



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

<http://www.vnps.org>

VNPS sponsoring shale barren rock cress with CPC

The current VNPS fundraising will support sponsorship of the shale barren rock cress, *Arabis serotina*, with the Center for Plant Conservation. The following information



Plants such as shale barren rock cress have adapted to the harsh, unforgiving habitat of shale barrens such as the one pictured here. (Photo courtesy Gary Fleming)

is taken from a study of the plant by M. Phillip Nott of the institute for Bird Populations for the Navy Information and Operations Command in Sugar Grove, W.Va. The entire paper may

be read at www.birdpop.org/downloaddocuments/SBRC_Nott_Review.pdf.

The U.S. Fish and Wildlife Service first listed shale barren rock cress as a federally endangered species in 1989, when only 35 populations were known. It is currently designated as endangered throughout its range of four West Virginia counties and five Virginia counties.

The shale barrens where the plant typically occurs are on exposed southwest facing slopes of more than 20 degrees. In addition to shale barren rock cress, the typical vegetation occurring on these slopes includes those of the Virginia pine woodland in an elevation range of 517 to 792 m (1,700-2,600 feet). The average live plant cover of shale barrens is 5 to 40 percent, plant litter is 5 to 55 percent, and the soils are primarily shale fragments, known as channery. The temperature ranges from 55 to 60 C (131-140 F) during the hottest hours of summer.

(See Shale barrens, page 6)

Virginia's barrier islands dynamic and complex

Though I became familiar with East Coast beaches such as Nags Head in North Carolina, Myrtle Beach in South Carolina, and Virginia Beach, long ago, I had never seen a pristine sand beach as found on a Virginia barrier island until I began field studies as a graduate student.

Sand barrier islands are located worldwide: the commonalities are river-delivered sand and isolation.

(See Barrier Islands, page 4)



Dead Morella cerifera stand in sharp contrast to living trees just behind them, a good example of ever-changing barrier island dynamics. The area where this Morella was growing eroded fast enough that the salt spray killed those trees closest to the ocean. (All photos by Stephen Johnson)

Annual Meeting photo album

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Details about upcoming Florida trip

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From the president

Fall reveals nature's beautiful treasures

Fall, glorious fall. A little odd weatherwise, just like the rest of this year, but beautiful. On the Skyline Drive I came upon six or eight cars along the road. A bear, I assumed. But then I saw people lined up with cameras taking photos of a glowing yellow stand of tulip trees whose dark and not-quite-straight trunks stood in silhouette. A small miracle of light that might never be seen there again. The occasion was a meeting of the Shenandoah National Park's Adopt-an-Outcrop volunteers and a trip to the outcrop I monitor. We are a group of more than 20 who twice each year look in on the rare plants growing on rock outcrops in the park, a result of a study of these areas by Gary Fleming of the Virginia Natural Heritage Program and others.

In September we had a wonderful Annual Meeting, and I thank the Prince William Wildflower Society for a fine event, including the speakers, food and field trips, but best of all the good company. If you were not lucky enough to be there, you can still take a look at the program given by Karen Firehock of the Green Infrastructure Center on Saturday night by going to www.gicinc.org/resources.htm or go through the link on the VNPS website (her other presentations are available as

well). She's got the right idea about how to save urban land and water by getting started ahead of time on mapping and reporting resources, and showing local governments the way forward. She has informational booklets and holds training events that some of you might find useful.

By the time we finished the annual meeting, I was being asked about the next one, and I'm pleased that the Pocahontas Chapter in Richmond will host the meeting that will celebrate our 30th year as an organization. Stay tuned for dates and details.

Soon the winter holiday season will be here, and I hope you'll think of VNPS when giving gifts. We still have T-shirts and notepads. For the person who doesn't need things, consider a gift membership or a donation to our annual fundraising efforts (shale barren rock cress sponsorship) in their honor. Also, the Potowmack Chapter has some gorgeous notecards for sale through the chapter or through the state office, and several chapters have books for sale.

I hope we can all get out and enjoy some evergreen native plants this winter, including our 2012 Wildflower of the Year, Mitchella repens (partridge-berry).

