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SFA Gardens Newsletter, Mar 1988

SFA Gardens, Stephen F. Austin State University

FRIENDS OF THE SFA ARBORETUM NEWSLETTER NO. 6,
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ARBORETUM HAPPENINGS

Welcome back to the Arboretum Newsletter. Our garden has grown and the Fall 1987 class was the first to tackle the LaNana Creek bottomland acreage as a part of our Arboretum expansion plan. Literally hundreds of different species were set into a meandering lane framework. These strolling lanes will lead visitors through several special sections. Several projects tackled are described as follows:

LaNana Creek Bank: The edge of LaNana Creek that borders the arboretum can be described as a wide, weedy ditch. Straightened several years ago to carry more run-off water, the bank has been erosive and unstable. Only a few willow and birch clumps have established a home along the seven hundred feet of creek that defines our eastern border. Our planting approach to secure the bank with trees and shrubs was to "overplant". Tupelos, Nyssa sylvatica, and Mayhaws, Crataegus opaca were used to establish a front-line defense. Hundreds of one gallon container specimens were set into shallow holes 4 to 5 feet away from the bank cliff, with plants only five feet apart. The entire area was then seeded to ryegrass (Thank you, Bob Rogers!) and fertilized lightly. Additional trees and shrubs were planted into this foundation "row". Cucumber magnolia, sweetbay magnolia, several Catalpa types, numerous willow species and varieties, several swamp chestnuts, and a few oaks were given a new home right on the bank of LaNana creek. The point of overplanting is, of course, anchorage. Any seedling has a difficult time facing a raging river of water during "floods". A recently planted container plant is so poorly anchored, so poorly tied to the ground by the root system, that it often washes away. Because LaNana creek leaves her banks every three or four years, this section of the Arboretum offers the greatest challenge in terms of establishment. In the Fall several heavy rainstorms forced

LaNana's raging current to within a few feet of our collection. Our program here is to maintain a cover in the row, mulch in the spring, prune low limbs early to reduce any limb/water friction hazard, and hope for the best. The tupelo is an excellent tree for the area. It is trouble-free, appreciates being near water, and provides excellent fall color. The mayhaw is a moisture-loving, stream-bank type that will provide our "understory" foundation along the creek, yielding flower, fruit and form benefits. Lynn Lowrey provided seed cans of vigorous seedlings of both species about a year ago. They were potted into one-gallon containers in February, 1987. Plants were set on the creek bank in October, 1987.

One-Acre Woodland: The thicket just to the East of the Agriculture/Art parking lot was cleaned up. This was a difficult philosophical and physical task for the students. What should be left and what should be taken out? Some students wanted to leave the woods almost untouched. Several students wanted to selectively thin out the smaller trees, the misformed, and the uncompetitive. One student even seemed to support a "clear-cutting" approach. How did we finally reach a solution? First, two of my Forestry students (Rick Rankin and Rebecca Rodriguez) flagged tree and shrub candidates that "had" to be saved. The diversity of native trees was encouraging. Excellent specimens of oak, pine, willow, river birch, hornbeam, black cherry, sweet gum, Florida maple, osage-orange, ash, sumac, and grape are scattered across this part of the Arboretum. The class then decided to take out every, (that's right), every Mimosa, Privet, Tallow, and Honeysuckle plant. It was amazing just how much biomass these four species (invasive exotics) had managed to accumulate as an understory in this "abandoned" section of University property. Some of our truck and trailer loads even helped fuel the homecoming bonfire. Smilax vines were cut back and grape vines were protected. In most areas, lower limbs of trees in our forest were trimmed to facilitate a woodland walk. One "island" bed was created in the shade of our woodland, framed by logs taken from trunks of trees felled earlier. It features colonies of Hosta, Pachysandra, Ajuga, Euonymus, and Hedera scattered here and there. The steep banks of the backfill that faces our woodland tributary have been set to an occasional Japanese maple, Vaccinium, fern, or Azalea specimen. The Fall, 1987 class of Karen Sanders, Wayne Marmon, Bill Lasker, Mark Bronstad, Rebecca Rodriguez, Jim West, Rick Rankin, and Cassie Stubbs will always remember the start of the LaNana creek bottomland of the SFA Arboretum. The Spring, 1988 class will continue our effort to transform this forgotten piece of land into a delightful woodland surprise.

