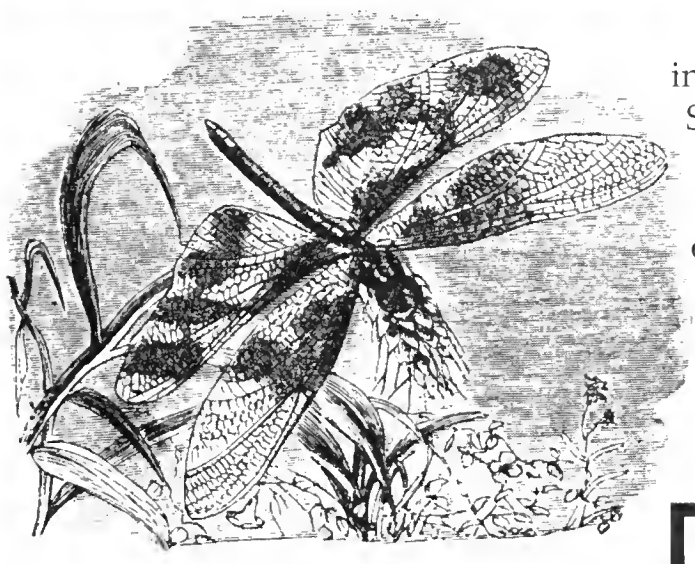
www.vnps.org

Conserving wild flowers and wild places

Focus on Coastal Plain at botanic garden/VNPS conference



The 24th Annual Meeting of the Virginia Native Plant Society will be held in conjunction with the **Coastal Plain Native Plant Conference** on Friday, September 16 and Saturday, September 17 at the Norfolk Botanical Garden and Old Dominion University. The South Hampton Roads Chapter is partnering with the botanical garden and the university to present a conference on native plants of the Atlantic Coastal Plain.

Conference registration will take place on Friday from 9 a.m. to noon. Concurrent lecture sessions will be held on Friday and Saturday afternoons. Track A will be Conservation and Restoration; Track B will be Natives in the Landscape.

At 6: 30 Friday evening at Old Dominion University there will be a reception and presentation. The keynote speaker will be Larry Early, author of *Looking for Longleaf: The Rise of an American Forest*.

Field trips are planned for Saturday morning. Attendees will select one field trip from the following: the Zuni Pine Barrens, the Great Dismal Swamp, First Landing State Park or private gardens landscaped with native plants. (See the article on the First Landing State Park by Vickie Shufer in this issue.) The next *Bulletin* will feature an article by Dr. Lytton Musselman about the Zuni Pine Barrens.

(See Annual Meeting, page 8)

Conference Speakers

Andrew Bell – associate director, North Carolina Botanical Garden
Cecil Frost – landscape fire ecologist and former director of North Carolina's endangered plant program.
Sylvan Kaufman – conservation curator, Adkins Arboretum
Chris Ludwig – Chief biologist, Virginia Natural Heritage Program
Libby Norris – Virginia watershed restoration scientist, Chesapeake Bay Foundation
Johnny Randall – assistant director for conservation, North Carolina Botanical Garden
Gary Smith – landscape architect
Lou Verner – Virginia Department of Game and Inland Fisheries
Dennis Whigham – plant ecologist, Smithsonian Environmental Research Center

First Landing State Park: Coastal paradise

Have you ever seen a picture so beautiful that you wanted to just step into it and know that it is real? That was the feeling I had the first time I visited First Landing State Park, then known as Seashore State Park, more than 25 years ago. Some things have changed since then – the old rustic nature center has been replaced by a more modern visitor center and new walkways have been added that lead the visitor out into the swamp. But the feeling always remains the same.

Following the boardwalk trail behind the visitor center into the swamp is like stepping into a picture. Large cypress trees emerge from the dark tannic waters with their branches draped with long, gray strands of Spanish moss, giving it a haunting appearance. Islands have developed on rotting

(See Coastal paradise, page 8)

From the president . . . . . .

Ivory-billed woodpecker discovery bodes well for possible forest comeback

The most exciting thing has happened! The ivory-billed woodpecker, thought to be extinct, has been found. I always hoped this would happen, and recall several possible sightings in recent years, none substantiated. I kept hoping though. I grew up at the edge of ivory-bill range, and the possibility that this bird would have been in my own neck of the woods seemed amazing.

No, I have not forgotten that I'm writing for a plant group. This find is important for plant lovers too. According to reports on National Public Radio and the Cornell Laboratory of Ornithology (http://birds.cornell.edu/ivory/index.html) the rediscovery of the bird rests on the fact that the bottomland forest of the southeast is regenerating. As John Fitzpatrick of Cornell said, "It's about the return of the great bottomland forest ecosystems of North America that we took away 100 years ago."

Extensive logging of these forests occurred in the last century. Bottomland forests occur along river floodplains in areas that are periodically inundated or are saturated by surface or groundwater. Although the ivory billed woodpecker range maps do not include Virginia, we have similar coastal plain and piedmont swamp and floodplain forests. The ivory billed woodpecker eats beetle larvae from under bark, but studies of stomach contents also found southern magnolia seeds, pecans and hickory nuts, poison ivy fruits, grapes, persimmons and hackberries. Well, chances are still small I guess, but I hope to see one of these birds someday, in its natural habitat.

Your President, Sally Anderson

P.S. Support Virginia forests - there is a new Wilderness Bill (HR 1975 & S 942) based upon last year's bill but with additional wilderness areas in Bland County and expanded support from localities. Please contact Senator George Allen and your congressional representative and ask them to support the bill. More information at www.vawilderness.org.

VNPS needs YOU!

The VNPS State Board of Directors has some positions that are vacant, or that will become vacant when terms expire in the fall. An immediate need is for Nominating Committee members. Board positions currently open are: 1st VP, Recording Secretary, Education, Fundraising, Horticulture, Membership, and Publicity Chairs. The 2nd VP, Publications and Registry Chairs need to be filled this year. Coming open soon are two director-at-large positions and the registry chair.

If you have time to help and ability in one of these (or other) areas, please contact Sally Anderson for more information (540-722-3072, rccsca@visuallink.com).

VNPS activity seen in New River Valley

On April 9, a meeting was held in Blacksburg to provide information on forming a new VNPS chapter. About 20 people came out on a gorgeous spring day to attend the meeting, which was held at the Virginia Tech greenhouses classroom. Member Vicky Barden arranged the meeting space and provided refreshments for the group. Also along to endorse the formation of a new chapter was Butch Kelly from VNPS's Blue Ridge Wildflower Society. After a general meeting, where Sally Anderson and Nicky Staunton presented information about VNPS, a smaller group stayed to form a steering committee to pursue chapter formation. Four of those in attendance volunteered as leaders of this committee: David H. Jones, coordinator; Kathy Brown; financial; Vicky Barden, publicity; and Nancy Slocum, membership. Others agreed to help them with these jobs, and we are hopeful that this will be the beginning of an active chapter in the New River Valley area. If you would like more information about VNPS activity in the New River region, contact Nancy Slocum at slocumnes@aol.com or Vicky Barden at vbarden@vt.edu for more information.

Symposium focused on future of floras

Senior scientist and curator of the Herbarium at the U.S. National Herbarium, Vicki A. Funk, established the necessity of floras from the very onset of the Smithsonian Botanical Symposium 2005, "The Future of Floras." At the same time, traditional floras experience a lag time between collection and identification, and are not current on changes of taxonomic nature.

With that introduction, participants heard about three new, exciting directions in the productions of floras and aids to identifications of the plant life around us. David Farr, of the USDA, spoke on production of on-line keys that can be interactive and used from the internet. Bryan Heidorn, University of Illinois at Urbana-Champaign, and Robert Morris, University of Massachusetts, expanded on this general theme. All concluded that in the not-so-distant future, we will be able to pick up a plant and, armed with interactive web keys, figure out pretty quickly what we have and be linked to pictures and substantial auxiliary information.

