Winter 2014

Vol. 33, No. 5
ISSN 1085-9632

Bulletin

A publication of the VIRGINIA NATIVE PLANT SOCIETY
Conserving wild flowers and wild places
http://www.vnps.org

Society opposes natural gas pipelines across state

Since this summer, natural gas pipelines have been grabbing headlines in Virginia. At issue is that some people see natural gas as a cleaner alternative to traditional, coal-burning electricity-generating facilities and that new technology has allowed energy extraction companies to free large quantities of natural gas trapped miles underground. Most of these potentially profitable natural gas reserves lie deep within layers of Marcellus shale underneath much of West Virginia, western Pennsylvania, and western Virginia. Natural gas customers, on the other hand, are along the coast of Maryland, Virginia, and North Carolina. Logistically, then, the problem becomes how to transport billions of cubic feet of natural gas from the fracking wells to customers.

To make money, gas supplies must be connected with customers, even customers overseas. Many, including the governors of Virginia and West Virginia, have decided that pipeline projects are the answer, with a fracking boom in the Allegheny Mountains extracting and processing natural gas so quickly that there is a glut on the market. Three proposed interstate pipelines would cross Virginia. The Western Marcellus Pipeline, the Mountain Valley Pipeline, and the Atlantic Coast Pipeline are in various stages of planning. The latter two are in the prefiling stages with the Federal Energy Regulatory Commission and have been endorsed by Governor Terry McAuliffe.

Of the three, the 550-mile, 42-inch, high-pressure Atlantic Coast Pipeline proposed by Dominion Resources and three other energy partners is probably the most worrisome and the one that poses the most substantial threat to the natural resources of West

(See Pipelines, page 3)

A cow knob salamander peers out from leaf litter on Shenandoah Mountain. The salamander lives in the path of a proposed natural gas pipeline. (Photo by Malika Davis)

Newly released GW forest plan lauded by conservationists

After years of anxious waiting for the release of the George Washington National Forest management plan, the document was finally released Nov. 18, with results that mostly pleased environmental groups and community governments throughout the region.

Perhaps the biggest praise for the document revolved around the fact that the plan makes the 1.2-million-acre national forest off-limits for oil and gas drilling, except for a small portion of the forest already under gas lease (10,000 acres) or subject to private mineral rights (167,000 acres). Because of their legal status, those 177,000 acres were never a part of the consideration on whether or not energy development would be allowed in the forest.

The George Washington National Forest is the largest national forest in the eastern United States and is used recreationally by more than a million people a year. Comprising the headwaters for the James, Shenandoah, and Potomac rivers, it also protects the direct drinking water supplies for approximately 329,000 people in the Shenandoah Valley and, indirectly, more than 4.5 million people. Much of the forest watershed provides drinking water to Washington and Richmond, and the rivers it feeds enter the Chesapeake Bay.

The forest is known for its biological diversity. Within the forest are 40

(See GW Forest Plan, page 6)

See the Society's Annual Meeting highlights, pages 4-5.

From the president

Annual Meeting provided enjoyment

What a fabulous weekend we had at the Beach for the annual meeting hosted by our South Hampton Roads Chapter! Many thanks go to Kathleen and Steve Stasulis, Beth Richardson, Brenda Radford, and all the field trip leaders, speakers, and volunteers for this successful meeting. The weather was lovely, and Virginia Beach's Zone 8a climate ensured that there were plenty of blooms well into October. In keeping with the theme of "It's the Water," our base hotel provided a magnificent view of the Chesapeake Bay and the Chesapeake Bay Bridge-Tunnel. Most all of the field trips featured water—the ocean, bays, rivers, swamps and lakes.

Harry and I were fortunate to enjoy three days' worth of field trips. While the annual meeting is usually limited to just 1½–2 days of field trips, this year we decided to add another day for those we could accommodate. Who knew there would be such demand that we had to limit participation? We were aware that some trips would be very popular, so by offering them twice, we thought that more people would be able to take advantage of the opportunities.