Southern U.S.: The area just to the east of the Ag/Art parking lot and just to the north of the above "woodland acre" has been heavily planted to a wide range of woody native species. While most of the new plants in this section are native to East Texas, several cannot be found except in states to our East. The area includes specimens of Gordonia lasianthus, Cornus florida and drummondi, Magnolia pyramidata,

grandiflora, and macrophylla, Euonymus americanus, several Vaccinium species, Chionanthus virginicus, Illicium, two Hamamelis species and many, many more. The section will be receiving a health dose of herbaceous natives this Spring. Flats of Silene, Hibiscus, Kosteletzkya, Penstemon, Salvia, and others were started in the Fall by Mr. Peter Loos and will fill several open pockets in our lanes. In addition, Peter is establishing a small 20' x 30' wetland bog in a water-holding pocket of the arboretum. Peter contributes to the Arboretum in many ways. He draws on nursery and landscape experience gained under Lynn Lowrey, Katie of Lynn Lowrey's Nursery in Conroe, and Will Fleming of Tomball. He contributes landscaping ideas involving natives, herbaceous perennials, and interesting exotics that will add to the flavor of our effort. Peter's main talent lies in his eagerness to defend strong opinions about landscaping thoughts and approaches.

Asian Section: Our "Asian Valley" is located due east of the Art Building. Except for the dozen or so towering pine and oak trees already on the site, all of the trees and shrubs set in this vista are native to China, Japan, and Korea. Hundreds of trees and shrubs, one to five feet tall, were planted into four curved lanes. Trees were spaced ten to twenty feet apart and the area between trees was heavily planted to our collection of "azaleas". Besides Southern Indicas and Kurume Azaleas, we planted representatives of Glenn Dale, Gable, Vuyk, Kehr, Girard, Satsuki, North Carolina/LSU, and others. The National Arboretum Kurume releases of 1985 was a gift from John Rochester, Franklinton, Louisiana. The lanes were prepared somewhat differently in this area than in others. A light application of sulfur (one lb. per 100 square feet) was uniformly applied to the area because soil pH values were just a little high (5.8 to 6.5). A tractor and rototiller stirred a thin layer of peat moss into a wide band. Prior to planting, the container-grown root systems were shook free of media. The root system was spread and a gentle mound was created by pulling a thin layer of soil over the roots. A two-inch layer of well-decomposed pine bark mulch finished the "crown". The plants will be fertilized with cottonseed meal in February. Trees were planted in much the same way except a "weed barrier" square, three feet by three feet, was laid around the plant before bark mulching to two inches deep.

Mexico and West Texas Section: Plants of Mexico and West Texas have been planted on the slope next to the Art Building. Plants for this area were acquired via several generous Lone Star Nursery donations (Thank you, Shannon Smith!) and the gifts of numerous plant lovers. Thanks go out to Herbert Durand and Katie of Lynn Lowrey Nursery, Conroe, Texas; to Lynn Lowrey of Kirbyville; to Bennie Simpson of TAMU, Dallas, and to Will Fleming of Houston. All have played a part in this unique collection. Several of the more interesting plants include another Myrospermum sousanum tree. This is the species discovered by Lynn Lowrey and Emmet Dodd on a side trail near Bustamente, Mexico in April, 1982. Lone Star provided us with two nice specimen Redbuds, Cercis mexicana. One was

distinctively different than what I consider to be Mexican pedbud form. That is, the leaves were only 1 to 1.25 inches wide with the same wavey-leaf margin. The side branches of this 5 foot specimen were distinctively "contorted"; rather than the straight, "leggy" branches of the species type. This small tree provoked praise from several students and I'm looking forward to its performance in the coming year. Several desert willow clones, three dwarf oaks, three Mexican dogwoods, several Yucca species, a Coursetia tree, a Mexican sycamore and others were set into this well-drained slope. In the greenhouse, we have flats of Penstemon and Salvia species that will soon find their home among their Western neighbors.

