

SFA GARDENS ANNUAL REPORT

JAN – DEC 2022



SFA Gardens
2900 Raguet Street
Pineywoods Native Plant
Center
Nacogdoches, TX 75965



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SFA GARDENS AS A UNIVERSITY AND REGIONAL RESOURCE

SFA Gardens remains a recognized and valued Center within Stephen F. Austin State University (SFASU), Nacogdoches, Texas, USA. SFA Gardens is a multi-faceted public garden within the Department of Agriculture in the Arthur Temple College of Forestry and Agriculture (ATCOFA). SFA Gardens manages about 138 acres on the SFASU campus and has seven connected theme gardens in one cohesive unit:

- 1) Ten acres in the Mast Arboretum and Jim and Beth Kingham Children's Garden
- 2) Ten acres in the Ruby M. Mize Azalea Garden
- 3) Eight acres in the Gayla Mize Garden
- 4) Sixty acres in the SFA Recreational Trails and Gardens adjacent to the Gayla Mize Garden and managed with Grounds and ATCOFA support.
- 5) Forty acres in the Pineywoods Native Plant Center on Raguet Street.
- 6) Two acres in the Jimmy Hinds Park on Austin Street.
- 6) Four acres in the LaNana creek trail corridor, a stretch which is home to the LaNana creek trail and the garden's collection of Taxodium (bald cypress) germplasm and other woody ornamental collections. Runs from the Starr Avenue bridge north to the PNPC.
- 7) Four acres, fruit research plots, south side of the Mast Arboretum, located on the LaNana creek trail, east side of the Intramural field (Wilson/Starr).

The SFA Gardens Board of Advisors is an umbrella organization to support research and outreach projects in the gardens, city and in the Gulf South. In addition, SFA Gardens is responsible for several funded research projects including:

- 1) Since 2016, a Moody Gardens, Galveston Island, grant has enjoyed a mission to find, plant and evaluate "climate resilient trees, shrubs, palms and other ornamentals for Galveston Island, Texas'. The project has graduated five MSc students and involved numerous undergraduates. Described later in this annual report.
- 2) Golden Kiwifruit, *Actinidia chinensis*, studies at SFASU. TAMU and with farmer-cooperators continue. This interesting project has enjoyed external support since 2016, first by three sequential TDA/USDA grants that lasted five years, and now by recent support of the KiwiKo brand of TopFruit in South Africa and a large grower in New

Zealand (Ross Stevenson). With seven crops out of nine cropping years since 2014, there's room for optimism. The project has graduated one MSc student, involved numerous undergraduates and generated regional attention. SFA Gardens is the first to actually produce green or golden kiwifruit in Texas. This is a collaborative project with Dr. Tim Hartmann, Texas Agrilife Extension Specialist, College Station, Texas.

3) A recently funded project (Texas Department of Agriculture/USDA Specialty Crop Block grant) on the potential of pineapple guava as an economic crop in Texas, a research collaboration with TAMU's Dr. Tim Hartmann, TAMU.

4) In 2022, a project funded by SFASU's Center for Applied Rural Research and Innovation (CARRI) created a two-acre drip irrigated in-ground tree and shrub nursery at the 12-acre CARRI headquarters on Stallings Drive, NW side of Nacogdoches. The mission of this work is to find, evaluate, propagate and promote climate resilient woody ornamental trees. We think the property has strong potential as an East Texas Urban Tree Research Center, one that could generate data, excitement and return on investment.

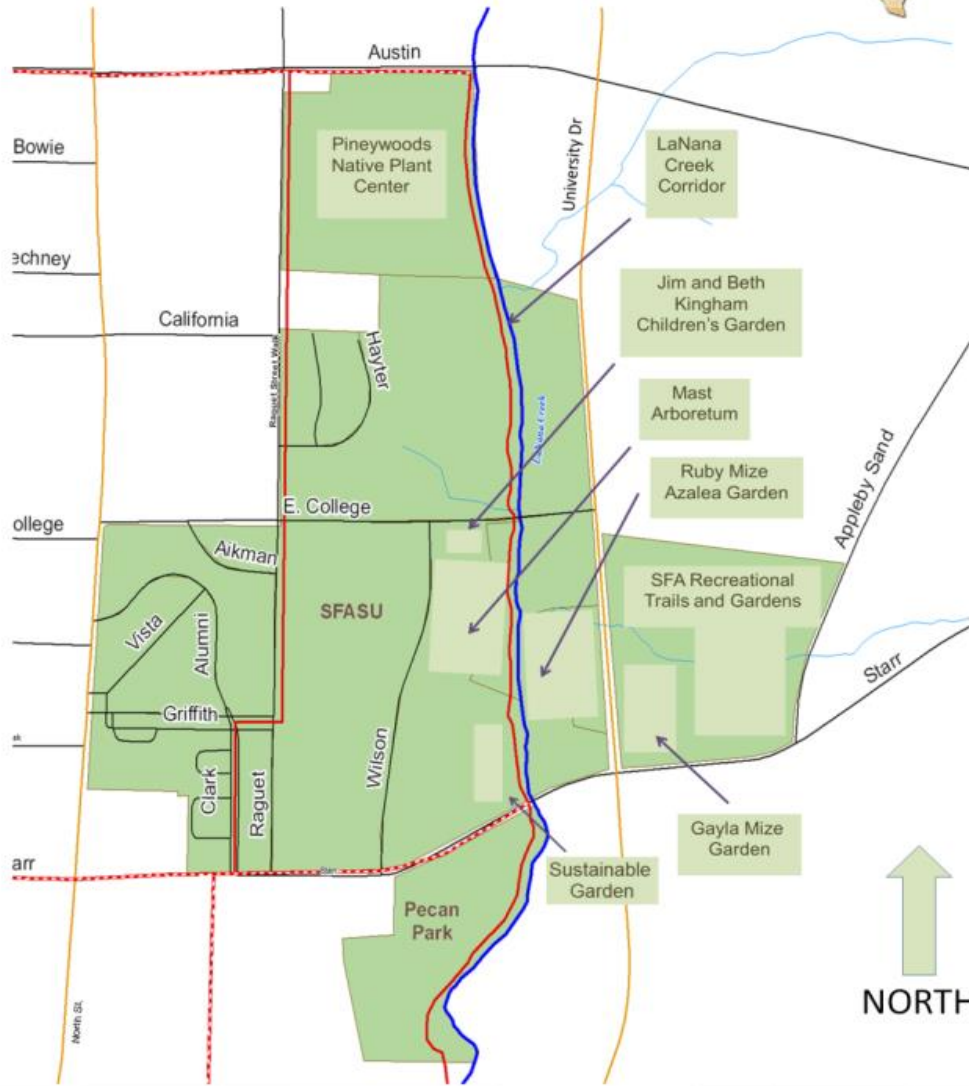
SFA Gardens continues to serve as a premier learning resource for students in Agriculture, Forestry, Horticulture, Environmental Science, Biology, Art and other disciplines. The CEB provides a fine environment for use as a classroom or lab. Over many years the gardens have served as a teaching/training/doing resource for SFASU students of many majors.

As a community and regional resource, the Nacogdoches Country Chamber of Commerce and the Convention and Visitors Bureau report that SFA Gardens is now a top query by phone or email looking for information on Nacogdoches. Heaviest visitation by local citizens, school kids, tourists, SFA students, and SFA faculty is during the seasonal shows, a spring azalea bloom season, usually early April and fall maple color hits a peak in late November early December.

It should be noted that, over many years, the SFA Gardens and Physical Plant relationship has been cooperative. We are colleagues on a mission for a greener SFA. With 138 acres under the SFA Gardens umbrella, our work with the Physical Plant Department to beautify the campus is relevant. We salute the cooperative spirit of John Branch, Director of the Physical Plant, Gary Williams, Grounds, arborist Chris Dempsey as well as all the personnel, whether it's mechanical maintenance, HVAC, plumbing, electrical, electronics, energy management, utility distribution, building trades, carpenters, lock shop, painters, drafting, transportation, automobile mechanics, special services, custodial, housing operations, and irrigation and sanitation. The last few years has been challenging not only to SFA Gardens. The Physical Plant has seen a significant number of lost positions and cuts to operating budgets.



ARTHUR TEMPLE COLLEGE OF FORESTRY AND AGRICULTURE
Stephen F. Austin State University
Nacogdoches, Texas



LaNana and Banita Creek Trail System		Date: July 25, 2013
<p>CASTILAW ENVIRONMENTAL SERVICES, LLC NACOGDOCHES, TX 75701-8801 WILFRED SPRINGLICK 937-482-0304</p>	<p>City of Nacogdoches Nacogdoches County, Texas</p> <p>Created By: Neil Boitnott, Austin Russell, & Adam Miller</p>	<p>Data Source: CES & City of Nacogdoches Datum: NAD 83</p>
	<p>Trail System</p> <ul style="list-style-type: none"> Existing - 5.4 Miles Proposed - 2.7 Miles Areas of Interest <p>Infrastructure</p> <ul style="list-style-type: none"> Highways Streets Major Creeks Minor Creeks 	

STATUS OF THE PROGRAMMATIC AND FISCAL HEALTH OF SFA GARDENS

The last three years has been a challenge for SFA Gardens. Just add it up. First, we endured two never-seen-before freeze events and a record drought/heat torture test over much of Texas in the summer 2022. Add in the impact of covid way back in March 2020. That took our environmental education program from 12,000 kids per year to zero. The next two years was a disruption in normal income from plant sales, workshops, seminars, meetings . . . and our very own Les Reeves Lecture Series. I referred to as a pit of despair. Nearly everyone can say the same.

Of course, the pandemic impacted salaries and operating budgets. Many programs and departments took major cut backs. In our own case, SFA Gardens had 10 staff (9 FTE) and the salaries were essentially 50% state funded and 50% externally funded. SFA Gardens quickly went from ten to six staff but, in 2022, we rebounded and we are 9 staff (7 FTE) and 28% state and 72% externally funded. How did this happen? Outside support.

While the economic pain of losing 2.3 state supported positions is heavy, we can report that brighter days are ahead. The environmental education program has returned and kids are once more getting a quality outdoor learning experience. The lecture series is back up and humming. There are plenty of tours on the calendar. There's a plant sale on the horizon. Usage is up. The gardens have been beat up by climate disasters but there is a treasure trove of survivors. We continue to connect with other university programs, with botanical gardens and arboreta, with plant hunters and there is a tremendous amount of plant excitement on the ground. For those in the know, SFA Gardens is a jewel in terms of genetic diversity. The last two years has sorted through our germplasm resource and decided what should thrive, survive or die. This is exactly what we need to build a new urban Texas landscape of climate resilient ornamentals and fruits.

WISH LIST

With the system change and new University management, the SFA Gardens has been asked by the Dean to provide a "wish list" for future needs. This is the consensus of the staff:

- 1) The SFA Gardens staff, Board of Advisors, and Volunteer Corps recommend that the 138-acre SFA Gardens stay intact as one unit at SFASU under ATCOFA.
- 2) Return one critical position, the PNPC's Environmental Education Coordinator, back to the state salary line that existed in March 2020. Estimated need: \$50,000 per year

- 3) STAFFING for the PNPC: 1) grounds and collections manager, 2) a nursery/greenhouse assistant grower, and 3) conservation projects manager. Estimated: \$150,000 per year.
- 4) Returning the SFA Gardens state o and m line back to the level enjoyed in 2020: Estimated need: \$40,000 per year
- 5) Creation of an Urban Tree Research Center at the CARRI 12-acre property on Stallings Avenue, NW side of Nacogdoches. Described later in this report. For a well and deer proof fence for about six acres of that property. \$120,000
- 6) Two ½ ton trucks. \$100,000
- 7) Signage and Interpretation. After thirty years, our signage and interpretation panels and plant labels need replacing. \$70,000.
- 8) Boardwalk and Bridge repair. In 2021 a Bright Foundation award replaced twenty-year-old boardwalks and bridges with a new floor of Trex which should provide a longer life. For finishing one boardwalk in the PNPC and two boardwalks in the Gayla Mize Garden. Total needed estimated: \$70,000
- 9) For the SFA Gardens Fruit and Vegetable Production work: Oggun II Tractor (Honda gas engine); \$ 25,500.00 + plus steel price increase, to be quoted at time of order and Equipment for Oggun: Front Cultivator (\$500); Rear cultivator (\$430); Hiller Bedder (\$450); Chisel Plow (\$500); Middle Buster (\$400); Turning Plow (\$500); Clean Seeder APTB (\$800); shipping (\$1200). Estimated need: \$39,230
- 10) For tree and nursery work at CARRI property, SFA Gardens and the SFA campus: 2445S Schaffer wheel loader, 50 HP Kubota diesel, Multi high flow hydraulics, open ROPS, lifting capacity 5335 lbs; and equipment: \$107,000
- 11) Tractor: Kubota L4060 Compact Tractor with front loader – a utility tractor to back up and soon replace our twenty-year-old tractor. Estimated need: \$43,750
- 12) Environmental Education start up to create a “Children’s Garden” at the SW corner of the PNPC property with a small attractive “tiny home” storage building (SFA engineered and built) with porch, and an associated garden and cedar rail fence, approximately 10,000 square feet. \$50,000.



STATUS OF THE PINEYWOODS NATIVE PLANT CENTER (PNPC) 1998 - 2022

This status report of the PNPC is provided because it is the cornerstone of the SFA Gardens mission and we are hoping to prioritize its growth and development. Sanctioned in February 1999, the PNPC has grown via a diverse array of research grants, gifts, and donations, along with the enthusiasm of the staff, volunteers and supporters. The Pineywoods Native Plant Center (PNPC) is a 40-acre mix of uplands, mesic mid-slopes, and wet creek bottomland that lies on the northern edge of Stephen F. Austin State University (SFA) right in the center of Nacogdoches, the “oldest town in Texas.” Prior to acquisition in the 1980s, the property was referred to as the “Tucker Woods”.

Drs. Dave Creech, Agriculture, and James Kroll, Forestry, met early one morning in April 1998 in the SFA Mast Arboretum, a meeting called by Dr. Kroll. After thirty minutes, a goal was in place: Creating a Pineywoods Native Plant Center at the Tucker property. An agreement was reached and the subject was presented to the SFA administration and the concept was sanctioned by the SFA Board of Regents in February 1999.