A visit to False Cape State Park had been on my to-do list for some time, and having naturalist Vickie Shufer and our commonwealth's eminent vegetation ecologist Gary Fleming to lead was a rare treat. It's a challenge just to enter the park with its limited access through Back Bay National Wildlife Preserve, so our tour group was constrained by the capacity of the Terra Gator, our transport into the park. Some of my personal highlights were colonies of ladies' tresses (*Spiranthes cernua* var. *odorata*), delicate meadow beauty (*Rhexia nashii*), a gorgeous specimen of beautyberry (*Callicarpa americana*), tiny sundews, and magnificent live oaks (*Quercus virginiana*) with Spanish moss (*Tillandsia usneoides*). And what about those seaside goldenrods, (*Solidago sempervirens*), with their bright-yellow blossoms decorating the dunes! I also enjoyed eating the ripe acorns of live oaks and delectable muscadine grapes. Our charming lunch spot was the porch of the Wash Woods Environmental Education Center at the end of a peninsula with lovely views of the water.

Saturday we stayed close to the hotel by visiting Virginia's most popular state park, First Landing, originally known as Seashore State Park, near Cape Henry. Its botanical distinction is that it is the northernmost East Coast location where subtropical and temperate plants can be found growing together. Forester Mike Aherron and Chapter President Beth Richardson led our tour of this enchanting park, with boardwalks through incredible bald cypress swamps and trails through maritime forests. Groundcovers of Indian pipe (*Monotropa uniflora*) and partridge berry (*Mitchella repens*) were prolific. While this park is well used, it is still amazing to me that many tourists to the boardwalk area of Virginia Beach are unaware of this gem.

Sunday's trip to the Great Dismal Swamp allowed me to check off another must-see site in Virginia. I wasn't quite sure what to expect at this famous swamp, but it was different from anything that I had envisioned. Since there was no conflict with any hunting on Sunday, we were able to take the auto tour route through the main railroad ditch to Lake Drummond. Far from appearing swampy and wet to my untrained eyes, the forest simply seemed green. But the ground was deep peat. Fires in recent years burned a long time underground and produced thick smoke in the nearby Hampton Roads area. The Atlantic white-cedar (*Chamaecyparis thyoides*) was adversely affected by the fires, but the refuge staff is seeking to return it to its former prominence. The ditches were full of botanical treasures, with brilliant blue gentians eliciting a lot of interest. It was difficult to botanize from our caravan of cars, but we were able to stop a few times along the way to Lake Drummond. In addition to botanical discoveries, we learned that the swamp had a fascinating cultural history and was home to Maroons, or escaped slaves, and was an important stop on the Underground Railroad. Lovely Lake Drummond, one of only two natural lakes in Virginia (the other being Mountain Lake), was our breezy lunch stop. A shallow (about 4 feet), dark-colored lake, it is rich in tannins. Though we saw no eagles on our visit, we did spy an eagle nest high in a tree on the other side of the lake.

At our annual business meeting, we voted in some new members of our board of directors, John Magee as Horticulture Chair, and Charles Smith as Registry Co-chair, and wish them much success. We bid adieu to Kim Strader, who served three terms as Horticulture Chair, and thank her for her service for those nine years! She maintained the native plant nursery source list and fielded questions about growing natives. We also thank John Dodge, an amazing field botanist and a true gentleman, for his years of service as Registry Co-Chair as he steps off the board.

Our annual meeting is always a treat and, besides enriching our botanical knowledge, affords us a chance to interact with fellow botanical enthusiasts from around the commonwealth. Please consider attending next year's meet-

Your president, Nancy Vehrs

From your Natural Heritage Program

How we determine a plant's status for protection

Our last contribution to this newsletter talked about some of our major conservation initiatives. The heart and soul of these initiatives and all of our work here at the Virginia Natural Heritage Program is the protection of natural heritage resources, defined in the *Code of Virginia* as the habitat of rare, threatened, or endangered plant and animal species, rare or state significant natural communities, and similar features of scientific interest benefiting the welfare of the citizens of the commonwealth. Natural heritage resources and their ranks drive all our work, from inventory to stewardship and everything in between. Your first question, and one I've been asked for the past 34 years, may be "How do you know what native plants are rare and included as natural heritage resources?" Let's talk about that!

Our first step, and one repeated across the natural heritage network in various forms, is to gather a list of all plants, and we have done this over the years with guidance from the (now digital) *Atlas of the Virginia Flora,* a fantastic resource found here: http://www.vaplantatlas.org/. The Atlas, more than 30 years in the making, maps the counties of occurrence for all native and naturalized vascular plants. A consortium of most of Virginia's best professional and amateur botanists known as the Virginia Botanical Associates has developed and maintains this incredible work in progress. Since 1986, our staff botanists (we have had only four: Gary Rouse, 1986–1988; Chris Ludwig, 1988–1997; Steve Killifer 1998–2001; and Johnny Townsend 2001–present) have used the list and counties of occurrences from the *Atlas* to look for plants that are native and possibly rare.

