

NATIVE SEED

THE MISSION OF ADKINS ARBORETUM IS TO PROMOTE THE APPRECIATION AND CONSERVATION OF THE NATIVE PLANTS OF THE DELMARVA PENINSULA.



The Arboretum of the Delmarva Peninsula

Volume 13, Number 3, Fall 2008

CONTENTS

LETTER FROM THE DIRECTOR 2

NEW MEMBERS 3 & 7

LEAVE THE LEAVES 4

SUE WYNDHAM 5

DESIGNING AND PLANTING FOR FALL COLOR. 6

SUMMER INTERNS 7

FROM THE BOOKSHELVES 8

VOLUNTEER OPPORTUNITIES. 9

NATIVE PLANT LORE 10 & 11

MEMBERSHIP FORM 11

MAGIC IN THE MEADOW 12

PROGRAM LISTING INSERT

EVENTS 1-3

ADULT PROGRAMS. 4 & 5

EVENTS CALENDAR 6-7

CHILDREN'S PROGRAMS. 8

Ferns in the Forest and Garden

By Sylvan Kaufman, Science Advisor

Along the Arboretum's paths on a warm summer day, ferns weave green color into the forest's carpet. They often go unnoticed since they lack the stature of a tree or the colorful flowers of a shrub or wildflower. But once you stop to admire the forest's greenness and the texture of the leaves, the ferns begin to stand out with their feathery foliage and shades from lime to dark green.

Taxonomists place ferns in the Plant Kingdom, but they reproduce by spores rather than by seeds. Botanists have special terms for the parts of a fern. The "leaves" are *fronds* made up of the "leaf stalk" called a *stipe* and the leafy portion called the *blade*. In many ferns, the blade is divided into "leaflets" called *pinnae*, as seen on the Christmas fern. The pinnae may be divided twice, three times, or more, with the smallest division called a *pinnule*. In this leafy part of the frond, the stalk the leaflets are attached to is called the *rachis*.

(continued on page 3)



Newsletter illustrations by Barbara Bryan. Photos by Ann and Richard Rohlfing.

Adkins Arboretum is operated by the not-for-profit Adkins Arboretum, Ltd. under a 50-year lease from the Maryland Department of Natural Resources.

The Arboretum's mission is to promote the conservation and appreciation of plants native to the Delmarva Peninsula.

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HOURS

10 a.m. to 4 p.m. daily except Thanksgiving and Christmas

ADMISSION

\$3 for adults
\$1 for students ages 6–18
free to children 5 and under.
Admission is free for members.

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Sue Wyndham, *Land Stewardship Coordinator*
Jodie Littleton, *Newsletter Editor*

Dear Members and Friends:

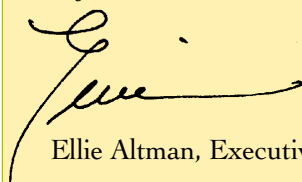
Environmental educators' consistent refrain is that you will only appreciate (protect or conserve) what you are taught to understand. This concept is fundamental to justifying their work with children in nature, and it has been repeated by numerous and passionate voices to audiences of potential funders, legislators, school boards, parents, and publishers. But proving—actually measuring with quantitative tools—this theory is problematic. And for this reason the public will to provide adequate funding for environmental education has waxed and waned. Most recently it has waned, but there is strong evidence the tide is turning and what would seem the most obvious truth about human behavior—you appreciate and care for what you know—is again generally accepted as common sense. Much of the turning of the tide toward a more hallowed place for outdoor educators can be credited to the national movement known as *No Child Left Inside* (www.childrenandnature.org). Author Richard Louv is credited with launching this movement when he published *Last Child in the Woods*, which put him on the map as a motivational speaker for conservation groups throughout the country.

It is the contributions of two Arboretum volunteers that provide plenty of proof about what motivates people to care about nature. Most would dismiss this as anecdotal evidence, but an anecdote here and an anecdote there and soon you have solid significant quantitative evidence. Neither knows the other, though both herald from farms in Michigan. Al Moored and Jack Fischer both value nature and are passionate about preserving it for future generations, and the source of this conviction is undeniably their cherished memories of childhoods filled with time when they were *left outside* to explore nature.

Al regularly assists Arboretum Children's Program Coordinator Coreen Weilminster because he wants children to share the enjoyment and rewards he experiences in nature. As an Arboretum Trustee, Jack is helping to ensure that the Arboretum has the resources it needs to offer quality programs. Al and Jack contribute in different ways, but they are equally motivated to give generously of their time and talents as volunteers by the same desire to sustain a healthy environment in which we all can thrive. Experience, knowledge, and awareness of the natural world instill an ethic that not only explains Al and Jack's appreciation of nature, but also motivates them to take actions that will have a lasting impact on others' experience of nature.

This issue of *Native Seed* is dedicated to Al, Jack, and all the Arboretum volunteers whose childhood memories of being in nature inspire them to help the Arboretum thrive as a place for all ages to learn to appreciate and protect nature.

My best,



Ellie Altman, Executive Director

P.S. I invite you and your guests to experience the magical twilight hour at the Arboretum on Saturday, September 20, 6 – 9 p.m. for *Magic in the Meadow*. See the back cover for details. Please bring a friend and introduce them to one of the Eastern Shore's unique gems.