An MSc thesis by Mark Norman in 1999 titled "Site analysis of the Tucker estate, Nacogdoches, Texas," provides a fine description of the property. The PNPC was dedicated at SFA in an outdoor gala event March 27, 1999. A grand opening followed on April 8, 2000, a very high publicity event that featured the dedication of the PNPC and the Lady Bird Johnson Wildflower Demonstration Garden by Lady Bird Johnson herself. We were named the third affiliated garden of the Lady Bird Johnson Wildflower Center. This was one of Lady Bird's last public events.



Shortly after that, and with the generous help of Ellen Temple, Lufkin, TX, the PNPC secured the services of Darrel Morrison, noted landscape architect from the University of Georgia. Darrel Morrison created the design for the Wildflower Research Center in Austin, Texas. Darrel developed a concept plan for the PNPC which we have adhered to the basic trail and facilities design and layout.



Stephen F. Austin State University
Pineywoods Native Plant Center

Figure 1. Original Site plan of the Pineywoods Native Plant Center Darrel Morrison

Mission Statement of the Pineywoods Native Plant Center

1. Feature the best native ornamental plants in a well-designed display garden with appropriate interpretive signage.
2. Maintain a documented germplasm collection of the rare, threatened, and endangered plants of East Texas.
3. Contribute to endangered plant conservation horticulture by linking with federal, state, and private institutions charged with monitoring and saving those plants.
4. Educate students and the public in the areas of native plants, conservation, ecology, and the natural environment.

Resources

Property. The 40-acre tract is bounded on the east by LaNana Creek, on the north by Austin Street, and on the west by Raguet Street. It's a mix of mostly mesic midslopes and a wet creek bottom. About ten acres of "upland" on the property is home to the Tucker house, Horticulture facility and Ina Brundrett Conservation Education Building.

Tucker house. The Tucker house remains the PNPC's crown jewel. The home and the forest that surrounds it are known widely in the community as the Tucker property. The two story house was built in 1941 and is in the Georgian style. The Tucker house was known for its gardens, its woods, and an annual Easter Egg hunt for the neighborhood children. It was one of the first houses on Raguet Street, now a fine old neighborhood in the city near the University.

Horticulture Facility: In 2000, the newly formed PNPC Board of Advisors approved a plan to put a focus on developing a first-class horticulture facility. The horticulture facility lies just to the north of the PNPC's upland "marsh" – a naturally wet area best defined as a "perched wetland." The horticulture facility was designed so that all effluent from the plant producing areas would naturally flow into the marsh land, a situation that creates an opportunity for visitors to the PNPC to understand at a small scale the influence of horticulture and wetlands on water quality as it leaves this property on its way to LaNana creek. The horticulture facility includes the following:

- 1) one 60' X 100' two bay poly house,
- 2) one 30' X 100' Quonset poly house,
- 3) a 50' X 100' full sun container yard,
- 4) a 14' X 100' sun container yard
- 5) a 30' X 50" metal building (headhouse) with office and restroom.

- 6) A 30' X 90' equipment storage barn, open sided.
- 7) The entire facility is encircled by a 6' solid panel fence to allow security and privacy.

The horticulture facility at the PNPC was all externally funded and has an estimated value of \$450,000. In 2023, the SFA Gardens is going to construct A 30' X 90' shade house just to the south of the existing horticulture facility. Plant research, plant contract-grow projects, and demand by the two plant sales drives the need for this addition.

Trails. Through a mix of grants and help from the state, the PNPC was given a much-needed step forward in 2007 with the completion of a 2-mile trail system. A grant from the Texas Parks and Wildlife Department, Texas Forest Service, and cooperation with the SFA's physical plant professionals created a 6' wide ribbon of asphalt that leads visitors through a variety of vistas, across boardwalks, interesting habitats, and through the horticultural demonstration gardens around the Tucker house. In 2021, the three main boardwalks, about 15 years old, were were falling apart. We were close to having to close the trail network when we secured a \$140,000 grant from Keep Nacogdoches Beautiful, who were awarded that amount from the Bright Foundation. The new boardwalks are Trex flooring and should be here for a long time. We still have one boardwalk at the north end of the Tucker property that needs refurbishing.

Ina Brundrett Conservation Education Building. This 2016 resource was built after a five-year campaign to raise one million dollars. The building is an example of environmentally conscious design. A grant from Green Mountain Energy provided the solar array on the south facing roof slopes and it provides about 75% of the annual electricity needs. The facility was purposed to support an environmental education program for kids, K-12. It is also utilized as a meeting place for various SFASU organizations, for community associations and is available for rental for weddings and celebrations. During the pandemic it was used as a university classroom because of student spacing issues.

Demonstration Gardens. The Ladybird Johnson Wildflower Demonstration Gardens surround the Tucker house and features more than 200 species of wildflowers, trees, and shrubs native to Texas and the Southeast. Four plant communities (dry upland, mesic mid-slope, riparian, and marsh) are represented in the garden by native plants that have landscape appeal and provide food for local wildlife. In addition, a signed and interpreted "firewise" demonstration garden surrounding the Tucker house demonstrates how to create a survivable space by selecting, placing, and maintaining plants around one's home that make it less vulnerable to wildfire and other disasters. Much of the signage at the PNPC is old and needs replacing. In 2021, we did install new signage and interpretation for the Elisabeth Montgomery trail, a walk way that showcases rare, threatened and endangered plants of the Pineywoods.

Staffing. After twenty years, the PNPC has no dedicated staff or state accounts. The daily on-the-ground management of the PNPC is actually a collective of the SFA Gardens staff taking on duties in the PNPC as that can be managed. The Mast Arboretum, Ruby Mize Garden and Gayla Mize Garden are named gardens and enjoy income from endowments, which is primarily salary lines. Other external funds are utilized to keep SFA student workers on payroll for PNPC purposes. Volunteer hours have improved dramatically, described elsewhere in this document.

Conservation

Three R's. Dr. Creech and Stacy Scott (Graduate Research Assistant) introduced and pioneered the concept of the "Three Rs," in the mid 1990s – a slogan for an endangered plant "Rescue, Research, and Reintroduction" strategy – one designed to find, identify, collect, study and propagate a wide range of endangered, rare and threatened Pineywoods species. There are great opportunities to exploit the skills of horticulturists to solve some of the problems facing precarious native species.

The SFA Gardens has a long track record with *Magnolia pyramidata*, Pyramid Magnolia, *Stewartia malacodendron*, Silky camellia, *Hibiscus dasycalyx*, the Neches River rose mallow, *Gaillardia aestivalis* var. *winklerii*, Texas white firewheel and *Phlox nivalis* ssp. *texensis*, Texas trailing phlox. All are special species of concern. The PNPC has been part of a number of agency reintroduction projects. Reintroduction and recovery is part of the national mission to give the most precarious plants a better chance of survival. The PNPC recognizes that of the 30,000 species of plants in North America, 5700 are native to Texas, and 2300 reside in the Pineywoods of East Texas. That's a lot of flora. While only four East Texas native plants are listed as federally endangered, there are at least 50 species in East Texas that deserve immediate conservation attention due to their small numbers or the fact they are in danger of extirpation from their native habitats. For species in those precarious conditions, rescue simply means propagating the plant and getting it into a secure setting. Research means studying the species biology, seed and vegetative propagation and cultural requirements to keep a population healthy and sustainable. Reintroduction means introducing the plants back "into the wild," hopefully into appropriate sites in the plant's natural range, and hopefully on public or private lands where the species can enjoy some protection. Reintroduction work falls on the shoulders of a number of agencies including the Texas Parks and Wildlife, U.S. Fish and Wildlife Service, Texas Forest Service, Nature Conservancy of Texas, Center for Plant Conservation, Texas Nursery and Landscape Association and the Lady Bird Johnson Wildflower Center.

SFA'S PNPC conservation mission is also to find, propagate, distribute and promote truly local truly local genotypes of particular species into the landscape trade.

Selections of *Clethra alnifolia*, *Wisteria frutescens*, and many others, that are growing naturally nearby are now being introduced into Pinewoods landscapes as a result of the PNPC's work. These home grown natives are proven survivors to recent climate maladies.

Elisabeth Montgomery Endowment.

The PNPC receives an annual distribution from the Elisabeth Montgomery Endowment that supports native plant research and outreach. In 1997, Elisabeth Montgomery – “Baby Sis” - created an endowment for SFA Gardens that yields funds annually to be used for various conservation projects and environmental educational programming by the PNPC. It's a wonderful perpetual gift and in 2022 we used the funding to create new signage for 8 of our rare, threatened or endangered species in the garden.

Blueberry and Muscadine Research Plot

Blueberries are native to the Gulf South. SFASU's blueberry research program has a long history that is well documented. Our plots are at the north edge of the PNPC. Our blueberry program is described later in this report.

The muscadine vineyard is located on the north side of the PNPC, along Austin Street in a property we have named Jimmy Hinds Park. Since 2014, we have been acquiring muscadine varieties and planting them on a three-wire trellis system. The Jimmy Hinds Park and muscadine grape project are described later in this report.

Green Roof Project

At the north end of the PNPC is a blueberry evaluation plot with a small cedar post pavilion as a central feature, funded by the George and Fay Young Foundation. The structure was built by a former staff member, Mr. Trey Anderson. The cedar shelter supports a “green roof” that has been functioning for almost twenty years. Needs refurbishing and signage.

Environmental Education at the PNPC

Since 2000, the SFA Gardens environmental education program has provided hands-on, experiential learning opportunities for all ages. Prepandemic, the program reached over 11,000 children each year and became a source of university pride. For twenty years, the Environmental Education program was led by Elyce Rodewald, who was blessed with strong personality skills to create, organize, and manage a wide range of educational efforts that included:

Arboretum Adventures – Action-packed explorations of Arboretum theme gardens, beehive, and compost exhibit encourage students to use their curiosity, ingenuity, and creativity to learn about water, soil, seeds, compost, animals, pollination, plants, parts of a flower, bees, trees, and forest ecology. Current learning excursions target four grade levels.

Bugs, Bees, Butterflies, and Blossoms (BBBB)—This activity-oriented, science field day focuses on trees, bees, insects, butterflies, flowers, and recycling. BBBB is a cooperative project of the SFA Department of Elementary Education, Texas Forest Service, and the SFA Mast Arboretum. SFA elementary education teaching majors participate in planning and facilitating lessons at BBBB to fulfill requirements for a junior-level “Teaching Science” course.

GardenQuest - Teachers and students discover the secrets of blossoms, bees, bottle trees, and more on this self-guided multidisciplinary exploration of the Arboretum.

Go Wild! School groups discover rare and endangered plants, investigate adaptations, and explore East Texas ecosystems while taking a guided hike. Students collect and analyze water samples, create rope from plant material, and learn about the benefits and uses of native plants.

Wild About Science Students participate in work performed by science professionals— data collection, orienteering, tree measurement, and water analysis. Fun, hands-on activities connect science to real-life situations.

Earth Science Exploration Students meet ancient rocks and discover examples of constructive and destructive forces during activities that focus on the water cycle, soil, erosion, and observing geologic processes present at the Pineywoods Native Plant Center.

Wild About Wetlands is an in-depth investigation where students learn about hydric soils, characteristic wetland plants, the importance of watersheds, and the water cycle. Students also collect and analyze macroinvertebrates to determine the health of a wetland at the PNPC.

Forest Awareness - Tours Students visit six activity stations at the SFA Experimental Forest to learn about snakes, soils, tree growth and measurement, insects, wildlife, and herbaceous forest plants. The PNPC provides a hands-on activity about the nitrogen cycle. This event is sponsored by the Texas Forest Service and Texas AgriLife Extension Service.

Trees Are Terrific PNPC staff join Texas Forest Service personnel to visit area fifth graders with a fun and informative message about the importance of trees. Students are introduced to tree identification, physiology, and ecology, and they are encouraged to demonstrate their tree knowledge and creativity by entering the National Arbor Day Foundation Arbor Day Poster Contest.

Pineywoods Camps Discovery learning opens a new and exciting world for 4 to 15-year-olds to have an outrageously good time in the woods while learning about the natural world. Campers enjoy canoeing, fishing, hiking, exploring, creating nature crafts, singing silly songs, meeting new friends, and having close encounters with the flora and fauna of East Texas. Campers hone observation skills as they learn about outdoor safety, snakes, wildlife, water sheds, insects, water quality, food webs, endangered plants, competition, cooperation, connections, and so much more. Three 5-day sessions accommodate three age groups. The Advisory Board for the SFA Gardens provides scholarships for 25-30% of the campers who would not otherwise be able to attend.

The Tucker Memorial Easter Egg Hunt has been a popular family event for many years. Introduced in 2008 for families are the “Pirates in the Pineywoods Party” and “Nature Realized” series hosted by the Texas Forest Service. We will resurrect these educational and entertaining events and others as soon as we can replace the two staff we lost in the pandemic.

The Cullowhee Lone Star Regional Native Plant Conference. The LSRNPC was a major educational effort associated with the PNPC. This conference is affiliated with the Cullowhee Native Plant Conference (Cullowhee, NC) and connected well-known speakers and native plant experts with landscapers, scientists, and native plant enthusiasts for four days of field trips, lectures, banquets, socials, book signings, workshops, plant sales and networking. The Proceedings of the conference are online: https://scholarworks.sfasu.edu/sfa_gardens_lonestar/. For most participants, this is a special event that would never have prospered without the help and support of Peter and Cass Loos, Greg Grant, Elyce Rodewald and an army of volunteers. For those who have attended, all would attest that it was a fun and education filled event. For the historical record, six LSRNPC conferences have been hosted: 2001, 2003; 2006, 2008, 2020 and 2012. The LSRNPC conference was not sustainable and was dropped from the program in 2012. We propose a return of the conference in 2024.

