

The Crosby Arboretum

Mississippi State University Extension Service

Quarterly News Journal

Summer 2014

28.3

REVEALING MISSISSIPPI'S AMAZING ORCHIDS

By Dr. Wayne Morris, Troy University

It might surprise you that orchids are one of the two largest families of flowering plants, the other being the sunflower, or composite, family. Estimates for the number of orchid species are generally between 25,000 to 30,000, so orchids roughly account for about 10% of all known flowering plants! On a global scale, most orchids occur in the tropics and subtropics; but they are found in every terrestrial life zone and on every continent except Antarctica. Most exist as epiphytes, or “air” plants, in the tropics, which means that the plants perch on tree branches to reach the light in their otherwise very shaded rainforest environment. A few orchids are even adapted as epiphytes on the trunks of tree-sized cacti in the deserts of Mexico where they are also associated with protective ants. Proof that the plants are not parasites, some orchids occasionally use rocks and cliff faces for gaining access to light and are then dubbed as lithophytes. Only one epiphytic orchid grows in Mississippi – green fly orchid (*Epidendrum magnoliae*), and this species has populations on trees in Pearl River County, Mississippi among other sites not prone to frost in the extreme southern part of the state.

What “makes an orchid an orchid” is the at least partial union of the stamen (“male” part) and pistil (“female” part) of the flower into a structure known as the column, among other features. Floral form in orchids is closely tied to the types of pollinating agents recruited. Pollination syndromes are extremely diverse among members of the orchid family, so this discussion will focus on *Calopogon* and *Platanthera*, two genera native to several of the Crosby Arboretum natural areas. Orchids usually have a specialized petal, called the lip, or labellum, that generally has a different size and shape relative to other petals. Grass pinks in the genus *Calopogon* have a hinged lip with fake pollen in the uppermost position in each flower, and a column (containing the real pollen) in the lowermost position in each flower. Bees visiting the flowers are attracted to the fake pollen; after landing here, their weight pulls the lip down so that the bees are thrust up against the column, picking up the real pollen and making a delivery when tricked by another flower. Fringed orchids in the genus *Platanthera* have flowers ranging in color from white to greenish to shades of orange and purple. Lips and other petals often have hairs, or fringes, and flowers also possess nectar spurs of varying lengths, depending on the species, that offer food rewards. Those with longer spurs typically recruit butterflies and moths, including swallowtails (*Papilio* spp.) and sphinx moths (Sphingidae); whereas those with shorter spurs are usually pollinated by bees (sometimes mosquitoes) or are even self-pollinated.



Grass pink orchid (*Calopogon tuberosus*)
(Image: www.SoutheasternFlora.com)

Like most orchids adapted for temperate climates, the vast majority of orchid species native to Mississippi are terrestrial. Several of these are rare plants and are indicative of natural communities worthy of conservation efforts. Habitats range from old-growth deciduous forests in deep ravines in the northern part of the state, to fire-prone, grass-dominated savannas and carnivorous plant bogs, such as Dead Tiger Creek Savanna and Hillside Bog at the Crosby Arboretum, in southern Mississippi. Grass pinks (*Calopogon* spp.), ladies'-tresses (*Spiranthes* spp.), and fringed orchids (*Platanthera* spp.), among other species, occur here in acidic, nitrogen-deficient soils. Similar to many epiphytic orchids, these native terrestrial species like easy access to light. Historically, frequent lightning strikes in the mosaic of longleaf pine forests, savannas, and bogs in southern Mississippi started quickly-moving fires of low intensity that kept out many shade-producing, broad-leaved trees and shrubs. These fires would also help release soil nutrients, trigger seed germination, and stimulate blooming of pineland plants. Today, land managers must set prescribed, controlled burns to simulate these conditions. Without this practice, many plants and animals native to southern Mississippi would simply disappear. When properly managed, savannas can support 40+ plant species per square meter, making them the most diverse plant communities in all of North America outside the tropics!

- Michael Wayne Morris, Ph.D., Associate
Professor of Biology, Troy University, Troy, AL

Dr. Morris was employed as a field botanist at the Crosby Arboretum in summer 1986 through Dr. Sidney McDaniel, MSU Professor of Botany, while working on his M.S. at MSU. He will lead a field walk on August 2 to Hillside Bog.



The Crosby Arboretum Mississippi State University

A regional arboretum representing the native flora of the Pearl River Drainage Basin in Mississippi and Louisiana.