Your President, Sally Anderson

10 years in the making: Flora Project nears finish line

Something unexpected happened to me Saturday evening during the Annual Business Meeting portion of our VNPS weekend. I learned that the VNPS Board of Directors had decided to recognize my enthusiasm and efforts for our Flora of Virginia Project and had pledged to place a first edition copy of the *Flora of Virginia* in Simpson Library of my alma mater, the University of Mary Washington. The new manual of Virginia's flora will contain a bookplate with my name. This was a surprise and appreciated. Somewhat speechless, I could only muster a few words that included "Thank you."

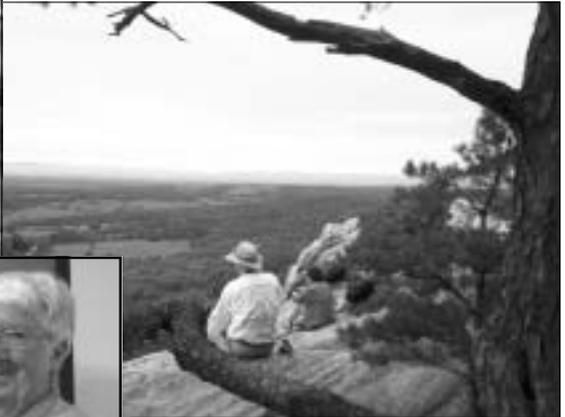
The Flora Project is indeed an impressive undertaking as a scientific literary milestone for contemporary Virginians. Those of us who have helped for 10 years to publish this manual of flora descriptions with illustrations have been privileged to participate in any way we could to produce this volume. Virginia's botanists and naturalists have waited 250 years to replace the only existing, and now badly outdated *Flora Virginica* (1762)! Our contemporary botanists, Chris Ludwig, Johnny Townsend and Alan Weakley have proven to be up to the challenge and must be considered on the same stage with John Clayton, who with Gronovius in

The Netherlands produced the very first *Flora Virginica*!

Each of you who has generously donated financial aid has had a vital part in helping the *Flora of Virginia* be published by supporting the botanical work of our three authors. One special person leading the rest of us to support the project is Marion Lobstein who unrelentingly talked about the need and possibility of a *Flora of Virginia* for years prior to the actual 2001 start. She finally spoke to the right person, Chris Ludwig, who heard and agreed with her.

Until May 2012, there is still time to join the loyal subscribers of the Flora Project. A gift of \$1,000 to \$100,000 category will place your name with other leadership donors in the first edition of the *Flora 2012* and you will receive a complimentary copy of the *Flora of Virginia*. All donations are welcomed as we strive to complete funding of approximately \$85,000 to get our copy to the publisher. Other gifts could include the sponsorship of a plant family (\$4,000 per family and there are some waiting for sponsors). If you would like to know more about the Flora Project, please visit www.floraofvirginia.org.

(See *Flora Project*, page 6)



Wild Places in Urban Spaces

The Prince William Wildflower Society Chapter hosted the 2011 Annual Meeting of the Virginia Native Plant Society September 16-18, at the Four Points by Sheraton Hotel near the Bull Run Battlefield in Manassas.

VNPS members and friends gathered in Manassas to explore the varied flora and fauna in Virginia's only county that spans three geological provinces, from the Bull Run Mountain to the coastal plain on the Potomac River. Field trips explored historical and relatively new urban and rural wilds and wetlands, the botany and geology of Bull Run Mountain, the Occoquan Reservoir as seen from the water, the realities of building green, and regional winemaking at Silver Lake Winery. Around 100 attendees learned from featured speakers Jim McGlone and Karen Firehock about white oaks and forestry management in northern Virginia and how conservation contributes to wildlife management (and vice versa) and about some of the smart, creative ways urban and suburban neighborhoods are addressing land conservation and wildlife preservation and realizing the economic benefits of their efforts.



