



A publication of the VIRGINIA NATIVE PLANT SOCIETY

Conserving wild flowers and wild places

<http://www.vnps.org>

2011 Annual Meeting offers exploration of diverse habitats

The Prince William Wildflower Society invites you to the Virginia Native Plant Society Annual Meeting September 16-18. We will explore the diversity of flora and fauna in Virginia's only county that spans three geologic provinces, from Bull Run Mountain to the coastal plain on the Potomac River. The Prince William area is historically rich and provides an exciting backdrop for hiking, canoeing, exploring both urban and rural wilds, learning from eminent naturalists and presenters, and visiting with old and new friends.

Field trips will allow us to explore by foot our diverse ecosystems including the Bull Run Mountain Natural Area Preserve, Manassas National Battlefield Park, Prince William Forest Park, and Featherstone National Wildlife Refuge (FNWR), a place that is not open to the general public, and experience the Occoquan River by canoe and kayak. Participants can choose from trips that will allow them to reminisce on

**VNPS
Annual
Meeting
Sept. 16-18**

last year's mountainous venue by hiking in the Bull Run Mountain Natural Area Preserve; go back in time 150 years after the First Battle of Manassas while exploring the natural and cultural history of Manassas National Battlefield Park; or visit the state's newest and northernmost wildlife management area, Merrimac Farm in Nokesville.

The Town of Occoquan's website includes the following information: "Occoquan is derived from a Dogue Indian word meaning 'at the end of the water.' It is believed that the Dogues stayed close to the Occoquan River be-

cause of the abundance of fish and ease of traveling by canoe." Participants in the Occoquan River field trip will follow the path of Native Americans and others by canoe and kayak while observing the diverse flora found along this unique riparian corridor.

The trip to FNWR will allow participants a unique opportunity to explore a Potomac River refuge that has been closed to the public for 40 years. Featherstone contains a diverse complex of tidal and non-tidal freshwater wetlands and associated uplands that is currently being inventoried by members of VNPS and other groups in partnership with refuge staff.

Please join us for these and other exciting field trips, speakers, and a meal and social events with fellow society members. A complete listing of events for the annual meeting as well as registration information will appear in the next issue of the *Bulletin*.

Charles Smith, PWWS



Invasive insects threaten Virginia trees
Pages 4 & 5



From the president

Let the earth's plants empower you

On September 22, 2010, Col. Douglas H. Wheelock assumed command of the International Space Station and the Expedition 25 crew. His photos were sent to me in a PowerPoint presentation by my brother who works at NASA. Here is his text that accompanied a photo of the earth's atmosphere illuminated from behind by the sun:

Another breathtaking sunset . . . we get 16 of these each day in Earth orbit, each one a treasured moment. That beautiful thin blue line is what makes our home so special in the cosmos. Space is cool . . . but, the Earth is a raging explosion of life in a vast sea of darkness."

Now that is perspective! From our earthly perspective, it's spring and a great time to share the importance of that thin blue line and the plant life that helped create it and that sustains it. A wealth

of opportunities exist to hike, learn, help, and teach. For those of you who have been coming along on visits to natural places for years, maybe now is the time to step up and help your chapter with events, walks, presentations, newsletter articles and plant sales, or consider volunteering for a board position. It seems to me everyone has something to offer, including you!

In the past year, VNPS formalized a partnership agreement with the Flora of Virginia Project. I feel so proud of our organization and our accomplishment of meeting last year's fundraising goal for the Flora. I rather arbitrarily set \$20,000 as a goal, and it was more than met. I'd like you to know that you received a very nice letter of appreciation from Chris Ludwig, President of the Flora of Virginia Project, which characterized your gift as "...more than significant, it is empowering!"

Thanks so much to all of you for your generosity and support for our fundraising and our other programs.

See you soon on the trail I hope!

Your VNPS President, Sally Anderson

Apps and exhibits in the *Flora's* future

In April, Chris Ludwig, Alan Weakley, and Johnny Townsend, co-authors of the *Flora of Virginia*, held their final summit to iron out details of the book, scheduled for publication in fall 2012. As production enters its last stages, the Flora of Virginia Project is looking at its next steps. Two exciting new efforts are sure to put Virginia's plants and the Flora Project even further in the public eye.

