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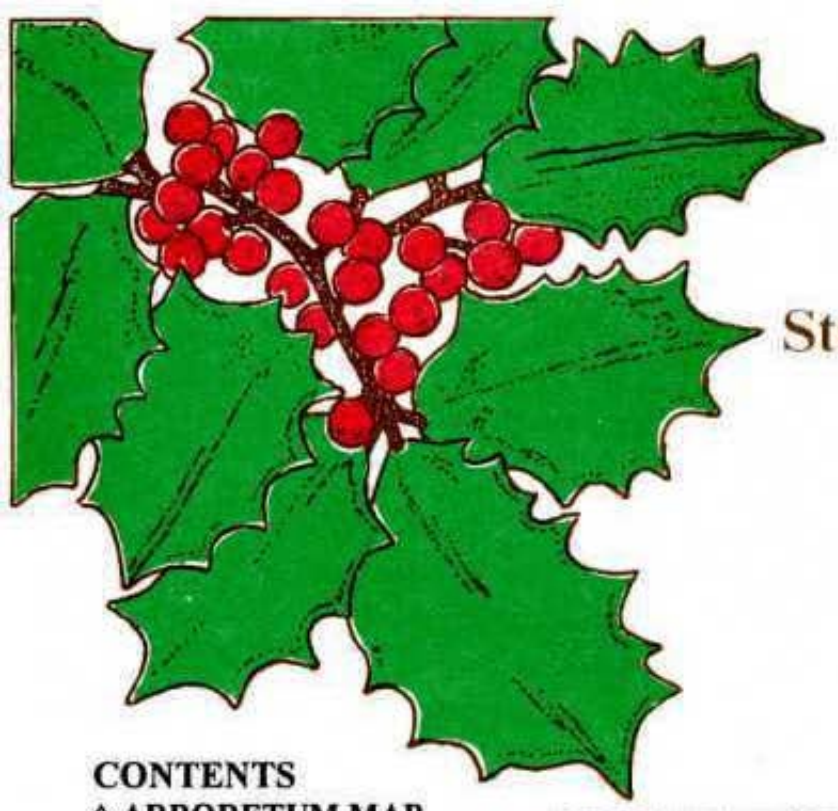
SFA Gardens Newsletter, Feb 1996

SFA Gardens, Stephen F. Austin State University



Friends of the
Stephen F. Austin State University
Arboretum

NEWSLETTER NO. 14, FEB 1996
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Muffin,' various *Ilex* X cultivars, and a few *Chamaecyparis* and *Cryptomeria* cultivars. This garden is poised for a great growth year in 1996. Main problem: developing a good trail strategy through this garden and connecting to existing theme gardens.

4. An "**Alternative Fruits Garden**" was initiated in September, 1995 with a planting on the northern edge of the vegetable garden. Planted by a Fruit and Vegetable Production class, this small first planting is mainly composed of plants donated by Mr. Sherwood Aiken of Sibley, Louisiana. Sherwood is a priceless plant enthusiast whose long life of planning and planting, nurseries and gardens has left him one happy man. While he has many, many years of nurserying under his belt, he is but a young gardener. Plants include three varieties of Jujubes, *Ziziphus jujuba* ('Swobodd,' 'S.O.'), Pawpaw, *Asimina triloba* ('Sunflower,' 'Taytwo,' 'Reb Gold,' 'Mary Foos J,' and 'Mitchell'), Mayhaws, *Crataegus opaca* ('Winnie #7,' 'Superspur,' 'Winnie # 10,' 'Winnie # 8'), a Goombi berry, *Elaegnus multiflora*, and a *Prunus* (sloe plum). The collection of hard-to-find cultivars are now happy in their new home: a full-sun, easy access, high visibility location near the College Avenue sidewalk.

5. An "**Art/Alley**" garden was constructed in the fall of 1995 in the 60' X 14' lane that lies between the two Art buildings. Prior to the garden's development,, this little strip was an eyesore: a barren sweep of beaten down grass, very poorly drained and a favorite place for the smokers in the building to deposit their butts. Mr. Jon Wink, Chair of the Art Department, asked if we could do something in this little courtyard and I turned the task over to Robert Simkunas. Robert is a Horticulture/Art major and a work-study student for the Arboretum. Robert tackled the project with vigor and enthusiasm. He created rock-lined drainage lanes that captured the bulk of the downspout flooding. He planted a diverse collection of plants that love shade, including the following *Buxus microphylla* varieties: 'Henry Hohman,' 'Helen Whiting,' 'Japonica,' 'Green Beauty,' 'Morris Dwarf,' 'Koreana,' 'Sunnyside,' 'Green Mound,' and 'John Baldwin'. In addition, we have planted a rare *Buxus himalayensis*, *Buxus harlandii*, *Buxus sinica insularis* 'Tide Hill,' and *Buxus sinica* 'Justin Brower.' Other special plants include a *Foekinia hodginsii*, three *Acer truncatum* trees, *Taxus chinensis*, and one very rare *Torreya grandis*. Finally, we chose this location as good shelter for the questionably hardy *Camptotheca acuminata*, the happy tree of China, a species highly sought because of its cancer-fighting reputation. Interspersed in this courtyard garden are dozens of small kurume azaleas (these may be shifted out or around a bit as the boxwoods and others fill their space).

6. Additions to the "**Conifer and Holly Garden**" have been substantial in 1995. Adjacent to the shrub border described above, this garden lies between the physical plant and the Art building on a dry, sunny, harsh slope. After many years, this seldom-visited section of the Arboretum is just now coming into its own. In the past this garden has been one of the first to get a little weedy or go dry a bit longer than prudent. That's probably related to the distance and problems in other high visitation areas of the Arboretum, pushing this spot to the back burner. In spite of this harsh early life, an interesting grouping of plants are now well established on this sunny slope. Some of the five and six year old conifers that deserve mentioning include a 10'

hard freezes (one into the lower twenties), all varieties had been burned free of leaves except one; L. 'Pinkie' remained green and healthy. As Dr. George analyzes the results of this across-the-state test and tables them, I will include the results in future newsletters.

11. The **"Perennial Border"** had a terrific year in 1995. Ruth Williamson served as the curator and the best testimony I can give is this, I never pulled a weed there last year. Standouts included all the ornamental grasses, *Penstemon triflorus*, and *P.* 'Husker Red.' Good combinations noted this past year included a nice planting of *Chrysanthemum* 'Country Girl' next to a colony of Aster 'Purple Dome' (terrific; blooms at same time in the fall, white-pink and dark purple blooms, respectively). Ruth finally subdued the *Salvias* and *Chasmanthium latifolium*, inland sea oats, into staying within their allotted territory. At the north end of the border by the telephone pole, a new planting has been added. In this small patch are several varieties of *Buddleia*, the butterfly bush and a smattering of other interesting plants. The Erythrinas were everywhere this year. *Verbena* 'Homestead Purple' (very disease-resistant and durable Verbena) looked strong with no sign of mildew and bloomed off and on much of the year.

12. The "**Jean Barnhart Daylily Garden**" had a show in 1995 so bright that we thought about passing out sunshades during the May Garden Gala Day. The garden was rededicated in April 1995 as a surprise for Jean. Jean is a a nationally-known hybridizer, a superlative plants lady, and friend of the Arboretum. Jean has two varieties sitting on Chelsea trail in England, the entry of which is judged by the Royal Horticultural Society. In attendance: Delores Jones, Suc Casper Norma Singleton, Sondra Alliston, Maxine Gwinn, Jean Consford, Imogene Pugh, Jackie Timmons, and Max Pugh. The garden received a facelift in 1995. We have planted a screen of Magnolia grandiflora 'Bracken's Brown Beauty' down the south side. We have added a path of 14" pavers down the middle, smoothly and effectively connecting the Texas Heritage Garden with the Herb Garden. The Daylily Society will have hundreds of named varieties of daylilies for sale during the day-long May 18, 1996 Garden Gala Day. In 1995, we ran out right at the beginning of the sale.

There are many other significant plant additions here and there in the gardens and just about every area of the garden has received a transfusion. 1996 will be a critical year. The key ingredient to success depends on the first two or three years of establishment: irrigation, light fertilization, good mulch program and timely weeding.

OTHER ARBORETUM IMPROVEMENTS

In addition to plants, the Arboretum enjoyed a little housekeeping this past year. A railing has been placed around the fountain and down the steps that lead to the "Elking Environment." Drainage improvements have been made here and there (much more is needed). The North Woods, the future site of the "endangered plants garden," was mowed twice in 1995, spruced up and lots of brush eliminated. Winter ryegrass was spread over the entire area in the Fall, 1995. Bridges have been strengthened to better deal with flood events.

approach developed.
◊Expedition to Mexico with Lynn Lowrey.

1988: ◊Dry Garden created as foundation planting of Art building.
◊Shelby County courthouse landscape project, an outreach effort that involves students planting a wide variety of native trees and shrubs.
◊Irrigation system expanded into the bottomland (2" mainline, manual valves, 1" submains, 6' risers on steel t-posts, and impact sprinklers on a 50' X 50' grid). Student volunteers. Philosophy: " . . . you pay for an irrigation system whether you buy one or not." Irrigation is a key factor the garden's success.
◊Garden structures: two bridges, five benches, landscape timber steps.
◊Bog Garden is created in a naturally wet area of the bottomland. Peter Loos takes chief design and curatorial role.
◊A holly row created along the LaNana Creek trail. *Ilex opaca* varieties adjacent to the native plants garden and Oriental hollies adjacent to Asian valley section.
◊A full-sun container growing area created by three students: 24' X 90'.
◊First crude hand-drawn map handout placed at kiosk at front of arboretum.
◊Vegetable garden created at the north end of the Arboretum complete with solid-set sprinkler irrigation.
◊A conifer and holly garden was created on the south side of the Physical plant as well as a foundation planting for the eastern face of the Art building. RR ties, mulch.
◊S.B. Hayter trust funds a two-year site analysis of a proposed plant sanctuary, Mill Creek Gardens. Chuck Martindale's MS thesis project.
◊Two-week tour of east coast Arboretums and botanical gardens.

1989: ◊Continued plantings of the new conifer/holly garden, the bog garden.
◊Bog Garden gets a 60' long catwalk - Chuck Martindale and Rick Rankin.
◊Herb Society of Deep East Texas tackles an expansion plan.
◊Arboretum becomes a part of the LaNana creek trail project.
◊Ten-day excursion across the south visiting arboretums and botanical gardens, nurseries, and plant enthusiasts. Return with many new plants.
◊Plant inventory moved to computere database and hand-drawn maps updated. Rick Rankin begins survey work of the arboretum.
◊Expedition to Mexico with Lynn Lowrey, Ted Doremus, Alice Staub, John Fairey, Carl Schoenfeld, and Meg Hoey. Return with many new plants (seed and cuttings).
◊December 23, 1989 record low. Temperature dips to zero.

1990: ◊Local chapter of the American Hemerocallis Society establishes the daylily garden - $2000 gift. Railroad tie beds and plans for a fountain.
◊Daughters of the Republic of Texas gift allows for the creation of the Texas Heritage Garden - plants popular in early Texas landscapes. $2000 gift.

densely covered with rust to brown colored stiff hairs. This herbaceous perennial prefers full sun in open marshy areas that experience periodic flooding. It is reported that tolerance to standing water is present during the dormancy period but not during growth. The initiation of flowering can be delayed if water levels remain high into mid spring (Nemec, 1994) The sawfly, *Atomacera decepta* is known for causing the most damage in the wild to both foliage and seed. (Blanchard, 1976)

Literature Review- There has been little work done with *Hibiscus dasycalyx*, mainly due to its rarity. An article published in September 1958 (Blake, 1958) describes *H. dasycalyx* by comparing its foliage to that of *H. coccineus* and its corolla to that of *H. laevis*. This species is named "distinguishable from all other United States Hibiscus species by its densely spreading hirsute calyx". (Blake, 1958) This description was written by Ivan Shiller (1955) who visited the Highway 94 colony in Trinity County, Texas while doing research on the pink bollworm, *Pectinophora gossypiella*, one of the greatest insect enemies of the genus *Hibiscus*.