David Jacobs, of the University of Maryland, spoke on using computer vision to help recognize organisms. This technique involves digitally scanning a leaf or other plant material and letting the computer identify a plant or at least offering the user a limited number of plants to chose from.

Finally, Vincent Savolainen of the Royal Botanic Gardens at Kew, spoke about DNA barcoding, an exciting identification technique in which a machine would sequence the genes of a plant and provide its identification. This technique faces formidable technical challenges. First, the technology is in its infancy. Second, a library of reference material needs to be developed and taxonomists and funding are in short supply. Third, generally, plants are less genetically variable and distinct from one another than many animals.

VNPS Registry Sites

Take a walk on the wild side

Spring is almost over and summer is upon us. What a great time to be outdoors tramping around through the natural world. Several of our VNPS Registry Sites are open to the public and provide just the place to enjoy your seasonally changing explorations. Choose one from the list below and enjoy! Contact your local chapter for other interesting areas.

BUFFALO CREEK NATURAL AREA PRESERVE

Blue Ridge Wildflower Society
Approximately 3 miles west of Evington on SR 24, south of Lynchburg, off SR 29.

G. RICHARD THOMPSON WILDLIFE MANAGEMENT AREA

Piedmont Chapter
I-66W, exit 18, Markham. Right on Rt. 55 to Linden. From Linden take Rt. 638 to Trillium Parking Lot. Follow fire road or foot trail to right.

HUNTLEY MEADOWS PARK

Potowmack Chapter
3701 Lockheed Blvd, Fairfax County, south of Alexandria between US 1 to the east and I-95 to the west.

MANASSAS NATIONAL BATTLEFIELD PARK

Prince William Wildflower Society
Located off Rt. 29 West of Centreville, Va. Several areas registered including Deep Cut, Stone Bridge, rock field behind Battery Heights and Brawner Farm. Stone Bridge, parking lot is on the Fairfax/Prince William County line. Deep Cut, turn onto Featherbed Lane (Rt. 622) off Rt. 29 west, proceed to parking; Deep Cut is on left. For Brawner Farm and Battery Heights directions, stop at the Battlefield Center to pick up a brochure with map.

RIVERBEND PARK

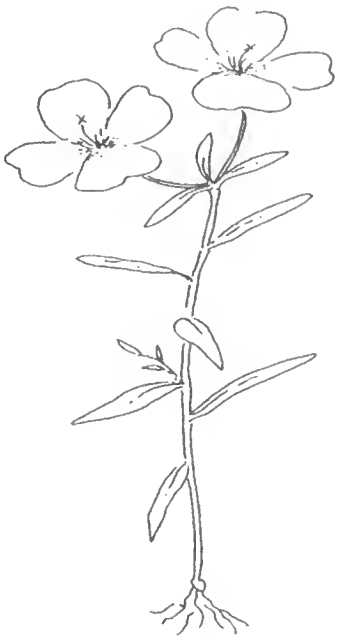
Potowmack Chapter
Dranesville District of Northern Fairfax County. Georgetown Pike (Rt. 193) to River Bend Park Rd. to Jeffrey Rd.

RUNNYMEDE PARK

Potowmack Chapter
Located in the town of Herndon off Herndon Parkway.

SCOTTS RUN PARK

Potowmack Chapter
Dranesville District of Northern Fairfax County. I-495 to Georgetown Pike (Rt. 193). On right before Potomac Overlook subdivision.



Look for this early summer bloomer, sundrops (*Oenothera fruticosa*), in sun or light shade. Illustration by Barbara Stewart.

Invasives conference

Invasive plants are a major threat to biological diversity. Examine the issue of invasives at a two-day conference, "Invasive Plants: Perspectives, Prescriptions and Partnerships," to be held August 16-17 at the University of Pennsylvania in Philadelphia. Participants will gain an understanding of the nature and scope of the invasive plant problem and will concentrate on the most current management tools being used to control them.

For a complete brochure, contact the Morris Arboretum (e-mail at jlm@pobox.upenn.edu or call 215-247-5777, ext. 156 or 125).

The conference is sponsored by the Mid-Atlantic Exotic Pest Plant Council with supporting sponsorship from the Virginia Native Plant Society state organization and the Potowmack Chapter.

Western Virginia hike

Take a trip with the Shenandoah Chapter to Ramsey's Draft Wilderness in the mountains of western Augusta County. The July 2 hike will be led by Jay Shaner. Meet at 8:30 a.m. at the Ramsey's Draft picnic area (Route 250 about 15 miles west of Churchville). Later in the day go on to High Cheat Mountain, W.Va. Bring boots to wade across the Cheat River in order to check out some orchids. Bring lunch and water and sturdy shoes. For more information call 540-886-5763.

Rare Coastal Plain sumac needs disturbed conditions

Michaux's sumac, *Rhus michauxii*, is a low-growing shrub listed in September 1989 by the U.S. Fish and Wildlife Service as a federally endangered species. Other common names are dwarf sumac or false poison sumac. Historically, the plant was known to occur in the inner Coastal Plain and Piedmont of the Carolinas, Florida and Georgia.

The species was both discovered by and named for French explorer-botanist Andre Michaux (1746-1802), which is rather unusual. Nearly a hundred years after Michaux published his name for the plant, *Rhus pumilla*, botanist C. S. Sargent discovered that Michaux's suggested name had already been used for another plant. This invalidated Michaux's name so Sargent chose to honor the plant's discoverer with the new name *Rhus michauxii*.

Michaux worked for the French government as a researcher and plant collector. From a garden near Charleston that he used as a base, Michaux traveled widely and often, especially in the Carolinas and Georgia, and was the first to document many plants in our flora. Dr. David Rembert of USC did a study of Michaux's work and credits the French botanist with being the first to name 283 species found in the Carolinas. Traveling throughout eastern North America, he also named many other species not found in the Carolinas.

Michaux's sumac is a dioecious shrub; single plants are not both sexes as are most plants, but each plant is a single sex. The species has been seriously impacted by habitat fragmentation and habitat loss. The most recent reports indicate that there are 36 known populations, but a population of this rhizomatus shrub may have just one genetic individual with clonal reproduction only. Most of the known populations are found in North Carolina; Kershaw County is the only South Carolina location listed in the *Manual of the Vascular Flora of the Carolinas* (1968). The plant is quite rare throughout its range. Individual plants are reported to grow to a height of about a half-meter. The plant is deciduous with alternate, pinnately compound leaves. Each compound leaf has between 7 and 13 oblong, toothed leaflets. Sometimes the rachis will be narrowly winged near the apex. In addition to the dwarf size of this sumac, another conspicuous feature is that all parts of the plant are densely pubescent. The greenish-yellow insect-pollinated flowers are individually tiny, but borne in terminal clusters containing many small flowers. The clusters of ripe fruits are red.

Michaux's sumac
Rhus michauxii
Illustration by Nicky Staunton

The species is shade-intolerant and dependent on some kind of disturbance to maintain the open condition of its habitat. The plant cannot survive if the canopy closes over it. Make a note, then, of the discovery in recent years of the largest known population of Michaux's sumac. It is on the Fort Pickett military reservation in Virginia. In the context of training to fight wars, "disturbance" takes on new shades of meaning. At Fort Pickett and wherever soldiers are trained for combat, of course the word "fire" is a verb as well as a noun. When soldiers train, they "fire" as well as "clear openings" in the canopy at the point the shell or other ordnance impacts. Botanists have known for some time about the role that long-term fire suppression has played in the decline of many species including Michaux's sumac. However, the Fort Pickett population is an unusual case because frequent, intense, man-made fires from military activities have helped an endangered species.

