



Bulletin

A publication of the VIRGINIA NATIVE PLANT SOCIETY

www.vnps.org

Conserving wild flowers and wild places

Zephyr lilies: simple beauty belies complex biology

I have vivid memories of three different species of zephyr lilies. My first memory dates back to childhood when a family friend gave my mother a pan planted with a pink-flowered species, perhaps *Zephyranthes grandiflora* or *Z. rosea*. It was an old and badly chipped enamel basin and, when given, it seemed to hold nothing more than ugly brown, shriveled, leaf bases scarcely rising above the otherwise bare soil. But within a few days of watering the gift, like magic, we were rewarded with a profusion of exquisite pink lilies.

I also recall a small colony of our native atamasco or Jamestown lily (*Z. atamasca*) growing on the base of a bluff along the James at the mouth of Flowerdew Creek. In this case, the moment was magic, the small white flowers swaying gently in the onshore breeze, illuminated by sun flecks passing through the not-yet-fully-developed tree canopy.

And just a few years ago, while strolling the Paseo Montejo in Merida, Yucatan, I came across a few plants of *Z. candida* at the edge of a street-side planting. It was the beginning of June and the first hard rain of the season had soaked the peninsula a few days before. A friend told me that, locally, the plants are called "brujito," which translates as goblin or little sorcerer, for the way they appear, like magic, following rain. In each case I was struck by how the perfect, elegant, beauty of these zephyr lilies conveyed a sense of effortless magic. It is often thus, the best in art appears effortless; the most compelling science, once understood, seems obvious. But talk at length with any artist or scientist and you will learn that what appears simple is actually the culmination of a great deal of work. Zephyr,

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Jamestown lily
Zephyranthes atamasca
Illustration by Nicky Staunton

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Updates on VNPS Annual Meeting

There have been a few changes in the 2007 VNPS Annual Meeting, **Where the Land meets the Water**, scheduled for September 14-16 in Gloucester Point. The two most important changes are that the state annual meeting will be on Saturday night during the buffet/party, and the keynote speaker will be Dr. Jim Perry, a marine science professor at William and Mary's Virginia Institute of Marine Science (VIMS). All other previously published information concerning the VNPS annual meeting is the same.

The John Clayton Chapter and VIMS have lined up speakers and fieldtrips for Friday afternoon, including a kayak trip down Dragon Run led by Teta Kain, a talk and walk at Jamestown Island, a presentation by Wesley Greene, garden historian with the Colonial Williamsburg Foundation, and some wonderful VIMS presentations. Keynote speaker Dr. Jim Perry will

(See *Annual Meeting*, page 2)

From the president

Prepare for spring excitement in the natural world

I think an exciting spring is shaping up. We just held our annual workshop and the response was tremendous. I want to thank Shirley Gay for her hard work on this over the years. Shirley would like to step down, so if you have a talent and interest in putting together programs, we could use your help. There are lots of other things that we would like to accomplish, and we can, with your assistance. We are looking for help with specific events as well as nominees for several board positions.

I'd also like to thank Cole Burrell and Bruce Ellsworth, who are again opening their garden in Free Union, Va. for the Garden Conservancy's Open Days Program this year, and donating some of the proceeds to VNPS. This year's event is on May 19, and we will eventually post the information on our website, or you can contact the office for details.

I've been looking at tree buds and seed pods in the snow lately, and with the longer days, I'm starting to daydream about spring wildflowers. Some will be coming out by the time you read this, but while you are waiting, go to your fa-



vorite trees and take a look at the twigs in winter. If you have the use of an ocular or a microscope that will be helpful. In fact, it might take your breath away to see a color or texture you didn't expect. I've used keys to try and identify trees by their buds, and sometimes it is quite easy and other times more difficult. I'm trying to collect my own twigs for trees I know, and then I'll be able to compare them to unknown trees. Some of our chapters have 'nude tree' walks and I recommend them.

It is also time to go to your favorite garlic mustard patch and pull. Maybe this will be the year I try to make garlic mustard pesto, but usually I'm too tired of smelling it to be interested by the time I have enough. If your chapter is involved in an invasive removal project I hope you will help out. I have found extra helpers locally through watershed groups, birders and gardeners, and everyone learns from each other.

Don't forget to stop and smell the flowers,
Your President, Sally Anderson

Public input sought in GW forest plan

A series of public meetings to discuss and ultimately revise the George Washington Forest Plan are underway this spring in western Virginia and West Virginia. Anyone interested in the health and future uses of the national forest should attend and provide input.