A thesis by Cornell University Orland J. Blanchard Jr. was devoted to *Hibiscus* section *Trionum Sensu Lato* in 1976. This body of work includes morphological descriptions, systematics, hybridization studies and distribution/habitat information for Hibiscus including *H. dasycalyx* found in section *Muenchhusia*. Section *Muenchhusia* includes five species (*H. moscheutos, H. laevis or militaris, H. grandiflorus, H. coccineus and H. dasycalyx*) that are almost entirely confined to the conterminous United States extending from coastal Massachusetts south, mostly along the Atlantic coastal plain to peninsular Florida and across to Texas. The plants of this section occur from eastern Texas north to Canada and east. All are hydrophytes in the wild but it has been observed that they can survive drainage of their habitat. It is suggested that under cultivation they actually prefer well drained rather than wet soils. Seed dispersal would appear to be almost entirely water dependent. Even though there is a problem with interspecific hybridization, *H. dasycalyx* is facultatively self-pollinating. That is, its stigma recurves into the anther mass toward the end of the day. All Hibiscus in section *Muenchhusia* have chromosome counts of nineteen (Blanchard, 1976).

The confusion between *H. laevis* and *H. militaris* is explained in this publication. *H.laevis* was the name originally published by Allioni in 1773. It therefore predates Cavanilles' *H.militaris* and is retained as the name for *H. laevis*. *H. laevis* is also known as the Halberd-leaved Marsh Mallow or the Halberd-leaved Rose Mallow.(Unk, RHS, 1992) *H.laevis* and *H. moscheutos* subspecies *lasiocarpos* are found in proximity of the *H. dasycalyx* colony at the Highway 94 site. If this site were the only *H. dasycalyx* site it might have been treated as a chance hybrid between the two. However, some genetic stability can be expressed by plants grown from wild collected seed. There is one colony of Hibiscus in Brazos County, Texas that would appear to represent a hybrid between *H. laevis* and *H. dasycalyx* even though the nearest known true colony of *H. dasycalyx* is eighty miles away from the site. (Blanchard, 1976) Further investigation of the surrounding area seems to be warranted.

2. Encourage a wide diversity of landscape philosophies.

3. Provide education through on-site theme garden interpretation and on-plant identification labeling.

4. Maintain a records-keeping system that accessions new plants, maps their location in the arboretum, and tracks performance over the years.

5. Increase number of plants in the living collection (to 5000 taxa) and increased annual distributions of promising plants to nurserymen and landscapers.

6. Install demonstration gardens that display and interpret basic principles of low-input, sustainable horticulture.

7. Increase visitation and more regional awareness.

8. Increase efficiency of computer mapping and plant database management.

9. Increase profile and impact of arboretum research and outreach through collaboration with other agencies and the nursery and landscape industry

10. Increase value as a student teaching and recruiting tool.

11. Enhance signage and interpretation in all theme gardens.

12. Create a volunteer corps that takes on the responsibility of theme garden maintenance needs, garden tours, and Arboretum events.

13. Promote arboretum findings through paper presentations, publications, periodicals, newsletters, arboretum-sponsored events, and SFASU Arboretum plant "giveaways" at the annual Texas Association of Nurserymen (TAN) and Northeast Texas Nursery Growers Association (NETNGA) conventions.

THE SFASU ARBORETUM VOLUNTEER CORPS ORGANIZATION (AVCO)

To make it all happen, the Arboretum can only get there through volunteers. The Arboretum Volunteer Corps Organization (AVCO) is an organized group of local citizens committed to helping the Arboretum achieve its full potential. If you wish to serve or if you think you know someone who might like to serve, contact **Stacy Scott 468-3705.** Ms. Stacy Scott, graduate research assistant, will be serving as the "liaison" between the SFASU Horticulture Club, AVCO and yours truly. Stacy is a terrific addition to the program, a wonderful "walk-on"; she's added to the vim and vigor of some of the Arboretum's conservation outreach and has taken to the every-day bedlam of Arboretum crises. AVCO will function under

Cedrus deodora 'Kashmiri' (finally showing some real class), a 7' *Juniperus pinchottii* (seed grown from patriarch skeleton trees dotting the plain just on the western side of the San Madre Oriental mountain range, Mexico), two 10' *Taxodium mucronatum*, Montezuma cypress (one of the Arboretum's promotion plants), a 9' *Cunninghammia lanceolata* 'glauca' (finally broken out of the sprawling stage!), a 7' *Cryptomeria japonica* 'Sekkam Sugi' (run over twice by the mowers when young), an outrageous *Juniperus virginiana* 'Grey Owl' (with eight foot spread, 3' height and the best blue-silver coloring in the species), a 12' wonderfully columnar *Cupressus mexicana* (from 1988 seed taken at 6000' east of Los Lirios, Mexico; may be *C. lusitanica*?). Closer to the Physical plant lie some other interesting conifers: a weeping Juniper given to us by Bryan Thompson (*Juniperus flaccida*?), a 10' *Zelkova serrata*, a 9' *Cyptomeria fortunei*, a 6' golden *Thuja orientalis* 'Aurea nana,' a slightly beat-up but still brilliant 12' *Cupressus glabra* 'Carolina Sapphire' (hit by a utility truck and both survived), and a strange unknown Dodd conifer, the latter one of those strange gifts from good friend and plantsman Will Fleming (no label but "worth planting").

New conifers added in the last year make up the small army of small plants intermingled among the ones described above. The newly set plants are mostly are one-year "grow-outs" of plants collected on sabbatical last year. Standouts include *Cryptomeria japonica* 'elegans,' *Chamaecyparis pisifera* 'filifera aurea,' *Chamaecyparis pisifera* 'crispii,' *Thuja occidentalis* 'filiformis,' *Chamaecyparis pisifera* 'Snow,' *Juniperus chinensis* 'Saybrook Gold,' *Chamaecyparis pisifera* 'Lemon thread,' *Juniperus virginiana* 'Stover,' *Juniperus virginiana* 'Idyllwild,' *Juniperus chinensis* 'Foemina,' *Juniperus formosanum*, *Cupressus cashmeriana*, *Chamaecyparis obtusa* 'Tetragonea alba,' *Juniperus chinensis* 'Spartan,' *Cunninghammia lanceolata* 'Chason's gift,' *Thujopsis dolobrata* 'variegata,' *Chamaecyparis pisifera* 'unknown blue cultivar-NCSU,' *Crptomeria japonica* 'Yoshino,' *Chamaecyparis pisifera* 'Bright Gold Form,' *Cryptomeria japonica* var. *sinensis*, *Chamaecyparis pisifera* 'Silver Lode,' *Chamaecyparis obtusa* 'pyramidalis,' *Thuja standishi*, *Chamaecyparis pisifera* 'Chado Yadori,' and *Thuja occidentalis* 'olendorfii'. This is an outstanding collection and demands strong cultural attention in 1996!

7. The "**Asian Valley Garden**" has been given a facelift and plenty of new plants. Roger Hughes has acted as the curator of this special garden for the past year . . . and it shows. Weeds are nary to be found. The azaleas have been "beaten" back into their allotted space. New embossed labels have been added. Most important, there are many new plants added to this area. New plant additions to Asian valley Row 1 include *Tsuga canadensis* 'Kelly's Weeping,' two *Sinojackia rehderana*, *Pittosporum heterophylla*, *Fothergilla gardenii* 'Blue Mist' and 'Suzanne,' *Osteospermum ekionsis* 'whirlygig,' *Sinocalycanthus chinensis*, *Camellia sinensis* 'Rosea,' *Acer palmatum* 'E.P.,' *Rhododendron indica* 'Hardy Gardenia,' *Lindera obtusiloba*, *Acer truncatum*, *Forsythia koreana*, *Acer palmatum* 'Aoba jo,' *Pieris polita*, *Acer palmatum* 'Goshiki kotohime,' *Euonymus fortunei* 'gracilis,' *Odontemia strictum* 'gray/white,' *Ternstroemia gymnanthera* (NCSU seedling), *Hydrangea tartiva*, *Taxus chinensis*, *Ternstroemia gymnanthera* 'Burnished Gold,' *Acer palmatum* 'Shaina,' *Acer palmatum* 'Ikigumo,' *Ilex myrtlifolia* (narrow-leaved, weeping clone via Woodlanders), *Cercis yunnanensis*, and five

varieties of *Hydrangea macrophylla* 'Teniandoa,' 'Badger Choice,' 'Schenkenburg,' 'Preziosa,' and 'Bandensee Rose' (the latter a gift of Doremus Nursery). Roger is currently building a collection of Hydrangeas that will someday find a home in this garden.

Other additions include: *Daphniphyllum macropodum* and *D. humile, Philadelphus pekinensis, Itea chinensis, Stachyrus yunnanensis, Osmanthus fragrans, Staphylea colchica, Liriodendron chinensis*, several plants of *Illicium henryi, Zenobia pulverlenta* 'Woodlanders Blue,' *Loropetalum chinense, Ilex opaca* 'Maryland Spreader,' *Lysimichia ciliata, Rhododendron indica* 'Fascination,' *Acorus gramineus* 'oborazuki,' *Loropetalum chinense* 'Blush,' *Ilex crenata* 'golden gem,' *Acer buergeranum* 'Naruto kaede,' *Serissa foetida* 'variegata.' One special plant in this garden is an Ilex that was originally planted in the holly row, *Ilex* NA 28297. This blessed plant was ripped loose from its grip on the row during the flood of October, 1994, and floated all the way down to the Starr Avenue bridge. There it was seen and then rescued by Erin Smith and Shelly McReynolds (graduate research assistant and the young lady who replaced me during the fall sabbatical, respectively). The poor 6' holly, devoid of any soil around the root system, was drug to the shade house, plopped into a container and mulched. After I arrived back in December of 1994, the tree was given a new home in Asian valley, a little further inland and a little further away from the creek. The tree never missed a step and looks vigorous. Talk about a charmed life. Incidentally, this holly and the others in these named National Arboretum expedition finds have been durable with showy red berries.

8. The **Shade Garden** benefitted this past year with good care, culture and lots of new plants. A "Primula test" has been planted. Garry McDonald, TAMU, Overton, has included the Arboretum in his work to evaluate herbaceous perennials with merit and has donated a wonderful cross-section of Primula varieties. Primula is a late winter blooming, shade-loving, cool season loving species known for its bloom in late winter and early spring. Often treated as an annual, albeit an expensive one, the main problem with the species is making the plant behave as a perennial. East Texas summer heat and humidity is a main killer. The purpose of this collection is to evaluate clones for their ability to behave as a perennial in our area. Varieties include: 'Lira magenta,' 'Prima Carmine Rose,' 'Danova mix,' 'Lira mix,' 'Libre magenta,' 'Lovel mix,' 'Gallant blue,' 'Ama White,' 'Joker Mix,' 'Gallant mix,' 'Finale mix,' 'Fama pink,' 'Prominent mix,' 'Fama Goldene Orange,' 'Finesse mix,' 'Libre mix,' 'Lucenta mix,' 'Pacific Giant Mix,' 'Pacific Giant Bicolor,' 'Fama Scarlet,' 'Cantata mix,' 'Prima Red,' 'Fama White,' and 'Schaumischung mix.' We have the collection in a hand-drawn map and plants were set in groups of five, groups replicated when plants were available. This should be an interesting display and the summer of 1996 will be our first test.

A few other shade garden comments: 1) A rare *Sinocalycanthus chinensis* has been planted (adapted, showy Asian cousin to southeastern native, *Calycanthus floridus*, sweet shrub)

One of the better groundcovers needing more use in shade gardens would have to be *Ardisia japonica*, a short statured, glossy evergreen, Asian species that sports red berries in the winter. This is a trouble-free shade loving plant with good winter character and bright gloosy

leaves. Not as rambunctious as ivy and vinca, this groundcover has numerous attributes. Planted on 1' centers and given a good application of bark mulch, the plant spreads to "fill" the spot in two to three years. After that, it's fairly easy to maintain. Fallen forest litter can be "raked" out of the colony without doing any damage to the plants. The key to good growth is a copious layer of bark mulch that is renewed annually. Of all the *Ardisia japonica* colonies in the shade garden, *Ardisia japonica* # 803 has been the most vigorous. I think this clone is a Brookside selection number. Other varieties that have been with us many years include 'Hofukurin,' 'Hashiami,' and 'variegata'. Actually, we have several variegated clones, each a bit different than the other but not by much. *A. japonica* 'Chirimen' is a distinctive variety with small serrated leaves, shorter stature and not as vigorous. We have added another 70 plants of this variety to the existing "colony" and will be using more of all the Ardisias as we develop and acquire them. *Ardisia crispa*, a taller and more robust species, has performed well for us in the last three years. However, the species has not been hit with much of a mid-winter low and its hardiness is a question mark. The *Ardisia japonica* collection survived the December 23, 1989 record low (zero!), although they were burned to a crisp and emerged slowly that spring. B

The shade garden is also home to a good number of *Cephalotaxus harringtonia*, Japanese plum yews: cultivars and species. Peter Loos deserves most of the credit for giving the Arboretum a jump start a few years ago with a good number of one gallon containers of *C. harringtonia*. Since then, we have added varieties and species, including *C. harrigtonia* 'fastigiata' and 'prostrata,' *C. fortunei* and C. *drupacea*. I am not sure about the nomenclature on the last. We have a few others that we remained confused about. This is a yew relative that appears very well adapted to East Texas shade. The species is quite durable. Even in tight red clay along one of the shade garden's trail, the plant has done quite well. The species is slow-growing (why didn't we put these in about 6 or 7 years ago!). Chief constraints to bringing this species into landscapes is the long time line for production of a good container plant. Slow to develop roots and slow in the container means the product has to bring in a higher price than "normal."

