

# THE TURK'S CAP

Volume 12, Number 1  
Spring 2009

THE NEWSLETTER OF THE DELAWARE NATIVE PLANT SOCIETY

## IN THIS ISSUE

- Page 1** ■ *Natural Quotes*  
■ *New Members*  
■ *DNPS Vision*
- Page 2** ■ *Thoughts From The Edge...*  
■ *Resources and Reviews*
- Page 3** ■ *Feature Article*  
■ *Resources and Reviews*
- Page 4** ■ *Gardening With Native Plants*  
■ *Resources and Reviews*
- Page 5** ■ *Feature Article continued*  
■ *Resources and Reviews*
- Page 6** ■ *Out Of The Wild & Into The Kitchen*
- Page 7** ■ *Upcoming Events*

## NATURAL QUOTES

"Love of the land is the basis for the unending struggle of those who really care against those who see only material rewards."

Sigurd F. Olsen, *Reflections from the North Country*, 1976

## A FLOURISHINGLY GREEN WELCOME TO OUR NEWEST MEMBERS

### January through March

Anne Arundel County, MD  
Parks and Recreation Dept.

## HOW CAN I GET INVOLVED?

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

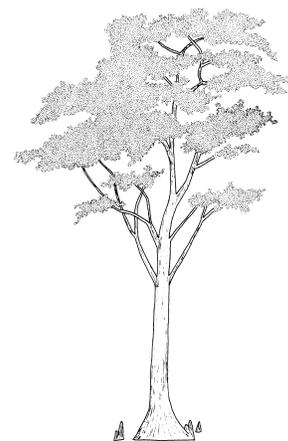
The DNPS is working on some significant projects at this time. We have completed four reforestation projects in the Prime Hook area, at Blackbird Creek in New Castle County and Cedar Creek in Sussex County where we have installed tree tubes around newly sprouted seedlings, and are performing annual management of the sites. Help is also needed at our native plant nursery at the St. Jones Reserve with the monitoring and watering of plants along with many other nursery activities.

For more information, visit our website at [www.delawarenativeplants.org](http://www.delawarenativeplants.org). Our very informative, up-to-date website has all the contact information for the Society, along with a section on native plants, volunteering, and links to other environmental and plant related organizations.



## 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, field trips, and a growing statewide membership organized by the DNPS.



## THOUGHTS FROM THE EDGE OF THE GARDEN

### WEBSITE UPDATE

Our website is just humming along and being as informative as can be. We did quite a bit of work to the site in February with Delaware.net (our website hosting and design firm). They converted the site over to the new Content Management System, and changes to the site are now a breeze. The site can be accessed from any computer in the world now and changes can be made on the fly in just a few minutes. We have removed the blog and added a section on our Big Oak Park Adopt-A-Wetland site. We have also added Google Analytics to the source code to track a myriad of statistics about visitation to the site. Come check it out at [www.delawarenativeplants.org](http://www.delawarenativeplants.org).

### NEW DISPLAY BOARD

Back in December 2008, we ordered a new display board for use at events around the state. It is almost completed (it'll be a work in progress until a couple more photos can be taken later in the year), but so far it looks great. The new board has a different color scheme from our old black and gray one. The new one is dark green at the top, gray in the middle, and will sit on top of a dark brown table cover. All the artwork, photos, and text are brand new, and the entire board has been simplified to make it easier for visitors at the events to identify us and learn what we are about. Our old display board found a great new home with the DE Council of Wildlife Rehabilitators & Educators, and in the new Dupont Nature Center.

### WHO INFLUENCES PURCHASES OF NATIVE PLANTS?

(Editor's note: From [www.sciencedaily.com](http://www.sciencedaily.com)).

ScienceDaily (Mar. 25, 2009) — Native plants are a growing niche market in the southeastern United States. Researchers have documented recent trends toward increased interest in native plants by landscape architects, wholesale and retail nursery owners, and home gardeners.

But landscape professionals and amateur gardeners purchase

native plants for distinctly different reasons. Statistics reveal that landscape architects most often select native species because they are suited to difficult or unique growing conditions, while retail plant buyers purchase native plants based on recommendations from landscape architects and contractors.

If landscape architects are the primary drivers of native plant sales in the southeastern United States, what impact does that have upon wholesale nursery growers and the retail market? What is the potential of the native plant market in this region, and what are the best ways of fostering its growth? To answer these questions, Robert F. Brzuszek and Richard L. Harkess, researchers at Mississippi State University, developed an e-mail survey for wholesale and retail nursery owners (members of the Southern Nursery Association) in the southeastern region of the United States. The survey results and recommendations were published in the latest issue of the American Society for Horticultural Science journal *HortTechnology*.

"The objective of this study was to understand how green industry professionals view the opportunities and constraints of the current southeastern native plant market, and to synthesize the connections between landscape architects' demands and the supplies of the nursery industry in the region", explained Brzuszek.

The survey respondents revealed that, while there is a perceived increase in customer interest in native plants, market demand and enhanced public education play a key role in further development of this growing market.

When asked the primary reason they carried native plants, respondents cited client request (25.6%), followed by ecological reasons (17.8%), adaptability to difficult site conditions (16.3%), and low maintenance issues (13.2%). These responses differed considerably from the responses of landscape architects, who replied that native plants were mostly used because of their ability to grow in difficult site conditions.

The study found that both nursery professionals and landscape architects see customer interest in native plants growing. Most respondents agreed that identifying methods to increase marketing of native plants was of significant interest. Survey respondents suggested that better and more information sources be provided for the general public, particularly through the use of specific marketing campaigns and point-of-purchase information. Presentations and displays at nursery trade shows were also recommended as effective methods for growers and retailers to learn about new native plant cultivars. 

## Resources & Reviews

### *The Organic Lawn Care Manual*

Authored by Paul Tukey. Extend an organic lifestyle beyond the front door! Get your lawn off drugs with *The Organic Lawn Care Manual*, a comprehensive guide for creating a lush green lawn without chemicals and pesticides. Author Paul Tukey takes the mystery out of making a healthy and inviting outdoor play area for kids, pets and the whole family.

## Resources & Reviews

### ***Building a Healthy Lawn: A Safe and Natural Approach***

Authored by Stuart Franklin. Included are chapters on mowing, watering, fertilizing, soil building, equipment selection, seeding, weed control, diseases and insects, ground covers, and mulches.

#### **FEATURE ARTICLE**

#### **ENVIRONMENTALLY FRIENDLY LAWN CARE**

*(Editor's note: This contains excerpts from articles in Mother Earth News, reprinted with permission).*

Is your lawn chemically dependent? Every year, many of us treat our yards with pesticides and fertilizers in hopes of creating a healthy and attractive lawn. The problem is that many of the products we use on our lawns aren't good for us or for the environment. The good news is that there are simple, nontoxic alternatives that can keep your lawn healthy naturally. Some of them can even save you money! For most of us, this means eliminating chemical fertilizers, dyes and weed-killers from the lawn's diet. Others have decided to plant drought-tolerant native plants that need less water. Or food-bearing plants, such as strawberries, which cover more of the ground so their lawns require less all-around maintenance. The great news is that you can have a gorgeous, low-maintenance lawn that's safe for your family and our environment.

What's wrong with the usual fertilizers and pesticides?

Improperly used fertilizers can contribute to water pollution by contaminating groundwater and by encouraging algae growth in streams, which disrupts aquatic ecosystems. Pesticides cause problems, too — many are toxic to bees, birds, fish and other forms of wildlife.

Another cause for concern is that many common pesticides (and that category includes insecticides, herbicides and fungicides) have well-documented health risks including suspected roles in a number of kinds of cancer, as well as damage to the nervous system and developmental disorders. Even the common herbicide Roundup is associated with a number of health risks. Two good sources to learn more about the health risks of specific pesticides are the pesticide fact sheets of the Northwest Coalition for Alternatives to Pesticides (NCAP) and the National

Pesticide Information Center.

So what do you use instead of chemical pesticides and fertilizers? In fact, some of the most effective methods for maintaining a beautiful lawn are both simple and nontoxic.

Here are several strategies to consider:

#### **1. Plan ahead to minimize problems.**

The easiest way to keep your lawn healthy and keep unwanted weeds out is with a little preventive maintenance that stops problems before they get out of hand. For example: Keep your lawn healthy from the beginning by choosing a type of grass suited for your region and climate. This is also a good way to minimize watering.

Stop weeds before they get started! In areas where you can't mow, you can prevent weeds by using newspaper or plastic covered with mulch.

#### **2. When you need fertilizers or pesticides choose natural, nontoxic options.**

To find least toxic solutions for weed and pest problems, a good place to start is with the fact sheets from NCAP.

You may be surprised to learn that there's no reason to choose commercial fertilizers over ones you can harvest yourself. One excellent option is grass clippings, which provide a natural, slow-release fertilizer for your lawn and garden. Grass clippings are not as harsh on your lawn as some chemical fertilizers, less likely to wash away — and they're free!

#### **3. Learn to live with (or even love) a few weeds.**

Sometimes all that's needed to fix a weed problem is a slight change of perspective. Clover is a good example of how personal preference determines whether or not we think of plants as weeds. Take a quick look online and you can find detailed advice both on how to get rid of clover in your yard, and

*Continued on page 5*

## **GARDENING WITH NATIVE PLANTS**

### **RED MULBERRY (*MORUS RUBRA*)**

#### **NATURAL HISTORY**

Nan and I enjoy attracting birds to our yard here in Harbeson. We put out feeders, water, bird houses, misters and native plants in hopes of attracting a wide variety of birds. So in trying to decide what native plant to write about for this column, I'm often researching a plant to see how it might fit into our landscape. Such is the case with *Morus rubra* or Red Mulberry. In reading through the numerous periodicals we subscribe to, I'm often impressed with outstanding photos of cedar waxwings, mockingbirds, Baltimore orioles and others eagerly devouring a mid-summer crop of mulberries – WOW, this must be the tree for us! In fact, many species of birds and small mammals eat the fruits of red mulberry. Bird consumers also include wild turkeys, wood ducks, bluebirds, indigo buntings, gray catbirds, eastern kingbirds, towhees, orchard orioles, brown thrashers, tanagers, vireos, woodpeckers, great crested flycatchers and more. Other consumers include opossums, raccoons, fox squirrels, and gray squirrels. The twigs and foliage are browsed by white-tailed deer, beavers consume red mulberry bark and it is the larval host of the red cloak butterfly. The red mulberry is a tree of the rich woods, bottom lands, fence rows and edges. Its range extends from southern New England west to South Dakota and south to Texas and Florida. The red mulberry is a tree usually attaining 40 to 50 feet in height and occasionally reaching 70 feet with a diameter of 4 Feet. In forested areas the red mulberry will grow tall and spindly with few branches, but in the open it is generally short and stout with a broad round configuration and a mass of intertwined branches popular as cover for numerous wintering birds. In late April and early May with the unfolding of leaves, 2 inch long male catkins and 1 inch female catkins are formed. Red mulberry is primarily a dioecious plant, with male and female trees, but can be monoecious having both male and female flowers on the same tree. One inch jet black, blackberry like fruits ripen from late June through early August, and when fully ripe are soft, juicy, sweet and popular with birds, mammals, people, and neighborhood children!

#### **WHERE TO GROW**

The red mulberry grows well under a wide variety of conditions. Best growth occurs in the open, on moist, well-drained soils. It grows well on a variety of soils including clays, sands, and loams and it tolerates a wide range of soil pH. However, the red mulberry may not be suitable for the average neighborhood yard. In urban areas it is often considered a nuisance where it's abundant fruit litters and stains sidewalks and automobiles, and children must be forgiven for tracking berry juice onto mom's sparkling cleaned floors when they proudly come home with a pail full of freshly picked berries. However,

because this relatively large, sweet fruit is a favorite food of most birds and some small animals, most of the fruits are eaten and dispersed by wildlife before they fully mature. Having said that, if you have an out of the way place in a wildlife habitat, the back of the yard, the center of a bed planted with other native plants, a wet area where nothing else will grow, or perhaps along a fence row with that irritating neighbor who has a swimming pool, then the rewards of wildlife in your yard will far overshadow the red mulberry's liabilities.

#### **PROPAGATION AND CARE**

Seeds can be extracted from fresh fruits by mashing and soaking them in water. Viable seeds will sink to the bottom and pulp and empty seeds will float to the top where they can be skimmed off using a common household strainer. Several rinsings and subsequent skimming will result in cleaned seeds that can be sown in fall without stratification or in spring following 30 to 90 days of stratification at 33° to 41° F in moist sand. Red mulberry can be propagated from stem cuttings or by budding, but these methods are complex, require greenhouse facilities and are not particularly recommended. However, red mulberry is a prolific root sprouter and can be reproduced by layering. Because the red mulberry is a favorite browse for deer, be sure to protect your new seedlings if you live in a rural community!