The George Washington (GW) National Forest is comprised of 956,222 acres in Virginia and 104,858 acres in West Virginia. The GW and Jefferson National Forest, which are managed together, represent one of the largest tracts of forest east of the Mississippi. Over 40 tree species occur within these forests as well as over 2,000 species of shrubs and herbaceous plants. Hardwood-dominated forest types comprise approximately 80 percent of the acreage and conifers comprise about 20 percent. There is much variation in the vegetation and many natural changes are taking place as forest succession progresses.

The Jefferson plan was revised in 2004 after an 11-year effort. However, the GW plan was last revised in 1993. The forest service wants to bring the GW more in line with the Jefferson in creating a vision for the future. The new plan will be more strategic in nature, focusing on how the citizens want the forest to look and to function. The plan will have less information on how and where projects will be implemented and give more ability for projects to be carried out on the local level.

There are five plan components: desired conditions, objectives, guidelines, suitability and special areas. Desired conditions means what the forest will look like, while objectives are measurable, time-specific intended outcomes to maintain or meet the desired condition. Guidelines are for project design and implementation. Suitability of areas re-

(See Forest plan, page 8)

• Annual Meeting

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present at 7:30 p.m. on Friday evening. Saturday talks feature native trees, native grasses, the distribution of mountain plants in the coastal plain, research on John Clayton's possible home site, water-wise gardens, and plants of the coastal plain with slides by Hal Horowitz. There will also be a workshop on creating habitats, and fieldtrips down the Dragon, to the VIMS Teaching Marsh, the sinkhole ponds at Grafton Ponds Natural Area Preserve, and trips to see the shadow witch orchid and water-wise gardens. Saturday evening will celebrate the 25th anniversary of VNPS with a buffet/party and annual meeting in York-town. Tours to Sassafras Farm, a nursery specializing in native plants, will take place on Saturday and Sunday. The conference closes on Sunday with the morning board meeting and more great fieldtrips. Look for registration information in the *Bulletin*, and more details and updated info at www.claytonvnps.org.

Virginia Wildflower Celebration 2007

The 13 chapters of the Virginia Native Plant Society celebrate the rich diversity of the native flora of the Commonwealth each spring. Society members will share their enthusiasm for wild plants and wild places on field trips and wildflower walks, and during garden tours, plant sales, and a variety of other programs throughout the state.

You are cordially invited to any of the activities listed below; they are all open to the public. As some events require reservations, fees or additional instructions, use the contact information provided to obtain further information. Plants propagated by members will be available at chapter plant sales.

As you travel about the state, watch for the 2007 VNPS Wildflower of the Year, Jamestown lily (*Zephyranthes atamasca*) It is found in Virginia's coastal plain and infrequently in the state's southern piedmont. Atamasco lily is found in low woods and wet meadows. It also readily colonizes road shoulders in areas of appropriate habitat, apparently benefiting from the extra light and decreased competition. In the Commonwealth it flowers in April or May and fruits mature by May or June.

Wildflower Calendar of Events

Key West Wildflower Walk – Saturday April 7, 1:30 p.m. Ruth Douglas, Jefferson Chapter, will guide this flat terrain walk along a florally rich floodplain and bluffs of the Rivanna River just north of Charlottesville. This exceptional private property contains impressive stands of bluebells, spring beauties, trout lily, Mayapple, bloodroot, and toothwort. For directions contact Ruth Douglas, 434 293-6538.

Spring Wildflower Class – Wed. Apr. 11, Thurs. Apr. 12, & Sat. Apr. 21, 1-3 pm Audubon Society of Northern Virginia, instructor, Martin Ogle. Learn common spring wildflowers at Potomac Overlook, Bull Run, and the upper Potomac, \$60 for non-members, registration required, 703-256-6895 or info@asn.v.org.

From Bald Cypress to Boltonia: New Discoveries – Thursday April 12, 7:30 p.m. Gary Fleming and John Townsend from DCR-Natural Heritage share results of rare discoveries in Southampton and Augusta Counties, Potowmack Chapter at Green Spring Gardens Park, Shirley Gay, 703-920-1913.

Spring Wildflowers of the Potomac Gorge – Friday April 13, Carderock Recreation Area, Md. Cris Fleming helps find and identify local wildflowers. Some steep, uneven, rocky, and/or muddy terrain, non-members \$22, Audubon Naturalist Society, 301-652-9188 x16.

Lake Accotink Wildflower Walk – Saturday April 14, 10-11:30 a.m. Hepatica, trout lilies, wild ginger and more. Lake Accotink Park, free, reservations required, 703-451-9588.

Fairy Spuds and Ramps: Edible and Medicinal Wildflowers of the Floodplain – Saturday April 14, 9:30-11:30 a.m. Riverbend Park Visitor Center, free, reservations required, 703-759-9018.