Efforts have been made to reintroduce the species to locales where it has been extirpated. In Mecklenburg County, North Carolina, the Conservation Biology Laboratory at UNC-Charlotte has been working in cooperation with the Mecklenburg Park and Recreation Department to restore Piedmont prairies within nature preserves in the county park system for several years. Early travelers described extensive wild and fertile prairies across the Carolinas Piedmont, but this habitat type had been all but destroyed by agriculture and fire suppression during the last two centuries. Many Schweinitz's sunflowers, another globally endangered species, have been rescued from road widening projects and planted in these restored prairies. The sunflowers are thriving. Last November, to the delight of conservationists, 29 rescued Michaux's sumac were also planted in two restored Piedmont prairies in Mecklenburg parks. The last reliable sighting of Michaux's sumac in Mecklenburg County had occurred 207 years earlier, by Michaux himself!

(See Michaux's sumac, page 6)

(Photos by Nancy Sorrells)

Springtime sightings

To see the swamp pink (*Helonias bullata*) blooming each April is a refreshing, and rare, Virginia treat. Swamp pink, listed as federally threatened in 1988, is a member of the Liliaceae family. The country's largest population is in New Jersey where it is found in 12 southern counties. It also occurs in Delaware, Maryland, North Carolina, South Carolina, and Georgia, as well as four Virginia counties – two along the Blue Ridge Mountains and two in the Coastal Plain. Swamp pink thrives in a wetland habitat that is saturated, but not continuously flooded. These plants were found in Augusta County.

Prairie offers cleansing alternative to traditional lawns

The native vegetation over large areas of the United States has been virtually eliminated by industrial and agricultural development. This is particularly true of the tallgrass prairie region where today you may drive for miles without seeing any native prairie plants unless you happen to cross an old railroad grade. As a result of this alteration, most people have little sense of the presettlement landscape.

This lack of awareness leads to a failure to appreciate our native plant communities. Unfortunately, traditional landscaping does not typically include examples of these communities or even specimens of individual native species. Instead, plants widely used in landscaping throughout temperate North America and Europe are placed artfully and orderly throughout the landscape in a fashion that bears no resemblance to a natural community. Color is provided by the ubiquitous crimson barberry or assorted spirea. Tree cultivars selected for their shape and uniformity are set in rows or artful clusters. While neat and attractive to most people, this assemblage of plants provides little habitat for native species, does little to capture and infiltrate stormwater, and is expensive and polluting to maintain.

As suburbs and industrial sprawl occupy ever more of the countryside around our urban areas, neighborhoods and commercial campuses replace the woods and open space of the countryside. This conversion eliminates habitat for native plants, birds, insects and other organisms. However, utilizing native plant communities in the landscape can replace some of this habitat while adding a sense of place, as if the development were nestled into the landscape instead of being a scar on it. Native plant communities in the landscape provide food, shelter and nesting sites for birds, as well as larval food plants and nectar for butterflies and other beneficial insects. In this way, native landscaping can help mitigate the habitat lost to development.

One of the greatest assets of native landscapes is their ability to clean and infiltrate stormwater, resulting in reductions in stormwater quantity as well as improved water quality. Native herbaceous plants, particularly warm season grasses and sedges have incredibly dense fibrous root systems. These herbaceous roots are continually dying and regenerating. As the dead roots decompose, they leave root channels in the soil, providing pathways for water to infiltrate deep into the soil. As a result, a mature prairie planting can absorb many times the rainfall of a bluegrass lawn.

When stormwater is channeled through constructed wetlands, a variety of filtering mechanisms remove nutrients, sediment, and other pollutants. Wetland plants not only absorb nutrients such as nitrogen and phosphorous, the submerged portion of these plants provide habitat for microorganisms that

(See Native prairie, page 6)

Center for PLANT Conservation

March 4, 2005

Ms. Sally Anderson
President
Virginia Native Plant Society
Blandy Experimental Farm
400 Blandy Farm Lane, Unit 2
Boyce, VA 22620

Dear Sally:

Let me extend my deepest thanks to the Virginia Native Plant Society for inviting me to participate in your conference last month. I thoroughly enjoyed myself! I would also like to thank you on behalf of the Center for Plant Conservation for you generous $10,000 to sponsor *Ptilimnium nodosum* (Harperella).

Johnny Randall's presentation on the Harperella at the conference was wonderful. I was so pleased he could be there. It is obvious that the Virginia Native Plant Society knows how to put together an effective effort to educate people about our imperiled native plants, and to support research, restoration and recovery for these plants. That makes the VNPS and CPC truly kindred organizations.

It has been a pleasure working with you, Nicky Staunton, Shirley Gay (and of course Jocelyn Sladen) on both the conference and the sponsorship campaign. Please pat yourselves on the backs a few times for me, because you did a fantastic job.

I look forward to talking with you again soon.

Its really a Thrill to write a thank you for such a wonderful achievement. It was great fun to have Johnny Randall there when you were able to announce the gift – and for the group to see how hard at work they already are on this species' behalf

Sincerely,

Kathryn L. Kennedy

Kathryn L. Kennedy, Ph.D.
Executive Director

P.S. Please keep this letter as a receipt for 2005 IRS tax reporting purposes. This receipt acknowledges your gift of $10,000.00 Virginia Native Plant Society check #4639, dated February 22, 2005 to the Center for Plant Conservation. Because no goods or services were received in exchange for this gift, the contribution is one hundred percent (100%) tax deductible. Unless we hear from you to the contrary, The Virginia Native Plant Society will be listed for recognition purposes.

Center for Plant Conservation • Post Office Box 299 • St. Louis, MO 63166-0299
(314) 577 9450 • Fax (314) 577 9465 • www.centerforplantconservation.org

A job well done!

We met our initial fundraising goal to fully sponsor the rare plant harperella (*Ptilimnium nodosum*) and were able to present a check to Kathryn Kennedy of CPC at our Annual Workshop on February 26. In our last issue we printed a photograph of Kathryn accepting the check. This is a facsimile of the thank you letter we received for our contribution. The sponsorship money will provide an income each year that will be used to fund research on the plant for years to come. When our fundraising year is up, we may have funds to partially sponsor a second plant. This is a fantastic achievement by our members and we wanted to share this much deserved letter with all of you.

•Native prairie

(Continued from page 5)

are even more efficient at nutrient removal. These wetland plant communities are also very efficient at capturing sediment and attached organic material that contribute to biochemical oxygen demand.

Because the traditionally landscaped corporate campus is dominated by lawn, it requires expensive and polluting landscape maintenance. Frequently the lawn is irrigated, requiring countless thousands of gallons of water to keep it green through the heat of summer. Broadleaf and preemergent herbicides must be applied annually. Finally, the lawn must be mown 25 to 30 times through the growing season, adding a great deal of maintenance expense and pollution. In contrast, a native herbaceous community such as a prairie requires infrequent mowing during the establishment period and only annual mowing or burning once established. The native plants thrive during the hot Midwestern summers without irrigation. Once established, these tough native perennials out compete annual weeds.

Inclusion of native plant communities in the landscape can be as simple as including shoreline plantings around detention ponds or as extensive as designing an entire corporate campus featuring native plant communities. When steps are taken to replace traditional landscape with self sustaining native plant communities, the results are better habitat for native organisms, a lower volume of cleaner stormwater runoff, and less expensive and polluting landscape maintenance. Perhaps most importantly, native landscapes allow residents to understand and connect with their natural heritage.

Reprinted from http://spencenursery.com/newsletters/spring2005/spring2005newsletter.pdf.

