



Garden News

Notes From the Director

By: David Creech

Hip-hip-hooray! Life at the garden world has returned to normal. We've run hurdles, climbed walls, survived a fall drought, slogged through a mud pit or two, and now we're making it round the bend to Christmas without a crisis. I can feel it, and more. When 2008 rolls around, SFA's garden world starts to go national. That's a promise. But first, let me tackle a little housekeeping:

Since the last newsletter, I have weathered a career move. After years of thinking about it, I retired August 31st - and then magically reappeared on October 1st as "Associate" Director of the SFA Garden World. I think this is something less than czar, but the reality is I've moved from a tenured Regent's Professor to "serving at the will of the President", and the main thing is I will now have more time to give Dawn, Elyce, Greg, Barb, and Jon the kind of over-the-shoulder attention they want so badly. By the way, they curiously wince when I say that. Actually, we're all part of taking the SFA Gardens to the next level. That should be easy. With five great staff, three faculty, sixty acres, excellent facilities, and some great volunteers and supporters, SFA is about to take strong regional awareness of what we're doing here . . . to going national in five years.

Down on the ground with the troops, it hasn't been easy the last few months. Yes, we've had more than a few bumps in the road. After a big scare in September, Dawn Stover survived a medical emergency with her little boy, John David. The good news is that all the heart thumping

terror then has now been replaced with John David back to his normal cheerful I-want-to-go-over-there self. It's great to have both of them back.

Greg Grant took medical leave around the first of October to heal a long list of neuro-skeletal issues that have plagued him for many years. The whole thing has been an educational ride into modern medicine and how to get to it and how lucky we are when we live without pain. The best news is that Greg returns December 3rd and the second best news is that Greg couldn't have a more empathetic boss. I have long suffered bouts with lower back issues, mostly defined by a week or two of horizontal meditations when even thinking about getting up is a big deal. Just writing about it gives me a twinge or two. It will be great to have Greg back.

Good news! Dr. Jeff Adkins will be coming on board in Horticulture as our newest addition to the faculty! Jeff comes to us from the University of Rhode Island. He received his MSc from the University of Georgia under Dr. Mike Dirr and his PhD from North Carolina State University under Dr. Denny Werner. He couldn't have had better mentors in the woody plant world. Jeff brings breeding skills, enthusiasm and a strong work ethic to the program. Jeff sends a big hello to all of our garden friends: "I'm very excited about the opportunity to become a part of a horticulture program that is known nationally for its excellent teaching arboretum. My wife, Stacie, and

my four daughters, Miranda, Piper, Meadow and Willow are excited to begin a new adventure in Texas and to be so near to our family in Conroe, Texas."

More Good News! The SFA Mast Arboretum's one-mile asphalt trail network is finished and settled in. We love it and our visitors seem to feel the same way! Vic Shepherd is SFA's asphalt artist in the Physical Plant and a great friend of the garden as well. All I can say is bravo! Think about it. With the Ruby M. Mize Azalea Garden, PNPC and now the Mast Arboretum's trail network . . . we are just a hair under five miles of trails!

At the PNPC, we have to give kudos to Dan McBride for bringing irrigation to the north end of the PNPC. That was a major undertaking. In Greg's absence, Dan has done a fine job holding the fort together and actually making some important improvements to the place. Andrea Schroeder, Bryan Deak, and the rest of the student crew have been busy as beavers. The weeds are beat back. Our Christmas lights are up. The place has never looked better. Till next time, keep planting!



Camellia: Queen of the Winter Flowers

By: Barbara Stump

Each October I am amazed at the blooms in the Ruby M. Mize Azalea Garden. We did plan for them, selecting from *Camellia sasanqua* and fall-blooming azaleas, but the show is still miraculous to me (yes, I was born a Yankee). Where I come from fall color has come and gone, temperatures are hovering in the 30s regularly (and will until March), and the only camellias you can see are in public garden conservatories.

We have over 200 camellias in the garden, with the oldest having been planted in 1998. These form the “backbone” of the beds on the eastern side of the garden and are now 10 to 12 feet tall. The *Camellia sasanqua* colors in these beds range from pink (‘Winter Rouge’ and ‘Winter’s Star’) to white (‘Setsugekka’). Particularly noteworthy is the double form of ‘Leslie Ann’ with its pink-tipped very white petals. Our three very showy specimens in Bed 9 came to us from Woodlander’s Nursery in Aiken,



‘Leslie Ann’

South Carolina.