Picayune, Mississippi, USA

Director's Notebook:

The Swamp Forest Educational Exhibit has seen much progress this spring. Eagle Scout candidate **Jacob McLendon**, Picayune Troop 5, led his crew to build a 300' trail leading south from the Gum Pond along the new stream channel. An additional 300' section was constructed during a May 8 community service project by 20 Navy chiefs and first class petty officers. The crew was led by Navy Petty Officer First Class **Andrew Ribar**, the Navy Community Outreach Coordinator for **Commander, Naval Meteorology and Oceanography Command** at John C. Stennis Space Center. The crew also provided much-needed trail maintenance, planted memorial trees, and painted our front gates. Lunch for the Navy crew was provided by **Avon Engineered Fabrications**, Picayune. In early summer, another Eagle Scout project will complete the final length of trail which will connect to the Arrival Journey. Seven wooden bridges are being donated for the exhibit by **New South Access & Environmental Solutions/All-Terrain Bridge** and also planned for installation this summer.

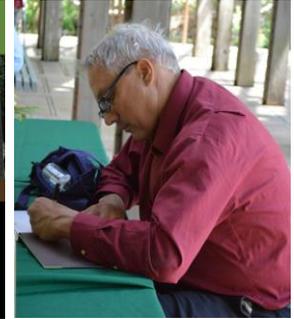
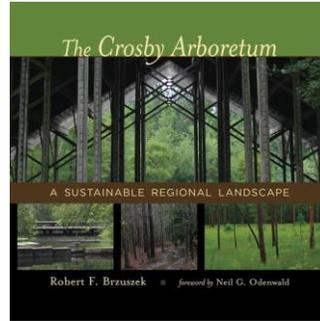
We're pleased that our two recently acquired modular buildings have provided us with welcome space, allowing for a recent Gift Shop expansion and a gallery area that will debut this summer. Our Visitor Center "Annex" contains a large program room and a library/archives room, and the new rear building will be used for program storage, outdoor-based programs, and volunteer activities.

In other news, state botanist **Heather Sullivan** recorded a population of the small Coastal Plain spreading pogonia orchid (*Cleistisopsis oricamporum*, aka *Cleistis bifaria*) during our May 17 field walk to the Arboretum's Hillside Bog natural area, a species classified as rare (S-3) in Mississippi.

*- Patricia Drackett, Director
The Crosby Arboretum, MSU Extension Service*



A U.S. Navy CNMOC crew from Stennis Space Center provided day of community service for the Arboretum on May 8. (Photo: AGI Andrew Ribar, U.S. Navy).



MSU professor and former Arboretum curator Bob Brzuszek signed copies of his new book at April's Strawberries and Cream Festival. He returns to speak on June 7 about the process of developing his book (available in our Gift Shop).

The Crosby Arboretum: A Sustainable Regional Landscape

This year marks the 35th year since the Crosby Arboretum was established. At its beginning, the founders simply wanted to create a memorial garden to L.O. Crosby, Jr., but instead embarked upon a more ambitious journey. Little did they know that they would create one of the nation's premier native plant conservatories that would win prestigious awards in architecture and landscape architecture. This speaks to the vision and quest for excellence of this early board.

As example, the founding board engaged Andropogon Associates, Ltd. from Philadelphia, Pennsylvania as the recommended consultant for the development of Pinecote's master plan. Carol Franklin and Leslie Sauer were landscape architects in the ecologically-based firm and created some revolutionary guiding principles specifically for Crosby Arboretum. It is appropriate, for our next generation of visitors, to revisit a few of its fundamental ideas that have applications to our own backyards.

The Crosby Arboretum will change over time. This simple concept was a radical idea in the world of arboreta. Arboreta and botanic gardens, then and today, have fixed exhibits that are managed and cared for exactly in the same way throughout time. Eventually these fixed systems fall apart and need to be restored. But Andropogon realized that the plant communities at Pinecote, just as we see in all wild places, go through many natural and cultural changes. Although not easily seen, the living exhibits at Pinecote are changing constantly. The Savanna Exhibit is burned regularly through the able efforts of Terry Johnson and volunteers.

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The Crosby Arboretum Mississippi State University

A regional arboretum representing the native flora of the Pearl River Drainage Basin in Mississippi and Louisiana.