*VNPS Annual Meeting photo album starting at bottom left and going clockwise: Jim MacGlone, of the Virginia Department of Forestry, stands beside a timber management sign; late blooming boneset (*Eupatorium serotinum*); Bethany Bezak and Linda Chaney talk about the rain garden plants and trails trails; Charles Smith stands in a meadow; smooth ground cherry (*Physalis subglabrata*); VNPS President Sally Anderson, left, honors Nicky Staunton for her work with the Virginia Flora Project; enjoying the view from Bull Run Mountain; three field trippers look at clammy cuphea; Indian pipe at Bull Run; Bethany Bezak of WS&S explains the roof garden filter system. (Photos by Jan Newton, Nicky Staunton, and Nancy Vehrs)*



• Barrier Islands

(Continued from page 1)

Such islands are all along the East Coast of North America; those in Virginia are much like barrier islands farther north, not influenced by the warming of the Gulf Stream, which departs the east coast at Hatteras Island, North Carolina. Today these islands are uninhabited.

The principal islands in the 12-island, Nature Conservancy-owned Virginia barrier chain, used by ecological and geological scientists, are Hog and Parramore Islands located about halfway between Assateague Island (made famous by Marguerite Henry's book, *Misty of Chincoteague*) to the north and Fisherman Island at the mouth of the Chesapeake Bay to the south. The only access is by a boat winding its way through long and sinuous channels among miles of *spartina*-clad mud flats.

A barrier island is a complex and dynamic place with sand contours subject to often rapid change. The ocean-side beach is like any other seashore, but on these islands natural vegetation is allowed to grow wherever the proper habitats are available. It's splendidly isolated and you can hear the calls of shorebirds and crashing surf, and walk in a habitat described by the first English explorers to come here about 460 years ago.

My colleagues and I ventured to the north end of Hog Island hoping to arrive at high tide so that we could unload the boat directly onto the Machipongo Station dock, named for the Nassawodoc Indian word for



Sabatia is one of the prettiest dune/swale plants. *Sabatia stellaris* is shown here with a common swale sedge, *Fimbristylis castanea*.

“dusty place.” It was the last of the Virginia barrier island lifesaving stations and is now used by researchers from Virginia Commonwealth University, the University of Virginia and Old Dominion University. If we missed high tide we'd have to take hundreds of pounds of gear though ten yards of boot-sucking marsh muck!

After traveling through miles of low salt marsh dominated by saltmarsh cordgrass (*Spartina alterniflora*), the first difference you see is the high saltmarsh dominated by salt meadow hay (*Spartina patens*). Salt meadow hay has a long association with people. Inhabitants of barrier islands once used it as animal forage. Today it is used as mulch by gardeners in the northeastern states. Salt meadow hay is not as hard to navigate through as saltmarsh cordgrass, so here you may be lucky enough to spot colors provided by high marsh wildflowers. We arrived in May when sea lavender (*Limonium carolinianum*) was in flower. Sea lavender is sometimes available in nurseries and flower shops all the way to the midwestern states, but observing it in natural conditions was most gratifying. Once I was lucky enough to spot a single flowering stem of maritime gerardia (*Agalinis maritima*), a hemiparasitic species attached to the roots of the surrounding salt meadow hay.

Here your attention can quickly be diverted by acute pain—from an attack by a green head horsefly. I chuckle now, but I can certainly sympathize with the response the first English explorers and settlers must have had to these biting flies. Such vicious flies certainly impressed John White, artist and early explorer who painted the insect and called it “a dangerous biting flye.” The impressive 3/4 in (19 mm) “green-heads” have eyes that look like green aviator sunglasses. They land on top of your head, carve a bowl out of your scalp with their jaws and lap up the pooling blood. The attack will certainly interrupt a wildflower reverie.

Behind the high saltmarsh are towering shrubs of the spicily scented wax-myrtle (*Morella cerifera*), the woody aster called groundsel tree



View atop Machipongo Station at the northwest corner of the island.

(*Baccharis halmifolia*) and marsh elder (*Iva frutescens*). Hidden among the wax-myrtles was my study goal, the loblolly pine (*Pinus taeda*). I had to hack through yards of wax-myrtle with a machete to get to every tree, a sweaty endeavor guaranteed to draw thousands of frightfully large bloodsuckers known as salt marsh mosquitoes.