Two *Taxus globosa* plants look very strong after two years in the landscape. The species is indigenous to the San Madre Oriental mountain range west of Monterrey and there's good reason to believe it's facing major problems in its native habitat.

8. A *Buxus sempervirens* collection and various *Thujas* have been planted just to the east of the container yard. The bench terrace that lies adjacent to the container yard is home to a line of red maple selections planted in the spring, 1995. This collection represents *Buxus sempervirens*, the common boxwood. In between each red maple (Loos/Reeves native selections) we have planted a boxwood variety. This particular spot may be just a bit on the too-bright side for boxwoods, particularly in the first year. However, we chose this location because of its close proximity to the hort facility and shade modifications we plan to make with the container yard by late spring. Varieties include: 'Ponteyi,' 'Fortunei rotundifolia,' 'Green Velvet,' 'Green Mound,' *Buxus* X 'Green Mountain,' 'myrtifolia,' 'salicifolia,' 'rotundifolia,' 'Edgar Anderson,' 'latifolia microphylla,' 'Bellville,' 'Sport,' 'Memorial,' 'Butterworth,'

'Welleri,' 'Maculeth,' 'Aristocrat', 'salicifolia alata,' '33798 NCSU,' 'Handsworth,' 'Decussata,' 'fastigiata,' 'Herman von Schrenck,' 'Inglis,' 'true spreader,' 'St. Genieve,' 'Berlin,' 'salicifolia,' 'Burnun.'

Thuja varieties are set on the slope about twenty feet east of the line of red maples and boxwoods. Varieties include: *Thuja plicata* 'Cuprea,' 'Idaho,' 'Atrovirens,' and 'dark green selection.' We also have one *T. plicata* X *T. occidentalis* 'Gigantea' in the test. Also included are *T. occidentalis* 'DeGroot's Spire,' 'Sherwood Frost,' and 'Pendula.' The Western Red Cedar, *Thuja plicata*, makes impressive specimens and reliable screens; the species is native to the western U.S., and is usually found at four to six thousand feet and near water. J.C. Raulston feels that the species may harbor varieties suitable for replacing the leyland cypress, now much overused and plagued with disease and insect problems. American arborvitae, *T. occidentalis*, are native to eastern N. America and Canada and are often found in cold, swampy soils. In spite of their native preferences, the species does well in southern U.S. locations and deserves further testing.

9. The "**Lines of Vines**" collection has become one of my favorite collections. Another line was added to the vegetable garden in 1995, bringing our total to thirty-nine different vines in this garden area, each displayed on a post. Displaying on a post simplifies maintenance and makes side-by-side comparisions simple. This collection defines the vegetable garden and lies in the line of overhead sprinkler risers. We are convinced that the Arboretum's vine collection is best displayed by planting vines at the base of 4 X 4 posts. Vines can quickly taken over garden areas and be a real time killer; we have learned that. By restricting vines to a post, providing some kind of attention in early years (tieing, pruning, keeping base clean and runners removed) . . . maintenance is easy. Each post has been given a healthy concrete collar; after all, the posts must be able to endure infrequent but fairly severe flooding. We have many special woody vines in this collection. There are now eight *Wisteria floribunda* varieties along with several outstanding specimens of our very own native, *Wisteria frutescens*. One of my favorites: *Milletia japonica* 'alba' is a Wisteria relative, diminuitive in habit, smaller in leaf and bloom size, but better behaved and more refined. Other vines worthy of more use: *Bignonia capreolata* 'Tangerine Beauty' and 'Atrosanguinea' (mentioned many times before), and *Gelsemium sempervirens* 'Woodlanders Pale Yellow' (class act evergreen vine).

10. The "**Lantana collection**" lies in one of the lines of vines nearest the LaNana Creek Trail. This collection is part of the CEMAP trials (Cooperative Educational Marketing Assistance Plan), a TAMU Extension Service effort to evaluate and promote promising landscape plants. Dr. Steve George of TAMU, Dallas, is an enthusiastic plantsman and outstanding horticulturist. Steve sits on the Arboretum Board of Advisors and is a big booster of what the Arboretum is and can be. Lantanas currently under test include: Lantana montevidensis, L. 'Weeping White,' 'Imperial Blue,' 'Spreading Sunset,' 'Gold Mound,' 'Lemon Drop,' 'Silver Mound,' 'Samantha,' 'Dwarf Pink,' 'Pinkie,' 'Denholm Dwarf White,' 'Radiation,' 'Golden King,' ' LSG Red-Orange,' and 'Pink Caprice.' Plants were evaluated on the basis of spread, plant height, flowering intensity, and fruit set. One interesting note: In late December, 1995, after several

WHERE DO ALL THE PLANTS COME FROM?

When you think about how many interesting trees, shrubs, vines, groundcovers, ornamental grasses, herbaceous perennials and annuals that are out there worth looking at, it's mind-boggling. To a horticulturist, it's almost frightening. There will never be an end to new plants, new varieties, and new techniques to test. Rabid plantsmen will always have something to do, a new plant to look at or give away. The SFASU Arboretum is blessed with many "plant benefactors" and that tendency continues to grow as the Arboretum finds itself in a position to reciprocate . . . with good information and plant "starts" of new, exciting germplasm. I often hesitate to list the givers because that means I will miss many who do. The nursery industry has opened its arms to our effort and that growing relationship only portends a great future. Greenleaf Nursery, El Campo, Texas, recently gifted the Arboretum a $500 per year "any plants you want" gift (Thank you, Leon Macha!). Hines nursery, Houston, Texas, has given the Arboretum an open door and access to its aggressive plant testing effort (Thank you, Bill Barr and R[illegible]rt Grove!). Lone Star has been terrific with rare seed and plants (Thank you, James Spivey!). Ted Doremus and Mark Bronstad of Doremus Nursery, Warren, Texas, can only be described as eager to help build our "rare plant" vision. Heidi Sheesley, TreeSearch Farms, Houston, Texas is always at the front door when it comes to helping the arboretum grow.

There are many individuals who keep "feeding plants" to the Arboretum and their names are worth mentioning: Lynn Lowrey, Houston, Texas (the inveterate plantsman of Texas), Peter Loos, Houston, Texas (father of the "bog" garden; Pete never visits without transferring some strange species or selection into the garden or shadehouse); Tim Kiphart, Brenham, Texas (giver of so many "western" native selections for the dry garden and rarely does he give me a plant that comes in labeled); Will Fleming, Houston, Texas (father of the Shelby County courthouse landscape project and colorful character), Scott Reeves, Houston, Texas (father of the "perennial border" who never met a conifer he didn't like); Bill Caldwell, Houston, Texas (cutting edge rare plant enthusiast and "curator" of the Japanese maples), Delores Jones and Jean Barnhart (and all the other Daylily enthusiasts who keep the daylily garden a color spot for the Garden Gala Day; they do it all). Corliss Bonner (and all of the Herb Society folks who make the herb garden a special place), Roger Hughes (AVCO booster, friend, building our *Hydrangea* collection and has a way with plants) and Greg Grant, Arcadia, Texas (author, teacher, friend and a great plantsman right next door!). Jeff Abt's support includes not only making Nacogdoches a better place to live, he has provided the Arboretum with plenty of pavers, plants and pats on the back. There are wonderful folks like Ruth Williamson, curator of the perennial border (I never pulled a weed there this year!). Ruth did a wonderful job keeping the show going. One special giver of all to the Arboretum in the past year: Ms. Erin Smith, my former graduate student, now a MS graduate. Erin did a fine job as "second-in-command" for several years. Along with her other never-ending chores, Erin was essentially "mother" of the Shade Garden, as well as its curator. She will be missed; after many years, she was one of the few who knew how to run our solid-set sprinkler system and take care of it and she always knew where that box of labels ran off to. The Arboretum has grown and benefitted from years of Erin's enthusiasm, loyalty and support and I know that Erin benefitted by being right smack dab in the

middle of such wonderful plant diversity as a part of her education. Thank you, Erin Smith!

Finally, the king-pin in all that happens in the Arboretum would have to be the students. Whether it's due to a class project, or a work-study or student assistant effort, or a student's class project, the Arboretum has afforded all kinds of learning activities in a special living classroom environment. The Horticulture Club is bigger, better and nicer than ever. They're an excellent group this year: eager to learn, work, travel, compete and have fun in horticulture. It's, of course, impossible to mention all of the individuals who have given plants, time, money, support, and words of encouragement to the Arboretum. However, without volunteers and outside support, the SFASU Arboretum would never have reached any level of success, nor would the future seems so rosy.

THE SFASU ARBORETUM'S FIRST "NEW PLANT" CONTRIBUTION TO CEMAP

Good news! We have been included in a long-term Plant Evaluation and Promotion program run by the TAMU system. CEMAP (Cooperative Educational Marketing Assistance Plan) is a Texas Agricultural Extension Service (TAES) platform to move Texas nurserymen forward with new plants. In the past, the focus has centered on annuals and a few herbaceous perennials. No woody species have been put through the program. There are reasons for this; choosing a plant to contribute to the CEMAP program is not all that easy. In the first place, the contributor must have 100 one-gallon plants ready for distribution in mid-April of each year and each needs to be of good size. These are then distributed to "evaluation sites" around the state. Woodies pose a special headache. In the first place, annuals and herbaceous perennials can be tested quickly; woody species take years to tell the tale. While many plants in the Arbortetum might better fit promotion and consumer acceptance, coming up with 100 woody plants of a winner is not our usual focus. Besides, we have a tendency to give away numbers of rare plants as they are propagated to "get them out." However, this year we just happen to have one species in good numbers and it's one we have strong confidence in. Native to central and western China, Taiwan and the Philippines, ***Viburnum propinquum*** is a handsome evergreen, bushy shrub to three or four feet tall (a terrific height for a Viburnum). This evergreen species is rare in the trade and never seen in Texas nurseries. It should be. Our original plant is on the east face of the Agriculture building and has been a consistent performer for many years. The plant experienced very little freeze damage in 1989 when temps dropped to 0°F. The plant, now in several locations, has cheerfully endured many dry stretches. Leaves are shiny, dark green, glabrous; spring flowers are green-white in cymes about two inches across; fruit is blue-black and conspicuous. The species is very easy to propagate via cuttings almost any time of the year (we normally root over 90% in two months). In the landscape, the plant requires a little attention to weeds and watering in the first two or three years. After that, mulch, light fertilization and an occasional weeding is all that is required. Very little pruning is need to keep the plant compact and dense. The species deserves a good evaluation in the state.

HORT CLUB ACTIVITIES AND OTHER SIGNIFICANT HAPPENINGS:

The SFA Horticulture Club had a busy and productive year:

Jan 28-30, 1995. Horticulture Judging team of Mark Morrow, Trace Worthy, Matt Welch and Dave Blado placed **second overall** in the American Collegiate Branch (ACB) judging contest against eight southern ACB teams at the Southern Region meeting of the American Society for Horticultural Science, New Orleans, Louisiana. The team placed first in Woody Ornamentals, second in Floriculture, and third in Fruit Judging. Trace Worthy was elected President of the Southern Region ACB. Toured New Orleans gardens.

July 30-August 3, 1995. Horticulture judging team at the annual meeting of the ASHS, Montreal, Canada. 1st place Fruit. Also two student oral paper preparations for this conference.

Erin Smith. 1995. A propagation and reintroduction strategy for the Neches River Rose Mallow, Hibiscus dasycalyx. **HortScience** 30(4): 805. Published abstract and oral paper presented at the annual meeting of the ASHS, Montreal, Canada.

Matt Welch. 1995. Composted poultry litter as a low-cost media amendment. Published abstract: **HortScience** 30(4): 912. Oral paper presented by Matt Welch as a part of the undergraduate paper competition in the American Collegiate Branch of the ASHS, Montreal, Canada. Did not place.

