

The Turk's Cap

THE NEWSLETTER OF THE DELAWARE NATIVE PLANT SOCIETY SPRING 1999

IN THIS ISSUE

- Page 1** ○ *New Members*
 ○ *Letter From the President*
 ○ *A Call for Articles*
- Page 2** ○ *Letter From the Editor*
 ○ *Plant-animal Highlight*
 ○ *Resources and Reviews*
- Page 3** ○ *Natural Community Highlight*
 ○ *Feature Article*
- Page 4** ○ *Feature Article continued*
- Page 5** ○ *Resources and Reviews continued*
 ○ *Letter From President continued*
- Page 6** ○ *Native Plant Highlight*
 ○ *Pick the Turk's Cap*
- Page 7** ○ *Upcoming Events*
 ○ *DNPS Website*
 ○ *Pick the Turk's Cap continued*

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HOW CAN I GET INVOLVED?

DNPS is open to everyone ranging from the novice to expert gardener/botanist. One of the primary goals of the society is to involve as many individuals as possible.

Presently, most of Society-related activities and efforts have been performed by only a few members. The DNPS plans on becoming more active in a number of directions in 1999. Specific 1999 goals will be determined in the upcoming months, and they will be undoubtedly requiring involvement from more of our members.

For more information on how to get involved, call 302.674.5187. Or visit the DNPS website at www.delanet.com/~dnpswp.

A CALL FOR ARTICLES

Do you have a propensity for prose; a tendency towards text; or a leaning to letters? Then get your name in lights by writing an article for The Turks Cap. We'll take just about anything from gardening tips to book reviews to poetry. Of course, it has to be about plants (native plants are even better), but that's a minor guideline. Your imagination is the real key.

Contact Eric Zuelke for more information (ezuelke@juno.com), or Keith Clancy at 302.674.5187.

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A WARM, BOTANICAL WELCOME TO OUR NEWEST MEMBERS

January through March

Heather Apostolos

Rich and Betsy Archer

Karl Blom & A. Christine Tabaka-Blom

Amy Doll

W. Barksdale Maynard & Susan Matsen

Peter K. McLean

Richard Mickowski

April Veness

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LETTER FROM THE PRESIDENT

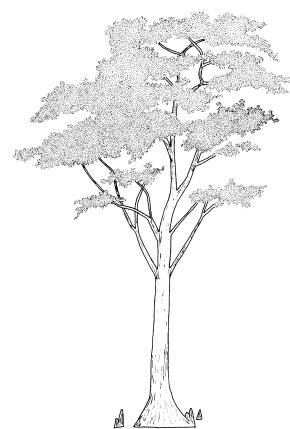
It's been just a little over a year since 15 individuals gathered around a table and the Delaware Native Plant Society was formed. I would like to take this opportunity to briefly reflect upon the first year's activities of this fledgling organization and contemplate its future.

During the course of our first year we established regular monthly meetings, were able to interest a little over 30 people and organizations in becoming members, participated in the annual Tree Spree organized by the Delaware Center for Horticulture, wrote and disseminated a quarterly newsletter, and organized/undertook several exciting

Continued on page 5

The DNPS Vision

The purpose of the Delaware Native Plant Society (DNPS) is the preservation, conservation, restoration, and propagation of Delaware's native plants and plant communities. The Society provides information to government officials, business people, educators, and the general public on the protection, management, and restoration of native plant ecosystems. The DNPS encourages the use of native plants in the landscape by homeowners, businesses, and local and state governments through an on-going distribution of information and knowledge by various means that includes periodic publications, symposia, conferences, workshops, fieldtrips, and a statewide membership organized by the DNPS.



LETTER FROM THE EDITOR**GREETINGS FROM THE NEW EDITOR**

Hello members, non-members and friends. As you may know, Douglas Janiec has been performing the duties of editor of this wonderful little newsletter, but he has passed the staff of responsibility to devote more of his Society efforts to the web page.

With my newfound role in life, you all now have the wonderful opportunity to learn how an animal person views plants. Being a zoologist at heart, I see animals in everything, especially some of the amazing interactions, symbioses, and parasitisms between animals of all kinds and plants. As a new feature of The Turk's Cap, each issue will highlight an interesting plant-animal interaction.

You will also probably notice some other changes to The Turk's Cap. We've expanded the number of pages to give all of you a chance to submit articles, added some new sections and are including reprinted feature articles.

We hope you will join us in the evolution of this newsletter, as it will probably continue to evolve, and the more the merrier. If you have any comments or suggestions, please let us know. A vacuum is a lonely place to work!

Eric Zuelke, editor

PLANT-ANIMAL HIGHLIGHT**THE LIFE OF THE LUPINE**

Throughout the world, there are numerous examples of plant-insect interactions. Some happen in exotic lands among exotic creatures that only a handful of people may know about. But others could be happening in your own backyard.

In the dry, sandy, open woodlands of Delaware lives a wonderful member of the bean family Fabaceae; the sundial- or wild lupine (*Lupinus perennis*). This plant has some very interesting insect companions. Often seen flitting around this plant is a sprightly little butterfly called the Frosted Elfin (*Incisalia irus*). But it's not the adults that tends to this plant, it's the larvae, or caterpillars. *L. perennis* is a host plant for this species of butterfly. Lupines do not possess nectar glands, so the butterfly adults don't use them as a food source. Instead, they lay eggs on the underside of the leaves and when they hatch, the caterpillars spend the first stage of their lives nibbling away on the leaves. This relationship is a common one among butterflies and plants, and many people take advantage of this situation when planting a butterfly garden. One of the best ways to attract butterflies is to offer them the two things they need most to live and proliferate; food (food plants) and a place for their young (host plants).

Since the Frosted Elfin only uses this lupine as a host plant, pollination is left up to the bumblebees. The flower of this species is typical of the family, in that it consists of an erect standard petal, two lateral wing petals and two lower petals that are fused on the inner margin to form a keel. In the keel lies the stamens that rest against the lower portion of the pistil. The

stigma catches pollen by a unique method. When the lower part of the flower is pushed down, the stamens are thrust forward and out of the keel in a piston-like action and they strike the stigma. Researchers have found that the only insects heavy enough to trigger this piston action are bumblebees. This action results in self-pollination and the deposition of pollen grains on the forehead of the bees, which they then carry off to another plant to achieve cross-pollination.

Eric Zuelke

RESOURCES AND REVIEWS

I recently checked a book out of the new Bear Public Library that would be an outstanding reference book for anyone interested in native plants. The book is titled "*Easy Care Native Plants – A Guide to Selecting and Using Beautiful American Flowers, Shrubs, and Trees in Gardens and Landscapes*" and is authored by Patricia A. Taylor. There are twelve chapters in the book. They deal with the historical perspective, various approaches to design, reviews of public and private gardens and individual chapters on trees; shrubs; groundcovers and wall climbers; bulbs, corms and tubers; annuals and biennials; ferns and grasses; and perennials. The book is useful and easy to read. I particularly enjoyed the sections on the real life stories involving the use of native plants. If you try to order from a bookstore the ISBN # is 0-8050-3861-2.

Another interesting book to the average homeowner wanting to increase their use of native plants is a book from Sally Roth titled "*Natural Landscaping – Gardening with Nature to Create a Backyard Paradise*." The book deals with general landscaping ideas; creating meadow and prairie gardens; creating woodland and shade gardens and creating water and bog gardens. There are also chapters devoted to attracting birds and butterflies to the garden along with adding special features and gardening basics.

Another good book is "*Landscaping with Native Trees*" by Guy Sternberg and Jim Wilson. The book gives a comprehensive look at the world of native tree species for the eastern half of the United States with good descriptions and photographs.

There is an interesting article about fragrant native plants across North America in the March/April edition of "*The American Gardener*" magazine. This is a publication of the American Horticultural Society. The article covers various plant communities in the Rockies and Southwest as well as the eastern half of the United States. The magazine should be available on magazine racks at various bookstores. I picked up my copy at the Newark Newstand and I have also seen it in Borders Books.

For those looking for sources of native plants for projects, the following companies specialize in growing and selling native plants:

- Octoraro Native Plant Nursery in Kirkwood, PA just west of Oxford. You can check out their new website after April 15th at www.OCTORARO.com. Their phone number is 717-529-4099. The email address is octoraro@epix.net.

Continued on page 5

NATIVE PLANT COMMUNITY HIGHLIGHT**Sea Rocket Sparse Herbaceous Community**
Cakile edentula* Sparse Herbaceous Community*Introduction**

This sparsely vegetated community occurs at the interface between the beach and the primary dunes in a zone referred to as the foredune. In Delaware it occurs as a discontinuous and narrow band along the lower portion of the Delaware Bay and along the Atlantic Ocean from Cape Henlopen to Fenwick Island. The community's overall distribution is from Maine to North Carolina. It is a dynamic community subject to harsh stresses from aeolian processes (i.e., disturbance from wind and wave action, salt spray, and sand deposition and removal due to overwashes and blowouts). It is also profoundly affected by human activities that include trampling from pedestrian and vehicular traffic, construction of snow-fencing, bulldozing of sand, and beach replenishment. The landscape position and the presence of sea rocket, *Cakile edentula*, best defines and characterizes this community.

Community structure/composition

As mentioned previously, *Cakile edentula* is the diagnostic and defining species for this community. The community, in a narrow (usually less than several meters in width) and discontinuous band, is sparsely vegetated with widely spaced plants among a greater percentage of bare sand, detritus, and scattered shell remains. The low-growing (often prostrate) plants are well-adapted to this harsh environment and are comprised of annuals and biennials almost exclusively. While no species is dominant, sea rocket has been chosen to name this community because it is a conspicuous component of this foredune community throughout the community's range. Some typical associates in this community include *Cenchrus tribuloides* (sand-bur), *Salsola kali* (saltwort), *Mollugo verticillata* (carpetweed), *Atriplex arenaria* (seabeach orach), *Euphorbia polygonifolia* (seaside spurge), *Triplasis purpurea* (sand grass), *Ammophila breviligulata* (beach grass), *Solidago sempervirens* (seaside goldenrod), and *Panicum amarum* (beach panic grass), in addition to others. More than 90 percent of what would be defined as the beach-dune interface (the foredune) where this community is found is unvegetated substrates. This unvegetated surface is composed of coarse sands, the remains of marine organisms, other flotsam and scattered inorganic debris.

Comments

The federally threatened seabeach amaranth (*Amaranthus pumilus*) occurs rarely in this community but is not presently known for Delaware. The seabeach amaranth was last collected in Delaware in the "Baltimore Hundred" (south of the Indian River Inlet) by Albert Commons in 1875.

Conservation status

In Delaware this is a rare natural community and of conservation concern. It has a Delaware Natural Heritage rank of S2 (typically, 6 to 10 occurrences throughout the state).

oooo Keith Clancy

**NATURAL QUOTES**

'Hence, a traveler should be a botanist, for in all views plants form the chief embellishment.'

Charles Darwin, 1836

FEATURE ARTICLE**WHERE HAVE ALL OUR NATIVE WILDFLOWERS GONE?**

Delaware, like much of the world, is in a biological crisis, one that is equally acute for plants and animals. This probably isn't apparent to many citizens, especially those who only rarely experience a trip into nature, usually by visiting a national or state park. But, it is very apparent among the conservation community, and especially among the conservation biologists bent on learning all they can about biodiversity.

The growth and development of recent decades has resulted in unprecedented habitat loss. It is believed by many biologists that the loss of so much habitat on a global basis and in such a short period of time, has resulted in extinctions at a rate never before seen in the history of the world. Some of the world's most eminent scientists refer to the present as the beginning of an "age of mass extinctions."

While much of the attention to habitat and species losses has focused on the tropical rainforests, many of these same problems affect Delaware. One example is our native wildflowers. Not those that are seen on roadsides, abandoned farm fields and unmowed lawns. These are mostly aliens or exotics that were brought to this country from Europe and Asia by our ancestors and are now well established throughout the state.

The Delaware Natural Heritage Program, which is jointly administered by the Department of Natural Resources and Environmental Control and The Nature Conservancy (TNC), tracks rare plants, animals and natural communities and is compiling an atlas of the vascular plants of Delaware. It currently tallies 2,241 species; 1,700 of these are native species and 541 of these are exotic species.

When the list of exotic plants in Delaware was first compiled in 1997 there were 295 species. The 246 exotic species that were added in 1998 represent species documented in Delaware and noted in the literature. "I'm certain more will be added to the list," says William McAvoy, the heritage program biologist who compiled the list. "Exotic species will continuously move into the state as weather patterns change and we continue to destroy and degrade our natural habitats." Those already known to be established here represent nearly a quarter of all species in the state. If it's any consolation, McAvoy says only 37 are truly aggressive and can be found replacing, or seriously encroaching upon, our native species in their natural habitats. But what a number those 37 are doing!

In contrast, there are 606 species (about 36 percent of the native flora) on the Natural Heritage Program's priority rare

plant list, species considered so rare they are threatened by extirpation (i.e., driven to local extinction). In fact, 211 (or about 12 percent of the native flora) already are believed to be extirpated in the state or, at best, missing-in-action (not seen in more than 15 years and formally ranked as historical). According to TNC, Delaware's percentage of lost flora is one of the highest in the country.

The remaining 395 species (nearly 23 percent of the native flora) are considered to be extremely rare or very rare in the state and all may be susceptible to extirpation. There are 146 species known from only 6-20 populations, while 249 species are known from fewer than six locations. Of the latter, 75 are known from only one population; these are truly the most imperiled of the group.

The extirpated and MIA species have died-out for a host of reasons: loss of viable habitat, out-competed for resources by more aggressive exotic species, habitat changes (e.g., degradation from changes in water chemistry, salinity levels or light levels), disease, over-collecting, loss due to random events, or because they were always scarce and therefore more susceptible to dying-out. These reasons also apply to our rare species and factor into their overall rarity. McAvoy and other botanists usually discover a handful of these missing species each year. Likewise, they discover an occasional species previously unknown in Delaware. This underscores just how much we still don't know about the plants and animals that share this land with us.

Fortunately for scientists, herbariums still house specimens that document the 211 missing species' presence in Delaware. But they don't document the demise of the last individual of each of those species. Let's consider some of the beautiful and compelling wildflowers that are missing in action. There are eight species of orchids that have not been seen in many years. They go by such names as dragon-mouth orchid (*Arethusa bulbosa*), snowy orchid (*Platanthera nivea*), spreading pogonia (*Cleistes divaricata*), large purple-fringe orchid (*Platanthera grandiflora*), small purple-fringe orchid (*Platanthera psycodes*), spring coral-root (*Corallorhiza wisteriana*), shining ladies'-tresses (*Spiranthes lucida*), and grass-leaf ladies'-tresses (*Spiranthes praecox*). Lost lilies include the beautiful bog asphodel (*Narthecium americanum*), the distinctive false asphodel (*Tofieldia racemosa*), and the turkey-beard (*Xerophyllum asphodeloides*). The story of a lost umbel (a member of the parsley family), Canby's dropwort (*Oxypolis canbyi*) is sad and particularly tragic. The dragon-mouth orchid was first noted in Delaware by the great naturalist Thomas Nuttall, who traveled through parts of Delaware and noted its presence in 1809 near Dagsboro. It was also found in McCrone's Swamp near Farnhurst (now the State Hospital near I-95), somewhere near Millsboro, and along the margins of Hudson Pond where it was last collected in 1929. This species probably suffered from both over-collecting and habitat loss or degradation. Similar fates were experienced by the others. For example, the bog asphodel and false asphodel both seemed to share the same wetland site between Lewes and Rehoboth, the Wolfe and Holland glades. This freshwater system changed to a salt marsh community after the Lewes-Rehoboth Canal was dug in the early part of the 20th century. The plants could not tolerate the salty conditions and died out. Both were gone from the state by 1940.

What happened to Canby's dropwort is especially ironic. It was discovered by William Canby in a wet, boggy habitat east of Ellendale in 1867. It turned out to be new to science and was named after its discoverer. Between 1867 and 1899 he and fellow botanist Albert Commons made nearly 20 separate collections of this plant from the only population then known to exist. It has not been seen in Delaware since 1899. Did their over-enthusiasm lead to the plant's extermination in Delaware? The likelihood is a good lesson to other collectors. Although the species was subsequently discovered in Georgia, North Carolina and Maryland, it is still rare throughout its range and is listed as an endangered species by the U.S. Fish and Wildlife Service.

Other colorful and interesting extirpated or MIAs include the sensitive joint-vetch (*Aeschynomene virginica*), a member of the pea family; the drooping trillium (*Trillium flexipes*); the pygmy-weed (*Crassula aquatica*); the climbing fumitory (*Adlumia fungosa*); the whorled milkweed (*Asclepias verticillata*); the sea-beach amaranth (*Amaranthus pumilus*); and Nuttall's micranthemum (*Micranthemum micranthemoides*).