•Michaux's sumac

(Continued from page 4)

Editor's note: Members of the NCNPS were fortunate to spot two colonies of *Rhus michauxii* in October 2004, one in Weymough Woods State Park and one in the Sandhills Gamelands.

See also: *Castanea*, volume 69, issue 2: JUNE 2004 (published July 7, 2004) "Andre Michaux's Sumac - *Rhus michauxii* Sargent: Why did Sargent rename it and where did Michaux find it?", Lawrence S. Barden and James F. Matthews, 109-115.

Article by Charlie Williams, reprinted with permission from ***Wildflower****, the journal of the North Carolina Native Plant Society, Winter 2004, Volume XVI, Katherine Schlosser, ed., 22-24.*

Lexington's Boxerwood Gardens a must visit

How about a nature class, environmental stewardship lesson, and a good hike all in one? You don't have to look far for such a package – just take I-81 to Lexington and find Boxerwood Gardens.

Boxerwood began as the private landscaping hobby of a Lexington medical doctor, Robert S. Munger. In the 1950s he began collecting and planting rare and unusual trees and shrubs at his new house. His favorites were in the families of dwarf conifers, dogwoods, magnolias, rhododendrons, azaleas, and Japanese maples. At first he was only a collector, but when a visiting friend looked around and saw Dr. Munger's 14 boxer dogs lounging among the trees he commented that the doctor should call his place "Boxerwood Garden." It was at that point that Munger realized that he did, indeed, have a real garden.

As the years passed and he learned more about horticulture and the natural world, he came to rely less on chemicals and more on the hands of Mother Nature. Today the gardens are a living legacy to Dr. Munger's deep respect for the natural world. At the heart of Boxerwood is a 15-acre arboretum with 7,000 trees and shrubs, 1,300 of which are labeled. There are plenty of native

plants as well as introduced species, including 167 varieties of dwarf conifers, 57 varieties of magnolias, 81 varieties of dogwoods, 290 varieties of rhododendrons and azaleas, and 154 types of Japanese maples.

In total, though, the grounds include 31 acres of woodlands, meadows, hedgerows, and wetlands (at least six distinct habitats) to explore. There is also a small nature center (the original Munger family home) and numerous "nature spots" scattered across the grounds.

The best way to begin exploring Boxerwood is to pick up the guidebook and follow the self-guided tour. Take the trails wherever your eyes and feet lead you. Points along the way are discussed in the book, and some interpretive signs provide additional information. There are surprises around every turn: gentle sculptures, unusual trees, and a crooked Japanese bridge across the wetlands (a straight bridge is considered bad luck) to name a few.

I found myself standing in a giant eyeball – yes a living sculpture of junipers and dogwoods that, from the air, resembles a giant eye. At the heart of the doctor's arboretum stands The Great Oak, a centuries-old witness to the changes that man has created in the natural landscape.

Man's interaction with the natural world is part of the lesson being told at Boxerwood. By far the largest group of visitors to the gardens is schoolchildren. As they make their way through this living classroom they stop at the mailboxes interspersed across the grounds. It seems a little odd at first to happen upon a mailbox in the middle of a pine grove or on a bridge across the wetlands, but the messages being delivered to those youngsters are ones of hope for the next generation.

Earth stewardship is the overriding theme at Boxerwood. Just recently the staff has installed an earth-friendly septic system called Nature-Emulating Waste Treatment System, or NEWTS for

(See Boxerwood, page 8)

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 ___Sustaining $100

___Life $500

*Please designate one person as delegate for Associate membership

To give a gift membership or join additional chapters: Enclose dues, name, address, and chapter (non-voting memberships in any other than your primary chapter are $5)

I wish to make an additional contribution to ___VNPS or_____Chapter in the amount of ___$10___$25___$50___$100___$(Other)_____

_____Check if you do not wish your name to be listed to be exchanged with similar organizations in a chapter directory

Make check payable to VNPS and mail to:

VNPS Membership Chair, Blandy Experimental Farm, 400 Blandy Farm Lane, Unit 2, Boyce, VA 22620

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

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Nancy Sorrells, Editor

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The deadline for the next issue is **July 1.**

• Coastal paradise

(Continued from page 1)

stumps that are covered with a mutlitude of flowering shrubs and trees. Turtles bask in the sun while frogs peek above the surface of the water briefly before plopping underneath as one walks by. Birds flutter in the treetops, feeding on insects that they often catch in mid-air.

The park as we know it has been taking shape during the last twenty to twenty-five thousand years. Before that it was covered by ocean waters. As the ocean waters receded, sand was deposited that was molded into sand dunes of a variety of shapes by the wind. Over time the dunes were covered by trees, forming the upland forests that we see today. Low-lying areas behind the dunes filled in with water, forming the cypress ponds.

First Landing State Park is located in northeastern Virginia Beach at Cape Henry with the Chesapeake Bay to the north. The park consists of 2,888 acres with approximately 19 miles of hiking and biking trails. The campground is located on the north side of Shore Drive bordering the Chesapeake Bay. Sand dunes continue to exist with sea oats and beach grasses as the dominant plants. Moving south away from the beach and dunes is a maritime forest with live oak trees sprawling horizontally on the ground as an adaptation to the salt air and ocean winds. On the south side of Shore Drive is the natural area with a more complex community of plants and animals.

Regardless of whether it's your first visit or you've made numerous visits, First Landing State Park is an exciting place to see. Scenic vistas greet the visitor at every turn. It truly is a coastal paradise waiting to be explored.

Vickie Shufer, South Hampton Roads Chapter

• Annual Meeting

(Continued from page 1)

Additional information can be found on the garden's website www.norfolkbotanicalgarden.org (choose Calendar of Events and go to the September events). The cost will be $80 per person. Price includes a tour of the NBG Native Plant Garden, a tram tour of Norfolk Botanical Garden, keynote program by Larry Early, and reception at Old Dominion University, Saturday morning field trip including lunch, and five lectures. Time of the VNPS membership meeting is to be decided, and the VNPS Board of Directors will meet on Sunday morning. Look for more information in the next issue of the *Bulletin*.

• Boxerwood

(Continued from page 7)

short. Unlike traditional systems, NEWTS is environmentally friendly and reuses the cleaned water for a greenhouse and a wetland.

Boxerwood is open to the public from March 15 to November 30 from 9 a.m.-4 p.m. Birders and self-starters can visit anytime during those hours. Those who desire guided tours or special classes should call for an appointment (540-463-2697). With six distinct habitats to explore, I can see how it would be easy to keep coming back again and again to try and see every nook and cranny in every season. There are even special events that include opening up the garden at night during a full moon. Such an extensive operation needs funding and there is a $5 entrance fee, but you can become a member and have that waived (and you will be helping a good cause and stay abreast of all events and activities). For directions and more information (including what is blooming in the gardens) visit the Boxerwood website (www.boxerwood.com). Boxerwood is also the meeting place for the James River Chapter of VNPS.

Nancy Sorrells, VNPS ***Bulletin*** *editor*

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Blandy Experimental Farm
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www.vnps.org

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Conserving wild flowers and wild places

Annual Meeting field trip

Zuni marked by burning orchids and flaming fungi

I have studied the Blackwater Ecologic Preserve (now part of the Zuni Pine Barrens state Natural Area Preserve) for more than three decades, yet am constantly amazed at the salutary effect of fire and how flames are able to uncover spectacular rarities of both flowering plants and mushrooms.