September 22-23, 1995. Ten students attended the Texas Produce Association convention, San Antonio, Texas, (part of the Texas Produce Convention - concurrent meetings of the Texas Pecan Growers, Texas Citrus Growers, Texas Vegetable Growers, Texas Fruit Growers, Texas Blueberry Growers, and Texas Produce Association). On Saturday, September 23, we received a behind the scenes tour of the San Antonio Botanical Garden by Paul Cox, horticulturist - also toured the San Antonio Zoo, Japanese Tea Garden, the Sunken Gardens, and, of course, the River Walk.

October 13-15, 1995. With graduate student Stacy Scott, I attended the annual meeting of the Native Plant Society of Texas, Waco, Texas. SFASU Arboretum booth on display. I serve as a member of the Board of Directors.

October 28, 1995 - 1st annual Arboretum Fall Festival - Saturday day-long event during homecoming weekend. Plant sale, tours, refreshments. Student and AVCO run.

November 16, 1995 - SFA Art Alliance Silent Auction and SFASU Arboretum plant sale. Education booth, AVCO run, at the University Center.

AN OUTLINE HISTORY OF THE SFASU ARBORETUM

As part of a proposal packet this past fall, I had to retrace the Arboretum's history. That really wasn't all that hard; the Arboretum newsletter has done a good job of chronicling the highlights. I developed the following outline and offer it as an example of how a resource can grow and prosper.

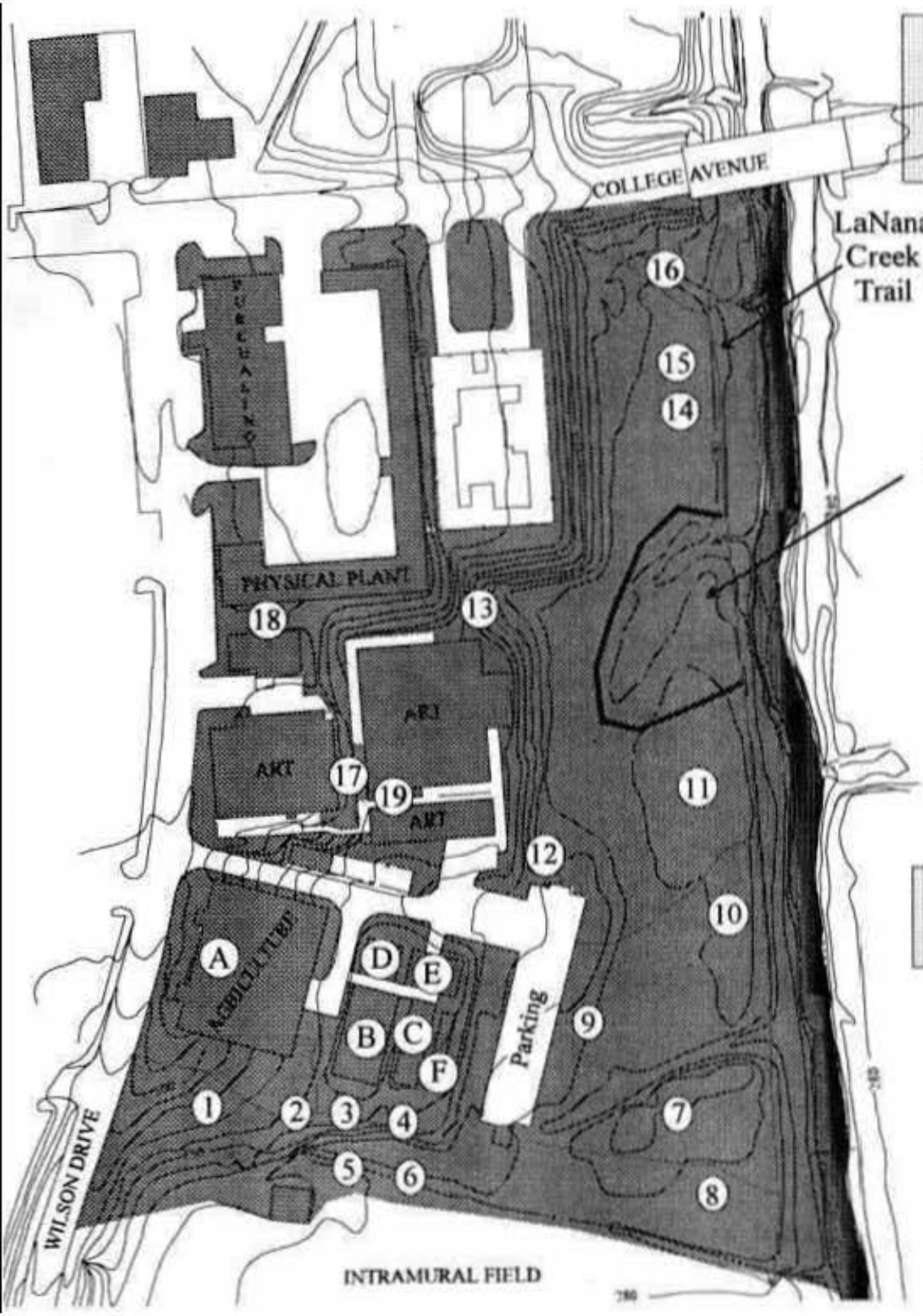
YEAR **MAJOR DEVELOPMENTS**

1985: ◊Arboretum begins on the south side of the Agriculture building as the semester landscape project of the first Landscape Plant Materials class: a ½-acre shrub and color garden referred to as the "phase 1" garden. Soldiered railroad ties, steel edging, raised beds, mulching activities. Student enthusiasm is high.

1986: ◊Spring, 1996, Landscape Plant Materials class designs and installs the "phase 2" garden just to the south of the phase 1 garden: a tree/shrub/color garden, deck and arbor, and raised beds.
◊Written proposal to the administration to support the expansion of the Arboretum into the bottomland property east of the Horticulture facility and Agriculture/Art Parking lot. Proposal turned down.
◊May 9, 1986 Garden Gala day: very lonely! Me and a few students.
◊Hines Nursery donation: two van loads of plants. First donation of plant goodies from J.C. Raulston: two UPS boxes full of strange and wonderful plants.
◊Fifty metal photoplate labels donated by Mr. Lee Alexander. Landscape class constructs steps, bridge and arbor to Ag/Art parking lot. First "Friends of the SFASU Arboretum" newsletter.

1987: ◊In early spring, we discover pink flags in middle of our small Arboretum on south side of Agriculture building and learn that the university plans to build a concession stand and restrooms for the Athletic Department's Intramural field. Students want to fight. Tempers ease and I spend spring break writing a 20-page proposal to administration justifying the Arboretum's expansion into the bottomland property (one paragraph requesting that the restrooms be relocated).
◊In March, 1987, after much discussion, proposals, and objections from various groups, the University President, two vice-Presidents, my Dean and chairman tour the property proposed for Arboretum expansion. The President agrees! Icing on the cake: the restrooms are moved further south and out of our existing collection. Property borders the Athletic Department's Intramural field, LaNana creek, and College Avenue. Brings Arboretum to a total of 10.17 acres of grow space!
◊Late March and early April spring freezes kill many tender plants and damage others.
◊An "Asian Valley" theme garden planted in bottomland. Plants of the Orient. 52 Japanese maples, 210 different azaleas, rare trees and shrubs. Island bed

THE STEPHEN F. AUSTIN STATE UNIVESITY ARBORETUM NACOGDOCHES, TX



Proposed Endangered Plants Garden

N
W E
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Topo on 2' elevation changes

100'

THEME GARDENS

1. Shrub and Color Garden
2. Texas Heritage Garden
3. Daylily Garden
4. Herb Garden
5. The Elking Environment
6. Iris Garden
7. Shade Garden
8. Bog Garden
9. Perennial Border
10. Natives
11. Asian Valley
12. Dry Garden
13. Conifer-Holly Garden
14. The Vegetable Garden
15. Lines of Vines
16. Alternative Fruits Garden
17. The Shrub Border
18. Vending Garden
19. Art Alley Garden

OTHER FACILITIES

A. Computer-aided design Lab
B. 50' X 100' glass greenhouse
C. 30' X 100' quonset greenhouse
D. 60' X 60' headhouse
E. 60' X 60' shadehouse
F. 20' X 80' container sun yard

◊Ms. Susan Elking, Art Department, designs and creates three large entrance gateways from treated timbers, each different and sure to be noticed (entrance to Asian Valley, the Bog Garden, and the southeast corner of the Arboretum).
◊Rick Rankin, Graduate Research Assistant, creates the first AutoCAD base map of the Arboretum based on a 50' X 50' grid system that includes layers for significant features (buildings, topography, irrigation lines, utility lines). This creates the platform for plant location mapping.
◊City and university support for moving the LaNana Creek trail through the Arboretum's eastern edge. Construction work under the bridge at Starr Avenue and a crushed limestone trail put in place. University funds four 32' metal footpath bridges built by Dr. Long's Agriculture Mechanics class and for the LaNana Creek Trail, now running down the eastern side of Arboretum.
◊Diane Morey Sitton. 1990. Arboretum a learning haven for students. **Gardens and More**, May 1990: 20-24.
◊September, 1990, AutoCAD lab is installed in Agriculture building.
◊Herb garden receives a facelift with help and funding from the Herb Society of Deep East Texas. Paving brick donated by Henderson Clay Products.
◊Perennial border created by Scott Reeves and Doug Hines. 12' wide and 120' long.

1991: ◊Survey and computer mapping project continues.
◊Marketing survey by class of Dr. Donald Curtis (Business professor and Arboretum booster) indicates 66% of Nacogdoches residents contacted in a phone interview did not know what an arboretum is and 71% didn't know we existed. Back to the drawing board.
◊Carpenter School project involves a heavy planting of a wide variety of native trees and shrubs in an "arboretum park-like setting."
◊Daylily garden fountain project gets off the ground in early 1991 and never ends. Class project of Art professor, Mr. John Daniels. Construction nightmares.
◊Creation of an Iris garden. Peter Loos and students construct raised beds and bench terraces along the slope that faces the intramural field on the south side of the quonset greenhouse. Funds via American Iris Society for Peter Loos, GRA.
◊A "grasses for Texas" garden is created just to the north of the Bog Garden. Raised beds framed by railroad ties.
◊Three-week expedition to the gardens of the northeast during the summer of 1991.
◊Ron Stone, 'Eyes of Texas' does a 12 minute feature on the Arboretum - terrific exposure. Star Search does not call.

1992 : ◊Entrance kiosk built by Rick Walston and Kevin Borowski next to Wilson Drive sidewalk. Attractive cedar-shake roof with plenty of space to display educational information, brochures, maps, plants in bloom news, etc.
◊Texas Heritage Garden: a 12' X 20' cedar pergola with benches constructed via

the work of Shannon Short, Rick Walston, Cleve Moore and Kevin Borowski. All donated materials.
◊Arboretum Garden Gala day well attended with perfect weather.
◊Eagle Scout project constructs a heavy-duty bridge in the Arboretum over the southern most tributary that feeds into LaNana creek.
◊Shade garden created with a foundation of ferns donated by Jack Price, Blanchard, Louisiana. Railroad tie framed beds, steps constructed via four Youth Opportunity Unlimited kids: disadvantaged, high-risk kids that we have for eight weeks, four hours per day in the summer.
◊Arboretum receives 300 railroad ties from Curtis Pruett, Texas State Railroad.
◊Master's of Fine Arts student Ms. Susan Elking begins the creation of the "Elking Environment," a 4000-square-foot rock garden.

1993: ◊Telephone Pioneers of America gift installs a "memorial" for the Challenger mission in the native plants garden. Dedication in summer attended by Senator Bill Haley, Representative Jerry Johnson, SFA President Dan Angel and 100 others. Taps in the garden, full-dress Marine Corps drill team and 21-gun salute. Not sure what this means.
◊450 railroad ties donated to Arboretum effort by Texas State Railroad; student enthusiasm waning after hauling via trucks and trailers.
◊Second Eagle Scout bridge over the northern most tributary feeding into LaNana Creek in the Arboretum property. Trail is now negotiable to College Avenue.
◊Arboretum Garden Gala Day attended by over 200 visitors.
◊The fountain in the daylily garden is finished and it works!
◊Tom Crossett, President of Central Point limestone rock quarry, Cleburne, Texas, donates 175 tons of limestone rock for the "Elking Environment." Atlas trucking provides reduced-rate trucking: six semi-truck loads.
◊Transfusion of many new plants into the garden.
◊An "outdoor lecture deck" is built in the shade garden as a class project; can seat 30 students.
◊Our first wedding in the garden, the first of many.