For winter white we also have ‘Snow Flurry’, a double form with narrow curving petals against very dark-green foliage. This sasanqua is a 1986 release developed by the US National Arboretum. ‘Snow Flurry’ is a cross between *Camellia oleifera*, which is typically used in breeding, and *Camellia hiemalis x oleifera* ‘Frost Princess’, a compact grower. ‘Snow Flurry’ is aptly named, as this 6- to 8-foot shrub is covered with peony-like blooms that resemble snowballs.



‘Snow Flurry’

With Christmas on our minds, it is always a treat to see the single scarlet-red blooms of ‘Yuletide’ in Beds 13, 16, and 31. But this is not our only red. Take a walk into our Camellia Trail area in the southeastern cor-



‘Yuletide’

ner of the garden (Beds 18-22). Your reward? First, look in Bed 19 for ‘Midnight Lover’, which is a deep almost black-red with a big yellow boss of stamens. *Camellia Forest Nursery* in Chapel Hill, South Carolina, selected and introduced this seedling of ‘Crimson King’ as “the deepest red they had seen in a sasanqua.” It has a vigorous, upright growth habit, and blooms from October through November. Then, look around for 19 more sasanquas in various stages of bloom. Many of the 56 camellia hybrids also have sasanqua parentage and bloom during our cool season.

This is just a quick glimpse of the winter-blooming camellias. In January our *Camellia japonicas* will begin blooming; and, if we are lucky and have a cool spring, we may still have some *Camellia williamsii* in bloom for the March Azalea Trail season. Come visit the garden; even in the chill there are many blooms.

Kudos



Elyce Rodewald, Education Coordinator, was recently appointed to Texas Environmental Education Partnership (TEEP) board. TEEP is a coalition focused on building and supporting a framework for environmental education in Texas. The group works to improve the quality of environmental education, identify and increase resources for environmental education, and to develop and recommend environmental education policies. TEEP was developed to be inclusive and gain diverse perspectives from individuals across the state.



Earth Science Learning Excursions at the PNPC

By: Elyce Rodewald

Deposition. Erosion. Sedimentation. Weathering. Transpiration. Evaporation. Percolation. Earth Science concepts came to life for Nacogdoches ISD 5th graders during their Learning Excursion at the SFA Pineywoods Native Plant Center in October. Students explored the creek on a geology scavenger hunt, watched erosion in motion and created ingenious ways to keep sediment out of the creek, traveled through the water cycle as a water drop, and got really dirty investigating different soil particles.

An outside observer may think that a Learning Excursion is a bit chaotic—large plastic balls rolling downhill, children racing randomly from one place to another, and shouts of sedimentation and deposition from the forest. In reality, activities specifically target science objectives and use methods appropriate for many different learning styles in order to reach all students. Jana Ivy, 5th grade teacher at TJR Elementary, believes that the field trip was an excellent springboard for the 5th grade earth science unit. She said, “The students loved all the activities... they actually got to see examples first hand in nature. Learning was related to the past, present, and future.”

Paula Hand, Raguet Elementary science teacher, knows that “the kids really remember the activities and the concepts that they learn. They often refer to those activities when trying to explain a concept.” She also feels fortunate to have the PNPC as a resource for her students. “When I was at CAST [Conference for the Advancement of Science Teaching], one of my presenters made a comment to the effect of, ‘of course, you probably can’t take your students and actually show them erosion and deposition...’ which, for us at NISD isn’t true. We CAN take them to the PNPC and they CAN actually see the changes that occur naturally.”

All NISD elementary students participate in a Learning Excursion at the PNPC or the Arboretum. Kindergartners and first graders attend **Bugs, Bees, Butterflies, and Blossoms** and second graders take an **Arboretum Adventure**. At the PNPC, third graders **Go Wild** and fourth graders are **Wild About Science**. In the spring, we will meet fifth graders again at the SFA Experimental Forest for **Forest Awareness Tours**

hosted by the Texas Forest Service and Cooperative Extension.