Behind Machipongo Station is a jeep trail to the beach. Here you walk through time toward the ocean. The first dunes you encounter may be well over 100 years old. Next, you walk through a wide, wet and heavily vegetated depression called a swale to a younger dune perhaps 50 years old and then through a younger, less heavily vegetated swale until you reach the foredune, likely formed less than 25 years ago. The older dunes, called backdunes, and the older swales are monopolized by wax-myrtle growing so densely that no light reaches the ground. Younger backdunes, not so well covered, have prairie-like communities with a variety of wildflowers and grasses. One grass you will quickly get to know—due to its spiny fruits that catch your socks and drill their way into your flesh—is the sandbur (*Cenchrus tribuloides*). A wispy and almost shadow-less plant is three-awn grass (*Aristida tuberculosa*). Its long awns, resembling cat whiskers, are arranged (See *Sand dune dynamics*, page 5)

'Seeing Trees' book a must have

[Seeing Trees: Discover the Extraordinary Secrets of Everyday Trees, by Nancy Ross Hugo and Robert Llewellyn, Timber Press 2011. \$29.95]

"You mean trees have flowers?"

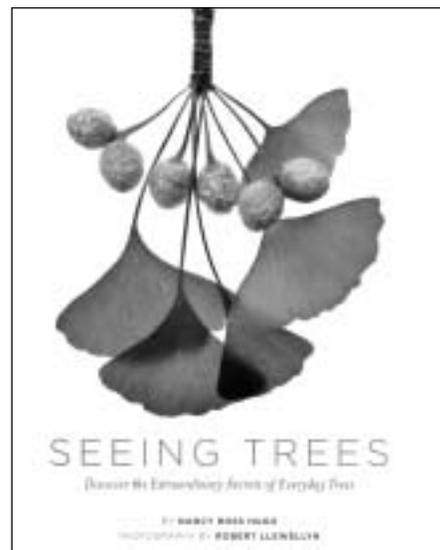
We've all gotten that reaction from a botanically-challenged acquaintance. Nancy Ross Hugo's new book will show even the most botanically aware that a whole world of unusual and beautiful structures exists in our familiar trees. Nancy's first tree book (also with photographer Robert Llewellyn), *Remarkable Trees of Virginia*, is an homage to trees that are remarkable for their growth forms, their surroundings, their human associations. *Seeing Trees* could well be subtitled "remarkable things you'll see if you look closely at familiar trees."

The photos by Robert Llewellyn of bark, buds, flowers, emerging leaves and other structures are magnified, filling the pages with unbelievable detail, going beyond illustration into art. Nancy's

easy-going prose complements the photos seamlessly. You'd have to climb a tree to get this level of detail, and after seeing this book, you'll probably want to.

I was happy to glean a bit of good news for my own trees. Whenever I've seen flowers appearing on the trunks of my redbuds, I suspected some pathology and impending death, but not so! It's just cauliflory—stem flowers—a characteristic more common in the tropical rainforests, but quite acceptable in redbuds. There's another bit of fun in here about the redbud flower, but I'll let you find it.

Seeing Trees shows many things in all seasons, but the one that has my attention now is four pages of twigs and buds. After the frothy bloom of spring and the color burst of fall, what we're left with may be the most interesting structures of all, where those blooms and bursts are stored for next year. Winter botany, twigs and buds, is a wonderful study, and our Shenan-



doah Valley Chapter is planning a walk in January, specifically to sample this bounty.

Meanwhile, pick up a copy of *Seeing Trees* and expand your view of things arboreal—and keep it on hand for the next time you have to prove that, yes, trees have flowers, and a whole lot more. (Mark Gatewood, Shenandoah Chapter)

• Sand dune dynamics

(Continued from page 4)

like the blades of tiny windmills. While the grasses aren't showy, they may bite you!

Here grow some of the most beautiful seaside wildflowers such as the open, pale yellow, bowl flowers of seaside primrose (*Oenothera humifusa*). Unlike the tall forms of inland primroses, this species is recumbent, hiding among the sandburs and three-awns. The forbidding and inadequately named yellow thistle (*Cirsium horridulum*) sits like a crowned citadel of vegetal broken glass, knives and needles with lower leaves exerting physical pressure on and killing anything growing nearby. An aesthetic counterpoint to yellow thistle is the velvet-leaved beach ground cherry (*Physalis viscosa* ssp. *maritima*) a state-level threatened species with hidden yellow, pendulous flowers. Swaths of the vining and prostrate beach pea (*Strophostyles helvola*) spread over other areas of backdune. Covered in small pink flowers, this vine can act as quite a functional trip cord.

