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Bulletin

A publication of the VIRGINIA NATIVE PLANT SOCIETY

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Conserving wild flowers and wild places

Make plans now for the Annual Meeting

"Then and Now Along the James," is the theme for the Virginia Native Plant Society's Annual Meeting September 14-16 in Richmond. Headquarters for the meeting will be Wyndham Virginia Crossings, a lovely facility overlooking the site of the Civil War Battle of Yellow Tavern. Field trips will be planned throughout the area. Rooms are limited; there is no block of rooms saved. You are encouraged to make your reservations as soon as possible directly with Wyndham to receive our special room rate. Rates are per room, not per person, and include buffet breakfasts on Saturday and Sunday. (single, $109; double, $119; triple, $129; quad, $149; plus tax) Please give Wyndham the event name "Virginia Native Plant Society Rate Quote" when making your reservation. Call 1-888-444-6553 (toll free) or use the following link: www.wyndham.com/wbe/reservations.wnt?pro=RICVC&grp=09146734NP&cha=WYNDHAMCORP

Watch for Annual Meeting registration forms as well as detailed descriptions of programs and fields trips in upcoming newsletters. Mark your calendars now for meeting along the James River.

Members of the Shenandoah Chapter discuss tree identification. They are, left to right, Mark Gatewood, Bob Forrest, Barbara McSweeney, Doug Harpole, Annali Tattaersall, Jennifer Mercer, and Michael Seth. (Photo by Betty Gatewood)

Botanizing in winter proves fun

Winter can be a good time to look at plants, free from the distraction of all those leaves. It's especially a good time to learn to identify trees by their twigs and buds. These buds are amazing structures worthy of our consideration, for they hold the software for building next year's tree. It's all in there—the next growth of wood, leaves, flowers and fruit. With that preamble, my wife Betty and I handed out hand lenses and copies of *Winter Tree Finder*, the little $4 key to identifying winter trees by their twigs and buds. Betty also handed out cards with her watercolors of some other plants we were likely to see.

In early January, 11 of us assembled in the parking lot of Braley Pond, a U.S. Forest Service recreation area west of Staunton. Walk organizer Michael Seth and I had chosen this location as it's in a sheltered hollow, in case of cold and wind. The surrounding forest is mostly white oak, white pine and hickory, but Betty and I had scouted it the week before and had a few things to show.

(See Botanizing, page 5)

Learn more about the VNPS Wildflower of the Year on page 4

From the president . . . . . .

VNPS chapters turning toward spring

Who said winter was a slow time? With this issue we introduce the new VNPS Wildflower of the Year, and it is an evergreen, so you can find it any time. Chapters are getting busy planning educational events and spring hikes. Not all of them will make it into this issue, so watch the website (vnps.org) for activities near you, and bring a friend! We successfully sponsored shale barren rock cress, Arabis serotina*, our goal for the past year's fundraising. Thanks to you all for helping. Kathryn Kennedy of the Center for Plant Conservation will be visiting Virginia soon, and, by the time you read this, I hope to have handed her the check personally. I know they appreciate our work, and scientists in our state will benefit when they study the plants we have sponsored. Best of all, our native plant habitats will get recognition and hopefully more protection.*

We also have more than 30 copies of the Flora of Virginia *pledged to our colleges and universities in honor of Nicky Staunton. Bookplates will be provided for these copies. There is still time for you or your chapter to participate. Email former Piedmont president Marjorie Prochaska at fujinewgrand@aol.com. We want to coordinate gifts to prevent duplicates and get copies into more schools.*

Winter is also proving a great time for plant study, and I've spent days looking at grasses and forbs for the Virginia Working Landscapes project, revisiting pressed specimens from Canaan Valley, working on a Blandy Farm herbarium and studying ferns for a presentation to a local garden club. That covers a lot of ground, and there are still more trees to study.

I hope your winter is turning out to be as much fun as mine is! Some of your chapters have projects such as propagating plants for sales, or working on herbarium projects, and I'm sure they would be happy to have your help.

