IN THIS ISSUE

Page 1  Natural Quotes
          New Members
          DNPS Vision

Page 2  Thoughts From The Edge...
          Natives and Transplants
          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
          Natives and Transplants continued
          Gardening With Native Plants cont.

Page 6  Event Highlight
          Out Of The Wild & Into The Kitchen

Page 7  Upcoming Events

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, E-mail us at dnps@delawarenativeplants.org. Or visit our website at www.delawarenativeplants.org. Our website will have all of the past issues of The Turk’s Cap along with a large section on native plants, as well as links to other environmental and plant related organizations.

A WHITE SPARKLY WINTER
WELCOME TO OUR NEWEST MEMBERS

October through December

Suzanne Baron
Robert Deming
Patricia Deptula
Kathryn W. Downs
Lynda Dunham
Jeannie & Dominick Giovanelli
Charles & Gilda Jennings
Richard Kacynski & Linda Sperry

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.

NATURAL QUOTES

“Study nature, love nature, stay close to nature. It will never fail you.”

Frank Lloyd Wright
**Thoughts From The Edge Of The Garden**

**DNPS Email Policy and Updates**
The Society routinely sends out email announcements to our members and some non-members to keep everyone informed of the latest happenings and upcoming events. The Society’s email list is never given out to anyone for commercial purposes. Members are allowed to use the list to send out announcements, but must gain approval from either Eric Zuelke or Bill McAvoy before hand to avoid over using the list and creating spam. We also try to keep our list current, so if you know you have changed your email address recently, please tell us so you don’t miss anything.

**2008 DNPS Calendar**
We still have some left! The 13-month calendar from member David G. Smith has two forms of availability. The first will be a small number of them on hand at events. The second is through www.lulu.com. Once on that website do a keyword search for “DNPS” and you will find the calendar which is priced at $15.00 + shipping.

**Website Update**
As we announced in our last newsletter, some of the Texaco settlement money is going to be used for a new website. Eric met with Delaware.net in late November and of all the potential organizations that we could have signed with, we chose them because of the high quality work they have done, their impressive list of local clients, and very professional staff. On Dec 11th we signed our contract and paid our down payment for the new site. Production has begun and Eric has been busy submitting content. One aspect of the scope of work is the design of a new logo for the Society. We sort of have a logo now, but it is not in a form that can be used in any application, so the new one will be very versatile.

**Natives and Transplants**
This new column highlights Society members (both DE natives and DE transplants from other states) in an interview questionnaire style. We kicked off this new column in the Autumn 2007 issue. In this issue we are highlighting Robert Coxe who is the DNPS Vice-President.

My interest in native plants stems from work as an ecologist with the Delaware Natural Heritage Program and my studies in college in Plant Taxonomy. I have a Masters of Science degree in Biology with an emphasis in Plant Taxonomy and have completed work towards a Ph.D also. I would describe my expertise in native plants as fairly good due to the fact that I work with plants and map vegetation communities for my profession. I feel a native plant is any plant that came naturally to a watershed or watersheds adjacent to it. I became aware of the Delaware Native Plant Society through work.

At home I try to garden with Delaware natives as much as I can. Some of the plants originally came from places other than Delaware such as Pennsylvania or Maryland, but the species are native to Delaware. I have gotten a lot of the plants from Red Bud Native Plant Nursery in Pennsylvania and various other nurseries. I tend to favor the New England Aster. I have not propagated plants for the garden, and I am not sure that I have any green thumb secrets as I do not garden all that much.

When I am away from Delaware I do botanize as much as I can. There are a lot of places in the North Carolina and West Virginia Mountains that are very interesting botanically. Parts of the Canadian Shield and Niagara escarpment are fascinating as well. I would recommend the Royal Botanical Gardens in Hamilton, Ontario or the Bloomquist Garden that is part of the Dukes Gardens in Durham, NC.

In terms of my concerns regarding conservation of local flora, I think that from an ecological standpoint, the local genotypes of the species and the populations of the plants have to remain viable. From an educational standpoint, having a good website should help with

*Continued on page 5*

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**Resources & Reviews**

**Plant Ecology (Second Edition)**

Authored by Mike Crawley. Includes important topics such as plant secondary chemistry, photosynthesis, herbivory, sex, and breeding systems, the structure and dynamics of plant populations and communities. Additional chapters address topical applied issues in plant ecology including global warming, pollution, and biodiversity.
A LITTLE SCIENCE ABOUT PHOTOSYNTHESIS

Photosynthesis is the process by which all green plants, some bacteria, and some protists use the energy from sunlight to produce sugar, which cellular respiration converts into ATP, the "fuel" used by all living things. The organisms that accomplish this are also known as photoautotrophs (gather energy directly from light to create their own energy). The conversion of unusable sunlight energy into usable chemical energy, is associated with the actions of the green pigment chlorophyll.