Picayune, Mississippi, USA

The Crosby Arboretum: A Sustainable Regional Landscape *(Continued from Page 2)*

The Woodlands are gracefully shifting from a predominant pine overstory to a hardwood forest. This was due to the cessation of burning of these grasslands in 1982 and the planting of thousands of appropriate native woodland species. The Piney Woods Lake is also dynamic and transitioning from an open sunny pond to a shady quiet swamp. It is important to remember that our own home landscapes and community green spaces are also growing, maturing, and senescing. We can apply the idea of regeneration in our own landscapes by planting new trees underneath healthy mature ones to ensure ready replacement in the case of a storm, insect or disease. Or we can let unused lawn areas become alive again by planting them into meadows and groves of trees, which also helps increase plant and animal biodiversity.

Habitat management will be greatest near visitor-use areas and unmanaged near the outer edges. Did you ever marvel at how a hard-working yet small staff accomplishes all that it does at Pinecote and its satellite natural areas? It was because of this simple early concept that allowed Arboretum managers to utilize ecological services, i.e. ‘Mother Nature’, to water, fertilize, replant, and nurture 104-acres of living plant exhibits. This was a revolutionary idea in the arboreta and botanic garden world in the 1980s and is still novel today. It was a conscious and brilliant decision for Crosby to reduce maintenance costs and needs while still creating an exquisitely beautiful native garden. During my tenure at Crosby, I met folks from around the nation who came to Pinecote to learn from what we had done and applied it in their own new developments. They included designers and managers from other botanic gardens (Lady Bird Johnson Wildflower Center in Texas) and award-winning residential developers (RiverCamps and Watercolor in Florida). These facilities realized significant up-front and long-term cost savings by minimizing their construction and permanent management areas, and increased their natural areas. Additionally, they are preserving their regional landscape identities.

Growth and development of the arboretum should be slow and incremental. Also known as adaptive design, this tenet can prevent costly or irreversible planning mistakes. Before the Arboretum’s Piney Woods Lake was excavated, the then-savanna wetland area was mown and studied for about a year. Adjustments to the pond edges and water depths were made to create the best shape even before the first dirt was shoveled. The same was done for pathways and buildings by testing an area before resources for construction were committed. The big orange kiosk sign that is located at the visitor entry is actually the proposed location for a future entry building. Our current temporary visitor’s center is in the footprint of a



Interpretive signage along the Crosby Arboretum pathways allows for visiting school groups to self-tour at their own pace.

permanent Visitor Center, as shown on the master plan. The best possible planning decisions can be made by studying temporary attempts and living with them for a while.

These are but a few of the wise principles that form the basis of Pinecote’s planning, and there are many more that inform the 35 year old native plant garden. These are detailed more thoroughly in our new book, *The Crosby Arboretum: A Sustainable Regional Landscape*, published through LSU Press. In it, I reveal the site’s history, and the people involved and design process used to create Pinecote’s landscape patterns. I was extremely fortunate to be a part of this process and to learn from Ed Blake, Chris Wells, Andropogon, and many of you; and I now pass these learnings on to my students at Mississippi State University. I look forward to speaking at Pinecote on June 7 to discuss these and the many other important ideas I have learned at the Crosby Arboretum.

- **Robert F. Brzuszek**, *Extension Professor of Landscape Architecture, Mississippi State University*



Professor Bob Brzuszek’s Ecological Planting Design students (LA 4514) presented plans for the Swamp Forest Educational Exhibit at MSU in April.

DONATIONS AND MEMORIALS

Trees were planted this spring, and donations made, in memory of **Joan Bruder, Dorothy Burge, Tatjana Eustis, Terrell Jopes, Phillippe Lecornu, Carolyn Moody, Josie Rollins, Virginia Watson, and Daniel J. Wray**. A donation was received in March in honor of **John G. Amato** on the occasion of his birthday from John and Yvette Rosen. Information on Memorial and Honor Trees, including a recommended species list, is available on the arboretum website. We are grateful to all who have chosen to make a lasting donation to the Crosby Arboretum in memory of, or to honor, family and friends.



Picayune Troop 5 Eagle Scout candidate Jacob McLendon (left) led his crew to build 300 feet of trail in the Swamp Forest Exhibit in March.

NATIVE PLANTS WITH SUMMER INTEREST

Fewflower Milkweed (*Aesclepias lanceolata*)

Buttonbush (*Cephalanthus occidentalis*)

Swamp Lily (*Crinum americanum*)

Eryngo (*Eryngium integrifolium*)

Orange Candyroot (*Polygala lutea*)

Lizard's Tail (*Saururus cernuus*)

Stokes Aster (*Stokesia laevis*)

Pink Meadow Beauty (*Rhexia mariana*)

White-topped Sedge (*Rhynchospora colorata*)

Yellow-eyed Grass (*Xyris* spp.)

