

SFA GARDENS ANNUAL REPORT

JAN – DEC 2020



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



TABLE OF CONTENTS

	<u>Page</u>
SFA Gardens as a University Resource	3
Impact of Pandemic	3-4
Plant Sale Income	4
Change in Fiscal Reality	5
Micky Elliott Family Foundation Gift	5
Environmental Education Program	5-7
Garden Collections	8
Moody Gardens Project	8
Fruit Research at SFA Gardens	8
Jimmy Hinds Park	9
SFA Gardens Base Map	10
STAFF ANNUAL REPORTS:	
Dave Creech, Director	11-13
Dawn Stover, Research Associate	14-17
Duke Pittman, Landscape Manager	17
Anne Adams, Program Specialist	18
Jordan Cunningham, Greenhouse Technician	19
Malcolm Turner, Technician	20-22
Devin Stage, Technician	22
Thomas Dimmitt, Technician	23-24
PICTORIAL – THE YEAR IN REVIEW	25-36

Cover photo: Buttonbush flower simply because it resembles Covid-19

SFA GARDENS AS A UNIVERSITY RESOURCE

SFA Gardens remains a recognized and valuable Center within Stephen F. Austin State University, Nacogdoches, Texas, USA. SFA Gardens is a multi-faceted public garden developed within SFA's Arthur Temple College of Forestry and Agriculture. SFA Gardens covers 128 acres on the SFA campus -10 acres in the Mast Arboretum and Jim and Beth Kingham Children's Garden, eight acres in the Ruby M. Mize Azalea Garden, eight acres in the Gayla Mize Garden, and 42 acres in the Pineywoods Native Plant Center and Jimmy Hinds Park. In addition, SFA Gardens is responsible for the maintenance and development of the 60-acre SFA's Recreational Trails and Gardens, which is adjacent to the Gayla Mize Garden. SFA Gardens is an umbrella for projects in the gardens, city and in collaborative research endeavors across the Gulf South. In addition, SFA Gardens is responsible for regional outreach projects including pollinator prairie studies on private and public lands, salinity studies at Moody Gardens, Galveston Island, Kiwifruit studies with six farmer-cooperators, and numerous plant materials collaborations and exchanges with Texas nurseries and southern USA plant professionals. This report documents activities January 1, 2020 - December 31, 2020.

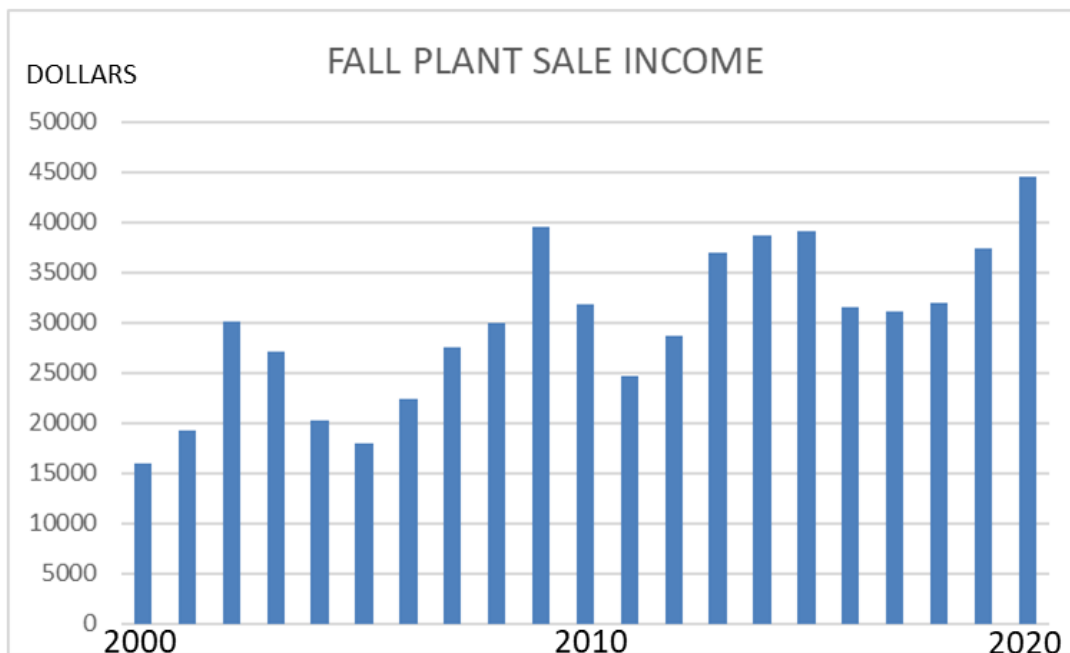
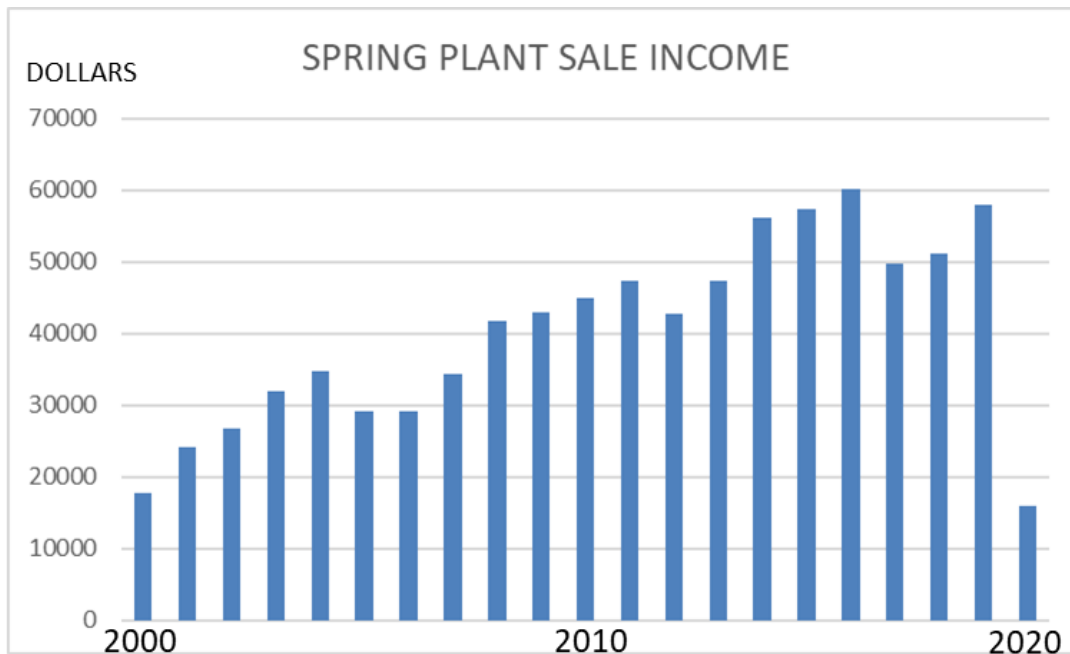