1994: ◊Fall 1994 sabbatical spent at North Carolina State University under Dr. J.C. Raulston and return inspired. Study development, organization, plants. 440 new woody plant accessions for the Arboretum.
◊Shawn Geiman tackles the "clearing" of the last undeveloped section in the Arboretum: the "north woods," a two-acre privet and briar-infested thicket.
◊Flood of October, 1994, is devastating; moves logs and brush into the garden from Shawn's clearing project; 100 railroad ties lost. I am on sabbatical and students are frantic. (Postscript: six months after event, little sign that a disaster had occurred and only six plants lost).
◊Diane Morey Sitton. 1994. A growing project: The Arboretum at Stephen F. Austin State University. **Gardens** 8(7): 22-24. (Feature on the arboretum by

free-lance author).
◊Initiation of the SFASU Arboretum's "Plants with Promise" program: Acquisition, evaluation, propagation, distribution and promotion strategy.
◊150 German bearded Iris varieties donated to the Arboretum by Dr. Don Curtis and we end up killing most of them.
◊Continued plantings in the dry garden and shade garden; perennial border lengthened; "Native Plants" section expanded.
◊A new collection, the "lines of vines," is installed in the rows of solid-set sprinklers for the vegetable garden; to display over forty woody vines on 9' tall 4" X 4" posts.
◊Discussions begin with Ms. Elisabeth Montgomery on the possibility of an endowment and conservation easement on 119 acres six miles west of town. Office of University Advancement handles details and agreement finalized in September, 1994. Objective of the endowment is to promote the conservation, selection, and use of the native plants of Texas and to evaluate new landscape plant materials in Texas using Mill Creek Gardens as a platform.

1995: ◊All $100,000 of the Ms. Elisabeth Montgomery endowment is in place.
◊ The Nacogdoches Daylily Society named the daylily garden in honor of Jean Barnhart, local club founder, nationally-known hybridizer.
◊May 19, 1995: Formation of the SFASU Board of Advisors and interim officers. Bylaws committee begins work. Board of Advisors is made up of university officials, local boosters, nurserymen, landscapers and TAMU CEMAP representatives.
◊Formation of the Arboretum Volunteer Corps Organization (AVCO); Interim Coordinator Roger Hughes, Nacogdoches retiree and Arboretum booster. AVCO Handbook created. Stacy Scott, Graduate Research Assistant, assumes Coordiator position.
◊First Arboretum "Plant Location Handbook." To be published every January and old copies archived (computer files on tape and paper copies in library).
◊May 20, 1995: Arboretum Garden Gala Day is attended by over 600 during the day-long event. Plant sale generates $4800.
◊North Woods is finally clean, brush piles burned, and is ready for Arboretum expansion.
◊"Alternative fruits" garden created at north end of vegetable plots.
◊ A "Shrub Border" collection is planted between Art and the Physical Plant.
◊Art/Alley Garden created by Robert Sikumas, undergraduate student.
◊The "Vending Building" garden is created.
◊Fall, 1995: many new plants set in the garden. Significant collections of *Ilex crenata*, *Mahonia*, *Loropetalum chinense* and many new conifer, shrub, and vine cultivars.
◊Fall, 1995: Established a *Hibiscus dasycalyx* recovery project at Mill Creek Gardens under direction of Ms. Stacy Scott. Receive small plants of *Phlox*

nivalis ssp. *texensis* from Center for Plant Conservation.

1996: ◊Ten 15-cubic yard loads of sandy loam to create berms in the endangered plants garden and improve drainage in the vegetable garden. Record dry winter.

PAST NEWSLETTERS

Not that they are becoming collector items, but a few Arboretum boosters have come by for the complete set of past newsletters. If you have an interest, let us know. The Arboretum newsletter has been the chronicle for development of the SFASU Arboretum; it's noted most of the major plant acquisitions, provided various plant observations and botanical information, generated a few book reviews, and promoted upcoming events.

Friends of the SFASU Arboretum Newsletter No. 1, April, 1986: 8 pp.
Friends of the SFASU Arboretum Newsletter No. 2, September, 1986: 11 pp.
Friends of the SFASU Arboretum Newsletter No. 3, December, 1986: 24 pp.
Friends of the SFASU Arboretum Newsletter No. 4, May, 1987: 24 pp.
Friends of the SFASU Arboretum Newsletter No. 5, October, 1987: 18 pp.
Friends of the SFASU Arboretum Newsletter No. 6, March, 1988: 32 pp.
Friends of the SFASU Arboretum Newsletter No. 7, September, 1988: 26 pp.
Friends of the SFASU Arboretum Newsletter No. 8, August, 1989: 28 pp.
Friends of the SFASU Arboretum Newsletter No. 9, May, 1990: 36 pp.
Friends of the SFASU Arboretum Newsletter No. 10, February, 1991: 33 pp.
Friends of the SFASU Arboretum Newsletter No. 11, December, 1991: 38 pp.
Friends of the SFASU Arboretum Newsletter No. 12, March, 1993: 40 pp.
Friends of the SFASU Arboretum Newsletter No. 13, February, 1995: 34 pp.

A Propagation and Reintroduction Strategy for the Neches River Rose Mallow, *Hibiscus dasycalyx* By Erin Smith, Graduate Research Assistant: Stephen F. Austin State University, Nacogdoches, Texas.

Abstract: *Hibiscus dasycalyx* is now known from locations in Eastern Texas. A woody based, many-stemmed, narrow-leafed perennial to four foot, this species displays showy ivory-petaled, three inch blooms throughout summer and fall. This species is federally endangered due to loss of wetland habitat and interspecific hybridization with the Soldier Rose Mallow, *Hibiscus laevis*. A 1994 seed propagation study included nine seed collection dates (late July to late October) and stratification at 0, 2, 4, and 6 weeks prior to planting. Germination percentages were low; only the July 22 and September 10 collection dates exhibited a germination rate above twenty-five percent and stratification had no significant effect on germination percentages. In late fall 1994, container-grown plants exhibited an almost universal tendency to enter dormancy in a greenhouse maintained above seventy-five degrees F and provided with long-days via supplemental lighting (supplemental lighting intitated too late in the fall). A fertilizer rate study

including 0, 50, 100, 200, and 400 ppm N found the biggest plants at the high rate. In three cutting propagation trials, cuttings collected August 23 rooted at sixty-five percent; a November 22 cutting collection failed to root; and a May 25, 1995 cutting collection rooted at one hundred percent. Seedling variation in leaf shape and growth rate is high. A reintroduction strategy for the species under the umbrella of the Stephen F. Austin State University Arboretum includes establishing a sustainable colony of *Hibiscus dasycalyx* in the Arboretum's Endangered Plant theme garden and introduction into Mill Creek Gardens, a Nacogdoches county conservation easement.

Introduction:

Botanically rich, Texas contains some 5,500 native species distributed over an area comprised of ten regional habitat types. The 15 million acres in the Pineywoods region are home to 2300 species. Of those, depending on which list with which you are working, there are about 30 endangered plants in East Texas. Four are globally endangered and the remainder are in danger of extirpation from the state. Plants in trouble in East Texas include:

Hymenoxys texana (Texas bitterweed), *Abronia macrocarpa* (large-fruited sand verbena), *Lesquerella pallida* (white bladderpod), *Trillium recurvatum* (Prairie trillium), *Spiranthes parksii* (Navasota ladies-tresses), *Hibiscus dasycalyx* (Neches River Rose mallow), *Brachyeltrum erectum* (Bearded short-husk), *Bartonia texana* (Texas bartonia), *Cypripedium kentuckensis* (Southern Lady Slipper orchids), *Brazoria pulcherrima* (Centerville Brazos mint), *Parnassia asarifolia* (Grass of Parnassus), *Leavenworthia texana* (Golden yellow-eye), *Phlox nivalis* var. *texensis* (Texas trailing phlox), *Macranthera aurea* (Houston macranthera), *Rhynchospora miliacea* (millet beakrush), *Polygonatum biflorum* (Great Solomon Seal), *Scirpus divaricatus* (Elliot's bullrush), *Trillium pusillum* var. *texanum* (Texas trillium), *Talinum rugospermum* (Flame flower), *Stewartia malacodendron* (silky camellia), and *Magnolia pyramidata* (pyramid magnolia).

Hibiscus dasycalyx is known from five sites along the Neches River of Eastern Texas. Only three of these sites have been relocated, one of which has just recently been treated with herbicide. The future for this plant would appear to be precarious at best. At the current time, *Hibiscus dasycalyx* is a category 2 endangered species with a rescue team formed. Category 2 names a plant as a candidate for globally endangered. The Neches river rose mallow is in trouble because of loss of wetland habitat along the Neches River and interspecific hybridization with *Hibiscus laevis* and *H. moscheutos*.

A woody based, many stemmed perennial, *Hibiscus dasycalyx* is readily recognizable by its very narrow leaf blades and pubescent calyx. Height is to four foot with branched spreading stems. Flowers are present June to late September (may bloom into October) and are ivory petaled bell shaped blooms about three inches in diameter. The throat of the flower is deep pink to maroon with light pink to lilac pollen borne on pinkish anthers. Calyces are very hirsute pubescent. Fruit is a rounded capsule containing approximately twenty-seven seed. The seed are

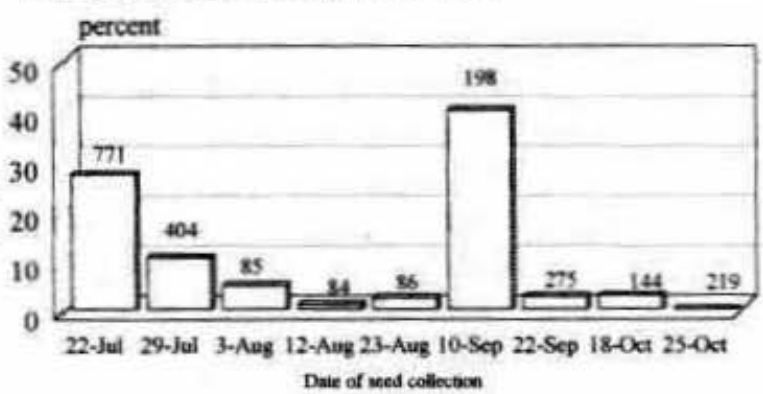
In 1988, a seed collection trip by Paul Cox of the San Antonio Botanical Garden and Dr. Elray Nixon, Botany Professor at Stephen F. Austin State University, Nacogdoches, Texas, resulted in disappointment and discovery. The *H.dasycalyx* colony near a roadside park had mostly been destroyed however, upon further investigation twelve or thirteen more plants were discovered. Cuttings were taken for plant establishment at the San Antonio Botanical Garden Endangered Plants garden. Seed from these plants were then stored in the seed banks against the probable extinction in nature of *H. dasycalyx* (McMahan, 1988).

Materials and Methods- For the 1994 seed propagation study, seed were collected beginning in mid July to late October from the Stephen F. Austin State University Arboretum "Bog" garden plant (no "nearby" other-species of Hibiscus) and the Highway 94 site west of Lufkin in Trinity County, Texas. The seed were placed in clear plastic bags full of moistened Perlite and subjected to 0, 2, 4, and 6 weeks of stratification prior to planting. When planted, seed were placed in Horticubes and were then kept under intermittent mist with bottom heat. After seedling emergence, they were potted into four inch containers until they were approximately four inches tall.

As seedlings grew they were potted into one gallon nursery containers with a soilless mixture of one-half Promix BX and one-half composted pine bark. These plants were carried through the winter inside a greenhouse maintained above seventy-five degrees Fahrenheit and provided with an extended photoperiod by means of nighttime lighting. A fertilizer rate study was initiated January 25, 1995 on one hundred and twenty-five of these plants, randomly selected. The study was arranged in a completely randomized block design. Treatments were 0, 50, 100, 200 and 400 parts per million nitrogen applied once a week in soluble form. The study was terminated May 25, 1995.

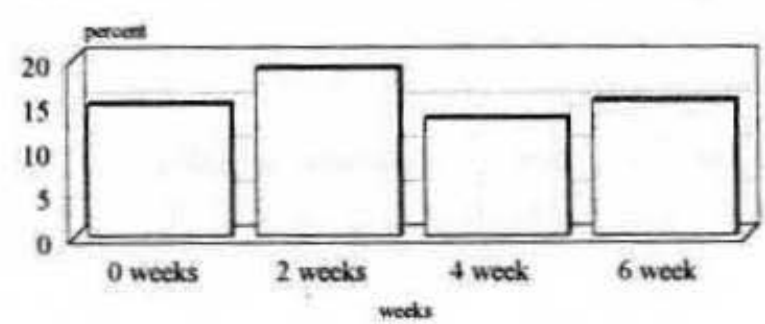
Cutting propagation trials were made on three dates: August 23, 1994; November 22, 1994 and those cuttings made at the termination of the fertilizer trial on May 25, 1995. Cuttings were kept moist until treated with Hormodin 2 and stuck in deep tublings containing Promix BX® and composted pine bark. The tublings were then kept under intermittent mist with bottom heat.