Your President, Sally Anderson

For Virginia, 2012 is the year of the *Flora*!

Happy New Year from the Flora of Virginia Project! We have a couple of bits of good news and not much time to write it so this will be short, but sweet. First of all, we have sent our first portions of the *Flora of Virginia* to the publisher! They now have the final text on the lycophytes, pteridophytes, and gymnosperms, as well as those groups' illustrations, and they will be laying out the book starting with those groups. Second, we got a hearty response to our year-end mailing, and once again, VNPS members gave us a resounding vote of confidence with their checkbooks. There's still time to get a complimentary copy of the *Flora,* with your name listed, which is our gratitude to all who give $1,000 or more by May 1. All the best to you, and we couldn't do it without you. This is the year of the *Flora*!

Bland Crowder, Associate Director
Flora of Virginia Project

Visit Virginia's Southern Appalachian Mountains with VNPS

This year's tour to Southwest Virginia will take place May 6-11, and will focus on old favorites and some new special places in Wise County. We will likely spend our first three nights in Norton visiting High Knob, Roaring Branch and other sites in the Jefferson National Forest. Return visits to Natural Tunnel State Park and Whitetop Mountain are a must. Other sites are still under discussion, but we will complete our tour in Abingdon, with the option of attending the Mount Rogers Naturalist Rally on Friday night and Saturday.

Plant lists and more information about the places we will visit will be provided to registrants. We try to make these tour hikes fairly slow and easy, but hikes in this area can be steep and rocky, and there may be two to four miles of walking in a day.

Cost of the trip will be $550. This includes lodging, lunches and guided hikes, and a donation of $150 to VNPS. Registration for the trip opens on March 10. Please make your reservations by mailing a check to VNPS, or by calling the office to pay with credit card. A deposit of $100 will hold your place, and full payment is due by April 7.

Send payment to: Virginia Native Plant Society, SWVA Trip, 400 Blandy Farm Lane, #2, Boyce, VA 22620.

Virginia Wildflower Celebration 2012

The 13 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 with field trips, wildflower walks, 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 contacts provided and the VNPS website (vnps.org) to obtain further information. Plants propagated by members will be available at chapter plant sales.

As you travel about the state, watch for the 2012 VNPS Wildflower of the Year, partridge berry (*Mitchella repens*). It is widespread in eastern North America, from southern Canada to Florida and west to Minnesota and eastern Texas. It occurs in every county in Virginia. Flowers begin to open in May and continue sporadically throughout the summer.

*Partridge berry (*Mitchella repens*) flower. (Photo by Richard Moss)*

Wildflower Calendar of Events

Piedmont Chapter 2012 Winter Speaker Series: Sunday March 18, 2 p.m., Marion Lobstein, retired professor of biology and well-known expert on Virginia native plants has also been instrumental in the October 2012 publication of the *Flora of Virginia*. She will make you want to take a closer look at our fascinating flora and will put you in the mood for springtime. Contact Richard Stromberg at 540-631-0212 or risy@embarqmail.com for details.

Garlic Mustard Removal at Deep Run Ponds (Shenandoah Chapter): Thursday March 22, 10 a.m. For more information contact Chris Bowlen at bowlenchris@comcast.net or 540-289-6801.

Garlic Mustard Pull (Piedmont Chapter): Sunday March 25, 10 a.m.-1 p.m. Participants are asked to come for any time period they have available to help eradicate garlic mustard on the Marjorie Arundel Trillium Trail at the G.R. Thompson WMA. If you plan to spend the day, pack a lunch. Contact Richard Stromberg at 540-631-0212 or risy@embarqmail.com for details.

South Hampton Roads Chapter Plant Sale: Saturday April 7, 10 a.m.-4 p.m. at Francis Land House, Virginia Beach, Va. For more information call 757-486-5485.

Wildflower Walk to Hone Quarry (Shenandoah Chapter): Thursday April 12. For more information contact Chris Bowlen at bowlenchris@comcast.net or 540-289-6801.