Wildflower Sale at Long Branch Nature Center – Saturday April 14, 1-3 p.m.

No plants are removed from the wild; fine selection of both spring and summer bloomers and ferns. Sunday is the rain date, Long Branch Nature Center, 625 S. Carlin Springs Rd., Arlington, Va.

Hickory Hollow Spring Ephemerals Walk – Saturday April 14, 10 a.m., Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com.

John Clayton Native Plant Walk – Saturday April 14, 10 a.m., Free, open to the public, bring water and lunch. Call Sandy at 804-725-1721 or email at spait@wildblue.net to register and get directions. (Rain date: April 15 at 2 p.m.)

Earth Sangha event Canterbury Woods in Fairfax – Saturday April 14, planting 200 native trees, lbright@earthsangha.org.

Spring Ephemerals Walk and Spring Ephemerals Powerpoint – Sunday April 15, 1-3 p.m. Ellanor C. Lawrence Park in Chantilly, Va. Begin in the classroom and then see lovely little pockets of spring wildflowers and a very few showy orchis; moderate terrain, free, reservations required, 703-631-0013.

Wilna Tract, Botanizing with Marie Minor – Wednesday April 18, 10 a.m. Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com. Repeated Wednesdays May 16, May 30, and June 23 (9 a.m.)

Earth Sangha event on the George Mason University campus (Fairfax) – Wednesday April 18, adding native wildflowers, lbright@earthsangha.org.

Growing Native in the Shade – Friday April 20, 1:30-3 p.m. with Brenda Skarpohl. Green Spring Gardens, \$15, to register call 703-642-5173.

Turkey Run Park Invasives Removal – Saturday April 21, Potowmack Chapter and The Nature Conservancy partner to control invasive plant species on National Park Service lands in the Potomac Gorge at

Turkey Run Park off the GW Memorial Parkway. Wear work gloves and boots or sturdy shoes, and bring water, snacks, and hand saws or loppers if you have them. You are always welcome to bring friends. Alan Ford 202-213-6196 or amford@acm.org.

Pohick Wildflower Walk – Saturday April 21, 10 a.m.-noon, Hidden Pond Nature Center, 8155 Greeley Blvd., Springfield, Va., free, canceled if rain, reservations required, 703-451-9588.

Calmes Neck Walk – Saturday April 21, 10 a.m. to noon with Gary Fleming, 540-837-1637 or cvanderv@nelsoncable.com.

Earth Sangha Earth Day Event at Hidden Pond Nature Center/Pohick Stream Valley Park – Sunday April 22, planting 200 native trees, includes nature walk, lbright@earthsangha.org.

Laurel Grove Tract, Botanizing with Marie Minor – Wednesday April 25, 10 a.m. Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com. Repeated Wednesdays May 9, May 23, June 6 (9 a.m.), and June 27 (9 a.m.)

George Washington's Birthplace, Spring Ephemerals – Thursday April 26, 10 a.m. Bring a picnic lunch. Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com.

Spring Wildflowers of the Potomac Gorge—Spring Bear Island, Md. – Friday April 27, Cris Fleming to lead in identification of local wildflowers. Involves some steep, uneven, rocky, and/or muddy terrain. Non-members \$22, Audubon Naturalist Society, 301-652-9188 x16.

Shenandoah Chapter Plant Sale – Saturday April 28, 8 a.m.-2 p.m. at Riverfest in Waynesboro, Va.

Plant Swap. Long Branch Nature Center – Saturday April 28, noon-2 p.m. Bring some cuttings of your favorite native plants and swap with other area green

(See Calendar, page 4)

Wildflower Calendar of Events

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thumbs. Learn about creating a backyard wildlife habitat from Arlington Community Wildlife Habitat team, free, no registration required. Meet at Long Branch Nature Center, 625 S. Carlin Springs Rd., Arlington, Va.

Balls Bluff and Red Rock Wilderness Overlook – Saturday April 28, 9 a.m.-3 p.m. Cris Fleming leads an in-depth exploration of the diverse habitats and plant communities at two rustic parks near Leesburg. At Balls Bluff limestone bluffs now harbor uncommon wildflowers such as shooting star and green violet, and the bottomlands along the river display Virginia bluebells, sessile trillium, and many others. At nearby Red Rock, high red siltstone bluffs support wild pink, lyre-leaved rockcress, and cascades of wild columbine, while the ravines are carpeted with Dutchman's breeches and squirrel corn. Non-members \$39, Audubon Naturalist Society 301-652-9188 x16.

Earth Sangha event at its native arbo-retum (MBLP) – Saturday April 28, removing English ivy, lbright@earthsangha.org.