Signage and Interpretation

The PNPC has received a number of grants over many years that support signage and interpretation. The first element of this program is the Tucker House’s “Firewise Landscape” signage and interpretation. This makes the most of the opportunity to connect visitors and students to the natural world through colorful and

informative interpretative signage. It's all really a part of a PNPC promotion of landscaping with a "defensible space" strategy - whether from fire, hurricanes or herds of pigs. Intelligent horticulture recognizes how big trees can become – and how easily they can fall on your home. In East Texas, that's about 100' or a little more for most of the tallest. The PNPC has always been committed to the development of a strong interpretive sign program to educate local citizens about what to plant and how. It is our belief that signage and interpretation will further enhance the PNPC experience for students and visitors in many arenas - and create a loyal army of supporters eager to see the PNPC become a permanent, long-lived center for environmental learning. After twenty years we are facing faded and worn signage. Estimated need \$30,000.

Visitation

A project to capture visitation at various PNPC trailheads was made in 2022 by the use of game cameras and counting. Dr. Dave Kulhavy provided the cameras and volunteer Barbara Smith has been doing the tabulations. We will be attempting to install counters at the Mast Arboretum, Ruby Mize and Gayla Mize Garden trailheads and on the LaNana creek trail. The results are encouraging.

2022					
From	To	Days	Behind Tucker	Hinds	TOTAL
14-Jun	28-Jun	14	509		
28-Jun	19-Jul	21	600		
19-Jul	9-Aug	21	488	320	
9-Aug	6-Sep	28		965	
6-Sep	12-Sep	6		136	
		0			
9-Nov	16-Nov	7	68		
2-3 wks in Nov	Dec	14-21	651		
total			2316	1421	3737
2023					
From	To	Days	Behind Tucker	Hinds	
last week dec	1st wk jan	14-21	760		
7-Jan	12-Jan	5	0		
12-Jan	3 wks	21	943		
					1703

Native Ornamental Introductions

For the most part, the PNPC collection is focused on genera that make a presence in landscapes, an emphasis on the native flora of the Gulf South. Our goal is

to introduce improved selections and encouraging their use in the nursery and landscape trade. New plants come from chance finds and selections from breeding lines. In the case of SFA Gardens, we have benefitted for many years by a close working relationship with many breeders and nurserymen who have shared their material with our gardens. Our own work has produced interesting selections that are shared with our colleagues for evaluation purposes. Some have surfaced as good ornamental natives and are in the trade.

In the tree world, the SFA Gardens work with bald cypress improvement is well known in the nursery trade. Two introductions have performed well, one is 'LaNana' and the other is 'Banita', both bald X Montezuma cypress, hybrids with no knees, good growth rate, resistance to needle blight and high alkalinity tolerance. We have introduced a number of native woody ornamentals, including a sweetspire, *Itea virginica*, 'Petite Blanc', which is shorter stature and more suited to the landscape. Other ornamental native introductions include *Wisteria frutescens* 'Dam B', *Hydrangea quercifolia* 'Lowrey,' *Callicarpa americana* 'Matt's Pink,' *Scutellaria suffrutescens* – pink form, *Gaillardia aestivalis* var. *winklerii* 'Grape Sensation,' and other forms of this stellar landscape perennial. *Bignonia capreolata* 'Helen Fredel' and other clones, *Malvaviscus* 'Big Momma' and 'Pam Puryear', and *Hibiscus moscheutos* 'Peppermint Flare', three that were the result of former staff member, Greg Grant, during his time at SFA Gardens, now with Texas Agrilife Extension, Tyler, Texas. Ongoing projects involve development of improved ornamental salt marsh mallow (*Kosteletzkya virginica*) selections and further *Malvaviscus*, *Hibiscus*, and *Glandularia* hybridization and selection.

SFA Gardens has patented one plant, primarily to say we have and to understand the process. *Prunus* X 'Purple Pride' is a purple leaf plum with native genetics (*P. angustifolia*) and we have licensees and there has been a small return. I am convinced that SFA Gardens and intellectual property opportunities are significant. However, the process at this university is difficult for new plant introductions. This University does not have a Foundation Seed Division or other department that deals with patenting, licensing and policing, as is true at the land grants and larger universities. Working plant patents through a university with no one dedicated to that arena can be a challenge.

Funding

Currently, the PNPC relies almost completely on external funding. There are no staff dedicated to the 40-acre property. As mentioned earlier, the care, culture and programmatic activities of the PNPC are collectively managed with existing on the ground staff in positions dedicated to our three named gardens: Mast Arboretum, Ruby Mize Garden, Gayla Mize Garden. The SFA Gardens staff and volunteers generate

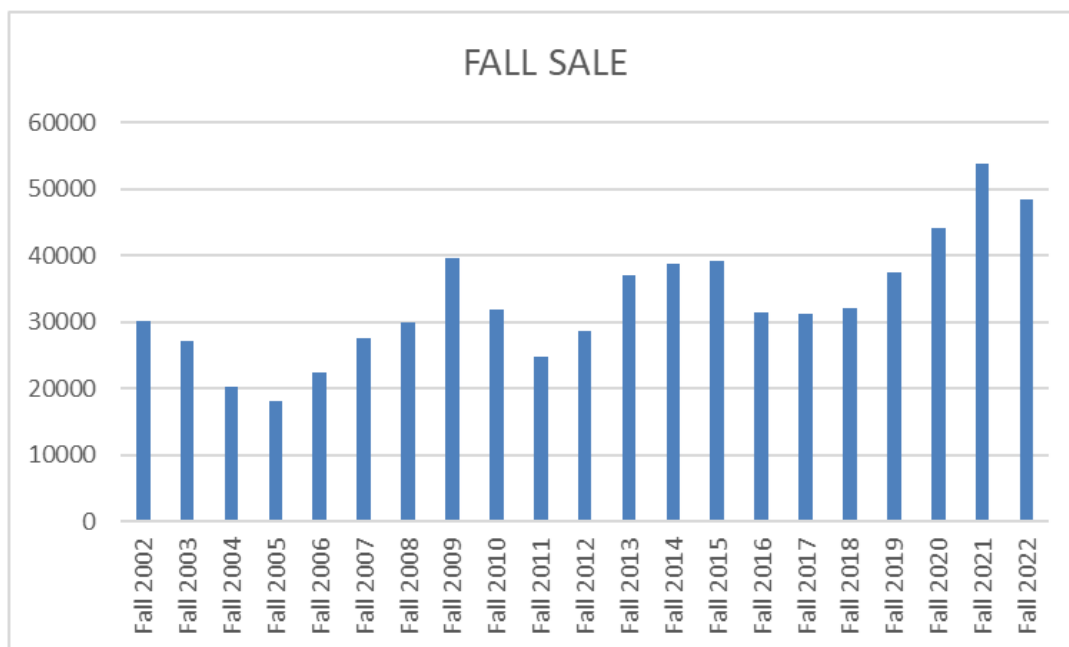
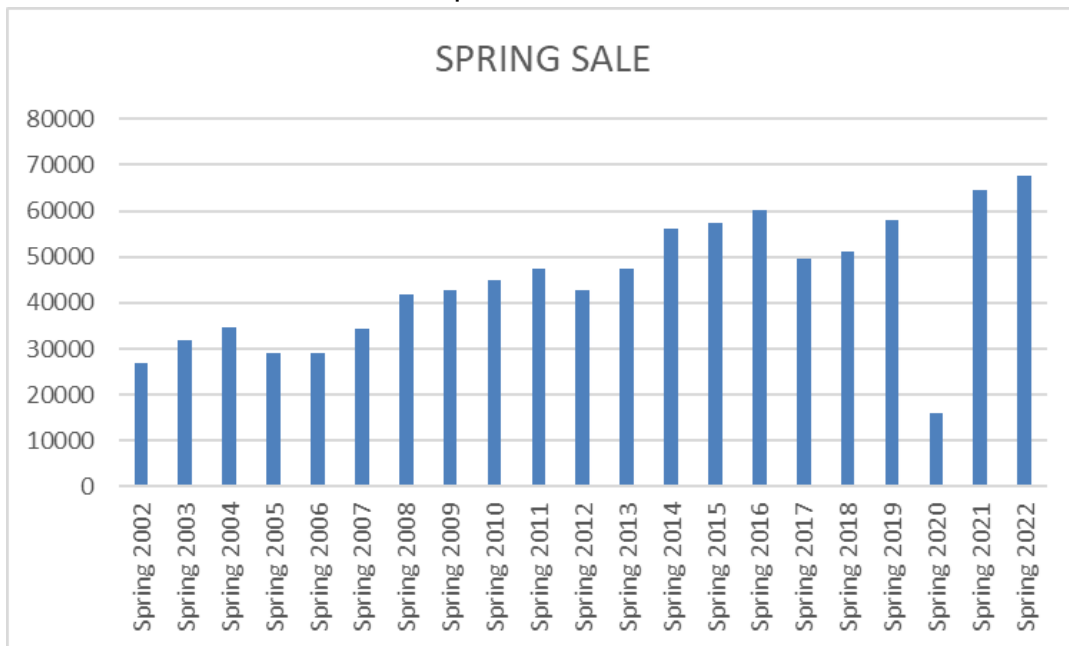
funding through plant sales and membership campaigns. Three foundations have provided much needed facility development and educational programming funding at the PNPC: the George and Fay Young Foundation, the Meadows Foundation and the Bright Foundation. Also, SFA's physical plant deserves great credit in helping the PNPC achieve horticulture facility development at a reasonable cost. A "Friends" group provides much appreciated funding for special projects. The membership campaign for SFA Gardens is an annual success and provides much needed support for the budgets and activities of the PNPC, SFA Mast Arboretum, Ruby M. Mize Azalea Garden and Gayla Mize Garden. All are unique resources at this institution of higher learning. Through a portion of the gifts, research grants, the "friends" group, and two plant sales per year, the PNPC manages a substantial landscape and native plant evaluation program, and still finds a way to improve our infrastructure each year.

Conclusions

The Pineywoods Native Plant Center has a long history of contributions in the native plants arena. The PNPC is resource heavy but lacks any staff dedicated to its mission. The highest goal of SFA Gardens is to change that.

SFA GARDENS PLANT SALES COME ROARING BACK TO PRE-COVID LEVELS

The two SFA Gardens plant sales in 2022 generated about \$116,000 total and are a critical part of SFA Gardens staff salary funding. The dip in the Spring 2020 plant sale income was due totally to the Covid19 shutdown. SFA Gardens countered with a hybrid plant sale in the Spring and Fall 2020 sales which kind of worked but extending the plant sale over many weeks was not efficient. We have returned to normal plant sales and the public is back. The plant sale now encompasses two days (Saturday and Sunday) and a Friday “members only” plant sale. The winter freeze in February 2021 had much to do with the record plant sale in the Fall of 2021.



VOLUNTEERS RETURN TO THE FOLD

Historically, SFA Gardens has enjoyed a great corps of volunteers. That became history with the onset of the pandemic in March 2020. Just for a reference point pre-Covid19, the total volunteer hours for the SFA Gardens set a record in 2019 with 2449.2 hours' worth \$73,353.54. In 2020, we had 474 volunteer hours' worth \$14,196.30, most of which came in January and February, 2020. The numbers in 2021 were dismal, but the situation has definitely improved in 2022 with 1,716 hours volunteer hours recorded worth \$51,394.20. Later in this report, Jordan Cunningham reports on the activities and events associated assisted by our volunteer corps. All indications going forward is that our volunteerism will continue to prosper.

ENVIRONMENTAL EDUCATION PROGRAM MAKES A COMEBACK

One of the great success stories at SFA Gardens is Environmental Education, no doubt based on the fine work of our previous Environmental Education Coordinator, Elyce Rodewald. In 2019, the SFA Gardens Environmental Education program reached over 11,000 kids in a broad spectrum of programs for ages K-12. After twenty years, Elyce retired just as the pandemic arrived in March, 2020, and the request to fill this state-funded position in the summer of 2020 was denied. That made sense then. After all, in 2020, the program essentially went to zero in March, 2020. No kids, no program. In the summer 2021, schools began calling for programming we proposed reopening the position. We were denied, learned the position was eliminated and replacing this state funded position became a major goal for our program in 2021.

On a positive note, and as the result of external support garnered in the Fall 2021, we were able to hire Dr. Alan Sowards as the Environmental Education Programs Coordinator on a ½ time basis. Alan was a very fortunate hire, the perfect picture of right person, right place, right time. He is the life raft this important program needs. Alan was retired, a College of Education professor where he enjoyed a long and successful career in outdoor education. He worked closely with Elyce Rodewald over many years, knows the school districts, and is a perfect fit for the noble effort to bring outdoor education back to school children who need it. No one knows what this teaching resource is all about more than Alan.

The centerpiece of the SFA Gardens Environmental Education program remains the Ina Brundrett Conservation Education Building (CEB) at the Pineywoods Native Plant Center. In 2019, the Ina Brundrett Conservation Education Building was the central location for 77 events, meetings, workshops, seminars and the Les Reeves Lecture series. In 2020, that didn't happen. The CEB was turned into a classroom for classes in Forestry. We continue to proclaim the building as a great teaching example of environmentally sensitive methods of construction and operation. The CEB was returned to our use in the Fall 2021 and programming is back.

LES REEVES LECTURE SERIES

The lecture series is once per month, usually the second Thursday. It is free. There's a social before the talks which are 45 minutes to an hour. A plant raffle follows. The series was closed for more than a year but returned in the Fall of 2021. In 2022, attendance has improved but has yet to reach the marks in years prior to 2020.

Jan. 13, 2022 - Garden Adventures in the Land of Crawfish and Creole with Mark Wilson, LSU, Bossier, LA

Feb. 10, 2022 - Gardening with a Purpose with Matt Welch, Madrone Group, Austin, TX

March 10, 2022 - Creative design and horticulture on the Oklahoma State University Campus with Steve Dobbs, Director Grounds OSU, Stillwater, OK.