Field Trip to Phil Stokes' tree farm in Albemarle County (Jefferson Chapter): Saturday April 14, 1:30 p.m. For more information contact Mary Lee Epps at mse5e@virginia.edu.

Shenandoah Chapter Plant Sale (in conjunction with Earth Day celebration): Saturday April 14, Staunton, Va. For more information contact Chris Bowlen at bowlenchris@comcast.net or 540-289-6801.

Blacks Run Cleanup (Shenandoah Chapter): Saturday April 14, in Harrisonburg, Va. For more information contact Chris Bowlen at bowlenchris@comcast.net or 540-289-6801.

Calmes Neck Bluffs Wildflower Walk (Piedmont Chapter): Sunday, April 15, 10 a.m.-noon, Gary Fleming, Virginia Natural Heritage Program, will lead this VNPS registry site walk along the Shenandoah River in Clarke County. Rich mesic forest and ravines. Walk is moderate; expect to climb over downed trees. To RSVP contact Blanca Vandervoort at 540-837-1637 or cvanderv@nelsoncable.com.

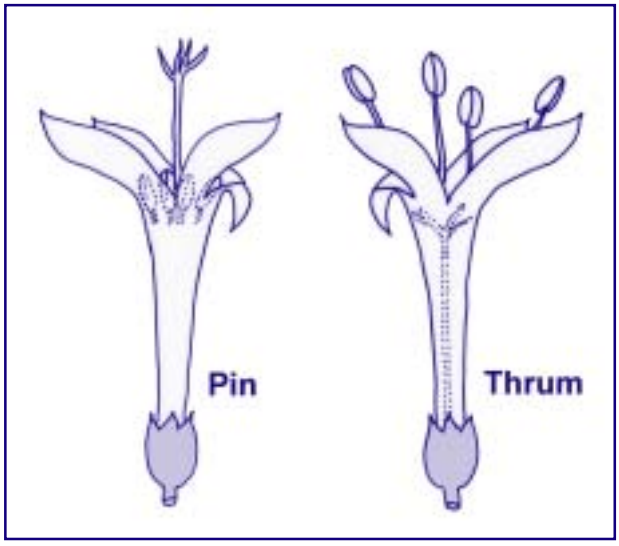
John Clayton Chapter Native Plant Sale: Saturday, April 28, Freedom Park, 5537 Centerville Road, Williamsburg, Va. 23188. Sale of Virginia native perennials, ferns, grasses, shrubs, and small trees. Plants for all conditions: sun, shade, moist or dry; butterfly and bird gardens birds, and more! Rain or shine! Cash or checks only. Also, the Master Gardener plant sale is at same location and time. Call or check website for time of sale: www.claytonvnps.org or 757-784-2882.

Shenandoah Chapter Plant Sale (in conjunction with Riverfest), Saturday April 28, in Waynesboro, Va. For more information contact Chris Bowlen at bowlenchris@comcast.net or 540-289-6801.

Jefferson Chapter Annual Plant Sale, Sunday, April 29, 1 p.m., Ivy Creek Natural Area, Charlottesville, VA 22901. For more information contact Mary Lee Epps at mse5e@virginia.edu.

Partridge berry: WOY 2012

Simple beauty belies complexity



Pin and thrum flower forms of Mitchella repens*, partridge berry; redrawn from Ganders 1975.*

Superficially, plants seem so simple. Rooted in place, they do not move around. And while plant growth is a dynamic process, without time-lapse photography, growth events are so imperceptibly slow that, to us impatient humans, plants seem both immobile and static. Nevertheless, there is a lot going on inside the plant body, and this is especially true for the events of reproduction that play out inside flowers and fruits. As one of my students recently commented, "I used to think it was just a matter of pollen plus stigma and, presto-change-o, seeds happen." That student, I hope, learned otherwise, as will anyone else who takes the time to study the biology of flowers in detail.