Earth Sangha event with Fairfax Reli-fax – Saturday April 28, planting 100 natives in Folly Lick Park in Herndon, lbright@earthsangha.org.

John Clayton Chapter and the James City County/Williamsburg Master Gardeners Plant Sale – Sunday April 29, noon-4 p.m.

Send a kid to Nature Camp this summer

Do you know a youngster who can't take a walk in the woods without turning over every rock in search of insects or salamanders? Who loves to wade in creeks, catch butterflies or look for birds? Who would rather be outside investigating nature than indoors watching TV or playing video games? If so, then Nature Camp might just be the place for him or her.

Located in the George Washington National Forest near Lexington, Virginia, Nature Camp is a coeducational, residential summer camp specializing in natural history and environmental education for 5th through 12th graders. Once described as a place "where fingertips are taught to see," Nature Camp emphasizes hands-on, field-based, experiential learning in classrooms consisting of forest, field and

Native and ornamental plants including flowers, ferns, vegetables, herbs, shrubs, small trees, and house plants. Seeds, gardening supplies and blue bird houses also sold. Williamsburg Community Building, 401 N. Boundary St. (across from the Williamsburg Regional Library). Free parking garage next door.

Jefferson Chapter Annual Native Plant Sale – Sunday April 29, 1-3 p.m., Ivy Creek Natural Area on Earlysville Rd. just before crossing Rivanna River Reservoir near Charlottesville. Held in conjunction with Ivy Creek's Natural History Day. Emphasis on spring ephemerals; also ferns, perennials, and woodies. For information philips@hoos.net or 434 293-4217.

Wildflowers: What the Jamestown Colonists Found – Sunday April 29, 1-2 p.m. Hidden Oaks Nature Center, \$3, reservations and advance payment required, 703-941-1065.

G. Richard Thompson Wildlife Management Area – Sunday April 29, 1 p.m. see *Trillium grandiflorum* and other spring flowers, 540-722-3072 or rccsca@visuallink.com.

Native Plant Walk to Greenhaven – Thursday May 3, 9:30-12:30 p.m. John Clayton Chapter Registry Site near Norge in James City County, involves traversing slopes and getting wet/muddy feet. See spring wildflowers, including two that are rare in the coastal plain of Virginia—American dog violet and dwarf ginseng. Free and open to the public, 757-565-0657 to register.

stream. In each of four two-week sessions divided by age group, campers attend classes in such subjects as botany, geology, and ornithology, but also enjoy plenty of free time for hiking, swimming, and games. Many campers return summer after summer throughout their high school years and form lasting friendships that extend into adulthood, as they develop a deep and abiding attachment to nature and a lifelong love of learning.

For additional information, visit the Nature Camp website at www.naturecamp.net or contact camp director Philip Coulling at 540-460-7897 or director@naturecamp.net. The John Clayton Chapter of VNPS also offers some scholarships and inquiries can be made by going to the chapter contact through www.vnps.org.

Spring Wildflowers of the Potomac Gorge-Turkey Run Park, Va. – Friday May 11, Cris Fleming helps identify local wildflowers. Involves some steep, uneven, rocky, and/or muddy terrain, but we will proceed at a slow pace. Non-members \$22, Audubon Naturalist Society 301-652-9188 x16.

Voorhees Nature Preserve, Spring Ephemerals Walk – Saturday May 12, 10 a.m., Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com.

John Clayton Native Plant Walk to Freedom Park – Tuesday May 15, 9:30 and 1 p.m. trips in Williamsburg (at "T" intersection of Longhill Road with 5535 Centerville Road). Meet at picnic table adjacent to parking area at end of mile-long entry road, free, open to the public, 757-565-0657 to register.

Hill's Quarter & Plant Exchange, "Starting Native Gardens" – Thursday May 17, 10 a.m. Bring a plant to exchange. Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com.

John Clayton Native Plant Walk and Potluck Picnic – Thursday May 17, (9:30 and 1 p.m.) at New Quarter Park in the Queens Lake area of York County, Williamsburg. A potluck picnic and short meeting will follow at 6 p.m. with an additional walk after dinner. The event is free and open to plant lovers. Visit www.claytonvnps.org or call 757-564-4494 for more info and directions.

Dickerson Garden – Thursday May 24, 10 a.m. Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com.

Hickory Hollow Yellow Lady Slipper Walk – Saturday June 9, 9 a.m., Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com.

Dameron Marsh/Hughlett Point – Thursday June 21, 9 a.m., studying bay habitats, Northern Neck Chapter, Nick Ferriter 804-462-6242 or ferriter@aol.com.

