

A publication of the VIRGINIA NATIVE PLANT SOCIETY  
*Conserving wild flowers and wild places*

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## *Speak out in support of Shenandoah's plant communities*

High up on the craggy cliffs of Shenandoah National Park (SNP), jumbles of exposed rocks and boulders provide an unlikely home for significant natural communities. In recent biological surveys, a variety of rare plants and animals have been found on well-known mountain peaks like

Mary's Rock, Little Stony Man, and Old Rag. Many of the rarest plants discovered are arctic-boreal species, holdovers from the last glacial episode 20,000 years ago. Some grow nowhere else in Virginia. These vegetation communities have survived centuries of human habitation, the creation of the

park, and the paving of Skyline Drive. Now they are threatened by the footsteps of the many hikers, day trippers, and rock climbers who inadvertently trample vegetation.

Recognizing the need to protect these rare communities, in 2005 SNP initiated a three-year study of natural resources and recreational uses at rock outcrop sites. The results have been formulated into a draft Rock Outcrop Management

Plan, the intention of which is to mitigate further damage to these areas while allowing for recreational access. An important component of this process is the public comment period, which will drive management decisions. Balancing the need to preserve fragile vegetation communities with recreational demands of the public will be difficult. Support and comment on the plan by those interested in preserving our native flora is essential to protecting these plant communities.

Virginia Natural Heritage Program (VANHP) biologists conducted surveys in 2005 and 2006 of 50 rock outcrop sites in the park. Eleven vegetation community types were documented, nine of which were found to be globally rare. An even more significant discovery was that two communities are entirely endemic to SNP. The High Elevation Greenstone Barren plant community occurs on fewer  
*(See High elevation habitats, page 4)*



*A group of VNPS hikers views a rare rocky outcrop plant community at Hawksbill Gap in the Shenandoah National Park. (Photo courtesy Sally Anderson)*

## *Farm to be preserved as wildlife management area*

The Prince William Conservation Alliance announced recently an \$820,000 grant award from the Virginia Land Conservation Foundation for the preservation of historic Merrimac Farm in Prince William County, Virginia. The Prince William Conservation Alliance will apply the grant to match funds from the Virginia Department of Game and Inland Fisheries (VDGIF) to establish the Merrimac Farm Wildlife Management Area. Other prospective partners include the U.S. Marine Corps under the Department of Defense Encroachment Partnering program, subject to the availability of funds and approval by the Secretary of the Navy.

*(See Merrimac Farm, page 7)*

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## From the president . . . . .

### *Look for ways to protect Virginia's native plant resources*

Dear VNPSers

With the heat of summer, it's great to think back on the wonderful spring walks we enjoyed. Last issue featured some photos from our state field trips, and since then we had our final one for this year, to Hawksbill Gap. On this trip, Gary Fleming led us to see some of the rare habitats that are the subject of Marianne Mooney's article in this issue. He began by showing us a little visited small outcrop that was nearly covered in vegetation. This served as a comparison to the trampling we saw on the Hawksbill summit itself. We did get a close-up view of peregrine falcons there, and we saw many of the northern plant species that inhabit these mountains as we made our way to and from the summit.

I hope you will take to heart the protection of this resource and use the information Marianne provided to comment to the park on their Rock Outcrop Management Plan. Another wonderful opportunity for conserving plant communities exists in the current Wilderness Bill and in the planning process for the George Washington National Forest. Please see the Virginia Wilderness Committee website at [vawilderness.org](http://vawilderness.org) and The Wilderness Society website at [wilderness.org/WhereWeWork/Virginia/index.cfm](http://wilderness.org/WhereWeWork/Virginia/index.cfm) for details of the current wilderness bill. The GW Forest Draft Plan, however, is in limbo because of a federal court ruling.