Figure 1. Influence of seed collection date on seed germination of *Hibiscus dasycalyx* (# above bars = number of seed collected)



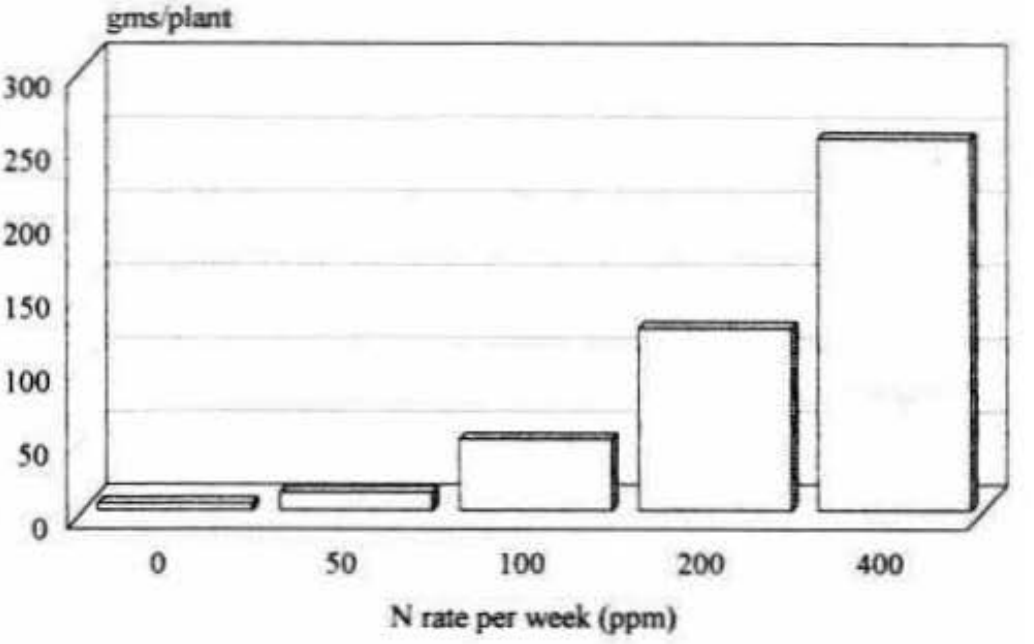
Results and Discussion- In the seed propagation study, germination was low in all treatments with only July 22 and September 10 having percentages greater than twenty-five percent. There were no statistically significant effects at any stratification rate.

Figure 2. Influence of stratification on seed germination of *Hibiscus dasycalyx*



The fertilizer experiment resulted in a striking response to the 400 ppm nitrogen rate. The growth of the 400 ppm plants was one hundred percent more grams per plant wet weight than the 200 ppm Nitrogen plants. The average wet weight for the 400 ppm rate was fifty-one grams per plant over 25 grams per plant for the 200 ppm rate. Height measurements were also taken throughout the fertilizer study. These measurements were taken after one, three and four months of growth. The average height for the 400 ppm treatment after one month was six inches, after three months was eleven inches and after four months of treatment was twenty-nine inches. The 200 ppm rate averaged five inches at one month, nine inches at three months and twenty-four inches at four months. The average wet weight shows a more definitive scale for the additional growth of the 400 ppm plants but the actual height difference could be seen easily. Clearly, the ultimate relationship between fertilizer rate and growth was not located by this study and should be investigated further. The plant has been easy to grow and has been vigorous and trouble free.

Figure 3. Influence of five N rates on growth of *Hibiscus dasycalyx* (wet weight) - May 24, 1995



To multiply our collection of *H. dasycalyx*, the plants produced in the fertilizer treatment were harvested and wet weight obtained. The shoots were cut into 4 inch cuttings, each treated with Hormodin 2 and potted into deep tubelings, May 25, 1995. These cuttings rooted 100%. In another effort, cuttings collected August 23 rooted at sixty-five percent. Cuttings made in late November 1994 (collected from Arboretum plants just before the first frost) failed to root. The optimum time for cuttings appears to be early in the summer. As long as the cuttings remain moist until potted they seem to root well. Bottom heat and intermittent mist is suggested. If plants are to be held or pushed in containers and growth is desired during the winter in a greenhouse, it is imperative to provide long day conditions. This can be done simply by hanging a string of 75 watt incandescent bulbs over the top of the crop at a spacing of about 12 feet. We have not had a problem with pests but have experienced a light infection of mildew which we controlled. Turned on for two hours per night in the middle of the night affects photoperiodism of many plants and allows continuous growth of species that would normally go "dormant."

Hibiscus dasycalyx can only be preserved if horticulturalists and botanists establish protected true-to-type colonies isolated from other Hibiscus species. Conservation easements and Arboretums are ideally suited to the task. Public awareness is one of the battles that must be

fought to save this or any endangered species and arboretums can have influence if they will continue to "work" with these species and the public in an educational manner.

As a part of a Reintroduction project, the Neches River Rose Mallow, *Hibiscus dasycalyx*, has now found a home at Mill Creek Gardens. A full-sun, wet site has been planted in an experimental plot design. Stacy Scott, graduate research assistant, has been responsible for this development and done a fine job. The specific site was chosen because of its easy access, full-sun, wet land character and the fact that it's isolated from other Hibiscus species. The goals of this planting are to achieve a successful reintroduction, one that is sustainable and receives little future inputs (other than an annual early winter fall mowing, burning, or weedeating depending on how circumstances arise). While the soil here is a bit tighter than at the three "globally known" sites, the essential ingredients are there (full sun and wet all year). The design of this experiment was created to test the value of mulch and no-mulch, and four rates of slow-release fertilizer (zero, low, medium, high). There are a total of 96 plants in the study, all developed from seed taken from wild plants . . . and then selected for true-to-types (phenotype). We have interspersed other "companion" species into and around the plots and will continue this effort to diversify the wetland. The first three chosen were *Liatris pycnostachya*, the gayfeather, *Physostegia virginiana*, the obedient plant, and *Lobelia cardinalis*, the cardinal flower.

As a direct result of our interest and progress, I am now serving on a new "*Hibiscus dasycalyx* Rescue" committee, a group called together by Kathy Nemec of the U.S. Fish and Wildlife Service. The committee, composed mainly of botanists and agency folks, will carve out a long-term strategy to prevent extinction of the species. The SFASU Arboretum and Mill Creek Gardens contribution can be significant in this arena and with other species if the resources are focused properly. The site is isolated from other *Hibiscus* species and the chance for interspecific hybridization is probably very low. The key question is how easy is it to grow the species with almost no care, culture and attention? How do we develop a "self-sustaining population," one that can make it on its own, reproduce, spread, compete, and become integrated into the ecosystem fabric? Stacy Scott's work should go a long way toward answering these and other interesting questions concerning the species.

Literature Cited

Blake, S.F. 1958. Two species of Hibiscus from Texas. Journal of the Washington Academy of Sciences, 48:277-278.

Blanchard, Orland Joseph. 1976. A revision of species segregated from *Hibiscus* sect. *Trionum* (Medicus) De Candolle *Sensu Lato* (Malvaceae). Doctoral thesis. Cornell University, Ithaca, New York.

McMahan, Linda R. 1988. Tale of Two Mallows. The Center for Plant Conservation. 3: 7.

NOTES FROM THE GARDEN

I have no idea why the "Friends of the SFASU Arboretum" newsletter never manages to emerge on time. It is not as if we don't try. We really do. I can only say that in the hustle and bustle of Arboretum Horticulture, it's been easy to procrastinate lately. I'm convinced that procrastination is some kind of strange defiance of authority.

Since the last "Friends of the SFASU Arboretum" Newsletter, the SFASU Arboretum has reached a new plateau. Developments include a brand new Board of Advisors, an Arboretum Volunteer Corps Organization (AVCO), a strategy for the future, and, most important, a boatload of new plants in the ground to talk about. We endured a March 1995 flood, this one doing little real damage, only making a mess of things for a while. The shade house is brimming over with young plant starts and the propagation beds in the glasshouse are poised for a great 1996. The bottom line is that we have planted more new plants than at any time in our past and this newsletter chronicles all that and more.

THE SFASU ARBORETUM BOARD OF ADVISORS IS FORMED

As a direct result of Arboretum growth, the health of the living plant collection, and increased visitation, the SFASU Arboretum Board of Advisors was formed on May 19, 1995. This group of 40 supporters represents the nursery and landscape industry in Texas, representatives from the Texas A & M University horticultural extension service, and local gardening enthusiasts. The Board's purpose is simple: promote the Arboretum's mission statement, provide technical help in research and program development, and solicit funds to ensure the Arboretum's viability and growth in the future.

The approved mission statement of the SFASU Arboretum is to

1. Promote the conservation, selection and use of the native plants of Texas.

2. Acquire, evaluate, and promote new and adapted landscape plant materials. Promote plant diversity in the landscape.

3. Serve as a living laboratory for SFASU students and faculty and as a horticultural resource for the nursery and landscape industry.

4. Provide an aesthetic, colorful and educational environment for students, visitors, and local citizens.

The Goals of the SFASU Arboretum:

1. Create a first-class Arboretum that is home to a wide diversity of plant materials mixed into a setting of colorful landscape displays.

Nemec, Kathy. 1994 *Hibiscus dasycalyx* (Neches River Rose Mallow). US Fish and Wildlife, Clear Lake Field Office. 1-2.

Royal Horticulture Society Dictionary of Gardening. 1992. The Stockton Press, New York. 564-567.

WORK WITH TEXAS TRAILING PHLOX - *Phlox nivalis* Lodd. ssp. *texensis*.

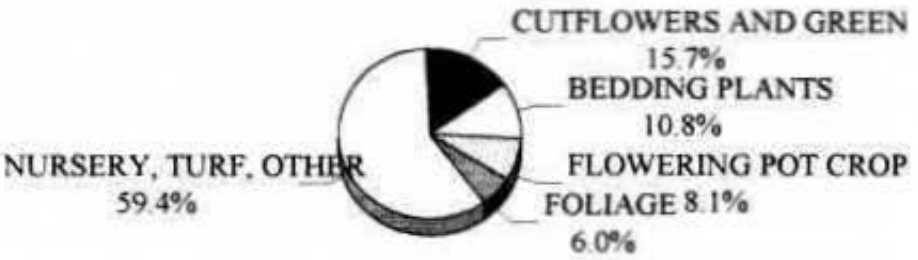
As a result of interest in working with endangered species, we have received 20 small plants of *Phlox nivalis* ssp. *texensis* from Greg Wieland of the Center for Plant Conservation (CPC). This is one of the rarest. We are now cooperators with this national organization. The plants represent an excellent germplasm base for the Arboretum to work with. Once occurring at 17 sites in Hardin, Polk, and Tyler counties, this species is now only found in the wild in Hardin County at two spots. The species is threatened because of habitat loss due to canopy closure, encroachment by woody vegetation, and soil and vegetation disturbance by man. The species is considered to be part of the open pine woodlands, a generally sandy soil, dry upland vegetational pattern. The plants are herbaceous or subshrubby. Stems tend to spread along the ground surface and form a carpet-like mat less than six inches high. Because the species is evergreen and reported to grow any time temperatures and moisture levels are right, we have placed the phlox in the glasshouse under long day conditions. At this writing, the plants are vigorous, seem healthy and are still very small. We are pushing the plants, hoping to achieve good size by late spring for cutting collection purposes. Our strategy is to get the collection backed up . . . and then move numbers up to a point that field reintroductory research work is possible (several hundred plants). The species is durable but prone to damping off. Many workers report that seed is a major headache (germination, damping off problems) and reports indicate varied cutting propagation success. In a telephone query to Bob McCartney at Woodlanders in Seneca, South Carolina, Bob noted that their general procedure with Phlox nivalis was a no-mist, deep sharply drained media, with two or three time per day waterins under partial shade (Personal Commuication, 1996).

As a horticulturist, and just looking at the plant and knowing its relatives, I suspect that the species can be rooted in high numbers. With proper preparation of conditions, seedling numbers can be built to ensure a heterozygous germplasm base. There's little academic doubt that there's danger in restricting the genes in this species via using a high percentage of cutting-grown Phlox in reintroduction work. It is the general consensus among botanists and horticulturists that reintroduction projects should prefer to work with seedlings whenever possible. This helps ensure the genetic diversity in the community.