Going digital

The Virginia Environmental Endowment (VEE) in April awarded the Flora Project \$32,500 for an 18-month plan of work titled "The Digital Flora of Virginia: Data Based." The grant funds the first step of creating from the *Flora* a digital version, or app, that will operate on handheld devices, such as smartphones and tablet computers. It will also be available on PCs.

Under the VEE grant, the content

of the *Flora* will be turned into a database, which is necessary for a flexible and powerful digital format. In addition, the *Flora* data will be linked, by plant species, to other groups' databases. The app itself will be created in a second phase once the database work is complete.

Searches will be easy and customizable. In addition to plant descriptions and interactive keys for identification, users will be able to retrieve detailed habitat and range information, as well as photographs and illustrations. The Digital Flora will also allow updates, including additions and corrections, changes in taxonomy, and new plant discoveries. And online forums are planned so that *Flora* users may communicate with one another and with the Flora Project about the *Flora* and educational activities based on it.

Flora at center stage

The spotlight will shine on our plants in 2014 as the Library of Virginia, in Richmond, will host an exhibit titled "The Flora of Virginia" from March to September. A committee has been formed that comprises the library's exhibition team, led by Barbara Batson, and representatives of the Flora Project. Bland Crowder will be curator of the exhibit; Johnny Townsend, botanist with the Virginia Natural Heritage Program and *Flora* co-author, and Randee Humphrey, of the Flora Project's board of directors and director of education at the Lewis Ginter Botanical Garden in Richmond, are also on the committee.

The exhibit will be housed in both the lobby and the gallery on the first floor of the library. Content has barely been considered so far, but expect to

(See *Flora*, page 8)

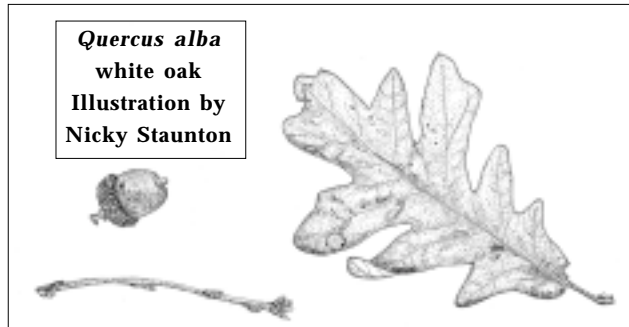
White oak part of global oak presence

As we act locally celebrating white oak, *Quercus alba*, as the 2011 VNPS Wildflower of the Year, it is perhaps appropriate to think globally for a few moments and consider the breadth of diversity encompassed by the oaks. *Quercus* is a big genus, easily the largest in its family, the Fagaceae. Approximately 400 species of oak are known, and they are widely distributed in the northern hemisphere. We tend to think of oaks as temperate zone trees, but in the New World, their range extends south through the mountains of Central America to Colombia and in the Old World, into the tropics of southeast Asia.

As might be expected of such a large and widespread genus, several subgroups of oaks can be recognized. Oak subgroups were first distinguished on the basis of morphological features; in recent years molecular (DNA) characters and the details of pollen structure have reinforced the definition of these groups. Specialists do quibble about the details, but recognition of six prominent subgroups seems well established in recent literature. Yes, six! Only two of these subgroups are found in eastern North America. It is remarkable how many of the references for oaks in our region refer to our two local subgroups as if they were the only subgroups of oak. In truth, the many oaks that grace our woods represent just a fraction of oak diversity on a global scale—hence the motivation for outlining this broader perspective of the genus. Two of the six major groups of oaks occur only in the New World, three are restricted to the Old World, and one, the white-oak group, is found in both.

While the composition of oak subgroups seems to be nearing consensus among botanists, the subgroups' nomenclature remains chaotic. Suffice it to say that application of for-

mal names depends on numerous details: the degree of lumping or splitting among subgroups, for one thing, and the rank in the taxonomic hierarchy—subgenus, section, or subsection—to which any subgroup is assigned, for another. Different botanists see these things differently and, accordingly, they wedge oak natural



Quercus alba
white oak
Illustration by
Nicky Staunton

diversity into the categories of classification to fit their particular interpretation. Consequently, we still see some proliferation of oak subgroup names. For the discussion that follows, names will be used in a strictly informal fashion independent of taxonomic rank, with an attempt to include frequently used synonymous (or nearly synonymous) alternative group names.