#### **LORE**

The highest use of red mulberry is for its large, sweet fruits. In addition to their value to wildlife, the ripe fruits are eaten raw and have long been used in Appalachia for pies, jams, jellies, juice and wine. In the past, the fruits were valued for fattening hogs and as poultry food. The wood of the red mulberry is used locally for fence posts because the heartwood is relatively durable. Other uses of the wood include farm implements, cooperage, furniture, interior finish, and caskets. Native Americans used the fruits fresh and for beverages, breads and cakes, dumplings and preserves, and mixed dried fruits with animal fat for pemmican. Native Americans also used the plant medicinally as a worming agent, remedy for dysentery, laxative, emetic and ringworm. Choctaw Indians wove cloaks from the fibrous inner bark of young mulberry shoots. Finally, don't be tempted to harvest your red mulberries before they are fully ripened! Unripe fruit and milky sap from all parts have low toxicity if eaten. Symptoms include hallucinations and stomach upset. 🍷

■ *Bob Edelen, DNPS Member*



## **Resources & Reviews**

### ***The Natural Lawn & Alternatives***

Authored by the Brooklyn Botanic Garden. A collection of articles including "Eight Steps to a Pesticide-Free Lawn," "Buffalograss Lawns," and others on moss, prairie, and other grass alternatives. "Turf Tips" has a map of grass zones for the U.S., regional guides for fertilizing and for grass types, plus mowing heights for different grasses. Great color pictures throughout.

## Resources & Reviews

### *The Chemical-Free Lawn: The Newest Varieties and Techniques to Grow Lush, Hardy Grass*

Authored by Warren Schultz. This book gives an almost flawless and remarkably thorough presentation on organic lawn care.

#### **FEATURE ARTICLE**

*Continued from page 3*

how to add more of it! Rather than fight weeds, you may discover that there are a few you can live with, and even enjoy. For example: Dandelions and purslane are two common “weeds” that some people deliberately plant in their gardens as food crops.

Some weeds have medicinal value including plantain, stinging nettle and yellow dock. Other weeds may actually make your lawn or garden healthier. Dandelions are a good nectar source for many beneficial insects. So is clover, which is also recommended in this article as a cover crop that adds nitrogen to your soil.

#### **4. Options to traditional yard care equipment**

**Person-powered reel mower.** It's not much more work to push one provided the ground is pretty level, but it isn't effective on grass more than about 3 inches high. For smaller areas that are fairly level and mowed regularly, this option works.

**Scythe.** Yet another step even farther back in time. We are talking about the European scythe, not the American ones you still find at garage sales. With a few *ifs*, this option will work: *If* you're willing to take some time to practice the right swing of the tool. *If* you're willing to learn to sharpen it. And *if* you keep it sharp. There actually are 'green landscapers' who make a living cutting urban lawns this way! no pollution, no noise.

**Electric rotary mower.** One battery-electric mower can often replace multiple gas-powered ones. Along with the change in mowers, switching to a higher cut setting is better for the grass.

**Electric weed whackers.** For trimming in places where the other equipment has trouble.

#### **5. Consider reducing the amount of grass you**

#### **have in your yard.**

It may sound radical, but do you need or want as much lawn as you have? Here are two popular alternatives to traditional turf:

Lose the lawn and try xeriscaping. This term means landscaping to reduce water use, and it can make a lot of sense in drier climates where a lawn simply isn't practical. Xeriscaping techniques may include using more decorative rock in your yard, or focusing on a few drought-tolerant plants.

Put in less grass, more edible plants. Why not give your garden room to expand? You can grow a lot of food in the typical front and back yard. Another option to consider is edible landscaping, the idea of choosing decorative plants that also produce food crops, such as strawberry plants and apple trees.

If you decide to convert a section of lawn into a vegetable garden, don't haul the turf away; cut it into rectangular blocks of manageable size and stack the moist blocks upside down in a metre-square (3-ft.) area in the middle of your new garden.

Between each layer of turf add a light dusting of lawn or high-nitrogen fertilizer. Cover the pile of inverted sod with black plastic and tie a cord around the base to secure the plastic.

After six to eight months or the next growing season, you can cut small holes in the plastic on the sides or top of the pile and plant seed potatoes that will grow and cascade down the sides of the pile. Any heat-loving plant, such as corn, cucumbers, squash or pumpkin will also respond well in a pile of old turf.

At the end of the growing season, remove the plastic and spread the well-decayed turf over the rest of your vegetable garden. If you have access to waste turf, the procedure can be repeated until you have enough topsoil for your raised beds. 🌱

## ***OUT OF THE WILD & INTO THE KITCHEN***

Our Native Plant Highlight focused on the red mulberry. There are a quite a number of recipes out there using these sweet fruits in pies-like desserts. Here's just a few from [www.fooddownunder.com](http://www.fooddownunder.com).

### **1850 Mulberry Pie**

1 10" Unbaked Pie Shell  
 1 qt Mulberries  
 1 cup Flour  
 2 cup Granulated Sugar  
 1 cup Milk

Fill shell with berries. Mix flour, sugar, and milk. Pour mixture over berries. Bake at 350 for 45 to 50 minutes until center is set. If desired, brown under broiler. Serves 6 to 8

### **Crispy Mulberry Cobbler**

#### FILLING

1 tbl flour  
 1 tbl sugar  
 3 cup mulberries

#### ASSEMBLY

1 cup flour  
 1 cup sugar  
 1 tsp baking powder  
 1/3 cup butter or shortening  
 1 egg lightly beaten

For the Filling: Gently rinse mulberries in cold water. Combine flour and sugar in medium bowl. Toss gently with berries.

For Assembly: Combine flour, sugar and baking powder in mixing bowl. Cut in butter with pastry blender or 2 knives until mixture resembles coarse crumbs. Add egg; mix slightly, stirring just to moisten.

Grease 8-inch square baking dish. Fill with berry mixture. Crumble topping over berries. Bake at 350 degrees until slightly golden brown, 30 to 35 minutes.

Serve with vanilla ice cream or chilled whipped cream. Yields 6 to 8 servings.

### **Mulberry Angel Torte**

2 cup Mulberries  
 2 tbl Sugar  
 2 tbl Mulberry Jam, Melted  
 10.5 oz Angel Food Cake  
 6 tbl Amaretto, Divided  
 3/4 cup Vanilla Low-Fat Yogurt  
 1/2 cup Blueberries  
 8 tsp Sliced Almonds, Toasted

Place first 3 ingredients in a food processor, and pulse 3 times or until coarsely chopped. Set aside. Line an 8 inch loaf pan with plastic wrap, allowing plastic wrap to extend over edge of pan. Cut cake horizontally into 6 slices (slices will be very thin). Place 1 cake slice in bottom of pan. Brush cake slice with 1 tablespoon amaretto. Spread 3 tablespoons Mulberry mixture over cake slice; top with another cake slice. Repeat layers, ending with cake slice (do not put amaretto or Mulberry mixture on top cake layer). Cover and chill 2 hours. Place a serving plate upside down on top of pan; invert cake onto plate. Remove plastic wrap. Combine yogurt and remaining 1 tablespoon amaretto in a small bowl; stir well. Cut torte crosswise into 8 slices. Dollop 1 1/2 tablespoons yogurt mixture onto each slice. Sprinkle each with 1 tablespoon blueberries and 1 teaspoon almonds.



## Upcoming Events

**TUESDAY, 28 APRIL 2009**—MARYLAND NATIVE PLANT SOCIETY MONTHLY MEETING. THIS MEETING'S TOPIC WILL BE SPRING FLOWERING NATIVE PLANTS OF MARYLAND. STARTING AT 7:30 PM. MORE INFORMATION ON THE WEB AT [HTTP://WWW.MDFLORA.ORG](http://www.mdflora.org).

**SATURDAY, 2 MAY 2009**—DELAWARE NATURE SOCIETY ANNUAL NATIVE PLANT. OPEN TO THE PUBLIC ON BOTH MAY 2ND AND 3RD AT COVERDALE FARM IN GREENVILLE, DE. DIRECTIONS AND MORE INFORMATION AT 302.239.2334, OR ON THE WEB AT [HTTP://WWW.DELAWARENATURESOCIETY.ORG/NPS.HTML](http://www.delawarenaturesociety.org/nps.html)

**FRIDAY, 8 MAY 2009**—BOWMAN'S HILL WILDFLOWER PRESERVE ANNUAL NATIVE PLANT SALE. HELD ON MAY 8TH TO 10TH FROM 10 AM TO 4 PM. MORE INFORMATION ON THE WEB AT [HTTP://WWW.BHWP.ORG/CALENDAR.HTM](http://www.bhwp.org/calendar.htm)

**SATURDAY, 9 MAY 2009**—ADKINS ARBORETUM ANNUAL NATIVE PLANT SALE FROM 9 AM TO 1 PM. ADKINS ARBORETUM HOLDS TWO MAJOR PLANT SALES EACH YEAR ON THE SATURDAY BEFORE MOTHER'S DAY IN MAY AND THE SECOND SATURDAY IN SEPTEMBER. MORE INFORMATION ON THE WEB AT [HTTP://WWW.ADKINSARBORETUM.ORG/](http://www.adkinsarboretum.org/)

**SATURDAY, 16 MAY 2009**—CENTER FOR INLAND BAYS ANNUAL NATIVE PLANT SALE. FROM 9 AM TO 1 PM AT THE JAMES FARM ECOLOGICAL PRSERVE. FOR MORE INFORMATION CALL 302.226.8105, OR ON THE WEB AT [HTTP://WWW.INLANDBAYS.ORG/](http://www.inlandbays.org/)

**TUESDAY, 19 MAY 2009**—DELAWARE NATIVE PLANT SOCIETY BI-MONTHLY MEETING. THIS MEETING WILL BE AT OUR NEW CASTLE COUNTY MEETING LOCATION. SEE BELOW FOR LOCATION DETAILS, AND ON OUR WEBSITE.

**SATURDAY, 23 MAY 2009**—BOWMAN'S HILL WILDFLOWER PRESERVE. KNOWING NATIVE PLANTS: FLOWERING SHRUBS PRESENTATION ON VIBURNUMS, AZALEAS AND DOGWOODS AND LEARN ABOUT THE WILDLIFE VALUE AND LANDSCAPE BEAUTY THAT NATIVE SHRUBS OFFER. MORE INFORMATION ON THE WEB AT [HTTP://WWW.BHWP.ORG](http://www.bhwp.org).

**THURSDAY, 4 JUNE 2009**—NATIVE PLANTS IN THE LANDSCAPE CONFERENCE AT MILLERSVILLE UNIVERSITY. FROM JUNE 4TH TO THE 6TH. SPEAKERS WILL INCLUDE W. GARY SMITH, RICK LEWANDOWSKI, AND DOUG TALLAMY. TOPICS WILL INCLUDE NATIVE LILIES AND ROSES, STREAMS, LANDSCAPE DESIGN, DEER MANAGEMENT, AND HARDSCAPING. CALL 717.871.2189, OR ON THE WEB AT [WWW.MILLERSVILLENATIVEPLANTS.ORG](http://www.millersvillenativeplants.org) FOR MORE INFORMATION.

**SPRING AND SUMMER 2009**—CONTINUING EDUCATION AT MT. CUBA CENTER. THIS NON-PROFIT ORGANIZATION HAS A FANTASTIC EDUCATION DEPARTMENT. THEY OFFER DOZENS OF CLASSES AND SYMPOSIA THROUGHOUT THE YEAR. FOR MORE INFORMATION CALL 302.239.4244, OR ON THE WEB AT [HTTP://WWW.MTCUBACENTER.ORG](http://www.mtcubacenter.org).

**DNPS BI-MONTHLY MEETINGS FOR 2009**—ARE CURRENTLY SCHEDULED FOR 20 JANUARY, 17 MARCH, 19 MAY, 21 JULY, 15 SEPTEMBER, 1 NOVEMBER (NOT A MEETING, BUT THE ANNUAL PLANT SALE) AND 17 NOVEMBER. ALL MEETINGS ARE ON THE THIRD TUESDAY OF EVERY OTHER MONTH AT 7 PM, UNLESS OTHERWISE NOTED. THE MEETING WILL BE HELD IN 3 LOCATIONS AROUND THE STATE. THE KENT COUNTY LOCATION IS AT THE ST. JONES RESERVE, THE NEW CASTLE COUNTY LOCATION IS AT THE NEW CASTLE COUNTY CONSERVATION DISTRICT OFFICE AT 2430 OLD COUNTY RD., NEWARK, DE, 19702, AND THE SUSSEX COUNTY LOCATION IS AT THE REDDEN STATE FOREST EDUCATION CENTER AT 18074 REDDEN FOREST DR., GEORGETOWN, DE, 19947. SEE OUR WEBSITE FOR MAPS AND DIRECTIONS TO EACH MEETING LOCATION. SEE OUT WEBSITE ([WWW.DELAWARENATIVEPLANTS.ORG](http://www.delawarenativeplants.org)) FOR MORE DETAILS, AND FOR DETAILS ON UPCOMING FIELD TRIPS.