Labels and mapping: Those of you that have walked through the Arboretum recently know that we have made some small effort in getting our collection labelled. Many of the tree and shrub representatives at the front of the Phase 1 and 2 area are now graced by a very professional label. A gift of Mr. Lee Alexander, the labels are large enough to be seen without having to bend over and should last a lifetime. I chose to have a good number of our collection next to the Wilson Drive sidewalk labelled; a small way of stimulating interest in students on their way to the Intramural fields. A Kiosk has been set in the Phase 1 garden area at the entrance bed and contains a supply of Arboretum brochures - as well as a few Arboretum maps - which should be returned after each use. I will try to keep the map current. Monte Bales, a graduate student, and I are currently putting the bottomland collection into maps and I should have that addition to the kiosk soon.

Vandalism: There was one Arboretum "happening" that was not pleasant. We did have to endure a brief period of vandalism. On a series of nights this past fall, trees were uprooted and tossed about and our vegetable garden full of broccoli and cauliflower was ransacked. Several holes were burned in the shade house fabric and a few other tricks delivered. I had never even thought one time that plant vandals might be an obstacle to Arboretum development. Conversations with my friends at several Arboretums indicate that vandalism is way too common. Ms. Sandi Elsik, Arnold Arboretum, Harvard, described how stolen cars have been driven to the top of one particular hill, set on fire, and pushed so they careen down the slope into a precious crab apple collection. Tree damage has been heart-breaking.

Cabbage and Kale: The fall and winter cabbage and kale display at SFA was a success. Numerous inquiries were directed my way about this bedding plant project. While certainly an accent piece, I haven't decided if I really like the effect. Introduced from the west coast to Texas, the crop is growing in use and popularity. I ran across an interesting description by the famous English plantsman, Christopher Lloyd.

> "The ornamental cabbages . . . made me laugh; there was one with finely dissected leaves that looked just like our cabbage patches do after they have been decimated by cabbage white caterpillars. It wouldn't sell in England."

Bob Rogers, Grounds, however, was very pleased with the overall effect and is looking forward to trying it this coming fall. Maybe the plant just takes some getting used to!

Arboretum Promotion: One gruesome detail involving arboretum expansion is funding. I find it to be no fun at all. We are fortunate that the Office of University Advancement at Stephen F. Austin State University has recognized our potential. The new brochure is certainly a better vehicle for attracting supporters than the mimeograph sheets we have been passing out after civic group programs and arboretum tours! Dr. Speck's office has embarked on an aggressive extramural funding program for the entire university. John Anderson has taken a special interest in our young project. He more than recognizes the excitement that might be here in less than five years. As I have always maintained, time is a wonderful friend to a new Arboretum. Most encouraging is administrative support of our long range goals. Bill Gibson, Biology Department and Friend of the Arboretum, sent me a copy of an article titled, "Feud Among the Flowers" by Glenna Whitley that appeared in the January 31, 1988, issue of Dallas Life Magazine. After reading through a detailed history of current Dallas Arboretum woes, a recounting that included political battles, disgruntled board members, irate local citizenry, unfriendly neighbors, money-wasting, and questionable budget priorities, I couldn't help but feel good about the size of our current Arboretum Board of Directors.

The Daily Sentinel and the Pine Log continue to educate the community that we are making some real progress with a small budget. An article during our fall planting effort brought new interest to the project. Student enthusiasm has a tendency to wax and wane depending on the nature of the chores involved but our student body is slowly catching on to the value of our unique plant collection. It may take a few years but we will one day justify a place in the Nacogdoches Sampler, in Chamber of Commerce brochures, and in university tour groups. Time is a wonderful friend to an arboretum. Of course, community awareness is essential to moving our arboretum effort ahead. As I look out over the thousands of small trees and shrubs I can't help but see the mountain of pine bark that has to be moved, the mapping that's needed, the irrigation project ahead, and numerous other tasks that face us. Every visitor to the arboretum is a potential booster and I still have a goal of 200+ members (last mail-out was over 100 newsletters). Give a friend one of our attached brochures and encourage him or her to join!