Left to right: Anne Sullivan, Duke Pittman, Malcolm Turner, Dave Creech, Dawn Stover, Thomas Dimmitt, Jordan Cunningham and Devin Stage

IMPACT OF THE PANDEMIC

2020 was like none other. When the Covid19 pandemic entered the scene in March 2020, everything turned upside down at SFA Gardens. By mid-March the University was shut down and students were sent home. The SFA Gardens staff was deemed essential personnel and everyone took on masks, social distancing and hand washing. The negative impact was big. The SFA Gardens Environmental Education program plummeted from 10-12,000 K-12 students per year to zero. In the adult education program, the Les Reeves Lecture Series was cancelled, as well as all of our workshops, special garden seminars and training sessions. The early April Spring plant sale was

cancelled. However, Dawn and Jordan regrouped, worked with SFA Safety and managed a hybrid sale event in late May. It was modestly successful, with some serious caveats (hybrid/virtual, registration only, six “bubbles” at a time, good distancing, masks and extended over many weeks). However, by the time the Fall 2020 plant sale rolled around, Dawn and Jordan proved themselves creative and much needed income was generated. Essentially, the 2020 plant sales were extended over many weeks to deal with the protocols in place.



CHANGE IN FISCAL REALITY:

The 2020 pandemic had a serious impact on the SFA Gardens staffing and budget. At the start of 2020, the program enjoyed ten staff. At the end of 2020 that fell to eight staff and the SFA Gardens had lost \$116K in the state salary line (about half of our usual allotment).

Hopefully, this pain to the program is temporary. Because of the pandemic, the SFA Gardens lost about \$110K in normal outside the university income (plants sales, seminars, workshops, etc.) and about \$15K in income via the Ina Brundrett Conservation Education Building (weddings, meetings, events). Our best estimate is the net loss to our previous operating budgets exceeds \$180,000.

Community support is provided by a "Friends of SFA Gardens" group with about 136 members and the SFA Gardens Advisory Board, which met quarterly prior to the pandemic. Historically, SFA Gardens enjoys a great corps of volunteers. For a reference point pre-Covid19, the total volunteer hours for the SFA Gardens set a record in 2019 with 2449.2 hours' worth \$57,458. In 2020, we had 474 volunteer hours' worth \$11,120, most of which came in January and February, 2020.

With the pandemic, the Ina Brundrett Conservation Education Building was converted into a University classroom because it allowed good social distancing. In 2019, the CEB hosted over 90 events; in 2020 that number fell to 11, all in January and February 2020 before the shutdown.

MICKY ELLIOTT FAMILY FOUNDATION GIFT

In 2019, we received word that the Micky Elliott Family Foundation awarded the SFA Gardens a gift that will allow the gardens to move to the next level. We hired two new staff, Thomas Dimmitt and Devin Stage, just prior to the mid-March 2020 closing of the University. Thomas and Devin provide critical on the ground staff dedicated to garden projects and landscape maintenance (planting, mulching, fertilizing, pruning, pest management and irrigation) at the SFA Mast Arboretum and Ruby Mize Azalea Garden. In the history of this garden, this award should 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. This gift will be ongoing based on achieving our deliverables. This is an epic step forward for the SFA Gardens.

ENVIRONMENTAL EDUCATION

One of the great success stories at SFA Gardens is Environmental Education, no doubt based on the fine work of the Coordinator, Elyce Rodewald. After nearly twenty years at SFA Gardens, Elyce Rodewald retired in early spring, 2020, as the Environmental Education Coordinator. Unfortunately, Covid19 hit in March, 2020, and the request to

fill this state-funded position in the summer of 2020 was denied. This made sense then. After all, our Environmental Education numbers fell from 12,000 K-12 children per year to zero. By year's end, with the promise of Covid19 restrictions drawing to a close and our lives returning to normal, we were optimistic that the University would allow us to post the position.

SFASU is currently struggling with serious fiscal issues, aggravated by declining enrollment and reduced state funding. The SFA Gardens budget has been a victim, with budgets and staffing reduced quite dramatically. We are not alone. Other programs at SFASU have suffered as well. In 2019, the SFA Gardens Environmental Education program reached over 11,000 in a broad spectrum of programs for ages K-adult. In 2020, the program essentially ended in March. Replacing this state funded position is a major goal for our program in 2021.

A Texas Parks and Wildlife Department grant funded a ½ time assistant coordinator position, Jocelyn Moore. While the pandemic put a real hardship on the last seven months of the program, we can report that all of the deliverables were met, mostly because of events and activities accomplished before the pandemic arrived. With the end of the grant, and no return to normalcy, that position was lost.

The centerpiece of the SFA Gardens Environmental Education program remains the Ina Brundrett Conservation Education Building at the Pinewoods Native Plant Center. The building was dedicated at the PNPC in 2014 after a successful campaign to raise about one million dollars. The solar panel array at the CEB provides over 75% of the annual the annual energy needs of the facility. 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. With the pandemic, the ability to spread students out and keep them masked has been the mantra. Anne Sullivan, Program Specialist, handled the event manager details of this resource. We continue to proclaim the building as a great teaching example of environmentally sensitive methods of construction and operation.

Figure 1. Impact of the Covid19 pandemic on educational programming at SFA Gardens in 2020. Does not reflect virtual presentations by staff.