Marla Pickard, NISD Director of Science and HPE, K-12, enthusiastically supports the Learning Excursions for NISD students. She explains, “These projects enhance the experiences of our elementary students. Research indicates that the number one strategy for improvement in student achievement in science is to relate learning to students’ previous experiences, knowledge or interests such as taking field trips or using real-world examples. The Learning Excursions at the SFA Mast Arboretum and the Pineywoods Native Plant Center provide such opportunities. Through participation in these programs, our students have opportunities to inquire and explore, to practice process skills and to increase their knowledge of scientific concepts. The activities are correlated to the Texas Essential Knowledge and Skills mandated by the state of Texas and the NISD Curriculum. Students remember these experiences and at the same time have fun learning. We’re very excited about our students participating in the outdoor learning excursions.”



Photos: Annette Dawson and Ben Sultenfuss lead NISD students through Learning Excursions. Students learn science concepts through hands on activities.

You can watch video of the Earth Science Learning Excursion on the TIDES for Teachers web site <http://tides.sfasu.edu/Teachers/tides/docs/VirtualExpeditions/videos/npcStreamManagement.html>



Odds and Ends: Garden Update in the Arboretum

By: Dawn Stover

Even though summer seemed to drag on forever, it already seems like it happened a lifetime ago. Many things are a-brewing in the Arboretum and there's much to be excited about.

The asphalt portion of our trails is completed and we're been busy blending them into the garden, or rather blending the gardens into them. In other words, we're making the beds bigger and have tons more space for plants!



Bare grounds eagerly awaits new plants

The Dinosaur Garden (yes, we still need a better name) is filling up. Since our last newsletter, a flock of ferns have found homes here, with more to come this fall and winter. Two areas in this garden will receive a coating of crushed granite, forming a pathway and a possible picnic area.

As this newsletter comes together, we eagerly await four semi-truck loads of crushed granite to complete our "universally" accessible trail from Wilson Drive by the gazebo to the herb garden. Once this is complete, the only component lacking will be a switchback from the Herb Garden to the lower parking lot—a complicated engineering feat to be completed by the SFA Physical Plant.

As many times as I've muttered expletives when poked by an agave, you'd think I'd quit planting them. Well, we've expanded our woody lily collection by taking over what used to be Rose Hill, revamping part of the Dry Garden, and adding a new bed on College Avenue, and there are still more *Agave* and *Yucca* in the greenhouse waiting for homes! I have learned one lesson worthy of passing along: give them plenty of space. It's so much easier to slip around in garden beds full of well-spaced pokey things with a back pack of Round-Up, then it is to try to squeeze between two agave

planted too closely trying to pull out dewberries. Yikes!

One might not think that talk of agaves would make a good segue into a conversation about ferns, but in this case it does! In our ever expanding fern collection, we've amassed a good number of full sun drought tolerant ferns, mostly from the genus *Cheilanthes*. These heat lovers have found a home in the old Rose Hill with agave, palms, and some new varieties of *Dianella*, or flax lily. In addition to this collection, we're creating areas in the shade garden for specific collections. Currently, we have a wonderful display of *Dryopteris* - Wood Fern - soon to be joined by beds of *Polystichum* - Shield Fern, *Thelypteris* - Maiden Fern, and *Athyrium* - Lady Fern, plus a few one-of-a-kinds.



Dryopteris xxx in the Shade Garden

There's a resident of another kind in the shade garden as well. The metal kind that is. Local artist Jeff Brewer created the red bird currently living amongst striped bamboo in the lower Shade Garden. You can't miss it looking into the garden through the old perennial borders. And like most things around here it needs a name. Jeff has suggested a contest to name it and has offered to donate the prize, provided he gets to pick the winner. Be sure to say hi to our fine new fowl on your next visit.

We also have a wonderful resource to help us keep track of the new garden residents of



Red bird tells secrets to his creator Jeff Brewer

the plant kind. Our new laser engraver will be kept busy in the coming months as plant labeling endeavor begins. For a special problems course in the spring, SFA senior Darralyn Scobee will be revising the Arboretum map book and making those long-awaited plants labels!