(Ferns continued from page 1)

The “stems” of a fern are the *rhizomes* that may creep above or below ground. The spores are held in sacs or capsules called *sporangia* that are sometimes grouped into a *sori*. These sporangia or sori are what you see on the underside of many ferns as small brown circles. Got all that? Don’t worry; these terms mainly come in handy if you want to identify a particular fern. The best identification guides for the Mid-Atlantic are *New Jersey Ferns and Fern-Allies* by James Montgomery and David Fairbrothers and the *Peterson Field Guide to Ferns* by Cobb, Lowe and Farnsworth.

Ferns have a life cycle different from a flowering plant as well. The spores germinate into a little heart-shaped plant called a prothallium that most of us never notice. The prothallium actually produces the male and female eggs and sperm, the gametes, so it is the gametophyte stage of the fern. A fertilized egg grows into what we think of as a spore-producing fern plant, the sporophyte. Ferns have used these methods of reproduction quite successfully for the last 300 million years and have diversified into more than 12,000 species. Ferns are the ancestors of the flowering plants, but in flowering plants, there is no free-living gametophyte stage. Instead the pollen (the immature male gametophyte) and the ovule (containing the female gametophyte) are dependent on the plant, the sporophyte. You’re probably wondering where the spores are in a flowering plant. The short answer is that spores are essentially produced and then divide and give rise to the pollen and the female gametophytes.


Easy to grow, shade tolerant, deer resistant—ferns can fill a niche in every garden. Gardeners appreciate ferns for their foliage texture and range of soft green colors. You can grow ferns from spores at home by collecting a fern frond with cinnamon-colored spores (for many species the spores are ripe in mid- to late summer) and keeping it between two pieces of paper in a warm, draft-free spot. The spores will be released onto the paper and can be separated from any other debris by gently tapping the paper. Grow the spores on sterilized, moist potting soil. The soil and its container can be sterilized by microwaving for a few minutes. For detailed instructions, visit the American Fern Society’s Web page at www.amerfernsoc.org.

Ferns are remarkably diverse in both appearance and in the habitats they grow in. At the Arboretum, Christmas fern (*Polystichum acrostichoides*) and ebony spleenwort (*Asplenium platyneuron*) grow in dry, shady upland forests. In the floodplain forests you commonly find netted chain fern (*Woodwardia areolata*—it has chains of sori on the fertile fronds) with its lighter green fronds growing only about 2 feet tall, the feathery-looking New York fern (*Thelypteris noveboracensis*), and the tall, graceful cinnamon fern (*Osmunda cinnamomea*, with a central cinnamon-colored fertile frond). If you were to walk into a boggy area at the Arboretum, you would find the large royal fern (*Osmunda regalis*) and the ostrich fern (*Matteucia struthiopteris*), one of the ferns that produces edible fiddleheads.

In other parts of the world, you can find tree ferns that grow more than 20 feet tall, aquatic ferns, epiphytic ferns, and ferns that climb trees. Southern Florida is battling old world and Japanese climbing ferns that grow up into trees and provide a ladder to the treetops for fast-moving fires. Imagine trying to control a plant that spreads by billions of tiny wind- and water-borne spores!

Not many animals eat ferns. They have had a long time to develop chemicals to defend themselves from being eaten. Bracken fern (*Pteridium* spp.) is one of the more toxic. It contains bitter tannins and other compounds and forms hydrogen cyanide when the leaves are crushed. It also produces phenolic acids that may reduce grazing, act as a fungicide, and prevent other plants from growing nearby. Even most edible fiddleheads should not be eaten in large quantities because of the chemicals contained in them.

Even though ferns may not be eaten by animals, they do serve other important ecological functions. The hairs on the fiddleheads of cinnamon fern are a favorite nesting material of some birds. Ferns provide good wildlife cover for small animals and ground-nesting birds like the ovenbird. Bracken fern is able to increase phosphorous levels in otherwise nutrient-poor soils. Some ferns also have mycorrhizal associations with fungi. In addition, people grow ferns to absorb toxic waste, such as arsenic from old mining sites.

A note about some close relatives of ferns called the fern allies: These are not true ferns, but they also reproduce by spores. Fern allies include the club mosses like princess pine, the horsetails or scouring rushes, and a few “ferns” like the grape fern and adder’s tongue fern. There are several species of club mosses at the Arboretum, and in the spring grape ferns are common in the upland forests along the Tuckahoe Valley Trail. Next time you are at the Arboretum, enjoy the beauty of the many ferns and fern allies, and see how many parts of the fern you can name! 

The Arboretum welcomes and gratefully acknowledges its new members.

Mr. Bruce Agee
Mr. Richard Ammons
Ms. Allison Amore
Ms. Joyce Anderson
Ms. Glenda Andrew
Ms. Margaret Anzulone
Ms. Jenna G. Ashley
Ms. Gwenn Azama
Ms. Jane Bailey
Ms. Julia Barnett
Ms. Jodi Beder
Mr. Bruce Bedford
Ms. Susan Behrens
Ms. Judith Beigbeder
Ms. Ruth Bergstrom
Mr. Shaun Bevins
Ms. Marlen Binder
Ms. Posey Boicourt
Ms. Linda Blanchfield Dillon
Mr. David Boyd
Mr. Jeff Buchanan and Ms. Sarah Barter
Ms. Jean Carrion
Ms. Jane Carroll
Mr. Robert Case
Ms. Jeanne Collinson
Mr. Edward Condon
Ms. Jennifer Connolly
Ms. Cathy Corker
Mr. Nevin Dawson
Mr. and Mrs. Vince De Sanctis
Mr. and Mrs. Dennis De Shields
Mr. Christopher Deterding
Ms. Cyndi Duke
Ms. Linda Easter
Mr. and Mrs. Charles Ellwanger
Ms. Petra Evans
Ms. Sis Everey
Ms. Susan Farmer
Mr. and Mrs. Charles Feldmayer
Mr. Stephen Fisher
Ms. Donna Fountain
Ms. Barbara Friedman
Ms. Carol Gamber
Ms. Judith Geoghegn
Mr. and Mrs. Walter Gerhard
Mr. and Mrs. Martin Gleason
Ms. Christine C. Gordon and Mr. Steve Pragel
Mr. Richard Gorleski
Ms. Cynthia Greaves
Ms. Nancy Green
Ms. Debby Greenwood
Ms. Melinda Gretsinger
Mrs. Barbara Grossman
Ms. Amy Hadsell
Mr. Mark Harding
Ms. Marie Harfeld
Ms. Cathy Herrman
Ms. Joan Hoffman
Mr. and Mrs. Haines B. Holt