Sixteen of us had a great trip to the Bruce Peninsula in June. Stan Shetler's guidance on the trails was appreciated by all of us. Our trip was a little later

than usual and, unlike past trips where cold rain could be a problem, we discovered that wind can also change the schedule for Flowerpot Island, as in "we are not going to the island. We can't dock because of the wind. But you can ride around it if you want." We did eventually get there. We also traded masses of yellow lady-slippers (*Cypripedium calceolus*), only seeing a few of them, for large clumps of showy lady-slippers (*Cypripedium reginae*) and roadsides lined with orange wood lily (*Lilium philadelphicum*). According to Stan, we managed to spot 20 species of orchids and 23 species of ferns. Near the end of the week, Oliphant Fen gave us dozens (hundreds?) of grass pink orchids (*Calopogon pulchellus*) and rose pogonia (*Pogonia ophioglossoides*). Always of interest to me are the carnivorous plants, including butterworts (*Pinguicula vulgaris*), sundews (*Drosera spp.*), pitcher plants (*Sarracenia purpurea*) and bladderworts (*Utricularia spp.*) found growing in the fens. And we had many nice sunsets and we all can tell you about most of the ice cream possibilities on the peninsula.

Looking forward, we have an exciting annual meeting coming up. Last issue contained the information about the meeting from the John Clayton Chapter, and if you have misplaced it, check the website or call the office. I hope to see many of you there!

**Your President,  
Sally Anderson**

## Trees are worth their weight...or more...in gold

When the University of Texas was building a dormitory last year, an unusual sign hung nearby. "Do not discard or pour paint, mortar, trash or any construction material or debris on this tree," it declared. "The replacement value of this oak tree is \$90,000."

Strange but true: the trees in American backyards may be worth far more than the cars in the front drive, at least in theory. Much depends, of course, on what sort of trees they are. In Nebraska a sugar maple is worth more than an English oak, according to a 2004 guide. Trunk size, the tree's condition, its species and location—one in Manhattan will be worth more than a comparable specimen in Buffalo—will all affect values.

Amid fears of global warming, tree

hugging is on the rise, not least among politicians. Al Gore made tree planting central to his message for the Live Earth jamboree on July 7. Michael Bloomberg has plans to plant one million trees in New York, which will further boost property values and clean the air.

Of course, no amount of urban oaks can make up for the loss of rainforest in Indonesia—but that has not stopped cities from boasting about the value of their greenery. A recent "tree census" in New York City, conducted at the behest of Bloomberg, values the city's nearly 600,000 trees at \$122 million. A rough breakdown: \$11 million for filtering out air pollutants; \$28 million saved in energy consump-

tion (less need for air conditioners); \$36 million for stemming storm-water runoff; and \$53 million in "aesthetic benefits." The National Forest Service values the urban canopy in all of America at \$14.3 billion.

What is the use of all these (rather shady) numbers? Bloomberg cannot sell off trees to patch a hole in his budget, after all. They are, literally, a fixed asset. But for politicians, numbers help. By claiming that every \$1 put into New York's trees returns \$5.60 in benefits, he may find it easier to galvanize New Yorkers to plant more and chop down fewer.

*Reprinted from The Economist, print edition, July 5, 2007*

# Flora of North America reaches halfway mark

More than 900 botanists, working as part of the Flora of North America (FNA) project, have now cataloged over half of the genera of higher plants native or naturalized in North America north of Mexico. They hope to finish by 2011. This is the first comprehensive and scientifically authoritative publication treating the 20,000+ species of plants in U.S. and Canada together.

Thirteen volumes have been published (including an introductory volume), one is being printed, and publication of two more is expected this year, out of a total of 30. The second volume of grasses (Poaceae, Volume 24) came out in early 2007, completing the monocotyledonous plants. The first of

three volumes on mosses, liverworts, and hornworts is in press.

Especially exciting was the publication of all three volumes on the sunflower family (Asteraceae, Vols. 19, 20, 21) last year. The treatments include identification keys, nomenclatural information, common names, descriptions, distributions (including maps), and discussions. Every genus and one-third to one-sixth of the species include illustrations.

FNA makes many lifetimes of study, and the best knowledge from regional floras, available in print and electronically. Editorial centers are located at Missouri Botanical Garden, the Hunt Institute for Botanical Documentation, University Montreal, and University of

Kansas. Authors base their work on knowledge of plants in the field, herbarium specimens, and review of the literature. The project also has a network of regional reviewers. Authors and editors work as volunteers; grants and donations support technical editors and botanical illustrators.

The books are published by Oxford University Press—U.S. and currently are on sale at the discounted price of \$76 per volume (available at [www.oup.com/us/fnaseries](http://www.oup.com/us/fnaseries) with promo code 25316). More information on Flora of North America and the already published volumes is available at [www.fna.org](http://www.fna.org).