Take, for example, the 2012 Wildflower of the Year, partridge berry (*Mitchella repens*). Flowers appear in late spring and continue somewhat sporadically through the summer. In any given patch of partridge berry, it is most likely that all the flowers will appear identical. But if one carefully examines flowers from multiple colonies, it will be apparent that this species produces two different flower forms (see figure). In other words, the flowers are heteromorphic. In some flowers, stigmas protrude beyond the corolla while anthers are hidden within the corolla tube. In other flowers, the pattern is reversed, stamens are long with protruding anthers and styles are short, with the stigmas hidden inside the corolla tube. This particular form of floral heteromorphism is known as distyly, a reference to the long and short styles, but it is important to remember that stamen length and, hence, anther position also vary in distylous flowers.

Some two dozen families of flowering plants have distylous flowers, and distyly is particularly common in Rubiaceae, the family in which *Mitchella* is classified. Other examples of plants with distylous flowers include primroses (*Primula*), flax (*Linum*), and loosestrife (*Lythrum*). (In fact, some loosestrife species have tristylous flowers, i.e., short, medium, and long forms of both styles and stamens.) By convention, long style flowers are called "pin" flowers, which is descriptive of flowers like primroses in which the stigma resembles a round-headed pin; long stamen / anther flowers are known as "thrums," an obscure reference to the ragged ends of threads protruding from woven cloth. Despite the fact that the four flap-like stigmas of partridge berry in no way resemble pin-heads, for consistency with the terminology applied to other species, long-style partridge berry flowers are still termed pins (see figure).

So, what is the point of distylous floral heteromorphy? As it turns out, the two different floral forms are part of a system of adaptations that control pollination, and hence, the subsequent fertilization of ovules that, in turn, impacts the genetic composition of the seeds produced. The way the system works is that pollen from long stamens with protruding anthers (thrums) functions only on flowers with long styles and protruding stigmas (pins); conversely, pollen from pin flowers can function only on thrum stigmas. Self-pollination fails, as does thrum pollen on stigmas of other thrum flowers, and pin pollen on stigmas of other pin flowers. Cross-pollination, of course, promotes genetic diversity among the seeds and seedlings that constitute the next generation, and genetic diversity within a population is generally considered beneficial for the ability of a population to adapt to ever-changing environmental conditions.

The essence of distyly is that, although all pollen and stigmas are functional, only pin and thrum combinations will succeed and all pin-to-pin and all thrum-to-thrum combinations are incompatible. Clearly, something beyond mere length of stamens and styles must be operating to control the success or failure of pollination in distylous flowers like partridge berry. As it turns out, there are genes governing self-incompatibility interactions at the cellular and molecular level that cause pollen tubes to abort, and these genes are tightly linked with the genes that control stamen and style length. The details of how self-incompatibility works varies from one group of plants to another, but regardless of the details, self-incompatibility genes are usually denoted by the symbol *S*.

In the most generalized example of how these systems work, the self-incompatibility gene has numerous alternative forms (alleles) designated as S_1, S_2, S_3, . . . S_n. These alleles are expressed by the production of certain proteins, both in the cells of the style and stigma and in the pollen grains. Because the floral heteromorphism genes are tightly linked to the incompatibility genes, pin-to-pin and thrum-to-thrum pollinations bring pollen grains into contact with style and stigma cells expressing exactly the same proteins. It is the interaction of identical proteins that results in the abortion of the pollen tube. However, if the genes present in stigmas / styles and pollen are completely different, as in pin-to-thrum combinations, no such interaction occurs, the pollen tube functions normally, and this cross-pollination results in a fertilization between genetically different gametes.