Intermediate or golden-cup oaks (*Protobalanus*): *Protobalanus* constitutes the smallest subgeneric group of oaks, consisting of just five species that range from southern Oregon to northern Mexico. Leaves are entire or toothed and evergreen, acorns take two seasons to reach maturity, and acorn caps are densely glandular hairy, so much so that the individual bracts are indistinct except for their tips. *Quercus chrysolepis* (canyon live oak, maul oak), a highly variable species, is the most widespread member of the group.

Red/black oaks (*Lobatae*, *Erythrobalanus*): The red/black oak group is also restricted to the New World, with some 195 species, only 35 of which occur north of Mexico—which means that the true center of diversity of “our” red/

black oaks is well to our south! Leaves may be deciduous or evergreen, lobed, toothed, or entire; toothed leaves have prominent bristletips; acorns take two years to reach maturity for most species. Included here are familiar trees like the red, scarlet, pin, black, blackjack, willow, water, turkey oaks, and a plethora of trees from high-altitude regions of Mexico and Central America.

White oaks (*Quercus*, *Lepidobalanus*, *Leucobalanus*, *Mesobalanus*): Species belonging to the white oak group occur both in the New and Old Worlds; it is thus geographically the most widespread subgroup of oaks. Some 200 species have been recognized, with 51 found across the breadth of

North America north of Mexico. Leaves may be deciduous or evergreen, lobed, toothed, or entire; when present, leaf teeth are never bristle-tipped; acorns mature within a single season. The white oak group includes many familiar local species including white, burr, post, chestnut, and swamp chestnut oaks. The evergreen live oaks (*Quercus virginiana* and close relatives) of the southeast and Gulf coast also belong here, as do many more species from Mexico, Central America, Europe, and Asia. *Quercus robur*, the English white oak, is perhaps the best-known exotic species of this group; it and some of its hybrids are sometimes cultivated as specimen trees in the U.S. Also notable is the gall or dyer's oak, *Quercus lusitanica*, from the Iberian Peninsula and nearby northwest Africa; insect-induced galls that form on this (and some related species) yield tannins used as a dark-colored dyestuff.

Cycle-cup oaks (*Cyclobalanopsis*): Cycle-cup oaks encompass about 150 species found in tropical and subtropical regions of southeast Asia. These evergreen oaks have remarkably distinctive acorn caps that consist

(See *Oak diversity*, page 8)

Hemlock woolly adelgid

Biological controls look promising



Hemlock woolly adelgid

Scientific name: *Adelges tsugae* (Annand)
Common name: Hemlock Woolly Adelgid
Native to: Asia
U.S. Introduction: 1920s (West Coast); 1951 (East Coast)

The hemlock woolly adelgid (HWA), *Adelges tsugae*, is an invasive insect pest native to Asia, and was accidentally introduced into the eastern United States sometime in the mid-20th century from Japan. Since its initial discovery in Richmond in the 1950s, HWA has infested eastern hemlock, *Tsuga canadensis*, and Carolina hemlock, *T. caroliniana*, forests over much of their geographic ranges, often causing extensive tree mortality, especially in old-growth eastern hemlock stands.

Because hemlock-dominated forests cover approximately 2.5 million acres in the eastern United States, control of HWA is of crucial importance both environmentally and economically. A neonicotinoid insecticide called Imidacloprid is most commonly used to chemically control HWA in forest and urban environments by way of soil and trunk injections. However, classical biological control of HWA (the introduction of its natural enemies from its country of origin) began in the mid-1990s, and is now the largest biological control program for any forest pest in North America.