	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017*	2018	2019	2020
Adult Programs																			
Arboretum/Azalea Garden/PNPC Tours	744	744	768	1334	1214	1343	863	1244	1499	908	460	1278	912	690	599	346	134	521	
Les Reeves Lecture Series	980	860	709	823	922	751	824	789	811	780	802	809	982	820	788	921	619	535	
Garden Seminars	83	158	184	175	32	45	57	65	32	145	396	142	206	178	115	216	116	91	
Educator Workshops	24	186	23	121	183	225	455	110	160	30	43	88	0	147	60	18	185	145	
Volunteer Training	25	35	13	45	29	11	30	18	10	8	12	26	11	0	2	5	1	36	
Adult Special Events	1285	1927	1070	1508	1200	3281	1862	1350	1020	987	300	254	0	88	150	555	202	111	
Lectures-outreach							3179	4232	2905	2388	3437	4738	5169	6189	2000	2150	2603	1560	
Sub-total	3141	3910	2767	4006	3580	5656	7270	7808	6437	5246	6450	7335	7280	8112	3714	4211	3860	2999	
Children's Programs																			
Arboretum Adventures	917	546	820	733	1048	1120	771	1162	1377	784	546	514	588	543	626	611	763	663	
Trees Are Terrific	2320	1246	962	622	1784	1750	2072	1795	552	921	717	0	0	0	0	0	0	0	
Forest Awareness						450	600	1050	1200	1900	535	613	600	571	415	534	546	560	
GardenQuest	398	644	381	0	525	182	316	80	320	175	0	28	120	130	182	0	0	250	
Go Wild	174	690	924	549	711	772	803	752	549	540	499	473	495	521	538	742	534	551	
Wild About Science (Go Native Field Day)	0	0	250	300	594	594	508	351	483	479	525	452	446	455	425	931	888	676	
Earth Science Exploration						475	475	612	1076	869	796	447	462	520	557	852	648	485	
School Gardening	66	0	0	0	0	0	0	120	0	0	0	473	495	0	0	0	89	0	
Bugs, Bees, Butterflies and Blossoms	500	1000	2025	2640	2574	2816	2800	2800	2477	3292	3301	3523	3279	3395	3553	3500	2225	2553	
Pneynwoods Day Camps	26	26	36	58	63	67	74	77	77	83	87	87	91	92	82	77	82	95	
Children's Special Activities	571	1056	1538	1756	2004	200	350	800	882	115	804	2120	1902	1023	500	667	841	675	
Wild About Wetlands	0	0	0	87	154	395	111	46	19	28	27	30	100	106	88	88	0	0	
Nacogdoches Naturally-Family Day								193	520	500	893	1753	1888	1040	424	864	366	414	
CDE (Career Development Education)						700	686	511	704	772	897	845	700	800	996	784	1406	476	
Nacogdoches Naturally-After school									503	495	648	1138	938	916	347	517	376	604	
Sub-total	4972	5208	6936	6745	9457	9521	9566	10349	10739	10953	10275	12496	12104	10112	8733	10167	8764	8002	
Total	8113	9118	9703	10751	13037	15177	16836	18157	17176	16199	15725	19831	19384	18224	12447	14378	12624	11001	444
2001-2016: Data shown is from September through August each year.																			
*Sept 2016-December 2017																			
2018-2019: calendar year																			

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. 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. The reason for the success of the SFA Gardens is simple. We have a long history of connecting and sharing plant materials with arboreta and botanical Gardens across the nation, with other academic institutions, nurserymen and plant enthusiasts. As for the garden, we have AutoCAD maps and databases that provide basic tracking of 500 to 1000 new accessions per year.

MOODY GARDENS PROJECT

The Moody Foundation funded a study on Galveston Island originally in 2016 for a three-year period. A resubmission for another 3 years was declined. However, a request by the Director of Horticulture at Moody Gardens, Mr. John Zendt led to the submission of a proposal, and a three year project was approved which was initiated in October 2020. The research project involves about two acres of nursery near Offatt Bayou, a spot challenged by aerial and soil salt issues and almost incessant wind. The recent grant also supports the work of two graduate students under the direction of Drs. Ken Farrish, Environmental Science, and Steve Wagner, Biology. The plots are yielding all kinds of surprises in terms of species performance, some growing vigorously while others have succumbed to the harsh condition of the site.

FRUIT RESEARCH

While most of the garden is dedicated to woody and herbaceous ornamentals, a significant fruit research platform is in place. Since 1978, the SFA 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 effort includes over 114 cultivars and advanced selections, typically three of each. A muscadine grape vineyard was established in Jimmy Hinds Park in 2014 and includes over 72 cultivars and advanced selections. A fig variety planting was established in 2014 that includes over 59 varieties.

KIWIFRUIT EVALUATION PROJECT

A kiwifruit project has been supported by Texas Department of Agriculture, USDA Specialty Crop Block Grant for the last four years. This external funding will end Sept 2021 but we are optimistic that industry support will allow the project to continue. A 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 five good to excellent crops out of the last seven years. That's commendable when compared to other fruit crops. This project is a collaboration with Dr. Tim Hartmann, Texas Agrilife Programs Specialist, College Station, Texas. Judging from consumer evaluations, 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 and coming this way. 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). With funding in place until Sept 2021, and 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.