The beautiful sea pink (*Sabatia stellaris*) looks like few flowers on the mainland. I was fascinated by how the canary yellow base of the petals is separated from the major pink extent of petal by a thin red zigzag line appearing as if on the spacesuit of Flash Gordon. Another beautiful pink flower, purple false foxglove (*Agalinis purpurea*), is rare and found in freshwater marsh swales, growing parasitically with host plants such as big-headed rush (*Juncus megacephalus*).

In the youngest swales, fresh water from rainfall accumulates and attracts some rare species for Virginia. Most of the wetlands are quickly colonized by graminoids such as squarestem spikerush (*Eleocharis quadrangulata*), blunt spikerush (*E. obtusa*), giant bulrush (*Scirpus validus*), chestnut sedge (*Fimbristylis castanea*) and, in drier areas, running beach grass (*Panicum amarum*). There are some diminutive, prostrate plants such as succulent-leaved marsh hyssop (*Bacopa monnieri*), a threatened species in Virginia prized in India's traditional medical practices. Another spreading and re-

cumbent plant is common frog fruit (*Lippia nodiflora*), which grows far south into the tropics. A rare pink flower is the stinking saltmarsh fleabane that goes by the scientific name of *Pluchea foetida*, making it sound adorably disgusting! Sadly, the diversity of this habitat is fading fast with the colonization and rapid takeover by common reed (*Phragmites australis*).

Where the foredune is breached, the swale becomes salty or sand-covered in what are called overwashes. This is the most likely spot to find glassworts, the most common being annual glasswort (*Salicornia bigelovii*). In my peregrinations I would come upon a large mass of blood-red annual glasswort; its succulence reminded me of the "red weed" from H.G. Well's *War of the Worlds*.

The foredune itself, facing constant salt spray and rising well above the water table, is a sparsely vegetated zone but one typically stabilized by American beach grass (*Ammophila breviligulata*). This grass is one of the only stabilizing influences for the developing foredune and is the focal point of female diamondback terrapins looking for a place

(See *Constant change*, page 6)

• Constant change

(Continued from page 5)

to nest. Yet even in front of the foredune is a small guild of stalwart, salt-tolerant plants. The most bizarre is sea rocket (*Cakile edentula*) with fruits containing two types of seed-dispersal mechanisms. Growing from the foredune to the high tide line is the diminutive, mat-forming seaside spurge (*Euphorbia polygonifolia*). On a beach similar to this one Henry David Thoreau observed this same species, recording it in his book *Cape Cod*.

I also botanized southward on Hog Island walking on the thin and spongy ecotone between high salt-marsh and shrub zone usually finding enough sure footing on rooted sand. Along the way I passed sea oxeye (*Borrchia frutescens*) and used my thumb to assess the sharpness of the erect bract of the black needlerush (*Juncus roemarianus*). While doing this, I spotted an opening in the shrub zone and hacked my way to it. I found a tiny grove of large and probably old toothache trees (*Zanthoxylum clava-herculis*) all surrounding an immense, ancient Native American oyster shell midden. Radford, Ahles and Bell in *Flora of the Carolinas* say that this is the most likely

• Shale barrens

(Continued from page 1)

In 1991, the USFWS Northeast Region prepared a recovery plan that outlined actions needed to protect or recover the plant, which included: a) seeking protection of all extant populations and securing permanent protection for self-maintaining populations and their habitat; b) monitoring extant populations; c) searching for additional populations; d) conducting ecological and life history studies; e) storing seeds; and f) developing and implementing management plans for extant populations as needed.

Downlisting from endangered to threatened, or delisting, would be suitable when a critical number of self-maintaining populations and their habitats are permanently protected. The rarity of the plant compared to the suitable shale barren habitat suggests that reproduction problems may exist, that herbivory is limiting population

place to find the toothache trees on the coastal plain. In the Carolinas, Native Americans and early settlers used the bark of the tree medicinally to treat, among other things, toothaches.