Refer to the Native Plant Database on our website for details.

FALL MUSHROOM WALK

An Arboretum mushroom walk with **Dr. Juan Mata**, Associate Biology Professor from the University of South Alabama, will be held on **Saturday, September 20**, from 10:00 to 11:30 a.m.

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Membership Application

All contributions are tax deductible to the extent allowed. For more information call: (601) 799-2311 or print form online.

_____	Student (send student i.d.)	\$ 15.00
_____	Individual	30.00
_____	Family	40.00
_____	Donor	100.00
_____	Patron	250.00
_____	Benefactor	1,000.00
_____	Business	
_____	_____ Sweetgum	100.00
_____	_____ Sassafras	250.00
_____	_____ Live Oak	500.00
_____	_____ Bigleaf Magnolia	1,000.00

Name _____

Address _____

City _____

State _____ Zip _____ Phone _____

Renewing? Memberships are for one year.



The Crosby Arboretum

Mississippi State University

P.O. Box 1639

Picayune, MS 39466-1639

(601)-799-2311

www.crosbyarboretum.msstate.edu

Crosby Arboretum Program Schedule

June – July 2014

June 2014

THE CROSBY ARBORETUM: A SUSTAINABLE REGIONAL LANDSCAPE (Adults)

**Saturday, June 7
2:00 to 3:00 p.m.**

Robert F. Brzuszek, curator and site director of The Crosby Arboretum from 1990 to 2003, will discuss the process of developing his new book (released this April by LSU Press). Topics will include the major principles behind the Arboretum's design outlined by Andropogon Associates, Ltd., and how they still apply today. Admission is free for members, \$5 non-members. Register by June 6.

TEACHER'S WORKSHOP: GO WILD FOR BLACK BEARS AND ENDANGERED SPECIES (Teachers)

**Wednesday, June 18
9:00 a.m. to 3:00 p.m.**

Join **Crystie Baker**, Mississippi Museum of Natural Science Educational Outreach Biologist for a fun-filled, hands-on advanced Project Wild workshop, using Mississippi endangered species, especially black bears, to teach subjects across the curriculum. An interdisciplinary workshop for K-12 teachers and homeschool educators. FREE for Hancock and Pearl River County teachers. Others, \$15 for registration and book, and \$10 for CEU's. Prepare for a "working lunch" (bring a brown bag lunch). If you have a Project Wild book, please bring it. To sign up, please call the Arboretum office at 601-799-2311.



Master Gardener Brenda Myers, who is also a Certified Square Foot Gardener, gave an informative presentation in February on this gardening method, drawing quite a crowd!

KIDS' FIELD WALK & CLAY CLASS (Kids!)

**Saturday, June 28
10:00 to 11:00 a.m.**

Children will walk the Arboretum paths to collect materials from nature, and use them to make relief tile impressions in self-hardening clay, creating lasting memories in this class led by **Ann Lott**, art teacher from Slidell High School. No age limit. All children must be accompanied by a parent or guardian. Materials fee \$5 per child for members' children, non-members' children \$7. Please register by June 27.

July 2014

AQUATIC PLANT SALE!

Saturday, July 12, 9:00 a.m. to Noon

Come early for the best selection of non-invasive aquatic plants, including hardy water lilies, Texas star hibiscus, native iris, spider lilies, lizard's tail, arrow arum, and golden club. Many of these plants will be divisions from our exhibits. **Free admission!** The sale will be held in the Greenhouse area (Please use our Service Entrance).

• SUMMER VOLUNTEER MEETINGS •

Volunteer meetings will be suspended over the summer. The newsletter, and e-mails with volunteer needs will continue. Meetings will start again in the fall, and are usually the first or second Saturday of the month at 9:00 a.m. Interested in volunteering? Please contact Cathy Bordelon at cathyb@ext.msstate.edu or (601) 799-2311.



CROSBY ARBORETUM NEW GALLERY OPENING: MARY MURCHISON, NATURE MANDALA ARTIST

**Saturday, June 21
1:00 to 3:00 p.m.**

Carriere resident and Crosby Arboretum member **Mary Murchison** has developed a delightful and individual method of arranging plant materials to create "nature mandalas". Mary's photographs of this ephemeral work permanently capture her unique approach to appreciating the natural world, which will be the inaugural exhibit in our new gallery space located in the Visitor Center. The Arboretum will continue to feature exhibits by artists whose work celebrates nature. Light refreshments will be served. Admission to the event is free for members, and non-members.