The sensitive joint-vetch, now a threatened species, was frequently seen along the shores of the Delaware River during the latter half of the 19th century. Canby first collected this plant in 1846 when he was only 15. Commons last collected this plant in 1899, also along the Delaware. Pollutants and increased levels of salinity probably wiped out the plant from Delaware soils. Increased salinity levels also must have played a role in the loss of Nuttall's micranthemum, a plant that was found in the inter-tidal zone above brackish waters. This plant is not to be found anywhere else in the world and is presumed to be extinct.

Pollutants or intrinsic rarity may have been the downfall for the pygmy-weed, a plant once found along Brandywine Creek near Wilmington, though not collected there since 1867. The loss of our whorled milkweed is not too surprising, as this plant was restricted to rare serpentine habitat on the piedmont, much of which is now degraded or destroyed.

The state has lost more than 50 percent of its wetlands during the past 300 years and continues to lose wetlands today, though the current rate of loss per year has lessened dramatically. The direct loss of a wetland habitat results in the disappearance of species of plants and animals that lived there. With a 50 percent loss of wetlands, it's easy to see how formerly common species could become rare and uncommon. Likewise, many of our extant wetlands, often with little or no buffers to them, become degraded and susceptible to exotic species invasions.

Unless there is a coordinated effort on the part of many state, local and federal agencies, as well as individuals to combat this growing problem, the degradation of our remaining habitats will continue unchecked and native wildflowers now common will become rare, and rare native wildflowers will continue to disappear.

oooo Keith Clancy 

This article is an excerpt from a longer feature article reprinted with permission. It first appeared in the Winter 1998, Vol. 7, No. 4 issue of Outdoor Delaware.

RESOURCES AND REVIEWS*Continued from page 2*

- Pinelands Nursery, Inc. in Columbus, NJ. You can check out their website at www.pinelandsnursery.com. Their phone number is 800-667-2729 and the fax number is 609-298-8939.
- Arrowwood Nursery, Inc. in Williamstown, NJ. They are also a wholesale grower of native trees, shrubs and perennials. Their office number is 609-697-6045 and the fax number is 609-697-6050. The email address is NJPlants@AOL.Com.
- Environmental Concern, Inc. in St. Michaels, Maryland. Their phone number is 410-745-9620 and the fax number is 410-745-3517.
- Sylva Native Nursery and Seed Company in New Freedom, PA. Their phone number is 717-227-0486 and the fax number is 717-227-0484.
- McCulley and Smith, Inc. of Newark, DE. They offer a variety of native plants from locally collected seed. Their phone number is 737-9335 and fax number is 737-9546. Check the online catalogue listing at www.delanet.com/~msplants or follow links on www.jmeci.com.
- Ernst Conservation Seeds in Meadville, PA. They specialize in a wide variety of grass, shrub and perennial seed. Their phone number is 800-873-3321 and the fax number is 814-336-5191. You can check out their website at www.ernstseed.com.



oooo Richard Mickowski, DNPS member and employee of the New Castle Co. Conservation District

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LETTER FROM THE PRESIDENT*Continued from page 1*

and educational field trips, among other activities.

Although the number of DNPS members is not quite as high as I would have liked after one year, the recent addition of several new members is very encouraging. Likewise, our 1999 goal of and strategy for expanding by at least 100 new members by the end of the year has me hopeful that this will be a great year for the DNPS and its membership.

An area which I hope will improve during the coming year is a greater membership participation in society activities. I realize that a lot more people would have participated in meetings and field trips if their schedules had not conflicted or if they knew the dates of events more than a week or two ahead of time. Another area in which we came up short was in the establishment of officers and committee chairs. I suppose, in large part because only a few members have regularly attended monthly meetings, it has been difficult to elect officers and establish committee chair persons. Our plans to hold elections this year has been delayed for a year because our nominating chair, Rick McCorkle, was unable to find enough individuals that wanted to or had the time to serve as officers. For anyone interested in conservation activities in Delaware related to native plant communities as enumerated in our mission statement,

the opportunity to get involved and effect change beckons you. So think about serving as a committee chair or an officer.

I wish to express my deep appreciation to Doug Janiec for his excellent work in developing The Turk's Cap Newsletter and the DNPS web site, both time-consuming activities that Doug did with enthusiasm and expertise. I would also like to welcome aboard Eric Zuelke as the new editor for the Turk's Cap newsletter. While Eric has an interest in botany, his professional background is primarily in zoology, so he may be imparting a certain zoological bent to the newsletter (we'll have to keep close tabs on him!).

We have been rather slow in developing our by-laws, becoming incorporated and recognized as a non-profit organization. This should change quickly as we recently received an organizational development grant from the First State Resource, Conservation and Development (RCD) Office. Mr. William Bell, program manager for RCD is providing his expertise and advice in helping the DNPS become organized as a not-for-profit entity.

In recent months, several members of our sister organization, the Maryland Native Plant Society, have learned about our group and have become members. As a result of their interest in our group we have scheduled with the MNPS a joint field trip to Adkins Arboretum and have tentatively made plans for another joint field trip in September or October.

The first official action of the DNPS's conservation committee was a letter that we recently wrote in opposition to a proposed new road being discussed for Cape Henlopen State Park. This letter was sent to the Delaware Division of Parks and Recreation and EDAW (the consultants working on a master plan for the park), to the proponents of the road, regulatory agencies, our U. S. senators and representatives, the Governor's office, and the local media. An abridged form of the letter, but with all the essentials intact, was recently printed in the Delaware State News. I am hopeful that our actions will persuade those in charge to put an end to the consideration of this proposal that is misguided and environmentally destructive.

Early on in the DNPS's first year it was determined by the members that one of the highest priorities facing Delaware was the protection, conservation and restoration of its upland forests. Consequently, we are developing a strategy and related actions that we hope will be important in this effort. Specifically, we hope to initiate dialog with public land stewards that have large land-holdings about expanding upland forests on their lands. If this is successful then I hope we can expand these discussions with private landowners.

What will 1999 bring for the DNPS? As spring has arrived in full flower I am confident that the DNPS will be in full flower as this year progresses. I am hopeful that our membership will increase, and that more members will take an active role in their society.

Let me conclude my thoughts by saying that I have immensely enjoyed my participation over the past year in the DNPS and hope that 1999 will be a great year for this organization and its members. Now get outside and enjoy the spring wildflowers!

Sincerely, 

Keith Clancy

NATIVE PLANT HIGHLIGHT**SPRING PIEDMONT FLORA OF THE COASTAL PLAIN**

The title may be confusing, but on the coastal plain physiographic province of Delaware there occurs an uncommon and unique habitat type called a "rich-woods pocket." This habitat type contains a flora more typical of the piedmont province of the state.

Soils of the coastal plain are typically very sandy, acidic, and often droughty, but soils of rich-woods pockets are loamy, near neutral and moist, which are soil conditions most common in the piedmont. These unusual coastal plain soils are likely the result of ancient marine deposits that have "sweetened" the soil over time.

Rich-woods pockets are variable in size, from only several square meters to several hectares. They are usually found on moderate upland slopes and flats adjacent to streams. Over time, the erosive force of streams likely help to expose marine deposits allowing for the colonization and establishment of plants that require special edaphic conditions, such as piedmont species.

Rich-woods pockets occur sporadically in all three counties of Delaware and just a few of the spring ephemerals that can be found blooming in these habitats include:

<i>Asarum canadense</i>	wild ginger
<i>Cardamine concatenata</i>	cut-leaf toothwort
<i>Claytonia virginica</i>	spring-beauty
<i>Cryptotaenia canadensis</i>	honewort
<i>Erythronium americanum</i>	trout-lily
<i>Galearis spectabilis</i>	showy orchis
<i>Geranium maculatum</i>	wild geranium
<i>Hepatica nobilis</i> var. <i>obtusata</i>	round-leaf hepatica
<i>Obolaria virginica</i>	pennywort
<i>Osmorhiza longistylis</i>	sweet cicely
<i>Oxalis violacea</i>	violet wood-sorrel
<i>Phryma leptostachya</i>	lopseed
<i>Podophyllum peltatum</i>	mayapple
<i>Sanguinaria canadensis</i>	bloodroot
<i>Thalictrum thalictroides</i>	wind-flower
<i>Uvularia perfoliata</i>	perfoliate bellwort
<i>Uvularia sessilifolia</i>	sessile-leaf bellwort

The list above are species that you are most likely to observe while walking in the woods of the piedmont province this spring, but on the coastal plain, these species can only be found growing in rich-woods pockets.

William A. McAvoy



° ° ° ° ° °

PICK THE TURK'S CAP**TO LAWN OR NOT TO LAWN, THAT IS THE QUESTION**

Q. What the &\$@# am I going to do with my lawn this year?

A. Well, I'll try to answer this question as best I can, but first I would hazard to suggest an alternative to the lawn.

Americans are obsessed with their lawns and each year spend millions of dollars on lawn care products trying to either out-do their neighbors or fulfill some sort of misplaced

fulfillment in creating the ultimate and perfectly manicured lawn. Well I propose an alternative to your lawn weed problems. Why not select a portion (small or large) of your lawn (say an area that teems with weeds), and take it out of lawn production? Instead of trying to reclaim this piece of turf with turf, start your own native successional system. Start with letting the native weeds in your plot grow. Try adding a few native grasses and some young shrubs or trees. Then let it go. Every year it will look a little different until eventually it will become a woodlot. Sounds neat, huh? Its low maintenance, attracts wildlife, and is educational to boot.

Excellent native tree species that can be used include white oak (*Quercus alba*), northern red oak (*Q. rubra*), willow oak (*Q. phellos*), southern red oak (*Q. falcata*), pin oak (*Q. palustris*), scarlet oak (*Q. coccinea*), black oak (*Q. velutina*), tulip tree (*Liriodendron tulipifera*), white ash (*Fraxinus americana*), mockernut hickory (*Carya tomentosa*), pignut hickory (*C. glabra*), beech (*Fagus grandifolia*), sassafras (*Sassafras albidum*), black cherry (*Prunus serotina*), persimmon (*Diospyros virginiana*), and sweet gum (*Liquidambar styraciflua*), among others. Attractive native shrubs that can be planted are southern arrowwood (*Viburnum dentatum* var. *dentatum*), serviceberry (*Amelanchier canadensis*), pawpaw (*Asimina triloba*), American hazelnut (*Corylus americana*), dangle-berry (*Gaylussacia frondosa*), pinxster flower (*Rhododendron periclymenoides*), spicebush (*Lindera benzoin*), mountain laurel (*Kalmia latifolia*), highbush blueberry (*Vaccinium corymbosum*), and deerberry (*V. stamineum*).

Locating appropriate species of herbs and having success in their establishment may be more difficult. But keep an eye out for such herbs as partridge berry (*Mitchella repens*), striped (spotted) wintergreen (*Chimaphila maculata*), common white heart-leaved aster (*Aster divaricatus*), moccasin-flower (*Cypripedium acaule*), may-apple (*Podophyllum peltatum*), bloodroot (*Sanguinaria canadensis*), rattlesnake plantain (*Goodyera pubescens*), sweet goldenrod (*Solidago odora*), wrinkle-leaved goldenrod (*Solidago rugosa*), and beech-drops (*Epifagus virginiana*).

For nearby sources of native plants try the Delaware Nature Society's annual native plant sale, May 1-2 at Ashland (call 302-239-2334 for details), Arrowwood Nursery (609-875-4889), Brandywine Conservancy (610-388-2700), Pinelands Nursery (609-291-9486) and stay tune for a Delaware native plant nursery coming soon.

Alright, I did promise to give some pointers on lawn care, for all those still bent on maintaining the American obsession. Well, if you have lots of weeds and don't want to use chemicals (good for you), but it will be a little harder. To start, seed your lawn with a thick blade species. Make sure you cut your lawn each week, sometime twice a week in spring. Keep the lawn low, about three inches. Many weeds can't make it when kept this short. Those weeds that sprawl, like crabgrass, dandelion, plantains, etc., will probably need to be pulled-out by hand. This is a slow and tedious process that could take up to three years. Of course, an application of turf-builder plus the first year will speed-up the process, but extreme care must be used when using chemicals; used incorrectly they can cause significant environmental damage as well as health problems.

Continued on page 7

UPCOMING EVENTS

SATURDAY, 24 APRIL 1999 – DELAWARE NATIVE PLANT SOCIETY ANNUAL MEETING. BRANDYWINE CREEK STATE PARK. FOR MORE INFORMATION CALL 302.674.5187.

SATURDAY, 24 APRIL 1999 – UNIVERSITY OF DE BOTANIC GARDENS PLANT SALE. AT THE FISCHER GREENHOUSE FROM 9 AM TO 4 PM. CALL 302.831.2531 FOR MORE INFORMATION OR ON THE WEB AT [HTTP://BLUEHEN.AGS.UDEL.EDU/UDBG/PLANTSALE/CATALOG.HTML](http://BLUEHEN.AGS.UDEL.EDU/UDBG/PLANTSALE/CATALOG.HTML).

SATURDAY 1 MAY AND SUNDAY 2 MAY 1999 – DELAWARE NATURE SOCIETY NATIVE PLANT SALE. FROM 10 AM TO 3 PM BOTH DAYS. THE DNPS WILL HAVE A BOOTH ON SATURDAY, SO COME OUT AND SEE US. ON THE WEB AT WWW.DCA.NET/NATURESOCIETY/INDEX.HTM.

SATURDAY, 5 JUNE 1999 – A JOINT FIELD TRIP WITH THE MARYLAND NATIVE PLANT SOCIETY. FROM 10 AM TO 4 PM AT THE ADKINS ARBORETUM, RIDGELY, MD. CALL 302.674.5187 OR 410.634.2847 FOR MORE INFORMATION.

SATURDAY 5 JUNE 1999 – THE NATURE CONSERVANCY VOLUNTEER WORK PARTY. INVASIVE SPECIES CONTROL (*Rosa multiflora*) AT THE EDWARD MCCABE PRESERVE, MILTON, FROM 9 AM TO 2 PM. CALL 302.369.4146 FOR MORE INFORMATION AND TO SIGN UP.

10-12 JUNE 1999 – NATIVE PLANTS IN THE LANDSCAPE: CONFERENCE AND PLANT SALE, MILLERSVILLE UNIVERSITY, MILLERSVILLE, PA. FOR MORE INFORMATION CALL THE DEPARTMENT OF CONTINUING EDUCATION AT 717.872-3030.

PICK THE TURK'S CAP

Continued from page 6

Fall seeding of grass can be a noticeable help and can result in restoring grass where weeds once thrived. By seeding in the fall you give your grass an early start, however, the farther north you live (Piedmont versus Coastal Plain), the less return you can expect.

Pick the right kind of grass! Ideally, buy fresh seed, that has the right shade tolerance and looks. Try some drought tolerant grasses and cut down on your watering needs. Use high quality seed; don't buy the cheapest grass seed on the market. As for fertilizers, use them only as needed. Have your soil tested and have a professional recommend what type of fertilizer and application rate is needed. For more helpful advice visit your local lawn and garden shop.

A list of recommended native trees and shrubs for Delaware is available from the DNPS (call 302-674-5187 to order).

Doug Janiec

ILLUSTRATIONS

The seaside alder, bald cypress, and turk's cap lily drawings were done by DNPS member Chris Bennett. More information about these drawings/plants in a future issue.

DON'T MISS THIS UPCOMING EVENT ! OUR FIRST ANNUAL MEETING

The first annual meeting of the Delaware Native Plant Society will be held on Saturday, 24 April 1999, from 10:00 a.m.-4:00 p.m., at Brandywine Creek State Park. All are welcome, even if you are not yet a member! The morning activity (10 a.m.-noon) will include a native plant hike led by pre-eminent botanists Jack Holt and Janet Ebert (the Spring flora should be at its peak), followed by a pot-luck lunch/barbecue from noon-1:30 p.m. at one of the pavilions near the nature center (DNPS will supply the charcoal). At 1:30 p.m., stay for an enlightening talk by Mr. Carl Solberg on the impacts of tax ditches to habitat quality. A short business meeting (2:30-4:00) will conclude the days' activities.

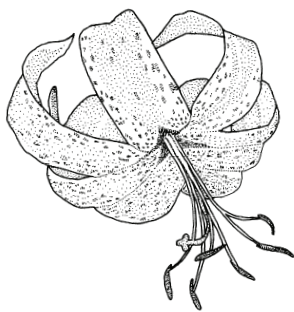
For more information call 302.674.5187 or for directions to the park call 302.577.3534 or 655.5740.

DNPS WEBSITE

As with this newsletter, the DNPS website continues to evolve and has undergone some very artful transformations recently. Several new sections have been added and the whole site has been rearranged. Check it out at www.delanet.com/~dnpswp.