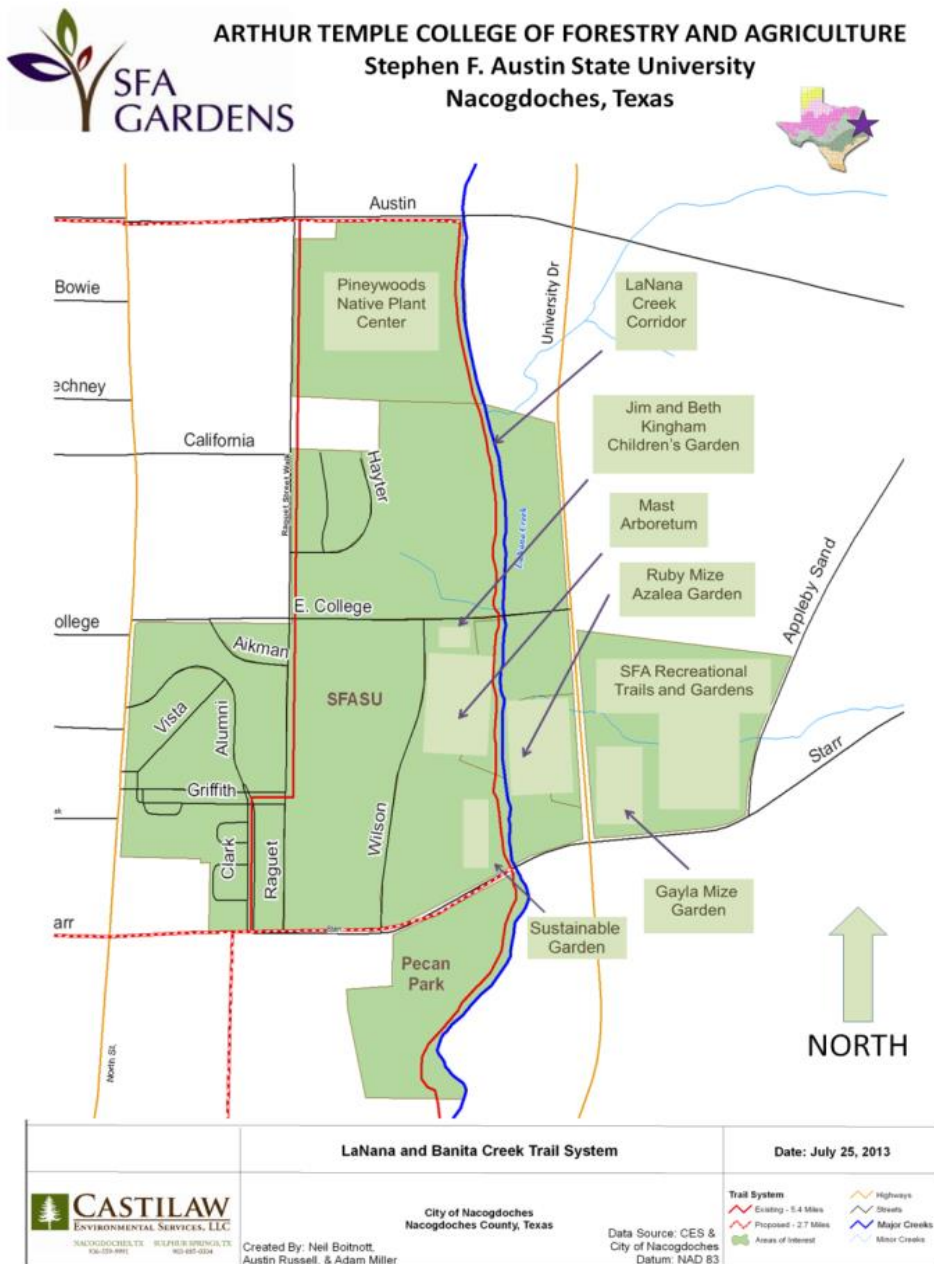
JIMMY HINDS PARK

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. She was the driving force behind the Jimmy Hinds Park on Austin Street, gifting SFA with property on the east side of LaNana creek and providing us with operating capital. Her father was the very first Agriculture Instructor at SFA almost 100 years ago. The park is home to a fine muscadine vineyard which includes over 60 varieties and a sizeable kiwifruit nursery plot is in place, which has also served as a collaborative research platform with my colleague Dr. Tim Hartman, Texas Agrilife Extension Program Specialist. 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'. In the coming year, new plantings will capitalize on the sunlight and rich bottomland soils of this special spot along LaNana creek.

CONCLUSIONS:

2020 was a very difficult year for SFA. Covid19 and state budget cuts impacted everyone. SFA Gardens lost two state salary line positions. Losing the Environmental Education Coordinator and a Research Associate position, both in place for over twenty years, is a major blow. The exact impact on state operations and maintenance is still

unclear. The reduction in our normal income generated from outside the university added to the gardens difficulties.





David Creech, Director

Gifts, Grants, Awards, Publications and Presentations:

February 1, 2020 – \$150,000. The Micky Elliott Foundation awarded SFA Gardens a first-year award. The funds are used for operating funds and the salaries for two new hires, Thomas Dimmitt and Devin Theisen, who both came on board in Feb 2020. This award will be ongoing, provided the Micky Elliott Foundation is pleased with our deliverables.

July 9, 2020. \$191,000. Received word the proposal to Moody Gardens, “Evaluating Woody Ornamentals in an Era of Rapid Climate Change”, was awarded for the period Oct 1, 2020 to Oct 1, 2023. This is a collaboration with Drs. Ken Farrish (Environmental Science) and Steve Wagner (Biology), and pays ½ of Malcolm Turner’s salary.

May 2020. \$50,428. Kiwifruit project support via a fourth year of funding from the Texas Department of Agriculture Specialty Crops Block Grant program Collaboration with Dr. Tim Hartmann, Texas Agrilife, College Station, Texas. This allows our Kiwifruit project to continue until September 2022. The project involves research plots at SFASU, TAMU and with six cooperating farmers. This project is cooperating with Miko Asia, Ltd. in New Zealand and Topfruit in South Africa. The TDA grant funds ½ of Malcolm Turner’s salary plus supplies and operations.

October 28, 2020. I was awarded the title of Fellow for the International Plant Propagation Society Southern Region. A Zoom award presentation was made as a part of a virtual conference of the Society’s annual meeting.

November, 2020. \$10,000. The Texas Nursery and Landscape Association award to assist our program as we negotiate fiscal difficulties associated with the pandemic.

Nov 2020. \$10,000. An award to the Jimmy Hinds Park account. Barbara Finney, the benefactor for the Jimmy Hinds Park on Austin Street, passed away July 2, 2020. Family and friends have donated to this interesting project on LaNana creek.

Dec 2020. \$140,000. We received word that a Keep Nacogdoches Beautiful proposal to the Bright Foundation was awarded for a project in 2021. Proposal will renovate the bridges and boardwalks in the PNPC. Dawn Stover took the lead on this grant.

Presentations, Conferences, Tours

January 14-15, 2020. PowerPoint presentation on “New Woody Ornamentals for the Dallas/Fort Worth complex.”. Texas Nursery Landscape Association Region IV meeting, Dallas, Texas. 130 in attendance

January 21-23, 2020. Invited speaker at the annual Connecticut Nursery and Landscape Association conference, Hartford, Connecticut. “Evaluating Ornamentals in an Era of Rapid Climate Change.” 227 in attendance

Creech, David L. and Malcolm Turner. 2020. History, Inventory and Contributions of the Small Fruit Program at Stephen F. Austin State University. Oral presentation at the American Society for Horticultural Science Southern Region Conference, Louisville, KY. January 30-February 2, 2020. In the proceedings of the ASHS-SR conference.

Hartmann, T.P., D. Creech, L.A. Stein, and J.J. Scheiner. Response of Young Field-Grown Kiwifruit (*Actinidia chinensis* Planch. and *A. deliciosa* A. Chev.) Plants to Fall Frost. In the proceedings of the Southern Region American Society for Horticultural Science Conference. Louisville, Kentucky, February 2020.

February 11, 2020. The Natives are Restless. A three-hour training session on the best native plants for southern landscapes. Montgomery County Master Gardeners training, Conroe, TX. 92 in attendance

February 12-14, 2020. The SFA Gardens Year in Review. Texas Association of Botanical Gardens and Arboreta annual conference, Dallas, Texas. 60 in attendance

February 19-21, 2020. Expedition to Reeltown, Alabama, to conference with Auburn University Alabama, horticulturist Jay Spiers at the large kiwifruit orchard near Auburn, Alabama. Accompanied by Malcolm Turner.