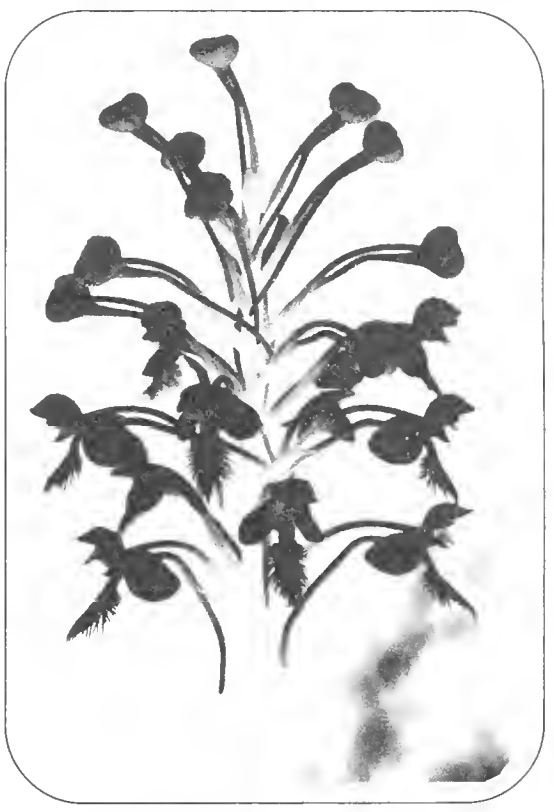
Last year, 2004, was one of the most splendiferous in the sandy, chigger-infested pines of mid-summer. It was the year of the orchids!

Some of Virginia's rarest orchids occur at the preserve and it is apparent they did not flower until the area was burned several times. The rarest is certainly the pale grass-pink (right), *Calopogon pallidus*, which I stumbled upon one hot July day in 2002, a season of limited botanical interest. Unexpectedly, I had found a species recorded as extirpated in Virginia! We have been monitoring it each season since. This year the unit with the orchid was burned, resulting in more flowering than ever. We examined the narrow, grass-like leaves and saw that they had been singed by the April fire. This orchid likes flames.

Also present at the preserve is the very rare white fringed orchid, *Plantanthera blephariglottis* (=*Habenaria b.*) The specific epithet, *blephariglottis*, refers to the long fringes on the lip of the flowers which resemble eye lashes. The Virginia Division of Conservation and Recreation (Natural Heritage Division) conducts annual burns at the preserve. Recently, some areas were burned for the first time in perhaps 50 years. The response was wonderful—several populations of the white fringed orchid appeared where we had not seen it previously.

The flowers are a distinct china-white similar to flowers of *Clethra alnifolia*. Both the pale grass-pink and the white fringed orchid are diminu-

(See Flaming beauty, page 3)



Plantanthera blephariglottis

Feeling the summer heat? Grab a tree!

The ancient Chinese proverb "No shade tree? Blame not the sun, but yourself," offers practical advice for improving our urban areas. As with many proverbs, the message is both profound and obvious.

Last week, while looking at the weather reports from New York City, I was reminded of just how profound this one is. While the temperature in Manhattan was listed at 90 degrees, in Times Square it was more like 100 degrees, and in Central Park, it was probably closer to 80.

Temperature variations like this play out daily all over the world. Cities heat up more than rural areas because they contain more heat-trapping materials. They have less of the vegetation cover that dissipates heat. And our activities—from driving to cooking to cooling our homes—emit heat. As a result, many cities are about 6 to 8 degrees warmer than the forested areas

(See Trees, page 5)

From the president . . . . . .

Mark our Annual Meeting on your calendar

A Plant Rescue Position Paper recently adopted by the board is available on our website or from the office. The working group that produced this paper was led by former board member Jessie Strother, and I would like to thank her and the other members of the group: Mary Pockman, Barbara Farron, Shirley Gay, Nicky Staunton, Michael Sawyer and Faith Campbell.

This issue of our newsletter features information about our annual meeting. This year we are doing something new, which is to hold the meeting in conjunction with the Coastal Plain Native Plant Conference. The conference is being hosted by Norfolk Botanical Garden in partnership with our South Hampton Roads Chapter and with Old Dominion University. I hope many of you will want to come to the conference, which will feature many interesting speakers, as well as excellent field trips, and that you will attend our membership meeting on Friday afternoon. As soon as the speakers are finished for the afternoon we will hold our meeting in the same room. It's a tight schedule, and we will make our meeting short so we can move on to other activities.

Because we have not done this before, and because it is the first such conference for the other partners, there are bound to be questions. I hope you will feel free to contact me or Karen York at our office if you have problems or questions that we can help you with. Many of the SHR Chapter members are working hard to make this conference a success, and I thank you all in advance for your work on the conference and for the invitation to the members around the state to join us there.

The Norfolk Botanical Garden has installed a large area of native plantings that I hope you will visit while you are at the meeting. The garden won the Common Wealth prize from the Garden Club of Virginia in 2001 for the development of the boardwalk on Whitehurst Lake that is part of the native plant garden. This award goes to a project that includes conservation, beautification, horticulture, preservation and education, and that benefits and is of interest to the local community.

See you at the meeting in September!

Your President, Sally Anderson

VNPS position paper on plant rescues available

A statement of the VNPS position on plant rescues, adopted by the board at its June 2005 meeting, brings the society and its chapters both an updated guide for participating in rescue projects and a new educational resource.

The paper outlines VNPS thinking about both the limitations and risks of rescue projects and their potential benefits. In that context, it then brings together the relevant VNPS policies and guidelines, from what determines whether a VNPS-supported rescue is appropriate to such things as the logistics of conducting a rescue. It was developed by a volunteer group of members coordinated by former VNPS Conservation Chair Jessie Strother.

The statement is posted on the Virginia Native Plant Society website (www.vnps.org). Copies can also be obtained from any chapter president or other state board member or from the VNPS office.

History and beauty are trademarks of the Norfolk Botanical Garden

Norfolk Botanical Garden represents an oasis of over 20 theme gardens encompassing 155 beautiful acres that can be viewed by tram, boat, or on foot. From the award-winning Bicentennial Rose Garden to the expanding Virginia Native Plant Garden, diverse natural beauty can be explored in the many signature gardens.

The idea for what would eventually become Norfolk Botanical Garden came from Frederic Heutte, a young horticulturist, and Thomas P. Thompson, Norfolk City Manager 1935-1938. Heutte had a fondness for azaleas and thought Hampton Roads had a climate uniquely suited for growing the plants. Heutte and Thompson believed that Norfolk could support an azalea garden to rival those of Charleston, S.C., which even during the Depression years drew thousands of tourists annually. The city of Norfolk provided Heutte and Thompson with a 75-acre section of high, wooded ground and another 75 acres of the Little Creek Reservoir to establish a city garden.

On June 30, 1938, Representative Norman R. Hamilton announced a Works Progress Administration (WPA) grant of $76,278 for the Azalea Garden project. Since most of the male labor force was at work with other projects for the city, a group of more than 200 African American women and 20 men were assigned to the Azalea Garden project. Laboring from dawn until dusk, the labor crew cleared dense vegetation and carried the equivalent of 150 truck loads of dirt by hand to build a levee for the lake. The laborers were paid 25 cents an hour for their hard work.

Within less than a year, a section of underbrush had been cleared and readied for planting. By March of 1939, 4,000 azaleas, 2,000 rhododendrons, several thousand miscellaneous shrubs and trees and 100 bushels of daffodils had been planted.

In August of 1939, Representative Colgate W. Darden Jr. secured an additional $138,553 for the Azalea Garden, and the founding of the Old Dominion Horticultural Society provided volunteer labor to assist the garden. By 1941 the garden displayed nearly 5,000 azaleas, and 75

(See Norfolk Botanical Garden, page 7)

•Flaming beauty seen at Zuni

(Continued from page 1)

tive plants which occur in wetland-upland ecotones, that is, margins between two distinct habitats. And both obviously favor the conditions that burning produces.