For more information contact Nancy R. Morin, FNA Business Office, P. O. Box 716, Point Arena, California, 707-882-2528, [nancy.morin@nau.edu](mailto:nancy.morin@nau.edu).

## Order Flora of North America Project note cards

To celebrate publication of the Asteraceae (sunflower) volumes, FNA created a set of 12 note cards (4 × 6 inches) featuring FNA plants, artists, and authors. Each card reproduces the botanical illustration of the taxon on the front, and a distribution map, taxonomic placement, and notes about the taxon, author, and artist on the back. This first set includes:

### TAXON

*Arctanthemum arcticum* subsp. *polare*  
*Baccharis halimifolia*  
*Cirsium douglasii* var. *breweri*  
*Dicranocarpus parviflorus*  
*Echinacea pallida*  
*Helianthus maximiliani*  
*Madia elegans*  
  
*Munzothamnus blairii*  
*Pluchea odorata* var. *odorata*  
*Packeria cymbalaria*  
*Senecio amplexens* var. *holmii*  
*Townsendia florifer*

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A set offers one 4 x 6 inch card and envelope of each of the 12 different plants.

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Send order form and payment to: FNA Project, c/o Nancy Morin, P.O. Box 716, Point Arena, CA 95468

# High elevation habitats have special characteristics

(Continued from page 1)

than 10 acres in the park. The Central Appalachian Mafic Boulderfield covers less than four acres. The park also harbors six of the eleven known occurrences of the High-Elevation Outcrop Barren community. According to the VANHP, the long-term viability of these vegetation

types depends entirely on future events in the park.

Twenty-one state rare plant species were noted during the survey, including Rand's goldenrod (*Solidago randii*) and roundleaf dogwood (*Cornus rugosa*). Lichen collection at four sites representative of several characteristic outcrop and boulderfield habitats resulted

in the identification of six taxa potentially new to science.

In addition, rock outcrops provide habitat for rare fauna, such as the state-threatened peregrine falcon and the eastern small-footed myotis, a rare bat that roosts under rocks at high elevations. The endangered Shenandoah salamander is an endemic amphibian which exists only on three mountains in the park at elevations above 3,000 feet. It is solely confined to talus slopes on north and northwest faces of the mountains.

Human impacts and invasive plants are the main threats to rock outcrop plant communities. Off-trail trampling threatens the survival of fragile plants and animals. However, the need to protect the wealth of botanical resources that occurs on the outcrops will not be as apparent to the general public as to plant society members. Therefore, it is crucial for VNPS to take the lead and lend support to the protection of these endangered sites. The rock climbing community is well-organized and proactive. They have already founded the Shenandoah National Park Climbers Alliance to represent the interests of climbers in the park. This is in addition to four other active climbing organizations including The Access Fund, which is a national advocacy organization representing 1.6 million climbers nationwide.

The VANHP staff has made recommendations on preserving these vegetation communities in their report on the natural resources of the rock outcrop study sites. Most of their recommendations have been incorporated into the draft Rock Outcrop Management Plan, Environmental Assessment Alternatives, which offers four possible choices. Alternative A has a complete resource protection focus. In general, it includes recommendations that some trails would be closed or rerouted, visitor access to rare plant communities would be limited, and barriers would direct visitors away from fragile sites. Rare plant and animal populations would be monitored, and invasive plant populations would be monitored

(See Weigh in, page 5)