If the rarity of a species identified from the *Atlas* is supported by the literature and our botanist's experience, the plant is added to the rare plant list maintained by the Natural Heritage Program (find it here: http://www.dcr.virginia.gov/natural_heritage/documents/plantlist14.pdf). As you review the list, you will notice two codes that tell the story of a plant's biological status, the G (global) and S (state) ranks. They work the same way; they are a scale of rarity or endangerment from 1 (rarest and most imperiled) to 5 (common to abundant and secure). If a species has a rank of 1, it is usually believed to occur only at 1–5 sites; 2 at 6–20 sites; 3 at 20–100 sites; 4 at 100–1,000 sites; and 5 at more than 1,000 sites. Other factors are considered such as population trend, sensitivity to disturbance, number of populations permanently protected and managed, and habitat imperilment; these may increase or decrease a species' rank. In addition to the 1–5 rankings, following the G and S, a few other codes are occasionally used such as H (historic) or X (extirpated). This same ranking system, developed and maintained by Nature Serve, is used by all 82 member natural heritage programs.

So consider the red maple (*Acer rubrum*). It is a G5 plant, meaning that it is common and secure globally; it is also an S5 species, common and secure in Virginia. How about the beautiful white trout lily (*Erythonium albidum*)? This is also a G5, but an S2, with only about a dozen sites in the state, along the Potomac and its major tributaries. Sometimes we use hybrid ranks. For example, Rand's goldenrod (*Solidago randii*) has a state rank of S2S3—it straddles the line between S2 and S3, with about 20 sites, many but not all of which are protected and secure. Almost every winter, we revise the rare plant list as our understanding of Virginia's native plants and their status evolves.

As you look at our current rare plant list with its 613 plant taxa, you will notice that it doesn't have any S3, S4 or S5 species. These plant species are too common to be considered rare, although we do keep our S3 plants on a watch list and keep tabs on their status. That still leaves us with the 613 rare plant taxa, and for every one of these plants we have mapped all populations that we know of in the commonwealth. These populations and their habitats make up a large portion of our natural heritage resources. Everything we do, from buying land, advising landowners, reviewing projects, encouraging our conservation partners, and managing our lands, is done with regard to our rare plant sites, the locations of our other mapped natural heritage resources (animals and communities) and their ranks.

—Tom Smith, director,
Virginia Natural Heritage Program

•Pipelines

(Continued from page 1)

Virginia and Virginia. Construction will require a temporary right-of-way of as much as 150 feet to allow digging of a 10-foot-deep trench to lay the pipe, followed by a 75-foot permanent right-of-way. This broad scar in the landscape will cut through the Monongahela and George Washington national forests, cross the Blue Ridge Parkway and the Appalachian Trail, cut through karst formations in Highland and Augusta counties, cut through the headwaters of the James, Shenandoah, and the Potomac rivers, go up and over eight peaks of 3,000 feet or more in Highland County, and cross the historic James River in Nelson County as well as hundreds of other smaller rivers, creeks, and wetlands. Many of the streams harbor some of the best native trout populations in Virginia. The permanently cleared easement will open up a major pathway for invasive plant and animal species, thus affecting many unique and special habitats.

(See Pipeline concerns, page 6)

Annual Meeting

Coastal landscapes provide treat for visitors

There are many different experiences at each annual meeting, since we all head out on different field trips, with different leaders and destinations. It is usually hard to decide among the interesting places that every chapter is able to show us. This year instead of two great field trips, some of us were lucky enough to have three.

My first day was spent at False Cape State Park, one of the more inaccessible state parks I've been to, so I really appreciated being on this tour. We rode through Back Bay Wildlife Refuge on an open bus, while our leaders, Gary Fleming and Vickie Shufer, told us a little about the place we were headed to and pointed out dense, showy patches of the smooth bur-marigold (*Bidens laevis*). Before I took a step from the visitor center, I was seeing new plants, Spanish dagger (*Yucca aloifolia*) in its northernmost location and grass-leaved golden-aster (*Pityopsis graminifolia*), very common but not to this out-of-towner. We walked through a maritime forest and then dunes with live oak (*Quercus virginiana*) embedded in sand so that they looked like shrubs, finally reaching the last row of dunes with sea oats (*Uniola paniculata*) and blooming seaside goldenrod (*Solidago sempervirens*). We found bobcat tracks among the ghost crab holes and skate egg cases, stopped by an interesting interdune swale, and then admired some sundews (*Drosera intermedia*) on the return path. After lunch we visited a maritime bog and saw a coyote, though I missed the cottonmouths seen by others.