(continued on page 7)

Leave the Leaves

By Sue Wyndham, Land Stewardship Coordinator

Autumn! As daylight hours shorten and wane, nights lengthen and the chemical mechanisms responsible for breathtaking beauty in the landscape are set into motion. It is hard to imagine the fall season without thinking of forests and meadows infused with a broad spectrum of reds, yellows, and golds.

For many people, this yearly display of color coincides with the rush to remove fallen leaves from lawns and gardens. This autumnal activity is shared by most homeowners who are primarily interested in the aesthetic appeal of “tidy” leaf-free lawns, or are concerned about compromising the health of their lawns as they disappear under a layer of newly fallen leaves. It is true that a thick, heavy layer of leaf litter can potentially damage the health of a lawn, especially if it is planted with a high percentage of cool season sun-loving grasses. If leaf debris accumulates enough to block sunlight and inhibit growth, it may be necessary to remove or reduce leaf litter.

Aesthetically speaking, however, there is an intrinsic beauty attached to the look of fallen leaves scattered across the ground. Leaving the leaves where they lie offers a naturalized

appearance to the yard, a look that has, unfortunately, become unfairly defined as “messy,” and often labels a homeowner as an irresponsible or lazy caretaker. In fact, before the days of pre-packaged fertilizers and bagged soil amendments, leaves were collected and used as mulch in gardens and under trees and shrubs. Leaving the leaves, or collecting them and using them as mulch, is actually a sound and responsible land stewardship method. The benefits to existing soil gleaned in the slow process of leaf decay are invaluable and can result in improved soil quality through the addition of organic matter and nutrients.

The beauty of the leaf decomposition process is that as soon as a leaf makes contact with the ground, beneficial soil-borne organisms immediately begin the breakdown process, turning a fallen leaf into leaf mold, nature’s fertilizer. Leaf mold is the ingredient found in the top layer of forest floors. It is rich in organic matter and teeming with life. It is also a natural mulch, helping to maintain soil quality while also regulating soil moisture and temperature. Improved soil quality enhances root growth, increases the soil’s ability to absorb and retain moisture, and provides an ideal living environment for such things as beneficial fungi, bacteria, and earthworms, the organisms responsible for maintaining soil health.

In certain situations, leaf removal may be required or necessary. In an effort to reduce the amount of yard waste entering landfills,



*O hushed October morning mild,
Thy leaves have ripened to the fall;
Tomorrow’s wind, if it be wild,
Should waste them all.* – ROBERT FROST

many communities no longer pick up leaves but still require leaf management. Some communities have started neighborhood composting programs, but if that is not an option, it may be necessary to manage leaves onsite. In other circumstances, the size of your yard may be too small to handle the amount of deposited leaves. In this case, the layer of fallen leaves could be dense enough to smother small plantings or grassy areas, or could be thick enough to inhibit water absorption, thus slowing the decomposition process. If leaving the leaves is not a viable option, the good news is that there are several easy and environmentally sound alternatives to leaf management.

Most lawn mowers are capable of mulching and/or bagging. One simple alternative for disposing of fallen leaves is to mow them into mulch. To accomplish this, rake the leaves until they are spread evenly across the area of the lawn. Select a moderately dry day, set the mower blade height to approximately 2–3 inches, and mow over the leaves until they are chopped small enough to disappear into the lawn. If the leaf layer is thick, it may take several passes of the mower to sufficiently reduce the volume of leaf litter.

Alternatively, if distributing newly chopped leaves throughout the lawn is not an appealing option, use the mower's bagging attachment to collect the shredded leaves for immediate use as mulch in gardens or around the base of trees. Using shredded leaves as mulch is not only attractive, but also provides the same soil benefits as previously described. The leaves will decompose quickly because smaller leaf pieces are more readily accessible to the existing soil. Recommended thickness for applying leaf mulch is approximately 2–3 inches for most trees, shrubs, and herbaceous plants (www.rce.rutgers.edu).

Turning fall leaves into compost is yet another option, and the simplest way to do this is to engage in passive composting. This entails raking the leaves into one large or several small piles. They will eventually decompose and form compost that can then be used as a soil amendment for gardens or potting media.

To hasten the composting process, the following techniques can be employed: the leaf pile(s) can be watered and turned on a regular basis, the leaves can be mulched prior to placing them in a pile, layers of green debris, such as grass clippings, can be incorporated in between layers of shredded leaves as the compost pile is formed, and a compost bin can be used.