There are two basic variations in the generalized self-incompatibility

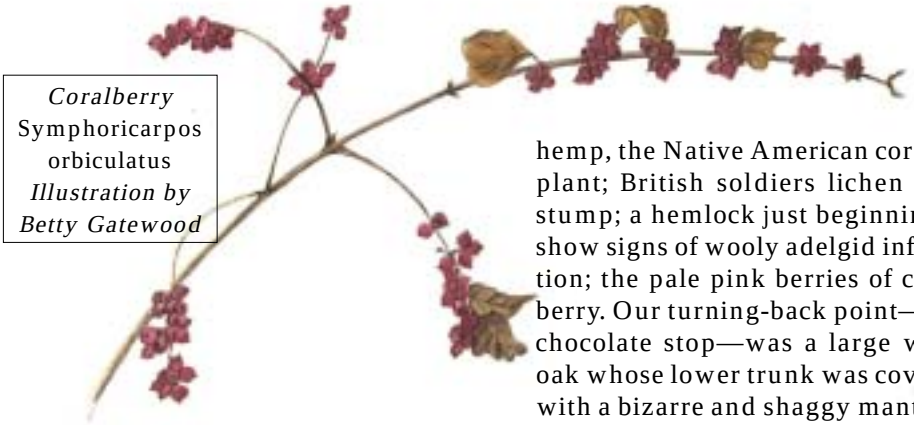
(See Partridgeberry, page 8)

•Botanizing

(Continued from page 1)

We led the group along the pond trail and I gave them some "unknowns" to key out with the *Tree Finder*. Working their way through white ash, shagbark hickory and scrub oak twigs, the group learned to look closely at the details of twig and bud structure.

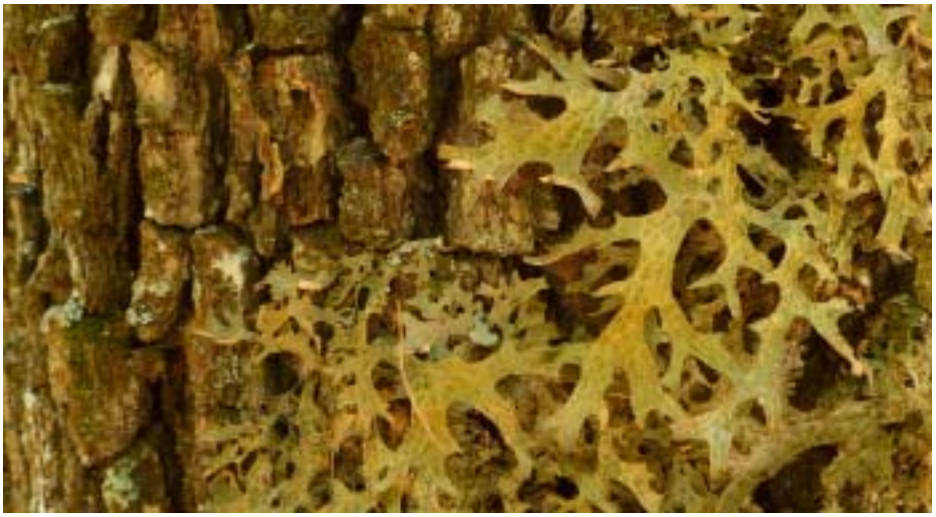
The day proved mild, and we made our way past the pond under sunny skies. A side trip to a sandstone outcrop with spleenworts and mosses led me to a digression on William Alphonso Murrill, whose brief tenure as a teacher in Staunton in the 1890s led to his publication in 1919 of *The Natural History of Staunton, Virginia*—and whose credentials in mycology enabled him to write the first description of the fungus responsible for the chestnut blight. We continued up the trail through woods and clearings, noting whatever came into view—Indian hemp, the Native American cordage plant; British soldiers lichen on a stump; a hemlock just beginning to show signs of wooly adelgid infestation; the pale pink berries of coralberry. Our turning-back point—and chocolate stop—was a large white oak whose lower trunk was covered with a bizarre and shaggy mantle of lungwort or oak-leaf lichen.



Coralberry
Symphoricarpos orbiculatus
Illustration by Betty Gatewood

We hiked back to the parking lot in the warm January sun, making more random discoveries here and there. We made absolutely no contribution to botanical science; I didn't even keep a plant list. We were just a happy group enjoying nature's gifts on an unexpectedly fine winter day.