# Membership Application

## DELAWARE NATIVE PLANT SOCIETY

### Member Information

Name:

Business Name or Organization:

Address:

City and Zip Code:

Telephone (home/work):

E-mail address:

- Full-time Student \$10.00
- Individual \$15.00
- 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, field trips, native plant nursery and sales

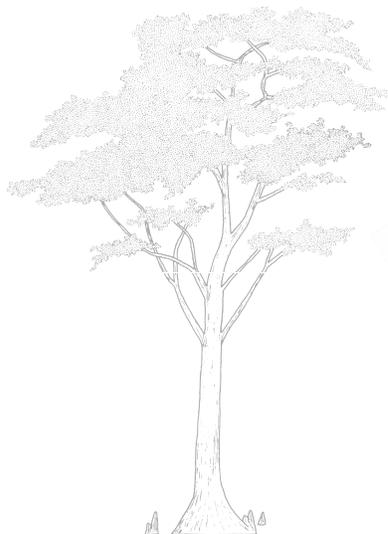
**Total Amount Enclosed: \$**

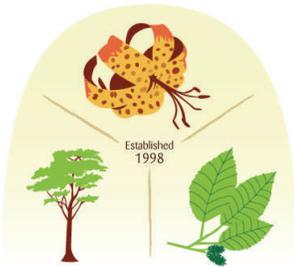
**Make check payable to:  
DE Native Plant Society  
P.O. Box 369, Dover, DE 19903**

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

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## NATURAL QUOTES

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## A BEACHY WELCOME TO OUR NEWEST MEMBERS

April through June

Jeffrey Davis  
Demaris Hollebeak  
Andy Lazorchak

## HOW CAN I GET INVOLVED?

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

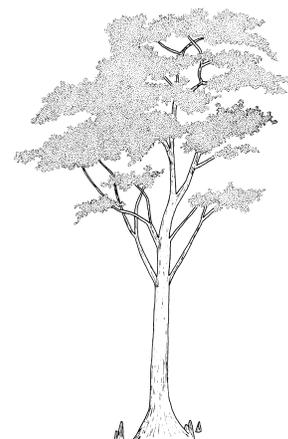
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**THOUGHTS FROM THE EDGE OF THE GARDEN****WEBSITE UPDATE**

On 7 April 2009 we added Google Analytics to the source code of our site to track a myriad of statistics about visitation. Here are the stats through 11 July 2009.

Number of visits: 345

Number that were unique visits: 313 (90.7%)

Average time spent browsing: 2 min. 23 sec.

Average # of pages browsed: 4.3

Places: U.S.A. (29 states), Mumbai, Bangalore

How we were located:

61% from a search engine

27% from a referring site

11% from direct traffic

**AMERICAN JOURNAL OF BOTANY NAMED A TOP 10 MOST INFLUENTIAL JOURNAL OF THE CENTURY**

Botanical Society of America/www.botany.org (Vol. 55 Number 3) -- The Special Libraries Association (SLA) has selected the *American Journal of Botany* as one of the 10 most influential journals of the past 100 years in the field of biology and medicine. The SLA announced the results on June 16, 2009 at its annual business luncheon in Washington, DC. Accepting the award on behalf of the Botanical Society of America was Dr. Judy Skog, incoming President-elect of the Society.

**DESERT DUST ALTERS PLANT ECOLOGY**

FORT COLLINS, Colo., July 9, 2009 (UPI) -- U.S. scientists say global warming might have a greater influence on some plants annual growth cycles than previously thought.

Researchers led by Heidi Steltzer of Colorado State University's Natural Resource Ecology Laboratory said their findings suggest accelerated snowmelt caused by desert dust blowing into mountainous areas changes how alpine plants respond to seasonal climate changes.

Current mountain dust levels in Colorado's alpine valleys are five times greater than they were before the mid-19th century, the scientists said.

"Human use of desert landscapes is linked to the life cycles of mountain plants, and changes the environmental cues that determine when alpine meadows will be in bloom, possibly increasing plants' sensitivity to global warming," said Jay Fein of the National Science Foundation, which partially funded the

research.

With climate change, the warming and drying of the desert southwest is likely to result in even greater dust accumulation in surrounding mountains, the researchers said.

"Earlier snowmelt (caused) by desert dust depletes the natural water reservoirs of mountain snowpacks and in turn affects the delivery of water to urban and agricultural areas," said Tom Painter, director of the Snow Optics Laboratory at the University of Utah.

The study that included Chris Landry, director of the Center for Snow and Avalanche Studies in Silverton, Colo., appeared in last week's issue of the Proceedings of the National Academy of Sciences.

**THOUSANDS OF PLANT SPECIES LIKELY TO GO EXTINCT IN AMAZON**

Wake Forest University July 7, 2009 -- As many as 4,550 of the more than 50,000 plant species in the Amazon will likely disappear because of land-use changes and habitat loss within the next 40 years, according to a new study by two Wake Forest University researchers.

The study appears in the current issue of the Proceedings of the National Academy of Sciences and is co-authored by Kenneth Feeley, post-doctoral research fellow, and Miles Silman, associate professor of biology at Wake Forest.

The researchers examined several hundred thousand individual plant records to map the distributions of more than 40,000 species found in the Amazon. Using these maps in conjunction with predictions of future deforestation and land-use change, they estimate habitat loss and extinction risks individually for nearly 80 percent of all Amazonian plant species—something that has never been done.

"While previous studies have indicated that we are in danger of losing large numbers of species, they were limited in not providing specific enough results to aid in the design of conservation strategies," Feeley says.

The current study provides detailed information that can be used to target conservation action toward individual species that are at high risk of extinction or at specific areas that are especially important to preservation of diversity. 

**Resources & Reviews*****The Dry Gardening Handbook: Plants and Practices for a Changing Climate***

Authored by Olivier Filippi. A garden that can withstand summer drought and requires little watering is the dream of every gardener who is conscious of the need to conserve water and who wants to create a garden in harmony with the environment. That dream can become a reality with the help of this indispensable new reference book which provides concrete solutions to the questions and hurdles faced by gardeners coping with dry conditions.

## Resources & Reviews

### *Xeriscape Handbook: A How-to Guide to Natural Resource-Wise Gardening*

Authored by Gayle Weinstein. An easy-to-follow, step-by-step approach to creating a water-wise gardening environment, no matter where one lives.

#### **FEATURE ARTICLE**

#### **THE PLANTS ARE TALKING BACK**

*(Editor's note: This contains excerpts from articles in Science Daily, www.treehugger.com, and the University of Washington)*

For years people have been looking for a good way to keep plants watered. There's moisture sensors that you stick into the soil and they tell you when the soil is dry, there's watering spikes that you fill with water and plunge the tip into the soil and it slowly drips water over a long period of time, there's self-watering inventions like upside down 2-liter bottles filled with water, and many other electronic gadgets that tell you when it's time to water.

But recently a new electronic controller has been created that rivals all others. A new system called Botanicalls, developed by interactive telecommunications researchers, allows your plants to send Instant Messages via SMS (short message service) to your mobile phone or messages to your twitter account on the Internet (called "tweets").

The system currently involves a soil moisture sensor, hardware and software to interpret that data, and a call to a phone. In the future the system will include new features including a light sensor, display, ambient sensors, output to the web and email, as well as calls to your personal cell phone (not just the one connected to the plant). You'll even be able to call and check on the plants status.

Probes in the soil send out electrical waves. Based on amount of moisture in the soil, a voltage level is sent through two wires to a circuit board that compares current moisture levels to the optimum moisture level. This data is sent via a wireless signal to an internet-connected computer and received by a local network, which allows the plant to send a message for help. These messages might include a thank-you when plants are watered, or a warning if the watering is too much

Each Botanicalls kit is \$99 and has to be assembled

from basic parts. Developers say it's worth it if you like your plants but don't always remember to take care of them. The new kit is the third generation of the Botanicalls system. The team is continuing to innovate and hopes to make it smaller, cheaper and easier to use.

A technology similar to this is also being used in the wine industry to measure water stress in grapevines.

A science lab recently developed a synthetic tree that mimics the flow of water inside plants using a slab of hydrogel with nanometer-scale pores. Using this technology, the device became an embedded microsensor capable of measuring real-time water stress in living plants. In theory, the sensor will help vintners strike the precise balance between drought and overwatering -- both of which diminish the quality of wine grapes.

A team is working at the Cornell Nanofabrication Facility in Ithaca to develop 4-inch diameter silicon wafer prototypes, each containing approximately 100 microsensors. They have also begun collaborating with Infotonics, a firm in Canandaigua, N.Y., that specializes in microelectromechanical systems (MEMS), to plan commercialization of the sensors. The partnership applies cutting-edge engineering to practical agricultural concerns.

The team hopes to design a sensor that will transmit field readings wirelessly to a central server; the data will then be summarized online for the grower.

Looking ahead, the team is pursuing alternative sensors that could enhance research in fields from food science to forestry. They have begun development of a "multi-use sensor" that redirects water flow inside the plant through a shunt. In this case, the sensor could measure the flow of water and mineral nutrients through the plant, in addition to water stress.

But before we get into all the high tech forms of plant watering, it's good to know some basics.

*Continued on page 5*

## **GARDENING WITH NATIVE PLANTS**

### **BUTTERFLY WEED (*ASCLEPIAS TUBEROSA*)**

#### **NATURAL HISTORY**

The long hot muggy days of summer are now upon us and all along the roadways and uncultivated fields of Delaware it's time to look for the bright orange and yellow flowers of *Asclepias tuberosa*, more commonly known as butterfly weed. These beautiful flowered members of the milkweed family are common throughout most of the eastern United States and Canada, and occasionally west to Colorado and Minnesota. The Butterfly weed is the only 'milkless milkweed' and exudes a watery sap, not the sticky, milky juice characteristic of most *Asclepias* species. It is an important nectar plant to numerous bees and a myriad of butterflies including swallowtails, sulphurs, hair-streaks, fritillaries, and skippers that flock in great numbers to the showy 2 to 4 inch clusters of flowers. Perhaps most importantly, the butterfly weed and other members of the milkweed family are a host plant to the Monarch Butterfly. Not only do the Monarchs frequent the flowers for their rich nectar, they also lay their eggs on the underside of the leaves, where once hatched, the emergent caterpillars gorge themselves on the leaves, ingesting a poison that makes them and the resulting butterflies unattractive to potential predators. This strategy is so effective, that several other butterflies mimic the colors of the Monarch to help avoid predators. The butterfly weed is a perennial attaining a height of 1 to 2 feet. Mature plants will boast numerous stalks terminating in flower clusters that open somewhat sequentially, making for a prolonged summer blooming season.

#### **WHERE TO GROW**

The butterfly weed grows naturally in a wide variety of soils and light conditions. It will tolerate partial shade and moderately moist soils, but for best results full sun and a light sandy loam are recommended. It has a long fibrous taproot that act as a water storage tank, providing drought resistance and making it well suited for naturalizing in wildflower gardens, un-mowed fields, bright woodland borders and other undisturbed areas. For planting in the perennial flower garden, plants should be clustered approximately one foot apart providing a blanket of mid-summer color.

#### **PROPAGATION AND CARE**

Propagation of butterfly weed is by seed and is quite easy to accomplish. In a natural environment the seedpods split in the fall. Each seed is attached to a number of feathery silk-like hairs that carry the seed long distances on the wind. When collecting seeds, wait until the pod is ripe and just beginning to open. Pry open the pod until you can grasp the feathery silk-like

hairs, then gently remove a cluster of seeds and hairs from the pod and scrape the seeds into a porous envelope for storage. Store the seeds in cool dry place over the winter until ready to plant. In early spring, plant the seeds ¼ inch deep in a mixture of equal parts of sand, sphagnum peat moss, and well-rotted compost – keep evenly moist but not soggy. After the young seedlings emerge and develop 2 sets of true leaves, transplant into individual pots and grow them until fall before setting out into the garden. Your plants should flower in their second year and be fully mature after 4 years. Once the plant is fully mature, you may prolong blooming by cutting off the inflorescence to keep seed pods from forming. This will prompt a second blooming and provide you with flowers for up to two months of summer beauty. Never try to dig up a plant that is living in the wild. Its long taproot is easily broken making transplanting seldom successful. And remember, when you see those pesky caterpillars munching away on the leaves of your prized butterfly weed, let them be – they will reward you with glorious butterflies and the plant will die back in the fall no worse for the wear!

#### **LORE**

The butterfly weed should be enjoyed for its beauty and for its significant contribution to butterflies, bees and other insects that thrive on its nectar and foliage. To humans and other mammals the butterfly weed contains toxic cardiac glycosides rendering it poisonous, and it should never be ingested. In the past, native Americans and pioneers used butterfly weed by creating a paste from the roots to spread on sores. Both settlers and native Americans brewed a tea from the roots to induce perspiration and expectoration in severe respiratory ailments including pleurisy, whooping cough and pneumonia, hence another common name, pleurisy root.



■ *Bob Edelen, DNPS Member*



*Asclepias tuberosa*,  
USDA Plants Database

## **Resources & Reviews**

### ***Creating the Prairie Xeriscape: Low-maintenance, Water-efficient Gardening***

Authored by Sara Williams. *Creating the Prairie Xeriscape* covers everything you need to know to create a low-maintenance, water-efficient landscape, from the basics of soil, water, and mulch, to the fine points of design.

## Resources & Reviews

### *How to Get Your Lawn off Grass: A North American Guide to Turning Off the Water Tap and Going Native*

Authored by Carole Rubin. The only North America-wide guide on how to convert your yard from a water-sucking source of pollution runoff to a flourishing, productive showcase of natural vegetation.

#### **FEATURE ARTICLE**

*Continued from page 3*

Watering home landscape and garden plants properly is one of the most misunderstood problems facing the average gardener. If landscape plants are water stressed during the summer, they may experience severe problems during the rest of the year, such as increased insect and disease susceptibility and decreased winter hardiness.

#### **Water loss from the soil**

There are several ways in which water is lost from the soil. Rain, melted snow, or water applied by the gardener may percolate through the soil beyond the root zone. This water is useless to growing plants.

Water may also evaporate from the soil surface, leaving it dry. Water from lower layers in the soil is drawn to the surface by capillary action and also evaporates. This continual evaporation may deplete water from quite deep in the soil.

Transpiration is the process by which a plant loses water through its leaves. This is a necessary process for plant growth. A large tree may lose hundreds of gallons of water a day in the summer. Water lost from the soil by evaporation and transpiration must be replaced by precipitation or irrigation.