Scientific Name	Common Name	Global Rank/ State Rank
<i>Fraxinus americana</i> - <i>Carya glabra</i> / <i>Muhlenbergia sobolifera</i> - <i>Helianthus divaricatus</i> - <i>Solidago ulmifolia</i> Woodland (CEGL003683)	Central Appalachian Basic Woodland	G2 / S2
<i>Kalmia latifolia</i> - <i>Gaylussacia baccata</i> - <i>Vaccinium (angustifolium, pallidum)</i> - <i>Menziesia pilosa</i> Shrubland (CEGL003939)	Central Appalachian Heath Barren	G2 / S1
<i>Lasallia (papulosa, pensylvanica)</i> - <i>Dimelaena oreina</i> - ( <i>Melanelia culbersonii</i> ) Nonvascular Vegetation (CEGL004142)	Central Appalachian Acidic Boulderfield	G4? / S4?
<i>Lasallia papulosa</i> - <i>Stereocaulon glaucescens</i> - <i>Chrysothryx chlorina</i> Nonvascular Vegetation (CEGL004143)	Central Appalachian Mafic Boulderfield	G2? / S2?
<i>Juniperus virginiana</i> - <i>Fraxinus americana</i> / <i>Carex pensylvanica</i> - <i>Cheilanthes lanosa</i> Wooded Herbaceous Vegetation (CEGL006037)	Central Appalachian Circumneutral Barren	G2 / S2
<i>Betula lenta</i> - <i>Quercus prinus</i> / <i>Parthenocissus quinquefolia</i> Woodland (CEGL006565)	Sweet Birch - Chestnut Oak Talus Woodland	G3G4 / S3S4
<i>Betula alleghaniensis</i> / <i>Sorbus americana</i> - <i>Acer spicatum</i> / <i>Polypodium appalachianum</i> Forest (CEGL008504)	Central Appalachian High-Elevation Boulderfield Forest	G2 / S2
<i>Photinia melanocarpa</i> - <i>Gaylussacia baccata</i> / <i>Carex pensylvanica</i> Shrubland (CEGL008508)	High-Elevation Outcrop Barren (Chokeberry Igneous / Metamorphic Type)	G1 / S1
<i>Fraxinus americana</i> / <i>Physocarpus opulifolius</i> / <i>Carex pensylvanica</i> - <i>Allium cernuum</i> - ( <i>Phacelia dubia</i> ) Wooded Herbaceous Vegetation (CEGL008529)	Central Appalachian Mafic Barren (Ninebark / Pennsylvania Sedge Type)	G2 / S2
<i>Diervilla lonicera</i> - <i>Solidago randii</i> - <i>Deschampsia flexuosa</i> - <i>Hylotelephium telephioides</i> - <i>Saxifraga michauxii</i> Herbaceous Vegetation (CEGL008536)	High Elevation Greenstone Barren	G1 / S1
<i>Quercus prinus</i> - <i>Pinus virginiana</i> - ( <i>Pinus pungens</i> ) / <i>Schizachyrium scoparium</i> - <i>Dichanthelium depauperatum</i> Woodland (CEGL008540)	Central Appalachian Xeric Chestnut Oak - Virginia Pine Woodland	G2? / S2

Significant natural communities located at Shenandoah National Park rock outcrop study sites. The USNVC global element code (CEGL00) is listed after the name.

## Weigh in on management plans that affect rare habitats

(Continued from page 4)

or controlled. Alternative B, which is listed as the SNP “preferred alternative,” allows for resource protection within less strict bounds. Visitors would be rerouted from some sites, educational signage would be used, and restrictions placed on camping and rock climbing in certain places. Alternative C is the visitor-use focus, which has no restrictions on human access to areas with rare natural resources. Alternative D is the “no action taken at all” option.

Shenandoah National Park’s mission goals require that natural resources be protected, but also that recreational opportunities are to be made available to the public. We need to encourage SNP to protect rare natural communities by recommending that they adopt Alternative A. The majority of the park’s trails will not be affected by this plan. Rock outcrop areas have already been damaged by recreational users. It’s up to the park to protect these endangered areas, and it is up to us to ask them to do so. If we don’t speak out for plant preservation, who will?

For more information on the park’s plans and to comment, go to <http://parkplanning.nps.gov/parkHome.cfm?parkId=274>. Click on Rock Outcrop Management Project. You will find a document list that includes the VANHP report and the draft environmental assessment report. Three documents are open for public comment, which can be done online. Send comments by mail to: Park Superintendent, Shenandoah National Park, 3655 U.S. Hwy. 211 E, Luray, VA 22835.

The next public hearings on the draft environmental assessment of the Rock Management Plan will be held in September: Thursday 9/13, 7 p.m. REI Store in Bailey’s Crossroads, Falls Church VA (703-379-9400) and Wednesday 9/19, 6:30 p.m. James Madison University’s Festival Conference Center, Harrisonburg, VA.