Mark Gatewood, Shenandoah Chapter



Lungwort or oak leaf lichen on a white oak tree. (Photo by Betty Gatewood)

Neighborhood garden makes a difference

After hearing several programs on natural garden design, water runoff issues, and native plants, a Fairfax County neighborhood decided to make a difference according to an article in the May / June 2011 issue of *Potomac Basin Reporter*. The end result was that the Conservation Corps of the Kingston Chase Homeowners' Association replaced 700 square feet of lawn with a native plant garden.

In addition to being a beautification project, the garden, located in the neighborhood's shared common area, is designed to be an educational space for teaching about native plants, pollinators, and water quality. The garden is adjacent to the community's clubhouse and pool, a space where it will receive much attention and interest.

The project was made possible through a matching grant of $1,900 given by Fairfax County's Neighborhood Enhancement Partnership Program. Matching funds were provided through neighborhood volunteer work, donated plants, and donated funds. Throughout the garden are stepping stones made by area children and sold to raise funds for the project. Two Girl Scout troops and an Eagle Scout organized the volunteer labor, materials delivery and planting schedule.

HBS offering courses

The Highlands Biological Station, an inter-institutional research center of the University of North Carolina, is offering its 2012 series of summer courses and workshops that can be taken for undergraduate or graduate credit. The courses and workshops are focused on the diversity of organisms in the region with emphasis on identification and collection techniques as well as principles of evolution, ecology and conservation. Scholarships, grants-in-aid of research for graduate students, and summer internships are also available. Highlands, North Carolina, is located in the southern Blue Ridge Mountains, at an average elevation about 3,800 feet, and situated near the Nantahala National Forest, Great Smoky Mountains National Park, Cherokee Indian Reservation, Appalachian Trail, and the Blue Ridge Parkway. For more information and to apply, visit www.wcu.edu / hbs, email hbs@email.wcu.edu, or call at 828-526-2602.

New access fees added to state's 39 WMAs

In an effort to more fully maintain habitat in Virginia's Wildlife Management Areas (WMAs), the Virginia Department of Game and Inland Fisheries (VDGIF) will now charge an access fee to visitors who do not hold hunting, fishing, or trapping licenses or a boat registration. Unlike other public lands such as national forests, parks, and preserves, WMAs were purchased through hunting and fishing fees rather than general taxpayer funds and are maintained with those fees. While the WMAs were created for hunting and fishing, the VDGIF mission includes the protection of nongame wildlife, and so these places are also wonderful places to view wildflowers and see birds and to view other game and non-game wildlife. Two VNPS Registry Sites, the G. Richard Thompson on the Blue Ridge and Merrimac Farm in Prince William County, are part of WMAs. All told the state has 39 WMAs totaling 201,000 acres. The goal of the state's Wildlife Management Area Program is to maintain and enhance habitats that support game and nongame wildlife while providing opportunities to hunt, fish, trap, and view wildlife. Other uses of WMAs are allowed, as long as they do not interfere with these goals and uses.

As VDGIF faces tightened budgets and fewer license sales, the access fee program is seen as a way to continue maintaining the habitat and wildlife management on the WMAs. The fee program is projected to bring in about $200,000 a year. The permit, necessary for anyone 17 or older, costs $4 per day or $23 per year. Information about the fees and how to purchase a permit is on the VDGIF home page (www.dgif.virginia.gov). There is an extensive fact sheet about the program and about WMAs. You can also learn more about the special habitats and unique places that are found on all 39 WMAs. The permit may also be purchased by phone (866-721-6911) or at any license agent. You can find a list of places to purchase the permit on the website.

Some VDGIF representatives have noted that by purchasing a hunting or fishing license, even if you do not plan to use it, that you will be bringing in additional funds to the agency. However, while true, this would tend to skew the numbers when trying to determine how many non-consumption

(See WMAs, page 7)