Finished compost can take up to a year or more to form, depending on the type of composting process used, the size of the pile, and the size and type of leaves composted. The finished product, leaf compost, also known as leaf mold or humus, is rich in nutrients and organic matter, just like the natural leaf mold found on the forest floor.

So the next time autumn leaves fall and that familiar need to reach for the rake kicks in, use that urge to create the type of leaf pile that has inspired people of all ages to spend afternoons losing themselves in leaf pile jumping and loads of fun! And when the fun is over, leave the leaves in a manner that will help sustain and improve the environmental conditions in your garden and yard. 🍂

Sue Wyndham Joins Staff

A circuitous path brought Sue Wyndham to her current job, and for the Arboretum's new Land Stewardship Coordinator, a background in multiple disciplines lends a fresh perspective and makes a solid connection between landscape architecture and ecology.

A native of northern Delaware, Sue earned an undergraduate degree in psychology only to pursue a career in horticulture that evolved to include conservation and outreach. After completing the Longwood Gardens Professional Gardener Training Program, she delved into public horticulture, greenhouse management, teaching, and private garden design before pursuing a degree in landscape architecture.

"I wanted to focus on community planning and how horticulture and planning can be used in conservation work," she relates. "Since I wanted to work with communities, I felt landscape architecture would broaden my professional skill set and enable me to work in the capacity of outreach." She earned a master's in landscape architecture in 2006 from the State University of New York in Syracuse.

Sue's introduction to the Arboretum came through her mother, a founding member of nearby Tuckahoe Equestrian Center. She joined the staff in May.

"Among my responsibilities are land management and invasive species management, as well as rare plant mapping, plant accession, and maintaining and interpreting plant communities," she says. "There's a 'whole nine yards' challenge to plant communities: deciding what to encourage or discourage and interpreting that to the public; how to keep living landscapes in suspended animation so you can show what a meadow or forest looks like, and how to map it and involve visitors, docents, staff, and others in a meaningful way."

Sue is working closely with nursery staff and volunteers and is developing plans to use more green practices in the nursery to correspond to construction of the new LEED-certified Arboretum Center. She also is working to extend the Arboretum's outreach into the community and to demonstrate how the scientific and technical aspects of landscape architecture relate to the natural world.

"I think it's a combination of things," Sue responds when asked how she's enjoying her work at the Arboretum. "I like the balance the best: my job is both indoors and outdoors, so I get to work my mind as well as do hands-on physical work. I'm wildly impressed with everyone associated with the Arboretum. From staff and interns to volunteers and visitors, there's a network of completely amazing, talented, knowledgeable, and committed people. It's inspiring to go to work every day and rub elbows with people who care so deeply."

Sue currently lives in Easton. She can be reached at 410-634-2847, extension 24 or at swyndham@adkinsarboretum.org.





Designing and Planting for Fall Color

By Sue Wyndham, Land Stewardship Coordinator

Fall is an exciting time of year for garden design because it offers countless ideas for adding color to the garden. Using the beauty of the outlying landscape as both a guide and a menu for potential home garden options, it is easy to see that Maryland's coastal plant palette is rich with possibilities.

Not only do many native plants provide seasonal color through brilliant fall foliage, but the landscape is filled with bright native grasses, colorful wildflowers, and shrubs and trees decorated with nuts, acorns, fruits, and vivid berries.

As summer winds down, pay attention to the local woodlands and meadows. Native asters will appear in late August, with some continuing to bloom well into October. These hardy perennials are great performers for late season gardens, and are available in a variety of blues, lavenders, and pinks. Many are also valuable fall nectar sources for butterfly larvae (*Wildflowers of the United States and Canada*. Cullina, W.).

The white woods aster (*Aster divaricatus*) is a common woodland species with profuse creamy-white flowers appearing in fall. It looks fantastic in mass plantings, which is easily accomplished since it spreads readily from seed. Due to its slightly aggressive nature, it should be deadheaded occasionally to prevent it from naturalizing in unwanted areas. Another great aster for woodland conditions is the big-leaved aster (*Aster macrophyllus*). This plant has large, heart-shaped fuzzy leaves with showy violet flowers. It can be treated as a groundcover since it forms thick spreading communities. It prefers rich, moist soil and will thrive in most woodland environments.

The purple stem aster (*Aster puniceus*) shows its violet-blue flowers near the end of August. It is found in moist meadows or other moist sites in full sun, and is a tall, straight growing species known to reach heights upward of 5 feet. It will often bloom

until frost and, like many asters, is attractive to butterflies. If a smaller plant is needed, try the smooth aster (*Aster laevis*). This very adaptable aster produces attractive one-inch diameter violet flowers in the fall. It is often found in dry meadows, but makes a great garden plant as well. It tolerates drought, and has a tidy, compact habit, remaining under 3 feet in height.

Nice companions for the purple stem aster, or any of the meadow asters, are native grasses such as big bluestem (*Andropogon gerardii*) and northern sea oats (*Chasmodon latifolium*). Big bluestem is a clumping, robust grass that can reach heights of 5–7 feet. It needs full sun to stay healthy, but it is widely adaptable to a range of soils from moist to dry, and is incredibly attractive during this time of year, when it turns reddish orange. Northern sea oats can tolerate some shade, and forms dense clumps of dark green leaves that reach a height of approximately 36 inches. In late summer, northern sea oats produces attractive clusters of flowers followed by showy bronze fall fruit and foliage.