If orchids reign this year, a few years ago mushrooms were the stars. In 2002, acres of the burned forest were graced with a wonderful mixture of showy, toxic, edible, and nondescript mushrooms. The most common mushrooms at the preserve are species of *Russula* (most mushrooms don't have widely used common names, these are simply referred to as "russulas"). Their caps up are deeply depressed and the gills are closely spaced. Some species have caps up to seven inches across. I find them most in June and September, often just peeking out of the white sand.

Cross section of ***Russula brevipes****, showing the depressed cap.*

Very similar in general appearance to russulas (depressed cap, closely spaced gills) but much smaller are the milk-cap mushrooms (genus *Lactarius*). As both the Latin and common name imply, these fungi produce a "milk," a kind of latex that oozes when the cap is broken. Both genera, *Russula* and *Lactarius*, contain edible and toxic species. Further, they are large and complex genera and should never be eaten without critical determination involving microscopic analysis.

The showiest mushrooms at the preserve are almost certainly the amanitas (genus *Amanita*) including some of the most deadly mushrooms as well as some edibles. Under no circumstances should an amanita ever be eaten, as a majority of deaths ascribed to mushroom poisoning are caused by Amanitas. The fly agaric, a widespread toxic mushroom mentioned in ancient Vedic texts, classic Greek literature, and Russian folklore, can have a bright red or an orange cap. At the preserve, large beautiful fly agarics appear after burning, all of them with orange caps. A rare (I only saw it once) but attractive amanita is *A. mutabilis*, a ghostly white mushroom suffused with pink—and should be considered as dangerous!

In contrast, the oyster mushroom (*Pleurotus ostreatus*) is easily recognized and delicious. Be certain of the identity, which can be verified by the lilac-colored spores. The oyster mushroom likes cool weather so I plan my annual harvest sometime around Thanksgiving. It favors hardwood trees weakened or killed by the burns. The role of fire in the biology of the orchids seems evident—the canopy is opened, competition with other species is regulated. So what is the relationship between fire and the flushes of mushrooms? Amanitas, russulas, and milkcaps are all mycorrhizal, that is, the mushroom is present as a microscopic net-like reticulum which only produces the fruiting structure when conditions are right as after a burn. On the other hand, oyster mushrooms simply feed on dead and decaying wood. Fire favors both groups.

The Blackwater Ecologic Preserve (see http://www.odu.edu/webroot/instr/sci/plant.nsf/pages/blackwater) is part of the Zuni Pine Barrens Natural Area. Established in 1984 with a gift of 391 acres to Old Dominion University from the Union Camp Corporation (now International Paper), the natural area was expanded through state purchases of contiguous land, the Antioch Pines Natural Area (see: http://www.dcr.virginia.gov/dnh/antioch.htm) and now the total area of the Zuni Pine Barrens is almost 1,500 acres comprising the finest longleaf pine and associated communities in the region.

Article by Dr. Lytton John Musselman (Mary Payne Hogan Professor of Botany, and Chair, Department of Biological Sciences, Old Dominion University)

VNPS Annual Meeting info

The VNPSAnnual Membership meeting and election of board members will take place at the close of the lectures on Friday, September 16 at 5 p.m. The meeting will take place in the lecture room as soon as the last speaker is finished. Because of the many conference activities, this meeting will be short, with a brief report to the membership and the election. Dinner will be on your own. We will have a social gathering with light fare at Old Dominion University at the reception prior to the evening's keynote speaker.

A registration form is included in this newsletter, or you may register online or by telephone at 757-441-5838. For the first time, you will be able to use a credit card to register if you wish. Registration fee for the conference is $80, payable to Norfolk Botanical Garden.

The Conference and Annual Meeting Schedule in brief:

Friday, September 16

Norfolk Botanical Garden

9 a.m. - noon Registration

1-5 p.m. Speakers and garden tours (See information back of registration form)

5 - 5:30 p.m. Virginia Native Plant Society Membership meeting

Old Dominion University

6 p.m. Reception

7:30 p.m Keynote speaker

Saturday, September 17

Norfolk Botanical Garden

8 a.m. Field trips depart (see field trips and descriptions on back of registration form)

12:30 p.m. Lunch

1:30 - 4:30 p.m. Speakers (See information back of registration form)

Sunday, September 18

9 a.m. - noon VNPS Board Meeting, Holly Room, Norfolk Botanical Garden

Plant photo library available to VNPS members

Many of our members are asked to speak for local or regional garden clubs, master gardener groups and to others interested in native plants. It is always nice to have some pictures to illustrate those talks, but what if you don't have the one you need? Some members may not be aware that we have a photo archive for the use of members.

Our photo archive consists of four metal boxes of slides. One box contains 750 slides of dicots, and is cataloged and an index is available by mail or email. A second box contains a similar number of slides of the monocots, in reasonably good order but not cataloged. Box 3 holds ferns, mosses, grasses and more dicots also in order but not cataloged. Finally there is a miscellaneous collection of fungi, trees, more dicots, garden photos and others. There are several choices of photos for some of the plants, although some of the older slides are becoming faded. All pictures have the plant identified in writing on the slide.

Originally, the board's Education Chair kept the slide library. The core of the archive came from Hal Horwitz, who bracketed his native plant photographs and shared the extra copies. Over the years others have donated slides to the collection, and good quality slides and digital images are still accepted. For some years, the collection has been maintained and lent out by Pocahontas Chapter member Richard Moss, also a fine photographer of native plants. We appreciate his willingness to handle this collection.

If you would like slides to use for a presentation, please contact Richard Moss at mossrd@mindspring.com or 804-748-2940 or 12565 Brook Lane, Chester, VA, 23831. You may request individual plant photos, which will be pulled and mailed to you, or you can make an appointment to go through the slides and pick out those you need. If you need more than about 12 slides, the second option is preferred, since it is rather time consuming to find individual plants, particularly in the uncataloged boxes. If anyone is interested in cataloging the remaining pictures and producing an index, please let Richard know. It would be much easier to request and pull slides if this were completed.

Some digital images have been made available too. Currently, Richard has about 500 closeup digital images of wildflowers from the Richmond area. Also, the slides from the collection can be digitized, although sometimes the color may shift. He is willing to share these, but you will need a digital projector to show them to groups. The digital images can theoretically be converted to slides, but it is expensive and therefore impractical. As digital projectors become the norm this collection will be more and more useful for talks. At present a digital photo is a great way to show someone a plant for identification or just for fun.

Speaking of the longleaf

The following "Conversation with Lawrence S. Earley: Author of ***Looking for Longleaf: The Fall and Rise of an American Forest*** (University of North Carolina Press, Fall 2004)*" comes from the Norfolk Botanical Garden's website (www.norfolkbotanicalgarden.org). Earley is the keynote speaker at the Coastal Plain Native Plant Conference/VNPS annual meeting to be held at the garden in September.*

Q: The longleaf pine once covered 92 million acres from Virginia to Texas, but now only about three percent of the original stand survives. What happened?

A: The disappearance of longleaf pine had a number of causes. A lot of longleaf fell to the needs of early settlers for places to live and farm. Hogs ranging freely through the forests consumed unimaginable amounts of longleaf seedlings, hindering the tree's reproduction. Longleaf also was exploited in completely unsustainable ways for turpentine and lumber and, in the 20th century, foresters tried to protect longleaf pine forests from fires out of a mistaken belief that fire prevented the tree from reproducing. Ironically (or tragically) it was fire suppression that prevented forest reproduction, not fire. Later, naturally growing longleaf stands were deliberately replaced on many commercial forestlands with plantations of faster-growing species such as loblolly pine and slash pine.

Q: How does the longleaf pine differ from other kinds of pine?