Biological control is the preferred method of suppressing HWA in natural forest ecosystems. Although no effective natural enemies of this adelgid species are known to occur in the eastern United States, *Laricobius rubidus*, a native beetle predator of the pine bark adelgid, *Pineus strobi*, has been

observed feeding and reproducing on it. Starting in 1992, entomologists began surveying for predator insects in China, Japan, and northwestern North America that could be used as biological control agents of HWA. By 1996, several small beetles, each no longer than 3 mm, had been identified as possible controls. These included *Sasajiscymnus tsugae*, a lady beetle from Japan, several species of *Scymnus*, lady beetles from China, and a derodontid beetle, *Laricobius nigrinus*, from British Columbia, Washington, Oregon, and Idaho. Since then, more than 2 million *Sasajiscymnus tsugae* have been released in 16 states including the stretch from Maine to Georgia. Since 2004, more than 25,000 *Scymnus sinuanodulus*, the most promising of the *Scymnus* lady beetles, have been released in 11 eastern states. Of these two lady beetle species, *Sasajiscymnus tsugae* (a Web search will lead to more interesting information about this friendly insect) appears to have the most potential as a biological control agent, in part due to its being more successfully mass-reared in the laboratory. However, individuals of both species have been recovered near release sites since their release, confirming their establishment and reproduction, though in fairly low numbers.

The beetle *Laricobius nigrinus*, native to the Pacific Northwest, feeds primarily on HWA infesting western hemlocks, *Tsuga heterophylla*. As with all the HWA biological control agents, *L. nigrinus* was held in quarantine for a period of time before being released. Quarantine studies were conducted on this species at Virginia Tech in Blacksburg. While in quaran-

tine, it was determined to be host-specific (feeding only on HWA), and, after federal and state approval in 2003, it was first released into Virginia hemlock forests. Laboratory mass-rearing techniques had been developed for this predator at Virginia Tech by 2005, and the species is now being mass-reared there and at additional labs in the eastern U.S., including facilities at the University of Tennessee, Clemson University, and the University of Georgia. Since 2003, around 100,000 *L. nigrinus* have been released at more than 80 locations from Massachusetts to Georgia, and the beetles have established small populations at nearly 60 percent of the monitored release sites. Support and funding for the mass-rearing of this and other agents has been provided primarily by the USDA Forest Service.

In addition to the agents described above, three new predator species show promise. *Leucopis argenticollis*, a small fly native to western North America, has been observed feeding on HWA. *Laricobius osakensis*, a derodontid beetle from Japan, was recently approved for release after being studied in quarantine at Virginia Tech. And *Scymnus ningshanensis*, another small lady beetle from China, may also be effective if released in large numbers. Long-term monitoring and assessment of predator impacts on HWA populations in the eastern U.S. is ongoing, yet it is hoped that eventually HWA densities can be suppressed to levels that have fewer detrimental impacts on our beautiful hemlock forests.

Ryan Mays, Research Specialist,
Virginia Tech

Another invasive insect destroying native trees



Emerald green ash borer

Depending on where you are in Virginia, you might have seen the mysterious purple triangular contraptions, 14 in. by 24 in., hanging from trees. The objects are not part of some secret government experiment. They are emerald green ash borer traps placed in trees by the Virginia Department of Agriculture and Consumer Services (VDACS) to catch the invasive beetles so that the extent of ash borer infestation across the commonwealth can be determined.

The traps are baited with a natural plant oil attractant and covered with a nontoxic glue to catch the insects. VDACS officials said the traps have been especially useful for detecting new infestations.

Over the course of several years the traps have been placed around the state. This year's survey will focus on central, southern and western Virginia. About 5,500 traps will be set for the beetles, which have killed tens of millions of trees in the eastern U.S. and Canada.

The borers feed on a tree's inner bark and disrupt its ability to trans-

port water and nutrients. The damage becomes apparent when the top third of the tree weakens and produces little growth. Eventually the tree dies. Apparently it's not the adult insect that does the damage but, rather, the larvae that eats their way through the interior of the trees. Woodpeckers seem to enjoy ash borer dinners, so that's somewhat of a help.

The borers were introduced accidentally into the U.S., most likely in wood-packing materials, such as shipping crates, coming from Asia, and were first detected in Michigan in 2002. They were first found in Virginia later that same year, at a Fairfax County elementary school, where infected ash trees originating from a nursery in Michigan had been planted. To prevent the spread of the beetles, all ash trees within half mile of the school were cut and chipped.

But the beetles were detected again in Fairfax in 2008. Agriculture officials established a quarantine for 10 Northern Virginia counties and cities, expanding it in 2010 to include the northern Shenandoah Valley counties of Frederick and Clarke and the city of Winchester.