#### **Soil-Water-Air relationships**

Establishing the correct water-air relationships in the soil is essential for the best growth of all plant types. Oxygen in the soil is necessary for plants to grow. Watering too often or too much is likely to exclude the necessary oxygen from the soil pore spaces. Without enough oxygen, plant roots suffocate and die. Plant parts above ground exhibit symptoms of this stress: wilting, yellowing, and drying foliage, leaf drop and twig die-back may all occur. Constant overwatering kills most plants.

Too little water, on the other hand, does not allow the roots to replace water lost by the plant through transpiration. The roots may dry up and die, and the top growth begins to show abnormal symptoms. In both cases, either too much or too little water, the plant suffers from lack of moisture in its tissues.

Heavy clay soils are much more likely to be overwatered than light soils. Conversely, light sandy soils are drought susceptible and tend not to be watered enough. Although light soil allow deeper and quicker water penetration, they dry out more rapidly because they hold less water. Heavy soils, on the other hand, are slower to allow penetration but also dry out much more slowly.

A good rule-of-thumb to follow in watering plants is to fill the entire root zone with water, and then allow the soil to dry out partially before the next irrigation. The amount of drying depends on the plant species and size. Large trees and shrubs can be allowed to dry several inches down in the soil before rewatering. A small or newly established plant will need watering before very much soil drying takes place.

It is essential that gardeners become familiar with how long it takes the root zones of the various plants in their gardens to become completely moistened, and then, how deeply they can allow the soil to dry before the plants begin to show stress and need rewatering. It is also necessary to understand that quick, light sprinkling will **not** do the job of wetting the entire root zone.

#### **Water penetration**

Soil type or texture is a major determining factor of how much water a soil will hold, or how quickly a soil can be irrigated. For example, 1 inch of water applied to a sandy soil will penetrate 12 inches. It will move anywhere from 6-10 inches into a good loam soil, and in a clay soil it will percolate down only 4-5 inches.

#### **Time required**

Sandy soils allow water to penetrate more quickly than will heavy, dense soils. Wetting the entire root zone of plants growing in heavy soils takes much longer than wetting plants growing in lighter soils. Sandy loams will accept from 1/2-3 inches of water per hour. A clay-loam may absorb only 1/10 - 3/5 inches of water in the same amount of time. A very dry clay-loam soil could therefore take as long as 120 hours to completely wet to a depth of 12 inches. A sandy loam, however, might take as little as four hours.

#### **Organic matter**

Soils to which organic matter has been added will behave differently. For example, clay soils with added organic matter will accept water more quickly. Organically amended sandy soils hold water longer, and consequently do not need to be irrigated as frequently.

#### **Compaction and thatch**

Water cannot soak into compacted soils, or soils overlaid with a thatch accumulation, particularly if water is applied too quickly. For compacted or thatch-choked areas, or possibly under the canopy of trees and shrubs, the best treatment is to aerate the soil by removing plugs. Mulches around trees and shrubs help restructure the surface layer of compacted soils to allow more efficient penetration of water.



***OUT OF THE WILD & INTO THE KITCHEN***

It's blueberry season and this wonderful fruit from the *Vaccinium* spp. can be found all over Delaware, but especially in Kent and Sussex counties. There are a quite a number of recipes out there using these sweet fruits in pies-like desserts. Here's a couple from [www.fooddownunder.com](http://www.fooddownunder.com).

**Alaskan Blueberry Coffee Cake**

1 1/2	cup	All-purpose flour
3/4	cup	Sugar
2 1/2	tsp	Baking powder
1	tsp	Salt
1/4	cup	Vegetable oil
3/4	cup	Milk
1	x	Egg
1 1/2	cup	Blueberries
1/3	cup	All-purpose flour
1/2	cup	Brown sugar, firmly packed
1/2	tsp	Cinnamon (or more to taste)
1/4	cup	Firm butter (1/2 stick)

In a medium mixing bowl, blend together 1-1/2 cups flour, sugar, baking powder, salt, oil, milk, egg and 1 cup blueberries. Beat thoroughly for 30 seconds and spread in a greased round 9x1-1/2-inch pan or an 8x8x2-inch pan. Combine 1/3 cup flour, brown sugar, cinnamon and butter. Sprinkle over batter and top with the remaining berries. Bake in a 375 degree oven for 25 to 30 minutes, until done. Don't overbake. Serve warm with butter or honey.

**Apple Blueberry Cream Puff Sundaes**

3/4	cup	water
6	tbl	butter or margarine
3/4	cup	all-purpose flour
1/4	tsp	salt
3	lrg	eggs
2	pkt	frozen escalloped apples - (12 oz ea)
2	cup	fresh or frozen blueberries thawed
1	tbl	lemon juice
1/2	gal	vanilla ice cream
		Fresh mint sprigs for garnish

- Bring 3/4 cup water and butter to a boil in a large saucepan; reduce heat to low. Add flour and salt; beat with a wooden spoon until mixture leaves sides of pan. Remove from heat; cool slightly. Add eggs, 1 at a time, beating until smooth.
- Drop batter by 2 rounded tablespoonfuls 3 inches apart on lightly greased baking sheets. Bake at 450 degrees for 10 minutes; reduce temperature to 325 degrees, and bake 15 more minutes or until golden. Pierce cream puffs with a fork to let steam escape, and cool.
- Thaw escalloped apples in microwave at MEDIUM (50% power) 6 to 7 minutes. Stir together apples, blueberries, and lemon juice.
- Split cream puffs in half; fill with ice cream, top with apple mixture, and replace pastry top. Garnish, if desired.
- This recipe yields 7 servings.

Comments: To serve with cinnamon ice cream, soften vanilla ice cream, and stir in 2 to 3 teaspoons ground cinnamon; freeze. 

# Upcoming Events

**SEPTEMBER 2009**—BOWMAN'S HILL WILDFLOWER PRESERVE. 2009 FALL NATIVE PLANT SALE. OPEN TO PUBLIC AND PRESERVE MEMBERS: SAT. SEPT. 12 & SUN. SEPT. 13 THROUGH SAT. SEPT. 19 & SUN. SEPT. 20. 10 A.M. – 4 P.M. EACH DAY. PLANTS ALSO ARE AVAILABLE FOR PURCHASE DURING THE WEEK. MORE INFORMATION ON THE WEB AT [HTTP://WWW.BHWP.ORG](http://www.bhwp.org).

**SATURDAY, 12 SEPTEMBER 2009**—ADKINS ARBORETUM PLANT SALE. THE FALL NATIVE PLANT SALE IS SATURDAY, SEPTEMBER 12 FROM 9 A.M. TO 1 P.M. MEMBERS MAY PLACE PRE-SALE PLANT ORDERS. THE MEMBERS-ONLY PLANT SALE IS FRIDAY, SEPTEMBER 11 FROM 10 A.M. TO 6 P.M. THERE IS ALSO A PREVIEW WALK OF THE PLANT SALE, FREE FOR THE PUBLIC, ON WEDNESDAY, SEPTEMBER 9 AT 1 P.M. MORE INFORMATION ON THE WEB AT [HTTP://WWW.ADKINSARBORETUM.ORG/](http://www.adkinsarboretum.org/)

**26-27 SEPTEMBER 2009**—MARYLAND NATIVE PLANT SOCIETY ANNUAL CONFERENCE. THE ANNUAL FALL CONFERENCE STARTS SATURDAY MORNING WITH A SERIES OF SPEAKERS, FOLLOWED BY AFTERNOON AND SUNDAY FIELD TRIPS THROUGHOUT THE REGION. MORE INFORMATION ON THE WEB AT [HTTP://WWW.MDFLORA.ORG](http://www.mdflora.org).

**3-4 OCTOBER 2009**—DELAWARE NATURE SOCIETY. HARVEST MOON FESTIVAL AT COVERDALE FARM, GREENVILLE, DE. MORE INFORMATION ON THE WEB AT [HTTP://WWW.DELAWARENATURESOCIETY.ORG/EVENTS.HTML](http://www.delawarenaturesociety.org/events.html).

**SUMMER AND AUTUMN 2009**—CONTINUING EDUCATION AT MT. CUBA CENTER. THIS NON-PROFIT ORGANIZATION HAS A FANTASTIC EDUCATION DEPARTMENT. THEY OFFER DOZENS OF CLASSES AND SYMPOSIA THROUGHOUT THE YEAR. FOR MORE INFORMATION CALL 302.239.4244, OR ON THE WEB AT [HTTP://WWW.MTCUBACENTER.ORG](http://www.mtcubacenter.org).

**DNPS BI-MONTHLY MEETINGS FOR 2009**—ARE CURRENTLY SCHEDULED FOR 20 JANUARY, 17 MARCH, 19 MAY, 21 JULY, 15 SEPTEMBER, 1 NOVEMBER (NOT A MEETING, BUT THE ANNUAL PLANT SALE) AND 17 NOVEMBER. ALL MEETINGS ARE ON THE THIRD TUESDAY OF EVERY OTHER MONTH AT 7 PM, UNLESS OTHERWISE NOTED. THE MEETING WILL BE HELD IN 3 LOCATIONS AROUND THE STATE. THE KENT COUNTY LOCATION IS AT THE ST. JONES RESERVE, THE NEW CASTLE COUNTY LOCATION IS AT THE NEW CASTLE COUNTY CONSERVATION DISTRICT OFFICE AT 2430 OLD COUNTY RD., NEWARK, DE, 19702, AND THE SUSSEX COUNTY LOCATION IS AT THE REDDEN STATE FOREST EDUCATION CENTER AT 18074 REDDEN FOREST DR., GEORGETOWN, DE, 19947. SEE OUR WEBSITE FOR MAPS AND DIRECTIONS TO EACH MEETING LOCATION. SEE OUR WEBSITE ([WWW.DELAWARENATIVEPLANTS.ORG](http://www.delawarenativeplants.org)) FOR MORE DETAILS, AND FOR DETAILS ON UPCOMING FIELD TRIPS.

# Membership Application

## DELAWARE NATIVE PLANT SOCIETY

### Member Information

Name:

Business Name or Organization:

Address:

City and Zip Code:

Telephone (home/work):

E-mail address:

- Full-time Student \$10.00
- Individual \$15.00
- 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, field trips, native plant nursery and sales

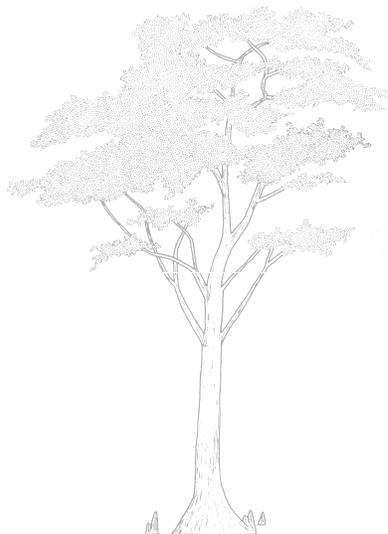
**Total Amount Enclosed: \$**

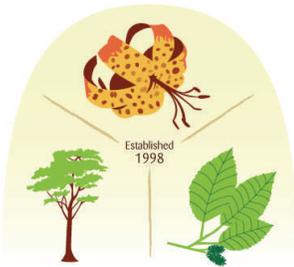
**Make check payable to:  
DE Native Plant Society  
P.O. Box 369, Dover, DE 19903**

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

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# THE TURK'S CAP

Volume 12, Number 3  
Autumn 2009

THE NEWSLETTER OF THE DELAWARE NATIVE PLANT SOCIETY

## IN THIS ISSUE

- Page 1** ■ *Natural Quotes*  
■ *New Members*  
■ *DNPS Vision*
- Page 2** ■ *Thoughts From The Edge...*  
■ *Resources and Reviews*
- Page 3** ■ *Feature Article*  
■ *Resources and Reviews*
- Page 4** ■ *Gardening With Native Plants*  
■ *Resources and Reviews*
- Page 5** ■ *Feature Article continued*  
■ *Resources and Reviews*
- Page 6** ■ *Out Of The Wild & Into The Kitchen*
- Page 7** ■ *Upcoming Events*

## NATURAL QUOTES

"No one has the right to destroy anything in the wilderness; such things belong to all and must not be disturbed. Freedom gives no license to violate a heritage that belongs to the ages."

Sigurd F. Olsen, *Reflections from the North Country*, 1976

## A GOLDEN WELCOME TO OUR NEWEST MEMBERS

### July through September



## The DNPS Vision

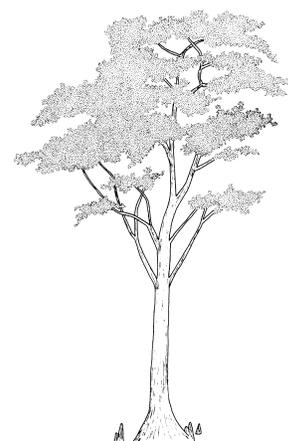
The purpose of the Delaware Native Plant Society (DNPS) is to participate in and encourage the preservation, conservation, restoration, and propagation of Delaware's native plants and plant communities. The Society provides information to government officials, business people, educators, and the general 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, field trips, and a growing statewide membership organized by the DNPS.

## HOW CAN I GET INVOLVED?

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

The DNPS is working on some significant projects at this time. We have completed four reforestation projects in the Prime Hook area, at Blackbird Creek in New Castle County and Cedar Creek in Sussex County where we have installed tree tubes around newly sprouted seedlings, and are performing annual management of the sites. Help is also needed at our native plant nursery at the St. Jones Reserve with the monitoring and watering of plants along with many other nursery activities.