The following day we took a beautiful trail through First Landing State Park, with Mike Adhern and Beth Richardson leading. The trail was part boardwalk that traversed a bald cypress (*Taxodium distichum*) and tupelo (*Nyssa aquatica*) swamp and part forested dunes with pines and mixed hardwoods. The swamps were lovely, with red leaves on the tupelo and Spanish-moss (*Tillandsia usneoides*) swaying from the branches. A couple of trees were decorated with resurrection fern (*Pleopeltis polypodioides*). Along the sandy paths, we saw many Indian pipes (*Monotropa uniflora*) in both pink and white, netted chain fern (*Woodwardia areolata*) and shrubs typical of these coastal forests like red bay (*Persea palustris*) and devilwood (*Cartrema americana*, formerly *Osmanthus americanus*). Another interesting plant was the small or switch cane (*Arundinaria tecta*).

A field trip group at the Society's Annual Meeting poses for a photograph at False Cape State Park in Virginia Beach. (Photo by Gary Fleming)

On my final day, we took a car tour through part of the Great Dismal Swamp with leader Penny Lazauskas. Right away we found Catesby's gentian (*Gentiana catesbaei*) in clusters in the ditches along the road. We took a brief walk through a swamp chestnut oak (*Quercus michauxii*) grove with an understory of sweet pepperbush (*Clethra alnifolia*). Another trail led to a 900-year-old bald cypress, and we also saw several ferns and a bladderwort growing below a bridge. We could not get to the plant to find out which one it was. The trip continued to Lake Drummond, and while it was beautiful, there was a fierce, cold wind, and we shivered through our picnic. The road to the lake passed through an area that has burned twice in recent years and is now open ground. Interestingly, the peat had burned, and the toppled trees were burned at the roots rather than their tops. The wood that lay in the ditch provided good spots for turtle sunning.

It is quite a treat for me to see these landscapes, since I live in the northwestern corner of the state, many hours' drive from these interesting locations. And as always, seeing many of you is a great pleasure of our meetings. The dinners on Friday and Saturday were tasty, and the talks that followed them highlighted some good progress that has been made in involving residents in water issues and improving the quality of the water in the coastal streams and the Chesapeake Bay. Many thanks to Steve and Kathleen Stasulis, Chapter President Beth Richardson, and all who helped with this year's VNPS Annual Meeting in Virginia Beach.

—Sally Anderson, VNPS 2nd Vice President

Coastal habitats showcased at Annual Meeting

• GW Forest Plan

(Continued from page 1)

species of trees, 2,000 species of shrubs and herbaceous plants, 78 species of amphibians and reptiles, 200 species of birds, 100 species of freshwater fishes and mussels, and 60 species of mammals. There are 53 species of federally listed threatened or endangered plant and animal species. The forest has 2,340 miles of perennial streams.

Three years ago the U.S. Forest Service released a draft plan that proposed prohibiting horizontal gas drilling (fracking) but still made most of the forest available for vertical drilling. Even though the draft would have allowed the continuation of vertical drilling, some energy groups called foul on the proposed ban on horizontal drilling, claiming this would set what they perceived to be a bad precedent. On the opposite side of that, however, the threat of opening the forest up to wide-scale, industrialized drilling raised concerns from 75,000 citizens, community groups, U.S. senators Tim Kaine and Mark Warner, as well as 11 local governments. In the end, the Forest Service listened to the citizens and the communities surrounding the forest and banned not only horizontal drilling, but vertical drilling as well.

"This decision protects the existing uses and values of the special George Washington National Forest," said Sarah Francisco, senior attorney with the Southern Environmental Law Center. "As a native Virginian who grew up in the Shenandoah Valley, I'm pleased that the U.S. Forest Service has done the right thing and recognized that the George Washington National Forest—a beloved place for our entire region—deserves protection."

The release of the new forest management plan stating unequivocally that the George Washington National Forest is off-limits to industrialized energy development calls into question the compatibility of Dominion's proposed 550-mile, 42-inch high pressure natural gas line that would cross the forest in Highland, Augusta, and Nelson counties. (See related article.)