Marianne Mooney, Potowmack Chapter

Scientific Name	Common Name	Global Rank/
<i>Abies balsamea</i>	Balsam fir	G5/S1
<i>Aralia hispida</i>	Bristly sarsaparilla	G5/S2
<i>Arctostaphylos uva-ursi</i>	Bearberry	G5/S1
<i>Asplenium bradleyi</i>	Bradley’s spleenwort	G4/S2
<i>Betula cordifolia</i>	Mountain paper birch	G5/S2
<i>Clematis occidentalis</i> var. <i>occidentalis</i>	Purple clematis	G5T5/S2
<i>Conioselinum chinense</i>	Hemlock parsley	G5/S1
<i>Cornus rugosa</i>	Roundleaf dogwood	G5/S1
<i>Cuscuta coryli</i>	Hazel dodder	G5/S2?
<i>Huperzia appalachiana</i>	Appalachian fir-clubmoss	G4G5/S2
<i>Juncus trifidus</i>	Highland rush	G5/S1
<i>Minuartia groenlandica</i>	Mountain sandwort	G5/S1
<i>Muhlenbergii glomerata</i>	Marsh muhly	G5/S2
<i>Oligoneuron rigidum</i> var. <i>rigidum</i>	Stiff goldenrod	G5T5/S2
<i>Paxistima canbyi</i>	Canby’s mountain-lover	G2/S2
<i>Rubus idaeus</i> ssp. <i>strigosus</i>	Quaking aspen	G5/S2
Red raspberry		

Rare plants located at SNP rock outcrop study sites in 2005-6.

## Tasty wild plants: Try some for yourself

### Chickweed pesto

Chickweed can be gathered from early spring or even winter in sheltered areas. During the summer look for it in wet shady spots. Use the tender top leaves and stems.

#### INGREDIENTS

- 2 cups chickweed, firmly packed
- 2/3 cup olive oil
- 2/3 cup pine nuts or almonds
- 2/3 cup parmesan cheese
- 3 to 4 cloves wild garlic
- salt and pepper to taste

Using a blender or food processor, process into a paste.

Serve immediately on pasta or crackers, either as an appetizer or an entrée.

### Persimmon puffs

- 2 pg. frozen puff pastry, thawed
- 1 cup milk
- 1 cup persimmon pulp

- 2 pkgs. Jello cheesecake flavored instant pudding
- 2 cups Cool Whip
- 4 tbl. butter
- 1 cup brown sugar
- ½ cup chopped pecans

Preheat oven to 400 degrees; unfold pastry sheets on floured surface; roll out and cut into three-inch rounds with cookie cutter or glass. Place on ungreased cookie sheet and bake 10 minutes. Cool. Pour milk and persimmon into large bowl; add dry pudding mix and beat with whisk for two minutes; stir in Cool Whip. Cut puffs in half and spoon mixture onto bottom half. Cover with tops. Melt butter with brown sugar; add pecans and pour over puffs. Cover and refrigerate.

*This is the first in a series of wild plant recipes from Mike and Phyllis Rasnake, of Synchronicity Farm in Zuni, Va.*

## Discovery of "missing plants" provides good news

The rediscovery (if that's what it was) of the ivory-billed woodpecker in an Arkansas swamp made international headlines in 2005. Not so the rediscovery, at about the same time, of the Nuttall's quillwort in a vernal pool at the Presidio. But there's a similarity to the stories. Although the quillwort, a small grasslike fern relative, wasn't thought to be globally extinct like the woodpecker, it hadn't been documented in San Francisco since 1938. People had been looking for it, as well as for the hayfield tarweed and the tuberous sanicle, last observed in the 1890s. Both turned up alive and well recently, also at Presidio sites.

In all, botanists surveying the Presidio's plant diversity found five "missing" plants, along with two — the Montevideo arrowhead and a species of Indian clover — never before recorded in San Francisco. Such finds point to the importance of urban habitat islands as refuges for biodiversity.

Katherine Brandegee would be pleased. Many of the original records of these plants came from collections she and the California Botanical Club made in 1891. As curator of botany at the California Academy of Sciences, she was the first woman in North America to hold such a position. She also edited the botanical journal *Zoe*, a platform from which she lambasted her scientific opponents. Edward Lee Greene, who founded the West's first botanical garden, at UC Berkeley, was a frequent target, accused of "discovering new species that did not exist."