TREE SEEDLING SALE

The Northern Virginia Soil and Water Conservation District (NVSWCD) bare-root seedling sale features trees and shrubs native to Virginia. This year's package, *Winter is Our Season*, will have 16 bare-root seedlings. Call 703-324-1460, visit www.fairfaxcounty.gov/nvswcd/seedlingsale.htm or e-mail conservationdistrict@fairfaxcounty.gov.

Green mulch from invasives offers many benefits



As mentioned in the previous installment of this series, my property has an exuberant abundance of Japanese honeysuckle that I am slowly hacking away for use as supplemental winter fodder for my chickens. The second most abundant invasive exotic on my property is autumn olive, *Elaeagnus umbellata*. Our

place is not far from a state-operated wildlife management area where this Asian native was planted long ago to provide food and cover for birds and small mammals. The strategy seems to have worked, because the edible red berries are indeed consumed as winter food by wildlife. As the fruits enter the food chain, their seeds disperse across the countryside. On my property, I have hundreds of plants ranging from very young seedlings to large shrubs or small treelets about 12 feet tall. I see autumn olive as a common roadside shrub pretty much everywhere I travel in the northeastern U.S. In my ongoing efforts to reduce the invasive species in my own backyard, I've tried feeding autumn olive leaves to the chickens, but they show no interest. What to do?

For the past several years, I've been clipping leafy branchlets of autumn olive for direct use as green mulch in my vegetable garden. In essence, I clip the shoots into segments ranging from 4 to 10 inches long, gathering the freshly chopped mulch into a wheelbarrow. I like to emphasize the youngest and leafiest stems, but since I am also interested in reducing the exotic plant's biomass, I also clip woody stems up to a half inch in diameter. I then place the coarse mulch, leaves, young stems, and chopped woody branchlets, around my vegetable plants. I install the fresh green mulch to a depth of 3 to 6 inches. This may sound excessive, but the green leaves

quickly wilt, dry out, and shrivel to a fraction of their original size. Consequently, the mulch layer soon becomes a thin veneer over the soil surface. Sometimes I add a second layer if the first one shrivels to the extent of failing to cover the soil.

All the usual benefits of mulch apply to this exotic green mulch: soil water evaporation is decreased, soil temperatures are moderated, mud-spatter and soil compaction from rain-drops is decreased, and weed growth is inhibited. When wilted and crinkly, autumn olive mulch is readily penetrated by rain water. Compared with other materials, *green* mulch, in theory, should provide the extra benefit of adding nutrients to the soil. The theory goes something like this: the biomass of green, living, leaves should contain a reasonable balance of the mineral nutrients required for plant life. The leaves and stems were, of course, alive and fully functional when harvested. So, as the green mulch begins to decompose, a full and balanced range of nutrients should be released into the soil. Further, autumn olive offers a special advantage in terms of nitrogen. Roots of *Elaeagnus* form a symbiotic relationship with actinomycete bacteria that perform nitrogen fixation. Much like the familiar nitrogen-fixing bacteria of legume root nodules, the actinomycetes (genus *Frankia*) pass nitrogen compounds to their *Elaeagnus* hosts. In theory, then, one might expect autumn olive green mulch to be particularly beneficial in the vegetable garden.

Certainly, the foliage of many invasive exotic plants could be cropped for use as green mulch. I have used Japanese honeysuckle this way, alone and mixed with autumn olive. I would caution against using tree-of-heaven leaves because this species (*Ailanthus altissima*) has been shown to possess allelopathic compounds – molecules that inhibit the growth of other plants. And I would be careful about using certain herbaceous exotics as mulch if they contain fruits and/or seeds. No need to add weeds to the garden. In the case of Japanese honeysuckle and autumn olive, however, fruits and seeds

in the mulch have not proven to be any trouble. I do find an occasional seedling, but the growth of these woody plants is slow relative to garden vegetables. The few seedlings that do pop up in the mulch are no match for tilling of the soil that occurs between crops. Also, I have found a few spontaneous hardwood cuttings in overwintered mulch, but these, too, can be easily tilled under, or pulled out and tossed on the compost pile.

Another advantage to autumn olive as green mulch is based on its phenology: it is one of the earliest woody plants to leaf-out in the spring, and it also is one of the last to drop its leaves in the fall. Consequently, whenever I need mulch for the vegetable garden, it is almost always available. The last flush of leaves in the fall is conveniently available for mulching winter crops like garlic and onions, and spring leaves emerge in time for use on cabbages and spinach. In the summer, I like to use green mulch under peppers and okra. Except for winter, autumn olive is always available for exploitation. If I had the time, I'd mulch every foot path between the rows in my garden! I see no down-side to the strategy.