The quarantine restricts shipments of ash trees, green lumber from ash trees, and hardwood firewood.

"The damage caused by this invasive insect can mean the loss of millions of dollars for homeowners, landowners, and the nursery and forest products industries," said Virginia Agriculture Commissioner Matthew J. Lohr.



An ash borer trap hangs from a tree in the Shenandoah Valley. Most of those tiny dots on the sides of the trap are ash borers. (Photo by Nancy Sorrells)

Bulletin takes first place

The VNPS *Bulletin* garnered a first place award in the newsletter category of the Virginia Outdoor Writers' Excellence in Craft Contest. Winners were announced in April at the Virginia Outdoor Writers Association (VOWA) annual meeting held at Bear Creek State Park.

The contest specified that each entrant choose one representative issue from those newsletters produced in 2010. The first place *Bulletin* entry was the Summer 2010 issue. That issue contained articles on lost native ladybugs with extensive illustrations by Nicky Staunton. Another featured topic in the issue focused on quails and their need for native grasses. That article was illustrated with drawings by Spike Knuth.

VOWA is a coalition of writers, photographers, and video/film producers who inform various media on the outdoors and its enjoyment. Through the association members strive to improve their craft and increase their knowledge and understanding of the outdoors. VOWA members pledge to support the conservation of Virginia's natural resources and to the best precepts governing their consumption and recreational use. For more information about VOWA, visit www.vowa.org.

Virginia dam removals help restore wetlands

Three state dams were recently breached on purpose in order to enhance the quality of waters flowing into the Chesapeake Bay and help restore the wetlands and marsh habitat around the waterways. The work was funded by the Virginia Aquatic Resources Trust Fund.

In Charles City County an earthen dam on Kimages Creek was breached, returning 50 acres of wetlands that will sustain wintering birds and allow migratory fish to return to freshwater marshes to spawn.

At Cumberland Marsh Preserve in New Kent County, the removal of two dams opens the way for the restoration of marsh and swamp habitats, the re-establishment of 1,500 ft. of meandering stream, and the return of tidal flows.

Shale barren rock cress

Mustard family member among world's rarest plants

Shale barren rock cress (*Arabis serotina*) is an erect flowering biennial in the mustard family (Brassicaceae) characterized by an inconspicuous basal rosette of lobed leaves. In its reproductive stage, the basal leaves shrivel as the slender stem grows, or bolts, and the inflorescence develops. Whitish flowers may be produced from June to September.

VNPS sponsorship of this plant through Center for Plant Conservation (CPC) will contribute funds for research related to conserving the plant. The CPC is a network of 36 leading botanic institutions. One of these institutions is designated as the custodian for each rare plant. For *Arabis serotina*, the North Carolina Botanical Garden is custodian.

The plant is endemic to the mid-Appalachian shale barrens of Virginia and West Virginia. These barrens occur on eroding shale formations with a steep slope and southern aspect. The harsh surface conditions of the area are probably an important factor in germination and seedling establishment. The shale-covered slopes may also host sparse, scrubby growth of oaks, pines, and junipers. One of the most restricted shale barren endemics, rock cress is known from at most 60 populations. Plant populations are generally fewer than 20 individuals and fluctuates considerably in numbers. Pollinators include bees of the genera *Apis*, *Halictus* and *Adrena* and syrphid flies.