Wrapping up the garden news, the Children's Garden is slated for a small facelift. A collection of TRULY dwarf lantana will be complimented by sweeps of blue and purple salvia, and the roses will be replaced with a "nursery" area full of butterfly host plants including passion vine, milkweed, and pipe vine. The butterflies are getting excited, and so are we.

And finally a personal note, I just wanted to thank all of you who kept John David in your thoughts and prayers throughout his illness. We had a wonderful team of doctors at Texas Children's Hospital, and John David has completely recovered. He is practicing his Terrible Two's at the moment. And his dad and I are loving every minute of it!



John David in the gingers at Mercer Arboretum

SFA Garden World Helping to Cure Cancer and Viral Flu

By: David Creech

We were blessed Oct 7, 2007 with a visit by The Hardy Fern Foundation - a fascinating group of a little over twenty fernophiles coming from all over the world. The HHF is a non-profit, membership organization established to provide a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community (<http://www.hardyferns.org/>).

From the HHF website, "There are many beautiful ferns that are easily grown, but little known in cultivation. The Hardy Fern Foundation was formed to seek out the many rare and unusual species as well as hybrids and varieties to be propagated from spore and tested in selected environments for their different degrees of hardiness and ornamental garden value. The members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution. It is a unique opportunity to participate in and contribute to expanding horticultural knowledge and the introduction of new plants into cultivation."



Members of the HHF visit with Dr. Shiyou Li

While they were here, Dr. Shiyou Li gave an excellent presentation to the group on a collaborative project between the SFA garden world and the Center for Pharmaceutical Plants here at SFA. The project, "Identification of Antiviral Compounds From Native Pteridophytes of North America" funded by SFA Research Development Program, is now entering the second year and it looks like we're making great progress. The text below is lifted from a recent annual report.

The persistence of fatal viral diseases such as H5N1 avian influenza has raised serious concerns about global pandemics of viral



Naud Burnett focuses on a *Cheilanthes* specimen

diseases. As more viruses become resistant to current drug therapies, discovery of novel drug candidates with new mechanisms of action is imperative. Plant-based natural products have proven to be important sources for antiviral drug development. However, most of the 10,000 species of

pteridophytes in the world have never been scientifically investigated for their chemical constituents and bioactivity, and therefore their potential medical values have been ignored by modern medicine. Of the 74 genera and 439 species of native and exotic pteridophytes in North America, 46 genera and 87 species are shared with China where some pteridophytes are traditionally used to treat influenza.

The primary objective of our work is to identify promising bioactive agents from native pteridophytes to treat some elusive fatal viruses. This project will also create two fern gardens at SFA that can be utilized for future research and education. This collaborative endeavor will combine the extensive medicinal plant research experience of the National Center for Pharmaceutical Crops with the expertise in plant acquisition, propagation, and conservation of the SFA Mast Arboretum and Pineywoods

Native Plant Center. For chemical and antiviral activity investigations, plant samples of 135 taxa representing at least 17 families and 36 genera have been primarily collected from the eastern United States, particularly East Texas during the period of June 2006 to August 2007. To date, 36 pure compounds have been isolated and elucidated from five selected ferns: 10 compounds from *Cyrtomium falcatum* (Holly fern) (family Dryopteridaceae), five from *Alsophila australis* (Australian Tree fern) (family Cyatheaceae), six phenolic compounds and one sugar from *Polystichum acrostichoides* (family Dryopteridaceae), 10 from *Onoclea sensibilis* (family Dryopteridaceae), and four from *Pleopeltis polypodioides* (Resurrection fern) (Polypodiaceae). For the first time, we found that DNA topoisomerase I is probably the target of a flavonoid that showed potent antifungal activity in our previous investigations. One manuscript titled "flavonoids as Topoisomerase I inhibitors" is in the process of preparation for publication.

Most important to our end of the garden world is that the Mast Arboretum and PNPC get the chance to be involved in a project that promises to preserve the germplasm of antiviral ferns and fern allies through the creation of two fern gardens: A preserve of native medicinal ferns and fern allies at the Pineywoods Native Plant Center and a collection of promising exotics in the Mast Arboretum and Ruby M. Mize Azalea Garden.