February 29, 2020. Grafting Workshop, 9 – 12AM. Ina Brundrett Conservation Education Building, SFA Gardens. 30 participants.

March 2, 2020. Guest lecture for Dr. Dave Kulhavy’s Forestry class, Nacogdoches, TX. 13 students

Lei Xuan, Jianfeng Hua*, Fan Zhang , Zhiquan Wang , Xiaoxiao Pei , Ying Yang , Yunlong Yin, Creech David L. Title: Identification and Functional Analysis of ThADH1 and ThADH4 Genes Involved in Tolerance to Waterlogging Stress in *Taxodium* hybrid ‘Zhongshanshan 406’. Article submitted to Genes: Manuscript ID: 1055266. In final edit.

THE PANDEMIC STRUCK IN MARCH 2020. THE END RESULT WAS CANCELLED SPEAKING ENGAGEMENTS, TRIPS BOTH DOMESTIC AND INTERNATIONAL.

Hartmann, T.P., J.D. Spiers, D. Creech, L.A. Stein, and J.J. Scheiner. 2020. Effects of Warm Temperature Interruption on the Winter Chilling Accumulation of Kiwifruit (*Actinidia chinensis* Planch. and *A. deliciosa* A. Chev.) Using Excised Canes. In the proceedings of the National American Society for Horticultural Science Conference. Orlando, Florida, August 2020.

Hartmann, T.P., J.D. Spiers, D. Creech, L.A. Stein, and J.J. Scheiner. Effects of Warm Temperature Interruption on the Winter Chilling Accumulation of Kiwifruit (*Actinidia chinensis* Planch. and *A. deliciosa* A. Chev.) Using Excised Canes. In the proceedings of the National American Society for Horticultural Science Conference. Orlando, Florida, August 2020.

September 25, 2020. SFA Gardens hosted a virtual conference, "Kiwis and Muscadines" with Texas Agrilife. Speakers included Tim Hartman, Justin Scheiner, Dave Creech, David Anderson. 90 virtual participants.

October 25-28, 2020. Zoom presentation, International Plant Propagators Society Southern Region virtual conference, "Tips and Tricks for Propagating Difficult to Root Species." 511 virtual participants.

Hansen, Keith. 2020. Springtime Means Azalea Time. **Texas Gardener** Mar/Apr Vol XXXIX (3):22-24. A feature article on the Ruby Mize Azalea Garden.

Creech, David. Summer 2020. Public Gardens in the Era of Covid-19. **The Azalean** Vol 42 (2): 31-33.

Creech, David. May/June 2020. Nurseries and Public Gardens in an Era of Covid-19. **TNLA Green** 23(3): 26-27.

Hansen, Keith. 2020. SFA Gardens – Where Inspiration Grows. **Texas Gardener** Sep/Oct Vol XXXIX (6): 14-17.

Koonce, A., Bush, E. and Creech, D. (2020). The Effect of Sodium Chloride on Hybrid Taxodium Selections. **Journal of Environmental Protection**, 11, 408-420.

Morgan, Daniel, "Evaluation of Groundwater Sodium and Sodium Uptake in Taxodium and its Hybrids on Galveston Island, Texas" (2020). Electronic Theses and Dissertations. 340. <https://scholarworks.sfasu.edu/etds/340> (Moody Foundation grant helped fund this work).

Dawn Stover, Research Associate



The Pandemic:

2020 started off as a busy year with a full schedule of spring tours and activities. My first major calendared event turned out to be the last in-person event of the year. Jordan Cunningham and Drs. Barnes, Maurer and Carroway and I journeyed to the Houston Livestock Show and Rodeo to host our annual invitational Texas FFA Nursery, Landscape and Floriculture judging competitions. Shortly after we arrived in Houston, the entire rodeo was canceled and all in-person classes at SFA went online. SFA Gardens events, including lectures, tours and seminars were canceled. By mid-March, COVID-19 was in full swing in the United States.

Plans:

Gardens don't "work from home" no matter the state of the outside world. The on-the-ground SFA Gardens staff carried on as usual, keeping the gardens beautiful and safe in a time where crowds and public gatherings were banned due to the nature of the novel corona virus. SFA Gardens provides a safe, outdoor setting where social distancing is easily achieved, and we saw a major increase in visitation as many local businesses went into lockdown.

We adjusted safety protocols for our workers, experimenting with a new time keeping system that allowed individuals to track time away from the shared log-in terminal located in the PNPC barn. That proved to be overly cumbersome, and thankfully SFA has implemented technology allowing remote sign in through the mySFA system. As TimeClock approver, I was able to login remotely as well, spending some days working from home, while also serving as a poor substitute algebra teacher for my 8th grader. (I'm quite thankful for in-person classes as my son embarks on 9th grade geometry!)

Signs were installed in all the gardens advocating safe visitation practices, and restrooms at the Ina Brundret Conservation Education Building (CEB) were temporarily

closed and water fountains were turned off for the foreseeable future. In the fall of 2020, the CEB became a hub for SFA Forestry classes in an effort to provide socially distant classrooms across SFA. The Pineywoods Native Plant Center provided an efficient laboratory space for students as well.

Staff: Due to a generous gift by a local benefactor, we were able to add two full-time garden positions. Thomas Dimmitt and Devin Stage took charge in the Mast Arboretum and Ruby M. Mize Azalea Garden. Within weeks, the extra attention to maintenance was noticeable and only continued to improve. Thomas and Devin provided much needed relief to senior gardens manager, Duke Pittman, who was trying to keep up with more than 30 acres with only a skeleton crew of student labor. With the additional full-time staff, Duke was able to focus on the Gayla Mize Garden and the irrigation system there is being converted from drip to mini-sprinklers, due primarily to deer, hogs, squirrels and other wildlife attacks on the drip system. Malcolm Turner continues to maintain the kiwifruit, muscadine, fig and grape variety collections.

Jordan Cunningham remains my right hand in the greenhouse and nursery area, providing the hands-on attention I'm often pulled away from. Together, Jordan and I maintain propagation and production protocols for more than 300 varieties of native and adapted plant species for the southeastern US. We have a small, yet dynamic crew with two horticulture majors, Summer Pritchett and Katherine Kass who receive valuable hands-on experience in greenhouse and nursery production. Kelsey Hall, a student in the nursing program provides holiday and summer help around her busy school schedule.

We miss our volunteers. All the wonderful folks who work with us to produce plants fall in either age or health categories that are high risk for COVID-19. There are some jobs that allow for safe social distancing, so we've been lucky enough to have a handful of volunteers assist with greenhouse watering and nursery maintenance, but we haven't seen the majority of our volunteers since March of 2020. In 2019, we enjoyed more than 1800 service hours from our garden volunteers, while in 2020 we had fewer than 500 volunteer hours.