Over time, my harvesting of green mulch from autumn olive (or any other exotic species) should have an impact on the population on my property. I try to pull seedlings and small saplings completely out of the ground as I harvest the foliage and twigs. Removal by the roots is out of the question, however, for large specimens. So far, I've managed to reduce several large shrubs to a few coarse branches, but these continue to sprout new shoots. In fact, these vigorous sprouts make excellent mulch; the stems are tender, the leaves are large and harvesting of biomass goes quickly. Perhaps, eventually, I will wear down these large specimens. In the meantime, persistent clipping of ultimate branchlets has the effect of removing these particular plants from the local gene pool — they no longer flower nor make fruits, so they, at least, are not contributing to local spread of this scourge.

(See *Exotic mulch*, page 8)

• Zephyrs

(Continued from page 1)

or Jamestown, lilies are like that, too. These seemingly simple flowers are merely the elegant end product of some very complex underlying biology, the details of which are imperfectly understood.

First, what is a zephyr lily? That is easy, up to a point. All zephyr lilies are New World members of *Amaryllidaceae* with bulbous rootstocks, one- (rarely two-) flowered scapes, and lacking the corona tubes that are so prominent in, for example, daffodils. At various times in the past, virtually all plants fitting that description have been named as members of the genus *Zephyranthes*. However, other classifications have been followed, with *Cooperia* distinguished by very short stamens and anthers attached at the base, and *Habranthus* characterized by stamens of four different lengths, leaving *Zephyranthes* (in a narrow sense) with relatively long stamens of subequal or just two different lengths.

A recent study based on cladistic analyses of DNA sequence data proved inconclusive on the taxonomic limits of these potential subgroups within the zephyr lilies at large (Meerow et al. 2000). In that study, *Habranthus* was found to occur nested within *Zephyranthes*, a result in direct opposition to the recent trend to recognize it as distinct. Even more perplexing, however, the remaining species of *Zephyranthes* (in the broad sense) sorted themselves into three distinct branches, none of which match the old distinctions between *Cooperia*, *Habranthus*, and *Zephyranthes*. Clearly, more study is needed to resolve relationships and classification of these plants.

Part of the problem in untangling relationships among the zephyr lilies is that various species in the group have probably undergone hybridization. Hybridization always presents a problem for cladistic analysis of relationships. To understand why, it is important first to realize that cladistics aims to reconstruct the most probable sequence of dichotomous branching within the evolutionary tree that gave rise to the organisms under study. Hybridization, however, represents a sort of confluence or fusion of once-separate lineages, resulting in a reticulated

pattern of relationships. Presence of reticulated connections wrecks havoc with a technique designed strictly to detect and sort out patterns of dichotomous branching. In principle it is advised to remove obvious hybrids from data sets before running cladistic computations. Unfortunately, hybrids, especially those that may have formed in the distant past, are not always easy to recognize.

Further, it is reasonably certain that some level of interspecific hybridization has occurred in the relatively recent past. For example, *Flora of North America* notes that *Z. refugiensis* from coastal Texas is probably a natural hybrid of *Z. pulchella* and *Z. jonesii*. And horticultural sources note the presence of *Z. X ajax*, a hybrid of unknown parentage. Plant groups that hybridize often exhibit various chromosome anomalies and zephyr lilies are no exception.

There is published information on reproductive biology for only two species of zephyr lily. Those two species include our local atamasco lily, *Z. atamasca*, and *Z. texensis* (syn: *Habranthus tubispatus*). Both of these species have chromosome counts of $2n = 24$, so neither is particularly extreme in that regard, yet the two show remarkably different modes of reproductive biology. Atamasco lilies seem reasonably straight forward. Broyles & Wyatt (1991) established that *Z. atamasca* is capable of producing seeds both by self-pollination and by outcrossing with other individuals of the species. Because the styles project beyond the anthers, however, self pollination in nature is probably less frequent than outcrossing in *Z. atamasca*. In contrast, Brown (1951) conclusively documented a process of asexual seed production (apomixis) in *Z. texensis*. This species seems to make pollen in the usual fashion and seed production requires transfer of pollen to the stigmas, BUT the seeds produced are NOT the product of a sexual process. Ovules of *Z. texensis* produce embryos without any cells ever undergoing meiosis and without fusion of sperm and egg, the two hallmarks of sexual reproduction in seed plants. So, whereas the seeds of most plant species (and our atamasco lilies) are produced by sexual processes and bear a shuffled allotment of genes from both parents, the asexual seeds of *Z. texensis* are all geneti-

cally identical to the parent plant from which they were produced. The reproductive biology of *Z. atamasca* and *Z. texensis* could hardly be more different. Since apomixis and other perturbations of sexual reproduction tend to be accentuated at the high end of polyploid series, one has to wonder what other peculiar details of reproductive biology wait to be discovered among the large number of zephyr lily species still unstudied in this regard.