To add structural interest to the landscape, try planting a few stands of shining sumac (*Rhus copallinum*). Shining sumac grows in dry, rocky, or sandy sites, can reach a height of 20 feet, and has glossy, dark green, attractive foliage that turns deep shades of red and purple in autumn. In addition, shining sumac produces small yellow flowers in midsummer that are followed by deep crimson-colored fruits that create a gorgeous fall display when combined with the color of its foliage. It is striking in the landscape when planted en masse.

Another plant sure to catch the eye during the fall season is arrowwood viburnum (*Viburnum dentatum*). Found in sunny or partially shaded conditions, it is happiest in moist, well-drained soils and can grow to a height of 10 feet. This plant produces attractive and unique blue-black berries in fall, and is a favorite among birds and local wildlife.

Plants like these, with bright fall foliage and colorful autumn flowers or fruit, illustrate how color in the landscape can be an exciting and vital element in the cycle of seasonal change, and one that entices people to recreate portions of the natural world within living vignettes at home. With each new vibrant palette that emerges to usher in a new time of year comes a new challenge for gardeners and plant lovers alike: how to incorporate elements of the changing landscape into the garden so it can be enjoyed daily and in close personal proximity. It seems the greatest dilemma facing garden lovers involves the issue of making choices about what to add, remove, or change in order to best celebrate the current season. For many, the aspiration for a garden that comes alive during each of the four seasons is an ongoing goal, and one that will be happily pursued over the course of many years.

These and many other plants, trees, shrubs, wildflowers, and grasses will be available at the Arboretum's fall plant sale. The member's preview sale is Friday, September 5. The sale is open to members and the general public on Saturday, September 6. Also join Arboretum docents Julianna Pax and Chris Pax for a program on October 23 about using fall color in garden design.

Education Opportunities Abound for Summer Interns

A shared passion for ecology led this year's interns to the Arboretum's forest, meadows, and gardens. For Sarah Knight and Rebecca Pineo, a summer at the Arboretum is the perfect opportunity to make connections between native plants and conservation.



Sarah Knight (left) and Rebecca Pineo are this year's summer interns.

Sarah, a native of California, MD, became interested in forestry and horticulture at a young age. She learned about the Arboretum through a professor at Virginia Tech, where she earned a degree in natural resources conservation. She also spent a year abroad, studying forestry in Australia at the University of Melbourne.

Sarah was drawn to the Arboretum by the breadth of educational opportunities offered. "I enjoy learning and challenging myself," she says. "This is the perfect place for me: a garden with an environmental focus. I love learning about the plants and especially about their Latin names."

Rebecca, of Elkton, MD, is a recent graduate of St. Mary's College of Maryland. She spent a semester each in Costa Rica and the Gambia and designed her own major in living museum studies. Since graduation, she has completed internships at Longwood Gardens and the University of Delaware Botanic Gardens.


"I have always had an interest in native plants and how horticulture and ecology fit together. I like the Arboretum's focus on ecology," she remarks.

Sarah and Rebecca began work in May and have worked on managing invasive species, maintained the Arboretum's gardens, and gained first-hand experience in nearly all aspect of the Arboretum's operation, from weeding and potting to learning about the day-to-day workings of a nonprofit organization. Each is working on an individual internship project. Rebecca is examining the way the Arboretum trains volunteers to work at the front desk and how that training influences visitor experience. Sarah is canvassing the Arboretum's oak and hickory populations and deciding which trees are the best specimens for long-term study. In addition, the interns collaborate on a "plant of the week" lobby display that highlights a plant of interest to staff and visitors.

Both Sarah and Rebecca cite the Arboretum staff, volunteers, and setting as reasons for enjoying their internship. "Everyone is very concerned that we have an educational experience," Rebecca relates. "There are so many opportunities to learn about plants, the Delmarva, meadows, woods, uplands, lowlands, and what an arboretum is. There are a lot of resources for learning."

Sarah says the Arboretum's beauty resonated with her on her first visit. "It's an oasis, a snapshot of the natural environment that used to be here," she says. "The frogs were croaking and the birds were chirping and it was completely separate from everything. As I walked across the bridge, I was hoping with all my heart that I could work here."

Following her internship at the Arboretum, Rebecca plans to undertake a second internship with the University of Delaware Botanic Gardens and then apply to the Longwood Gardens graduate program in public horticulture. Sarah is interested in creating links between inner-city residents and ecology and natural processes.

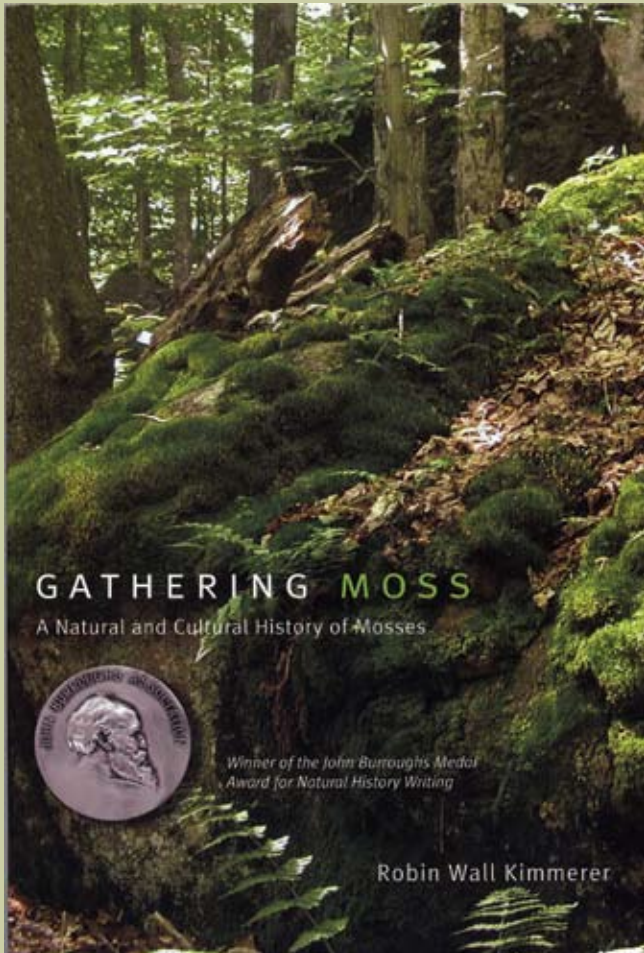
The Arboretum wishes Sarah and Rebecca success in their future endeavors. 