We have a problem:

Now, more than ever, we are relying on our plant sales to support staff salaries at SFA Gardens. We lost state line item funding for two full time positions as the university made budget cuts, my own salary included. It's more than scary moving to soft money after 20 years with what we considered a "hard" salary line. Jordan and I got creative with our plant sales in order to comply with COVID-safe practices and we continue to generate soft money income. The unfortunate aspect of this strategy is pretty straight forward. While funds are generated, the strategy means most of the staff time has moved away from garden projects and plant related research, to the time consuming task of raising funds during the pandemic.

The spring Garden Gala Day is our biggest plant sale fundraiser, and occurred during our first public lockdown. We found it impossible to ask several hundred of our closest gardening friends to gather in one place. Without volunteers, it's an event that is impossible to pull off with the limited staffing we have. We designed an "online" version of the plant sale. Patrons could shop from an excel spreadsheet, and we would pull orders, call for payment and set up contactless pick up appointments. It was time consuming, and we definitely missed income from impulse purchases typical of a plant sale, but it was a good start in the evolution of flexibility in the age of a pandemic. We earned about half of a normal spring plant sale.

We were approved for in-person sales for the Fabulous Fall Festival, and offered limited shopping appointments each day throughout October. Most patrons expressed how much they enjoyed shopping without the big crowds typical of an SFA Gardens plant sale, while a few said they missed the excitement of the big day. Our fall version of the plant sale was more successful and we earned close to what a normal sale brings in. I anticipate a hybrid of the fall sale and a typical plant sale in 2021 with appointment required shopping, allowing for more appointments per scheduled block of time.

We were also able to grow plants for several large projects, and have some other contract growing projects lined up for 2021. Additionally, our friends with the Texas Nursery and Landscape Association pulled together and donated \$10,000 to our program. We're exploring all avenues for income, and have learned that flexibility is the name of the game.

Partnerships:

I maintain partnerships with agencies and individuals including NRCS – East Texas Plant Materials Center, East Texas Native Seeds, USFWS, and botanists Peter Loos and Eric Keith to continue work in the conservation horticulture arena. I continue to source local ecotypes of plants native to the Pineywoods ecoregion for display in our gardens, for community projects and for future plant sales. I continue to work with the City of Nacogdoches on pocket plantings, and the Lanana Creek Prairie was mowed and seeded in early winter with the assistance of the East Texas Plant Materials Center. The City has secured a grant for 4 monarch gardens with the National Wildlife Federation, and the SFA Gardens will be able to provide plant material for each of the sites, and an additional site at the Texas Forestry Museum in Lufkin. The projects are slated for installation in late spring of 2021. Additionally, we partner with the Garden Capital of Texas Committee and the City of Nacogdoches to host a Texas Arbor Day on the first Friday in November. In 2020 our tree planting project served to beautify and provide shade at the Nacogdoches Animal Shelter.

Plants:

Saving the best for last! We had 99 new plant accessions in 2020 with a healthy infusion of new-to-us *Camellia* varieties, and an assortment of *Amentotaxus* from the Atlanta Botanical Garden – Gainesville.

We continue adding new native species to the plant pallet at the PNPC, and are continually working on protocols for rooting or germinating species that are difficult to propagate. We are beginning to explore the use of mycorrhizal fungi on hard to cultivate species like milkweed, scarlet penstemon and silky camellia. New species in the collection include *Viola pedunculata*, *Asclepias rubra*, *Coreopsis intermedia*, *Matalea hirtelliflora*, *Veratrum virginicum*, and *Asclepias verticillata*. Plants in propagation protocol experiments include *Sarracenia alata*, *Parnassia asarifolia*, *Gentiana Saponaria*, *Tetragonotheca ludoviciana*, *Cornus alternifolius*, *Stewartia malacodendron* and *Hamamelis ovalis*.



Duke Pittman, SFA Gardens Supervisor

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 managing a number of projects. In spite of the pandemic, we made some terrific progress on the ground in 2020. Weed control has been improved with more mulching and the timely use of a lower impact herbicide, glufosinate. Dr. Creech's bald cypress project along LaNana creek got a facelift this summer with an attack on all the competing trees, shrubs and vines via chain saws and weedeaters with blades. I assisted Malcolm Turner with the construction of the Kiwifruit steel superstructure. This doubles the footprint of the vineyard. I

assisted Malcolm with a time consuming trunk wrap research project for kiwifruit. A big step forward, we now have finished a terrace wall and beds at the Elking Environment. I supervised the deep proof net fence that surrounds the blueberry patch at the PNPC. Deer and pigs are a huge problem in Nacogdoches along this creek. I am in charge of switching the irrigation system at the Gayla Mize Garden from drip to mini-sprinklers. It has to be done. Deer, pigs, squirrels, rabbits, raccoons and possums have made short work of our drip system.

GOALS: 1) Finish the Gayla Mize Garden irrigation system change over, 2) Assist with the renovation of all the bridges, boardwalks and decks at the PNPC.



Anne Adams, Program Associate

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

Membership – 132 memberships to date for 2020-21; Membership mailout and Marketplace Orders – September through December

Event booking, scheduling and management at the Brundrett Conservation Education Building including university and community events – 9 events/224 people through mid-March 2020

Return deposits for cancellations due to pandemic

Editing of the SFA Gardens Quarterly Newsletter for members – 4 issues annually

Contract management for guest speakers

Staff travel - as needed

Theresa and Les Reeves Lecture Speaker arrangements – held monthly - 3/150 in attendance
through March 2020

Garden memorials

Banner Garden Accounts (17) Budget Reports – as needed

Spring Group Tour arrangements – 3/83 people before mid-March 2020 COVID-19 pandemic

Spring and Fall Plant Sales – assisted with deposits for both sales over the summer and month
of October

All public events, speakers, travel and tours ended in mid-March due to the COVID-19 pandemic. Events were cancelled going forward and through the summer, 2020. A COVID response plan was written and submitted for any events scheduled in the Brundrett Building for the fall. However, due to social distancing requirements, Forestry asked to use the building for fall, 2020 classes and also spring, 2021 classes, so no community or university events were scheduled.