April 14, 2022 - Do We Need to be Scared of Crape Myrtle Bark Scale? with Dr. Mengmeng Gu, TAMU, College Station, TX

May 12, 2022 - Favorite Perennials for Tough Conditions with Jennifer Buckner, Shangrila Gardens, Beaumont, TX

June 9, 2022 - Super Flowers, Super Shrubs and Super Trees for a Super Landscape with Allen Owings, LSU Extension, retired

July 14, 2022 - Think BIG: Great Garden Ideas in 2022 with Steven Chamblee, Longview Arboretum and Nature Center, Longview, TX

Aug. 11, 2022 - Let's have a Cup of Tea – New Adventure with an Interesting Plant with Dr. Yan Chen, LSU, Baton Rouge, LA

Sept. 8, 2022 - Plants, built environments, and climate change challenges – Manifest destiny in action! With Dr. Dr. Michael A. Arnold, Director of The Gardens at Texas A&M University, College Station, TX

Oct. 13, 2022 - Containing Edibles to Maximize Your Garden's Beauty and Yields with Dr. Kathryn Fontenot, LSU, Baton Rouge, LA

Nov. 10, 2022 - A Path to Successfully Growing Mediterranean Plants in Southeast Texas with Dr. Fran de la Mota, Houston Botanical Garden, Houston, TX

Dec. 8, 2022 - How many maples are enough? with Dr. David Creech, SFA Gardens, Nacogdoches, TX

STAFF CHANGES IN 2022

Alan Sowards

Environmental Education Programs Coordinator (1/2 time). This state funded position was lost in the summer of 2020. We received external funds to bring back the Environmental Education program for kids at SFA Gardens. As Alan's annual report indicates, hiring him even at ½ time is a huge step forward on the path to normalcy. Pre-2020, this position was full time and state funded.

Tammy Purser

Program Associate (1/2 time), brings a special skill set to this position. She's a Purple Pride SFA Foundation alumni award winner. She's retired from AT&T, settled her and was hired in 2022. She is bringing order back to the office workload. Her primary responsibility is keeping our house in order which means scheduling events, programming details, dealing with the Concur travel system, and trying to find solutions to a myriad of problems. Her secondary responsibility is making sure that Dr. Creech is following all the laws, rules, policies, procedures and guidelines that now define the modern academic workplace. Pre-2020, this ½ time position was funded 1/3 by the state salary line and is now totally soft funded.

Jhett Myers

Gardens Technician (full time), with responsibilities associated with our fruit evaluation program (blueberries, grapes, figs, kiwifruit, and others). Jhett is an SFA Forestry graduate, fit as a fiddle and has taken to the work in fine fashion. This is a new position and is paid for by external funding.

Peter Blanchette

Gardens Technician (1/2 time), brings a long history of landscape work, having served as the horticulturist at the Bicentennial Garden in Houston and for Harris County. He's retired, moved to Nacogdoches and lives down the street. At first a volunteer, then a 90 day hire and he is now in a ½ time position at the Pineywoods Native Plant Center. He has a primary focus working with Jordan's efforts in the greenhouse/nursery and has been putting in time bringing the PNPC landscape back to glory. This is a new position paid for by external funding.

MICKEY ELLIOTT FAMILY FOUNDATION GIFT

In 2019, the Micky Elliott Family Foundation awarded the SFA Gardens a gift that saved the garden. We hired two new staff, Thomas Dimmitt and Devin Stage just prior to the

mid-March 2020 closing of the University. Thomas and Devin have provided the absolutely critical on the ground staff dedicated to new garden projects and landscape maintenance (planting, mulching, fertilizing, pruning, pest management and irrigation). Thomas's territory of responsibility is the SFA Mast Arboretum and Devin is in charge of keeping the Ruby Mize Azalea Garden in tip top shape. Duke Pittman is our long-time landscape manager and he is in charge of the Gayla Mize Garden and managing a wide range of chores in the SFA Gardens territory. In the history of this garden, this award will be recognized as one that literally allowed the garden to survive. Without it, there's no doubt the gardens would have lost even the most modest level of maintenance we now enjoy. This gift will be ongoing based on achieving our deliverables. We intend to do just that.

GARDEN COLLECTIONS

What still separates SFA Gardens from so many university gardens is the scale of work with numerous taxa, the sheer diversity of the collection. The gardens are a treasure trove of interesting plants. Japanese maples and other *Acer* species, camellias and azaleas are, by any yardstick, very large collections with a national reputation. The SFA Gardens bald cypress evaluation and improvement program is perhaps the largest in the nation. Our work with Mexico oaks and other western species is recognized by the nursery and landscape industry. Our work with the Mexico mountain sugar maple, *Acer skutchii*, has allowed this interesting drought and alkalinity tolerant species to make waves in the nursery and landscape industry of the Gulf South. In the past year we added a Ginkgo collection to the Gayla Mize Garden and an interesting circle of sweet olive, *Osmanthus fragrans* seedlings, which are not easy to get. The reason for the success of SFA Gardens is simple. We have a long history of connecting and sharing plant materials with arboretums and botanical Gardens across the nation, and with other academic institutions, nurserymen and plant enthusiasts. As for the garden, we have good AutoCAD maps and databases that could provide basic tracking of hundreds of new accessions each year. The two most serious deficit in collections management right now is bringing maps up to date and in a cohesive document, and the lack of good labels and plant markers. We will address both issues in the years ahead.

MOODY GARDENS PROJECT

It's a brand-new day for the SFA Gardens project at Moody Gardens, a long-term research effort to find "climate resilient plants for a 21st century Galveston Island". A 2020-2022 report to the Moody foundation is to be completed in early 2023. The 2016-2019 report is available on line:

<https://www.sfasu.edu/docs/sfa-gardens/projects-final-report-for-moody-foundation-aug-2019.pdf>

Six years after we started this project and five MSc thesis students later, we have a new arsenal of woody trees, shrubs and palms going in the ground, all there to be tested for climate and soil resiliency on Galveston Island. The two-acre plot was created in 2016 and five years later the trees, palms and shrubs, many of them quite large (6" diameter trunks), have been moved to other locations on the island (schools, city parks, Moody Gardens). SFA Gardens will continue to track their progress in their new location. This was a major cooperative effort with the Galveston Island Tree Conservancy, city personnel and Moody Gardens. The tree and palm harvest left the plots as a blank slate with plenty of work to get it ready for round two. Staff members Devin Stage, Peter Blanchette and student assistant Trevor Capper spent a few productive days in December, 2022, refurbishing our research plot on the west side of Moody Gardens, repairing some breaks in the irrigation system and planting our first batch of trees. It's an important and timely project. See images in the pictorial portion of this annual report.

We graduated two MSc thesis via this project in 2022:

Ilhan, Elif Canay. 2022. Effect of Mycorrhizae Inoculation on the Growth and Success of Three *Taxodium distichum* hybrids in Saline-impacted Coastal Soils. Project was partially funded by the Moody Gardens grant. Dr. Steve Wagner, Biology, advisor. Elif defended her thesis April 22, 2022.

Murray, Rachel. 2022. "Soil Salinity and Sodicity of Galveston and Pelican Islands, Texas", a project that produced the first ever Geographical Information Systems salinity heat map of the island, a platform we can build on in the years ahead and one that should be useful to land and vegetation managers on the island. Project was partially funded by the Moody Gardens grant. Dr. Kenneth Farrish, Environmental Science, advisor. Rachel defended her thesis July 15, 2022.

We are pleased to report an oral paper presentation at the national meeting of the American Society for Horticultural Science in Chicago, July 30-August 4, 2022. It covers some of the research projects at the site that involved graduate students. Abstract:

David Creech*, Steve Wagner, Kenneth Farrish, Elif Ilhan and Rachel Murray. 2022. Evaluating Ornamentals in a Salt-Challenged Environment at Moody Gardens, Galveston Island, Texas. ASHS Annual conference in Chicago, July 30 – August 4, 2022. Published abstract. **HortScience** 57(9) Supplement (Part 1) — 2022 ASHS Annual Conference: S195.

Beginning in 2016, SFA Gardens, Nacogdoches, Texas, partnered with Moody Gardens, Galveston, Texas, to create a 1.2-hectare research plot

on the island. The site is located on the west side of Moody Gardens near Offatt bayou, 1.3m above sea level, occasionally inundated by high-salt bay water during storms or hurricanes. A drip irrigation system utilizes partially deionized water (.8mS/cm) provided by the Moody Gardens desalination plant. A record Winter Storm Uri in Feb 2021 damaged a wide range of marginally hardy materials (-8°C). While the primary objective of the project is ornamental plant evaluation, five MS thesis projects have been completed with titles and abbreviated results as follows: 1) Evaluation of Groundwater Sodium and Sodium Uptake in Taxodium and its Hybrids on Galveston, Island, Texas; six Taxodium clones were monitored for three years (plant height and diameter breast height); growth of hybrids was good in spite of leaf tissue Na⁺ values varying from 6000 to 8000 PPM Na⁺; 2) Assessment and Characterization of Microbial Communities in Salt Affect Soils on Galveston Island, Texas; samples from bedded and non-bedded plots treated with gypsum, mulch, or both were assessed for microbial populations and there were no consistent statistical differences in microbial populations or respiration measurements among the treatments. 3) Soil Amelioration and Plant Establishment on Sodium Affected Soils on Galveston Island, Texas; bedded and non-bedded plots treated with gypsum, mulch, or both were used to test three species of plants, live oak (*Quercus virginiana*), hybrid bald cypress (*Taxodium distichum* 'T406'), and yellow hibiscus (*Hibiscus hamabo*); plants were measured for increase in height and diameter over three growing seasons which resulted in no significant differences in treatments. 4) Effect of Mycorrhizae Inoculation on the Growth and Success of *Taxodium distichum* in Saline-impacted Coastal Soils. Treatments were: mycorrhizae inoculation, fertilizer application, and a combination of mycorrhizae inoculation and fertilizer application, and there were no significant effects on height and diameter breast height, leaf nutrient concentration, soil microbial functional diversity, as well as soil respiration; 5) Soil Salinity of Galveston and Pelican Islands, Texas; this project evaluated soil salinity levels on both Galveston and adjacent Pelican Islands in over 200 locations to produce GIS-generated soil salinity heat maps that aid in planning revegetation projects. Funded by Moody Gardens, this project has provided graduate and undergraduate students with a real-world opportunity to study a wide range of ornamentals in a salt and climate challenged environment.

We're encouraged that most of our research plot trees were tree spaded this past year into various city and school parks on the island. We'll be tracking their progress in their new and permanent home. At the plots, almost a mile of rows has been refurbished in 2022 with bark mulch and off island sand to create a bed about 4' wide and a foot high.

Our strategy is to provide young plants with a good start to get roots spreading and the plant acclimated to its home. To be honest, the conditions here can best be described as a torture test of epic proportions. The plots are three to four feet above sea level. Salty water is just a hundred yards away and high tides slide into or near the plot way too often. Add in incessant winds, salt laden air and mosquitoes the size of small birds, well, you get the picture. Big thank you to Moody Gardens, John Zendt, Donita Brannon, Leslie Youngblood, Nick Brown, Sabino Bilon and the Moody Gardens shop personnel for their support of this project. See images in the pictorial portion of this report.

SFA GARDENS HAS A BRAND-NEW TREE NURSERY

We are pleased to report that a new in-ground nursery is in place at the SFASU property on the northwest side of Nacogdoches on Stallings Drive. Previously known as the Science Research Center, this property is now referred to as the Center for Applied Rural Research and Innovation (CARRI). SFA Gardens has a history at this property. In 2010, Dr. Kim Childs, Dean of Science and Math, gave approval for SFA Gardens to use a 2-acre portion of the property and we planted 277 Mexico sugar maples, *Acer saccharum* ssp. *skutchii*, behind the main building in an open field. These grew well and we're the basis of several interesting research projects. Most of the trees were sold a couple of years ago as 30' tall, 6" diameter trees to Environmental Design, Tomball, Texas, which generated about \$70,000 in 2021. Over 200 large trees ended up in various locations around the state, mostly in Walsh City near Fort Worth and in locations near Katy. After the place was emptied, we want to repeat that effort with a focus on evaluating a wider range of potential tree varieties in a full sun location, drip irrigated and just happening to have a red clay soil that is very good for tree spade efforts. The root balls hold together well. We received a much-appreciated grant in 2022 from CARRI that allowed us to establish the basic infrastructure for a new in-ground nursery (\$19,196). Thomas Dimmitt and Devin Stage, SFA Gardens staff, and Trevor Capper, student assistant, took the lead to bring the field back into good shape. SFA Gardens will be working with Gary Williams, Chris Dempsey and the Physical Plant to plant and care for over one mile of rows of this new tree nursery. After a few years when tree calipers reach three to four inches, many of the trees will find their way to the reforestation effort at SFASU and to nearby civic projects with an interest in diversity. This project will focus on interesting genetics, primarily testing trees for their ability to thrive in Texas under challenging conditions. See images in the pictorial portion of this annual report.

FRUIT EVALUATION AT SFA GARDENS

While most of the garden is dedicated to woody and herbaceous ornamentals, a significant fruit research platform is in place that is appreciated by our fruit specializing

colleagues for its diversity and breadth. The program collaborates with faculty and staff in the land grant institutions in Georgia, Florida, Mississippi, Alabama, Louisiana and Arkansas. See images in the pictorial portion of this annual report.

Blueberries

Since 1978, the SFA Horticulture program has enjoyed a history of blueberry research. We are well connected with the small fruit researchers and extension faculty across the Gulf South. The SFA Gardens blueberry germplasm evaluation plots lie on the north end of the Pineywoods Native Plant Center and the effort includes over 114 cultivars and advanced selections, typically three of each. A number of varieties have suffered after the February 2021 epic freeze. A big addition in 2023 will be planting a collection of native *Vaccinium* species of known Texas and Louisiana provenance to serve as a germplasm repository for the genus.