HHF members view ferns in the arboretum collection

Plant Profile: *Salvia madrensis*

By: Dawn Stover

Fall is a unique time in the garden. It's a floriferous reprieve from the near death conditions of August and September. The soft pastels of asters and chrysanthemum dot the landscape as they await embers of late autumn and the subsequent slumber of winter. Pinks, purples, and blues are prevalent in the perennial border, perhaps a soothing bandage to the color of scorch offered in late summer. In the midst of this harmony, we find an exclamation that fall is truly here. *Salvia madrensis*, or forsythia sage, offers that proclamation with towering spikes of forsythia-yellow flowers in late October and November. The flowers often measure 12 inches or better, and make dramatic statements in floral arrangements. The flowers are offered by thick, square stemmed

stalks and dark green, coarsely textured, heart-shaped leaves.

Forsythia sage originates in the Sierra Madre Oriental mountain range of Mexico at elevations of 4,000 to 5,000 feet. It is

hardy in USDA zones 7-11, and will remain semi-woody in zones 9B-11. Plants can reach heights of 10 feet, but realistically achieve 3 to 5 feet in frost prone areas.

Most literature states it prefers a somewhat shady location, but we extremely pleased with its performance in full sun at the arboretum. It is somewhat drought tolerant, provided the soil is rich and high in organic matter. Of course the plant will look it's best with moderate amounts of summer irrigation.

Two cultivars are somewhat common, 'Dunham' which is reportedly hardy to 9 degrees F, and 'Red Neck Girl' which sports red stems and an earlier bloom period. You'll find the species at the Arboretum plant sale next year on April 12th!



Salvia madrensis in bloom in the perennial borders at the Arboretum



Fall Fandango - Fall Fandango



Improving our Plant Production World!

By: David Creech

Have you taken a stroll along the lines of vines and noticed our latest development? Through a grant from the Texas Nursery and Landscape Association we are slowly developing a sunny container production facility in the lines of vines. One of the main objectives of that grant for the past year was to develop a pot-in-pot production area that could produce about 600 containers per year, and we've managed to move that goal close to fruition. Pot-in-pot production usually involves a "socket" pot that holds the pot used for growing plants. Root temperatures are generally cooler in the

summer, warmer in the winter and blow-over is much less of a problem. The pot-in-pot sections will be part of that area moving to a full blown nursery research facility (0.75 acres) within the next year. This project will allow us to greatly enhance the scope and quality of our water and fertilizer use studies involving container and in-ground nursery plants. Jason Stafford, senior horticulture major, has been responsible for the latest expansion of that project as part of the requirements for a problem course in Horticulture.



The Green Leaves of Winter (Evergreen Hollies)

By: Greg Grant



Ilex vomitoria

It's hard to imagine a holiday season without evergreens. It's even harder to imagine a landscape without evergreens.

After all, as the English say, they give bones to the landscape design.

And there's certainly no more important time to have good bones and good design than during the bleak, starkness of winter.

As a herbaceous color fanatic on a budget, my landscape designs are generally lacking in structure. Of course, this architectural shortcoming is masked during the growing season. It's easy to look good under a floral muumuu! But each winter, I'm sorely reminded of the importance of evergreen trees and shrubs in the landscape. With one heavy freeze, my landscapes go from an FTD bouquet to leftover turnip greens tossed across the yard.

This leaves me several options. I could throw up my hands and give up my remedial landscape design obsession. This will not happen. I could add beautiful stone walls, iron gates, rustic pergolas, and copper kettles. But of course, there's that budget thing again. Or, I could choose what I consider the best choice of all, adding more evergreen shrubs.

We've just come from a period characterized by the overuse of evergreen shrubs.

And certainly an entire landscape of evergreens can be monotonous. But then again, an entire landscape of frozen mush looks pretty monotonous too. Now that herbaceous perennials and cottage gardens are all the rage, it's important that we learn to use a proper balance of both deciduous and evergreen shrubs as compliments to the color. Throughout the world, hollies are often the choice winter evergreen. In Southern landscapes, they are the king.

The genus *Ilex* contains over 400 species native throughout the world. The most common landscape forms include both Asian and native American species. Hollies are further divided into evergreen and deciduous types. In recent years, the showy-berried deciduous hollies have

gained in popularity. The evergreen types of course never waned. Holly selections range in ultimate height from trees to shrubs and include both spiny leafed and spineless types.