Trainings completed in 2020 include:

Ethics

Security Awareness

Risks of Social Media Sharing

PCI Simplified

Receipts and Deposits

P-Card Refresher Training

Orientation to COVID-19 Minimum Standard Health Protocols

EEO Laws and Discrimination Prevention



Jordan Cunningham, Garden Assistant

This Year's Accomplishments:

Successfully redesigned our biannual plant sales to be safe and compliant with all safety guidelines for the Covid19 pandemic

Reorganized our nursery pads and greenhouses by plant type and intended project

Designed and planted the left side of the PNPC entrance

Began a new system for labeling plants with new larger signs

Goals for 2021

Increase income. Hold at least two other small scale themed plant sales throughout the year. Continue to improve the plant selection in the herb garden. Help finish designing and planting the xeric bed

Malcom Turner, Garden Technician



My work is primarily focused on Kiwifruit and the Moody Gardens research project.

Kiwifruit:

This year was a continuation of our work on golden kiwifruit. The old orchard located on Starr Ave. between LaNana creek and the Grounds Transportation Services department was once again fruitful. It has taken us over a year between planning, halts to anything requiring working close together due to the COVID-19 virus and coordinating with other staff and student workers.

Still, we did manage to build a new steel

trellis system on Starr Avenue. The welding has been finished thanks to Matt Edwards and Logan O'Conner, students of Dr. Craig Morton's Agricultural Mechanics department. We will finish setting posts in concrete, priming and painting, and finally running steel wires for the vines to run on.

With assistance from Miko Asia, Ltd., and TopFruit, South Africa, we were able to introduce several new kiwifruit varieties from Yanoon Breeding, Changsha, China. These were quarantined at the USDA quarantine facility in Beltsville, Maryland, for two years and then shipped to SFA. From those original plants we have been taking cuttings and rooting them to produce plants for distribution to our east Texas cooperators. A portion of these we be introduced into our research plots at SFA.

We are once again doing a trunk wrap study with Dr. Tim Hartmann of Texas A&M University. Last year we were late getting it set up and unfortunately suffered an early freeze on November 2, 2019. This year we managed to get everything set up before our first freeze. We are also working with Lais Machado on her Forestry master's degree project analyzing which kiwi varieties survive our winter.

Blueberries:

Blueberry Hill did not receive as much attention this year as it has in past years. We have been short on student labor and on vehicles to move them around the different

jobsites. In attempts to reduce our usage of the herbicide glyphosate, much of our weed control has shifted to glufosinate. The blueberries are not currently fenced off, which keeps us from getting useful information on first bloom dates, ripening dates, and any significant harvest due to humans enjoying the results of our work. Dr. Creech, however, does gather data prior to ripening utilizing a 0-10 rating system. .

Figs:

Again, the figs are mostly a low maintenance chore. We planted several new varieties. As the result of the early November freeze, all of the figs died back to the ground and the crop in 2020 was not impressive.

Muscadines:

The muscadine plots were strong producers in 2020. The Jimmy Hinds Park soil is naturally fertile. The result was vines overflowing with grapes. Data collection included a production estimate ranking, 0 to 10 scale. This project involves collaboration with Dr. Justin Schiener, viticulturist with the Texas Agrilife Extension Service.

Moody Gardens:

Due to travel difficulties associated with Covid19, the Moody Gardens project was not given attention. We are hoping a return to normalcy will allow that project some much needed attention. Moody Gardens renewed our program there and have been kept informed of our work to build a new inventory of salt tolerant ornamentals for testing in at this challenging location.

Goals for 2021:

I asked for two additional utility vehicles last year and received none. We knew we were hiring two new people and additional transportation would be needed. We had no idea the COVID-19 pandemic was coming but it did and it has put an additional strain on the SFA Gardens team by requiring us to social distance. It has been a major problem getting student workers to various locations in the gardens. Student workers and staff are put at risk by having to ride in the same vehicle together at this time and in the near future.

The new year looks to mostly be a rehash of 2020 due to the COVID-19 pandemic, so I don't expect to travel, at least during the first half.

The new steel trellis for kiwis will be completed in early 2021 and I would like to see an emphasis placed on growing varieties we expect to offer local growers. The noncommercial or esoteric varieties can be moved to Jimmy Hinds for further evaluation.

Now that I'm getting a better understanding of the figs and muscadines I want to do a better job of pruning, or more correctly, not pruning, after the winter. It will be anecdotal but I would like to see if the fruit ripens better leaving more foliage in place.

I've really enjoyed seeing the blueberry trial with the Smart Pot growing bags. I would like to see the blueberry field moved completely to Jimmy Hinds. At some point we will expand the deer fencing to allow for more plants to be housed in the enclosure and this would be a great spot to grow them. Additional benefits would be easier to maintain and safer from wildlife and people.



Devin Stage, Garden Technician

As an employee of the SFA Gardens, the Ruby Mize Azalea Garden is my main area of responsibility. In this annual report, a number of projects are described. Areas of concern include trail maintenance, plant installation and maintenance, and Art instillation.

TRAILS

The trail system prior to 2020 has been subject to various amount of wear and tear. The edges of the asphalt trails have eroded and roots from surrounding trees make the trail system a bit hazardous to visitors. We are mandated to be ADA accessible and we are working hard to make the place safe for everyone.

We've chosen to bring red iron ore to the edges of paths that need it. We are using salvaged gravel to bolster paths that need attention due to encroaching tree roots. Continue to address problematic areas of trail that may prove to be hazardous.

PLANTS

Many new plant instillations were made in the past year. This includes, a large bed of Camellias that now surround the ROTC repelling tower. Irrigation installed to care for these plants consists of drip pipe that has been lightly covered in mulch to mitigate damage from squirrels. Aromatic plants such as Gardenias have been selectively planted where patrons might be most likely to appreciate the seasonal fragrance. These

locations primarily consist of sitting areas. A lattice barrier has been installed surrounding an electrical box and planted with forsythias as an effort to improve aesthetics, near the parking lot. Goals: Introduce new plant material throughout the garden to increase aromatic and visual qualities that may be appreciated by patrons of the garden. Finish framing lattice.

ART

I helped coordinate some interesting additions in the Gayla Mize garden. Shelby Locklin has been a great contributor to the Gayla Mize Garden Art. She graciously donated a custom sculpture, it is titled 'Serenity'. She installed the newly painted pamphlet box. Shelby created a 4'X 8' mural of East Texas plants and animals that will be exhibited in the Fall of 2021. Finally, Shelby is currently working on a larger "mural" that depicts flora and fauna that are native throughout the vast landscape of Texas. This mural is painted on large three-dimensional free standing letters S-F-A



Thomas Dimmitt, Garden Technician

My primary responsibility is the SFA Mast Arboretum, a 10-acre diverse and rare collection of woody and herbaceous plants. Major areas of the Mast Arboretum that have been of focus for 2020 included the Trial Garden, Elking Environment, and the Children's Garden.