(New Members cont'd from page 3)

Ms. Rebecca Howey
Mr. and Mrs. William Irwin
Ms. Janet Ishimoto
Ms. Anne Judge
Ms. Sylvan Kaufman and Mr. Jake Barnes
Ms. Jessica Keating
Ms. Elizabeth Knox
Dr. Claude Koprowski
Ms. Nanette Lackey
Mr. and Mrs. Frank Lawlor
Ms. Lin Layton
Mr. and Mrs. Jim Leech
Mr. Ted Legates
Ms. Joan Leukhardt
Ms. Annie Livingstone
Mr. James Mac Nicholl
Ms. Jennifer Mariano
Ms. Pearl Marks
Mr. and Mrs. Pierson Melcher
Mrs. Carolyn Morris
Ms. Diana Mulligay
Ms. Bonna Nelson
Mr. and Mrs. Ted Newcomen
Ms. Dorothea Oliff
Ms. Jeannette Parish
Ms. Jessica Perez
Mr. and Mrs. John Pettit
Ms. Melissa Pevey
Ms. Kristen Pironis
Ms. Madeleine Polhemus
Ms. Mary Pratt
Mr. Robert Prince
Ms. Jennifer Queen
Mr. Eric Rasinski
Mr. Pat Ratkowski and Ms. Ally Suey Howe
Ms. Betsy Reid
Ms. Kathlyne Rog
Ms. Gail Samper
Ms. Nancy Shaw
Ms. Karen Shiflett
Mr. Ward Slacum
Mr. and Mrs. Dick Steeg
Ms. Annette Stine
Ms. Catherine Stirling
Ms. Jil Swearingen
Ms. Elaine Tama
Ms. Amber Thawley
Ms. Carol Thompson
Ms. Barbara Thompson
Mrs. Louise Toby
Ms. Anne Towne
Mr. and Mrs. John R. Valliant
Ms. Helen Van Fleet
Mr. and Mrs. Basil Wadkovsky
Mr. John Wafer
Ms. Sue Waskey
Mr. and Mrs. Kevin Webster
Ms. Deborah Werre
Ms. Janet Wesolowski
Ms. Dorothy Whitcomb
Ms. Kathryn Wilber
Mr. and Mrs. Herbert Wilgis
Mr. Michael Wood

From the Bookshelves

By Carol Jelich, Arboretum Librarian



Gathering Moss: A Natural and Cultural History of Mosses by Robin Wall Kimmerer

In this well-written little book, a series of essays shows how mosses reveal the “secret knowledge of the forest.” Since they are small and relatively unknown, most mosses don’t even have common names like flowering plants do. The author draws us in to have a closer look, and see that moss is more than a carpet on the forest floor. If you look closely, you will discern some of the more than 22,000 species of moss that are differentiated by their size, shapes, color, and the niches they inhabit.

Mosses share the forest with trees by inhabiting the “boundary layer,” where the air and land meet. Their diminutive size allows them to find niches in rocks, on logs, and in the bark of trees. Lacking vascular systems, mosses have developed remarkable strategies for collecting water and for adapting to periods of dehydration. Their reproductive strategies are also fascinating. The author has traveled widely in the study of mosses, from the tropical rain forest of Ecuador, to cities, to the Adirondacks of New York. She interweaves scientific study of biology and ecological succession, with stories of indigenous peoples and her own personal history, to create a reading experience larger than the simple science.

Mosses are not only interesting themselves, but they have interesting companions. Consider the waterbear, a microscopic invertebrate that resembles a tiny polar bear. The waterbear lives in the water held by the moss leaves. Some waterbears feed on the moss, while others are predators on other invertebrates.

Near the end of the book, Kimmerer explores the use of moss by people. Indigenous people used moss for insulation, cooking, even diapers. The respect and stewardship shown by indigenous people in their use of moss is contrasted with the story of a wealthy landowner who tries to import moss to achieve an instant “aged” look on his property. Another essay shocks the reader as it describes how poachers stripped mosses from a mountaintop forest in Oregon, to be sold for lining flower baskets and creating “Designer Moss Sheets.” The author visits the site shortly after it has been ravaged, sorrowfully noting that recovery will take a very long time, if ever.

The narrative is enhanced with line drawings by the author, and by Howard Crum from *Mosses of the Great Lakes Forest*. A bibliography of suggestions for further reading is included.