GARDENING IS BIG BUSINESS

As is my nature, I never tire of touting the vigor and vitality of horticulture as an industry. The green trade is growing at a very fast rate and is the second-most important sector in U.S. Agriculture in terms of economic output. Grower cash receipts for greenhouse and nursery products rose 5-6% in 1994 to more than $10 billion. A 5% increase is predicted for 1995. 1994 retail expenditures for landscape plants and flowers totaled 31 billion dollars. Increased demand is directly linked to housing starts, business construction, and other economic factors (employment, interest rates, etc.). Predictions: more regulatory challenges, more focus on environmental protection, water quality, chemical use. International trade agreements: no major down side. Immigration law changes appear threatening. More figures to digest (Nursery Manager, December, 1995). 1994 U.S. retail sales = 44.6 billion dollars. Nursery crops, turfgrass and others= 59%. Cut flowers and greens = 15.6%. Bedding plants = 10.7%. Potted flowering plants = 8%. Foliage plants = 6.7%.

1994 GREEN INDUSTRY RETAIL SALES



GRANTS

One of the never-ending chores associated with the SFASU Arboretum is creatively managing finances. The SFA Arboretum has established a well-earned reputation of getting a lot done at low cost. Here are the successful grant attempts lately worth mentioning.

The SFASU Aboretum was awarded a 1995 Museum Assessment Program I (MAP I) grant by the Institute of Museum Services, Washington, D.C. - $1975. Simply put, this federal program involves an on-site consultant to evaluate and assist the SFASU Arboretum in setting in motion a strategic action plan.

Norcross Wildlife Foundation, New York, has awarded $4000 for the "creation of an endangered plants garden in the SFASU Arboretum."

We have one proposal pending with the U.S. Fish and Wildlife Service but have heard nothing in two months.

UPCOMING PROJECTS

The funding of the endangered plants garden by Norcross Wildlife Foundation is going to give us a real boost. We are designing a pergola and kiosk for the area just off the LaNana Creek Trail. One that will have to deal with the ravages of a flood. Dr. Bill Long, Agricultural Mechanics professor, is helping me with the design with an eye to the rising water problem.

We will be putting in a demonstration drip irrigation plot down the shrub border.

We are hoping to find a little more funding for a "butterfly garden" to be situated on the slope near the College Avenue sidewalk.

Here's one that's planned for Fall, 1996. We have received permission to spell out the words SFASU on the east-facing grassy slope of the electrical power station that faces the vegetable garden. There's enough space to do 60' letters that spell out SFASU. We are talking about a plant sign that can be seen and recognized by passing airplanes. Until we get to laying it out, I'm not exactly sure what the sign will look like from across the creek at the colliseum. I saw a living sign that spelled out DAWES at that arboretum; letters hundreds of feet long had become a visual reference point for high flying air carriers! Ours will be visible from the air but I'm not sure at just what altitude. My first thought for a species was *Juniperus virginiana* 'Grey Owl' - an outstanding variety of the eastern red cedar that gets only four feet tall, spreads to six feet or more, grows slowly, and sports blue-gray foliage. One other plus: this species is extremely durable if given just a little attention. Any other suggestions? Our plans are to go with five gallon plants on a five foot spacing, the letters defined by a copious, continuous layer of bark mulch. We need about 200 plants. If you hear of anyone with a surplus of five gallon 'Grey Owls,' let us know.

BOOK REVIEWS:

Allan Armitage. 1989. Herbaceous Perennial Plants - A Treatise on their Identification, Culture, and Garden Attributes. Varsity Press, Inc., Athens, Georgia. 646 pp. Allan Armitage's name is tacked alongside new plants, herbaceous perennials and plant evaluation. A professor in the Horticulture program, University of Georgia, Athens, Georgia, Allan has put together years of contribution to gardening diversity. Excellent reference manual for the dedicated perennials enthusiast.

Peter Valder. 1995. Wisterias. Timber Press, Portland, Oregon. 159 pp. Ok! Ok! Enough is enough! Someone has to put the brakes on Timber Press. I rarely pass their booth at a conference or convention without leaving laden down and less burdened with cash. Now that I am on their mailing list, they will always be in the black, I suppose. This is <u>the</u> book for the wisteriaphile among us. From the first chapter "Wisteria or Wistaria?" to the last, this book is thorough and enjoyable, quickly laying out reasons for some of the confusion between varieties.

Carole Ottesen. 1995. The Native Plant Primer. Timber Press, Portland, Oregon. 354pp. Thank you, Sister Sue, for another beautiful book. Another terrific book that features a boatload of wonderful pictures of native plants used properly in landscapes. Diversity with a touch of class.

Kim Tripp and J.C. Raulston. 1995. The Year in Trees . . . Superb Woody Plants for Four-Season Gardens. Timber Press, Portland, Oregon. 204pp. Special people writing about special plants. Connoisseur plants, photographs and plant profiles. A must-have book for the plant enthusiast.

Dorothy Callaway. 1994. The World of Magnolias. Timber Press, Portland, Oregon. 260 pp. Dorothy serves as the official registrar for magnolia cultivars and as a member of the Board of Trustees of the Magnolia Society, Inc. An excellent guide . . . color photos, pen and ink drawings and discriminating black and white photos.

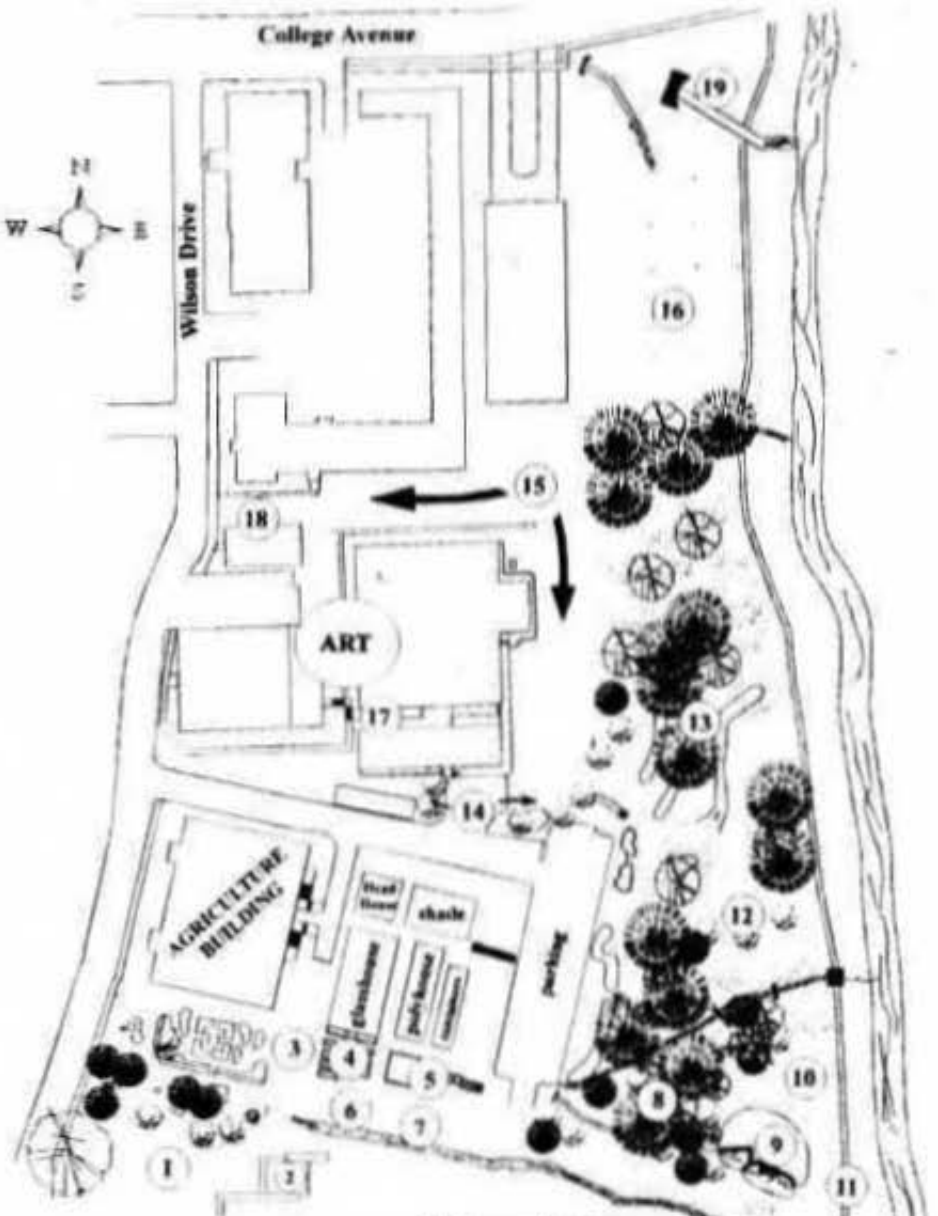
D.S. Correll and M.C. Johnston. 1979. Manual of the Vascular Plants of Texas. University of Texas at Dallas, Richardson, Texas. 1881 pp. I have been searching for this must have reference book forever. I finally found one for my library through a book hunter.

Sally Wasowski and Any Wasowski. 1994. Gardening with Native Plants of the South. Taylor Publishing Company, Dallas, Texas. 196 pp. Thank you, Sister Sue, for another great book for the library. Sally's easy gardening prose, coupled with Andy's talent behind the camera make this a great read, a coffee table item, and a reference for garden designs using the best native plants of the south.

William R. Fontenot. 1992. Native Gardening in the South . . . A Personal Guide for Understanding, Appreciating, and Using the Indigenous Plants of Dixie. Personally published by Prairie Basse, Rt. 2, Box 491 F, Carencro, LA 70520. 150pp. Bill Fontentot currently serves on the technical advisory boards of Louisiana Project Wildflower and the Louisiana ofice of the Nature Conservancy, and as vice-president of the Louisiana Native Plant Society. With his wife, Lydia, Bill owns and operates Prairie Basse, a native plant nursery, herb craft outlet, and habitat landscaping service. This is an another excellent reference manual for the native plants gardener.

J.C. Raulston. 1993. The Chronicles of the NCSU Arboretum. The NCSU Arboretum, Department of Horticultural Science, North Carolina State University, Box 7609, Raleigh, NC 27695-7609. 402 pp. Plants, plants plants from one of the great living plantmen of our time. Personally responsible for introducing American gardeners to many new and wonderful plants, J.C.'s collection of Arboretum newsletters is a must read.

The Stephen F. Austin State University Arboretum
Nacogdoches, Texas



1. Shrub and color garden
2. Intramural Field Restrooms
3. Texas Pioneer Garden
4. Daylily Garden
5. Herb Garden
6. Rock Garden
7. Iris Garden
8. Shade Garden
9. Bog Garden
10. Grasses for Texas
11. LaNana Creek Trail
12. Natives
13. Asian Valley
14. Dry Garden
15. Conifers and Hollies
16. Vegetable Garden; Lines of Vines
17. Art/Alley Garden
18. Vending Garden
19. Alternative Fruits Garden

THE SFASU ARBORETUM
WILSON DRIVE
PO BOX 13000
STEPHEN F. AUSTIN STATE UNIVERSITY
NACOGDOCHES, TX 75962

the by-laws of the SFASU Arboretum Board of Advisors and will have its own slate of officers. A volunteer handbook is complete and is provided to all AVCO members. For those of you who enjoy horticulture, making things grow, and learning new plants, the SFASU Arboretum offers plenty of opportunity to serve:

1. **Theme garden curator** - An opportunity to take on the stewardship of a major garden area. Chores include planting, weeding, pruning, mulching and labeling, depending on the interest and enthusiasm of the volunteer.

2. **Garden guide** - Garden guides serve as interpreters for outdoor plant exhibits and introduce the SFASU Arboretum to visiting groups (School-age and garden clubs, primarily). Each tour guide (docent) will be provided with a written script that leads the group through the various collections, a general orientation to the garden and special training to make the garden tour an enjoyable, educational experience for visitors.

3. **Greenhouse and shade house** - A chance to learn techniques of propagation, get involved with a wide range of plant materials, and understand the growing of plants in containers. Help us convert a compartment of the glasshouse into a conservatory. Chores include planting, weeding, fertilizing, and labeling.

4. **Arboretum Garden Gala Day** - The third Saturday in May is the Arboretum's main event of the year, an opportunity to present the gardens in their peak form. Opportunities include greeters, registration, handouts and serve as garden guides for groups of ten to twenty.