Trial Garden & Children's Garden

Objectives (2020): Removal of hazardous bridge that had been eroded near outlet of drain way Unfortunately, due to periodic runoff and foundation problems in the concrete apron skirt of the drain way, primarily on the east end of the skirt, removal of bridge was imperative for safety reasons. The bridge had an arbor of Chinese wisteria

(*Wisteria sinensis*) growing on roof and was constructed with dimensional treated lumber.

Goals (2021): Mitigate erosion and replace bridge to tie trail systems back together.

Mitigation of erosion has currently been taking effect in the form of utilizing slash and woody material to help slow and filter the headwater erosion on the drain way.

Monitoring of the erosion will continue into 2021 and will be assessed periodically to fill with more slash or provided large solid aggregate. Potential for planting of cypress (*Taxodium distichum*) to help maintain soil edges on along the banks of the drain way.

Future construction of a bridge will be further west on the concrete apron drain way. A proposed location would be in between the jujube tree (*Ziziphus jujuba*) and Mexican plum (*Prunus mexicana*). The new bridge will be constructed from treated dimensional lumber unless other materials become more readily available.

Remove fig trees (*Ficus spp.*) next to the trial garden that had been overgrown with Chinese wisteria. Area was chemically treated periodically throughout 2020 to remove any re regrowth of figs, wisteria or other miscellaneous herbaceous and woody weeds. To provide a good planting location in 2021. Soil and mulch added where needed.

Elking Environment

Objective (2020): Begin renovating the Elking Environment is a spot on the south side of the Horticulture greenhouse next to the Agriculture Building. Susan Elking tackled this difficult location. Basically a drainway and slopes. The old retention wall needed replacement after thirty years. It was constructed of railroad ties, many in the process of rotting away, leading to structural concerns. This new retaining walls were in place by the end of 2020. The final retention wall was constructed with 2 x 12 treated lumber. The inside of the retention wall was lined with waterproof plastic sheets and subsequently filled with soil. Furthermore, the retention wall has been mulched with pine straw and has been site prepped for planting. Goals for 2021 is to plant the two new long beds created there with succulents and hardy xeric loving plants.

Overall Arboretum

Continued objectives and goals: Maintenance as necessary to perpetuate the beauty and splendor of the Mast Arboretum. Essentially, my responsibility is staying on top of mulching, irrigation, weeding, hedging, blowing, trail maintenance, planting new plant material, and other miscellaneous gardening tasks. Specific tasks currently being worked on include redefining the edges along flower beds within the shade garden, clearing roots that are overgrowing into the trails, and dressing established trails with crushed granite as necessary.

A 2020 Pictorial History at SFA Gardens



March of 2020 will be remembered by everyone as when everything changed. The Covid pandemic turned everything upside down. With the state side of the SFA Gardens budget cut more than half in mid-summer, we are fortunate to still be breathing. Yet, we can report that the gardens continue to grow, prosper and be beautiful. We remain confident and a bit stubborn about the future. SFA Gardens is 35 years old, has friends everywhere and we will get through this low spot. Never forget that time is a wonderful friend to a garden.





Ten Staff, March 15, 2020. L to R: Dave Creech, Devin Theissen, Anne Sullivan, Duke Pittman, Malcolm Turner, Dawn Stover, Jocelyn Moore, Thomas Dimmitt and Jordan Cunningham. By end of 2020, SFA Gardens was down to seven.



Elyce Rodewald was the Environmental Education Programs Coordinator for 20 years and retired in March, 2020. She was a remarkable lady who took the program from nothing to over 12,000 children per year. She enjoyed outstanding grantsmanship in her time here at SFA. She will be sorely missed.



The gardens, greenhouses and nursery continue to prosper and connect SFA Gardens to the community and beyond.



Texas Association of Botanical Gardens and Arboreta, Dallas Arboretum, February 2020



New Art in the Ruby Mize by Shelby Locklin represents the wonderful connection we have to the Pineywoods environment. Connecting students, agency professionals and native plant enthusiasts with the mission of SFA Gardens makes sense.



SFA Gardens is here to collect, plant and evaluate a wide range of ornamentals and fruits. The collections are recognized in the Gulf South for their range and diversity.





'Flamethrower' Redbud



This 'Flamethrower' redbud introduction by Dennis Werner, North Carolina State University, is the first in Texas. One of our seedling Oakleaf hydrangeas. 'Mieko Tanaka' is a stellar camellia showing off in the Gayla Mize Garden. A Texas sage variety on College Avenue in a dry garden bed.



Evaluating and promoting a wide array of plants is our mission. In 2020, our plant sales were covid-compliant. They were difficult and exhausting. *Acer skutchii* planted at the Houston Botanical Garden and two large *Taxodium* X T406 went to the Museum of Fine Arts in Houston



MOODY GARDENS: We have an exciting project on 2 acres on the north side of Moody Gardens that serves as the platform for a number of interesting studies. The pandemic put a bit of a stress on the project but at the end of the year we had two graduate students on board. Most important, we were able to move trees to four locations on the island as a civic project with the Galveston Island Tree Conservancy, Moody Gardens and SFA Gardens. More space means new plants!





KIWIFRUIT PROJECT – Funded by the Texas Department of Agriculture Specialty Crop Block Grant. Harvested fifth crop out of seven and now working with six cooperating farmers in Texas. We are also working with New Zealand, South African and Texas collaborators and the goal is to determine if there's a commercial opportunity for this new crop in Texas.



Tim Hartmann, Texas Agrilife Extension Program Specialist is cooperating on this project





MUSCADINE GRAPES: Jimmy Hinds Park on Austin Street is a two-acre gift to SFASU by Barbara Finney, who passed in 2020, but I did get to visit this remarkable lady in Houston in February. The primary feature right now is a muscadine grape vineyard with over 60 varieties. We work with Dr. Scheiner, Texas Agrilife Viticulturist, and a former SFASU Horticulture





BLUEBERRIES: SFA has a long history working with blueberries and that continues at the PNPC. We are home to one of the finest collection of varieties in the South.



FIGS: The fig collection on the south side of the Mast Arboretum remains a treasure trove of varieties. It's a perfect site. A mild winter meant a good crop and we continue to add hard to find varieties to our mix.



At the end of 2020, staff presented Dr. Creech with a new cap more fitting with his demeanor during the past year.



Surely, 2021 will be a better year. The pandemic will come to an end. The SFA Gardens will regain the two state positions lost in the budget cuts. The weather will be docile and all will be well again!

Until that happens, let's keep planting!