Students study plants in unique setting

The Stephen F. Austin State University arboretum is the envy of the collegiate community across the state — and rightfully so.

It is the only university arboretum in Texas, and gives SFA agriculture and horticulture students the opportunity to study a diversity of exotic trees and shrubs within walking distance of their classrooms.

Many Nacogdoches area residents also enjoy the arboretum and nearby horticulture gardens for their beauty and for informative tours, because the facility educates the public as well as university students.

Although currently dotted with small trees and shrubs, within five years the arboretum will be a magnificent showplace, according its creator Dr. David Creech, associate professor of agriculture. Landscaping and planting of the horticulture gardens on the south side of the ag building began two years ago and is fairly established. Dr. Creech is turning over its management to department collegue Dr. T.A. Alhashimi.

Students continue to plant dozens of exotic trees and shrubs in the arboretum, which is located on the banks of LaNana Creek behind the ag building on seven acres of "the best soil on this campus," Dr. Creech said. Plants are set out, according to the professor's instructions, in regions on the land obtained last fall.

A northeastern slope has been set aside for plants from Mexico. Another section of the arboretum is home to plants native to China, Japan and Korea. In all, some 2,000 varieties of plants can be found in the diverse collection.

Dr. Creech is particularly fond of the trees and shrubs from Mexico, and has made trips to the country for specimens to bring to Nacogdoches. Other plants are obtained through a co-op program with arboreta at Harvard University, North Carolina and San Francisco.

"The inventory has grown more than just getting the plants," the professor said. Funding is provided through the Friends of the SFA Arboretum organization, whose members get a newsletter and the plants not used in the arboretum.

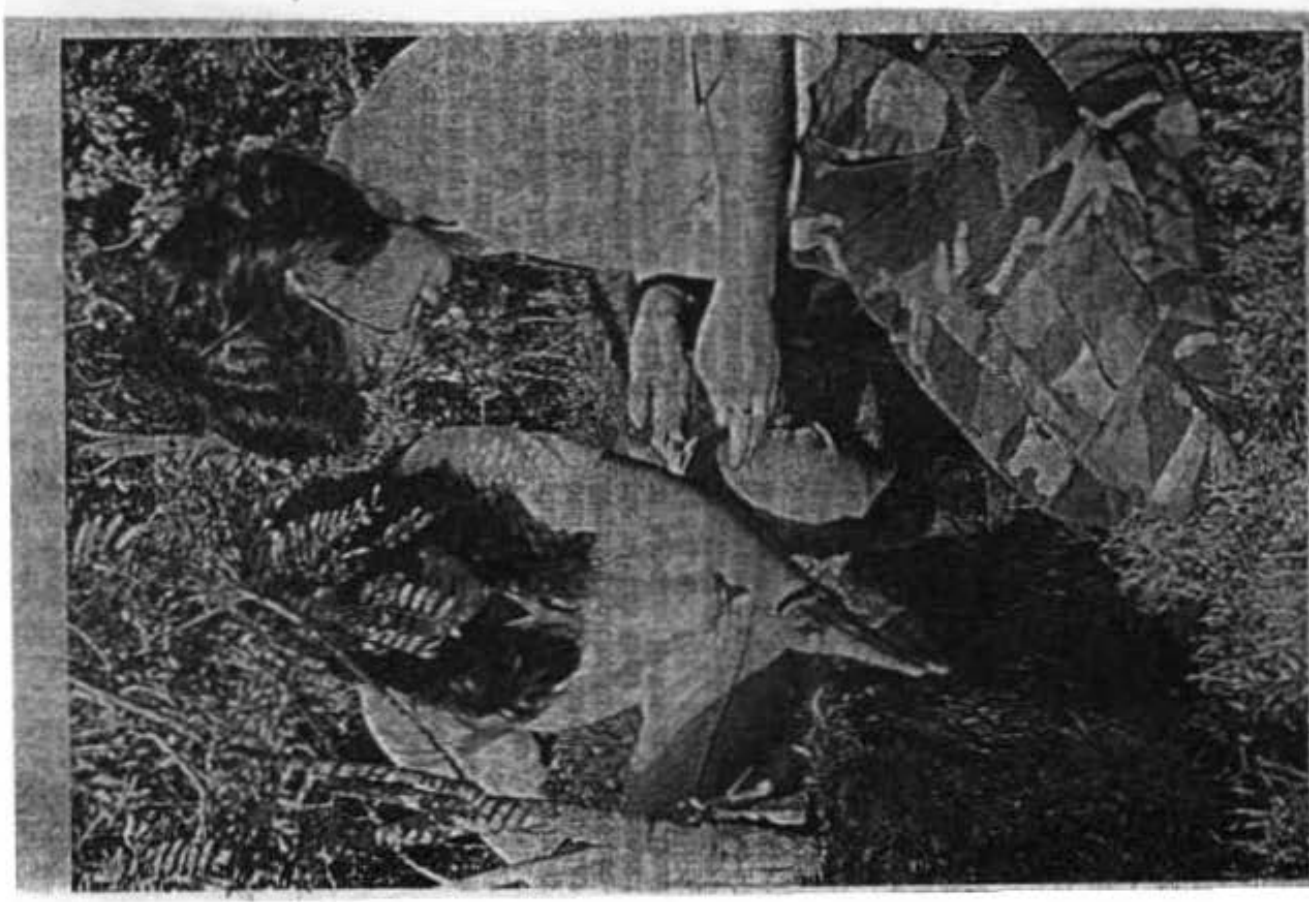
The arboretum also functions as a testing facility for new products. "One of the functions of an arboretum is to be able to test new materials and see if they're adapted," Dr. Creech said, demonstrating use of material used to prevent weed growth.