The author is of Potawatomi heritage, and notes early in the book that knowledge of a thing must be gained “by all four aspects of our being: mind, body, emotion, and spirit.” This is how she shares the story of moss, using both science and personal anecdote, relating its natural history to our cultural history, tying in universal themes that will hold meaning for each reader.

Teach, interpret, plant, enjoy!

VOLUNTEER OPPORTUNITIES

Weekly Opportunities

VISITOR'S CENTER RECEPTIONIST

Sign up to greet and orient visitors and help staff and volunteers at the Visitor's Center. Training is provided.

NURSERY WORK CREW – Tuesdays

OUTDOORS WORKOUT CREW – Thursdays

SCHOOL FIELD TRIP PROGRAMS

Be creative and teach children about native plants and the environment. Volunteers can assist instructors, as well as plan and help to lead school field trips.

PRESCHOOL CHILDREN'S PROGRAMS

Classes are offered for children ages 3–5. Volunteers help with setup and cleanup, assist with crafts, serve snacks, and join the singing and storytelling.

Other Opportunities

MEMBERSHIP PROMOTION TEAM

Join a team of volunteers working to promote the benefits of Arboretum membership.

PROGRAMS HOSTS AND HOSTESSES

Hosts and hostesses are needed to assist with refreshments and greet and register participants at education programs and art receptions.

ARBORETUM EVENTS

Volunteers are needed to assist staff with the Fall Native Plant Sale, Halloween Haunted Hayride, Fall Family Festival, and Holiday Greens Sale.

ARBORETUM OUTREACH

Help promote the Arboretum's mission at community events.

INDIVIDUAL VOLUNTEER PROJECTS

Devise and propose your own volunteer project. Ongoing projects include writing articles and teaching the public about native plants and sustainable horticultural and gardening practices.

Arboretum Volunteer Basic Training “Why Go Native?”

**September 11, 18, 25, October 2, 9, and 16,
9:30 a.m.–2:30 p.m.**

The Arboretum announces a six-week basic volunteer training program open to prospective and current Arboretum volunteers. Space is limited, so register early!

Learn about the Arboretum's mission to promote the appreciation and conservation of the plants native to the Delmarva Peninsula. Discover the ecology and history of the Arboretum grounds; examine the intricacies of the region's geology, soils, and plant communities; and practice basic plant identification skills. Arboretum staff, docents, and area experts will lead the sessions.

Following the training, participants are encouraged to contribute 40 volunteer hours to the Arboretum in 2009. Materials fee - \$30.

Docent Naturalist Volunteer Training “The Show is On”

October 30, November 6, 13, and 20, 9:30 a.m.–2:30 p.m.


Pursue your dream, share your passion, and discover nature's richness by becoming an Arboretum docent naturalist. Docents lead thematic walks and outreach programs, and contribute as ambassadors and interpreters for the Arboretum.

The Docent Naturalist Training Program will include four weekly sessions. While learning about the Arboretum's conservation mission, you will also explore ways to engage your audience through theater, themes, and storytelling.

Completion of the basic volunteer training program (“Why Go Native?”) or a docent training program is a prerequisite.

Applications for these volunteer training programs are available at the Visitor's Center front desk or by contacting Erica Weick, Coordinator of Volunteer Programs, at 410-654-2847, ext. 27 or eweick@adkinsarboretum.org. Participants must register by September 1.

For more information, including volunteer schedules, contact Erica Weick, Coordinator of Volunteer Programs, at 410-654-2847, extension 27 or at eweick@adkinsarboretum.org. Application forms can be obtained at the front desk or downloaded at www.adkinsarboretum.org. Click on the Volunteer link to access the forms.

The Volunteer Seed e-newsletter is published eight times a year with information by and for our Arboretum volunteers. Sign up to receive it by e-mailing Erica Weick at eweick@adkinsarboretum.org. Hard copies are also available. 

Native Plant Lore

The Mushroom: A Respectable Fungus

By Dr. Bill Trakat, Arboretum Docent

Mushrooms—the Rodney Dangerfield of the plant world. They get no respect. But most people don't realize how they contribute to our environment. Their effect is subtle, yet very important.

Mushrooms as we know them are fungi. Most of the fungi are found underground, and regeneration takes place fairly easily.

The part of the mushroom we see above the ground is the fruiting body of the extensive network of mycelia below the surface. Mushrooms are not green because they lack chlorophyll and must obtain their food sources in different ways. The most notable way is by being saprophytic. The mushroom feeds on dead organic matter and breaks it down, adding it to our soil as nutrients.

Other species of mushrooms are parasitic and feed off living matter at the host's expense. Another way of survival, being mycorrhizal, is through a relationship called symbiosis, in which both the mushroom and its partner gain from each other. Mycorrhizal mushrooms get their carbohydrates from their host tree, either hardwood or softwood, through

photosynthesis and, in return, supply minerals, nutrients, and water to the tree. The mushroom forms its root system by sending out a large area of mycelia. It increases the host tree's root system by intertwining its roots with the tree's roots. An individual group of 3 to 50 mushrooms could add 300 to 500 square feet of root system for the tree/mushroom partnership.

People are usually interested in mushrooms either for their delicious taste or for their beauty in form and color. The most important and frequently asked question is whether a mushroom is a toadstool or an edible specimen. Toadstool is the name most commonly applied to poisonous mushrooms. There is no simple test to determine if a mushroom is poisonous. Do not believe the old wives tale that a cooked poisonous mushroom will turn a silver coin black. This is absolutely incorrect. The best way to identify non-poisonous mushrooms is to take a walk with an expert and have the expert identify them for you. I learned by joining a mycological club in New Hampshire. The club's president is a professor of mycology at a local university.