In addition to the showy evergreen foliage, the potential for showy berries has to be considered.

This brings us to some very important botanical morphology. First of all, not all holly berries are red. Some are orange, some are yellow, and some are even black. And even more importantly, not all hollies even make berries. Sounds berry sad, but it's true.

Hollies have male and female flowers on separate plants. The females produce the berries while the males produce the pollen

forming the berries. You've all heard "the birds and the bees" story. This makes choosing species and cultivars extremely important. If berries are your desire, you've got to do your homework. There are numerous books, catalogs, websites, and public gardens that can make choosing your favorite berry producers much easier. Two of my all time favorites are East Texas natives, American holly (*Ilex opaca*) and yaupon holly (*Ilex vomitoria*).

Not all landscape situations call for holly berries. They are considered mildly toxic and aren't good choices around small children. And of course there are some outstanding selections that don't produce showy berries. But if it comes to a choice of a berried type versus one without, I always



Ilex opaca

choose the berries. In addition to serving as natural twinkling lights and decoration, they often provide valuable food for songbirds, including my favorite, the bluebird. To date I have erected over 100 bluebird nesting boxes. Somebody

has to help feed all those children!

Evergreen hollies have many landscape uses. They can be used as attention grabbing specimens. They make great screens. They are great for framing views. They make the finest of hedges and are often tops for topiary work. They of course make great Christmas decorations as well. Without them, we'd all be green with envy!

2008 Les Reeves Lecture Series

January 17—"Yakking About Tibet" - Jeff Abt

February 21—"Plants That Transcend Time" - Ed Bush

March 20—"Breeding Plants for the 21st Century" - David Knauft

April 17—"Texas Superstars: Past, Present and Future" - Jerry Parsons

May 15—"Plant Selection and Breeding for Coastal Plain Landscapes" - John Ruter

June 19—"I Prefer Life on the Wet Side" - Ken Krauss

July 17—"Plagiarize and Planterize!" - Jimmy Turner

August 21—"I'm Offensive and So Are My Plants" - Paul Cox

September 18—"Lessons From the Welty Garden, Mississippi 1925" - Susan Haltom

October 16—"Ornamental Landscape Plants for Overstressed Homeowners" - Tom Foley

November 20—"Plant Hunting and Plants That Knock Me Dead" - Scott McMahan

December 18—"Is There Life After Retirement?" - David Creech

SFA MAST ARBORETUM
* RUBY MIZE AZALEA GARDEN *
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Fried Eggs, Sunny Side Up, Please!

By: David Creech



Gordonia axillaris is in the family Theaceae and is closely related to *Franklinia*. In fact, there's a bit of botanical controversy here - and some botanists have scrapped the genus *Gordonia* and moved the species into *Franklinia* and, in China, the species is often described as *Polyspora*. Whatever the name, the fried egg tree, is nothing less than a standout late fall bloomer. With time, the tree is reported to reach 15' and about that wide. This evergreen species is prone to bloom in late November and December, which means hard freezes can take away the plant's cheerful nature. For the last few years, our fried egg tree has managed to escape killer frosts and rewarded the garden with a long bloom show. Each white showy 3" blooms sports a yellow fuzzy center of stamens and it's easy to see why the plant gets its name. From a distance, the tree does indeed look like it's covered with fried eggs, over easy! While related to camellias, the flowers do not "brown" on the tree, instead they fall quite quickly and light sunny side up and cover the ground around the base of the tree with a happy carpet of, yep, you guessed it, fried eggs. We have several specimens of *Gordonia* in the Arboretum. One is *Gordonia lasianthus*, or loblolly bay. Native to the SE USA, this species is a little difficult to place. It prefers moist humic soil that is very well drained. Planting on a slope near a wet area is often the best bet. Part shade seems to help. The plant is fairly easy to root with softwood to semi-hardwood cuttings under mist in June. While slow in the container, this is a special plant for the gardener in the South looking for late fall and early winter interest. The species is probably best in a part-shade or east facing environment and tip-pruning is generally recommended to keep the plant thick and full.