Clearly, much remains to be learned about zephyr lilies. But that, too, seems to be part of their magic. How could these little flowers be any simpler? How could they be any more elegant? But what is going on, unseen, in the depths of their cells, to deliver these fleeting visions of beauty for us to enjoy after the gentle rains of spring?

Literature cited: (Brown, W. V. 1951. Apomixis in *Zephyranthes texana*. *Amer. J. Bot.* 38: 697-702; Broyles, S. B. & R. Wyatt. 1991. The breeding system of *Zephyranthes atamasca* (*Amaryllidaceae*). *Bull. Torrey Bot. Club* 118: 137-140; Meerow, A. W., C. L. Guy, Q-B. Li, & S-L. Yang. 2000. and *Phylogeny of the American Amaryllidaceae based on nrDNA ITS sequences. Systematic Botany* 25: 708-726.)

W. John Hayden, VNPS Botany Chair

Volunteers needed

Black cohosh (*Actaea racemosa*, syn. *Cimicifuga racemosa*), a plant of the Appalachian Mountains, is widely sought as a medicinal plant used to treat menopausal symptoms. Each fall the root is harvested for the commercial market, nearly all of it from the wild. While NatureServe currently gives the plant a secure ranking, increases in harvest and the potential effects have prompted a study by the U.S. Forest Service on the sustainability of the black cohosh harvest. The Medicinal Plant Working Group, the Garden Club of America and the U.S. Fish and Wildlife Service have joined these studies. Groups of 15 volunteers are needed at Reddish Knob on June 24-26 and Mt. Rogers on August 26-28. The weekend begins with a training session, then two days of field work. Participants need to provide their own accommodations. Information can be obtained at the VNPS office, or RSVP after April 15 to USDA's Jim Chamberlain 540-231-3611, jachambe@vt.edu; jchamberlain@fs.fed.us.

Botanical field meeting to gather in Alleghenies

The 2007 Joint Botanical Field Meeting of the Botanical Society of America-Northeastern Section, Torrey Botanical Society, and the Philadelphia Botanical Club will gather on the campus of Davis and Elkins College in Elkins, West Virginia, from Sunday, June 17 to Thursday, June 21. The program will include three all-day field trips plus four evening lectures.

Elkins is a gateway to the high Allegheny Mountains of West Virginia. Much of this magnificent, scenic region is conserved within the Monongahela National Forest. Field trips will visit Canaan Valley State Park, Dolly Sods Wilderness Area, and other interesting botanical sites. Canaan (pronounced kin-naine) is a high, cool valley at about 3,000 feet above sea level, with an average growing season of less than 100 days. It supports a varied flora, with plants such as balsam fir (*Abies balsamea*) and bunchberry (*Cornus canadensis*) growing near the southern extreme of their range.

Dolly Sods features spectacular rock outcrops in addition to its remarkable flora. Participants will examine some of the characteristic plant communities of this part of West Virginia, including spruce forests, heath barrens, and sphagnum glades. There will be plenty of ferns and fern allies, and this should be the blooming time for several native or-

chids. If you visited the area before, come back and see how your favorite plants are surviving in the 21st century!

Cost for the meeting is \$250 based on double-occupancy (two twin beds) and communal bathrooms and includes lodging for four nights in a college dorm, four breakfasts, box lunches on three field trips,

and four dinners, including a traditional Wednesday night banquet. A few single-occupancy accommodations are also possible (\$290), and reduced rates are available for commuters (\$55 or \$185). For further information please contact Larry Klotz, chair at lhklot@ship.edu or 717-477-1402.

REGISTRATION FOR 2007 JOINT BOTANICAL FIELD MEETING

Registration deadline: May 15, 2007.

Thirty (30) dormitory rooms (double occupancy) are reserved. Early registration ensures availability. Double occupancy is strongly encouraged in order to maximize attendance.

Name(s) (Mr. Ms.) _____

Address _____

Phone(s) day: ____ - ____ - _____ evening: ____ - ____ - _____

Email: _____

Registration options:

Full registration (*double* occupancy) _____ @ \$250 = \$ _____

same without bed linen (bring your own bedding) _____ @ \$226 = \$ _____

Specify a roommate: _____ (Otherwise we can assign.)