A pigment is any substance that absorbs light. The color of the pigment comes from the wavelengths of light reflected (in other words, those not absorbed). Chlorophyll, the green pigment common to all photosynthetic cells, absorbs all wavelengths of visible light except green, which it reflects to be detected by our eyes. The critical, and primary, photosynthetic pigment is termed chlorophyll a. It is so important because it evolved to not utilize high energy wavelengths. Visible light has an energy level that is perfect for chlorophyll a to use as it activates electrons to a state useful in the chemical reactions of photosynthesis. If these same electrons are over or under activated they either destroy all the energy already produced by the plant, or they return to a resting ground state. Other pigments, called accessory pigments, have evolved over time and play an important role. The primary accessory pigments are chlorophyll b and carotenoids. These molecules absorb other light wavelengths and work to change those wavelengths energies to levels that chlorophyll a can use, then they pass that energy onto the chlorophyll a.

Chlorophyll molecules are specifically arranged in and around pigment protein complexes called photosystems which are embedded in the thylakoid membranes of chloroplasts. Chloroplasts are organelles found in plant cells and eukaryotic algae that conduct photosynthesis. Chloroplasts absorb light and use it in conjunction with water and dioxide to produce sugars, the raw material for energy and biomass production in all green plants. Most of the time, the photosynthetic process uses water and releases the oxygen.

The overall basic chemical reaction of photosynthesis is: \(6\text{H}_2\text{O} + 6\text{CO}_2 \rightarrow \text{C}_6\text{H}_12\text{O}_6 + 6\text{O}_2\), or six molecules of water plus six molecules of carbon dioxide produce one molecule of sugar plus six molecules of oxygen.

Photosynthesis is a two-stage process. The first process is the Light Dependent Process (Light Reactions), requires the direct energy of light to make energy carrier molecules that are used in the second process. The Light Independent Process (or Dark Reactions) occurs when the products of the Light Reaction are used to form C-C covalent bonds of carbohydrates. The Dark Reactions can usually occur in the dark, if the energy carriers from the light process are present. The Light Reactions occur in the grana and the Dark Reactions take place in the stroma of the chloroplasts. The thylakoid is the structural unit of photosynthesis and are stacked like pancakes in the chloroplast in stacks known collectively as grana. The areas between grana are referred to as stroma (which is the fluid matrix surrounding the grana). Both photosynthetic prokaryotes and eukaryotes have these flattened sacs/vesicles containing photosynthetic chemicals. Only eukaryotes have chloroplasts with a surrounding membrane.

In the Light Dependent Processes (Light Reactions) light strikes chlorophyll a in such a way as to excite electrons to a higher energy state. In a series of reactions the energy is converted (along an electron transport process/photophosphorylation) into ATP and NADPH. Water is split in the process, releasing oxygen as a by-product of the reaction. The ATP and NADPH are used to make C-C bonds in the Light Independent Process (Dark Reactions).

In the Light Independent Process, carbon dioxide from the atmosphere (or water for aquatic/marine organisms) is captured and modified by the
Gardening With Native Plants

Wax Myrtle (Myrica cerifera)