A: Longleaf is the most resinous of any southern pine, a factor that made it the leading source of turpentine and other naval stores for 200 years. Its wood was prized for its beauty and strength, with more heartwood than any other southern pine. Longleaf pine needles are also the longest of all the southern pine families, and they fall annually. The

(See Longleaf's story, page 5)

Trees make environmental and economic sense

(Continued from page 1)

around them. Improving the energy efficiency of these urban heat islands is not trivial. With the temperature hovering at more than 90 degrees and air-conditioners running marathons, Americans are again sweating over energy bills.

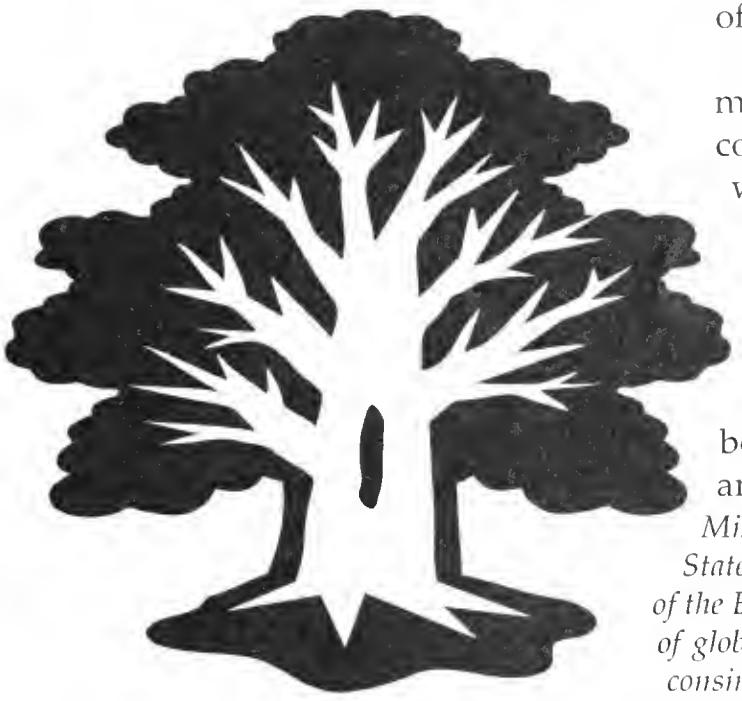
More trees would help, because trees are nature's air-conditioners. When the sun shines on buildings, roads and bridges, they give off that solar energy as heat—just think of the cliché about it being so hot you could cook eggs on the sidewalk. Trees not only provide shade, but also absorb the sun's energy to make biomass, the living matter that trees are made of. Trees also release water, which cools things down. The water they absorb passes to their leaf surfaces where it evaporates, cooling the air much the way perspiration cools our skin. With enough vegetation, evaporative cooling lowers air temperatures.

Greg McPherson and his associates at the United States Forest Service Center for Urban Forest Research have found that trees planted around buildings in California reduce air-conditioning needs by an amount equal to the energy produced by a 700-megawatt power plant, and that the strategic planting of 50 million more trees in California would double the savings.

This is good news, because our urban areas have room for lots of trees. In America, urban and other developed areas cover almost 100 million acres of land of which only about 25 percent is occupied by trees or other vegetation. That leaves room for up to 700 million more trees, according to the U.S. Forest Service. The nonprofit organization American Forests suggests that a 40 percent tree canopy in urban areas would result in better air quality and lower heating and cooling costs among other things.

While some cities are doing well when it comes to tree cover, others are not. In New York City, the numbers vary. Brooklyn and Manhattan have about 12 percent tree cover, Queens and the Bronx have about 16 percent and Staten Island has 28 percent. As a whole, the city averages about 17 percent.

Unfortunately, the trend in most places is for declining tree cover. Urban sprawl consumes about 9,000 acres a day and within America's cities, on average one tree is planted for every four removed. In Harrisburg, Pa., tree cover fell to 26 percent from 30 percent between 1973 and 2000, and in the Chesapeake Bay area it declined to 39 percent from 51 percent between 1973 and 1997.



Ultimately, trees do more than make cities look good. An average tree can remove several pounds of pollutants and some 15 pounds of carbon from the air per year. They also collect solar energy, produce oxygen, regulate humidity and temperature, filter air and water, recycle nutrients, store carbon and provide wildlife habitat. Forests reduce the impact of storms, regulate water runoff and floods and help build soils.

Trees are the quintessential multitaskers. They reduce energy consumption and carbon emissions while also absorbing carbon dioxide and pollutants. Trees improve air quality while reducing global warming and our air-conditioning costs. Cities and towns and residents across America would be smart to heed the ancient wisdom and plant more trees.

Mike Dombeck, a former chief of the United States Forest Service and former acting director of the Bureau of Land Management, is a professor of global management at the University of Wisconsin at Stevens Point. This article ran in ***The New York Times*** *on July 24, 2005.*

Longleaf's story is America's story

(Continued from page 4)

longleaf's needles are highly flammable, and help to fuel the fires that are critical to the forest's reproduction. The tree's thick bark, large seed size, and slow growth during its early years enable longleaf to thrive in these fire-prone areas.

Q: How would you describe the longleaf pine's growth cycle?

A: If other southern pines are sprinters, achieving height growth quickly, the longleaf pine is more like a long distance runner. The tree germinates quickly, but puts most of its growth below ground in the form of a long taproot. For the first few years of its life, a longleaf pine seedling huddles low on the ground and looks like a clump of grass. It continues to grow slowly for the first seven years of its life, but then spurts quickly, growing four or five feet in height each year. It begins to bear cones when it is about 25 years old, and it can live for about 500 years.

Q: Why did you decide to write about the longleaf pine?

A: It really grew out of an interest in the naval stores industry. Tar making and turpentining were major industries in North Carolina in the 18th and 19th centuries, and very colorful ones. Yet I couldn't find anything written about them that was easily accessible to the ordinary reader. So I said, "why not write a book about turpentining?" Well, after doing some research I began to realize I couldn't write about the industry without knowing something about the tree and the forest. And from there it just grew to embrace the ecosystem, and the critters and plants, and then the history of the management of the forest.

Q: Would you agree that your book is as much about American and southern history as it is about natural history?

A: Human history takes place in a physical setting that's not just a backdrop to what occurs there but is a material cause of it. I'm not a historian, but I bet you can make a strong argument that you can't understand southern his-

(See Understanding, page 8)

The Saga of The Bruce 2005

By Marguerite Dierauf

The Bruce beckoned and we set out
To see what this place was all about.
We arrived at Wildwood fresh and eager
And found the accommodations to be a bit meager.

A rickety cabin on cinderblocks sat.
It teetered and tilted and that was that.
The screens were not exactly tight
And the mosquitoes in there gave us a fright.
But the water was hot and the shower OK,
So we decided that we would stay.

The first day out was very hot
So we went to the island called Flowerpot.
We rode the Blue Heron, a good sized boat,
But when it got shallow we had to get out
and into a yellow thing made of rubber,
not so easy for an old land lubber!

The rain started up and we got wet,
But we ate our bag lunches undaunted yet.
We walked that island and saw lots of good stuff,
Some folks can never get enough.
Some of us had had our fill
And awaited the return, and Odyssey's thrill.

Back to Wildwood and our own little shack,
It looked pretty good when we got back.
Dinner was good and dessert, even better.
(We won't follow our diet down to the letter.)

The rest of the days seemed like one,
Each one filled with adventure and fun,
We swatted mosquitoes and stepped over snakes,
Ever willing to do what it takes.
In hot pursuit of orchids so fair
That we all knew were out there somewhere.

We trudged and crawled through fens and bogs.
At the end of the day we looked like frogs.
We shivered and sweated and stayed in good spirit.
Saw tons of flowers, there's nothing to it.

A new one was found by Alma one day.
She didn't let experts get in her way.
A Bluet is what the others may think,
But how can it be when the color is pink?
"It's a Pinket!" she cried with evident glee.
And we all decided to just let it be.