Muscadine Grapes

A muscadine grape vineyard was established in Jimmy Hinds Park in 2014 and includes over 72 cultivars and advanced selections. The field is surrounded by a deer proof net fence and drip irrigation is on hand, although the vines (now eight years old) are quite healthy in this spot along LaNana creek. We are using a three-wire system and has been quite productive. We informally collaborate with Dr. Justin Scheiner, Texas Agrilife, state viticulturist, and we have a good working relationship with USDA and academic colleagues charged with this crop. It is our belief that the opportunities for this disease-free native grape are strong. Our evaluation program involves a yield estimate on a 1-10 scale, average berry size of a sample of 50, ranking of the scar when picked, whether it's dry or wet, skin thickness and a taste ranking. Dr. Scheiner at TAMU will be taking on the laboratory work to characterize the fruits brix, acidity and nutrient parameters. This year's crop was harvested by a PYO one day event with SFA Gardens volunteers and Jordan manning the booth at the entrance. The crowd was much bigger than we anticipated with folks parking at a nearby Kroger's parking lot to make their way here. It struck me as good income for a one day event and wanted to repeat it after a few weeks since we had late ripening varieties coming on . . . but we were running out of manpower and energy by then and it just didn't happen.

Figs

A fig variety planting was established in 2014 that includes over 59 varieties. To add to the excitement, this year we have received about sixty new accessions via USDA/ARS and they will be new to our garden. We are working with Dr. Tim Hartmann, Texas Agrilife, College Station, Texas. Tim has a duplicate planting at TAMU and we share our genetics back and forth. The freeze events in February 2021 and late December 2022 were damaging, taking good sized figs to the ground. They have rebounded well in the last two years, but I'm afraid the late December 2022 hit may take them to the

ground again. I predict most will survive from the crown and we will be back in business by summer.

Kiwifruit

A kiwifruit project was supported by Texas Department of Agriculture, USDA Specialty Crop Block Grant for three rounds. This external funding ended in December 2021 but I can report the project survives via a grant by our international cooperation with TopFruit in South Africa and Miko Asia in New Zealand. Nick Steyn, TopFruit, will be visiting SFA Gardens from South Africa in early February, 2023, and we are confident of continued funding. The first Kiwifruit varietal trial was planted in 2010 at SFA. This resulted in a first-ever-in-Texas crop of golden kiwifruit, *Actinidia chinensis*, in 2014. Our plots have enjoyed seven good to average crops out of the last nine years. This project is a collaboration with Dr. Tim Hartmann, Texas Agrilife Extension Specialist, College Station, Texas. Judging from consumer evaluations the last five years, the fruit is given high marks in taste, texture and having an edible skin. Pests have not been an issue but that may change in the future with several new insects on the horizon. Vine vigor has been as good as anywhere in the world. Still, there remain numerous horticultural challenges to overcome (primarily, variety selection, pollination issues, tolerance to alkalinity, hard freezes on young plants and issues associated with chilling requirement). It is encouraging that the vines survived the Feb 2021 -4°F record hard freeze and, while the results are not yet in, I think we dodged a bullet with the 9°F event a few weeks ago (Dec 23, 2022). With six farmer cooperators working with the project, we will soon have a better understanding of the economic potential of green and gold kiwifruit in the Gulf South.

Pineapple Guava

We received word that a proposal titled, “Pineapple Guava, a Potential Fruit Crop for Texas,” has been awarded to SFA Gardens by the Texas Department of Agriculture/USDA’s Specialty Crop Block Grant.

Abstract: Pineapple guava, *Acca sellowiana*, is a South American Fruit grown worldwide where conditions allow. Formerly known as *Feijoa sellowiana*, this small tree has been in landscape use across the South for a century. It appreciates cross pollination and a single tree is not likely to fruit. Fruit made in the south is often inferior in size and flavor. New cultivars in China, New Zealand, Greece and Italy suggest another look at this interesting fruit as a part of the local market. The fruit has a reputation for poor shipping and storage qualities, thus local sales. We have had Pineapple guava at SFA Gardens for many years and it’s a reliable shrubby ornamental tree with attractive and edible flowers. However, fruit from our trees are small and inferior, typical of most found in southern landscapes. Only with improved varieties and

improved genetics can we find large sweet fruit of good quality for the market. This proposal addresses that possibility. We will be collaborating with Dr. Tim Hartmann, Texas A & M University, College Station, Texas.

JIMMY HINDS PARK

This special 2-acre stretch of LaNana Creek bottomland lies at the North end of the Pineywoods Native Plant Center, adjacent to Austin Street. This two-acre patch was a gift by Barbara Finney to the University, and she funded the garden development over a good number of years. She passed away July 2, 2020. Barbara enjoyed a sharp wit and was never prone to mince words. Barbara is survived by her daughter Vicki Chamberlain and sister Patricia Spearman. I met her many years ago and Barbara had much to do with spreading horticultural cheer here and at other institutions of higher learning. Her father was the very first Agriculture Instructor at SFA over 100 years ago. The Park is home to a fine muscadine vineyard and a sizeable kiwifruit nursery plot is in place, which will be harvested for plants in the next year for cooperator farms, and replaced with additional muscadine plants for evaluation. The Park is also home to a collection of Taxodium (Baldcypress) cultivars which includes the popular 72'-wide treehenge-like circle of weeping bald cypress, 'Cascade Falls'. We intend to capitalize on the sunlight and rich bottomland soils of this special spot along LaNana creek.

CLIMATE

The last two years in Texas has seen three rather epic climate challenges. First was the never-seen-before impact of the record mid-February 2021 -4°F record hard freeze. Damage was heavy because Winter storm Uri was accompanied with ice and snow which meant limbs fell from above like Mardi Gras beads. Second was the record-breaking heat and drought of summer 201. With zero rain in June and July, we were blessed here with several inches of rain in early August, something our friends to the west missed. Third was the Dec 23, 2022, 9°F event that was preceded by a mild November and much of December. Damage has been heavy in Texas.

It's all about terminology. A new term, "climate resiliency" is making a mark to describe the character of urban trees and shrubs we should be planting. Everyone has seen the predictions of melting ice, rising seas, and violent storms punctuated by long stretches of punishing heats and never-ending droughts. In the Pineywoods, it's apparent we need more drought and heat tolerance, more salt and alkalinity tolerance in the plant materials we use, and, judging from recent events, we need our urban landscapes to tolerate low temperatures we've never seen before.

CONCLUSIONS:

Since March 2020, things haven't been the same. Everyone can say that. For SFA Gardens, the pandemic, budget cuts and three climate challenges have been a hard blow. Still, if you're a serious horticulturist, a gardener, then you understand the word resilience. For SFA Gardens, and for all gardeners in Texas and much of the south, the last two years has been an eyeopener in so many ways. For SFA Gardens, after thirty five years, we have built an amazing collection of landscape plant materials and fruit genetics at SFA. What we're seeing is what thrived, what survived and what died. It's an opportunity to gather data, to see what really works or doesn't. Data is everywhere. The positive side of things is that the gardens are not just surviving, they're thriving. I think it's kind of a rebirth. We are in the trenches with several exciting research projects including Moody Gardens, the CARRI in-ground tree nursery project and Feijoas. The gardens are returning to great health and weed control is reasonable. Most important, we have a solid team on the ground. There's increasing traffic, interesting garden features, eye-opening collections, staff that care, increased programming, cheerful volunteers returning to the fold, and a tribe of great student workers are making all kinds of things happen. Spring is just around the corner. We'll keep planting.

STAFF ANNUAL REPORTS

Dr. David Creech, Director



Creech, David. 2022. Recognition at SFASU Board of Regents meeting, February 1, 2022, for the silver award for grantsmanship at SFASU.

Creech, David. Feb 2022. A Research Platform for Woody Ornamentals at the Science Research Center. Proposal was awarded \$19,196 by SFASU'S Center for Applied Rural Research and Innovation.

Allen Owings. 2022. The 2021 LSHS Life Member Award – Dr. David Creech.

Journal of the Louisiana State Horticulture Society 17: 35.

Creech, David. 2022. Received the American Society for Horticultural Science "International Achievement" Award at the annual meeting in Chicago, July 30, 2022.

SFA Press Release: <https://www.sfasu.edu/about-sfa/newsroom/2022/dr-david-creech-honored-international-contributions-horticulture-field>

David Creech*, Steve Wagner, Kenneth Farrish, Elif Ilhan and Rachel Murray. 2022. Evaluating Ornamentals in a Salt-Challenged Environment at Moody Gardens, Galveston Island, Texas. ASHS Annual conference in Chicago, July 30 – August 4, 2022. Published abstract. **HortScience** 57(9) Supplement (Part 1) — 2022 ASHS Annual Conference: S195.

Creech, David. 2022. Interviewed at ASHS annual conference in Chicago as part of the “HortLegends” series. https://youtu.be/72b_N2MBA5w

Creech, David. 2022. Woody Ornamental Winners and Losers at SFA Gardens after the February 2021 Winter Storm Uri. Presentation in Floriculture/Landscape/Turf session, TNLA Hort Forum, TAMU, College Station, Texas, January 10, 2022. 12 participated in this session

Lais Machado, Dave Kulhavy and Dave Creech. 2022. Assessing Freezing Effect on Kiwifruit Cultivars and Mapping Suitable Areas for Growing in East Texas. Presentation at the M.S. competition, TNLA Hort Forum, TAMU, College Station, Texas, January 10, 2022. 12 participated in this session

Tim Hartmann and David Creech. 2022. Survival of Young Kiwifruit Plants in Response to Winter Storm Uri in Texas. Presentation in the Fruit Crops Session, TNLA Hort Forum, TAMU, College Station, Texas, January 10, 2022. 20 participated in this session.

Tim Hartmann, David Creech and James Spiers. 2022. Evaluation of Trunk Protection Measures for Prevention of Cold Injury in Young Kiwifruit Plants. Presentation in the Fruit Crops Session, TNLA Hort Forum, TAMU, College Station, Texas, January 10, 2022. 20 participated in this session.

Creech, David. 2022. Growing Berries in the Pineywoods. East Texas Fruit, Nut and Vegetable conference, Tyler, Texas, January 14, 2022. 110 in audience.

Coast Monthly magazine, March issue, a feature article on our work at Moody Gardens, Galveston, Texas.

https://www.coastmonthly.com/homegarden/gardenvariety/tree-test/article_790e8e02-a93e-57ea-ae1d-ec7a36eb0cb4.html

Creech, David. 2022. The Azalea world at SFA Gardens – Challenges and Opportunities. Presentations at the annual conference of the Azalea Society of America, Lafayette, LA. March 9-13, 2022. 81 participants.

Creech, David. 2022. SFA Gardens – a 2022 Update. Ppt presentation to Garden Club, home of Debbie and Dennis Stevens. 9 attendees.

Creech, David. 2022. SFA Gardens, a 2002 Update. Powerpoint presentation to the Rotary, Fredonia Hotel, Nacogdoches, TX. April 6, 2022. 102 attendees.

Tim Hartmann^{1*} and David Creech². Survival of Young Kiwifruit (*Actinidia chinensis* Planch. and *A. deliciosa* A. Chev.) Plants in Response to Winter Storm Uri in Texas. ¹Department of Horticultural Sciences, Texas A&M University, College Station, Texas 77843, ²SFA Gardens, Stephen F. Austin State University, Nacogdoches, TX 75962 ²Department of Horticulture, Auburn University, Auburn, AL 36849. Oral presentation at the annual conference of the American Society for Horticultural Science, Feb 10-13, 2022. (t-hartmann@tamu.edu)

Tim Hartmann^{1*}, David Creech², and ³James Spiers. 2022. Evaluation of Trunk Protection Measures for Prevention of Cold Injury in Young Kiwifruit (*Actinidia deliciosa* A. Chev.) Plants. ¹Department of Horticultural Sciences, Texas A&M University, College Station, Texas 77843, ²SFA Gardens, Stephen F. Austin State University, Nacogdoches, TX 75962. ³Department of Horticulture, Auburn University, Auburn, AL 36849. Oral presentation at the annual conference of the American Society for Horticultural Science, Feb 10-13, 2022 (t-hartmann@tamu.edu)

Creech, David. 2022. The Natives are Restless. Three-hour class presentation to the Montgomery County Master Gardener class, Conroe, Texas. 94 attendees.

April 14, 2022. Visit of Jason Bushong, Wenatchee, WA. Giumarra | Wenatchee, p. (509) 663-4409, c. (509) 293-1319; <https://www.giumarra.com/> - kiwifruit discussions

Creech, David. Jan/Feb 2022. Building Green Walls, Barriers, Screens, Hedgerows and Windbreaks. **Texas Gardener** Vol XLI (2): 36-39.

Creech, David. Mar/Apr 2022. Hollies: Tough, Durable and Versatile. **Texas Gardener** Vol XLI (3): 38-41.

Creech, David. May/June 2022. Where Have all the Horticulture Students Gone? **Texas Gardener** Vol XLI (4): 32-35.

Creech, David. June/July 2022. Plant Water-Smart from the Start. **Texas Gardener** Vol XLI (5): 22-25.

Creech, David. Sept/Oct 2022. How many Japanese maples are enough? **Texas Gardener** Vol XLI (6): 36-39.

Creech, David. Nov/Dec 2022. The Fig Preserve at SFA Gardens. **Texas Gardener** Vol XLI(7): 22-25.

May 21, 2022. Dedication of the Fig Preserve at SFA Gardens, the result of a gift from Debbie Ireland in memory of her husband. Signage in place.

Creech, David. 2022. SFA Gardens Update. Senior Citizen Center, Nacogdoches, TX 54

Ziyang Wang, Ming Yin, David L. Creech and Chaoguang Yu. 2022. Microsporogenesis, Pollen Ornamentation, Viability of Stored *Taxodium distichum* var. *distichum* Pollen and Its Feasibility for Cross Breeding. **Forests** 2022, 13(5), 694; doi:10.3390/f13050694

Shi, Q.; Hua, J.; Creech, D.; Yin, Y. 2022. Biomass Estimation and Carbon Storage of *Taxodium* Hybrid Zhongshanshan Plantations in the Yangtze River Basin. **Forests** 2022, 13, 1725. doi: 10.3390/f13101725

Shi, Q.; Zhou, Z.; Wang, Z.; Lu, Z.; Han, J.; Xue, J.; Creech, D.; Yin, Y.; Hua, J. 2022. Afforestation of *Taxodium* Hybrid Zhongshanshan Influences Soil Bacterial Community Structure by Altering Soil Properties in the Yangtze River Basin, China. *Plants* 2022,11,3456. [https://doi.org/ 10.3390/plants11243456](https://doi.org/10.3390/plants11243456)

June 30, 2022. Wild about woodies field day, 26 attendees

Mayfield, Hannah Celeste. 2022. Thesis: Effects of Excessive Soil Phosphorus Accumulation on Loblolly Pine (*Pinus taeda* L.) Seedlings. I served on Hannah's MSc Thesis committee, defended July 11, 2022.