NATURAL HISTORY
Wax myrtle, Myrica, Arbre à suif, Myricae Cortex, Tallow Shrub, Wachsgagle, Bayberry, American Bayberry, American Vegetable Tallow Tree, Wax Tree, Myrtle, Candleberry, Candleberry Myrtle, Tallow Shrub, American Vegetable Wax, Vegetable Tallow and Waxberry are but a few of the common names applied to Myrica cerifera or for the purposes of this article – wax myrtle! Perhaps the numerous common names of Myrica cerifera are a testimony to its notoriety throughout its native range along the coastal plain from New Jersey to Texas. After all, there are few native plants that have been so useful to Native Americans and early settlers, or for that matter should hold a place of prominence in your landscape as wax myrtle! Wax myrtle solidified its place in early American history for its fragrant candles, soaps and dyes, and for its medicinal purposes, but more recently, it is highly cultivated for its value in landscapes not only across America, but also around the world. What’s not to love about a plant with fragrant leaves, lush foliage, near perfect form, fruit attractive to wildlife, and is adaptable and easily cared for? But, I’m getting ahead of myself, for it’s mid-winter and in nearly every coastal plain ecosystem from tidal and non-tidal fresh and brackish marshes, to swamps and sandy dune swales to upland hardwood forests, wax myrtle is helping wildlife survive. Wax myrtle will hold its leaves until temperatures dip down into the single digits providing dense cover and protection from winter’s winds and now that insects and more desirable fruits and berries are depleted, wax myrtle provides a lipid rich, high energy fruit that is readily eaten by bluebirds, catbirds, woodpeckers, brown thrashers, chickadees, warblers and 16 other species of birds. In fact, the wax myrtle lends its name to the Myrtle Warbler for it is especially attractive to warblers and other birds that eagerly devour its rich fruit during early spring migrations. In the spring, the dense foliage of wax myrtle makes it the perfect spot for numerous birds to build a well-protected nest. It is also a larval host plant for the red-banded hairstreak butterfly. Look for flowers to appear in March and April, but look closely for the flowers are very small. The males are yellow-green catkins that grow up to 1 inch long while the females are small and inconspicuous little bumps that grow into small blue berries, 1/8 in diameter. Flowers are borne on separate male and female plants and are wind pollinated so they do not provide significant benefit to bees or other pollinators. The berries ripen in October and are held closely to the stem.

WHERE TO GROW
The wax myrtle is perhaps the perfect shrub or small tree for most any landscape, regardless of your abilities as a gardener.

This is a vigorous and easy to grow plant that succeeds under a wide range of conditions. It is very forgiving - deer resistant, heat and drought tolerant, and because it fixes nitrogen, it is able to thrive in infertile soils. It will grow in medium loamy to heavy clay soils and can even grow in light sandy soils given adequate water. Because it is moderately salt tolerant, it is also suitable for seaside plantings and is ideal for stream or lakeside plantings where periodic flooding may be a problem for other plants. It prefers acid to neutral pH and can be grown in full sun to full shade, but prefers semi-shade in light woodlands or along edges. It has dense, attractive semi-evergreen foliage, is a fast grower and responds well to pruning. This popular plant has an attractive rounded form and is commonly used in landscaping as both a small tree or kept pruned as a shrub. Wax myrtle is uncommonly beautiful sending up multiple trunks that typically grow from 10 to 20 ft. tall and can ultimately reach heights approaching 40 ft. Plant wax myrtle to create a screen or hedge to provide food and shelter for local birds and other wildlife. It can be pruned to encourage dense foliage and its suckering nature is ideal for mass plantings and creation of thickets for wildlife. Left untrimmed wax myrtle has an open natural form that promotes greater fruit development and still has the attractive irregular shapes of multiple trunks. Plant at least one male plant along with several females to promote the production of the beautiful waxy berries that birds love!

PROPAGATION AND CARE
Wax myrtle is nearly as easy to propagate, as it is to grow. It can be propagated from seeds, cuttings, or root divisions. When growing from seed it is important to remove the waxy coating prior to planting, otherwise the wax will inhibit absorption of water and prevent germination. Collect seeds soon after they ripen (in early to mid autumn) and rub vigorously between the hands or preferably over a screen to remove as much of the wax as possible. A three-month cold stratification will greatly improve germination so seed should be stored in a refrigerator or preferably planted immediately in a cold frame. Pick out the seedlings when they are large enough to handle, plant into individual pots and grow them on in a cold frame for the first winter. Cutting of half ripe wood with a heel, collected in mid-August, treated with a rooting hormone, planted in a peat/perlite mixture (1 to 1) and set in a shade house under a mist is also effective. As above, overwinter the young plants the first year in a cold frame. Perhaps the easiest way to start your wax myrtle plantings is by division. Because wax myrtle readily produces offshoots from the original plant, chunks of root mass can be dug from a colony and will quickly send up new stems when replanted. As always when taking rooted divisions, seek out a responsible landowner or friend who has an abundance of wax myrtle to share – never take divisions from public lands!

Continued on page 5

Resources & Reviews

Terrestrial Plant Ecology (Third Edition)

Authored by Michael G. Barbour et al. Covers the entire breadth of modern plant ecology, blending classic topics with the results of new research, using as little jargon as possible.
Resources & Reviews

Physiological Plant Ecology (Fourth Edition)

Authored by Walter Larcher. Reviews include these comments: A keystone textbook for any student, teacher and researcher in the field of plant ecology. The book is one of the most useful introductions into the field and will be of interest for students as a very exhaustive overview. It continues to be one of the major texts in the field of ecophysiology.