5. **Gala Day Plant Sale** - The sale is of a large collection of plants grown by the volunteers at the Arboretum, grown at the homes of the volunteers or secured via donations from specialty nurseries. Opportunities for service include publicity, setting up the event (tents, flags, parking), plant labeling and signage, checkers and cashiers.

6. **Label and sign-making** - If you would like to help, yet gardening doesn't appeal to you, there are other opportunities available. The Arboretum always needs label makers for plants in the Arboretum and in the nursery. In addition, the Gala Day Sale involves labels for all plant materials.

7. **Producing the annual "color" crop for the SFASU campus and the Arboretum** - The horticulture facility is responsible for producing a portion of the annual color that graces the university campus. Tens of thousands of bedding plants are planted each spring to supply the needs of color beds on the campus and in the arboretum. A roll-up-your-sleeves opportunity to learn the growing of annuals from seeds and plugs on a large scale (soil mixing, germinating techniques, proper watering and light requirements).

THE ARBORETUM'S "PLANT LOCATION" MAP BOOK IS READY!

Trying to figure out what plants are where in an Arboretum is always a major headache. We are proud to report that the "smarter, fatter, more-legible-than-ever "plant location" guide book' is ready - all 46 pages! After too many hours over the Christmas holidays staring at a computer screen, pondering old paper maps, squinting at little slips of paper with barely legible scribbles on them, and just trying to make sense of it all, we now have a credible map book to help locate plants. Problems in last year's book have been corrected. All text data and plant numbers on the maps are now legible (my least favorite comment about the '95 book: "Creech, no one can actually read a point 4 sized font!"). This year, more significant annotation on each map page gives the reader easier reference points; significant landmarks have been added to each map (benches, drains, bridges, garden bed shapes, directions to other theme gardens, telephone poles, building edges, etc.). In plain words: easier orientation. New plants have been placed into the maps as of a field survey taken in December, 1995. Most of the plants that have died have been removed from the maps. There is an order to this book. The Table of Contents can serve as a walking tour through the gardens and through the maps. Each theme garden may have as few as one page; others have up to seven. Of course, as to be expected, the project was coupled with a series of interesting computer glitches that always arise when deadlines approach (Murphy's Law).

Last year's map book, our first ever, did meet with an enthusiastic audience of students, nurserymen and plant enthusiasts: however, there were problems and complaints. There are still problems, most dealing with the myriad of herbaceous perennials that have a way of dying, spreading, moving to some other home, or just flat disappearing. Spelling problems here and there are aggravating. The azaleas in Asian Valley Rows 1-4 (1987 planting) are still not computer mapped (note: we do have good hand-drawn maps; plants are now almost all relabeled and a future computer map is planned). At any rate, this map book represents movement toward one of the Arboretum's major goals: creating annual, accurate, easy-to-follow "plant location" map books (something that is rare in the Arboretum world). Future goals: 1) Improved spelling and annotation, 2) Cover sheets between each theme garden section that explain the collection of maps that follow and gives a general orientation map for the area, and 3) Index of plants via scientific name (look up a plant or genus and go to that page). In spite of all we need to do to improve, this year's book is a step forward. Most important: I remain more convinced than ever that a career in computer mapping is not for me.

If you would like a copy, you can pick one up at the main office of the Agriculture building for $15 or write the Arboretum and we will mail you a copy for $20, to cover the cost of printing, binding, handling and shipping.

When the worries of the world become a burden, there is always the garden.

GARDEN GALA DAY, MAY 18, 1996

Be sure to mark down on your calendar May 18, 1996: the third Saturday in May. We are planning the biggest Gala ever. The key word here is planning. AVCO's volunteers will be taking on more and more . . . ok, . . maybe all of the details associated with the event. Most of you who have attended know that this is a fun-filled, plant-packed day that just seems to happen. The 1995 event was a good one (estimated 600+ total day attendance) but improvement opportunities are boundless. AVCO will make this event a big one in Nacogdoches.

MILL CREEK GARDENS

The most significant outreach resource of the SFASU Arboretum, Mill Creek Gardens, is now in place: an endowment for a 119-acre conservation easement agreement given as a gift from the late Mrs. Elisabeth Hayter Montgomery. The use of this fund and its handling is rather simple. The endowment will fund research and development activities on that property: projects that promote the conservation, selection and use of the native plants of Texas and the testing of new plant materials for Texas. This is a broad arena of horticulture and botany and the site is perfect. The 119-acre natural area is six miles west of the university, easy to access, and offers a unique mix of wetland, mesic mid-slopes and xeric uplands. These are very positive attributes if managed properly. The gift was featured in the **Sawdust**, April 1995 issue, p 14.

It is difficult to express in words just what this development means in terms of opportunity and potential. It is a significant gift, one that developed over a period of seven years. A native of Nacogdoches, Elisabeth Hayter Montgomery grew up romping in the forest shade of what is now the SFA campus. While she never lost her love for the forests of deep East Texas, she and her husband, Pete, settled in the Texas Hill Country. Over the years she remained in touch with her Nacogdoches friends and developed a close working relationship with SFA Horticulture. The Hayter family established a large blueberry field on family land and Elisabeth was responsible for creating a conservation strategy for the special plants, habitats, and ecosystems of that property. Prior to her death, Mrs. Montgomery established the Sam B. And Penelope Hayter Mill Creek Garden and Plant Sanctuary Endowment in memory of her parents.

EUGENIA STERNE PARK PLANTING

On December 14, 1995, the SFA Horticulture Club planted 20 ten-foot Sycamore trees at a spacing of ten feet apart along the front of this newest park along Main Street. The trees have been pollarded for two years at the SFA Horticulture facility and will be maintained at the park in this fashion for many years ahead. Pollarding is an old world practice that involves maintaining a straight trunk of eight to ten feet with three or four primary scaffolds arising from that point and maintaining them there indefinitely by cutting back all growth each year to the main branches. The practice was used in Europe as a source of kindling and firewood; the

scaffolds were set at a height that kept branches and foliage above the hungry mouths of livestock. The planting was featured in the Nacogdoches daily newspaper, The Daily Sentinel, on December 15, 1995 (Vol. 96, No. 159).

PLANTS! PLANTS! PLANTS!

Those of you who have been wading (muddling?) through this newsletter may have reached this point without noticing that hardly a word has been said about plants. While this is not the worst of cardinal sins, it's close. 1995 was not only a great "step forward year" for the Arboretum in terms of organization, programs and activities, it was the best year ever in terms of new plants acquired, plants developed in our facility and those given a new home in the gardens. The Arboretum has made a strong jump in size with several new "theme" gardens in place and two in the planning stages. Better yet, of the 500 woody and herbacous species new to the garden, many are really choice plants in terms of their rarity and quality. Here are a few of the changes:

1. The "**Great Shrub Border**" is a new planting set in the fall, 1995. The border displays promising landscape shrubs in a six-foot-apart, side-by-side comparison. The one hundred plants that make up the border are a mixed, somewhat odd collection of mostly evergreen shrubs that reach various sizes at maturity, from small(< 4') to mid-sized (4 - 10'). This new shrub collection has been planted in an unlikely location: an out-of-the-way strip of land that lies between the two Art buildings. There is "some" organization to the border. For instance, one interesting collection, about fifteen varieties of *Ilex crenata*, the Japanese Holly, lies next to the sidewalk that runs along the east face of the Art building to Wilson Drive. Varieties include 'Sky Pencil,' 'Golden Helleri,' 'Nakada,' 'Glass,' 'Sentinel,' 'Steed's Upright,' 'Beehive,' 'Cherokee,' 'variegata,' 'Glory,' 'Snowflake,' 'NCSU Bed 14,' 'Contorta,' 'Excelsa Schwoebel,' and 'Yellow-fruited'. Every fourth plant in this section of the shrub border is a seedling of *Euschapis japonica*, a rare small tree/shrub from Japan and China; these are seedlings from SFA Arboretum trees planted in 1989 in Asian valley (originals were grafted liners via NCSU). We have given away about 30 of our progeny and planted these five (the five, incidentally, that were largest in the can).

Further down the shrub border, the collection breaks into a barrage of varied shrubs. In one section, five varieties of *Osmanthus heterophyllus* are planted side by side: 'Gold Top,' 'Goshiki,' 'Kembu,' 'Fastigata,' and 'Osaba'. '*Goshiki*' is the most striking with a salt and pepper variegation and an eye-appealing growth habit. *Osmanthus heterophyllus* is known as false holly; this evergreen holly imitator comes in a variety of form, leaf shapes and variegation. Other interesting plants include: *Ilex vomitoria* 'Field's Select' (cutting grown from the Sandhills Community College, North Carolina), *Pittosporum tobira* 'Tall 'n Tough' (a hardy strain from the NCSU Arboretum), *Abelia* X *grandiflora* 'compacta,' 'John Creech' and 'Edward Goucher,' *Heptacodium miconiodes* (another species that we have managed to kill several times in the past), *Illicium henryi* (probably the best anise shrub for east Texas landscapes; we have an outstanding 8' specimen on the south side of the bog garden), *Orixa japonica*, *Ligustrum sinense* 'Wimbishi' (bizarre, dwarf, little-leafed, contorted privet - what has

the world come to!), *Viburnum setigerum*, *Ilex glabra* 'NCSU Bed E17' (another species that we are trying to put together in an extensive collection of varieties), *Neillia sinensis*, *Forsythia koreana*, *Viburnum obovatum*, *Forsythia* X 'Fiesta' (bright variegation), *Malphigia glabra* 'nana,' *Ilex opaca* 'William Hawkins' (tiny-leaved, dwarf American holly), *Xylosma congesta*, *Euonymus japonica* 'Bekko masaki,' *Sarcoca hookerana*, *Chionanthus zhetagensis*, and *Philadelphus* spp. HNT 73419 (Mexico).

2. The **"Vending Building Garden"** is a small but very important collection planted in the lane that lies between the Physical plant and the Vending building; both of these buildings front Wilson drive. Off the record, we are referring to this little garden area as the "James Harkness Smoking and Thinking Garden," simply because the spot serves as a meeting site for many of the workers in the Physical Plant building, including James and, of course, James is the Director. These are the folks, of course, that make SFA "run." From Grounds to Transportation to Utilities to making things happen, the Physical plant staff help make SFA the terrific place that it is. In my experience, SFA is unique among many peer institutions in that Horticulture and Grounds actually cooperate with each other and get along right smartly. This little garden received a first planting in the winter of 1994-95: a collection of rare *Camellia* varieties from Camellia Forest Nursery interplanted with 'Carror's Rose' azalea. A 6' *Styrax japonica* 'Pink Chimes' and a 7' *Acer palmatum* 'Sango kaku,' are two of small specimen trees doing well in the shade of a big loblolly pine. All survived the first year of establishment. 'Sango kaku' is an outstanding coral bark Japanese maple; with good growth and enough sun, small limbs and twigs take on a bright red bark color that provides garden interest during the winter. The tree is a special gift from TreeSearch Farms in Houston. We have chosen this spot to test a few Rhododendrons for heat tolerance; 'Trudy Webster,' Sunrise,' and 'President Roosevelt' plants set and mulched in.

A real boost to the garden came in November, 1995. We planted a special collection of Mahonias: one *Mahonia* 'Arthur Menzies' (a hybrid of *M. bealei* and *M. lomarifolia*), three cultivars of *Mahonia* X *media* (*M. japonica* X *M. lomarifolia*), 'Lionel Fortescue'. 'Underway,' and 'Winter Sun,' and plants of *M. bealei*, *M. fortunei*, and *M. gracilis*. We will be adding other Mahonia species and varieties to this small spot in the years ahead.

Just across the lane and lying on the north side of Vending is a side-by-side planting of *Loropetalum chinense*, the Chinese witchhazel. This is a hot "new" plant that has found great popularity on the east coast and is bound to make a big mark in Texas landscapes, particularly East Texas landscapes. Many big nurseries have taken to this species with a vigor; new named varieties seem to emerge almost monthly, mainly released because of flower or foliage color differences . . . or just the excitement of naming something. Excellent plant for part-shade and azalea-like planting conditions. Tendency to make a small tree or large shrub if left unpruned. Outstanding in bloom, cultivars of this species will inevitably make a big splash in East Texas in the next decade.

On the east side of the Vending building lies a collection of about twenty conifers and hollies. There are some very special plants in this small garden bed. Plants include *Abies firma*, *Torreya grandis*, *Foekinia hodginsii* (our first to thrive; previous plantings received too much sun and not enough water and we killed them) , *Ilex latifolia*, *Raphiolepis umbellata* 'Blueberry