"Much of her attention was devoted to chopping Greene into small pieces," UC Berkeley Professor Lincoln Constance said.

But Brandegee's own discoveries later came into question. Most of the plant specimens to back them up were lost in the earthquake and fire of 1906, when the academy's collections were destroyed — except for the ones that Alice Eastwood, Brandegee's successor as curator, rescued after climbing a banister next to a collapsed staircase. When John Thomas Howell, Peter Rubtzoff and Peter Raven published *A Flora of San Francisco, California* in 1958, they were unable to confirm some of Brandegee's records.

That's where matters stood until the Presidio, with its mix of coastal bluffs, serpentine grassland, dunes and vernal pools, was transferred from the U.S. Army to the National Park Service in 1994. The old base was known to be home to such botanical rarities as Raven's manzanita, with only one surviving shrub, and the pink-flowered *Presidio clarkia*, found only there and in the Oakland hills. But its flora wasn't completely known; as with other military bases, parts of it had been off-limits to botanists.

The Presidio Native Plant Nursery, now funded by the Presidio Trust, deals in hands-on restoration: collecting seeds for propagation, weeding, planting and monitoring new growth. "We were scouting for seeds," said botanist Marie Fontaine, now living in Montreal. "We had volunteer activities twice a week, so we had to check what was ready."

And the surprises began. Fontaine and other restoration workers found plants they hadn't expected to see. Fontaine, who was responsible for plant identification, alerted Tom Daniel, the academy's current plant curator, who was working on a new *Flora of San Francisco*.

Some of the "lost" plants are ac-

tually abundant, if you know where to look and what to look for. Thousands of quillworts were found at an old quarry site, obscured by the surrounding grasses. Luckily, Fontaine said, she often botanizes on her hands and knees, and she spotted the quillwort's unique structure.

Only three hayfield tarweed plants were located, near Doyle Drive in a grassy patch underlain by serpentine. "Fort Scott was a surprise," Fontaine adds. "The habitat doesn't look like anything, but is actually a rich patch of remnant coastal prairie," sheltering the tiny flowers of false pimpernel and timwort.

She says other plants listed for the Presidio by Howell and his co-authors in 1958 — yellow cress, yellow johnnytuck and California hedgenettle — may still be around: "The habitats are still present, even though very fragmented in some places."

The Montevideo arrowhead is a bit of a mystery. "The site where we found it had been scraped," Fontaine said. "We don't know whether it was in the seed bank or dispersed naturally."

The Presidio finds inspire hope that other natural areas in San Francisco — Lake Merced, Hunter's Point, Yerba Buena Island — may harbor undocumented rarities. Writing in *Fremontia*, the journal of the California Native Plant Society, Daniel and Fontaine emphasize the need to pursue botanical inventories even in areas we think we know. "Whether the discoveries made are propitious or tragic," they write, "they are always important to document and record."

*This article by Joe Eaton and Ron Sullivan, appeared on page HO - 8 of the San Francisco Chronicle on February 28, 2007.*

# Merrimac Farm preserves valuable Northern Virginia open space

*(Continued from page 1)*

Joseph Maroon, Director of the Virginia Department of Conservation and Recreation and the foundation's executive secretary, said, "I am pleased that we have been able to work with the Department of Defense, local advocates, and the Virginia Department of Game and Inland Fisheries to make progress in Northern Virginia toward advancing the governor's goal of conserving 400,000 acres of land by 2010, and to protect this special property."

This 302-acre undeveloped property, located in the upper reaches of the Occoquan Reservoir watershed and adjacent to Quantico Marine Corps Base, encompasses approximately one mile of frontage along Cedar Run and more than 100 acres of forested wetlands. It boasts a wide diversity of high quality wildlife habitat areas within the densely populated region of Northern Virginia

Merrimac Farm was originally owned by Col. Dean McDowell, who purchased the property after World War II and whose untimely death in 2002 put his property at risk of development. The continued support of Col. McDowell's heirs and their commitment to the preservation of Merrimac Farm for public uses has been instru-

mental to the success of this five-year effort. Gail McDowell said, "Our family is committed to conservation. We are delighted that the property will be protected and available to the public."