Making the forest off-limits to energy development was not the only cause for cheering from environmentalists with the recent release of the plan. The plan also officially recommends that Congress begin working on legislation to authorize the proposed 90,000-acre Shenandoah Mountain area as a National Scenic Area. Such a recommendation is the necessary first step in what could be a long process in permanently protecting the largest, most unfragmented tract of national forest land east of the Mississippi River. Finally, the plan recommends an expansion of the Ramsey's Draft Wilderness to the north and east and a new 9,500-acre Little River Wilderness in the center of the National Scenic Area.

The Shenandoah Mountain proposal, now officially endorsed by the Forest Service, was developed after years of collaboration from a variety of groups. Those diverse national forest stakeholder groups found common ground and forged an unprecedented agreement that recognizes the importance of all that is special about Shenandoah Mountain and several other special wild areas. Groups that don't ordinarily work together and that are often in opposition, were able to come together, compromise, and support each other's goals for how the George Washington National Forest should be managed. This unusual collaboration resulted in an agreement signed by 14 groups that was submitted to the forest planners as joint comments on the draft management plan in October 2011.

The stakeholders' agreement, among the first of its kind in the eastern United States, would protect 90,000 acres of Shenandoah Mountain as a combination of National Scenic Area and Wilderness, Beech Lick Knob as Wilderness, and add several additions to existing Wilderness areas. It espouses large-scale landscape planning using a "tiers of management" approach.

Although environmental and conservation groups are generally pleased with the new plan, some groups, like Wild Virginia, worry about the amount of timber production that will be allowed under the new plan. Such timber management practices could affect threatened species such as the endangered Indiana bat that would lose 23,000 acres of potential habitat.

—*Nancy Sorrells, VNPS* Bulletin *Editor*

• Pipeline concerns

(Continued from page 3)

Perhaps the biggest concern to those who work to protect the natural areas are the many miles of pipeline that would cross national forest land in Highland, Augusta, and Nelson counties. In a nine-page letter to the supervisor of the George Washington National Forest, Greg Buppert, a senior attorney with the Southern Environmental Law Center, expressed his firm's "grave concerns" over the proposed route, noting that "the mature, undeveloped forests in this area make [the pipeline] fundamentally incompatible with a major infrastructure development project."

An important concern is that the proposed route would cross through the southern portion of the Shenandoah Mountain area recently accepted into the George Washington National Forest Management Plan. The construction corridor would specifically endanger the Cow Knob salamander, mentioned in Buppert's letter, likely causing the death of salamanders, fragment the salamander habitat, and violate the 1994 Cow Knob salamander conservation agreement that permanently protects the salamander and its habitat. This species of salamander is found only here.

(See Pipeline path, page 9)

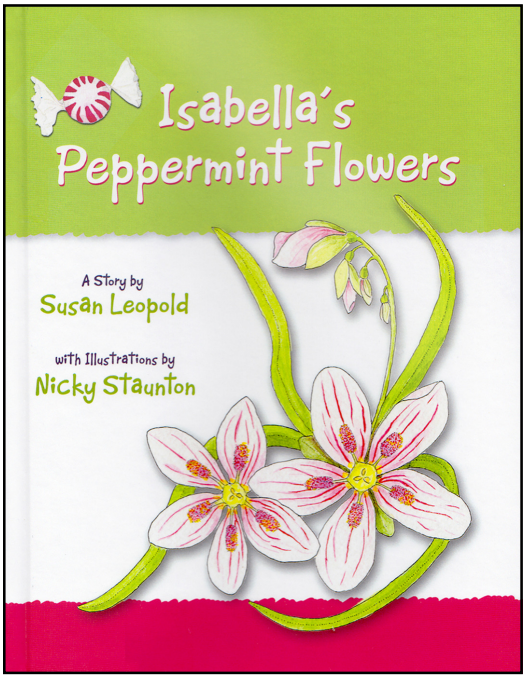
'Peppermint flowers' bloom in Leopold's new book!

Susan Leopold's children's book about spring ephemerals and Virginia botany is now available! *Isabella's Peppermint Flowers* takes us on a journey in nature with a woman and her two young daughters, Isabella and little Flora May. Every spring they go walking on their farm to look for the wildflowers that bloom so beautifully and then disappear for another year. Foremost among these is, of course, Spring Beauty, which reminds the girls of peppermint candy. The "peppermint flowers" are the girls' ticket to John Clayton and Mark Catesby, field work and nature journaling, American Indians and early botany, ants and elaisomes, and pollinators.