Exotic plants seem to have no trouble adapting to the East Texas soil or climate, although the professor says the region is "uncultured horticulturally."

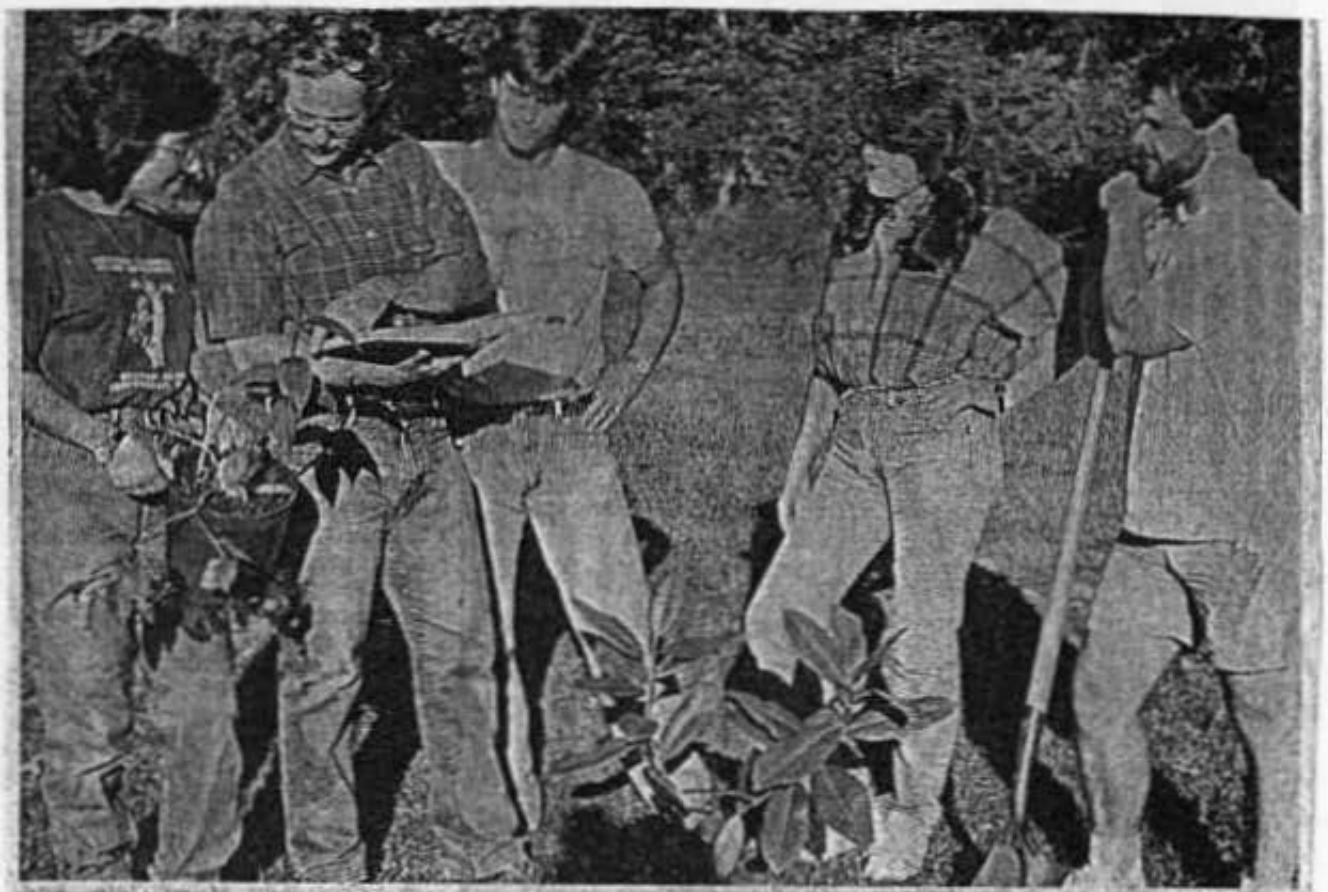
That is beginning to change as the arboretum continues to grow. There are plans to install three strolling lanes for visitors to wander along and enjoy the cornucopia of woody and herbaceous plant life.

ORNAMENTAL as well as edible is how Dr. David Creech describes his carefully-tended broccoli crop, which is located among the abundance of plantlife in the SFA Horticulture Gardens. The gardens and SFA Arboretum are yet another source of beauty for visitors and students on campus.