It was critters that Helen liked to pursue,
So she found us two rattlers and a leopard frog too.
Madeline was good at climbing up high
She scaled the rocks while we stood by.

Jan was the birder, she knew all the sounds.
She also discovered where the queen abounds.
Nicky and Stan led us to the flora,
But Pat led us to the ice cream "stora."

Photographers were busy all the while
Each one having his very own style.
Don on his knees, rear in the air,
Ben, belly down most everywhere.
Gaylan's style combined the two.
We never knew what he would do!

A single camera would do for most,
But Pat always required a host.
Three cameras hung around her neck
And her aide stood by awaiting her beck.

Elaine was the ever efficient scribe
And Stan kept her close, by his side.
She arranged a driver for every car.
Without her we wouldn't have gotten far.

Some of the group were raucous and loud
But Arlene's dignity made us proud.
Marguerite and Owen were quiet and meek.
Even so, they enjoyed the week.

Tom studied every plant that grew
And added sixty to the ones he knew.
He wished every day had lots more hours.
He never tires of seeing flowers.

Owen and Pat like to go
He flies his very own plane you know.
He's known to all as a flying physician
But we also know him as a great musician.
He played his bagpipes for us one night
And we all thought he was "outta sight."

The final day came all too soon.
We'd become quite fond of our little room.
Appreciation of our leaders had reached a peak.
What a marvelous job they'd done that week!

From those dear little cabins we sadly departed,
For we had to get back to where we had started.
We bid farewell to each new friend,
Sad that good things have to end.

The Bruce had given us memories galore,
And we hoped that one day we'd come back for more.

Tom & Marguerite Dierauf, Jefferson Chapter, joined our Canadian trip to see flora missed on a previous visit to the Bruce. Tom's sharp eye and professional forester's knowledge enriched our field trips. Other participants were: Owen & Pat Brodie; Don Buma; Ben & Arlen FitzGerald; Alma Kasulaitis; Gaylan & Jan Meyer; Madeline Mowery; Helen Walter; Stan & Elaine Shetler and Nicky Staunton, co-leaders.

•Norfolk Botanical Garden

(Continued from page 2)

landscaped acres that were encompassed by five miles of walking trails.

To show the city's support for the garden, the name was changed in 1955 from Azalea Garden to Norfolk Municipal Gardens. The city also selected Norfolk Municipal Gardens as the scenic backdrop of the International Azalea Festival, an annual festival that celebrates the member countries of the North Atlantic Treaty Organization (NATO).

On February 18, 1958, the Old Dominion Horticultural Society took over maintenance of Norfolk Municipal Gardens and changed the name to Norfolk Botanical Garden. The Norfolk Botanical Garden strived to "promote for the people of Tidewater, Virginia, a garden that will always remain an inspiration, and lead the home gardener to greater enjoyment and accomplishment in his own yard". . .and to "present rare and exotic plants in variety only exceeded by few other sections of the world" (NBG mission statement, 1958).

Various changes were made throughout the garden over the following years, including improvements for the Azalea Festival and construction of the waterways for the popular boat rides through the garden. Other additions throughout the 1950s and 1960s focused on increasing the variety of collections in the garden. A Japanese Garden, a Desert Plants Garden, a Colonial Garden and a Rose Garden, which featured All-America Rose Selection winners, were among the new gardens constructed. Other new features to the garden included NATO Bridge, the Water Cascade, the Terrace Garden, NATO Tower and Statuary Vista, which was filled with statues from around the world.

By the 1960s the garden had 1,120 trees, 9,649 shrubs, 10,377 perennials, 8,698 ground covers, 23,830 bulbs and 17,900 annuals. With increased attendance and public support, the garden continued to expand. A Holly Garden was planted that received official recognition from the Holly Society of America. A Sunken Garden with a reflecting pool and a tram to take visitors on guided tours were also added.

Today, theme gardens include the Bristow Butterfly Garden, the Sarah Lee Baker Perennial Garden, the Virginia Native Plant Garden and the Four Seasons Garden. Each of these gardens allows guests to see a variety of plants—from the cultivated to the wild.

Norfolk Botanical Garden provides an educational experience while entertaining visitors of all ages. More than 20,000 children and adults are reached every year at the garden by programs, classes and Norfolk Botanical Garden lectures. Volunteers provide more than 17,000 hours each year working in all aspects of the gardens operations. From its humble beginnings as a WPA project to its status as a nationally recognized garden that attracts visitors from around the world, Norfolk Botanical Garden has experienced amazing growth.

The information for this article came from the Norfolk Botanical Garden's website at www.norfolkbotanicalgarden.org.

PROXY BALLOTS ARE IMPORTANT!!

Don't forget to mail or email your proxy ballots in to the VNPS office before the annual meeting. We need your votes in order to achieve a quorum at our annual business meeting. Look for the ballot insert in this newsletter. Use one ballot for each VNPS member in your family.

See the address label for your membership expiration date

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Bulletin of the Virginia Native Plant Society

Understanding longleaf habitat key to its future

(Continued from page 5)

tory without understanding the landscape and the natural communities that are part of this landscape. Forests, rivers, soils—these are the raw materials out of which people make their lives and their histories. Longleaf pine forests, for example, were part of the complex reasons that moved the English to settle Virginia, because the English realized that the trees could be used to make tar, which was essential for their navy. To understand why these trees were so rich in the resin that made tar is to add an other dimension to the understanding of human history in America, and southern history in particular.

Q: What makes the longleaf pine forest so complex and so difficult for ecologists to understand?

A: I think ecologists would say that all ecosystems are complex and difficult to understand because they are made up of many plant and animal species that interrelate in complex ways. It can take a long time for a scientist, for example, to understand the life history of a single plant and the moth or butterfly that pollinates it. Learning how individual wildlife species are peculiarly adapted to open longleaf forests that burn a lot has taken time. An ecosystem is made up of thousands of interrelationships and adaptations like these.

Q: Is the longleaf pine threatened with extinction?

A: When I began writing *Looking for Longleaf*, my sense was that longleaf pine was doomed, or at least that was what most of the biologists and ecologists I talked to said. I was surprised to find that my story line changed in the 15 years it took me to write the book. I can't say that the pessimism has totally lifted, not with the growth that the South is undergoing and the pressures on its forests, but there's a lot more energy in the longleaf world than before. There are landowners actually planting longleaf. People are beginning to see that it can be an economic asset. Laws protecting endangered species such as the red-cockaded woodpecker have forced the Forest Service to be better stewards of their longleaf holdings, and the Forest Service has embraced an ecosystem management model that looks very promising. There's a group, the Longleaf Alliance, that is working with private landowners all around the South who want to grow longleaf. These things don't exist 15 years ago.

Q: What else can be done to save the longleaf pine?

A: I don't think the issue is whether longleaf pine will be saved. There will most likely always be remnant forests of longleaf in the South. At the very worst, they'll be like zoos; people will visit just to see what a longleaf pine tree or a forest of them looks like. The real issue is whether longleaf will be able to continue to function as an ecosystem—whether fires will still run through these forests and maintain them in good condition, whether the interconnectedness of the plants and animals will continue or whether some individual species will drop out and threaten the whole edifice.

What we can do, and it's something I'm hopeful about, is continue to use the publicly owned longleaf pine forests in our national forests and military lands wisely, and give private landowners incentives to grow longleaf so they can make money from it. Manage it well so it reproduces itself and keeps all of the connections. And also, spread the word: here's a native forest in trouble, possibly making it back to health, right here in the South. Kids don't have to study the rainforests, as biologically diverse and important as they are, to study basic environmental lessons. We have incredible environmental lessons to be learned right here in our backyard.