In 2011 Leopold received a Ph.D. in environmental studies from Antioch University. With a dissertation titled *Dormant Ethnobotany: A Case Study of Decline in Regional Plant Knowledge in the Bull Run Mountains of Virginia,* she did not have to make a great leap to get to *Isabella*. "The idea came to me one day as I was driving to the library where I worked at the time," she said. The botanizing takes place at Fiery Run Farm, and "Fiery Run is a stream that runs through our property," where Leopold lives in Fauquier County with her two daughters (named, you guessed it, Isabella and Flora May!).

But the story goes further, offering information for use in the classroom and meeting Virginia standards of learning. "The book is especially targeted to the fourth grade," Leopold said, "and it has related SOL components, with quotes from historic texts, Virginia history, drawing, and plants." But it's also clear that Isabella and Flora May do not suffer from nature deficit disorder, a syndrome identified by Richard Louv in his best-selling *Last Child in the Woods.* So teachers (and parents) can also use the book to encourage a sense of wonder regarding nature, a more involving way to learn.

Added information is provided in a thorough glossary, which will be helpful to the young reader, because Leopold doesn't shy away from important botanical terms. And good for her! Words defined in the glossary—like *elaisome* and *spring ephemeral*—are printed in red in the text.



The book was several years in the making, and Leopold worked it in

(See Peppermint, page 8)

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The *Bulletin*
ISSN 1085-9632
is published five times a year
(Feb., April, June, August, Nov.)
by the
Virginia Native Plant Society
Blandy Experimental Farm
400 Blandy Farm Lane, Unit 2
Boyce, VA 22620
(540) 837-1600
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Nancy Vehrs, President
Nancy Sorrells, Editor

Visit high-elevation habitat at Virginia's Mountain Lake

Johnny Townsend, staff botanist, at the Virginia Division of Natural Heritage and VNPS board member, will lead a two-day visit to the Mountain Lake area on July 31 and August 1. One of Virginia's two natural lakes, Mountain Lake is surrounded by thousands of acres of forest and is located in north Giles County at an elevation above 3,800 feet. The region's diverse topography influences sharp ecological gradients including a wealth of different habitats ranging from ridge tops to saturated bogs and waterfalls. Among the many interesting plants we could see is Bentley's coralroot, *Corallorhiza bentleyi*, a very rare orchid. Space will be limited, with registration likely occurring in early or mid-May. More information will follow in future newsletters.

Catesby's Trillium

Fire Pink

Great Smoky Mountains trip in April

Have you been longing to see the fabulous spring wildflowers in the Great Smoky Mountains? By popular demand, the Virginia Native Plant Society will reprise its 2013 trip with its five-day foray the week of April 12, 2015. Organized and led by Sally Anderson and Betty and Butch Kelly, the trip will be limited to 22 participants. At least five species of trillium, carpets of fringed phacelia (*Phacelia fimbriata*), fire pinks (*Silene virginica*), Fraser's sedge (*Carex fraseriana*) and much, much more will delight you with their blooms.

Details are not yet available, but if you would like to be placed on a list to be notified as soon as they are, please send a note to vnpsofc@shentel.net.

Purple Phacelia

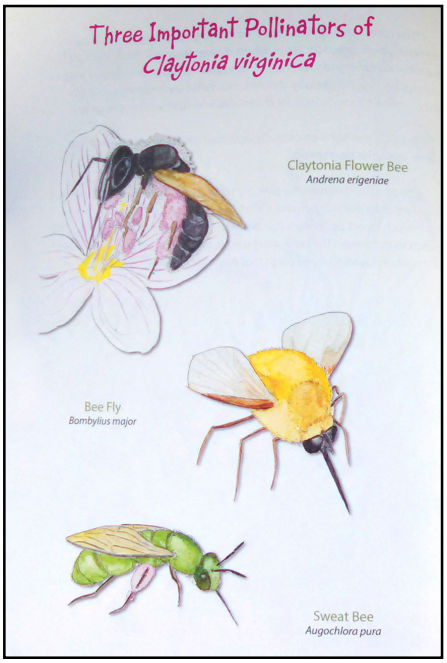
•Peppermint

(Continued from page 7)

alongside her day job. She is executive director of United Plant Savers (united plantsavers.org), whose mission is "to protect native medicinal plants of the United States and Canada and their native habitat while ensuring an abundant renewable supply of medicinal plants for generations to come," as its website reads. Nicky Staunton, former president of the Virginia Native Plant Society, illustrated the book with lovely watercolors. Marion Lobstein, a charter member of the VNPS and professor emerita at Northern Virginia Community College, Manassas, was science adviser. I provided editorial assistance.