Book celebrates Appalachian forests

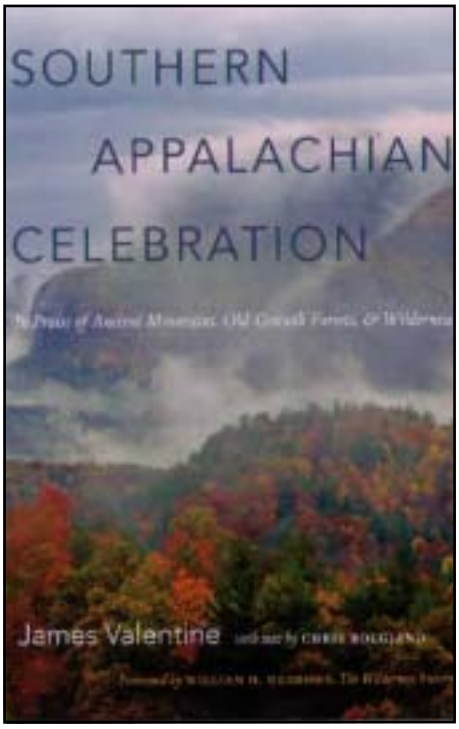
***Southern Appalachian Celebration: In Praise of Ancient Mountains, Old-Growth Forests, & Wilderness*, James Valentine, with text by Chris Bolgiano, University of North Carolina Press, 152 pp., 10 X 14, 136 color illus., 1 map, index; ISBN 978-0-8078-3514-2, published: September 2011.**

Given the history of our southern Appalachians, it's a wonder there's anything left to celebrate. Initially a barrier to westward expansion, the region became a natural resources colony, furnishing timber, coal, minerals and metals to the growing nation. Yet much of the natural environment remained, and more recovered, to be strung together in a loose chain of federal and state parks, forests and wilderness.

It is these lands that photographer James Valentine and author Chris Bolgiano come together to celebrate in *Southern Appalachian Celebration.* In this era of cell-phone cameras, younger readers may be surprised to learn that these images were made in the tradition of such photography pioneers as Ansel Adams and Elliott Porter, with heavy four-inch by five-inch view cameras and tripods. The result is incredible expanse and detail, whether depicting a landscape or a wildflower close up. Images unfold, both the familiar and the exotic—gently folded forest ridges, startling vertical rises of rock, falling waters, places we've seen, and places we haven't.

Author Chris Bolgiano, writing from her home in the mountain edge of Rockingham County, was given an interesting framework on which to craft the essays that head each chapter. Photographer Valentine drew from Aldo Leopold's classic essay, "Thinking Like a Mountain." Bolgiano's essays call on us to think, variously, like a mountain, a meadow / bald, a forest and more, and set the direction for each chapter of photos. Chris Bolgiano is, of course, a local favorite, known by many Shenandoah Chapter and other VNPS members. She has already added to the body of Appalachian literature with her *Living in the Appalachian Forest: True Tales of Sustainable Forestry,* and we're immensely pleased to see her in this new format.

Speaking of format, at 10x14 inches, this is decidedly a coffee table book. I was so embarrassed by our little



Formica-clad chipboard coffee table that I immediately bought a big, new table—made of ash, a good Appalachian hardwood. *Southern Appalachian Celebration* is there now within easy reach any time I or our guests wish to dip into the beauty of our region.

Mark Gatewood, Shenandoah Chapter

Virginia Tech's Stadium Woods threatened

A small tract of old-growth woods located on the Virginia Tech campus in Blacksburg has drawn a lot of attention recently. The 20-acre forest, known as Stadium Woods, is home to 57 ancient oaks that are more than three feet in circumference. Some are as old as 500 years. At least 52 species of birds spend time in this wooded oasis that has somehow survived among the campus's concrete and stone. Those feathered residents include a nesting pair of Cooper's hawks as well as hooded warblers and vireos. Native plant species include black haw viburnum and mayapple.

For years Stadium Woods has served as a forestry lab for classes on campus. Recently three student organizations have been working together to remove invasive species from the area. The New River chapters of the Virginia Native Plant Society, the Virginia Master Naturalists, and the local bird club have erected five signs in the woods pointing to the site's ecological significance.

This past summer, it was announced that at least some of the woods would be sacrificed for an indoor athletic-practice facility for the Virginia Tech football program. After viewing the facility plans, the university's Arboretum Committee, which has oversight of the college's landscaping, came out against the proposal. As the word spread, a petition was launched by the Friends of Stadium Woods asking the college to reconsider the location of the new athletic facility.