Another way to learn about mushrooms is through guide books. I recommend *National Audubon Society Field Guide to North American Mushrooms* by Gary A. Lincoff and *Mushrooms of West Virginia and the Central Appalachians* by William C. Roody. Try to remember all you can about the sizes, shapes, and spore print colors. The best time for collecting mushrooms is in the fall; however, you can also find some excellent edibles in the spring. Morels can be found in early April

near tulip trees. No matter what kind of edible mushroom you collect (or buy from the store), always remember, before eating it for the first time, take only a few and do not eat it with alcoholic beverages. You can have an adverse gastrointestinal reaction, no matter how edible the mushroom may be.

Mushroom forays at the Arboretum during the past two years have turned up numerous different species.

The November 8, 2006 hunt yielded the following:

<i>Amanita virosa</i>	destroying angel – very poisonous
<i>Entoloma sinuatum</i>	most common poisonous mushroom
<i>Polypore versicolor</i>	turkey tail – non-edible
<i>Osteina obducta</i>	bone polypore – non-edible
<i>Calvatia cyathiformis</i>	puff ball/purple spore – edible
<i>Panaeolus campanulatus</i>	bell cap paneolus – non-edible
<i>Stereum complicatiens</i>	crowded parchment polypore – non-edible
<i>Coniophora puteana</i>	wet rot – a slimy mold – non-edible
<i>Oscotoryne darcordes</i>	purple jelly drop – non-edible
<i>Helvella macropus</i>	long stalked grey cup – non-edible
<i>Crepidotus applanotus</i>	flat cup – non-edible

On the October 28, 2007 hunt, the group found:

<i>Russula atropurpurea</i>	blackish red <i>Russula</i> – non-edible
<i>Armillaria mellea</i>	honey mushroom – edible
<i>Polypore versicolor</i>	turkey tail – non-edible
<i>Meripilus giganteus</i>	black staining polypore – non-edible
<i>Ganoderma tsugae</i>	varnish shelf polypore – non-edible
<i>Agaricus campestris</i>	field mushroom – edible
<i>Panaeolus campanulatus</i>	bell cap paneolus – non-edible
<i>Lenzites betulina</i>	multicolor gill polypore – non-edible
<i>Osteina obducta</i>	bone polypore – non-edible

Many varieties of mushrooms are found at the Arboretum. The more people who come on forays, the more species are found.

At the Arboretum, mushrooms should be left for other visitors to admire and for wildlife to eat except during an official foray, but there are many parks where mushroom hunting is allowed. When you go on your mushroom hunt, make sure you bring the necessary equipment. You will need:

- A good size basket lined with newspaper,
- A guide book,
- A hand lens,
- A small bottle of potassium hydroxide with dropper – used to stain mushroom caps for color changes indicative to the species, and
- A good pair of eyes!

Happy 'shrooming! 



ADKINS ARBORETUM

MEMBERSHIP FORM

By becoming a member of the Arboretum, you are making a significant contribution to the conservation of the Delmarva Peninsula's natural heritage. For your convenience, you may join online at www.adkinsarboretum.org/members_online.html.

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Make checks payable to Adkins Arboretum and mail to:
P.O. Box 100, Ridgely, MD 21660

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The magic of Adkins Arboretum beckons
as twilight falls . . .

The Arboretum Board of Trustees Invites You
and Your Guests

to

magic in the meadow

Saturday, September 20, 6 – 9 p.m.

An evening to benefit Adkins Arboretum

*Enjoy the magic of the Arboretum as twilight
falls. Sumptuous food and cocktails, music,
stargazing, live and silent auctions beneath
celestial wonders and surrounded by a golden
autumn meadow.*

unique live auction items

The lively sounds of an auctioneer will fill
the air as guests join the bidding for these
unique auction items:

If a stay in a remote, beachfront house in Turks & Caicos, donated by Allie Tyler, (visit www.turkscaicosrental.com), isn't enticing enough, a **Chesapeake cocktail cruise for eight** aboard Aquadance, a 42-foot Post, will interest you and your friends. The winning bidder will enjoy sumptuous wine and hors d'oeuvres on their cruise, donated by Kelly and Luke Phipps, with compliments from The Narrows Restaurant on Kent Island. With so much water to cover along the beautiful Chesapeake Bay, bidders can compete for another boating package—a **Miles River boat cruise and dinner**, donated by Bobbie and Baird Brittingham.

To take in the beautiful views of the region's native land from the water, a **Classic 13.5-foot Boston Whaler**, donated by Alicia and Galt Siegrist, will be auctioned. Manufactured in 1971 and fully restored in 2005 with a 25 hp, 4-stroke Mercury engine, mahogany seats and side panels. This impeccably maintained roundabout comes with a navy blue canvas mooring cover and a Bimini top. Recently appraised for \$8,120. Minimum bid \$4,000.

Watch for more information on this exciting auction at www.adkinsarboretum.org, or contact Tracey Munson at 410-924-7265 or traceymunson@goeaston.net for more details.

Magic in the Meadow benefits the children and adults served by the Arboretum's conservation programs.

R.S.V.P. by September 12, 410-634-2847 ext. 0, or email info@adkinsarboretum.org

Dress: Evening casual

Tickets: \$75 per person (Tickets held at the door.)



ADKINS ARBORETUM

P.O. Box 100
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