For more information, visit our website at [www.delawarenativeplants.org](http://www.delawarenativeplants.org). Our very informative, up-to-date website has all the contact information for the Society, along with a section on native plants, volunteering, and links to other environmental and plant related organizations.



## THOUGHTS FROM THE EDGE OF THE GARDEN

### WEBSITE UPDATE

On 7 April 2009 we added Google Analytics to the source code of our site to track a myriad of statistics about visitation. Here are the stats through 7 Oct 2009.

Number of total visits: 2,541

Number that were absolute unique visitors: 2200 (86.5%)\*

New vs. returning visits: 2188 new (86.11%), 353 return (13.89%)\*

Average time spent browsing: 2 min. 34 sec.

Average # of pages browsed: 4.6

Pages with most clicks: Nursery, Plant Talk, Publications

Places: U.S.A. (47 states), 40 other countries/territories

How we were located:

65% from a search engine

24% from a referring site

11% from direct traffic

\*Absolute Unique Visitors counts visitors, whereas New vs. Returning counts visits.

### A TREE'S RESPONSE TO ENVIRONMENTAL CHANGES: WHAT CAN WE EXPECT OVER THE NEXT 100 YEARS?

*ScienceDaily*, Oct 6, 2009 -- A recent article by Dr. Abraham Miller-Rushing and his colleagues at Boston University published in the October issue of the *American Journal of Botany* explores how increasing concentrations of atmospheric carbon dioxide (CO<sub>2</sub>) may be affecting trees and, ultimately, affecting water and carbon cycles.

It is known that increasing concentrations of atmospheric CO<sub>2</sub> affect the physiology and behavior of many organisms, and in plants, changes to the pores (stomata) on the surface of leaves are one example of these effects. Stomata allow air (containing CO<sub>2</sub>) to pass into the leaf while water vapor passes out of the leaf. Plants use carbon dioxide to produce sugars during the process of photosynthesis. With increasing concentrations of atmospheric CO<sub>2</sub>, stomatal density decreases while rates of photosynthesis increase. The decrease in stomatal density results in decreased water loss through the leaves.

"These changes in stomatal behavior and water use efficiency can, in turn, have large impacts on plants and can alter ecosystem-scale water and carbon cycling," Miller-Rushing said. "For example, soil moisture, runoff, and river flows might increase and drought tolerance in individual plants might improve."

The relationship between atmospheric CO<sub>2</sub> concentrations and stomatal density is so constant over the long term that scientists are able to use stomatal density of fossilized leaves to determine historical atmospheric CO<sub>2</sub> concentrations. However, short-term responses to changes in CO<sub>2</sub> concentrations have previously been found to be much more variable, and very little concrete data exist on how long-lived organisms respond to changing CO<sub>2</sub> concentrations. "We currently do not know how the anatomy and water relations of individual trees will respond to changes in climate and atmospheric concentrations of CO<sub>2</sub> over their lifetimes," Miller-Rushing said. "Understanding these responses will be key to predicting how forests might contribute to changes in carbon and water cycles over the next 100 years."

### TENNESSEE FORESTERS HELPING TO RETURN CHESTNUTS TO AMERICAN FORESTS

*ScienceDaily*, Oct 6, 2009 -- The American chestnut was a dominant species in eastern U.S.'s forests before a blight wiped it out in the early 1900s. Today it's being returned to the landscape thanks in part to work by a University of Tennessee Forestry alumna and the UT Tree Improvement Program (UT TIP).

### SUPPORT THE PRESERVATION OF SCIENTIFIC COLLECTIONS

*American Institute of Biological Sciences* -- Write to President Obama to express your support for the preservation and expansion of scientific collections. These collections are valuable assets that can help to address pressing policy issues, such as climate change, emerging diseases, loss of biodiversity, environmental contaminants, and pest invasions. Scientific collections serve as sources of specimens for research, as repositories for rare objects, as standards for commerce, and as education and training resources. They are used extensively, with over 420,000 biological specimens loaned annually.

Despite the value of science collections, some collections are facing challenges ranging from a lack of qualified curators to limitations in improving accessibility to researchers. The current economic climate also demonstrates a need for a strategic and coordinated national policy structure to preserve and advance the research and education missions of our nation's natural science collections.

This Action Alert can be found at: <http://capwiz.com/aibs/issues/alert/?alertid=13948726>



## Resources & Reviews

### Tree Planting and Aftercare: A Practical Handbook

Authored by Elizabeth Agate. A comprehensive handbook on why to plant trees, the history of tree planting, planning and design, safety and equipment needed, propagation, planting and protection, and aftercare to ensure survival.

## Resources & Reviews

### *Woodlands: A Practical Handbook*

Authored by Elizabeth Agate. This handbook covers the full range of woodland work, from tree planting and establishment, through to thinning and conversion into woodland products.

#### **FEATURE ARTICLE**

##### **USING BARE ROOT SEEDLINGS IN REFORESTATION**

For anyone who has been involved in large reforestation efforts, the term “bare root” should be very familiar to you. What is a bare root seedling? It is a seedling that has been mechanically “lifted” out of the ground such that there is no soil left on the roots. Well that doesn’t sound very good for the seedling! If you aren’t familiar with this concept, you might think this would kill the seedling, and you would be correct if the lifting were done in the middle of the growing season on a hot, sunny day, while the seedling is actively growing. But this is not the case. Bare root seedlings are usually lifted in the spring, while trees are dormant, before the new leaf buds even start to swell.

Some folks might be surprised to learn that even evergreen trees are dormant during the winter and early spring. Here’s how one botanist<sup>1</sup> explains dormancy in evergreens:

“Evergreens do go dormant; just without the drama of complete canopy loss. Temperate climate plants, even evergreens, need a dormant or rest period that is activated by decreasing period of day length and cooler temperatures. Trees enter dormancy when the whole tree carbon balance shifts. They can no longer make enough food from photosynthesis to support active growth in all parts. Also if the area gets freezing temperatures they have to protect themselves from ice crystals rupturing their cells. When a plant cell freezes, it does what a frozen water pipe does: it bursts.

For growth to continue there must be more daylight to generate photosynthate (carbohydrate) than the plant requires to support its basic metabolism (growth below ground and in the stems, or woody parts, plus reserves for spring bud break). With less light and a decrease in temperature to between 5 and 10 C° (40-50 F) the tree struggles to support foliage. So there is a break-even point between available light energy and temperature that predicts actual canopy shut down – but the plant continues to live, and respiration continues to support this minimal function.

Evergreens shut down for winter dormancy but mostly do not shed their leaves (needles). Instead they set up to continue these most basic metabolic functions and yet prevent possible damage from periodic freezing; the plants super-cool. Water in the cells is chemically maintained in a liquid state below 0° C (32F) but above the homogeneous nucleation point at -38.1° C (-37F). So these plants avoid cold damage by not freezing. This is like adding antifreeze to the car’s radiator water. However if the temperature goes below -38.1° C they will freeze. So this first antifreeze method is only good for zones 3 or higher.

They go through further steps in colder areas to prevent freeze damage. However, all evergreens are at risk of desiccating.

Trees in a dormant condition, even without leaves, lose water. They lose water through lenticels on twigs, branches, roots, and stems, so those retaining leaves (needles) when dormant suffer greater water loss.”

So, back to bare root seedlings! We know that these seedlings are dormant when they’re lifted, but they are still susceptible to water loss and desiccation – especially if their roots are bare. This is why, once lifted, bare root seedlings are stored in cool, dark, damp conditions, prior to being shipped out to reforestation sites. And the shipping process includes packing the roots in a moist medium – usually moist, shredded paper, but sometimes moist sphagnum is used. The Delaware Forest Service receives and plants (through contractors) hundreds of thousands of bare root seedlings, mostly loblolly pines, each spring. These seedlings are stored in coolers at Redden State Forest until they are transported to planting sites. Most other reforestation efforts in Delaware use bare root hardwoods – primarily oaks, since our native oaks are very high in wildlife value, are generally dominant or co-dominant in our climax forest communities, and are slower to naturally colonize a barren site than other tree species such as wild black cherry, red maple, sweet-gum, tulip poplar, sassafras, and eastern red cedar.

Loblolly pine bare root seedlings have short root systems and can generally be planted with a dibble bar. A dibble bar is a metal wedge, the wedge being about 6 inches long, with a long metal shaft terminating in a T-grip handle. The planter holds the dibble bar perpendicular to the ground, steps on the top of the wedge, forcing it into the ground and creating a wedge-shaped crevice, and pushes outward on the handle of the dibble bar, causing the crevice to be widened at the bottom. One mistake made by inexperienced planters is to rock the dibble bar back-and-forth, which creates an hour-glass-shaped crevice. The problem with this is that it can leave an air pocket around the base of the roots, greatly reducing soil contact and causing root desiccation and even seedling death.

Oak and other hardwood seedlings generally have much longer, stiffer roots than those of loblolly pines. For this reason, professional tree planters use an implement loosely referred to as a “hoedag,” although the U.S. Forest Service might contend that the particular tool used by tree-planting crews in Delaware is not a hoedag because it has a scalping blade. This tool is also referred to as a planting hoe, Rindt tool, Corson tool, R-1 tool, mattock, or R-6 hoe. The name “hoedag” may also bring to mind a small garden implement, but in this case we’re referring to a much larger, heavier implement. This tool has a long, thick, heavy blade, usually 13 to 17 inches long by 3 to 4 inches wide. Mounted on the blade is a 90- to 100-degree bracket in which a long wooden handle is inserted. If seedling roots are longer than 12 inches, the U.S. Forest Service recommends

*Continued on page 5*

## **GARDENING WITH NATIVE PLANTS**

### **SWAMP SUNFLOWER (*HELIANTHUS ANGUSTIFOLIUS*)**

#### **NATURAL HISTORY**

Perhaps 4 years ago at an earlier DNPS annual native plant sale, I purchased my first two swamp sunflower plants. I thought they would be ideal for naturalizing around our back yard pond. Now, fast forward to today, Thursday, October 1<sup>st</sup>, 2009, and walk with me around the pond, but first let me set the scene. I stopped regularly mowing the majority of the pond banks several years ago in deference to the numerous frogs and toads that didn't get along with the mower, so now I only mow once yearly after a hard frost and all the critters have gone to their winter rest. It is amazing how resilient nature can be given the chance. In just a few short years the pond banks have come alive with all sorts of flora including Joe Pye weed, cardinal flower, golden asters, wild orchids, numerous wetland and meadow plants, and, you guessed it, swamp sunflower! The spectacular masses of bright yellow blossoms with their dark reddish brown centers are truly magnificent. Swamp sunflowers are relatively uncommon in Delaware but can be found throughout much of the eastern U.S. from southern New York to Florida and west to the Ohio River valley and south to southern Texas. The genus name, *Helianthus* comes from the Greek, helios meaning sun and anthos meaning flower. The specific name, *angustifolius*, actually means narrow-leaved, giving rise to another popular name, narrow-leaved sunflower. It grows in swamps, wet pinelands, coastal salt marshes and moist disturbed sites and is often common along roadside ditches and fence lines. The common name, swamp sunflower, insinuates that it should be found in low, moist locations - and indeed it is, however, I was truly amazed how adaptable it is to dryer meadow-like locations.

There are 4 members of the sunflower family that are native to Delaware and though none are as large as the more cultivated and hybridized common sunflower, one can argue they are certainly as beautiful and valuable to wildlife as their better known cousins. Just as most herbaceous flowering perennials are closing up for winter vacation, narrow-leaved sunflower makes a dramatic entrance as though it had just been waiting all year for the most appropriate time to be the center of attention. Swamp sunflowers bloom from September through the first heavy frost. They are a valuable nectar source for bees and butterflies and their seeds are favored by numerous finches, sparrows, and other seed-loving birds. Swamp sunflowers can grow to heights of 6 feet or more and what they give up in size to their better known cousins, they more than make up for in the large masses of tens to perhaps hundreds of beautiful 2 to 3 inch flowers.

#### **WHERE TO GROW**

The swamp sunflower is best used in the landscape massed together. The bright yellow color displays well against any green background. Space plants about 12 inches apart in front of a group of taller shrubs with green foliage. Swamp sunflower grows best in full sun to partial shade. If planted in heavy shade it will exhibit poor floral display and will often collapse as it grows tall and leggy trying to reach the light. Though it is native to low, poorly drained or wetland areas, it can be planted in a well-drained soil and is even tolerant to moderate spells of drought. Swamp sunflower is salt tolerant and a useful perennial for coastal gardens. It can tolerate waterlogged soils for extended periods. It is rather inconspicuous most of the year, lying low and unobtrusive, but still attractive with its deep green leaves and maroon stems. It can be cut back in June to produce a lower, bushier shrub-like plant when bloom time occurs. It is in September when the swamp sunflower comes alive and brightens everything around it and creates a gourmet delight for native butterflies. Swamp sunflower is a herbaceous perennial that dies to the ground after the first freeze, and returns in spring, but delaying clean-up of the stems and seed pods will reward you with numerous bird species feeding on the nutritious seeds.

#### **PROPAGATION AND CARE**

Propagation may easily be performed from either seed or by division. Seeds may be collected in the late fall when seed pods have dried and sewn in the garden in early spring. Seedlings started from seed in this manner should be thinned to 12 inches once well established. Seeds may also be started in individual pots in a cold frame for a head start and set out in the landscape when danger of frost has passed. Many seedlings develop around the base of established swamp sunflowers and may be divided in spring or autumn to gain more plants.