DELAWARE NATIVE PLANT SOCIETY
P.O. Box 369
DOVER, DELAWARE 19903





The Turk's Cap

THE NEWSLETTER OF THE DELAWARE NATIVE PLANT SOCIETY SUMMER 1999

IN THIS ISSUE

- Page 1** ○ *A Call for Articles*
○ *New Members*
○ *Letter From the President*
- Page 2** ○ *Letter From the Editor*
○ *Plant-animal Highlight*
○ *Resources and Reviews*
- Page 3** ○ *Natural Community Highlight*
○ *Feature Article*
- Page 4** ○ *Feature Article continued*
○ *Natural Community Highlight cont.*
○ *Resources and Reviews continued*
- Page 5** ○ *Resources and Reviews continued*
○ *Letter From President continued*
- Page 6** ○ *Native Plant Highlight*
○ *Pick the Turk's Cap*
- Page 7** ○ *Upcoming Events*
○ *Letter From the Editor continued*
○ *Event Highlight*
○ *DNPS Website*
- Page 8** ○ *Native Plant Highlight continued*

A CALL FOR ARTICLES

Are you tired of seeing the names Keith, Bill, Doug and Eric at the end of articles in *The Turk's Cap*? If so, then write an article yourself. Don't let us have all the fun! We'll take just about anything from gardening tips to book reviews to poetry. Of course, it has to be about native plants, or issues related to native plants; just a minor guideline. Your imagination is the real key.

Contact Eric Zuelke for more information at (ezuelke@juno.com), or Keith Clancy at 302.674.5187.

A WARM, LEAFY WELCOME TO OUR NEWEST MEMBERS

April through June

Margaret Carter

Priscilla Goldsmith & William Collins

Kaye Murray

Martin Scanlon

Jim & Amy White

HOW CAN I GET INVOLVED?

The Delaware Native Plant Society is open to everyone ranging from the novice gardener to the expert botanist. One of the primary goals of the society is to involve as many individuals as possible.

Presently, most of Society-related activities and efforts have been performed by only a few members. The DNPS plans on becoming more active in a number of directions in 1999. Specific 1999 goals will be determined in the upcoming months, and they will be undoubtedly requiring involvement from more of our members.

For more information on how to get involved, call 302.674.5187. Or visit the DNPS website at www.delanet.com/~dnpswp.

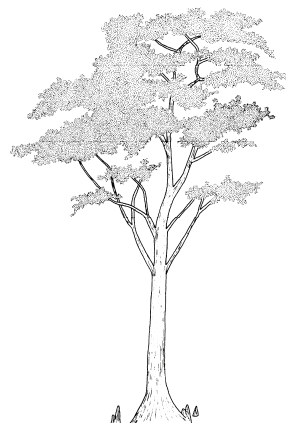
LETTER FROM THE PRESIDENT

As I write this letter we are in the midst of the summer's first heat wave and, since I do not have the benefit of air-conditioning I am doing my best to stay cool; I think I will go out and run under a sprinkler when I am done here. The question that is in my mind is: what happened to Spring? Did the spring flora seem even more ephemeral this year, or was I just too busy to really appreciate all that was blooming around me? Anyway, I hope everyone had a chance to enjoy the Spring's wildflower show and will take the time to get out and enjoy the green of summer punctuated by splashes of color from the summer's wildflowers. I also hope everyone is staying cool; is this just the

Continued on page 5

The DNPS Vision

The purpose of the Delaware Native Plant Society (DNPS) is to participate in and encourage the preservation, conservation, restoration, and propagation of Delaware's native plants and plant communities. The Society provides information to government officials, business people, educators, and the general public on the protection, management, and restoration of native plant ecosystems. The DNPS encourages the use of native plants in the landscape by homeowners, businesses, and local and state governments through an on-going distribution of information and knowledge by various means that includes periodic publications, symposia, conferences, workshops, fieldtrips, and a statewide membership organized by the DNPS.



LETTER FROM THE EDITOR**THE DNPS LOGOS**

As you may have noticed on our front and back pages, The Turk's Cap Newsletter has its own set of plant mascots. These illustrations of the Turk's Cap Lily (*Lilium superbum*), seaside alder (*Alnus maritima*), and bald cypress (*Taxodium distichum*) were drawn by Chris Bennett. Chris is a local artist living in the Milton area. He and his wife Karen are both DNPS members.

When the Delaware Native Plant Society was first formed, it was deemed that the Society would have a set of symbolic native plants. During the organizational meeting in March of 1998, the 15 participants each recommended one or more plants. Everyone was given a chance at a blind vote on their favorite set of tree, shrub and herb from the recommendations. When the results were tallied, these three won.

In a subsequent meeting we determined that we needed someone, an artist, to make technical drawings that were scientifically accurate, of our three plant species. With some discussion, and knowledge of his artistic skill and record of past commissions, Chris was asked to draw our plants—a high honor indeed!

By late fall, 1998 Chris had provided us with three excellent drawings that he had scanned digitally and that were ready to be used. So, in our Spring 1999 issue of *The Turk's*

Continued on page 7

PLANT-ANIMAL HIGHLIGHT**WHY FLOWERS SMELL**

If you have been out in the woods in the past few months, you've probably stopped to smell some flowers during your excursions. Have you ever pondered on just why flowers smell? The obvious answer is they can't—flowers don't have noses! Actually, the reason flowers have fragrances is to attract insects. Most people already know that, but did you know this...

Research has shown that there are considerable similarities between the volatile compounds produced by plants and insects. These compounds, such as fatty acid derivatives, isoprenoids, and benzenoid substances are all either excreted or secreted by both groups of organisms.

Both plants and insects have their own sets of priorities. Insects have a drive to find food and mates, plants need to be pollinated and both try to avoid being harmed by the other. Plants have adapted to the needs of insects and have manipulated these needs by mimicking insect chemical signals. Behavioral experiments have been performed which show that at least some of the compounds a plant secretes truly guide an insect. The insect cues in on that plant for food and/or mating reasons.

Now, why do some plants and insects only choose each other? Many species of insects are plant specific and vice-versa because of evolutionary co-adaptation, or co-evolution as the concept is usually known. This particular evolutionary specificity works because plants have the biochemical capabilities of producing volatile compounds of extraordinary complexity. This serves to attract many types of pollinators and this

forms a basis for adaptation. If a certain species of insect is better at pollinating a certain plant, say for anatomical reasons, than all other pollinators, the plant, over long periods of time, will adapt to that species of insect. It will begin to secrete a mixture of hormones, compounds and pheromones unique to that insect, thus forming a symbiosis that ties the species together in a unique bond. In the same manner, a suite of compounds produced by a plant may not deter all of its insect pests or predators, just the ones successful in harming the plant.

Plant/insect interactions are some of the most fascinating relationships in the world, and some of the most important. So the next time you head into the outdoors, take a moment to smell the flowers and think about the real reasons for those fragrances.

RESOURCES AND REVIEWS

Announcing the publication of Days Afield: Exploring Wetlands in The Chesapeake Bay Region. Since moving to Maryland in 1971, William S. Sipple has maintained an extensive journal on his outdoor experiences exploring and studying the Chesapeake Bay Region's wetlands. Days Afield is a spin-off of his journal. The book represents considerable field work in the Chesapeake Bay region—somewhere in excess of 1,500 site visits. Various anecdotal accounts of the Sipple's experiences should make the book interesting to natural history and outdoor enthusiasts. Professionals working in the field will also find it invaluable, as the book incorporates considerable literature on the region's wetlands. Many aspects of wetland ecology, biology, processes, dynamics, and management are presented, including dramatic and deploring man-induced changes to the region's wetlands.

Chapter One includes a running dialogue between an instructor (the author) and his students as he takes the readers down the Delmarva Peninsula on one of the overnights field trips he annually led for the Graduate School, U.S. Dept. of Agriculture between 1972 and 1990. Chapter Two is on freshwater marshes, both non-tidal and tidal. Chapter Three addresses the extensive brackish tidal marshes of Dorchester and Somerset Counties, which total about 135,000 acres and are so important to waterfowl and furbearers. To complete the range of tidal marshes in the region, the low diversity but highly productive salt marshes of Maryland's coastal bays are discussed in Chapter Four. The unique Pocomoke River and the nifty Nanticoke River watersheds are treated separately in Chapters Five and Six. The mysterious "potholes" of the Delmarva Peninsula, interesting non-tidal depressional wetlands, are addressed in Chapter Seven. For a number of years, the author has been interesting in the botanical finds of a turn-of-the-century botanist, Dr. Charles C. Plitt, who regularly led field excursions into what he called the "wilds of Anne Arundel." Chapter Eight is devoted to Plitt's exploits in Anne Arundel County, as well as some unique bog sites apparently unknown to Dr. Plitt. During the 1980s and 1990s, the author annually led a number of field excursions in the Chesapeake Bay Region with an informal group of botanical enthusiasts. Verbatim accounts of some of these forays are presented in Chapter Nine. The last chapter

Continued on page 4

NATIVE PLANT COMMUNITY HIGHLIGHT**Twisted-sedge Herbaceous Community*****Carex torta* Herbaceous Community****Introduction**

Carex torta is just one of the more than 100 species of *Carex* known for Delaware. The species is characterized by its densely cespitose habit from stout forking rhizomes and cord-like roots, sturdy stems to 0.7 m in height, and its predilection for gravelly banks along streams. Its leaves are soft, dark green, 3-5 mm wide. The specific epithet, *torta*, refers to the twisted (tortuous) beak of this species perigynia (the special bract that encloses the fruit of a *Carex*).

Community structure/composition

This is a sparse to densely vegetated herbaceous community found on sand and gravel bars of streams of the Piedmont; it is characterized by the presence of *Carex torta* as the diagnostic species. This species is adapted to frequent flooding and scouring, and is shade intolerant. It may form sparse, with only a few cespitose individuals or more rarely, rather dense colonies. Infrequent associates are mostly herbaceous and include native species such as *Juncus effusus* (soft rush), *Impatiens capensis* (jewelweed), *Phalaris arundinacea* (reed canary grass), *Leersia oryzoides* (rice cut-grass), *Dichanthelium clandestinum* (panic grass), *Pilea pumila* (clearweed), and *Cryptotaenia canadensis* (honestwort). Several exotic species, including *Poa trivialis* (rough bluegrass), *Myosotis scorpioides* (water scorpion grass), *Hemerocallis fulva* (day-lily), and *Microstegium vimineum* (Japanese stilt-grass) have been noted as associates in this community, as well. Woody plants such as small scattered seedlings of *Acer negundo* (box-elder), *Salix nigra* (black willow), or *Fraxinus pensylvanica* (green ash) attempt to gain a foothold in this community but are generally thwarted by the scouring caused by periodic flooding. If the hydrological dynamics of these streams change (i.e., flooding becomes less frequent) it is likely these woody taxa would displace the rare sedge community.

Community dynamics/succession

Dependent on frequent flooding and scouring to maintain itself. If flooding frequency and intensity decreases community may be replaced by woody plants that are unable to tolerate such flooding.

Distribution

In Delaware this community occurs on gravelly sand bars along stream edges and is known from the White Clay Creek, Brandywine Creek, Shellpot Creek, and the Christina River; on the Piedmont, and with one occurrence on the Coastal Plain. All community occurrences are in the Delaware River drainage. According to The Nature Conservancy, rangewide this community occurs from the Carolinas, to Tennessee, and Virginia. It has only been recently that this community type has been noted to occur in Delaware. The species ranges as far north as Quebec, so it is likely that the community may be present elsewhere in the Mid-Atlantic and northeast.

Comments

The twisted sedge community occupies small areas of only a few

NATURAL QUOTES

‘Come forth into the light of things,
Let nature be you teacher.’

William Wordsworth

FEATURE ARTICLE**SIGNS OF FOOLISHNESS: THE NEED TO KNOW LEADS THIS AUTHOR ON A WILD GOOSE CHASE**

I was looking for a spot to take a mid-afternoon break from hiking when I spotted the sign. “Do not touch the tree” it said.

The sign obviously had been there a while, since it was almost obscured by plants and had that weathered look that wood gets after a few rough winters without maintenance.

Obviously, the first thing I did was walk up to the tree in question for a closer view. I couldn’t see anything special about the tree that warranted not touching it.

The sign made me want to reach out and feel the bark on the trunk, but I refrained. I walked over to another tree, one that the sign couldn’t possibly refer to. I stuck my face a few inches from the tree and examined it. A couple of ants were walking up it, but other than that, it was just another pine to me. I reached out and touched it.

But this wasn’t the tree I shouldn’t touch, according to the sign. I stood between the two trees, looking back and forth trying to see some difference. Was it the location? Was it something about the bark? What the heck made one tree touchable and the other not? I couldn’t figure it out.

Eventually, I hiked on, endlessly fascinated by every tree I passed. Which of these were touchable, which weren’t?

When I finished my hike in the Loof Lirpa Wilderness, I immediately called my friend Russell at the Forest Service.

“Yeah, I remember seeing those signs,” Russell said.

“There’s more than one?”

“I think I’ve seen three or four over the years.”

But Russell had no idea why they were put there, and they predated his assignment. He suggested I call the district office and see if they knew the answer. I had a better idea—I’d just go all the way to the top and call the head of the Forest Service.

Of course, that’s not as easy as it sounds. In Washington, D.C., most of the agency heads have layers of folks who screen calls and serve to deflect queries, especially from the press. As I got passed up the chain of screeners, I asked each one why some trees were untouchable. A few had theories (“maybe it had been sprayed” and “perhaps it has some historical significance” were among them), but none knew the answer, and most were clearly frightened by an editor asking questions that might relate to some policy they knew nothing about. The approach was clearly getting me nowhere.

Suddenly, I had an inspiration. The signs were the only clue I had. Perhaps I could simply call the office that made

Continued on page 4

them and find out who ordered them.

Bingo. Most Forest Service and National Park Service signs are created in one shop, and the manager of that operation had been there for 20 years.

"Yeah, I remember those signs because we had a big stink about them," he said. This was more like it, I was about to find out the real scoop. I'd finally know why a few trees were untouchable while others weren't.

"You see, the guy who ordered the signs claimed they were wrong, but they were exactly what he had specified—we don't make mistakes here, it takes us too darn long to make each sign, so we check, double-check, and triple-check the work orders."

"What was wrong with them?" I asked.

According to the big-shot district manager who ordered them, they were supposed to read "Do not touch the trees." Plural, as in more than one tree. But that's not what he wrote on the work order. We fought about that for months. He even managed to get an internal inquiry started, the dolt. Well, guess who's still working at his job and who got reassigned to Timbuktu? You want to find out more about these signs, you should be talking to him, Bob _____."

The news that the signs were supposed to refer to all the trees depressed me. It didn't matter that I had no way of telling the difference between the trees, perhaps I had touched a tree that wasn't supposed to be touched. And I still didn't know why. Bob didn't want the trees touched in the first place. And, of course, since I wasn't supposed to touch the trees, I now wanted to do so more than ever.

I tracked down the manager who had ordered the signs. He'd been transferred half a dozen times, but he was still with the Forest Service. When I finally reached him, I asked, "Hey Bob, why were you trying to mark all those trees untouchable?"

Bob laughed. "I knew I hadn't heard the last of those signs," he said. It's as if they have a life of their own and are following me around forever. As curses go, I think I'd rather be the Flying Dutchman than be plagued by those signs.

"You see," Bob continued, "this was all before Leave No Trace and all the other education programs we have today. We were simply trying different approaches to keep people from pulling off dead tree branches for fires or carving their initials into trunks. It wasn't touching a tree that was the problem, but how you touched it. I didn't want to have to list all the things we didn't want people to do, so it just seemed simpler to tell everyone not to touch the trees. Of course, because the signs came out wrong, we actually protected only six trees..." His voice trailed off, and I decided to leave Bob with his memories. I had found out what I wanted to know.

A few months later, I hiked back into the Loof Lirpa Wilderness to the sign that had started the whole mess. The trees still looked the same to me, but some strange urge was compelling me to do what I originally wanted to, to touch that one "protected" tree. I approached slowly, taking in the whole tree, trying to soak in all its individual characteristics. A misshapen branch here, a dead one there, the slight lean of the tree—all this I carefully noted. Instead of merely touching it, I decided to hug the tree instead.

As I backed away, I looked down at the sap that was now stuck to my brand new synthetic T-shirt. Perhaps Bob was right. Let's not touch the trees.

◊◊◊◊ Thom Hogan

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BACKPACKER MAGA-

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NATIVE PLANT COMMUNITY HIGHLIGHT

Continued from page 3

square meters on sand/gravel bars in moderately high energy systems. I, personally, do not have first-hand knowledge of this Community. The description provided here for the twisted sedge herbaceous community is based on habitat and rare plant data gathered by the Delaware Natural Heritage Program and from discussions with the program's botanist and DNPS member Bill McAvoy.

Conservation status

Carex torta is a state rare species (S2), and therefore the natural community is rare as well with a Natural Heritage rank of S2 (6-20 occurrences throughout the state). The Nature Conservancy (TNC) has given a global rank (i.e. a measure of the community's rarity throughout its range) of **G3G4** (rare or uncommon, G3, to apparently secure but with cause for long-term concern, G4) to a more southerly described community (TNC was not aware of this community occurring in Delaware). From the description of the more southern *Carex torta* community I would suggest that our occurrences are  equivalent.