Gardening With Native Plants
Continued from page 4

LORE
Initially, wax myrtle was used medicinally in the South, where the Choctaw Indians boiled the leaves and drank the decoction as a treatment for fever. Later, Louisiana settlers drank the berry wax in hot water for the most violent cases of dysentery. Early American colonists found wax myrtle growing throughout the east and quickly adopted the plant for a variety of uses. The aromatic compound present in wax myrtle foliage seems to repel insects, particularly fleas. It was traditionally planted around southern homes to help keep living spaces pest-free, and many coastal residents place wax myrtle boughs under their beds to repel fleas and other insects. Crushed leaves were rubbed on the skin to serve as a pleasantly fragrant mosquito repellent, and leaves placed in a flour bin are said to repel meal moths. But perhaps the most well known use of wax myrtle is the production of aromatic candles. Early settlers soon found that a wax covering on the fruit could be extracted by immersing the fruit in boiling water for a few minutes. The wax floats to the surface and is then skimmed off. The wax is then strained through a muslin cloth to be used to make candles, sealing wax, soaps, dyes, etc. The wax is harder and more brittle than beeswax and candles made from it are aromatic, smokeless after snuffing and less greasy in warm weather than candles made from beeswax or tallow. Four pounds of berries yields about one pound of wax.

Bob Edelen, DNPS Member

Natives And Transplants
Continued from page 2

getting the message out. In addition, having public wildflower walks may get the public more involved.

In my spare time outside of work and nature, I write historical fiction books with my mom on US Revolutionary War topics. I am avid reader of history books and books in general and used to be into bike riding and sailing before some health problems arose. I also enjoy traveling to various places around the East Coast of the United States and Canada. I also enjoy jazz and classical music. I most often listen to jazz since I seem to be able to get the jazz stations on the radio better than classical.

Feature Article
Continued from page 3

addition of hydrogen to form carbohydrates (the general formula of carbohydrates is [CH₂O]ₙ). The incorporation of carbon dioxide into organic compounds is known as carbon fixation. The energy for this comes from the first phase of the photosynthetic process. Living systems cannot directly utilize light energy, but can, through a complicated series of reactions, convert it into C-C bond energy that can be released by glycolysis and other metabolic processes. This Dark Reaction process is known as the Calvin-Benson cycle, or the C₃ cycle.

Plants use up to 90% of the light that strikes them, and the process of photosynthesis is arguably the most important biochemical pathway, since nearly all life depends on it.

A side note on fall color: In addition to cold temperatures destroying chlorophyll. The shortening days and cool nights of autumn trigger the growth of a corky membrane between the branch and the leaf stem. This membrane interferes with the flow of nutrients into the leaf. Because the nutrient flow is interrupted, the production of chlorophyll in the leaf declines, the leaf begins to senesce, and the green color of the leaf fades. This fading occurs because chloroplasts transition into structures called gerontoplasts. This differentiation is characterized by the extensive loss of stroma proteins and thylakoid membranes, and the gerontoplasts then act to disassemble thylakoidal pigment-protein complexes and breakdown chlorophyll. Chlorophyll degradation then allows the pigments carotene, and anthocyanins to dominate. Carotene absorbs all colors but yellows, and the anthocyanins absorb all colors but reds. Once these remaining pigments are metabolized, the leaves turn brown.

**Event Highlight**

**7th Annual Native Plant Sale**

Our plant sale this year went over quite well, but like last year we experienced a very very cold, windy sale day, but that didn’t deter people as we had the exact same number of customers as we did last year. We did $1475.00 in pure plant sales, which yielded a “profit” for us of over $700.00 (we bulked up our inventory with purchased plants this year a little more than in past years). Our annual plant sale is our only true fund raising event of the year and every little bit helps! We’d also like to thank everyone who came out and helped to label, price, haul plants around, or brought food. You are all essential and greatly appreciated!

Here’s the stats!

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**Out of the Wild & Into The Kitchen**

In this and forthcoming issues The Turk’s Cap will publish tested recipes featuring beloved and not so beloved wild plants. The recipe for “Garlic Mustard Pesto” comes from Julianne Schieffer who is the Extension Urban Forester for the Southeast Region of Pennsylvania. After decades of eating wild collected plants and “living to tell about it,” she has cultivated different eating habits. Her urban forestry and botany background, along with her plant pathology expertise compliment her wizardry in the kitchen.