Order *Isabella's Peppermint Flowers* for $18 at floraforkids.com. Profits (about $5 per copy) will be donated to the Flora of Virginia Project. As Leopold writes in her epilogue, "This story became a vision to plant a seed, a children's book that could be a spark to teach the basics of botany, this historical context of botanical pioneers in the state of Virginia, and to highlight the role of one single native plant in the ecosystem." It promises to be just such a spark.

—Bland Crowder



Interior illustrations inside Peppermint Flowers *by Nicky Staunton.*

VIRGINIA NATIVE PLANT SOCIETY

The view from Shenandoah Mountain looking west across the Allegheny Mountains where the pipeline will cross. Many worry that building a pipeline across these steep mountain slopes will create severe environmental impact.s (Photo by Jonathan Drescher-Lehman)

• Pipeline path

(Continued from page 6)

The argument against running the pipeline through the national forest was strengthened recently with the release of the George Washington National Forest's long-awaited management plan. That plan prohibits industrial energy development in the forest. The construction and existence of this pipeline would of necessity then be incompatible with the management plan.

Although it does not cross the national forest, the proposed 300-mile, 42-inch natural gas pipeline that would begin in West Virginia, crossing through Giles, Pulaski, Montgomery, Roanoke, Franklin, and Henry counties before terminating in Pittsylvania County, also presents many environmental concerns. As proposed, this pipeline would intersect Virginia's Mill Creek Springs Natural Area Preserve. "The 222-acre preserve consists of limestone hills drained by Mill Creek," reads the Virginia Department of Conservation and Recreation's website. "This preserve supports portions of two natural heritage conservation sites, a globally rare Red Cedar–Chinkapin Oak dolomite woodland community, several globally rare invertebrate species and provides water quality protection for Mill Creek."

In addition to Mills Creek Springs, the Mountain Valley pipeline would run about 2.5 miles from Bald Knob–Rocky Mount conservation site and intersect many conservation easements including the North Fork Roanoke River Nature Conservancy Preserve, a cave conservancy and—like the Dominion pipeline—the Blue Ridge Parkway.

A number of localities, including Nelson, Montgomery, Roanoke, and Augusta counties and the city of Staunton, have passed resolutions opposing or expressing grave concerns over the pipeline projects. A number of groups along both routes have formed to oppose the pipelines. Strongest among those have been Friends of Nelson , the Augusta County Alliance, and the Highlanders for Responsible Development.

Recently the board of directors of the Virginia Native Plant Society passed, "in accordance with its mission to protect the natural areas of Virginia," a resolution opposing the Atlantic Coast and Mountain Valley pipelines. In its full letter of opposition the board noted that "these two pipeline projects propose to pass through some of the most biodiverse regions that occur in the United States. They are recognized as 'hot spots' by both the Nature Conservancy and the Virginia Department of Conservation and Recreation's Division of Natural Heritage."

The full resolution and information about the pipelines is at vnps.org. Society Conservation Chair Marcia Mabee Bell has been following these projects and has written about them. Following passage of the resolution, the VNPS board also voted to join the Allegheny–Blue Ridge Alliance (ABRAlliance.org), a consortium of more than 30 organizations from West Virginia, Virginia, and North Carolina concerned about the Atlantic Coast Pipeline.

—*Nancy Sorrells, VNPS* Bulletin *Editor*

The pipeline path in the George Washington National Forest. (Photo by Emma King)

Flora Project update: There's an App for that!

As we at the Flora of Virginia Project turn our sights to education and outreach, the Flora App is our first priority. We are talking with a developer as we tackle the question of how the App will link the user and taxonomic descriptions by means of a simple, graphic key (though the App will still include the traditional dichotomous keys!). Cliff Gay and Lonnie Murray are working hard to determine which characters are the most important and how to make description data available to the App. In the graphic key, as the user tries to identify a plant, the App will drop species from consideration if they don't match the descriptive choices the user makes. It's going to be the hit of the App. Which brings up an

… ***App Volunteer Op!*** We're looking for volunteers to begin in early 2015 to add these bits of data from the *Flora's* plant descriptions to the database. Basically, we will be using those descriptions to answer the App's questions about each plant structure for each species—3,164 of them.