Visit by John Ramsdell to study our *Taxodium* genetics. Oct 27, 2022. Retired, Branch Chief at NOAA: National Oceanic & Atmospheric Administration, Adams Run, South Carolina – testing some of SFA clones in Virginia.

Ilhan, Elif Canay. 2022. Effect of Mycorrhizae Inoculation on the Growth and Success of Three *Taxodium distichum* hybrids in Saline-impacted Coastal Soils. Project was partially funded by the Moody Gardens grant. Elif defended her thesis April 22, 2022.

Murray, Rachel. 2022. "Soil Salinity and Sodicity of Galveston and Pelican Islands, Texas", a project that produced the first ever Geographical Information Systems salinity heat map of the island, a platform we can build on in the years ahead and one that should be useful to land and vegetation managers on the island. Project was partially funded by the Moody Gardens grant. MS thesis was defended July 15, 2022.

Chamblee, Steve. July 2022. A nice article by Steve Chamblee on SFA Gardens in Neil Sperry's **Gardens** magazine: <https://neilsperry.com/2022/07/native-son-nac/>

Nov 11, 2022. Francisco Javier de la Moto Daniel, Director Houston Botanical Garden was our speaker. Mediterranean plants. 27 in audience.

Creech, David. 2022. How Many Japanese Maples Are Enough? **The Maple Society Newsletter** Autumn 2022, Vol 32/3: 11-16.

Creech, David. 2022. Led a tour of the Texas Forest Service annual meeting attendees through the Ruby Mize Garden. Dec 8, 2022. 80 in attendance.

Creech, David. 2022. How many Japanese maples are enough? Presentation at the Les Reeves Lecture Series, SFA Gardens, Dec 8, 2022. 60 in attendance.

Dave Creech Bio:

After a long career in the Stephen F. Austin State University Department of Agriculture, Dr. David Creech retired in 2007 and returned to serve as the Director of SFA Gardens in a ½ time position. The 138-acre SFA Gardens is an umbrella for numerous theme gardens and collections of trees, shrubs, vines, herbaceous perennials and fruit. These serve as a valuable germplasm resource for the Gulf South. Dr. Creech received his BSc from Texas A&M University in 1970, his MSc from Colorado State University in 1972 and his PhD from Texas A&M University in 1978. Since arriving at SFASU in 1978, Creech's research interests have been varied and include urban tree evaluation, blueberry and golden kiwifruit evaluation, horticultural crop nutrition studies, new plant introductions for the ornamental horticulture industry, endangered native plant rescue, research and reintroduction and finding sustainable solutions to environmental horticultural concerns. He is the author of numerous scholarly and trade articles, and has accumulated a long list of international consultancies since 1981 to Pakistan, Guatemala, Mexico, Nepal, Israel, Chile, New Zealand and China. In 2022, he received the ASHS Career Award for Outstanding International Horticulturalist which recognizes a member who has made an outstanding and valuable contribution to international horticultural science, education, research and/or outreach for a period of 10 or more years. Dr. Creech has served as president of the Native Plant Society of Texas, the Southern Region American Society of Horticulture Science, and the Southern Region International Plant Production Society.

Jordan Cunningham, Research Associate



Presentations:

March 3rd 'The Greenhouses' 30mins Flora Garden Club 22 people

July 19th 'An indoor tour of SFA Gardens' L.I.F.T 22 in attendance

August 13th Floral Design Seminar, 28 in attendance

March 16th Lunch Bunch: Plant sale preview 23 in attendance

Augusts 17th Lunch Bunch: Introduction and welcome back 7 in attendance

September 21st Lunch Bunch: Plant sale preview Speaker 12 in attendance

December 21st Lunch Bunch: Greenery for the Christmas table 18 in attendance

Education/Conferences:

January 7th Good Garden Bugs, Mary Gardiner – Ohio State University- Professor entomology

January 14th Bringing Nature Home: The Importance of Native Plants, Douge Tallamy - The University of Delaware

January 28th Specialty Bees Bryan Danforth- Cornell University

February 4th Bumble Bee Banquet – Selection Native Plants for Bumble Bees, Heather Holm

May 27th East Texas Pollinators Conference by Smith County Master Gardeners and Texas A&M AgriLife Extension Service Smith County

June 30th Overton Field day

July 1st Wild About Woodies

Garden events:

Plant sales:

April 8th - 10th Garden Gala Plant Sale Total: 67634.41

July 9th Summer Succulent Sale Total: 3,550

September 30th – October 2nd Fabolous Fall Festival Plant Sale Total: 48,328.61

Garden Seminars and Events:

Gardening Seminar 101 February 12th 8 in attendance

Floral Design Seminar August 13th 28 in attendance

Pick your own Muscadines Day September 3rd 118 Purchases

Deck the halls seminar December 3rd 29 in attendance

Lunch bunches:

Jan. 19, 2022 – Indoor plants Speaker Dawn Stover, study leader USDA, NRCS, ETPMC

Feb. 16, 2022 – Fruit varieties for East Texas Speaker Dr. Andrew King, Kings Nursery

March 16, 2022 Plant sale preview Speaker Jordan Cunningham SFA Gardens

April 20, 2022 – Pruning azaleas Speaker Duke Pitman SFA Gardens, Garden Supervisor

May 18, 2022 – Turf grass problem-solving Speaker Anderson, Anderson Lawn Care

Aug. 17, 2022 – Introduction and welcome back Speaker Jordan Cunningham SFA Gardens

Sept. 21, 2022 Plant sale preview Speaker Jordan Cunningham SFA Gardens

Oct. 19, 2022 – Fall container combos Speaker Jenay Harman, The Plant Shed

Nov. 16, 2022 – Creating habitat for beneficial insects Speaker Dr. Dan Benett, SFA Biology

Dec. 21, 2022 – Greenery for the Christmas table Speaker Jordan Cunningham SFA Gardens

Volunteer events:

Volunteer Potting Day January 5th 8 in attendance

Volunteer Potting Day January 12th 5 in attendance

Volunteer trip to King's Nursery and the Lilly Farm March 15th 10 in attendance

Numbers:

5 Students workers on the greenhouse team

48 register volunteers with 1,507 Logged Volunteer hours

Goals for 2023:

- ❖ Further streamline the checkout process for plant sale checkouts
- ❖ Reestablish a successful colony of *Phlox nivalis* ssp. *texensis* at the native plant center

- ❖ Update the following landscapes:
 - Tucker house front yard (including the Lady bird Jonson Garden)
 - Children's garden walkway
 - Arboretum perennial garden
- ❖ Create more opportunities for volunteer involvement

Tammy Purser, Program Associate



I received the SFA Alumni Foundation Purple Pride Award in 2022.

The Program Associate position was created in May, 2016 for support and expansion of existing programs including:

- Garden Membership and Donor relations
- Event scheduling
- Booking and management of events in the Brundrett Conservation Education Building and Gardens.
- Contract management
- Coordinating the quarterly SFA Gardens Newsletter between staff and marketing
- Preparing for quarterly Board of Advisors meetings
- Managing contracts, press releases and

accommodations for Theresa and Les Reeves Guest Speakers,

- Assisting with the review of garden accounts/grants, publications, travel and other duties as assigned.
- Preparing for and working Plant Sales sale weekends: taking payments and deposits as well as helping gardens volunteers and staff members as required
- Advertising key events such as Plant sale and speakers with the media, newspapers, Visit Nacogdoches.
- Answering phone messages/emails from community members and others looking for plant advice or more information about SFA Gardens

I happily joined the staff of SFA Gardens at the end of July 2022 and have been focused on all above and looking at ways to enhance processes to benefit SFA Gardens Members, our generous Donors and our always supportive Nacogdoches community and SFASU. As an alumni and staff member, I am very excited about what joining the University of Texas System will mean to SFA and Nacogdoches. The future looks bright!

As of December 25, 2022- We currently have 120 Active Garden Members at various membership levels. I greatly appreciate all who renew each year and new members who have joined as well.

I am thankful for the Gardens Gift report spreadsheet we receive from the Development Office on a monthly basis. Thank you MacKenzie Blackwell! This keeps us both in sync with our memberships and donor donations, and also is a great way to keep track of donations the Foundation receives directly for SFA Gardens as well.

I have also been reviewing current building rental policies and Speaker policies as well as travel and expense policies to ensure we are in compliance. Thankful to be collaborating with and learning from fellow Forestry and Ag staff, as well as others in Finance, HR, Payroll, Procurement, General Council, Business office and T-Card/P-Card Office too. Teamwork and communication is so important.

In 2022, SFA Gardens saw many individuals and groups enjoy our gardens:

We hosted several Saturday Seminars, 11 Les Reeves lectures, 10 Lunch Bunch and Volunteer meetings, a Donor Social, a Fruit Field Day and a very popular pick your own Muscadine sale

We had successful Spring and Fall Plant sales and added a Houseplant and Succulent sale too.

We saw 3 happy couples use our Gardens for their wedding ceremonies and we had numerous outside groups rent our beautiful Ina Brundrett building as well.

Various SFA Campus groups also rented the Ina Brundrett facility as well – groups ranging from Athletics, to Campus Rec, to College of Education to our own College - Arthur Temple College of Forestry and Agriculture.

We loved seeing local area students in the Gardens and involved in Environmental Science programs: Wild about Science and Bugs, Bees, Butterflies and Blossoms. We are eager to see more events such as these in 2023 with students!

Training completed in 2022

- Travel Request, Expense & Procedures
- Travel Card (T-Card) Procedure Training
- SFA Compliance Training
- FERPA Training
- Be the One: Human Trafficking Awareness

- P-Card Reconciling in Concur Video
- P-Card - Procedures
- Procurement & Business Services topics for Faculty/Staff
- Property Management Training
- Receipts and Deposits Training
- Hiring Manager Toolkit review

Some of my 2023 Goals:

- Assist with starting up volunteer tour docents again in the gardens during peak color seasons.
- Become more familiar with SFA Gardens accounts and budget
- Brainstorm ways to have SFA Students utilize the gardens.
- Continue relationship building across campus, and promoting use of the Gardens
- Collaborate with SFA Gardens Board of advisors, Staff, our volunteers and development officers on ways to grow our membership base.
- Discuss with IT what would be needed to:
 - send out membership renewal email reminders via email
 - offer automatic renewals option when members sign up for a membership online
- Improve Donor and community relations by looking at what other Gardens are doing and implement what we can here (may need additional staff/funding).
- Plan to attend conferences and seminars to increase my knowledge and then apply what I learn to my role at SFA Gardens
- Reduce paper use by storing documents electronically per SFASU policy guidelines.
- Review/revise external rental fees and update building rentals procedures
- Review/revise speaker contract procedures.
- Review SFA Gardens membership levels and perks with my team members and Development officers – revise as needed (planned for Summer 2023)

Dr. Alan Sowards, Environmental Education Program Coordinator



I was hired in September 2021, a temporary half-time position, in charge of SFA Gardens Environmental Education Program. In February 2022 I was offered a half time salaried position as the Environmental Education /Program Coordinator, SFA Gardens. The following is an annual report of our 2022 Environmental Education programs.

January 19, 2022 assisted with Region VII Education Service Center's EcosySTEM Design Team in reviewing current STEM projects in East Texas and planning for further collaborations with school districts and share holders from the East Texas Region.

February 2, 2022 met with Dr. Tonya Lowery, SFA Elementary Education Studies professor,

to plan training her science student interns, and scheduling elementary students to attend the 2022 Spring Bugs, Bees, Butterflies, and Blossoms (BBBB) field investigations to be hosted at the SFA Gardens. On February 11, 2022 met with Mr. Ted Stephens, Education Director, Texas Forestry Association and Co-Coordinator of Texas Project WILD to establish training dates for SFA students teaching BBBB activities. We met in the Ina Brundrett Conservation Education Building for these training sessions on March 15, 16, 22, and 23, 2022.

On March 29, March 30, and April 8, 2022 approximately **1000 East Texas elementary students** representing **nine school districts** participated in the 2022 Bugs, Bees, Butterflies, and Blossoms (BBBB) outdoor education program. **Thirty-six SFA science interns** were trained and then lead four science activities that engaged the elementary students (K – 2nd grade) in authentic, and hands-on learning. This was our **24th year** for offering this special education field investigation.

April 2022 was a busy month. SFA Gardens and Dr. Andrew King, Kings Nursery in Tenaha, provided **20 SFA Pre-K students** with plants to replace what they lost in last year's "Big Freeze". They planted these pollinator plants in their courtyard. Christ Episcopal Pre-K students also received pollinator plants to place in their raised gardens.

Nacogdoches Junior Forum announced awarding Christ Episcopal School \$1,381.36 for the 2022/2023 school year. These funds will be used to purchase garden supplies, garden literature/art, a compost bin, and construction of a water recovery system (rainwater cistern). **Dr. Alan Sowards, Environmental Education Program**

Coordinator (SFA Gardens) was designated Project Director to coordinate these projects. Junior Forum volunteers will also assist with the implementation of the community service connection. These funds extended the raised garden project started in Fall 2021 from a \$2,100 HERO Grant from Lowe's awarded to **Christ Episcopal School's 120 Pre-K through 5th grade students.**

At the May 5, 2022 SFA Gardens Advisory Board meeting a presentation on the SFA Garden programs was given to update members that Environmental Education Programs were back and flourishing.

June 15, 2022 presented and participated at the Region VII Education Service Center's EcoSySTEM Conference. One of the topics was "EcoRise" an organization mobilizing a new generation of leaders to design healthy, just and thriving communities for all. They offer a range of curricula and programs designed to advance environmental literacy, sustainable schools, and equitable access to green career pathways. They were involved in assisting us with the solar panels on the rooftop of the Ina Brundrett Conservation Education Building.