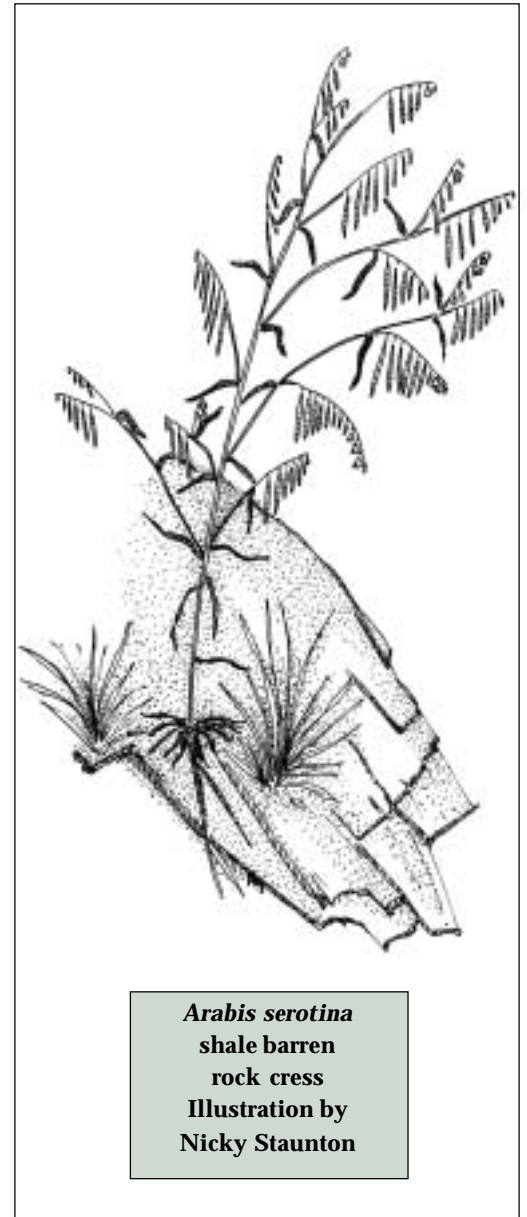
Shale barren rock cress was listed as a federally endangered species in 1989. Its rank as of 2009 was G2, or imperiled, defined as at high risk of extinction due to very restricted range, very few populations, steep declines or other factors. In Virginia, the Department of Agriculture and Consumer Services (VDACS) is responsible for listing threatened and endangered plant species. Shale barren rock cress was given an S1

ranking in 1991. S1 species are Critically Imperiled — at very high risk of extirpation due to extreme rarity, very steep declines, or other factors. The Nature Serve website states that the recovery potential of shale barren rock cress is largely unknown and that it is the "most threatened of all the shale barren endemics and the reason for this is not entirely clear." Research on populations of this plant is under way in both Virginia and West Virginia.

There are several documented threats to the survival of this species. Gypsy moth control with Dimlin has a possible devastating effect on the pollinators of shale barren rock cress. Habitat loss has occurred as a result of construction. Invasive exotic plants, especially spotted knapweed (*Centaurea maculata*) and several grass species may out compete this species. Browsing by deer, drought, and naturally low populations are also potential threats.

The mission of the (CPC) is to conserve and restore the imperiled native plants of the U.S. in order to secure them from extinction. Live plant material is collected from nature under controlled conditions and then carefully maintained as seed, rooted cuttings, or mature plants. Network institutions conduct horticultural research and carefully monitor these materials so that imperiled plants can be grown and returned to natural habitats. These conservation efforts are undertaken to complement other preservation efforts such as habitat protection and management.

VNPS is excited to be able to aid in the study of shale barren rock cress



Arabis serotina
shale barren
rock cress
Illustration by
Nicky Staunton

and the protection of one of our most threatened plants.

(Information for this article was largely taken from the CPC website. Additional information, photos, and references are available from www.centerforplantconservation.org. Additional information is available at NatureServe's Explorer website, natureserve.org/explorer/.)

Discovery of botanical wall charts leads to exhibit

Last year when Lydia Kirchner was taking courses in botany and museum studies, members of the biology department at Randolph College in Lynchburg, discovered botanical a set of wall charts in the attic of the life science building. The wall charts were in very good condition, so the department contacted Randolph's Maier Museum of Art to inform them of their discovery. One thing led to another and Kirchner was chosen to research the history of the wall charts and to curate an exhibition about the charts at the Maier museum.

The exhibition, "Nature Perfected: The Art of Botanical Illustration," opened Jan. 23 and be open until July 31. Twelve wall charts are on view, along with pressed plant specimens, a 1920s microscope, and microscope slides from the late 1800s enhancing the significance of the wall charts and how they improve our understanding of plants at the microscopic level.