Garlic Mustard Pesto (*Alliaria petiolata*)

Yield: 2 - 2½ cups

1 cup garlic mustard leaves (washed and dried)  
4 cloves garlic, peeled  
¾ cup fresh parsley (washed and dried)

1 cup fresh basil (washed and dried)  
2 cups walnuts  
1 cup pine nuts

½ cup olive oil  
1 ½ cups seedless black olives  
1 cup parmesan cheese, grated

Place all ingredients, except grated cheese in a blender and process until smooth – or to your desired consistency. Fold in some of the cheese. Taste and amend as your taste buds direct you. Allow flavors to mellow and serve with pasta, or use as a dressing for salads or steamed or grilled vegetables. This pesto can be used a flavoring for other dishes that need to be kicked up a notch also.

Garlic mustard is a perennial broadleaf plant that is native to Europe. It was first recorded in the U.S. around 1886 from Long Island, New York, probably having been brought by settlers for food and medicinal purposes. It now poses a threat to native plants and animals in forest communities in much of the eastern and midwestern U.S. Audubon Magazine published an article “Eat the Invaders!” in November 2004, which contains several recipes using non-native invasive plants including garlic mustard. The article can be accessed at [http://magazine.audubon.org/features0410/gourmet.html](http://magazine.audubon.org/features0410/gourmet.html). If you have a recipe you would like to share, please contact Flavia Rutkosky at 302.653.9152, ext. 111.
Upcoming Events

**SUNDAY, 20 JANUARY 2008**—Morris Arboretum Lukens Lecture - "Breeding Great Small Trees for Today’s Landscapes" from 2 PM to 4:30 PM. This lecture features Dr. Richard Olsen, a research geneticist from the U.S. National Arboretum in Washington, DC. Dr. Olsen’s research focuses on breeding, genetics, and the selection of superior landscape trees, particularly smaller trees for planting in restricted urban environments. Call 215.247.5777 ext. 155 for more information, or on the web at http://www.business-services.upenn.edu/arboretum/events/calendar2008.html.

**SUNDAY, 27 JANUARY 2008**—Morris Arboretum TuB’Shevat Celebration Lecture - “A Tree Pilgrimage In Israel” from 2 PM to 4:30 PM. This lecture by Michael Brown is in honor of TuB’Shevat, the Jewish celebration of tree planting. Call 215.247.5777 ext. 155 for more information, or on the web at http://www.business-services.upenn.edu/arboretum/events/calendar2008.html.

**THURSDAY, 21 FEBRUARY 2008**—Bowman’s Hill Wildflower Preserve’s 8th Annual Land Ethics Symposium. In Langhorne, PA. Creative approaches for ecological landscaping is this year’s focus. They will have six speakers and a book sale. For more information call 215.862.1846, or on the web at http://www.bhwp.org/educational/symposia.htm.

**17-19 APRIL 2008**—The Mt. Cuba Center Trillium Symposium. The purpose of this two-day conference (and optional third-day field trip) is to bring together academic and industry professionals, as well as expert gardeners, to address the science, conservation, and horticulture of trilliums of Eastern North America. Online, or mail/fax registration is required at http://trilliumsymposium2008.org/registration.html, or at http://www.mtcubacenter.org.

**SPRING 2008**—The U.S. National Arboretum, Symposium on Prevention Strategies for Invasive Species. As invasive species continue to disrupt our native ecosystem, land managers must create and implement sound prevention strategies as a first line of defense. This symposium will outline current and potential tactics to prevent invasive species. Drawing from research and practical in-the-field experience, speakers will detail effective practices that private citizens and institutional land managers can use. All Day Event [Rescheduled from January 15th; new date to be announced soon]. On the web at http://www.usna.usda.gov/Education/events.html.

**DNPS Bi-monthly Meetings for 2008**—Are currently scheduled for 15 January, 8 March, 20 May, 15 July, 16 September, 1 November (not a meeting, but the annual plant sale) and 18 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.
# Membership Application

**DELAWARE native PLANT SOCIETY**

## Member Information

**Name:**

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**Business Name or Organization:**

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**Address:**

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**City and Zip Code:**

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**Telephone (home/work):**

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**E-mail address:**

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" 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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**Complimentary Copy**

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