In June and July and September of 2022 we discussed and met about the George and Fay Young Foundation Grant. We received discretionary funding of \$7,500, and will be submitting a grant in the Spring of 2023 to support Environmental Education funding for the SFA Gardens for the next three years.

August 23, 2022 a presentation was made to the LIFT Senior Citizens group that meet at the Nacogdoches Senior Center. A lunch was provided and a program about the SFA Gardens environmental education projects were presented by Dr. Alan Sowards, Environmental Education Program Coordinator. Opportunities to participate in garden events and volunteer opportunities at the SFA Gardens were discussed. The group mentioned they would like to attend a tour of the gardens, when it gets cooler.

Monday, August 29, 2022 the **East Texas Home School CO-OP brought 46 Pre-k through 9th grade students** to the Ina Brundrett Conservation Education Building to participate in a lesson on Animal Tracks. **Fifteen parents** also joined in the fun of mixing Plaster Paris to pour in rubber animal track molds to create their very own animal track "CAST". **19 SFA Science Interns** assisted the lesson. Younger students created animal track art by using stencils to make animal track rubbings. They participated in an animal track relay race to identify which tracks matched which animals and made their own animal track scenario in wet sand.

The Annual WILD About Science (WAS) field investigations was held at the SFA Gardens on October 24, 28, 2022 and November 4, 2022. Training of SFA elementary and middle school science interns were scheduled at the Brundrett Education Conservation Building. Mr. Ted Stephens, Education Director, with the Texas Forestry Association assisted with the training and planning for these events. Dr. Leah Kahn's **19 middle school science interns** and Dr. Alan Sowards' **39 elementary science interns** from SFA were trained at the Brundrett Education Conservation Building. The

SFA interns taught lessons to **approximately 700 4th and 5th grade public/private school students** from the East Texas area schools. The field investigations were taught at the Pineywoods Native Plant Center and MAST gardens on three different days.

I would like to end my report by a shout out to Alondra Cavazos, my SFA Practicum student. She put in more than 200 volunteer hours to support the environmental education mission of the SFA Gardens. Alondra was energetic, self-motivated, and a great collaborator. She is an advocate for children of all abilities and has a particular passion for environmental education. She graduated in December and moved back to her home town in Houston, and she will be greatly missed. We thank her for her many contributions to the SFA Gardens.

Due to the success of these events East Texas Schools, SFA's Department of Education Studies, and community organizations are eager to support programs offered by the SFA Gardens. We continue to seek funding for these important education endeavors.

Funding priorities to be considered:

Returning the SFA Gardens Environmental Education Program Coordinators position to full time and to the state funding level the position enjoyed prior to the summer of 2020. \$50,000 annual

Assistant Environment Education Coordinator position – (part time) \$35,000 annual

Material and Supplies (consumable) - \$5,000 annual
(live animals – live animal habitats; ie. butterflies, decomposer, aquatic macro-organisms)

Construction of On-site raised gardens - \$7500
(storage unit, children's tools and equipment)

Butterfly conservatory (lepidopterarium) - \$5000
(equipment, materials, and plants to raise our own butterflies)

Water Collection System – \$5,000

Outdoor Pond - \$5000

If you have any questions regarding the SFA Garden's Environmental Education Programs please do not hesitate to contact me at 936 645-9742 or asowards@sfasu.edu

Duke Pittman – Landscape Manager



I have been on staff since 2009. I'm an SFA Horticulture Graduate, Class of 2008. I grew up in Mexia, Texas, and had a love for gardening before graduating high school. Most of my duties are associated with garden maintenance and irrigation management.

For the last two years we have been spending a lot of time just dealing with debris removal. The forest at SFA Gardens has suffered two major freezes in two years. Many large trees fell over or were taken out because of horrific limb damage due to the ice/snow load in 2021. The debris of this high canopy oak and pine forest has been huge. Dealing with this has taken a big chunk of time that might have been spent elsewhere. There's always the pull of constant maintenance like weeding, pruning,

training, mulching, and irrigating. Gardens can reward and punish. This most recent freeze is ending up having resulted in more damage than we first expected. I'm afraid, 2023 will be another rebuilding year.

I am pleased to say that SFA Gardens dealt with the record heat/drought of the summer of 2022 in fine form. Timely irrigations and taking care of thirsty plants outside of our irrigated zones is our goal. Weed control is as good as it's ever been in all our gardens, due to more mulching, the use of the lower impact herbicide, glufosinate, and some good student workers. One project we didn't finish this year in the Gayla Mize was switching the irrigation system from drip to mini-sprinklers. We've given up on the idea that this garden should drip. Two factors are making us throw in the towel. 1) Deer, pigs, squirrels, rabbits, raccoons and possums ruin everything, and 2) floods in certain sections move the drip lines everywhere. A solid set irrigation system is the only way to go on this big a place.

On February 12, 2022, my wife and I delivered a Gardening 101 workshop to eight in attendance. On April 20, 2022, I presented a "Lunch Bunch" seminar on pruning azaleas.

In 2023, we will be adding a new planting at the front parking lot of the Gayla Mize Garden. We are planning a major effort to improve the drainage of the Gayla Mize and putting in a strong effort to prevent any future floods in the garden caused by problems

that rest to our east. We will continue to improve the vista on the east side near the entrance and enhance the sweet olives and ginkgo collections. In 2023, we will put renewed interest in wildflower patches under the high voltage lines projects.

Thomas Dimmitt - Landscape Technician



The primary responsibility of this position is the care and culture in the SFA Mast Arboretum, a 10-acre diverse and rare collection of woody and herbaceous plants. The Mast Arboretum dates back to the formation of the garden over thirty years ago.

2021 Goals Update

The pergola located at the southeast edge of the Agriculture Building has received a new tin roof and the kiosk at the front near Wilson Drive has been braced and repaired following our winter storm damage.

Planted redbuds (*Cercis canadensis*) 'Flamethrower', Jalisco juniper (*Juniperus jaliscana*), dwarf ginkgos (*Ginkgo biloba*), Thuja 'Harvest Moon', Scotch Elm (*Ulmus glabra*), Viburnums, and *Myrcianthes fragrans* 'Variegata'.

Thujas and the Jalisco juniper have been added to the conifer collection helping establish a new cohort of interesting conifers following our losses due to the 2021 freeze.

Land Swap with Horticulture Department

In 2022, I helped facilitate the transition to SFA Gardens managing a four-acre stretch of the LaNana creek bottom and SFA Horticulture managing the land surrounding the agriculture building and horticulture facility. Next to the intramural field, the fig planting has been expanded and additional fruits will be under evaluation soon. A variety trial of persimmons (*Diospyros* spp.) and pineapple guava (*Acca sellowiana*) have been planted. To help with the transfer we will be removing the Elking Environment desert lilies to replant elsewhere to leave a space for the Horticulture teaching program to occupy.

CARRI

Establish new irrigation infrastructure to support the inground nursery pad being established. Location of the nursery is at the CARRI Headquarters off the loop at the previously existing SRC Building. Currently we have all the pipes laid, spigots established, and rows mounded with soil. We will plant and establish new and rare ornamental woodies that can be transplanted from CARRI Nursery to SFA Campus and nearby projects in our region.

Overall Arboretum

Continued objectives and goals: Maintenance as necessary to perpetuate the beauty and splendor of the Mast Arboretum. Essentially, staying on top of mulching, irrigation, weeding, hedging, blowing, trail maintenance, planting new plant material, and other miscellaneous gardening tasks.

Devin Stage – Landscape Technician



This report is to recall all of the past accomplishments of the 2022 season. The Ruby Mize Azalea Garden is the primary responsibility that has been assigned to my management. However, I have had the privilege of contributing to the maintenance of all the 128 acres of space relating to the SFA Gardens system. In this report I will also be mentioning the efforts that have taken place off campus also. These efforts to speak of regard the Center for Applied Research and Rural Innovation (CARRI) project, and the project that is taking place on Galveston Island at Moody Gardens.

The Ruby Mize Garden (RM) has received a number of disturbances in the previous seasons. This includes past freeze events that have left plants and irrigation systems in need of attention. In preparation for the

hot weather that we faced this summer season, many irrigation risers were required to be excavated and repairs made as necessary. Faulty watering heads that have reached up to 20 years of age were finally retired and regular inspection of the running system was made a high priority to ensure that plants were not left thirsty.

The cold weather that tested the hardiness of our extensive plant collection and had consequences that carried on throughout this past year. Many plants that had continued to die back were pruned intensively to recover and encourage growth. Many pathways that were heavily used by equipment to remove dead trees and other organic debris were left in need of repair. Amendments to trail edges have been made possible through the utilization of reclaimed materials from other projects. The economic impact of this project was limited by the resourceful use of these materials. Red iron ore has been purchased and applied as a base to the trail repair. After the first layer of red iron ore had been applied, equipment such as tractor, bobcat and university truck were used to bring in the reclaimed crushed gravel on site as it was then used to top dress the red iron ore. This is an ongoing effort and will continue into the following season.

The RM Garden is visited at high volume rates throughout the year and especially as it provides great displays of color. As the parking situation is limited, additional parking has been created to facilitate more visitors at one time. Once again this was accomplished by using reclaimed rock that was applied with a bobcat. Five to six more parking spaces are now available, and we hope that there will be enough material to construct that many more in this following season. Other damages that have resulted through the maintenance of the garden includes the siltation of drainage ways. The drainage system is critical in its function as many of the plants cannot tolerate prolonged saturation. The culverts and drainage ways are a high priority and will be dug by hand to disperse the water.

A silver lining to the past year's loss of trees and shrubs is that the mulched material has provided a great amount of additional mulch material. This material has been essential in the projects that relate to fruit as well as the CARRI project. The Carri project is a combined effort of the university grounds department and the gardens as an initiative to benefit the nursery and landscape industry in Texas. A tree nursery has now been created as a ditch which was rented to trench what now holds 300 feet of piping with 21 risers installed to facilitate the water distribution to a mile worth of raised beds. These beds were created with mulch and purchased soils that were moved using the gardens bobcat.

The Moody gardens project has been a great opportunity as a new beginning has occurred through the reconstruction of bedded rows and reconstructed irrigation. Through the harvest process of the past year all infrastructure has been disturbed and needing repair. This was done through the transport of the garden's tractor to Galveston. Moody gardens graciously provided their bobcat that was helpful in the execution of maintaining this project. Garden staff have been able to plant what is just the beginning of a new succession of trees that will be trialed and distributed around the Moody grounds and throughout Galveston Island.

SFA Gardens is an ever-evolving living breathing work of art. The stewardship of the extensive plant collection, waterways and paths is a task needing intensive attention. I am grateful to be an influence on what makes SFA beautiful and Nacogdoches the garden capital of Texas. I will carry on in the following season of life in the gardens, happy to be here and eager to work.

Peter L. Blanchette – Garden Technician



I started with the PNPC as part time staff in June, 2022, after moving from Houston to Nacogdoches. Prior to working with PNPC, I graduated from SFA, with a Bachelors and Masters in Forestry. I worked for the City of Dallas as an Arborist (12 years), after which I moved to Houston. I was the Horticulture Manager of the McGovern Centennial Garden for the Hermann Park Conservancy, Houston, then worked for the City of Houston as a Forester.

My primary tasks are to restore and maintain the gardens around the Tucker House and Sara's Branch, bordering the north and west side the PNPC. The Oakleaf Garden, the Elephant Garden, Barb's Garden, and the Pawpaw Garden have been weeded and mulched.

Restoration of Sara's Branch on the North side of the PNPC has begun.

I also assisted in the propagation and maintenance of plants being grown for the three plant sales conducted during the year.

Moody Garden Project, Galveston, TX; I was a member of the PNPC team that prepared the two-acre site in October and we planted Bald Cypress and Live Oaks in December.

Goals: 1) Finish restoration of Sara's Branch bordering the PNPC and 2) replant the Elephant Garden, Barb's Garden and the Pawpaw Garden in accordance with their original landscape design.

Jhett Myers, Garden Technician (Fruit)



Mission for 2022: Effectively manage all fruit orchards for efficiency and productivity in the context of the many different objectives undertaken by SFA Gardens in regards to fruit research and production in the East Texas region.

Current goals for the year include

- Management of kiwis located at grounds kiwi nursery, summer duties completed include single stem pruning, also known as “trashy trunk”, fruit thinning, and application of Glufosinate to keep basal sprouts down. Irrigation repairs and learning how to operate the current irrigation system were areas of importance.
- Management of blueberry bushes included three applications of organic matter in the form of mulch; these were completed at the beginning of 2022, summer of 2022, and in the fall of 2022. Further management included irrigation repairs stemming from mowing damages and realigning wandering drip lines back to plants. Applications of Glyphosate were also used to control weeds, as well as mowing to keep grass between rows down.
- Management of figs included planting, mulching, irrigation set-up, and extension of rows (completed by fellow technician Devin Stage.) Further management included regular herbicide applications to control weeds and the removal of weeds too close to spray by cutting them back by hand. The early installation of this plot required removal of previous projects from the horticulture department.
- Management of feijoas included planting with the help of Dr Kulhavy’s urban forestry class, applying mulch, and the removal of weeds. In between plants along rows watermelons were attempted to be planted, after the installation of emitters deer promptly ate the seedlings. Irrigation was also set up for feijoas in the form of drip line.
- Management of Muscadine grapes included vine thinning, initially done in the spring with the assistance from Dr. Kulhavy’s urban forestry class, however this thinning proved to be too light, prompting a harder thinning in the winter of 2022. Further management included regular mowing of the rows, as well as inspection of the trellis

system. Problems encountered were damages to the deer fence placed around the grape patch which led to deer intrusion and we have taken care of the problem. Recording of average weight of each grape cultivar was also completed with the help of student worker Hayden Lee.

Other goals include:

- Managing a project to grow 4000 Bruno kiwifruit in one gallons, which required the installation of a nursery pad and the planting of seedlings into 50 cell flats. Current management includes inspection for insect damage, osmocote applications. Kiwis were moved from 50 cell flats into 1 gallon pots upon appropriate growth and the goal is to have strong plants by March 2023.
- Plaque installation at the fig orchard, as well as a showing to those close to whom the plaque was dedicated to and a fig giveaway.
- Kiwis located at the grounds plot were extracted at a spacing of 9 feet, to provide room for planting.
- The planting of persimmons, in blocks, located closest to feijoas as well as the application of mulch, drip line has not yet been installed for them.
- Forklift certification completed through SFA's office of safety.