The Prince William Conservation Alliance has been a leader for more than five years in establishing higher goals for parks and natural open space in Prince William County. "Acquiring this property is an important part of our efforts to preserve a network of high quality, natural open space," says Kim Hosen, Prince William Conservation Alliance's Executive Director.

Charlie Grymes, Prince William Conservation Alliance's Board Chairman, emphasizes the alliance's commitment to land conservation, saying "This creates momentum for future parks and open space projects. We need this sort of public and private involvement for effective conservation partnerships, to make sure we have spaces open to the public."

The partnership to create the Merrimac Farm Wildlife Management Area would include the U.S. Marine Corps' purchase of an easement to buffer Quantico Marine Base from the development of inappropriate land uses at its borders.

The Merrimac Farm Wildlife Man-

agement Area will be owned by the Virginia Department of Game and Inland Fisheries and managed to promote wildlife diversity. According to Carlton Courter, VDGIF Executive Director, "Merrimac Farm provides us with an exceptional opportunity to protect wildlife diversity and provide important outdoor recreational services to Northern Virginia residents."

Nokesville resident Liz Cronauer is excited about future programs planned for the Merrimac Farm Wildlife Management Area. "I'm especially excited about having a site that would allow more local groups and schools to take advantage of the Prince William Conservation Alliance's youth education programs."

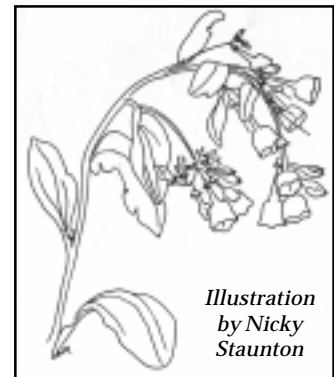


Illustration by Nicky Staunton

Bluebells, *Mertensia virginica*, are among the plants now protected at Merrimac Farm.

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

## *Itchier skin, vine-covered forests may be by-product of global warming*

Global climate change may soon make our planet a much itchier place.

Rising levels of carbon dioxide—a so-called greenhouse gas that traps heat within Earth's atmosphere—can fuel booming poison ivy growth, a recent study reports.

Even worse, the rash-inducing vines may become more potent.

Working in a Duke University-owned forest near Chapel Hill, North Carolina, researchers used a system of carbon dioxide-pumping pipes to create atmospheric CO<sub>2</sub> levels that were some 200 parts per million higher than the current norm.

Many global warming models predict that such levels will be a reality by 2050.

Poison ivy growth surged some 150 percent in the carbon dioxide-rich forest plots.

Poison ivy afflicts countless people each year—more than 350,000 Americans alone are miserable enough to seek professional treatment.

Found in woody areas across

North America, the plant also grows in Central America and parts of Asia, and has been introduced to Europe, Africa, Australia, and New Zealand.

About 80 percent of all people are allergic to poison ivy's sap or resin. Sufferers experience a red, bumpy, itchy, and sometimes blistering skin rash when they come into contact with urushiol—the plant's carbon-based active compound.

Unfortunately, the study also found that carbon dioxide-enhanced poison ivy boasts a stronger strain of urushiol, which may prove even more poisonous to humans.

"That was a bit of a surprise," said lead author Jacqueline Mohan, a postdoctoral scientist at the Ecosystems Center of the Marine Biological Laboratory in Woods Hole, Massachusetts.

"It was not actually producing more of the carbon compounds but producing a more poisonous form."

The six-year study's results were published in *Proceedings of the National Academy of Sciences*.

The forest setting at Duke allowed scientists to examine the impact of increased CO<sub>2</sub> in a real-world environment beyond the walls of the lab.

Mohan explained that her team is researching how rising carbon dioxide levels may alter forest ecosystems.

"Woody vines [including poison ivy] are probably going to take off with increased atmospheric levels of CO<sub>2</sub>," she said.

Recent studies in temperate and tropical forests already report increases in these plants. Some scientists speculate that these changes are due to rising carbon dioxide levels.

The increased growth of woody vines could dramatically alter future forests—for instance, by choking new tree growth. Woody vines can grow over the tops of large trees "and certainly shade out juvenile trees," Mohan said. "Those [juveniles] are the trees you'd [normally] expect to be the forest of the future."

*Article by Brian Handwerk, originally published in **National Geographic News**, May 20, 2006.*