#### **LORE**

Not much can be found for human uses of the swamp sunflower. Perhaps just as well that we enjoy it for its natural beauty and value to nature!



■ *Bob Edelen, DNPS Member*



*Helianthus angustifolius*,  
Photo: Bob Edelen

## **Resources & Reviews**

### ***Forestry Nursery Manual: Production of Bareroot Seedlings***

Authored by Mary L. Duryea, and Thomas D. Landis. The Manual emphasizes all stages of seeding production from nursery-site selection through outplanting. Twenty-one bareroot nurseries and eight seed-processing plants were surveyed .

## Resources & Reviews

### *Successful Tree Planting and Care: A Guide for Practitioners and Consumers*

Authored by George S. Stroempl. Those who wish to enrich their knowledge with unorthodox, down-to-earth facts about tree planting and care should find this guide invigorating and useful.

#### **FEATURE ARTICLE**

*Continued from page 3*

instead using a shovel or an auger to dig a deeper hole than can be created using a hoedag. The planter swings the hoedag in the same way one would swing a long-handled garden hoe, creating a deeper crevice than would be created by a dibble bar. The planter then pushes the hoedag handle downward, opening the crevice for insertion of seedling roots. Roots should always be inserted vertically and should not be bent to horizontal in an attempt to fit long roots into a hole of insufficient depth. However, long lateral roots can be bent to horizontal if necessary. Once the seedling is inserted in the hole, the planter tamps the soil down with a boot heel, closing the crevice and pushing soil snugly around the roots.

During planting, it is very important that seedling roots are kept moist, and if seedlings are temporarily stock-piled on site, they should be kept out of the sun, or the roots should be covered – preferably with a seedling protection tarp which is made of a reflective material that keeps them cool. Using a hoedag or dibble bar, professional tree-planting crews can plant very large numbers of seedlings in a short amount of time. A few years ago, one planter in Delaware planted 2,000 loblolly pine seedlings in one day! On average, a professional planter can plant about 500 bare root hardwood seedlings in a single day. Some projects rely on augering holes ahead of time, and then using volunteers to plant the seedlings in the holes. One potential draw-back to this approach is that the augered hole and displaced soil can dry out on a warm, sunny day, which means the planter is placing the seedling in a dry hole and back-filling with dry soil. This does not bode well for seedling survival. One of my favorite approaches is to use a spade-type shovel, with a long blade, to cut and remove a deep, square-shaped “plug” which I can usually remove in one piece – the plug resting on the shovel blade, and then I hold the seedlings roots against one side of the hole and re-insert the plug, and then tamp it down with my foot.

What are the advantages of using bare root seedlings? The number one advantage is cost. Depending on species, quantity, seedling age, and nursery, a bare root seedling will cost, on average, about 30 cents. Most nurseries have one-year, two-year and three-year old seedlings; the older seedlings naturally being larger and more expensive. Also, there can be a huge cost savings if you're buying very large quantities (e.g., thousands). Unfortunately, most of these nurseries are wholesale only, but if you're undertaking a very large reforestation project (e.g., tens or hundreds of acres), bare root seedlings are your best bet. Containerized seedlings, on the other hand, will generally cost \$5 to \$12 apiece (unless you purchase from the

Delaware Native Plant Society at their annual plant sale – the first Saturday of every November – where prices are generally much more reasonable than other sources).

A balled-and-burlapped tree generally goes for anywhere from \$35 to \$200! And a major draw-back with B&B is that the roots of the tree are very heavily pruned when the tree is dug. I have tried all three approaches on my own property, and have carefully monitored results. In general, comparing the same species, after five years the container plants have caught up to and, in some cases, surpassed the B&B specimens in stature. After 10 years, most of the bare root seedlings have caught up to or surpassed the B&B specimens for which I paid 100 to 200 times as much money! This is primarily because the B&B trees experience shock as a result of the heavy root-pruning they experienced, and they did nothing but recover (i.e., re-grew their root systems) for about the first 3 to 5 years post-planting. So, if you're planning to plant a small number of trees on your property, I would recommend some healthy containerized trees, as a cheaper alternative to B&B, that are also easier to plant and likely to grow much faster than the more expensive B&B trees.

If you're involved in large reforestation projects, bare root seedlings provide the most cost-effective option. However, in areas with large deer or rabbit populations, you may need to spend additional funds on various approaches to protecting your seedlings from browse damage. Voles can also be a problem, especially in sandy soils, where they may eat the roots right out from under your seedlings! There are several approaches to protecting seedlings from deer and rabbits, including seedling protection tubes, wire cages, repellants, and deer exclusion fencing. Keep in mind that even container trees may require protection. A rule of thumb is that a tree seedling or sapling is especially vulnerable to browse damage and/or girdling until it starts to form rough bark. Even then, a buck may rub your sapling to death in the fall, when its antlers are itching and it wants to find a flexible sapling to rub its antlers on, so as to remove the velvet from its hardening antlers. If your oak seedlings get clipped by rabbits (clean, angular cut), or browsed by deer, don't despair. If the roots are alive and well, most seedlings will send up new leaders – even after repeated, annual, browsing, until some year when they are overlooked and given the opportunity to shoot up to a height beyond the reach of these pesky herbivores. The great conservationist, Aldo Leopold, said that every oak you see is the result of rabbit neglect, and I have found this to be true.

If you're interested in the U.S. Forest Service's reforestation approaches and techniques, check out this link:  
<http://tinyurl.com/ybu46az> (link has been shortened). 

 Rick McCorkle, DNPS member

# 9th Annual Native Plant Sale

When: Saturday, 7 November 2009, 10:00 AM – 3:00 PM

Where: DE Native Plant Society's native plant nursery.

Directions: The nursery is located at 818 Kitts Hummock Road, at the St. Jones Research Reserve in Dover. Take Route 113 to the Dover Air Force Base. Kitts Hummock Road is directly at the southern border of the air base at the three way intersection of 113, Route 9, and Kitts Hummock Road. Kitts Hummocks Rd. only goes east, and if you go almost one mile you'll see a large sign for the St. Jones Reserve. Turn right onto the gravel road and the nursery is all the way in the back to the left of the parking lot.

What's for sale: Hundreds of trees, shrubs, herbaceous species, ferns, vines and grasses will be available at very reasonable prices. An inventory list will be posted on our website.

Come early, some quantities are limited!

For more information: Call 302.735.8918, email [ezuelke@juno.com](mailto:ezuelke@juno.com), or on the web at [www.delawarenativeplants.org](http://www.delawarenativeplants.org).

We had a great sale last year and hope to have an equally great sale this year, so come out and join the fun!

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## ***OUT OF THE WILD & INTO THE KITCHEN***

Hickory trees (*Carya* spp.) produce a nut that is very similar to pecans and can easily be used in recipes to replace pecans or walnuts. The hickory nut mast in fall 2009 has been great so far, so steal a few from the squirrels and try out this recipe from <http://www.prodigalgardens.info/hickory%20nut%20recipes.htm>.

### **Maple Hickory Apple Crisp**

8 cups sliced apples (9 or 10 medium-sized apples)  
 1 Tbsp lemon juice  
 1 tsp cinnamon  
 3 Tbsp flour  
 ½ cup water or apple juice

Peel, core and dice enough apples to make 8 cups. Toss apples with lemon juice, cinnamon, and flour. Place in a 9x13 baking pan and add the ½ cup water or apple juice.

Topping:

1 cup Hickory nuts (use chopped walnuts if you don't have Hickories)  
 1 cup whole wheat flour  
 1 cup rolled oats  
 1 cup brown sugar  
 1 cup butter  
 2 tsp cinnamon  
 ¼ - ½ cup maple syrup

Chop oats coarsely in a food processor or blender. Add flour, sugar, cinnamon and nuts and whiz until mixed together thoroughly. Add butter and mix until it resembles coarse bread crumbs. (Note: Filling may get seem too wet, resembling a paste—don't get discouraged if this happens, just spread it as evenly as you can, it will be just fine!). Spread topping evenly over the sliced apples. Drizzle the maple syrup over the topping. Bake at 375° for 45 minutes. 

# Upcoming Events

**29 OCTOBER 2009**—ADKINS ARBORETUM PROGRAM FROM 10 TO 11:30 AM. PLANT COMMUNITIES--CHANGING WITH THE TIMES? DR. SYLVAN KAUFMAN WILL BE SPEAKING ON WHAT WILL HAPPEN TO THE DELMARVA'S PLANT COMMUNITIES AS CLIMATES CHANGE OVER TIME. MORE INFORMATION ON THE WEB AT [HTTP://WWW.ADKINSARBORETUM.ORG](http://WWW.ADKINSARBORETUM.ORG)

**17 NOVEMBER 2009**—DELAWARE NATIVE PLANT SOCIETY BI-MONTHLY MEETING FROM 7 TO 9 PM. WE HAVE A SPECIAL MEETING THIS MONTH AS DR. DOUGLAS TALLAMY WILL BE GIVING A PRESENTATION ON "BRINGING NATURE HOME." THIS MONTHS MEETING WILL BE AT OUR NEW CASTLE COUNTY LOCATION WHICH IS AT THE NEW CASTLE COUNTY CONSERVATION DISTRICT OFFICE AT 2430 OLD COUNTY RD., NEWARK, DE, 19702. FOR MORE INFORMATION ON DR. TALLAMY, PLEASE SEE HIS WEBSITE AT [HTTP://COPLAND.UDEL.EDU/%7EDTALLAMY/](http://COPLAND.UDEL.EDU/%7EDTALLAMY/), AND THE DNPS WEBSITE AT [WWW.DELAWARENATIVEPLANTS.ORG](http://WWW.DELAWARENATIVEPLANTS.ORG). AND AS ALWAYS WE WILL HAVE FREE REFRESHMENTS AND SNACKS, ALONG WITH A SHORT BUSINESS MEETING.

**AUTUMN 2009**—CONTINUING EDUCATION AT MT. CUBA CENTER. THIS NON-PROFIT ORGANIZATION HAS A FANTASTIC EDUCATION DEPARTMENT. THEY OFFER DOZENS OF CLASSES AND SYMPOSIA THROUGHOUT THE YEAR. FOR MORE INFORMATION CALL 302.239.4244, OR ON THE WEB AT [HTTP://WWW.MTCUBACENTER.ORG](http://WWW.MTCUBACENTER.ORG).

**SATURDAY, 5 DECEMBER 2009**—ADKINS ARBORETUM HOLIDAY GREENS SALE FROM 10 AM TO 4 PM. DECORATED WREATHS, SWAGS, TOPIARIES, ROPING, AND BOXWOOD TREES WILL BE FOR SALE, AS WELL AS FRESH LOCAL GREENS AND NATURAL MATERIALS TO CREATE YOUR OWN ARRANGEMENTS. MORE INFORMATION ON THE WEB AT [HTTP://WWW.ADKINSARBORETUM.ORG](http://WWW.ADKINSARBORETUM.ORG).

**DNPS BI-MONTHLY MEETINGS FOR 2009**—ARE CURRENTLY SCHEDULED FOR 20 JANUARY, 17 MARCH, 19 MAY, 21 JULY, 15 SEPTEMBER, 7 NOVEMBER (NOT A MEETING, BUT THE ANNUAL PLANT SALE) AND 17 NOVEMBER. ALL MEETINGS ARE ON THE THIRD TUESDAY OF EVERY OTHER MONTH AT 7 PM, UNLESS OTHERWISE NOTED. THE MEETING WILL BE HELD IN 3 LOCATIONS AROUND THE STATE. THE KENT COUNTY LOCATION IS AT THE ST. JONES RESERVE, THE NEW CASTLE COUNTY LOCATION IS AT THE NEW CASTLE COUNTY CONSERVATION DISTRICT OFFICE AT 2430 OLD COUNTY RD., NEWARK, DE, 19702, AND THE SUSSEX COUNTY LOCATION IS AT THE REDDEN STATE FOREST EDUCATION CENTER AT 18074 REDDEN FOREST DR., GEORGETOWN, DE, 19947. SEE OUR WEBSITE FOR MAPS AND DIRECTIONS TO EACH MEETING LOCATION. SEE OUR WEBSITE ([WWW.DELAWARENATIVEPLANTS.ORG](http://WWW.DELAWARENATIVEPLANTS.ORG)) FOR MORE DETAILS, AND FOR DETAILS ON UPCOMING FIELD TRIPS.