Crosby Arboretum Program Schedule

July – August 2014

July 2014 (con't)

ALL ABOUT RUBY-THROATED HUMMINGBIRDS

Saturday, July 26 (Family)
10:00 a.m. to 11:00 a.m.

James Bell, Hummingbird Bander, of the Hummer/Bird Study Group Inc., will reveal how you can fill your yard with hummingbirds! Learn what is going on in the hummingbird's life, how they feed, why they fight so much, and simple tips and tricks to attract them, giving you a chance to enjoy the beauty of one of nature's most dazzling creations. Members free; non-members \$5; non-members' children \$2. Register by July 25.

TEACHER'S WORKSHOP: Flying WILD (Teachers)

Wednesday, July 30
9:00 a.m. to 3:00 p.m.

Flying WILD is a Project Wild workshop using activities focusing on birds, to teach subjects such as language arts, social science, and math. **Crystie Baker**, Mississippi Museum of Natural Science Educational Outreach Biologist, will conduct this interdisciplinary workshop open to K-12 teachers and homeschool educators. FREE for Hancock and Pearl River County teachers. Others, \$15 or registration and book, and \$10 for CEU's. Bring a brown bag lunch, and prepare for a "working lunch". To register, call the Arboretum at (601) 799-2311.

TEACHER'S WORKSHOP: Aquatic WILD (Teachers)

Thursday, July 31
9:00 a.m. to 3:00 p.m.

Aquatic WILD uses the simple, successful format of Project WILD activities and professional training workshops, with an emphasis on aquatic wildlife and aquatic ecology. The workshop will be conducted by **Crystie Baker**, Mississippi Museum of Natural Science Educational Outreach Biologist. An interdisciplinary workshop open to K-12 teachers and homeschool educators. FREE for Hancock and Pearl River County teachers. Others, \$15 or registration and book, and \$10 for CEU's. Bring a brown bag lunch, and prepare for a "working lunch". To register, call the Arboretum at (601) 799-2311.

August 2014

HILLSIDE BOG WILDFLOWER WALK (Adults)

Saturday, August 2
10:00 a.m. to Noon

Enjoy a special field trip to the Arboretum's Hillside Bog natural area with **Dr. Wayne Morris**, Associate Professor of Biology at Troy University, Alabama. Dr. Morris performed graduate research work at the Arboretum in summer 1986 under Dr. Sidney McDaniel and conducted inventories of species growing at the Arboretum and its associated natural areas. Members free; non-members \$5. Register by August 1.

INTRODUCTION TO FLY TYING FOR YOUTH

Saturday, August 16 (Ages 9 to 14)
1:00 to 2:30 p.m.

In this workshop designed for youth, fly fisherman **Will Sullivan** will teach how to use simple, inexpensive materials such as flip flop foam, thread, rubber bands and other common items, to create flies to catch fish. All materials and equipment will be provided. Limited to 5 participants, best suited to ages 9 to 14. Parent or guardian required. Materials fee: Members \$2, non-members \$4. Please call to register by August 15.

EDIBLE PLANTS FOR YOU AND FOR WILDLIFE

Saturday, August 23 (Adults)
1:00 to 2:00 p.m.

Arboretum volunteer and plant enthusiast **Darla Pastorek** will present a delightful program on the popular topic of edible plants for both you and your local wildlife. Darla has worked with plants in many capacities for 30 years, and has extensive experience in propagation and garden management. Learn all about her favorite edible plants, both native and non-native, and how you can grow them in your garden. Members free, non-members, \$5. Please call to register by August 22.

SUMMER WILDFLOWER WALK (Family!)

Saturday, August 30
10:00 to 11:00 a.m.

Take a summer tour of the Arboretum grounds with Director **Pat Drackett**, and discover what is currently blooming in our south savanna and pitcher plant bog. Other plants of interest will be discussed along the way, including how you can use them in your home landscape. Bring your camera, and dress for walking (this will be an easy stroll with plenty of chances to pause along the way). Free admission for members and \$5 for non-members. Please call to register by August 29.

Reservations: Call the Arboretum office at (601) 799-2311 for questions, and to make program reservations.

Physical Address: 370 Ridge Road, Picayune, MS 39466

Hours of Operation: Wednesday-Sunday, 9:00 a.m.-5:00 p.m.

2013 Admission Fees: Adults, \$5; Seniors (over 55), \$4; Children under 12, \$2; Members, free admission to grounds and programs.

www.crosbyarboretum.msstate.edu