In the 19th and early 20th centuries Hog Island boasted a large maritime forest, located primarily at its south end, composed of loblolly pine and perhaps other trees. After the East Coast hurricane of 1933, the south end of Hog Island began eroding apace. Fifty years later, the island's maritime forest had fallen into the sea. The town of Broadwater can be found by scuba divers two miles offshore.

I visited Parramore Island just twice. Parramore is the island immediately north of Hog and once supported a large maritime forest. I was lucky enough to be in this forest and see among the thick pine duff a single, but robust, pink lady-slipper (*Cypripedium acaule*) and the sky blue flowers of wild ageratum (*Eupatorium coelestinum*). I also discovered a record for the Virginia Barrier Island flora when I found a single clump of the mycotropic Indian pipe *Monotropa uniflora*, that look like a handful of un-striped candy canes. Within five years of my visit this loblolly pine forest was attacked and mostly killed by the southern pine bark beetle.

increase, that disturbances have extirpated populations and their seed banks, and that perhaps dispersal problems prohibit recruitment.

Two major threats to successful pollination are herbivory of inflorescences and a lack of pollinators. Without cross-pollination, isolated populations could show high levels of inbreeding depression, reducing seed viability and germination percentage.

The grizzled skipper (*Pyrgus wyandot*) is a known pollinator and has experienced dramatic declines in recent decades. In Michigan, a decline was attributed to collateral ecological damage caused by widespread spraying of Dimilin and other pesticides to control the gypsy moth (*Limantria dispar*). The grizzled skipper is found in habitats including shale barrens, pastures and powerline corridors on south- to west-facing shale slopes. Shale barrens have large gaps where

(See *Species threats*, page 7)

Ten years later it burned to the ground from a lightning strike; the nice clean understory of ladyslippers must by now be a developing thicket of wax-myrtle.

But these islands will forge on, as long as new sand is delivered by river outflow. Hog Island in the early to mid-1990s was forming new sandbars in the north. This early stage of beach building might eventually lead to the formation of the next foredune. Already the swales where marsh hyssop grew were being rapidly colonized by wax-myrtle. To the south I saw salt-killed wax-myrtle where the eroding beach brought saltwater too close. The rapidity and relentlessness of change is especially clear on Wreck Island. Twenty years ago, the island's foredune was rapidly progressing over marsh and into flowering prickly pear cactus (*Opuntia compressa*). New sand was colonized by quickly growing rhizomes of saltgrass (*Distichlis spicata*). Today, Wreck Island has lost two miles of its north end. As long as sand is provided in amounts greater than it is taken away by erosion from wind and waves, the islands will remain but in a state of constant change.

This article was originally published in the North American Native Plant Society newsletter, The Blazing Star, www.nanps.org. Stephen Johnson is a freelance ecologist and botanist originally from Virginia, where he studied the effects of salt stress on loblolly pine on the Virginia Barrier Islands for his Ph.D. at Virginia Commonwealth University.

Flora Project

(Continued from page 2)

Thank you for honoring the Flora Project's effort. The *Flora of Virginia* is the bright star rising on Virginia's botanical horizon! The expected release date is October 2012. Bland Crowder is busy copy editing text to send to our publisher, Botanical Research Institute of Texas, in March 2012. Before much longer there will be a way to preorder copies of the *Flora*. Stay tuned.

Huzzah for the Flora of Virginia Project Team! Huzzah for you and your support!

(Nicky Staunton, VNPS Vice President and representative on the Flora of Virginia Project Foundation Board)

• *Species threats*

(Continued from page 6)

the adults forage and lay their eggs. The tented caterpillars feed exclusively on Canada cinquefoil (*Potentilla canadensis*) plants. Unfortunately the skipper has been almost eradicated from previously known locations. Other observed pollinators include bees of the genera *Apis*, *Halictus*, and *Adrena*, which are not affected by Dimilin, as well as syrphid flies.

The report recommends that any pesticides used to control the gypsy moth, or any other forest pest, be carefully assessed as to its impact on other invertebrates. It also recommends that current management practices of roadsides, trails, and pipeline/powerline corridors near shale barrens and where cinquefoil grows abundantly should be reviewed to maintain abundant cinquefoil cover and nectar plants for grizzled skippers.