RESOURCES AND REVIEWS

Continued from page 2

covers examples of a number of small but interesting Western Shore streams collectively referred to as the Sleepers—namely, Severn Run, Piscataway Creek, Mattawoman Creek, Zekiah Swamp Run, and the St. Mary's River. Indices to plant and animal scientific names and common names are also included.

Days Afield is a 6 x 9, perfect bound, glossy paper-cover book with xiv + 560 pages and 75 photos/illustrations. Published for the author by Gateway Press, Inc. The book will be available in August 1999 for \$19.95. For more information contact William Sipple at bsip333@aol.com. 

◊◊◊◊ William S. Sipple

FOR EVERYONE INTERESTED IN PLANTS AND THEIR CONSERVATION

Plant Talk is a quarterly magazine for anyone and everyone with an interest in plants. The magazine includes stories of where conservationists are succeeding, features explaining techniques of plant conservation, editorials, news, reports on new floras, checklists and field guides, events, and letters. The magazine is designed to be enjoyed by both the amateur and the professional. It is published by the Botanical Information Company, Ltd., a company set up for this purpose and registered in England. The advisory panel is an international team of scien-

tists.

Subscription rates are \$28.00 for a one year subscription of four issues. Write to Plant Talk, PO Box 354841, Palm Coast, FL, 32135 for a free trial issue or other information.

oooo Eric Zuelke, editor



NATIVE PLANT RESTORATION

I strongly recommend everyone read two articles that appeared in the *American Nurseryman* (July 1 and July 15, 1995 issues) entitled "Native Plant Restoration: Part I" and "Native Plant Restoration: Part II." These articles, written by Leslie Sauer of Andropogon Associates, were recently sent to me by DNPS member Flavia Rutkosky. They eloquently discuss the compelling need for the preservation and restoration of native plants in the landscape and the roadblocks that have been established that are hindering such efforts. The articles are not all doom and gloom, though, as Sauer gives examples of some successes in this area of conservation and also discusses what the home gardener can do.

oooo Keith Clancy,  DNPS president

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LETTER FROM THE PRESIDENT

Continued from page 1

beginning of global warming?

In the past few weeks the DNPS has begun a conservation initiative that we hope will be successful and will attract the support and help of many people and other conservation groups. DNPS members in attendance at recent monthly meetings have identified the protection and restoration of upland forests as one of the State's most crucial environmental and conservation issues. We are about to submit a letter discussing this issue to Nicholas A. DiPasquale, Secretary of DNREC, and we are asking that this topic be discussed at his next meeting (July 14, 1999) with the conservation community. In the letter we ask about the possibility of undertaking reforestation projects on some lands managed by DNREC. Many hundreds of acres of State Park and State Wildlife Area lands are currently in either leased crop lands (some of these are lands recently acquired and the former owners were allowed to continue to farm the lands for a period of time), have been recently clear-cut, or are mowed meadows or lawns.

Upland forests and their conservation, protection and restoration has not been a priority for DNREC (although I am encouraged by a Sunday, July 4, 1999 News Journal article that reports on the State's plans to acquire 11,000 acres of forest lands). DNREC's recent attentions have focused on fulfilling the mandates of the Clean Water Act by developing TMDL's for the state's waterways, writing nutrient management legislation that will reduce the amounts of nutrients entering our streams and inland bays, and numerous issues dealing with the state's fisheries, among many other issues. So, it is not surprising that forests and their conservation have been given little attention.

Nevertheless, protection and expansion of forests, especially upland forests, should be a high priority by virtue of

the fact that so much of our original forest cover has vanished and because forests provide a multitude of functions and values. Two important roles intact forests play are in the conservation of biodiversity and in the maintenance of ecological integrity. In addition, this issue should be given priority since there is absolutely no protection or regulations governing the protection of terrestrial forests; either at the state or federal level. I hope that our letter will not only result in expanding forest cover on state-owned lands but act as a catalyst to elevate the conservation of upland forests as a priority for the State and the conservation community.

The DNPS and its member are in a unique position to make significant changes in Delaware's conservation landscape. According to the DNPS "vision," one of our purposes is to work towards "the preservation, conservation, restoration, and propagation of Delaware's native plants and plant communities." We need people to step forward that are committed to these ideals and become active in projects that foster the use of native plants and protection of native plant species and communities. I challenge myself as well as the DNPS membership to strive to achieve this vision. We are finally making an effort with our letter to DNREC, but there is so much more that we can do. I encourage as many of you that can make it to come the next DNPS meeting on July 20, 1999 and become involved in these conservation issues.

Let me conclude this letter by informing everyone about an exciting development. It looks promising that there will be a native plant nursery starting up shortly at Bombay Hook National Wildlife Refuge. Thanks go to Mr. Paul Daly, refuge manager, for giving his approval for this nursery. Although, we still await the official word of approval from the regional office of the U. S. Fish and Wildlife Service. I hope that this will be a nursery run by the DNPS and that it will provide appropriate native plants to land managers involved in habitat restoration projects. Members that volunteer in this effort will also be able to propagate and grow plants for their own native plant landscaping activities. We are also looking into locations in New Castle and Sussex Counties for similar nursery operations. Please call me or e-mail me if you are interested in participating in our native plant nursery or would like to know more.

I hope everyone has a great, and botanically satisfying summer.

Sin-  cerely,

Keith Clancy



NATIVE PLANT HIGHLIGHT**COMMON FERNS AND FERN ALLIES OF DELAWARE**

There are 64 species and varieties of ferns and fern allies (known collectively as Pteridophytes) known to occur in the state of Delaware. Many species are quite common and occur in all three counties of the state, and in both the piedmont and coastal plain physiographic provinces. Some species are very rare and are known from only a single, or a few localities in the state. Furthermore, one species is historical (not seen or collected for 15 or more years) in Delaware, and 6 species are thought to be extirpated (known no longer exists) in the state.

Ferns are found growing in a variety of different habitat types, such as marshes, swamps, on rocks, and attached to trees, but ferns are primarily forest dwellers preferring the shady moist soils of the forest floor. Ferns reproduce by spores and have a very different life cycle than the typical flowering plants that reproduce by seed. The differences between the true ferns and the fern allies are both sexual and asexual, but vegetative characteristics help to separate them in the field. The true ferns usually have large, lacy fronds, such as the lady fern (*Athyrium filix-femina*) and the spinulose woodfern (*Dryopteris carthusiana*), while the fern allies are quite different in appearance. The fern allies have vegetative parts that can appear leafy and frond-like, such as the grapefern's (*Botrychium* spp.), but several of the fern allies are often a just a simple stem such as the horsetail's (*Equisetum* spp.) and the quillwort's (*Isoetes* spp.).

The following are some of the more common species of ferns and fern allies that are found in Delaware. If you would like a complete list of the Pteridophyte flora of Delaware, contact Bill McAvoy at the Delaware Natural Heritage Program (wmcavoy@state.de.us, or at 302-653-2880). Nomenclature follows The Flora of North America, Volume 2, 1993.

<i>Asplenium platyneuron</i>	ebony spleenwort
<i>Athyrium filix-femina</i>	Northern lady fern
var. <i>angustum</i>	
<i>Athyrium filix-femina</i>	Southern lady fern
var. <i>asplenioides</i>	
<i>Botrychium dissectum</i>	dissected grapefern
<i>Botrychium virginianum</i>	rattlesnake fern
<i>Dennstaedtia punctilobula</i>	hay-scented fern
<i>Deparia acrostichoides</i>	silvery spleenwort
<i>Diphasiastrum digitatum</i>	Southern running pine
<i>Dryopteris carthusiana</i>	spinulose woodfern
<i>Dryopteris cristata</i>	crested woodfern
<i>Dryopteris intermedia</i>	evergreen woodfern
<i>Dryopteris marginalis</i>	marginal woodfern
<i>Equisetum arvense</i>	common horsetail
<i>Huperzia lucidula</i>	shining clubmoss
<i>Isoetes engelmannii</i>	Engelmann's quillwort
<i>Lycopodium obscurum</i>	flat-branched clubmoss
<i>Onoclea sensibilis</i>	sensitive fern
<i>Osmunda cinnamomea</i>	cinnamon fern
<i>Osmunda regalis</i>	royal fern
var. <i>spectabilis</i>	
<i>Phegopteris hexagonoptera</i>	broad beechfern

Continued on page 8

NATIVE PLANT HIGHLIGHT**PICK THE TURK'S CAP****WHERE TO THE WILDFLOWERS?**

Q. Now that spring is gone and early summer is quickly passing, the wildflowers don't appear to be as prevalent. Is there any special place I can go to see wildflowers?

A. The answer to the question is absolutely YES. First, starting in the early summer and continuing throughout the summer are the numerous goldenrods, bonesets, and an array of asters. But granted, distinguishing some of these species can be tedious; sometimes reducing the level of enjoyment during wildflower hunting. But, I think you would be amazed at the number of species that are actually out there. Second, for you more adventurous types who don't mind getting your feet wet, wetlands are the place to be. The sedges alone are draw enough, but the mallows are a sight to see. Instead of me giving you a sell-job on mallows, I would like to present an excerpt from the Seasonal Guide to the Natural Year (Weidensaul, 1992).

"The summer coastal marshes can take a toll on a human visitor. On a muggy day the sun beats mercilessly, and shade is nowhere to be found. Even worse, this is the peak of mosquito and marsh fly season, and if the breeze deserts you, the bugs will descend in hordes.

But there are rewards aplenty, and one of the finest is the mallows, which explode in bloom in late July and last through the remainder of the summer, coloring the marshes with splashes of white and vivid pink."

The mallows are members of the hibiscus family (Malvaceae), native to the wetlands of the East Coast. There are several species (including a number of introduced, roadside varieties), but the showiest of the lot is the swamp rose mallow (*Hibiscus moscheutos* ssp. *moscheutos*) – 6 or 7 feet tall, bearing clusters of flowers that may be as large as 8 inches across. Most of the rose-mallows bear white flowers with maroon centers, but scattered through the stands will be many individuals bearing pink blossoms – not a different species, but a separate variety. (Once, the white form was considered a distinct species, the crimson-eyed rose-mallow, but botanists now lump the two together.)

Growing among the rose-mallows, somewhat overshadowed by their larger cousins, will be seashore mallows (*Kosteletzkya virginica*), which reach a height of about 3 feet and bear smaller, pink flowers. Unlike the rose-mallow, which does well with brackish or fresh water around its roots, the seashore mallow is found only in tidal marshes.

HOTSPOTS

You can find mallows growing almost anywhere along the region's coast during late summer, but a few areas have veritable fields of mallows, including *Prime Hook National Wildlife Refuge* in Delaware. This refuge, with limited road access, is best seen by canoe, with Slaughter Creek and Petersfield Ditch being popular canoeing routes....Other spots for mallows are *Chincoteague National Wildlife Refuge* and *Back Bay National Wildlife Refuge*, both in Virginia, and *Bombay Hook National Wildlife Refuge* near Smyrna Delaware.

oooo Doug Janiec, DNPS webmaster



UPCOMING EVENTS

SATURDAY, 1 AUGUST 1999 – A JOINT FIELD TRIP WITH THE DELAWARE NATURE SOCIETY (DNS). COME WITH US TO EXPLORE CAROLINA BAYS (A.K.A. DELMARVA BAYS OR COASTAL PLAIN PONDS). IN THE MORNING WE WILL VISIT SEVERAL GOOD QUALITY BAYS IN THE BLACKBIRD STATE FOREST AREA OF NEW CASTLE COUNTY AND THEN BY EARLY AFTERNOON WILL HEAD TO SUSSEX COUNTY TO VISIT THE PREMIER CAROLINA BAY ON THE DELMARVA PENINSULA. FIELD TRIP LIMITED TO 20 PARTICIPANTS. CONTACT KEITH CLANCY AT 302.674.5187 OR DNPLANT@AOL.COM TO RESERVE A SPOT AND FOR MORE DETAILS.

SATURDAY, 28 AUGUST 1999 – NATIVE PLANT SEMINAR AND PLANT SALE. IRVINE NATURAL SCIENCE CENTER, STEVENSON, MD. CALL 410.484.2413 FOR MORE INFORMATION OR ON THE WEB AT WWW.EXPLORENATURE.ORG.

SATURDAY, 25 SEPTEMBER 1999 – NATIVE PLANT SEMINAR AND PLANT SALE: THE NATIVES ARE FRIENDLY, FUNDAMENTALS OF USING NATIVE PLANTS. HARTFORD COMMUNITY COLLEGE, BEL AIR, MD. CALL 410.838.7950 (EVENINGS ONLY) OR 410.836.2469 FOR MORE INFORMATION OR ON THE WEB AT WWW.GEOCITIES.COM/RAINFOREST/VINES/2996. YOU CAN ALSO E-MAIL FOR MORE INFORMATION AT ATLANSTR@MAGNUS.NET.

A SATURDAY IN OCTOBER 1999 – TREE SPREE. MORE DETAILS AT A LATER TIME.

LETTER FROM THE EDITOR

Continued from page 2

Cap, Chris's drawings were unveiled. We replaced the rather cumbersome transparent cut-out copy of the turk's cap lily that we were using on the top of the first page with Chris's simple but elegant drawing of a single turk's-cap lily bloom. The other drawings are watermarks on the mailing page.

The illustrations are a pen & ink stippling style and were based on photographs and pictures seen in magazines and manuals.

We're happy with the selection of these three species. The turk's cap lily is an extremely representative plant of our wetlands, the seaside alder is endemic to the Delmarva peninsula, and the bald cypress is at its northernmost limit in Delaware.

Eric Zuelke and Keith Clancy

EVENT HIGHLIGHT

OUR FIRST ANNUAL MEETING

The First Annual Meeting of the Delaware Native Plant Society was held on a brisk but sunny Saturday, April 24, 1999. The day's activities began with a native plant hike in the mature mixed hardwood forest overlooking the Brandywine Creek. Janet Ebert led the walk for about 12 members

and non-members and we were all treated to many different species in flower. Since there were so many species that we observed I will not list them here; suffice it to say we saw many of the species you would expect to see in the Piedmont during late April (see Native Plant Highlight column in The Turk's Cap, Vol 2, Number 1 for a representative list). One disturbing observation though was the presence of many exotic, invasive plant species throughout the forest; it will be a challenge for the park's staff to remove and control these species. After the morning field trip, lunch was served (a pot-luck with some delicious food), and then Mr. Carl Solberg of the Sierra Club gave an excellent slide presentation on how ditching activities along streams impacts on habitat quality. The day's activities concluded with a short business meeting that had to be adjourned early because the building we were in (the Nature Center at Brandywine Creek State Park) was closing. I hope all who attended had a good time and learned a little more about our State's native (and unfortunately exotic) plants.

DNPS WEBSITE

Missed an issue of The Turk's Cap Newsletter? Want to know about upcoming events? Then check out the DNPS website. Doug Janiec has been hard at work posting the latest and greatest columns, articles and events from the newsletters on our site. Check it out at www.delanet.com/

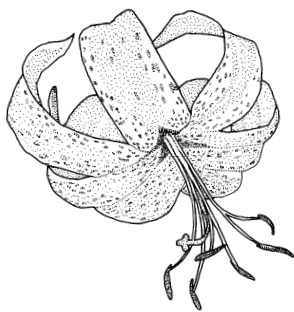
Continued from page 6

<i>Polystichum acrostichoides</i>	Christmas fern
<i>Pteridium aquilinum</i> var. <i>latiusculum</i>	Northern bracken fern
<i>Pteridium aquilinum</i> var. <i>pseudcaudatum</i>	Southern bracken fern
<i>Thelypteris noveboracensis</i>	New York fern
<i>Thelypteris palustris</i> var. <i>pubescens</i>	marsh fern
<i>Woodwardia areolata</i>	netted-chain fern
<i>Woodwardia virginica</i>	Virginia-chain fern

oooo William A. McAvoy, DNPS Vice-president

DELAWARE NATIVE PLANT SOCIETY
P.O. BOX 369
DOVER, DELAWARE 19903





The Turk's Cap

THE NEWSLETTER OF THE DELAWARE NATIVE PLANT SOCIETY AUTUMN 1999

IN THIS ISSUE

- Page 1** ○ *A Call for Articles*
 ○ *New Members*
 ○ *Letter From the President*
- Page 2** ○ *Letter From the Editor*
 ○ *Plant-animal Highlight*
 ○ *Resources and Reviews*
- Page 3** ○ *Natural Community Highlight*
 ○ *Feature Article*
- Page 4** ○ *Feature Article continued*
 ○ *Natural Community Highlight cont.*
 ○ *Resources and Reviews continued*
- Page 5** ○ *Letter From President continued*
 ○ *Letter From the Editor continued*
- Page 6** ○ *Native Plant Highlight*
 ○ *Pick the Turk's Cap*
- Page 7** ○ *Upcoming Events*
 ○ *Event Highlight*
 ○ *DNPS Website*
- Page 8** ○ *Pick the Turk's Cap continued*

HOW CAN I GET INVOLVED?

The Delaware Native Plant Society is open to everyone ranging from the novice gardener to the expert botanist. One of the primary goals of the society is to involve as many individuals as possible.