# Membership Application

## DELAWARE NATIVE PLANT SOCIETY

### Member Information

Name:

Business Name or Organization:

Address:

City and Zip Code:

Telephone (home/work):

E-mail address:

- Full-time Student \$10.00
- Individual \$15.00
- 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, field trips, native plant nursery and sales

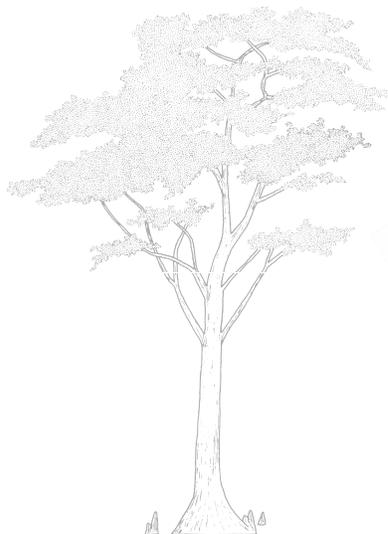
**Total Amount Enclosed: \$**

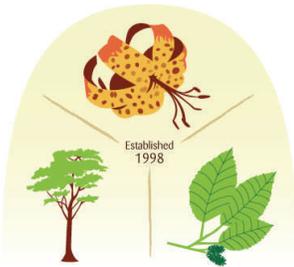
**Make check payable to:  
DE Native Plant Society  
P.O. Box 369, Dover, DE 19903**

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

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# THE TURK'S CAP

Volume 12, Number 4  
Winter 2009/10

THE NEWSLETTER OF THE DELAWARE NATIVE PLANT SOCIETY

## IN THIS ISSUE

- Page 1** ■ *Natural Quotes*  
■ *New Members*  
■ *DNPS Vision*
- Page 2** ■ *Thoughts From The Edge...*  
■ *Resources and Reviews*
- Page 3** ■ *Feature Article*  
■ *Resources and Reviews*
- Page 4** ■ *Gardening With Native Plants*  
■ *Resources and Reviews*
- Page 5** ■ *Feature Article continued*  
■ *Resources and Reviews*
- Page 6** ■ *Out Of The Wild & Into The Kitchen*
- Page 7** ■ *Upcoming Events*

## NATURAL QUOTES

"You can't be suspicious of a tree, or accuse a bird or a squirrel of subversion or challenge the ideology of a violet."

Hal Borland, *Sundial of the Seasons*, 1964

## A SNOWY WHITE WELCOME TO OUR NEWEST MEMBERS

October through December

Matt Bair  
Jane Hileman  
Janet Williams  
Frederick Yarborough

## HOW CAN I GET INVOLVED?

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

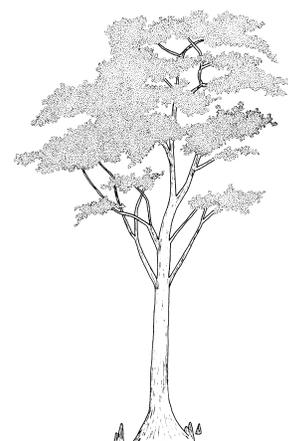
The DNPS is working on some significant projects at this time. We have completed four reforestation projects in the Prime Hook area, at Blackbird Creek in New Castle County and Cedar Creek in Sussex County where we have installed tree tubes around newly sprouted seedlings, and are performing annual management of the sites. Help is also needed at our native plant nursery at the St. Jones Reserve with the monitoring and watering of plants along with many other nursery activities.

For more information, visit our website at [www.delawarenativeplants.org](http://www.delawarenativeplants.org). Our very informative, up-to-date website has all the contact information for the Society, along with a section on native plants, volunteering, and links to other environmental and plant related organizations.



## 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, field trips, and a growing statewide membership organized by the DNPS.



**THOUGHTS FROM THE EDGE OF THE GARDEN****WEBSITE UPDATE**

On 7 April 2009 we added Google Analytics to the source code of our site to track a myriad of statistics about visitation. Here are the stats through 16 Jan 2010.

Number of total visits: 3,579

Number that were absolute unique visitors: 2,960 (82.7%)\*

New vs. returning visits: 2,949 new (82.4%), 630 return (17.6%)\*

Average time spent browsing: 2 min. 35 sec.

Average # of pages browsed: 4.6

Pages with most clicks: Nursery, Plant Talk, Publication, Event

Places: U.S.A. (48 states), 53 other countries/territories

How we were located:

64% from a search engine

23% from a referring site

14% from direct traffic

\*Absolute Unique Visitors counts visitors, whereas New vs. Returning counts visits.

**NEW SPECIES OF LICHEN DISCOVERED IN IBERIAN PENINSULA**

*ScienceDaily*, Jan 11, 2010 -- Spanish scientists have described the lichen *Phylloblastia fortuita*, new to the Iberian Peninsula and to science. Another species from the same family, *Phylloblastia dispersa*, is also a new entry for Europe and is the first time it has been found outside the tropics.

Foliicolous lichens, symbiosis between fungi and algae, are organisms associated with tropical or sub-tropical climates, and their presence in environments such as the Iberian Peninsula, outside of the tropics, is associated with conditions of very stable ecological and environmental conditions

"We have identified three *Phylloblastia* lichens in the Iberian Peninsula, one of which is new to science (*Phylloblastia fortuita*), and we present a fourth species new to European flora, *Phylloblastia dispersa*," says Esteve Llop, main author and research at the Departamento de Biología Vegetal-Botánica [Department of Plant-Botanical Biology] of the University of Barcelona (UB).

Together, the scientists Esteve Llop and Antonio Gómez-Bolea analysed the lichen flora in a protected area near Barcelona. Although some species of lichen have already been recorded on

leaves in the North East of the Iberian Peninsula, this is the first time new species have been described.

**JURUPA HILLS OAK MAY BE CALIFORNIA'S OLDEST PLANT**

*Los Angeles Times*, Dec 22, 2009 -- Nestled between two boulders on a low rise in the Jurupa Hills of Riverside County, a good 30 miles from its nearest living relative, lies the ultimate survivor -- an oak bush that researchers believe is 13,000 years old.

That's 1,000 years older than a previously identified Palm Springs creosote bush that was thought to be the oldest plant in California, 8,000 years older than bristlecone pines and 10,000 years older than the redwoods.

While it is one of the world's oldest living plants, it is probably not the oldest. That distinction may belong to a quaking aspen in Utah that is thought to be as old as 80,000 years or a holly in Tasmania that may be 43,000 years old.

But the Jurupa oak, researchers reported Tuesday in the online journal PLoS One, is unusual in that it is well out of its normal environment, which would be high in the mountains. It took seed at its current location near the end of the last Ice Age, when the climate was cooler and wetter. As its brethren died out because of climatic change, it persisted.

"If you planted a seedling there now, I doubt very much whether it would grow," said plant scientist Jeffrey Ross-Ibarra of UC Davis, lead author of the paper by UC Davis and UC Riverside scientists.

Because there are no other members of its species -- *Quercus palmeri* or Palmer's oak -- around to pollinate it, the shrub is infertile and grows clonally. When the trunk is destroyed by burning, new shoots pop up all around it from the roots. Over the millenniums, the Jurupa oak has spread until it is now more than 75 feet across. Genetic testing of individual stems shows that all are part of the same organism, Ross-Ibarra said.

The researchers estimated the plant's age by measuring growth rings and the rate of its spread. Termites have destroyed dead wood, precluding the use of radiocarbon-dating to get a more precise age.

**Resources & Reviews****Woody plants in winter**

Authored by Earl Lemley Core and Nelle P. Ammons. Now a classic text on the criteria for identifying trees and shrubs in winter as reliably as in other seasons of the year. Based on years of teaching, the authors present keys to recognize dormant woody plants by their buds and branches. The information details representative plants from habitats in the northeastern US and southeastern Canada. Illustrated with over 300 line drawings.

## Resources & Reviews

### *A Guide to Wildflowers in Winter: Herbaceous Plants of Northeastern North America*

Authored by Carol Levine, and Dick Rauh. This guide is intended to help both amateur naturalists and serious field botanists to identify non-woody plants - herbaceous weeds and wildflowers - as they are found in winter in the NE United States and E Canada.

#### **FEATURE ARTICLE**

#### **ADAPTIVE RESPONSES OF PLANTS TO RISING TEMPERATURES**

Plants are incredibly temperature sensitive and can perceive changes of as little as one degree Celsius. Now, a report in the January 8th issue of the journal *Cell*, a Cell Press publication, shows how they not only 'feel' the temperature rise, but also coordinate an appropriate response -- activating hundreds of genes and deactivating others; it turns out it's all about the way that their DNA is packaged.

The findings may help to explain how plants will respond in the face of climate change and offer scientists new leads in the quest to create crop plants better able to withstand high temperature stress, the researchers say.

"We've uncovered a master regulator of the entire temperature transcriptome," said Philip Wigge of John Innes Centre in the United Kingdom in reference to the thousands of genes that are differentially activated under warmer versus cooler conditions.

Using the model plant *Arabidopsis thaliana* the researchers show that a key ingredient for plants' temperature sensing ability is a specialized histone protein, dubbed H2A.Z, that wraps DNA into a more tightly packed structure known as a nucleosome. Wigge likens nucleosomes to compact balls of string. As temperatures rise, H2A.Z histones allow DNA to progressively unwrap, leading nucleosomes to loosen up, they show.

"When it gets warmer, the DNA unwraps," he said, which allows some genes to switch on and others to switch off. They aren't yet sure exactly how all that happens, but Wigge suspects the altered nucleosome structure gives access to sites on the DNA where activators of some genes can bind along with repressors of other genes.

"In addition to H2A.Z containing nucleosomes having more tightly wrapped DNA, our results suggest that the degree of unwrapping may also be responsive to temperature," the researchers wrote. "This result suggests a direct mechanism by which temperature may influence gene expression, since it has been shown that RNA Pol II [the enzyme

responsible for transcribing DNA into messenger RNA] does not actively invade nucleosomes, but waits for local unwrapping of DNA from nucleosomes before extending transcription. In this way, genes with a paused RNA Pol II will show increased transcription with greater temperature as local unwrapping is increased." The basic discovery could ultimately prove to have important implications for world food security, the researchers said.

As the number of people and affluence around the world continues to grow, "it is projected that world agriculture will have to increase yields by 70 to 100 percent in the next 100 years," Wigge said. "Under climate change it will be challenging simply to maintain present yields, let alone increase them." Crops such as wheat are particularly vulnerable to very hot and

He says the new understanding of plants' temperature sensitivity may prove to be critical for breeding more temperature-resistant crops. His team plans to explore this possibility by studying the role of these H2A.Z histones in a model plant that is more closely related to crops.

"We'd like to engineer a plant where we can control the histones in particular tissues such that it is selectively 'blind' to different temperatures," Wigge said. "Obviously you can't make a completely temperature-proof plant, but there is a lot of scope to develop crops that are more resilient to the high temperatures we are increasingly going to experience."

The effect of temperature and light intensity have been studied in relation to the greening of etiolated corn (*Zea mays* cv. Pioneer 309-B) seedlings. Chlorophyll accumulation is rapid at high temperature (28°) under all conditions of light intensity. At low temperature (16°), and particularly in combination with high light intensity (3000-4500 ft-c), the accumulation of both chlorophyll and carotene is inhibited. Low pigment content at 16° is not directly due to a block in the pigment synthesizing mechanism, but rather to the photodestruction of chlorophyll prior to its stabilization in the membrane

*Continued on page 5*

## **GARDENING WITH NATIVE PLANTS**

### **COCKSPUR HAWTHORN (*CRATAEGUS CRUS-GALLI*)**

#### **NATURAL HISTORY**

It's Sunday, December 21<sup>st</sup>, the first day of winter and one of my very favorite days of the year. Beginning today, the days will be getting longer and nights shorter with the promise of a spring to come and the flowers, gardening, return of summer migrating birds and all else that makes spring such a special time of year. But, hold on just a minute, there's still a harsh winter ahead and for the hardy birds and wildlife that choose to stay in Delaware and endure the winter months times will surely get tougher. The bounty of fall with its nutritious and readily available seeds, berries, fat insects and abundant cover is but a memory, and local birds will have to subsist by foraging far and wide for what food and cover that remains. Fortunately, there remain a number of native trees and scrubs that maintain their fruit and provide cover into the late fall and early winter months. Among these are included the hawthorns, small trees with dense foliage for cover, sharp spines for protection and an abundance of bright red fruits for sustenance. One such hawthorn is *Crataegus crus-galli*, or the Cockspur Hawthorn.

The Cockspur Hawthorn is one of only two of the eight native Delaware hawthorns that are found in both the piedmont and coastal plain. It is widely distributed along fencerows, hillsides, thickets, old fields and both lowland and upland openings, throughout the eastern United States and Canada from Quebec south to North Carolina and west to Kansas. As you might guess from both its botanical and common names the thorns of the Cockspur Hawthorn are particularly formidable - *crus*, resembling a leg, *galli*, chicken; resembling a chicken leg, a reference to the thorns which may bring to mind the spur on a chicken's leg, hence Cockspur Hawthorn. The numerous thorns range in length from 1.5 to 3 inches and occur all over the tree from trunk to branches to limbs. These thorns are actually abortive branches that develop from short shoots that sprout leaves. The shoots lose their leaves and become hardened woody thorns. But the thorns are not the only noteworthy characteristic of this valuable and highly propagated tree. The Cockspur Hawthorn is an excellent four-season accent ornamental tree! It is a small tree with dense well rounded branching, maturing at 15 feet tall by 20 feet wide and potentially reaching a height of 35 ft. under ideal conditions. In spring, white 2" wide inflorescences blanket the tree. These dense clusters of somewhat malodorous flowers are a magnet to bees, butterflies, and other insects that are attracted by the nectar. The white hawthorn blossom is the Missouri State Flower. Flowering is followed by development of clusters of pendulous 0.5" round fruits that are produced in masses and provide excellent color making this a very attractive ornamental tree in early winter. These fruits provide a much needed meal for fox sparrows, cedar waxwings,

wood ducks, wild turkeys, robins, bluebirds, thrushes, mockingbirds, thrashers, and other wintering birds and small mammals. The dense branching pattern and thicket forming habit of this hawthorn make it a particularly desirable nest and shelter tree for numerous species of birds. The Cockspur Hawthorn is also a larval host for a handful of butterflies. Fall color is often a showy multicolored array of red, purple, orange, and yellow waxy leaves. The branches are arranged in a pleasing layered habit that combined with the large thorns create a picturesque winter silhouette.