Future Goals to be achieved

- The installation of a gate at the south face of blueberry hill.
- The eventual move of 4000 bruno kiwis.
- Installation of drip line irrigation at persimmons planted near the intramural field.
- Increased speed at which issues are found, fixed and reported.
- Planting of more figs/persimmons at the intramural field as well as the appropriate mulching required for the plants.
- Exploring the possibilities of blueberry sale, similar to the sale of muscadine grapes.
- Continued efforts to maintain aesthetics of fruit orchards and surrounding area, in the form of pruning, mowing, weed removal, and weed removal from banks of creeks.

Conclusions:

2022 provided me with learning several horticultural practices and specifically the growth and maintenance of fruit orchards as well as provide knowledge of interactions with the public and professionals in the field. Goals and objectives were completed, however not as promptly as I would hope. I look forward to seeing this change in the near future. The opportunities to learn are in abundance and I recognize this job as a way to make an impact, provide a service, and expand professionally, and personally. As one of the newer technicians currently with SFA gardens I seek to prove myself as a valuable employee and provide help where it is needed and hope that my continued efforts will assist in this goal.

EVENTS IN 2022



Wild about woodies seminar and field day, July 30, 2022 – 24 attendees at seminar with Matt Welch, Andrew King, Allen Owings and I as speakers. Then tours of the garden collections.



Evaluating Figs, Muscadines, Blueberries, Kiwifruit, persimmons, pineapple guava, jujube and other alternative fruits for their climate resiliency in the East Texas Pineywoods. David Creech and TAMU's Drs. Tim Hartmann, Justin Scheiner and Andrew King for the seminar portion. 26 attendees



Wreath workshop with Dawn Stover



Floral Design workshop with Jordan Cunningham



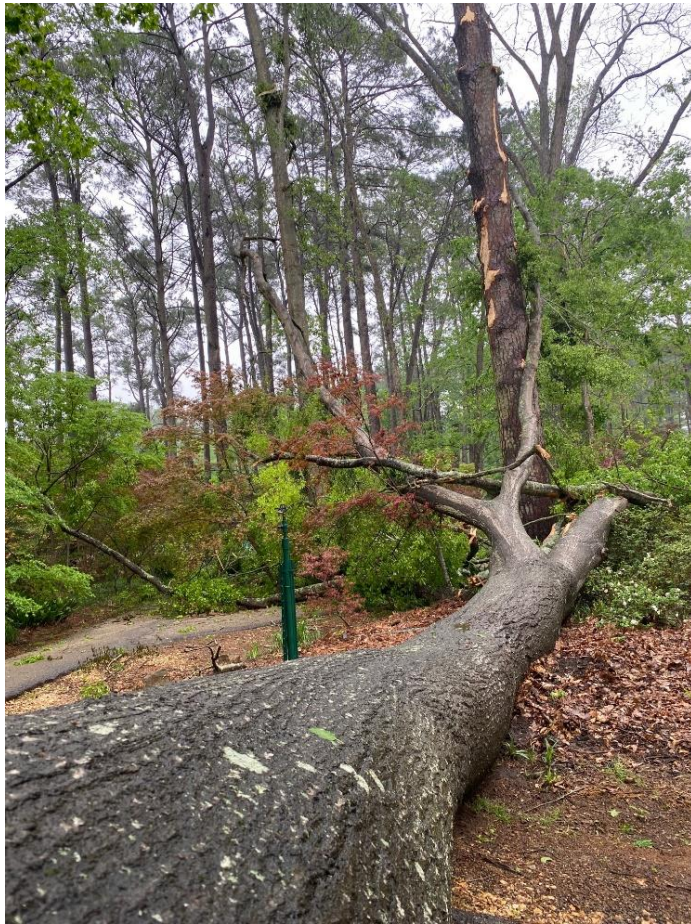
Dr. Dave Creech received the American Society for Horticultural Sciences award for “International Contributions in Horticulture” at the annual meeting in Chicago, July 30, 2022.



The Texas Association of Botanical Gardens and Arboreta conference in Feb 2022 at the Longview Arboretum and Nature Center was poorly attended with five gardens represented. Covid19 and a terrible icy cold front blew in and made a mess. In spite of the

weather, it really was a great gathering and Steve Chamblee was the consummate host. The cuisine was first class. Plenty of meaningful plant talk and everyone wondering if we'll ever return to some kind of normal.

DEBRIS REMOVAL AND REPAIRS EVERYWHERE



While we're not sure this qualifies as an "event", we can report that debris removal has been robbing precious work time for the last two years. After winter storm Uri, the gardens were closed for two months. While the University was able to contract two clean up companies to take trees down on campus and in the gardens, there was insufficient funds for debris removal. This was not in the job descriptions for our team but it fell under our responsibility. The Feb 2021 – 4F ice/snow event was a record-breaking hardship that won't go away. The SFA Gardens team has brought the gardens back from disaster and hopefully we can get back to better days. A real positive is the improved sunlight in all our gardens. Amazing what tree falls can do about that.



This is one of the oldest structures built in a 1988 by a class in Landscape plant materials. Rick Morris and Shannon Murphy, now in North Carolina, were the lead on the construction. The cedar shake roof was in disrepair. Thomas Dimmitt and Devin Stage did a fine job repurposing some old tin to carry the structure for another thirty years.

VOLUNTEERS AND STUDENTS



The SFA Gardens Volunteers are a critical part of our growth and development. They are a committed support group for this resource. Volunteers assist in all kinds of activities. Some prefer working in the nurseries or greenhouse. Others prefer taking on a garden area and keeping it maintained. Others like to be part of the plant sale preparation team. Jordan Cunningham is the lead manager of the volunteer and initiated a “lunch bunch” noon event with a speaker and a short presentation and provides the structure for many projects. Jordan reports that the 48 volunteers logged 1407 hours in 2022. Dr. Dave Kulhavy’s (ATCOFA) Urban Forestry students as part of an Arbor Day Planting.



FALL 2022 COLOR



The Fall 2022 color show in the maple collection gets an A+. Others in our region report the same. This year is convincing everyone that visits that SFA Gardens rocks in the maple world. The question remains: how many maples are enough?





The Mast Arboretum has the oldest Japanese maples. They go back to 1986 plantings. The Ruby Mize has maples that are twenty years old and now quite impressive. The Gayla Mize has trees ten to twelve years old and thriving. The diversity in the species is amazing.



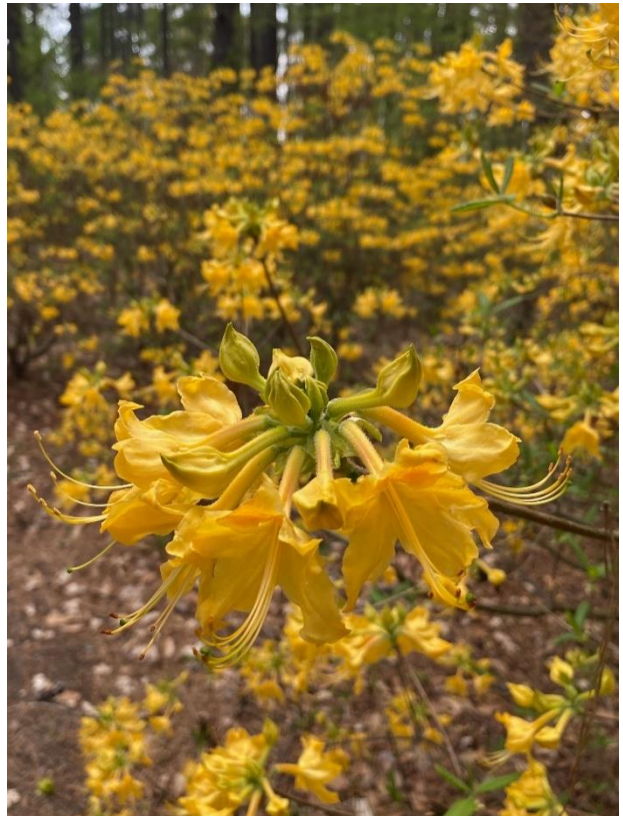
PLANT STANDOUTS



From top left, going clockwise. *Camellia japonica* 'Red Velvet', *Camellia* 'Leslie Ann', *Ilex* X 'Calina', Jordan with *Lagerstroemia* 'Kitty's Purple', a *Myrcianthes fragrans* seedling with good hardiness.



Clockwise, starting top left: 1) *Parrotia subaequalis* is new, fast, tough and a reliable red for fall color, *Parrotia persica* 'Biltmore' of good form, *Magnolia* X 'Wada's memory' is an oldie but goodie, and the collection of witches broom *Pinus taeda*, all fascinating seedlings from miniature cones in a witches broom and are three years old, no pruning.



From top left, clockwise: *Callicarpa acuminata* selection, a seedling of *Callicarpa americana* 'Welch's Pink', Rhododendron 'Yellow #3' (a Bob McCartney introduction), and an isolated purple flowered bluebonnet that Jordan saved the seed from, I hope.



From top left, clockwise: 1) X *Gordilinia* in full sun at the trialing garden, 2) a new crape myrtle introduction via a JBerry Nursery/SFA Gardens collaboration, 2) *Cercis canadensis* 'Flamethrower' is a Denny Werner, NCSU, release with shocking spring foliage, 3) a select seedling of *Cornus angustata* 'Empress of China', in the Gayla Mize Garden. All survivors of the Feb 2021 and Dec 2022 record freezes.



We consider this Gardenia a breakthrough for hardiness. 'Whispering Pines' is a robust double flowered *Gardenia jasminoides*. It survived -4F in Feb 2021 and 9F on Dec 2022 without any damage. Jim Berry, JBerry Nursery, Gran Saline, Texas made the introduction. He collected cuttings from a giant gardenia in an abandoned landscape in Alabama. Janet was impressed and Maisey didn't care.



Not one, but two, of our whale tongue agaves, *Agave ovatifolia*, decided to bloom in May 2022, perhaps due to stress of winterstorm Uri in 2021? These are at the front of the Gayla Mize Garden and no accidents were reported.



BALD IS BEAUTIFUL



Top left, going clockwise: 1) Taxodium plots along LaNana, 2) 'Cascade Falls' at the Gayla Mize Garden, 3) Taxodium T502 at the Red River Wildlife Refuge, Bossier, LA, 4) Taxodium 'T406' at Moody Gardens, Galveston Island, 5) 'Jim's Little Guy' in Jimmy Hinds Park.



The spring and fall plant sales are a critical part of our fundraising and the two events are managed by Jordan Cunningham, the rest of the SFA Gardens team and a wonderful corps group of volunteers. Income is used primarily for salary lines.

Environmental Education Programming is back at SFA Gardens!



LOCAL SCHOOL PROGRAMS





WILD ABOUT SCIENCE





BUGS, BUTTERFLIES AND BLOSSOMS



MUSCADINE PATCH AT JIMMY HINDS PARK



Muscadines at JH Park include over sixty varieties and selections – a collaborative project with our colleagues at TAMU. After data collection, the SFA Gardens volunteers managed a PYO day which enjoyed a wonderful turnout.

KIWIFRUIT PRODUCES OUR SEVENTH CROP IN NINE YEARS



The kiwifruit project survived the hard freeze of February 2021, something we didn't expect with temperatures down to -4F. We continue to be impressed with the potential of this new crop for Texas. Commercially, it's a complicated crop, it's brand new, and it takes a significant investment on a per acre basis. Still, the returns appear enticingly high.



THE FIG PRESERVE



Thank you, Debbie Ireland and family, for supporting the "Fig Preserve". We installed a nice interpretive sign, and a dedication March 30, 2022, in memory of Debbie's late husband, Mark.



SFA Gardens has had figs for many years. In 2014, however, we got serious and planted a patch next to the LaNana creek trail. With over 60 varieties, we're here to see if there are any new/old/rare varieties that might compete with those commonly grown. The Feb 2021 and Dec 2022 epic freezes did not help our

mood. But the survival is good and they have rebounded well in this bottomland site. For data, I walk the field right before harvest and assign a cropping estimate on a 1-10 basis. The reason for doing that is to get ahead of the LaNana creek trail walkers who enjoy a fig snack on their walk. I always encourage them to eat a few, but please don't back up a truck up loaded down with boxes.

BLUEBERRY EVALUATION AT THE PNPC



PINEAPPLE GUAVA PROJECT RECEIVES FUNDING



Pineapple guava, *Acca sellowiana*, is a potential crop in Texas that is in the early stages of evaluation. We have just received (Dec 2022) a grant from the Texas Department of Agriculture to evaluate the crop's potential. We are collaborating with Dr. Tim Hartmann, Texas Agrilife, TAMU, College Station, Texas

MOODY GARDENS RESEARCH PROJECT

Evaluation of woody trees and palms for their climate resiliency on Galveston Island. Funded by Moody Gardens, the project has produced five Masters students since 2016 in collaborations with Forestry, Environmental Science and Botany at SFA.



Devin Stage, Peter Blanchette and Trevor Capper



Rachel Murray defended her thesis July 15, 2022. Electronic Theses and Dissertations. <https://scholarworks.sfasu.edu/etds/466>



Elif Ilhan defended her thesis April 22, 2022. Electronic Theses and Dissertations. <https://scholarworks.sfasu.edu/etds/438>

CLIMATE RESILIENT TREES FOR A 21ST CENTURY TEXAS



We received a grant for March – September, 2022, from the Center for Applied Rural Research and Innovation, CARRI, SFASU. This funding allowed us to embark on creating an in-ground nursery at the new CARRI headquarters. The SFA Gardens team created over one mile of raised beds, most of them now mulched in. Even at ten feet spacing that's over 500 trees. Goal is to grow trees to 2-4", winter tree spade into burlap lined baskets, cinch up and haul them via trailers to nearby projects in need of trees, including those at SFA. This property would make a fine six to eight acre Urban Tree Research Center.