For each species, an online data-entry form will provide the name of the structure or character (e.g., "flower color") and a blank for the descriptive value ("answer") for that structure. The volunteer will copy data (e.g., "pink") from the description (also displayed) and paste it into the blank.

A volunteer will need 1) broadband Internet access, 2) a grasp of plant structures and keys, and 3) comfort at the computer. If you're interested, you may want to do some math before you decide that this is for you: roughly calculate the number of characters for each species multiplied by the number of species. This is a long process, a significant time commitment even if we have lots of volunteers, and decidedly not sexy. It will, however, be the backbone of the graphic key, and volunteers will be acknowledged in the App.

The database will be simple and used online at a Windows or Macintosh desktop or laptop computer. Volunteers must attend a training session in Richmond (not yet scheduled).

If you are interested or have questions, please e-mail me at bland.crowder@dcr.virginia.gov or call 804-371-5561.

Fundraiser In October you probably received our appeal for your support as 2014 draws to a close. I want to take a moment to make the same appeal here. As you know well, the Flora Project receives no funding from the Commonwealth or from universities. All our funding comes from individuals and foundations. Now, following intensive work on publication and two years of speaking engagements and the Library of Virginia exhibition, we are revving up for Phase 2. While we are seeking grants to fund specific projects (and we note in our proposals the funding you, as a designated partner of the Flora Project, provided toward the App), we have a critical shortage of operating funds.

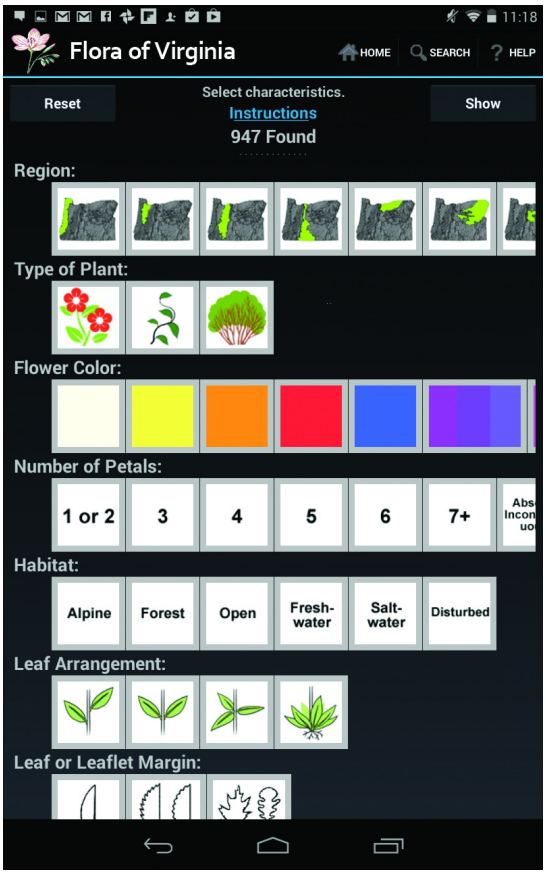
If you did not receive our brochure, please see our site, floraofvirginia.org, where you can download and print a PDF of the brochure, which includes a donation form. We would welcome your continued support. Thank you!

Traveling Exhibit hope you had a chance to see the traveling panel exhibit "Flora of Virginia" while you were at the Annual Meeting. The mobile version of our extensive 2014 exhibition at the Library of Virginia—which you paid for!—had its debut at the Norfolk Botanical Garden in October in time for the meeting. The attractive, accordion-style, graphic exhibit condenses the best of the big show into five two-part, two-sided panels (for a total of 20 panels).

The exhibit is making six-week appearances at libraries and museums around Virginia and is already booked through 2016! The exhibit opened on December 22 at the Middlesex County Public Library in Deltaville. For its full itinerary, visit our site.

If you'd like to have the exhibit spend six weeks at a facility near you, have someone at that facility contact Barbara Batson, manager of exhibitions, at the Library of Virginia, barbara.batson@lva.virginia.gov.

—Bland Crowder, executive director, Flora Project



A conception of how the Flora App's graphic key will probably look on your smart phone or tablet (based on a similar app for a different region). "Questions" from the app (FLOWER COLOR ["What color is the flower?"] or NUMBER OF PETALS ["What is the number of petals?"]) are answered by tapping the appropriate graphic square. The number of species (top, center; 947 here) decreases as each answer eliminates another chunk of species from the running.