The DNPS is working on two significant projects at this time. We have recently initiated discussions with staff from the Divisions of Parks and Recreation and Fish and Wildlife, DNREC, about potential reforestation on their lands. A second initiative that we are pursuing is the establishment of native plant nurseries in each county. We encourage everyone to participate in these endeavors.

For more information on how to get involved, call 302.674.5187, or E-mail at

A CALL FOR ARTICLES

words flow like pine sap
 for writing is an art to
 be in The Turk's Cap

We'll take just about anything from gardening tips to book reviews to poetry. Of course, it has to be about native plants, or issues related to native plants; just a minor constraint. Your imagination is the real key.

Contact Eric Zuelke for more information at (ezuelke@juno.com), or Keith Clancy at 302.674.5187.

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A COLORFUL WELCOME TO OUR

NEWEST MEMBERS

July through September

Ken Dunne

Bryan Samuel

○ ○ ○ ○ ○ ○ ○

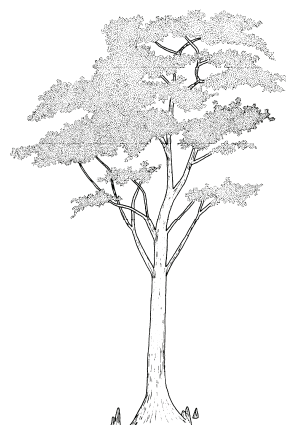
LETTER FROM THE PRESIDENT

Well, lo and behold, it is autumn once again (what happened to the summer?). The heat and drought conditions that characterized the summer are but a distant memory. I hope most, if not all, of the native trees, shrubs and herbs that were planted this growing season have survived. Now is the time to start collecting, judiciously, seeds to be germinated this fall or first thing next spring. I really should look into buying a place so I can really participate in all the planting fun; there's really only so many plants one can fit on the porch! The property doesn't even need a house on it. Any old field will do nicely; one that I could reforest with species that were probably there prior to

Continued on page 5

The DNPS Vision

The purpose of the Delaware Native Plant Society (DNPS) is to participate in and encourage the preservation, conservation, restoration, and propagation of Delaware's native plants and plant communities. The Society provides information to government officials, business people, educators, and the general public on the protection, management, and restoration of native plant ecosystems. The DNPS encourages the use of native plants in the landscape by homeowners, businesses, and local and state governments through an on-going distribution of information and knowledge by various means that includes periodic publications, symposia, conferences, workshops, fieldtrips, and a statewide membership organized by the DNPS.



LETTER FROM THE EDITOR**THOUGHTS ON AUTUMN**

As my favorite season of the year descends upon us, this issue of our beloved newsletter takes on the themes of the season. Halloween, spooks and ghouls bring candy galore this season, but this issue brings another icon of Halloween, bats, particularly their role in plant pollination. The Native Plant Highlight addresses a less supernatural phenomenon of the season; the changing colors of different species of maple trees. Our Native Plant Community Highlight covers the smooth cordgrass herbaceous community, which, if you get a chance to visit the saltmarshes of Delaware during October and November, you will be rewarded with a wonderful display of the subtle orange and red hues of the senescing *Spartina alterniflora* culms. It's definitely a unique turn on the hum-drum greens and browns of the saltmarsh in summer. The Pick The Turk's Cap talks about which plants are best for fall and winter food sources for birds and why. And our feature article comes from Dr. Milton Beck of Dover Air Force Base. Dr. Beck talks about the Old Woods located on the base.

During the course of putting together *The Turk's Cap*, we've tried to make it a venue of communication for our members and a place where everyone can keep up with events and topics of interest. So far I think we're doing a good job of that. Now we'd like to hear more from you. It's my hope that our members or anyone else who picks up a copy of this news

Continued on page 5

PLANT-ANIMAL HIGHLIGHT**BAT POLLINATION**

One of the more intriguing and exotic types of co-evolution is that of chiropterophily, or pollination of flowers by bats (bats are in the animal Order Chiroptera). Bats are primarily known for their use of sonar to locate insects on the wing. However, certain groups of bats, particularly species in the Order Macroglorinae, or "big-tongues", which live in southern Asia and the Pacific have co-evolved with plants so much that pollen and nectar has come to satisfy 100% of their daily nutritional requirements. Flower pollinating bats show extreme morphological variations to suit their specialized feeding habits. They have much longer, smoother snouts than the typical insectivorous bat because they have evolved an incredible sense of smell to detect chemical signals and fragrances from flowers, such as stale, musty or rancid odors reminiscent of urine-like smells or sweaty feet. Their sonar abilities are comparatively undeveloped when compared to North American insectivorous bats. Some species have long tongues with papillae on the end, and in some cases, a soft brush-like tip to lap up the pollen/nectar mixture of bat flowers. They also have very few teeth and one species has specialized hairs with scales on them that were adapted for pollen transport.

Bat flowers are normally large, sturdy, have wide mouths, are white or drab in color, have strong fragrances and copious amounts of nectar and pollen. Like bats, these flowers have some striking adaptations to suit their unique relationships. An obvious one is that some bat flowers are nocturnal to coincide with the peak time of activity of the bats and the pale or white colors enables them to be highly visible in the dimness

of nighttime. They have numerous stamens (the baobab has about 2000 per flower), and *Agave* have large anthers, which easily dust the head of the bat and transfer the pollen. They also have made it easy for bats to approach the flowers. The sausage tree (*Kigelia aethiopica*) dangles its flowers beneath the crown on long, rope-like branches. In other species, the flowers are situated on the main trunk or the larger limbs. The kapok tree (*Ceiba*) has a pagoda shape, and the *Marcgravia umbellata* displays its flowers in a large chandelier. There are no bat-plant associations here in Delaware, so in order to experience this in the flesh you will just have to take a trip to the tropics!



Eric Zuelke, editor

RESOURCES AND REVIEWS**COMING IN THE SPRING OF 2000: CHECKLIST OF THE FLORA OF DELAWARE**

Want to know what plants occur in Delaware? Want to know whether that *Fothergilla gardenii* recommended by your landscaper is actually native to our state? The answers can be at your fingertips when you order your own copy of the first ever Checklist of the Flora of Delaware, by William A. McAvoy and colleagues. McAvoy, through the Delaware Natural Heritage Program (DNHP), is the Delaware Division of Fish and Wildlife's Botanist and is one of the most widely respected field botanists on Delmarva. If you'd like to be on the advance mailing list, or are interested in bulk orders, please contact the DNHP at 302.653.2880, or through e-mail: wmca-voy@state.de.us.

INTRODUCING THE DELAWARE INVASIVE SPECIES COUNCIL

The Delaware Invasive Species Council (DISC), was initiated in August 1998. The Council is made up of almost 30 representatives from federal, state, and local agencies; as well as private organizations. The Council's mission is: "To protect Delaware's ecosystems by preventing the introduction and reducing the impact of non-native invasive species." DISC is a non-profit organization that is actively seeking new partnerships with other interested groups. For more information, please contact Dr. Donald A. Eggen, Chair, at the Delaware Department of Agriculture, 800.282.8685 (DE only) or 302.739.4811 ext. 259.

APPALACHIAN FLORA AND SCENIC VISTAS CD AND BOOK

Appalachian Flora and Scenic Vistas has been developed for a variety of users, including: botanists, plant biosystematists, horticulturists, teachers, students, gardeners, herbalists, hikers, photographers, and, virtually anyone with a love for natural history and ecology. Appalachian Flora and Scenic Vistas has over 900 plant images (photos) representing 348 species, with notes on habitat and nomenclature. In addition, it has over 250 scenic vistas from various areas within the Appalachians.

Continued on page 4

NATIVE PLANT COMMUNITY HIGHLIGHT**Smooth cordgrass Herbaceous Community
Spartina alterniflora Herbaceous Community****Community structure/composition**

A salt to brackish (polyhaline to mesohaline) regularly flooded marsh community that occurs on shallow to deep peats. It is dominated by the smooth cordgrass, which often gives the appearance of a monospecific stand. The *Spartina alterniflora* Herbaceous Community is generally found in the "low" (between mean sea-level and mean high water level) part of the saltmarsh (where flooding occurs on a daily basis), and covers vast areas of Delaware's estuarine habitats. The short form of *S. alterniflora* forms extensive stands throughout much of this community, while the tall form occupies the lowest zones of the marsh, usually restricted to creek and gut banks and the upper borders of tidal flats. Infrequent associates in this community include *Limonium carolinianum* (sea-lavender), *Atriplex prostrata* (spearscale), *Salicornia* spp. (saltworts), *Baccharis halimifolia* (groundsel bush), *Iva frutescens* (marsh elder), *Kosteletzkya virginica* (seashore mallow), *Hibiscus moscheutos* (marsh mallow), *Amaranthus cannabinus* (water-hemp), *Pluchea odorata* (salt-marsh fleabane), *Tripsacum dactyloides* (gama-grass), *Spartina patens* (salt hay), *S. cynosuroides* (big cordgrass), *Juncus gerardii* (black grass), *J. roemerianus* (needle rush), *Distichlis spicata* (salt grass), and *Phragmites australis* (common reed). Most of these associates are found on spoil banks along ditches, at edges where roads cross the marsh, in the higher portions of the marsh, or along and in salt pannes. Microscopic algae may be abundant and include numerous diatoms, as well as other algal groups. A study by M. J. Sullivan (a 1975 University of Delaware dissertation) reported 82 edaphic diatom species (*Navicula* and *Nitzschia* were the most abundant genera, comprising more than half the total diatom flora, with 27 and 16 species, respectively) from a *S. alterniflora* marsh along Canary Creek, near Lewes.

Distribution

In Delaware the *Spartina alterniflora* Herbaceous Community comprises thousands of hectares of salt and brackish marshes throughout the Delaware and Inland Bays estuaries. This community or slightly different variants are found from Newfoundland and Quebec south to Florida, west to Texas, and disjunct to South America and north Europe.

Synonymy/affinities

This community is classified within The Nature Conservancy's *Spartina alterniflora* Tidal Herbaceous Alliance and has affinities to both their *Spartina alterniflora* (*Ascophyllum nodosum*) Acadian/Virginian Zone Herbaceous Vegetation and *Spartina alterniflora*-*Lilaeopsis chinensis* Herbaceous Vegetation.

Other species

The *Spartina alterniflora* Herbaceous Community is used extensively by various animal assemblages, including birds such as Marsh Wrens, Short-eared Owls, Northern Harrier, Willet, Seaside Sparrow, Red-winged Blackbirds, Snow Geese, and

NATURAL QUOTES

'How blind that cannot see serenity.'

Henry David Thoreau, Walden

FEATURE ARTICLE**THE OLD WOODS AT DOVER AIR FORCE BASE**

Dover Air Force Base (DAFB) is located in Kent County and comprises approximately 4,000 acres of land, including annexes, easements and leased property. The surrounding area is primarily cropland, industrial lands and wetlands. There were scattered wooded areas on the site before Dover Municipal Airfield was built in 1941; these were small, each being less than 10 to 15 acres in size (based on an analysis of a 1937 aerial photograph of the site). While some of these small forest tracts were cleared during base construction, two significant stands remain intact. Though one of these is now much smaller than in 1959, both tracts represent surviving Oak-Hickory woods.

One isolated parcel of woods was used for bomb storage during WW II. The predominant tree in this area is the pin oak (*Quercus palustris*). Other trees in this forest stand include the sweet gum (*Liquidambar styraciflua*), yellow or tulip poplar (*Liriodendron tulipifera*), black gum (*Nyssa sylvatica*), hickories (*Carya* spp.), American holly (*Ilex opaca*), basswood (*Tilia americana*), black cherry (*Prunus serotina*), and flowering dogwood (*Cornus florida*). Most of this section of woods has little understory vegetation probably due to the disturbance during the war.

The area of woods with the oldest trees comprises nearly 11 acres and is contiguous with nearby and younger second growth woods that has developed since the land was acquired by the DAFB. Trees found in this old woods area include the pin oak, swamp chestnut oak (*Quercus michauxii*), white oak (*Quercus alba*), northern red oak (*Quercus rubra*), pignut hickory (*Carya glabra*), mockernut hickory (*Carya tomentosa*), sand or pale hickory (*Carya pallida*), sweet gum, yellow poplar, red maple (*Acer rubrum*), black gum, American holly, a few mazzard cherry (*Prunus avium*) or wild form of the domesticated sweet cherry, and the flowering dogwood. The estimated age of the old trees in this area range from 160 to 240 years of age. The old stand timber comprise a breeding area for the Broad-winged Hawk, which is a species of state concern. That bird is extremely rare in Delaware. Many different species of wildlife utilize these old woods, including many migratory songbirds which breed in the old woods during the summer. In addition, several so-called game birds also use these woods (e.g., Wild Turkey, Mourning Doves). Mammals seen in the area include White-tailed Deer, Groundhog, Red Fox, Gray Fox, Eastern Cottontail rabbit, Raccoon, and small animals such as squirrels and mice. One of the mazzard cherry or wild sweet cherry trees has a wild bee hive in its trunk. On a warm sum-

mer day the bees can be seen and heard to buzz through the trees. That portion of the trunk bulges slightly and has numerous holes in the trunk on one side of the tree. The wild bees of North America are dying out because of a mite infestation. Some replenishment of the wild bees is occurring due to bees escaping from domestic hives, but the wild bee may be a thing of the past. The tree with its bee hive represents a sight which is disappearing from our woods.

The yellow passionflower (*Passiflora lutea*) is a native plant species of state concern. A large stand of the yellow passionflower is found in the Old Woods. The area of oldest trees has a very diverse array of understory vegetation with trees lying on the ground in various stages of decay and a thick layer of humus on the forest floor. The forest floor vegetation includes the Jack-in-the-pulpit (*Arisaema triphyllum*) and mayapple (*Podophyllum peltatum*) which cover the ground in the spring time. A survey to determine the population size and species of lichens in this section of woods to determine relative age of the woods, the health of the woods, and a biological measure of regional air quality has begun. The woods are also home to the green-fringed orchid (*Platanthera lacera*) which is rare in Delaware.

I feel that these woods represent a hope to humanity that, with their protection, we are securing a small bit of our natural heritage for ourselves and future generations. These old remnant woods give but a glimpse into what nature was really like prior to European colonization and wholesale deforestation of eastern North America. The great forest of eastern North America prior to European colonization was estimated to cover 822 million to 950 million acres of land. Today there are about 1.5 million acres. By 1800, nearly all of the old woods were gone from Delaware and it is reported that Delaware State President, John Dickinson put a moratorium on the cutting of old growth timber. John Dickinson was the head of government of the State of Delaware and he was voted in as president, not governor. The title of the office was changed some time later.

The woods represent various stages of succession from natural reforestation of an area that was farmed as late as 1968 to a mature old woods with a mature understory vegetation. The educational significance of the different stages of succession is tremendous.

According to the Deputy State Forester for Delaware, who commented during his visit to the Old Woods during Earth Week '98, "There are no old woods such as this anywhere in Delaware except on private estates in northern New Castle County." The forest of the northern part of the state is, in general, much different than its counterparts in Kent and Sussex Counties, primarily due to differences in soils and geology (Piedmont versus Coastal Plain Physiographic Provinces). Likewise, because of the geographic location of Delaware on the Delmarva Peninsula, it is considered by many to represent a transition zone between the north and south Atlantic coasts. Plants and animals occur here that also range further north of the peninsula but not south, and vice-versa. Therefore, there is an intermingling of conditions and characteristics of both the north and south Atlantic coasts. One may, therefore, consider these woods in Delaware as different than those found north or south of the peninsula.

Wing Commander, Felix M. Grieder, Colonel, USAF, formerly at DAFB, agreed with the significance of the Old Woods and signed a proclamation designating the woods a

"Special Natural Resource Management Area" on 21 Jan 1998. The Old Woods is an Ecological Reserve according to Air Force guidance. The old woods of DAFB need to be protected.

☞ ○○○○ Dr. Milton M. Beck, Dover Air Force Base

NATIVE PLANT COMMUNITY HIGHLIGHT

Continued from page 3

mammals, such as the marsh rice rat, and muskrat, and numerous invertebrates, especially the fiddler crab, grass shrimp, ribbed mussel, coffee-bean snail, saltmarsh mosquito, and mud snail. Likewise, mummichog (*Fundulus heteroclitus*), as well as other fishes, are known to spawn in *Spartina alterniflora* marshes and the state rare plant, *Polygonum ramosissimum* (bushy knotweed) (S1), is a rare associate in this community.

Comments

Many examples of this community in Delaware have been previously grid-ditched for mosquito control. High quality, unditched, examples of this community are found along stretches of the Murderkill River, St. Jones River, Smyrna River, Duck Creek, and Leipsic River. Based on historical documentation this community has spread further up into the estuary in recent decades as sea level and salinity have increased. Undoubtedly, this trend will continue.

Conservation status

In Delaware this community has a Natural Heritage rank of **S4** (widespread, abundant and apparently secure) and a global rank of **G5** (demonstrably widespread, abundant and secure throughout its range).