#### **WHERE TO GROW**

Common and widespread, the Cockspur Hawthorn has been planted ornamentally and as a hedge since colonial times. It has an attractive, wide spreading plant habit, glossy dark green foliage, showy flowers and attractive fruit providing a distinct horizontal accent in the landscape. Its horizontal spreading growth habit and bold texture is very distinctive and architecturally useful in the landscape, especially in winter. It may be planted as a focal point, specimen, deciduous screen, tall barrier hedge, seasonal accent, entranceway, group planting, and is excellent planted in a thicket as a winter wildlife shelter. The Cockspur Hawthorn grows well in full to partial sun and prefers a moist, well-drained soil. It is very urban tolerant, including adaptability to poor soils, various soil PHs, compacted soils, drought, heat, and winter salt spray.

#### **PROPAGATION AND CARE**

Propagation of *Crataegus crus-galli* is not the easiest, but is possible from seed. This species has one of the thickest of seed coatings and requires an acid treatment for germination. A 2 to 3 hour or longer acid treatment followed by a variable warm and 3 to 4 month cold period has been proven successful. Seed may be sown in the fall without acid treatment but germination will be sparse and will require 2 to 3 years.

#### **LORE**

Native Americans squeezed the ripe fruits then dried and stored them for winter cooking. Women drank a concoction made from the root for menstrual pain and the thorns were used for needles and awls. Hawthorns in general are edible, but not particularly desirable. They may be used to make apple jelly or steeped to make tea. Because of its size, the immensely tough wood has no commercial value. However it is prized by craftsmen for its use in tool handles and other small items. 

 *Bob Edelen, DNPS Member*

## **Resources & Reviews**

### ***Winter guide to woody plants of wetlands and their borders: northeastern united states***

Authored by Ralph W. Tiner. This book is 91 pages long and published by the Institute for Wetland & Environmental Education & Research; Rev edition (2000).

## Resources & Reviews

### *Wildflowers and winter weeds*

Authored by Lauren Brown. This book will be a joy to those wood-walkers and strollers who have been puzzled by the skeletal remains of herbaceous plants that they see in winter.

### **FEATURE ARTICLE**

*Continued from page 3*

structure of the chloroplast lamellae. The parallel reduction in carotene content at high light intensity is probably a contributing factor, because of its role in protecting chlorophyll from photodestruction. The greater severity of photo-oxidation of chlorophyll at low temperature in corn when compared with wheat, appears to be due to a slower rate of protochlorophyllide synthesis and subsequent esterification. Thus in corn at 16° there is a prolongation of the photosensitive stage during chlorophyll synthesis. Photo-oxidation at 16° has also been shown to be a function of the incident light energy, with the photosynthetic pigments acting as receptors for their own destruction.

In comparison with the behavior of corn, wheat seedlings green rapidly at high light intensity at both 16° and 28°. This contrasting temperature response with respect to chlorophyll synthesis may underlie a fundamental difference in adaptation of these two species to growth in the temperate zones of the world.

Additionally, leaf temperature kinetics were studied as a function of the rate of change of ambient temperature ( $V_t$ ), light conditions, plant age, and genotypic and species diversity for *Zea mays*, *Cucumis sativus*, *Lycopersicon esculentum*, *Phaseolus vulgaris*, *Beta vulgaris*, *Cucurbita pepo* and *Raphanus sativus*. Ambient temperature was varied from 26 to 60°C at rates from 0.5 to 8°C/min. Leaf-air temperature differences (LATD) were registered with differential copper-constantan thermocouples. As the ambient temperature rose LATD increased because stomata had been closed in darkness. Still in the darkness, at some critical ambient temperature stomata opened and the leaf temperature reduced dramatically as result of stomatal transpiration. The critical temperature is strongly dependent upon  $V_t$ . Simple equations for the calculation of a threshold of plant temperature sensitivity and of a time constant for stomatal signal transduction have been obtained. These parameters show a high correlation with plant

heat tolerance both in genotypic and species aspects. This is consistent with the idea that temporal organization of plant regulatory systems plays a leading role in evolution and in adaptation to extreme environmental conditions. Both characteristics measured tend to change with plant age. It is concluded that the measurement of leaf temperature kinetics is a very convenient procedure for estimating plant adaptive ability to high temperatures. 🌿

### **Sources**

- 1) <http://www.sciencedaily.com/releases/2010/01/100107132543.htm>
- 2) <http://www.plantphysiol.org/cgi/content/abstract/42/12/1711>
- 3) <http://www.publish.csiro.au/paper/PP9960445.htm>



## ***OUT OF THE WILD & INTO THE KITCHEN***

Bayberry shrubs (*Morella* spp., synonym = *Myrica* spp.) produce seeds with a waxy coating that persist through the Winter and are great for making candles. Here's some descriptions and recipes for making bayberry candles.

The berries of both American bayberry when boiled in water, produce myrtle wax, which is composed of stearic, palmitic, myristic, and oleaic acids. This is used in making bayberry-scented soaps and bayberry candles, which are fragrant, more brittle than bees' wax candles, and are virtually smokeless. Four pounds of berries produce approximately one pound of wax. Other estimates say that about 15 pounds of these berries are needed to make one pound of wax. The wax is made by boiling the berries and then skimming the top layer of fatty pulp that rises to the top of the boiling pot.

When making bayberry candles, be sure to keep the candle small, like the size of a tea-light or votive. Bayberry tapers can still be made at home by dipping a cotton wick into liquid bayberry wax. To do this, the wick must be slowly dipped and taken out of the wax for a few seconds before dipping it back into the wax. This will allow the wax to cool just enough to stay on the previous layer of wax and the candle will get slightly larger with each dipping. Making jar candles is really not a good idea, unless you have a LOT of practice! Bayberry wax can be a bit more brittle, and burns differently than most candles people are used to.

These candles are dripless and their flame is brighter than any other. Bayberry candles can be made in commercial candle molds or you can make little floating candles in walnut shells. These little walnut boats can be placed in a bowl of water and will glow for over an hour.

Bayberry wax is thicker than other types of wax, and it has a different appearance than other waxes. The wax itself is a greenish color that gives bayberry wax candles an unmistakable look that requires no color to be added to the wax. Bayberry wax also needs no candle fragrance added because it has its own sweet scent.

### **Materials:**

- ◆ Large aluminum pot
- ◆ 2 large coffee cans, smaller can such as a soda can
- ◆ Paper towel
- ◆ A grocery box full of bayberries with leaves and twigs removed
- ◆ Bag of walnuts (or candle molds)
- ◆ Candlewick
- ◆ A pan or cookie tin filled with a layer of sand

### **Instructions:**

1. Pick out as many leaves, twigs and other debris as possible and pour the berries into the pot.
2. Fill the pot with water so it covers the berries by an inch or two. Bring the water to a boil and let it bubble for five or six minutes. Then, let this cool to room temperature or leave to cool overnight. The wax will separate from the berries and float to the top.
3. When the wax is cool, lift it off the top of the water and break into pieces that will fit into the coffee can. Throw away the remains in the pot. The wax may still hold dirt and debris which must be sifted out before making the candles.
4. Place the coffee can filled with wax in a pan of water and heat on the stove at a low temperature.
5. As the chunks of wax melt down in the can you can continue to add more chunks. When the wax is melted it will have all the debris floating in it.
6. Place a piece of paper towel over the top of another empty coffee can so the toweling is slightly depressed into the can. Leave enough towel hanging over the edge so you can hold it against the outside of the can while pouring the hot wax through the filter. Pour the wax a little at a time through the paper towel. Since the wax is cooling and solidifying as you do this, reheat the wax in the pouring can every so often. The hotter the wax, the quicker it will sift through the towel.
7. To open the walnuts: Place a walnut on a chopping block and, using a sharp knife, place the blade into the opening at the point of the walnut. Hold the nut with one hand, keeping your fingers high on either side. Bare down with the other hand on the handle.
8. Remove the meat from the inside of the shell. Open approximately 12 walnuts.
9. Fill a baking pan with sand and place the shells on the sand.
10. Dip a long wick into the hot wax and stretch it out to dry. This takes minutes.
11. Cut the wick into 1-1/4 inch pieces.
12. Bend one third of each wick sharply and dip this bent end into slightly cooled wax. The cool wax will be the consistency of gelatin and acts as the glue to hold the wick in the nutshell.
13. Place the waxed part of the wick so that it lays in the center of the bottom of the shell and press it down to hold in place. This will dry almost immediately and the other end will be standing straight out of the shell.
14. Reheat the wax in the coffee can.
15. Pour a little bit of wax from the stove into a smaller can for filling the nutshells. Fill the walnuts half way to avoid air bubbles. Let this cool and then fill each to the top. The color of the candles will be green.
16. Fill a bowl with water and float flower buds, berries, or leaves with the berry candles in nutshells. 

# Upcoming Events

**19 JANUARY 2010**—DELAWARE NATIVE PLANT SOCIETY BI-MONTHLY MEETING FROM 7 TO 9 PM. THIS MONTHS MEETING WILL BE AT OUR KENT COUNTY LOCATION WHICH IS AT OUR KENT COUNTY MEETING LOCATION AT THE ST. JONES RESERVE. **\*NOTE\*** THIS IS A CHANGE OF VENUE FOR THIS MEETING. USUALLY WE HAVE OUR JANUARY MEETING IN SUSSEX, BUT WE ARE WORKING ON FINDING A NEW MEETING LOCATION IN SUSSEX. MORE INFORMATION AT THE DNPS WEBSITE AT [WWW.DELAWARENATIVEPLANTS.ORG](http://WWW.DELAWARENATIVEPLANTS.ORG). AND AS ALWAYS WE WILL HAVE FREE REFRESHMENTS AND SNACKS, ALONG WITH A SHORT BUSINESS MEETING.

**WINTER/SPRING 2010**—ADKINS ARBORETUM ECOLOGY FOR GARDENERS SERIES. REGISTRATION IS REQUIRED FOR EACH OF THE FOUR CLASSES THAT START IN FEBRUARY. MORE INFORMATION ON THE WEB AT [HTTP://WWW.ADKINSARBORETUM.ORG](http://WWW.ADKINSARBORETUM.ORG)

**WINTER 2010**—BOWMAN'S HILL WILDFLOWER PRESERVE'S 2010 WINTER LECTURE SERIES FEATURES A PRESENTATION BY A REGIONALLY RENOWNED EXPERT ON SUNDAY AFTERNOONS JANUARY 10 THROUGH FEBRUARY 28 FROM 2 TO 3 P.M. THIS YEAR'S SCHEDULE INCLUDES LECTURES ON A WIDE RANGE OF TOPICS RELATED TO ECOLOGICAL GARDENING AND SUSTAINABLE LAND PRACTICES. JOIN US FOR AN ENERGIZING AND ENLIGHTENING EXPERIENCE! FOR MORE INFORMATION CALL 215.862.2924, OR ON THE WEB AT [HTTP://WWW.BHWP.ORG](http://WWW.BHWP.ORG).

**SPRING 2010**—MT. CUBA CENTER NATVE SPRING WILDFLOWERS CERTIFICATE OF MERIT CLASS CO-SPONSORED BY MT. CUBA CENTER AND LONGWOOD GARDENS. THIS COURSE WILL PRESENT INFORMATION ON IDENTIFICATION AND CULTIVATION OF MANY HERBACEOUS PERENNIALS AND WOODY PLANTS, NATIVE TO OUR AREA. FOR MORE INFORMATION CALL 610.388.1000 EXT. 559, OR ON THE WEB AT [HTTP://WWW.MTCUBACENTER.ORG/NATIVESPRINGWILDFLOWERSCERT.HTML](http://WWW.MTCUBACENTER.ORG/NATIVESPRINGWILDFLOWERSCERT.HTML).

**DNPS BI-MONTHLY MEETINGS FOR 2010**—ARE CURRENTLY SCHEDULED FOR 19 JANUARY, 16 MARCH, 18 MAY, 20 JULY, 21 SEPTEMBER, 6 NOVEMBER (NOT A MEETING, BUT THE ANNUAL PLANT SALE) AND 16 NOVEMBER. ALL MEETINGS ARE ON THE THIRD TUESDAY OF EVERY OTHER MONTH AT 7 PM, UNLESS OTHERWISE NOTED. THE MEETING WILL BE HELD IN 3 LOCATIONS AROUND THE STATE. THE KENT COUNTY LOCATION IS AT THE ST. JONES RESERVE, THE NEW CASTLE COUNTY LOCATION IS AT THE NEW CASTLE COUNTY CONSERVATION DISTRICT OFFICE AT 2430 OLD COUNTY RD., NEWARK, DE, 19702, AND THE SUSSEX COUNTY LOCATION IS CHANGING SOON AND WE WILL BE GIVING DETAILS LATER. SEE OUR WEBSITE FOR MAPS AND DIRECTIONS TO EACH MEETING LOCATION. SEE OUT WEBSITE ([WWW.DELAWARENATIVEPLANTS.ORG](http://WWW.DELAWARENATIVEPLANTS.ORG)) FOR MORE DETAILS, AND FOR DETAILS ON UPCOMING FIELD TRIPS.

# Membership Application

## DELAWARE NATIVE PLANT SOCIETY

### Member Information

Name:

Business Name or Organization:

Address:

City and Zip Code:

Telephone (home/work):

E-mail address:

- Full-time Student \$10.00
- Individual \$15.00
- 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, field trips, native plant nursery and sales

**Total Amount Enclosed: \$**

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

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

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