Full registration (*single* occupancy) _____ @ \$290 = \$ _____

same without bed linen (bring your own bedding) _____ @ \$266 = \$ _____

Commuter without lodging _____ @ \$185 = \$ _____

Commuter without lodging, meals, & transportation _____ @ \$ 55 = \$ _____

Total: _____ \$ _____

Send your check with full payment (to "Botanical Society of America") plus this registration form to: **Karl Anderson, 46 North Childs Street, Woodbury, NJ 08096**

Emergency contact _____ Phone d _____ e _____

In making this application, participants affirm that they are in good health, are physically able to keep up with the group in the ordinary course of field activities, accept as their personal risk the hazards inherent in any outdoor activity, and will not hold the Botanical Society of America, or other sponsoring organizations, or the trip leaders responsible for the same.

Signature(s): _____ Date: _____

See the address label for your membership expiration date

VNPS Membership/Renewal Form

Name(s) _____

Address _____

City _____ State _____ Zip _____

___ Individual \$30 _____ Student \$15

___ Family \$40 _____ Associate (groups) \$40*

___ Patron \$50 _____ Sustaining \$100

___ Life \$500

*Please designate one person as delegate for Associate membership

To give a gift membership or join additional chapters: Enclose dues, name, address, and chapter (non-voting memberships in any other than your primary chapter are \$5)

I wish to make an additional contribution to ___ VNPS or _____ Chapter in the amount of ___ \$10 ___ \$25 ___ \$50 ___ \$100 ___ \$(Other) _____

___ Check if you do not wish your name to be listed to be exchanged with similar organizations in a chapter directory

Make check payable to VNPS and mail to:

VNPS Membership Chair, Blandy Experimental Farm, 400 Blandy Farm Lane, Unit 2, Boyce, VA 22620

Membership dues are tax deductible in the amount they exceed \$5. Contributions are tax deductible in accordance with IRS regulations.

The Bulletin

ISSN 1085-9632

is published five times a year (Feb., April, June, August, Nov.) by

Virginia Native Plant Society

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• Forest plan

(Continued from page 2)

fers to uses which are compatible with desired conditions and objectives. Special areas are places set aside either by statute or administrative decisions for unique characteristics, such as wilderness areas.

The plan revision was launched in early March with a series of workshops involving dialogues between users and the forest service as well as between a variety of users. Many types of people enjoy the forest from those harvesting timber to those studying rare flora and fauna. The four-wheeler set enjoys being in the great outdoors as much as the backcountry hiker and the hunter and angler. The forest service wants to hear from everyone as it begins to balance the needs of various users against the environmental and habitat needs of this public land.

In the meetings, which have been very well attended, a short presentation about the need for change within the plan was followed by small group discussions. The groups of 15 or so people were asked to provide input regarding things they liked about the forest and how it was managed and things they did not like. Everyone was encouraged to read the plan at www.fs.fed.us/r8/gwj and provide additional feedback.

The plan timeline continues with more public meetings from May to August focusing on issue resolution. In November the proposed plan will be released for public comment. A 90-day comment period will follow the release. From February until June 2008 the forest service will respond to comments and then update the plan from June to July. That will be followed by a 30-day objection period in August 2008 and a final approval in September 2008.

For members of VNPS, this is a rare and welcome opportunity to weigh in on how we want our forest managed in

a healthy, environmentally sensitive manner. The forest protects our natural resources, such as water, air, flora and fauna; contains many cultural and historic resources; and provides healthy outdoor recreational opportunities. Read the plan and come to the meetings. Provide feedback about whether or not you feel our native plants are getting proper attention and whether or not our rare habitats are adequately protected. This plan will dictate actions on the national forest for decades to come. Remember it's your forest. The time to be involved is now.

Nancy Sorrells, VNPS Bulletin editor

• Exotic mulch

(Continued from page 5)

The term "green mulch" needs some brief discussion. As discussed above, I am using the term for freshly harvested biomass emphasizing the presence of green leafy tissue to be used as a mulch. Interestingly, the term does not appear in my trusted copy of *Wyman's Gardening Encyclopedia*, nor does it occur in *Hortus III*. However, the term is widely used on the internet where a Google search for "green mulch" (with the quotation marks) will return over 9,000 links. Unfortunately, "green mulch" on the internet means many different things. I have found the same term used to describe: 1) any living groundcover (like *Pachysandra* or *Ajuga*); 2) fresh-out-of-the-chipper wood chips (conceptually similar to "green," freshly cut, wood); 3) various mulch materials artificially dyed green; and 4) any mulch material that is by any stretch of the imagination environmentally friendly and, hence, "green." I like my use of the term because exotic green mulch is green in terms of color, freshness of harvest, and environmental benefit.

A future installment will focus on garden poles.

W. John Hayden, University of Richmond and VNPS Botany Chair

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