○○○○ Keith ☞ Clancy, DNPS president

RESOURCES AND REVIEWS

Continued from page 2

ans, including the States of North Carolina, West Virginia, and especially Virginia.

Appalachian Flora and Scenic Vistas will serve as a coffee table book, a supplement for botany and ecology texts, and as a field guide. Although many of the plants found within this CD are widely distributed east of the Mississippi River, most of them were photographed within the Appalachians. In addition to the vistas, I like to think that they have captured some of the Appalachian enchantment

For more information write to Appalachian Flora, 3510 Indian Meadow Dr., Blacksburg, VA 24060, or on the web at <http://www.usit.com/floracd/>.

○○○○ Kenneth J. Stein, Ph.D., Virginia Tech

LETTER FROM THE EDITOR*Continued from page 2*

letter will submit their thoughts, good or bad, on what our organization is doing. I'd like to see this *Letter From The Editor* column be a forum for discussion, with dialogue ranging from my answering specific questions, or replying to negative or positive comments (*Letter to the Editor*). Think of it as a snail-mail paced chat room! I subscribe to National Geographic and The Nature Conservancy magazines and their Letter to the Editor/Forum sections are very enlightening.

One avenue of communication the Society is striving to become more active in is the public comment/environmental review process of development projects, but we could use some help. If anyone knows of any development projects going on in the state that they believe haven't been properly reviewed for state-rare or federally listed species, we'd like to hear about it. Aside from commenting on the natural resource issues at these sites, we'd also like to begin corresponding with landscape designers about incorporating native plants into the project site landscaping.



oooo Eric Zuelke, editor

**LETTER FROM THE PRESIDENT***Continued from page 1*

European colonization and wholesale deforestation.

The Delaware Native Plant Society is in the initial stages of several exciting activities that I hope as many members as possible will participate in. It looks very promising that we will be starting, on a small scale to begin with, several native plant nurseries in the state. If all goes well, we will have a nursery at Middle Run in northern New Castle County, a second at Bombay Hook National Wildlife Refuge in the middle of the state, and for our southern members, a third nursery at the Center for the Inland Bays' James Farm Preserve, in southeastern Sussex County. Details regarding the operation of these nurseries need to be worked-out before we can start any propagation. But, I am hopeful that we can get started by next spring at the latest. The refuge manager, Paul Daly, of Bombay Hook has recommended that this nursery, a so-called "special use" activity, be approved; he is now waiting for word back from the regional office of the U.S. Fish and Wildlife Service. Mr. Jim Alderman, of the Center for the Inland Bays, is excited about the prospect of a native plant nursery at the James Farm Preserve that could be a source of much needed native plant seedlings in his reforestation efforts. And in New Castle County, member Pete Brakhage has spoken with Mr. Jon Husband of the New Castle County Parks Department about the possibility of establishing a native plant nursery on county-operated property. Mr. Husband is very receptive to the idea, but needs more information from us. I hope to meet with Mr. Husband in the very near future to discuss this matter.

If these nurseries come to fruition, as I expect they will, I will be soliciting your help to ensure their successful operation. In exchange for your volunteerism, donation of equipment, supplies or cash, you will be given the opportunity to propagate or have propagated for you native plants that you

can then plant on your property. I hope that many of you will be able to allocate some time from your busy schedules to work at these nurseries. These nurseries could be just what is needed to fulfill the ever increasing demand for native plants in Delaware.

A second initiative that the DNPS has begun is discussions regarding reforestation projects on state lands. Rick McCorkle and myself recently met with staff biologists with the Division of Fish and Wildlife, DNREC, to discuss the feasibility of undertaking demonstration reforestation projects at one or more locations on State Wildlife Areas. I feel this meeting was quite productive and hope that we will be able to undertake several reforestation projects on state wildlife areas beginning next year. Likewise, I also met with Rob Line of the Natural Areas program of the Division of Parks and Recreation, DNREC to discuss this same activity on Parks and Recreation lands. Mr. Line is already in the midst of reforestation projects on state park lands and is already looking at other potential sites; he is excited about the possibility of working with the DNPS on these additional reforestation projects. However, for this to be successful I will need your help and expertise. Anyone that would like to participate in reforestation activities please contact me. I will be looking for people to help in seed collection, cleaning and storage, propagation, seedling/sapling plantings and hand control of invasive weeds.

A third major conservation initiative that we are looking into is the need for state endangered species legislation/protection for plant species. Nearly all of Delaware's rare plants (almost 40% of the state's flora) have no regulatory protection. We are currently investigating other state's endangered and threatened plants legislation, soliciting feedback from other conservation groups, and considering how best to present this initiative (e.g., do we approach state legislators looking for someone to sponsor such a bill?, or do we discuss this first with the Secretary of DNREC?).

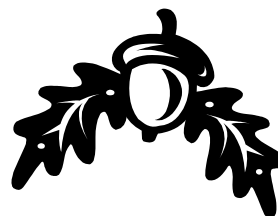
On a lighter note, I encourage members to attend several upcoming field trips that should be botanically and ecologically enlightening. On October 17 we are participating in a joint field trip with the Maryland Native Plant Society (see Upcoming Events in this newsletter) to Assateague National Seashore and on November 6 we will be exploring the wonders of Cape Henlopen State Park. Attend both trips and you will have a great opportunity to compare and contrast the floras and natural communities of sites that occur in similar landscapes (i.e., coastal) but are about 150 miles apart. Likewise, I would highly recommend everyone attend the 6th annual Tree Spree on Saturday, October 23. Not just to visit our display table but to have a great time celebrating the beauty and value of the "native" tree.

Warm wishes for a great autumn and I hope to see you at our future outings.



Sincerely,

Keith Clancy



NATIVE PLANT HIGHLIGHT**THE MAPLES OF DELAWARE**

As the growing season winds-down, and leaf color begins to turn to the yellows, oranges, and reds of autumn, the maple trees found in Delaware are here considered.

Of the nine species of maples native to the United States, four occur in Delaware: box-elder (*Acer negundo*), silver maple (*Acer saccharinum*), sugar maple (*Acer saccharum*), and red maple (*Acer rubrum*). Maple trees are members of the Aceraceae, the Maple Family, and all are distinguished by having fruits (samaras) attached in pairs, one opposite the other, that have long, wing-like structures that aid in their dispersal. Maple trees are also characterized by having simple, opposite leaves, with the one exception being box-elder, which has opposite leaves that are compound (made up of a number of separate leaflets).

Delaware's most common maple tree is the red maple, which can be found throughout the state in a wide variety of habitats, from well-drained to poorly drained soils. Silver maple primarily occurs within the Piedmont physiographic province of the state and is typically found growing on the floodplains of creeks and streams. Box-elder can be found in all three counties of Delaware, growing along streams and in swampy woods. Sugar maple is an uncommon tree in the state, with native populations found exclusively within the Piedmont province.

Another species of maple found in Delaware, but not native, is the Norway maple (*Acer platanoides*). This tree is frequently planted as an ornamental by homeowners and developers and is a common escape to natural areas in the state. Norway maple is a very aggressive pest which can often dominate the understory and displace native vegetation. The Delaware Native Plant Society strongly discourages the use of this species in any planting project and encourages its eradication when encountered in natural habitats.

By closely observing the fall colors this season, you may be able to distinguish between the different species of maple trees. The leaves of red maple turn brilliant shades of red early in the fall season. The leaves of sugar maple are usually a pale yellow with red to pink accents and often remain on the tree well after the leaves of red maple have fallen. The silver maple turns yellow, orange and every shade of red. To help you be on the look-out for the invasive Norway maple, look for leaves that turn from deep green to bright yellow.



◊◊◊ William A. McAvoy, DNPS Vice-president

**PICK THE TURK'S CAP****WHERE TO THE WILDFLOWERS?**

Q. What native plants, that can be used for landscaping, are good for attracting birds? In particular, which ones are best at attracting wildlife during the fall and winter?

A. This may surprise you, but the best plants for winter are often the best plants year round. But before I give you a list of recommended plants, I will discuss what makes a plant attractive to birds. In general, birds are attracted to plants because of appearance (morphology), shelter, location, direct food, and indirect food.

Appearance includes the morphology of the tree and the color of flowers and fruit. Morphology is important because certain bird species prefer to spend their time at a particular vegetative layer [e.g., ground (herb), understory (shrub, sapling), and tree (canopy)]. Vegetation that provides privacy (dense cover) and/or open limbs (perching sites during courtship and territory defense) are also important. Although, birds do recognize colors they don't see colors exactly like humans. Many plants have evolved to attract birds.

Shelter is a crucial component for having year round bird activity and residence. If your yard doesn't have vegetative shelter, your expectations should not be too high. During the growing season, deciduous trees are satisfactory for many species of birds. However, in many cases, deciduous trees are utilized by migratory species, as summer breeding sites, while year-round residents have a greater dependency on evergreens. Dead trees are great for attracting birds as well.

Location is also very important. Birds like clumps of vegetation, not lone standing plants. In other words, one shrub will not be enough. When you plan your landscape, include areas that have fairly dense sections that have ground cover, and understory and canopy. It might take a while for this portion of your yard to develop. SSHHhh, quiet! Make a quiet corner of your yard into your bird paradise. Don't plant shrubs near your AC unit and expect to attract birds. Finally, birds need a water source nearby and prefer some kind of natural windbreak.

Direct and indirect food sources can be species specific. Plants can attract birds by the food they bear and the bugs they attract. Things to remember are as follows: most year round residents have a wide ranging diet (e.g., insects, grains, and fruits). While migratory species (who often are the more spectacular looking species) have diets that are much more specific and that include fruits and/or insects more often than not. If you want to attract particular species, you will need to read-up and find out about their dietary needs. Also, when you select plants, find out if a particular species is a host for certain insects, and who eats those insects. This might take a little effort, but the literature is out there.

Now after all those tidbits, here's that list (excluding herbs — there are just too many!):

Common alder (*Alnus serrulata*) attracts chickadees, warblers, redpolls, and other small birds.

American beech (*Fagus grandifolia*) attracts wood ducks, wild

Continued on page 8

UPCOMING EVENTS

SUNDAY, 17 OCTOBER 1999 – ASSATEAGUE NATIONAL SEASHORE BEACH TO BAY WALK. A JOINT FIELD TRIP WITH THE MD NATIVE PLANT SOCIETY. ONE WALK IS THROUGH MARITIME LOBLOLLY PINE FOREST, THE OTHER IS FROM THE BEACH TO THE BAY ON THE NORTH END OF THE ISLAND. FROM 11 AM TO 2 PM. MEET AT THE VISITORS PARKING LOT ON RT. 611. CONTACT FRANK HUDSON AT 410.641.1443 FOR MORE INFORMATION OR E-MAIL AT FK_HUDSON@NPS.GOV.

SATURDAY, 23 OCTOBER 1999 – TREE SPREE. PEOPLE ARE TALKIN' ABOUT THIS ONE! COME HAVE FUN WITH EXHIBITS, DEMONSTRATIONS, HAY RIDES, AND TREE PLANTINGS. FROM 10 AM TO 3 PM AT THE RED CLAY RESERVATION NEAR ASHLAND, DE. CALL GARY SCHWETZ AT 302.658.6262 AT THE DELAWARE CENTER FOR HORTICULTURE FOR MORE INFORMATION.

WEDNESDAY, 3 NOVEMBER AND THURSDAY, 4 NOVEMBER 1999 – INVASIVE EXOTIC PLANTS: CURRENT MANAGEMENT STRATEGIES CONFERENCE. SWARTHMORE COLLEGE, SWARTHMORE, PENNSYLVANIA. CALL 215.247.5777 FOR MORE INFORMATION OR TO REGISTER.

SATURDAY, 6 NOVEMBER 1999 – CAPE HENLOPEN STATE PARK FIELD TRIP. EXPERIENCE EXCEPTIONALLY HIGH QUALITY NATURAL COMMUNITIES INCLUDING PITCH PINE FOREST AND DUNE SHRUB, AND THE HIGHEST POINT ON THE COASTAL PLAIN BETWEEN CAPE COD AND CAPE HATTERAS. FROM 10 AM TO 3 PM. CALL KEITH CLANCY AT 302.674.5187 FOR MORE INFORMATION. RESERVATIONS REQUIRED.

SATURDAY, 6 NOVEMBER 1999 – DELMARVA FORESTRY SEMINAR: FOREST HEALTH. WORKSHOP TOPICS TO BE PRESENTED DURING THE CONCURRENT SESSIONS ARE GENERAL FORESTRY, SILVICULTURE TECHNIQUES, GPS/GIS, AND TAXES/ESTATE WITH A TREE FARM FIELD TRIP. CONTACT REBECCA MARASCO AT 302.697.4000 FOR MORE INFORMATION.

FRIDAY, 12 NOVEMBER AND SATURDAY, 13 NOVEMBER 1999 – DELMARVA COASTAL BAYS CONFERENCE III. CONFERENCE IS BEING HELD IN OCEAN CITY, MARYLAND. CONTACT CONFERENCE ORGANIZER (ASSATEAGUE COASTAL TRUST) AT 410.629.1538 FOR MORE INFORMATION OR E-MAIL THEM AT ACT@BEACHIN.NET.

EVENT HIGHLIGHT

COASTAL PLAIN POND TRIP

On Saturday, 1 August 1999 the DNPS hosted a joint field trip with the Delaware Nature Society to carolina bays in Blackbird State Forest in southwest New Castle County and Delaware's premier carolina bay, Huckleberry Pond, in northeast Sussex County. The weather was quite cooperative for the 8 participants, though that was not completely true for the plants and animals. Due to the drought the ponds were completely dry and the plants were not quite as robust or floriferous as they have been in past years. While the animals were also not as abundant, we did catch glimpses of three species of dragonflies and several leopard frogs.

The participants on this field trip were given an opportunity to explore several exemplary bays in the Blackbird State Forest region; these were characterized by a preponderance of button bush, smartweed, and manna grass. These bays were in stark contrast to the exceptionally large and diverse sedge-grass dominated bay of Huckleberry Pond,

where we observed the state-rare pink tickseed (*Coreopsis rosea*), Carolina redroot (*Lachnanthes carolina*), and a plethora of spikerushes, beakrushes, grasses (especially *Panic* spp.), and other assorted sedges and broadleaved herbs.



DNPS WEBSITE

Missed an issue of The Turk's Cap Newsletter? Want to know about upcoming events? Then check out the DNPS website. Doug Janiec has been hard at work posting the latest and greatest columns, articles and events from the newsletters on our site. Check it out at www.delanet.com/~dnpswp.

PICK THE TURK'S CAP*Continued from page 6*

turkeys, grosbeaks, etc.

Black cherry (*Prunus serotina*), and American plum (*P. americana*) attract more species than can be listed here, but can be messy.

Hawthorns (*Crataegus crus-galli*), and (*C. viridis*) attract lots of birds and provide red winter berries.

American holly (*Ilex opaca*), smooth winterberry (*I. laevigata*), and winterberry (*I. verticillata*) offers fruits, good nesting sites in spring, and year-round cover (American holly).

Red mulberry (*Morus rubra*) are loved by birds, but are very messy.

Loblolly pine (*Pinus taeda*) and Virginia pine (*P. virginiana*) attract insects, provide seeds, and offer year-round shelter.

Downy serviceberry (*Amelanchier arborea*) or serviceberry (*A. canadensis*) have berries loved by birds.

Elderberry (*Sambucus canadensis*), one of my favorites, attracts insects and produces tasty fruit.

Maple leaf viburnum (*Viburnum acerifolium*), possum-haw viburnum (*V. nudum*), and arrowwood (*V. dentatum* var. *den-*

tatum) or (*V. dentatum* var. *lucidum*) offer a wide selection of fruit.

White oak (*Quercus alba*), scarlet oak (*Q. coccinea*), southern red oak (*Q. falcata*), water oak (*Q. nigra*), pin oak (*Q. palustris*), willow oak (*Q. phellos*), and red oak (*Q. rubra*) are great for bluejays. 🐦

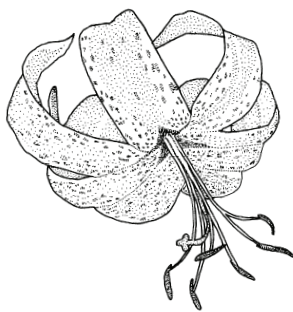
oooo Doug Janiec, DNPS webmaster

DELAWARE NATIVE PLANT SOCIETY

P.O. Box 369

DOVER, DELAWARE 19903





The Turk's Cap

THE NEWSLETTER OF THE DELAWARE NATIVE PLANT SOCIETY WINTER 99-2000

IN THIS ISSUE

- Page 1** ○ *A Call for Articles*
 ○ *New Members*
 ○ *Letter From the President*
- Page 2** ○ *Letter From the Editor*
 ○ *Plant-animal Highlight*
 ○ *Resources and Reviews*
- Page 3** ○ *Natural Community Highlight*
 ○ *Feature Article*
- Page 4** ○ *Feature Article continued*
 ○ *Natural Community Highlight cont.*
- Page 5** ○ *Letter From President continued*
 ○ *Native Plant Highlight*
- Page 6** ○ *Native Plant Highlight continued*
 ○ *Pick the Turk's Cap*
- Page 7** ○ *Upcoming Events*
 ○ *Trip Highlight*
 ○ *DNPS Website*
- Page 8** ○ *Membership Application*

A CALL FOR ARTICLES

If you would like to write an article for The Turk's Cap, we would love to print it. With like minded individuals as an audience, The Turk's Cap is a great venue for plant or habitat oriented writings.