Many of the charts discovered in the attic were created by Jung-Koch-Quentell in the 1950s. Their trademark black background and colorful illustrations are still vibrant in spite of having lain in an attic for many years. Botanical wall charts have a history dating to the 1800s. They were first created in

Germany during a time of educational reform. The first wall charts originated in the 1820s, mostly for use in primary schools. In the 1840s, the student population increased 108 percent while the number of teachers increased only 40 percent. Wall charts allowed teachers to show supporting visuals in large classrooms filled with students.

From 1850 to 1890, botanical wall charts became very popular with the advent of color lithography. Contributing to the popularity of wall charts by Jung-Koch-Quentell specifically, is their absence of text. Because they lack text, the charts do not have to be trans-

lated, making them very versatile.

Included in the exhibition are an original print by John James Audubon from the Maier museum's permanent collection, a 14th-century illuminated manuscript, and four books from the college's Lipscomb Library rare books collection. The books on display include: *Beautiful Ferns* by Daniel Cady Eaton, Charles Edward Faxon, and J. H. Emerton, published in 1882. This book features watercolors drawn from nature and accompanied with descriptive text.

Information from Art Plantae website

Rare butterfly rediscovered

There's good news on the conservation front in Virginia. The frosted elfin butterfly, last seen in 1994, has been rediscovered. Zoologists with the Virginia Department of Conservation and Recreation's Division of Natural Heritage located populations of the frosted elfin butterfly (*Callophrys irus*) in the city of Suffolk, and a Natural Heritage volunteer at Antioch Pines Natural Area Preserve also found a population. This small butterfly is associated with habitats that are either fire-dependent or undergo other frequent disturbances. Antioch Pines is one of the preserves where prescribed fire management activities have been focused; as a result, multiple fire dependent species not seen in a long time have returned. These disturbances encourage the growth of the caterpillars' food plants, lupine and wild indigo. The Natural Heritage staff is currently involved in a two-year project to develop an atlas of rare butterflies, moths, dragonflies, and damselflies in Virginia.

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• *Oak diversity*

(Continued from page 3)

of a series of ringlike ridges. Whereas our familiar acorn caps look scaly, cycle-cup acorn caps look as if they have been turned on a lathe. In some species the acorns are borne in remarkably dense clusters. *Quercus myrsinifolia*, the Chinese evergreen oak, is rarely cultivated in our region, but several specimens are visible from my office window on the University of Richmond campus. Sometimes the cycle-cup oaks are split out as a separate genus.

Cerris oaks (*Cerris*): As a group, cerris oaks are strictly Eurasian. The leaves are evergreen or deciduous, bear bristle-tipped lobes, and the acorns mature in two seasons. A few species from this group are sparingly cultivated in the U.S., most prominently, *Quercus acutissima*, the sawtooth oak, and less frequently, *Q. cerris*, the European Turkey (or Turkish) oak. *Quercus suber*, from which cork is harvested commercially in southwestern Europe and northwestern Africa, also belongs here.

Cork oaks, incidentally, make prodigious quantities of outer bark, i.e., cork, an adaptation by which the trees are insulated from sporadic fires that sweep through this species' natural habitat.

Holm or holly oak & relatives (*Ilex*): The holly oaks are also strictly Eurasian, sometimes included within the cerris oak group, but distinguishable by details of pollen structure. Holly oak, *Quercus ilex*, is so named because its spiny leaves resemble those of holly; in fact, some sources indicate that *ilex* is the classical Latin name for this oak, which only later came to be applied as the genus name for hollies. *Quercus ilex* is also notable as one of several oaks that supports the growth of truffles. Another interesting species from this group is *Q. coccifera*, the kermes oak; this tree is host to the kermes scale insect, which can be harvested and processed to yield the natural red dye called crimson.

That's just a brief overview of oak diversity. When you think about it, it

is a remarkable genus indeed that stoppers the bottle of wine that we sip while dining on truffles that grow upon its roots and also furnishes the table and chair from which we enjoy these sublime refreshments.

W. John Hayden, VNPS Botany Chair

• *Flora*

(Continued from page 2)

see antique books and prints on Virginia plants and the botanic exploration of Virginia, herbarium specimens, botanical art, as well as an interactive computer station and a video program. The path to publication of the *Flora of Virginia, of course*, will be featured. Educational activities and regional panel exhibits are also planned. Stay tuned!

Bland Crowder, Associate Director, *Flora of Virginia Project*