Invasive species can often outcompete native species for areas to germinate. Many invasive plant species that specialize in colonizing disturbed areas are distasteful to native herbivores, allelopathic to native plant species and produce

many seeds. Several widespread invasive species threaten the shale barrens including spotted knapweed (*Centaurea maculata*), a weedy perennial that inhibits the growth of other plants. It is spread by foot traffic, cattle grazing and the transport of hay. Barren brome (*Bromus sterilis/Anisantha sterilis*) is an invasive grass that can be spread by humans, wild animals, hay transport and horse droppings.

Deer, goats, sheep, and lepidopteran larvae may be responsible for herbivory of shale barren rock cress. Deer have been reported to destroy up to 70 percent of inflorescences. Springtime grazing of terminal buds may increase branching and hence seed production, but late summer grazing might reduce the number of seeds. The degree of herbivory by lepidopteran larvae in a study within deer exclosures was notable, and whites and sulfurs (*Pieris* sp.) and the Olympic marble (*Euchloe olympia*) were observed. It was also suggested that other herbivores might be involved.

Historically, shale barren rock cress is thought to have been widespread, but dam, road, track, and trail construction associated with European settlement caused destruction

and overall loss of shale barren habitat. It is recommended that the environmental impact of land use changes near shale barrens should not alter the physical, physiological, hydrochemical or geochemical properties of the habitat. This would include: a) affecting the course or flow of streams that commonly undercut the barrens; b) altering the runoff/drainage flow into or out of shale barrens, thereby changing soil moisture patterns; c) altering the hydrochemistry of shale barrens by introducing chemicals (e.g. pesticides, herbicides and road or agricultural runoff); d) impeding or increasing the ability of scree to move downslope; e) managing adjacent lands in such a way (e.g. establishing new trails and powerline corridors) as to increase the chance of introducing invasive plant species; or f) physically impacting the shale barren by allowing human or animal movement, thereby disturbing the physical nature of the barren, increasing herbivory, and potentially dispersing seeds or propagules of invasive plants. The impact of field researchers should also be minimized.

Restoration may include restoring natural drainage patterns where (See *Looking to the future*, page 8)

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 The deadline for the next issue is **Jan. 6, 2012**.

Explore Florida Panhandle with VNPS

A week-long VNPS trip to the Florida Panhandle is planned for March 25-31, 2012. Trip highlights are expected to include visits to Florida Caverns, Angus Gholson Park, several sites in the vicinity of Torreya State Park, stops in the Appalachian National Forest, a boat tour of the Appalachian Basin (limit 13, first-come, first-served), and a guided trip to a dune habitat on St. George Island. We expect to see trilliums, flowering shrubs, carnivorous plants, a dwarf cypress forest, and a multitude of other plants. The cost of the trip will include lodging, lunches, guides and admission fees. Trip costs are not yet finalized, but should be in line with previous VNPS trips.

There is a 16-person limit for the trip. To reserve a place, send a deposit of \$100 to the VNPS office [VNPS Florida Trip, 400 Blandy Farm Lane #2, Boyce, VA 22620]. Signups will be in the order in which deposit checks are received.

If you are interested but not ready to commit, put your name on the waiting list by sending your contact information, with an email address if possible, and more details will be provided when they become available.

Looking to the future

(Continued from page 7)

the drainage has been diverted. To minimize destruction and invasive plant impacts, tracks, trails, or other corridors should be rerouted or closed. Parking lots and horse camps should not be located in the vicinity of shale barrens, and current non-native cover should be eradicated. To encourage cross-pollination and decrease inbreeding depression, grizzled skippers should be restored to those shale barrens from which they were extirpated. Pesticide use to control gypsy moth should not be permitted near shale barrens.

To maintain the genetic diversity of this species, seeds should be collected, genetically typed, and when extremely rare grown to maturity in greenhouses to harvest sufficient numbers of selfed seeds for storage and possible cross-pollination.

(This article was abridged from: *Shale Barren Rock Cress (Arabis serotina): A Literature Review and Analysis of Vegetation Data. A Report to the Navy Information and Operation Command, Sugar Grove, West Virginia and Naval Facilities Engineering Command Atlantic and the Institute for Bird Populations prepared by M. Philip Nott, Ph.D., Nov. 30, 2006.*)