We'll take just about anything from gardening tips to book reviews to poetry. Of course, it has to be about native plants, or issues related to native plants; just a minor constraint. Your imagination is the real key.

Contact Eric Zuelke for more information at (ezuelke@juno.com), or Keith Clancy at 302.674.5187.

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A MUG OF HOT COCOA WARMING YOUR HANDS KIND OF WELCOME TO OUR NEWEST MEMBERS

October through December

Sue and Donald Welles

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HOW CAN I GET INVOLVED?

The Delaware Native Plant Society is open to everyone ranging from the novice gardener to the expert botanist. One of the primary goals of the society is to involve as many individuals as possible.

The DNPS is working on two significant projects at this time. We have recently initiated discussions with staff from the Divisions of Parks and Recreation and Fish and Wildlife, DNREC, about potential reforestation on their lands. A second initiative that we are pursuing is the establishment of native plant nurseries in each county. We encourage everyone to participate in these endeavors.

For more information on how to get involved, call 302.674.5187, or E-mail at

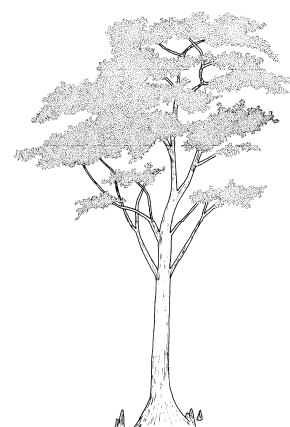
LETTER FROM THE PRESIDENT

While the calendar on my wall may says its January and we should be in the dead of winter, the outside temperatures tell a different story. Last week's temperatures approached 70 degrees and this weeks wet and mild temperatures should be an anomaly. However, these warm days seem to happen so frequently during winter months as to be commonplace and even expected. If scientists are correct and we are in the midst of global warming then we can expect more such spring and summer like days in the middle of winter. We can also expect to witness a longer growing season, earlier flowering plants and a migration of more southerly

Continued on page 5

The DNPS Vision

The purpose of the Delaware Native Plant Society (DNPS) is to participate in and encourage the preservation, conservation, restoration, and propagation of Delaware's native plants and plant communities. The Society provides information to government officials, business people, educators, and the general public on the protection, management, and restoration of native plant ecosystems. The DNPS encourages the use of native plants in the landscape by homeowners, businesses, and local and state governments through an on-going distribution of information and knowledge by various means that includes periodic publications, symposia, conferences, workshops, fieldtrips, and a statewide membership organized by the DNPS.



LETTER FROM THE EDITOR**THOUGHTS ON WINTER**

Now that all the Y2K hype is over with and the fun-filled holidays have come and gone, it's time to get outside again and enjoy winter. I love going out on a brisk, sunny (and preferably white) day and finding a secluded little opening at the edge of the forest with a view of the saltmarsh or an old field where there's no breeze and just letting the sun soak into my face and clothes. This issue of the Turk's Cap has a few more ideas of how to get out and enjoy winter. Our Plant-animal Highlight talks about insect galls, which are readily visible in the winter and fascinating to study. And if you think there's nothing to do in the garden at this time of the year, then you'd better check out the Pick the Turk's Cap column. If you got out into the freshwater tidal marshes of Delaware this past autumn to collect wild rice, then the Native Plant Community Highlight should be of interest. 

oooo Eric Zuelke, Editor

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PLANT-ANIMAL HIGHLIGHT**THE GALL OF THOSE GALLS**

Winter, is a great time to take a stroll outside and look for interesting plant deformations. Some of the more interesting ones are leaf galls. Galls are formed by certain species of gall inducing insects, such as flies, midges and wasps. One of the more common types of these insects is the gall wasp (Order Hymenoptera, Family Cypinidae) which is very host-specific and commonly infest *Quercus* species worldwide. In fact, galls are so closely associated with oaks that many of the early botanical drawings included them as a normal part of plant anatomy.

The initiation of insect galls is typically associated with oviposition by an adult (e.g., sawflies, gall wasps and beetles) or the feeding of early larval stages (e.g., midges, moths and aphids). Gall wasp development takes between two and three years. The adult injects her eggs into a leaf bud and dies. The eggs hatch and the young crawl into the open buds and begin to feed. Timing is an important aspect in gall formation as the eggs must hatch at a precise point during bud opening. Eggs laid at tight bud will not result in gall formation. The actual gall, or hypertrophy, is formed by the interaction of enzymes produced by the insect larvae, and plant hormones. As the larvae feed, the gall producing chemicals are introduced in their saliva. The gall is a tumorous outgrowth that develops from rapid mitosis and morphogenesis of the plant tissues and they come in an astounding array of colors, shapes and sizes. Galls may be smooth, spiny or fuzzy, and resemble everything from marbles and ping-pong balls to dunce caps, saucers and sea urchins and they all provide food and shelter for the developing larvae. Each species of gall wasp produces a gall characteristic to that species. After completing their growth and metamorphosis, often many months later, the adult wasps escape by chewing a circular exit tunnel through the wall of the gall.

Most of these unusual and colorful insect galls are relatively harmless to their host plants, and the larvae inside are often eaten by a variety of birds and rodents. However, numerous galls may stress the plant because nutrients otherwise avail-

able for plant growth are used to produce galls. Some galls contain a very high content of bitter tannins, and are probably unpalatable to predators. In fact, oak galls were gathered in Europe and Asia Minor as a source of tannin used for converting animal skin into leather. Gallic acid, first isolated from oak leaf galls by the Swedish chemist Karl Scheele in 1786, is also used in tanning, dyes, inks, photographic developers and antioxidants. Some species of plants have turned the production of galls into an evolutionary symbiosis with their insect partners. These helper insects provide a vital service to their host plant in the form of pollination or protection in a highly competitive environment where these plants could otherwise not survive, and in turn get free room and board.

Galls are another one of nature's fascinating plant-animal phenomena. So take some time this winter and go act like a cecidologist (that's a person who studies galls). 

oooo Eric Zuelke, Editor

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RESOURCES AND REVIEWS**WILD EARTH NATIVE PLANT NURSERY**

This is a rustic nursery located in Jackson, New Jersey that hosts a large selection of plants native to the eastern United States (check that the plants you are interested in acquiring are also native to Delaware). Most plants are started from seeds. For a catalog, send \$2.00 to Wild Earth, P.O. Box 7358, Freehold, NJ, 07729, or call 732.308.9777 for more information.

DELAWARE WILDFLOWERS WEBSITE

David G. Smith has an interesting website out with the wildflowers of Delaware. It is arranged by flower color, common name and scientific name. The photographs are good quality and would be a good companion to whatever field guide you use. Check it out at www.delanet.com/~dgsmith/wildflowers.

PLANT CONSERVATION ALLIANCE

Plant Conservation Alliance members and cooperators work collectively to solve the problems of native plant extinction and native habitat restoration, ensuring the preservation of our ecosystem. Check out their very informative website at <http://www.nps.gov/plants/index.htm>.

THE ONE AND FUTURE FOREST

Developed by the landscape design firm of Andropogon Associates, world renowned for their innovative approach to integrating environmental restoration with landscape design, The Once and Future Forest is a guidebook for restoring natural landscapes. Focusing on remnant forest systems, it describes methods of restoring forest fragments to recreate a whole landscape fabric. It is an important guide for all who wish to do something constructive about our deteriorating forest patches. 432 pages. Hardcover cost is \$50.00, softcover cost is \$30.00. For more information call Island Press at 1.800.828.1302.

NATIVE PLANT COMMUNITY HIGHLIGHT**Wild rice Herbaceous Community*****Zizania aquatica* Herbaceous Community****Introduction**

Wild rice is a very distinctive annual grass that may reach 9 feet in height. Marshes dominated by this grass were formerly rather common along streams that flowed into both the Delaware and Chesapeake Bays. Today, marshes dominated by this grass are more limited in distribution but excellent stands can be found along the Christina River, Appoquinimink River, Duck Creek and Nanticoke River.

Community structure/composition

An herbaceous freshwater marsh community occurring along freshwater tidal streams that are often dominated by the tall wild rice; when this species is in full bloom it often looks like the most abundant species present. This community occurs in soils of muck and peat with varying amounts of sands and clay; usually classified under the broad category of Tidal Marsh Soil. While wild rice may appear to be the dominant species of this community, these marshes can be quite diverse with typical associates that include *Bidens laevis* (showy bur-marigold), *Peltandra virginica* (arrow-arum), *Polygonum arifolium* (halberd-leaved tearthumb), *Impatiens capensis* (jewelweed), *Leersia oryzoides* (rice cut-grass), *Amaranthus cannabinus* (water hemp), *Sagittaria latifolia* (arrowhead), *Sium suave* (water parsnip), *Iris pseudacorus* (yellow flag), *Echinochloa walteri* (Walter's barnyard grass), *Typha angustifolia* (narrowleaved cattail), *Typha latifolia* (broadleaved cattail), *Polygonum sagittatum* (arrow-leaved tearthumb), *Polygonum punctatum* (dotted smartweed), *Acorus americana* (sweet flag), *Cuscuta gronovii* (dodder), and *Schoenoplectus fluviatilis* (river bulrush), among others.

Community dynamics/succession

This community occurs in the upper reaches of tidal streams in freshwater habitats or, in oligohaline (with salinity levels between 0.5-5 ppt) waters. This is typically an herbaceous dominated community until successional processes replace the herbs with trees and shrubs.

Distribution

Found in scattered localities in freshwater marshes throughout much of the Delaware River and Bay estuaries and in selected locales of the Chesapeake Bay drainage, especially along the Nanticoke River and several of its tributaries. Rangewide, this community occurs from Maine to North Carolina and west to Louisiana. High quality examples are known from the Christina, Smyrna, and Nanticoke Rivers.

Comments

Wild rice (*Zizania aquatica*) is considered quite the delicacy and has been known to command a premium in pricing. Most wild rice that is sold commercially comes from Minnesota and the harvest of this rice is an important industry of the Chippewa Indians. Its harvest is difficult and must be precisely timed to

Continued on page 4

NATURAL QUOTES

'The existence of loriciferans and their submicroscopic associates is emblematic of how little we know of the living world... We dwell on a largely unexplored planet.'

Edward O. Wilson, *The Diversity of Life*

FEATURE ARTICLE**NON-NATIVES: A POSITION SUPPORTING THE USE OF NON-NATIVE PLANTS**

Editors note: This is the first of a two-part feature addressing the pros and cons of native vs. exotic plant use in urban landscapes.

There has been a long-running debate about the virtues of natives compared to introduced tree species. Non-native plants also have been called exotics, which does not necessarily mean they are strangely alluring, but simply from another country or region. Pejorative terms sometimes are used, such as alien or invasive. Let's avoid these for now, and try to keep an open mind as we examine whether native trees are better suited to urban planting sites.

The fascination with plants from far away places has been part of our heritage since colonial times. Such notables as John Bartram, Ben Franklin, and Thomas Jefferson engaged in lively trading of plants with their counterparts in Europe, and later there were many exchanges with Asia and western North America. Many species that originated from climatically similar regions have been grown here successfully for centuries.

Several kinds of advantages have been claimed for native trees. It seems logical to assume that natives are better adapted to local conditions through natural selection over evolutionary times. And therefore they should be healthier, longer-lived, with fewer serious disease and insect problems that might lead to chemical controls and contamination. Some fear that introduced trees could disrupt ecosystems. And there is a school of landscape design that strives for continuity and congruence of plantings with the greater landscape, thus implying a preference for natives. Let's examine each of these claims.

Before proceeding to evaluate the merits of native trees for planting in urban environments, a practical definition is needed. Adaptation is a central concern of those who favor natives, so the definition should recognize the ecological significance of genetic variation and natural selection over many generations of a species. Accordingly, native species are those that have reproduced and grown naturally at a particular location for hundreds of years. But this definition means that no trees are truly native to North American cities! The only one that comes close, tree-of-heaven (*Ailanthus altissima*), came from Asia. So here is an alternative definition: proxy native species are those that have grown naturally for hundreds of years in the countryside near a particular city, within the same climatic zone.

Would these proxy natives be better adapted and

healthier? They may be if grown in park-like conditions that have natural soils, not compacted, without interference from pavements and building, and not exposed to air pollutants or deicing salts. However, only the tough species from similar climatic zones can endure harsh city environments, regardless of whether they are native or not.

Would proxy natives encounter less serious disease or insect problems? The most damaging pest problems that come to mind are the chestnut blight, Dutch elm disease, and white pine blister rust. In every case the host is native, and the pathogen was imported. Introduced tree species are not without pest problems, but they commonly show up before a species has been widely planted, and thus are avoidable or manageable without much chemical contamination, if any.

Are proxy native species less invasive? By definition native species are not invasive at all in natural forest stands. Actually very few trees of any kind aggressively invade city lawns and landscapes. They include the introduced Norway maple (*Acer platanoides*) and tree-of-heaven, and the natives red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), and sassafras (*Sassafras albidum*). I believe invasive trees seldom have adverse consequences in urban settings, nor do they disrupt ecosystems, although some people do get excited about these possibilities.

Are proxy native species more aesthetically pleasing in designed landscapes? That is a question of personal preference by the landscape designer, but more importantly by those who view the landscape. Many of the proxy native trees have introduced relatives that resemble them very closely, some of which may be better adapted to harsh environments. So the designer has great latitude in substituting species that the casual observer would not identify as non-natives.

Finally, is it practical to specify proxy native trees in those situations where it is preferable to plant them? Nurseries that grow trees from seed seldom, if ever, can tell you the geographic origin. Consider red maple as an example of a species that has a large geographic range, typical of many trees. If the seed came from Tennessee or farther south, the trees would not be native to Pennsylvania, nor would they be well adapted. How about using a red maple cultivar, i.e. a name variety that is vegetatively propagated? There are several whose origin is known, but these could be considered native to just a few cities. Thus, conventional nursery practices make it extremely difficult to obtain native trees.

I conclude that usually it is unwise to discriminate against introduced tree species. Under most circumstances it is more rewarding to employ selection criteria applied to specific planting sites, disregarding whether or not species are native. The most appropriate species and cultivars are those that fulfill aesthetic and functional purposes of a particular landscape design, and that will remain healthy for a long time while exposed to urban environments, and that will cause minimal problems under existing arboricultural practices.

In closing, I want to add a word of caution about possible federal interference with our selection practices. The President issued an Executive order on February 3, 1999, that directs federal agencies to expand and coordinate their efforts to combat a serious environmental threat: the introduction and spread of plants and animals not native to the United States. The order itself is limited to combating invasive species, meaning alien species whose introduction does, or is likely to cause,

economic or environmental harm or harm to human health. If strictly interpreted, the order can be beneficial. But many have become skeptical of the intentions of this White House, suggesting that we should remain vigilant in preserving our rights, so that we can be most effective in selection practices.

oooo Henry Gerhold, School of Forest Resources, Penn State University

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President's Note: The views expressed by the author in the above article do not necessarily reflect the views or policy of the Delaware Native Plant Society.

NATIVE PLANT COMMUNITY HIGHLIGHT

Continued from page 3

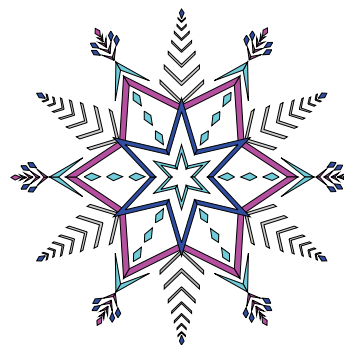
avoid losing the seeds which readily fall out of the spike on touching (called "shattering"). Harvesting is done by two people in a canoe, one that does the paddling and the other that knocks the plants with a stick so that the ripe seeds fall into the boat. Additionally, since the grains ripen unevenly, the knocker must be able to apply the appropriate pressure so that only ripe seeds are collected. Besides the attraction of wild rice to humans, they are also prized by wildlife such as ducks and geese. If this community is surveyed early in the growing season, the total wild rice cover may be extremely low and the marsh may have a completely different aspect to it and a different suite of apparent dominant species than would be expressed later in the season when a mature and dense stand of *Zizania aquatica* is expressed. The widespread and invasive common reed (*Phragmites australis*) forms dense, monospecific stands throughout many of our marshes and has undoubtedly replaced many of our wild rice marshes.