For now, at least, Stadium Woods has a reprieve. In January Virginia Tech President Charles Steger announced the formation of a 15-person panel to study the impact of the proposed facility on the woods. The panel members are charged with learning what ecological and educational impacts would be incurred if up to five acres of Stadium Woods were developed. The panel has also been asked to assess the value of the athletic facility and to look at alternative sites.

The group is to report its findings on June 1 of this year.

• WMAs

(Continued from page 6)

users (naturalists who are not hunting or fishing) are visiting the WMAs. There are other ways to support the department. You can purchase a Wildlife Conservationist license plate for your car, or you can donate money to Hunters for the Hungry for deer processing. Use the search box on the website and you will find these options.

While you are visiting the VDGIF website, take a look at the Habitat page. The department has incorporated a lot of great information about using native plants in backyards and schoolyards and on larger tracts of land.

Please stay safe by paying attention to hunting seasons and times when you visit your WMAs, and wear your blaze orange when needed.

See the address label for your membership expiration date

VNPS Membership/Renewal Form

Name(s)_____
Address_____
City_____State_____Zip_____

___Individual $30
___Family $40
___Patron $50
___Student $15
___Associate (groups) $40*
___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 exchanged with similar organizations
_____Check if you do not wish your name to be listed in a chapter directory

Which chapter do you wish to join? (See www.vnps.org)_____
Paying by credit card? ___MC ___Visa ___Discover Exp. date_____
Card #_____Security code_____ Signature_____

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

• Partridgeberry

(Continued from page 4)

system described above, distinguishable by the details of pollen genetics. In some cases, it is strictly the genetic constitution of the pollen cells that determines compatible / incompatible combinations; such systems are termed "gametophytic." In other cases, called "sporophytic incompatibility," it is the genetic constitution of the diploid pollen parent that matters, even though the haploid pollen grains carry just one of the incompatibility alleles; this is because the pollen grain surface is built not just by the haploid cells of the pollen grain itself, but also by other diploid cells of the anther tapetum, so these pollen grains actually express two incompatibility alleles. Still, the basic principles of incompatibility apply, only unique combinations of alleles result in successful pollination events.

The form of self-incompatibility found in partridge berry is of the sporophytic type as described above, but in combination with floral heteromorphism (distyly), there are a few additional complications. In all cases for which the underlying genetics for distylous self-incompatibility are known, there are just two self-incompatibility alleles, S and s, and all individuals in a population are either Ss or ss. Further, the S allele is dominant over s. Successful pollination (and subsequent fertilization) is possible only in Ss X ss crosses; even though such crosses share the s allele from both parents, the effect of the S allele dominates so these crosses are effective. As in any self-incompatibility system, self-pollinations or crosses involving the same genotypes (ss X ss or Ss X Ss) fail. In theory, because the incompatibility alleles are tightly linked to the genes controlling style and stamen length, distylous sporophytic incompatibility mechanisms should result in a nearly 1:1 ratio of pin populations to thrum populations. Tallies of floral form in natural populations support the predicted 1:1 ratio, not just for partridge berry, but for other distylous species as well.

Next time you stumble upon partridge berry while rambling through the woods, pause for a moment to ponder how these seemingly simple, dainty, jewel-like plants engage an intricate reproductive system to control compatible pollinations and maintain robust, genetically diverse, populations. Simple plants? Hardly!

W. John Hayden, VNPS Botany Chair

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4. Keegan, C.R., R. H. Voss, and K. S. Bawa. 1979. Heterostyly in *Mitchella repens* (Rubiaceae). *Rhodora* 81: 567-573.

Keep your eyes peeled

You can tell it is a new native plant watching year when the VNPS Wildflower of the Year brochure arrives. Watch for this year's brochure on partridge berry in the next issue of the *Bulletin*. Speaking of the *Bulletin*, check vnps.org for a full color version of the state newsletter.