Conservation status

In Delaware this community has a Natural Heritage state rank of **S3** (rare or uncommon, typically 21-50 occurrences statewide) and a global rank of **G4?** (widespread, common and apparently secure, but with cause for long-term concern). If salinity levels continue to rise from dredging activities or sea level rise we can expect a decline in the overall quantity and quality of this community in Delaware.



oooo Keith Clancy, DNPS President



LETTER FROM THE PRESIDENT*Continued from page 1*

plant species into our neighborhoods. On a recent trip outdoors I was surprised to witness a flowerbed full of pansies in bloom and a flowering quince bush in full bloom. I also expect that a trip to a local swamp today (January 10) will reveal the skunk cabbage in all its pungent floral glory.

I will make this letter brief as I am still recovering from some flu-like ailment. I just want to take this opportunity to discuss several exciting projects that the DNPS is working on and to encourage others to get involved in one or more of these important activities.

During the past several months the DNPS has begun work on several conservation initiatives. Several of these have moved to the forefront of our activities and include: (1) a drafting of a Forest Conservation Act that will be modeled after Maryland's legislation. We plan to discuss this project with the Delaware Forest Service sometime in February and hope that they will be able to endorse and spearhead efforts to enact some level of protection for one of the State's most imperiled habitats. Rick McCorkle and Doug Janiec are working on this effort; (2) In late December we had discussions with New Castle County officials about establishing a native plant nursery at Middle Run Natural Area; this looks like it will be a go. This nursery will be used to propagate native plants for reforestation efforts at Middle Run. Pete Brakhage will be overseeing this project. We are looking for volunteers to help with this important project; (3) We are in the process of developing a packet of information on native plants that will include such information as recommended species for planting, sources of plant material, wildlife benefits, planting guides, soil needs, etc. Bill McAvoy is primarily developing this but with help from Rick McCorkle, Doug Janiec, Eric Zuelke and Keith Clancy. In addition, we have been contacted by the Delaware Department of Agriculture about the possibility of a cooperative venture with DDA in producing a high quality, glossy information packet on native plants; (4) On January 12th Rick McCorkle and myself will be meeting with Rob Gano of the Delaware Division of Fish and Wildlife to look at a site for reforestation at the Prime Hook Wildlife Area. We will be looking for volunteers on this demonstration project. I hope that we will be able to start on this project later this year and we will be looking for members to help with seed collection, direct seeding of the site and invasive species control; and finally, (5) We have been gathering information on other state's endangered plant species legislation and plan to discuss this initiative with DNREC. Currently, there is no regulatory protection for Delaware's many state rare plants. I will be attending the January 11th public hearing at DNREC on the State's revision to their Wildlife Code and hope to discuss this issue with DNREC staff.

So let me finish by wishing everyone a happy and healthy 2000 and one filled with native plant wonders. I would also like to extend my usual invitation to all members to become more involved with their society. Our level of success is closely linked to the level of member participation.

Sincerely,



Keith Clancy

NATIVE PLANT HIGHLIGHT**THE ORCHIDS OF DELAWARE**

Though it's another mild winter here in Delaware, I am sure that many of you are anxious for the warmer days of spring and summer. So to help ease the winter "blues," the following is a discussion on the native orchids of Delaware.

The Orchidaceae (the orchid family) is represented in Delaware by 37 species and varieties, which includes one species of hybrid origin (*Platanthera x canbyi*), within 17 genera. Native orchids in Delaware are perennial plants that are found in a variety of habitat types, such as woodlands, swamps, bogs, marshes, wetland depressions, and meadows. Sixteen orchid species are found exclusively in upland habitats, while 21 species are found only in wetland habitats. Six species of native Delaware orchids are restricted to the Piedmont physiographic province of the state, and 14 species are found only in the coastal plain province. Eight species of orchids in Delaware have a more northern distribution and are at or near their southern range limits in the state. In comparison, 12 species have a more southern distribution and are at or near their northern limits of distribution.

Exactly 76%, or 28 species of orchids in Delaware are considered to be rare or uncommon (1, 2, 3). One species (*Isotria medeoloides*) is federally listed as threatened (LT) by the U.S. Fish and Wildlife Service. Four species are known from only a single occurrence (1.1). Eight species are historical (H) in Delaware, meaning they have not been reported for twenty or more years, and in most cases not for 100 or more years. Two species in Delaware are thought to be extirpated (X) in the state.

The following is a list of the native orchids known to grow naturally in Delaware:

SCIENTIFIC NAME	COMMON NAME	RARITY
<i>Aplectrum hyemale</i>	puttyroot	2
<i>Arethusa bulbosa</i>	dragon's mouth orchid	H
<i>Calopogon tuberosus</i>	tuberous grass-pink	1
<i>Cleistes divaricata</i>	spreading pogonia	X
<i>Corallorrhiza maculata</i> var. <i>maculata</i>	spotted coralroot	H
<i>Corallorrhiza odontorhiza</i>	Autumn coral-root	1
<i>Corallorrhiza wisteriana</i>	spring coralroot	H
<i>Cypripedium acaule</i>	pink lady's-slipper	
<i>Cypripedium pubescens</i>	large yellow lady's-slipper	1
<i>Galearis spectabilis</i>	showy orchis	
<i>Goodyera pubescens</i>	downy rattlesnake-plantain	
<i>Isotria medeoloides</i>	small whorled pogonia	LT, 1.1
<i>Isotria verticillata</i>	large whorled pogonia	3
<i>Liparis liliifolia</i>	large twayblade	2
<i>Listera australis</i>	Southern twayblade	2
<i>Malaxis unifolia</i>	green adder's-mouth	1
<i>Platanthera blephariglottis</i>	white-fringe orchis	1
<i>Platanthera ciliaris</i>	yellow-fringe orchid	H
<i>Platanthera clavellata</i>	small green woodland orchid	
<i>Platanthera cristata</i>	yellow-crested orchis	2
<i>Platanthera flava</i> var. <i>herbiola</i>	Southern rein-orchid	1
<i>Platanthera grandiflora</i>	large purple-fringe orchis	X
<i>Platanthera lacera</i>	green-fringe orchis	
<i>Platanthera nivea</i>	snowy orchis	H
<i>Platanthera peramoena</i>	purple fringeless orchid	1.1
<i>Platanthera psycodes</i>	small purple-fringe orchis	H
<i>Platanthera x canbyi</i>	Canby's hybrid orchid	
<i>Pogonia ophioglossoides</i>	rose pogonia	2

<i>Spiranthes cernua</i>	nodding ladies'-tresses	
<i>Spiranthes lacera</i> var. <i>gracilis</i>	S. slender ladies'-tresses	2
<i>Spiranthes lucida</i>	shining ladies'-tresses	H
<i>Spiranthes odorata</i>	sweet-scent ladies'-tresses	H
<i>Spiranthes praecox</i>	grassleaf ladies'-tresses	H
<i>Spiranthes tuberosa</i>	little ladies'-tresses	1.1
<i>Spiranthes vernalis</i>	twisted ladies'-tresses	2
<i>Tipularia discolor</i>	crane fly orchid	
<i>Triphora trianthophora</i>	nodding pogonia	1.1

oooo Bill McAvoy, DNPS Vice-president

o o o o o o

PICK THE TURK'S CAP

WINTER GARDEN MAINTENANCE TIPS

Q. During most of the year, I am a very active gardener. However, now that winter is here, I don't know what to do with myself. Is there any gardening or yard work I can do in the winter?

A. Gardening is year-round job. Off the top of my "turk's cap," I can think of at least 20 different tasks that could be done in the winter. Here are some of them (first general tasks, then habitat management tasks):

General

1. Turn Your Garden: winter is a great time to turn your garden. Do it before the soil is heavily frozen. Don't worry about the chunks in your soil. Daily frost will help break those down. This is a good time to add compost or other heavy organic matter. Over the winter, the organic material will continue to break down and release nutrients into the soil, providing a rich source of nutrients for the spring. This is the only time of year when you should put organic material, that is not fully broken down, in the soil because the decomposition process also uses nutrients. During the growing season, only put compost on the soil surface or shallow subsurface, otherwise your plants may become nutrient deficient. Don't forget to test your soil.

2. Perform Maintenance on Your Equipment: Typically, the focus is on your lawn mower (i.e., drain the oil and gas, clean all the surfaces, sharpen the blade, etc.). But you should also check every other power tool and hand tool in your shed. Oh, and don't forget your hoses and spigots.

3. Root Cuttings: For maximum success, root cutting should be taken in the dormant season. It is recommended that you take cuttings from one side of a particular plant. Also, do not be over zealous; too many cuttings may kill a part or all of the parent plant. Young, but well-established plants work best. And remember to properly re-cover the area you took the root cuttings from. I highly recommend you read-up on root cuttings before you try this advanced gardening technique.

4. Place Your Orders: In the winter, when your snuggled next

to a warm cozy fire with your herbal tea made from your herbs you grew last summer, you begin pondering what new plants you are going to incorporate into your garden next year. After paging through some catalogues and taking a few naps, you pick the plants you want (all natives of course). Then you wait until next spring to get them. Hmmm, You might want to re-think this strategy. Once you identify the plants you want, place your order now. By doing this, you can guarantee you'll get what you want, you may be able to get a slight cost break, maybe, and you can control when the plants can be picked-up or delivered. If you have a large order, suppliers can get an early jump on it. Native plants, and especially seeds, go fast early in the growing season. It is in your best interest to secure them early.

5. Turn your compost two to three times in the winter.

Habitat Management

1. Clean-out Birdhouses: All birdhouses should be cleaned each year. If left uncleaned, the houses may become clogged, disease ridden, and may rot as the material inside decomposes. Cleaning consists of taking out last season's nesting material, and maybe spraying out the inside with water if it's full of bugs. Most species will build a new nest each year. If last year's nest is still present, birds will build a new nest on top of the old one.

2. Shelter: If you are someone who loves to see birds in your yard, then consider putting out bird shelters. Bird shelters are structures that provide overhead cover from snow and rain, a perch, and typically a windbreak. Don't put food in the shelter because birds will tend to visit them only to feed. Put them near shrubs in a sunny spot. They shouldn't be too big because the birds body heat will help keep the shelter warm at night. If the shelter is too large, the birds will not benefit as much. Make sure the opening is facing away from the wind.

3. Brush Piles: Brush piles are great shelters for birds and mammals. If you have a pile of brush, don't clean it up until the end of winter. Throw piles of leaves, grass cuttings, or evergreens on top, making sure there are plenty of openings. This covering will provide insulation.

4. Suet: Fat is where its at in winter for wildlife. Especially during cold spells when animals use up their stores of fat. A nice cube of suet or a strip of fat is priceless. Your yard will become a gourmet restaurant for birds and mammals.

5. Seeding: Research the requirements of your native plant seeds. Many species require a cold period (a freeze) in order to germinate. Therefore, certain species need to be sown in the winter, more preferably in the fall. If you seed these species in the spring, they may not germinate until the following year, if at all.

Well, now I guess you have a start. And your probably asking yourself, "how am I going to get all this stuff done before  spring?"

oooo Doug Janiec, DNPS Webmaster

UPCOMING EVENTS

SUNDAY, 6 FEBRUARY 2000 – CHAPMAN FOREST ECOSYSTEM ALIEN INVASIVE PLANT REMOVAL PROJECT AND NATIVE PLANT WALK. HELP CONTROL AND LEARN ABOUT ALIEN INVASIVE VERSUS NATIVE PLANT SPECIES. WE WILL IDENTIFY THREE FOOT DIAMETER *SASSAFRAS* TREES AND OTHER BEAUTIFUL GIANT TREES AND PARTICIPATE IN THE REMOVAL/CONTROL OF EVERGREEN INVASIVE SPECIES. WEAR APPROPRIATE CLOTHING AND BRING GLOVES, LUNCH AND WATER. MEET AT 10 AM AT THE RUTH B. SWANN PARK/POTOMAC BRANCH LIBRARY. CALL MARC IMLAY OF THE MARYLAND NATIVE PLANT SOCIETY AT 301.283.0808 FOR MORE INFORMATION, OR ON THE WEB AT <http://www.geocities.com/RainForest/Vines/2996/index.html>.

SATURDAY, 12 FEBRUARY 2000 – THE NORTHEAST CHAPTER OF THE MARYLAND NATIVE PLANT SOCIETY PRESENTS XERISCAPING: NEW PLANTING TECHNIQUES FOR THE NEW MILLENNIUM. THIS PRESENTATION WILL INCLUDE A METHOD OF GARDENING THAT CONSERVES WATER, THE USE OF NATIVE PLANTS AND 7 STEPS TO A CAREFREE GARDEN. REFRESHMENTS WILL BE SERVED. THIS TALK IS FREE AND OPEN TO THE PUBLIC, HOWEVER DUE TO LIMITED SEATING PLEASE REGISTER IN ADVANCE. FROM 10 AM TO NOON AT THE ANITA C. LEIGHT ESTUARY CENTER, ABINGDON, MD. CALL HEATHER AT THE LEIGHT CENTER AT 410.612.1688 FOR MORE INFORMATION OR TO REGISTER, OR E-MAIL AT Hhelm@erols.com.

SATURDAY, 11 MARCH 2000 – NATIVE PLANT GARDENING SEMINAR – PEOPLE IN THE LANDSCAPE: RESTORING HARMONY WITH NATURE. NATIONALLY KNOWN GUEST SPEAKER: NEIL BIBOLL, FOUNDER OF PRAIRIE NURSERY AND FEATURED IN GARDEN DESIGN MAGAZINE. BIBOLL WILL FOCUS ON THE HISTORY OF PEOPLE'S IMPACT ON VEGETATION AND THE CURRENT EFFORTS TO RESTORE NATIVE LANDSCAPES. FROM 9 AM TO 4 PM AT THE ASHLAND NATURE CENTER, DELAWARE NATURE SOCIETY. COST (INCLUDES CATERED LUNCH) IS \$40.00 FOR DNS MEMBERS, \$50.00 FOR NON-MEMBERS. CALL 302.239.2334 FOR MORE INFORMATION.

EVENT HIGHLIGHT

CAPE HENLOPEN STATE PARK FIELD TRIP

A "remarkable" place sums up the beauty, charm, and botanical wonders of Cape Henlopen State Park and was a popular refrain from those who had the good fortune to attend this event. As was "I never knew this was here." The DNPS-led field trip took place on Saturday, November 6, 1999, which turned out to be a bright, sunny and unseasonably warm day. Cape Henlopen State Park is located in Sussex County along the Atlantic coast at the mouth of the Delaware Bay. This park comprises more than 4000 acres, is geologically dynamic and biologically diverse. It is considered by many to be the "crown jewel" of the Delaware State Park system. Thirty-two natural communities have been described and a total of 362 vascular plant species recorded from this park. Thirty-four (34) of these plants are considered rare for Delaware and eight (8) of these are known in the state only from Cape Henlopen State Park.

Participants explored only a small percentage of the park but were treated to many of its botanical and ecological wonders despite the lateness of the season. We explored pitch pine forest, woodland and scrub. Observed the numerous interdunal swales with their diverse vegetation. Witnessed the many cranberry wetlands. Hiked the walking dunes of the Great Dune: a unique geological feature that extends, perpendicular to the coast, for nearly 3 miles inland. Happened upon, and then agreed to keep their locations secret, several of the truly noteworthy plant species that inhabit this park. Two of which were the bearberry (*Arctostaphylos uva-ursi*), a dwarf evergreen shrub that was only recently (1997) discovered in Delaware and whose only known population on Delmarva is at the park, and the Southern buckthorn (*Sideroxylon lycioides*), a small tree of which this park's population represents not just the only known population in Delaware but also represents the northern-most extent of this species' range.

It seemed like we were just getting acquainted with the wonders of this place when the light began to fade and darkness was soon upon us. We then retired to Grotto Pizza to reflect upon the day. Further exploration of this marvelous park would have to wait for another day.

DNPS WEBSITE

Missed an issue of The Turk's Cap Newsletter? Want to know about upcoming events? Then check out the DNPS website. It's up-to-date with the latest and greatest columns, articles and events from the newsletters on our site. Check it out at www.delanet.com/~dnpswp. Also, if you have any plant related or conservation oriented websites that you just love, tell Doug Janiec about them and he can add them to the LINKS section. E-mail Doug with suggestions at wildlife@delanet.com.

Membership Application

DELAWARE NATIVE PLANT SOCIETY

Member Information

Name: _____

Business Name or Organization: _____

Address: _____

City and Zip Code: _____

Telephone (home/work): _____

E-mail address: _____

- ☐ Individual \$15.00
- ☐ Full-time Student \$10.00
- ☐ Family or Household \$18.00
- ☐ Contributing \$50.00
- ☐ Business \$100.00
- ☐ Lifetime \$500.00
- ☐ Donations are also welcome \$ _____

Membership benefits include:

- * The DNPS quarterly newsletter, *The Turk's Cap*
- * Native plant gardening and landscaping information
- * Speakers and field trips

Total Amount Enclosed: \$ _____

**Make check payable to:
DE Native Plant Society
P.O. Box 369, Dover, DE 19903**

DELAWARE NATIVE PLANT SOCIETY

P.O. Box 369

DOVER, DELAWARE 19903