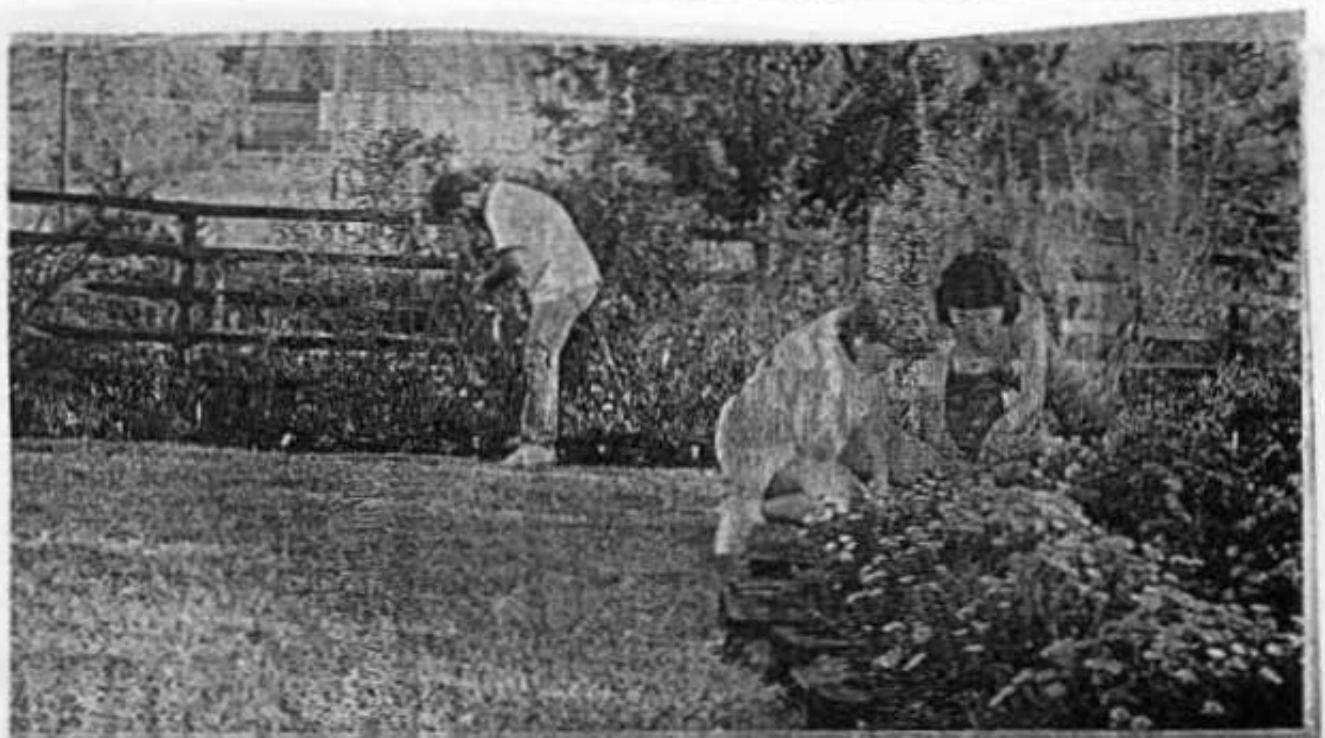
BACK UP PLANTS — Mark Bronstad (left) and Frank Burk look over two specimens of the hundreds of arboretum "back up" plants which are kept in one of three greenhouses. The back ups are cultivated in case something (such as a flood) destroys the present arboretum plants. The arboretum presently includes 250 varities of azaleas and shrubs and trees native to the China, Korea and Mexico.



NEW FIND — Students Kassie Stubbs (left) and Rebeca Rodriguez look over a *myrospermum sousanum*, a tree discovered in 1981 near Bustamente, Mexico. The tree is being tested for adaptation in East Texas at the SFA arboretum. It was propogated by the Lone Star Nursery research department.



PLANTING DAY — Dr. David Creech, (second from left) associate professor of agriculture, consults a textbook before directing his students to plant trees and shrubs at the SFA arboretum — the only university arboretum in the state. Agriculture and horticulture students benefit from having many varieties of plant life to study within walking distance of their classrooms. With Dr. Creech are (from left) Rebecca Rodriguez, Monte Bales, Kassie Stubbs, and Mark Bronstad.



HORTICULTURE GARDENS — Located beside the SFA agriculture building, the horticulture gardens are fairly more five years, the arboretum will feature more fully matured, exotic plant life, strolling lanes and sculptures from SFA

Kurt Whiting, a local herbalist, has been a fountain of herb information for our program. He presents an excellent program and would make a fine speaker at any garden club meeting. While the SFA Arboretum hasn't moved fast enough to developing a special herb garden display area, we are planning one in the future. I have been studying various design approaches and am amazed at how many herbs can find a happy home in Nacogdoches. Besides providing culinary and medicinal benefits, the herb garden entertains via plant form, fragrance, and ease of maintenance once established. Set aside a pocket or two in your garden and try a plant or two this spring.

Growing herbs full-time job for herbalist, plant farmer

By TERRY DRISKELL
Sentinel Staff

Herbs have been grown and used for a variety of purposes since the beginning of time, but there is currently "renewed interest" in cultivating the plants, according to herbalist and Texas native plant farmer Kurt 'Gardener' Whiting.

Growing herbs seems to be more popular with urban area residents, but there are approximately a dozen herb farmers in East Texas, Kurt said, predicting herb farms are likely to become a big addition to the agriculture industry.

Herbs have a variety of uses in addition to their cooking use, the most common. "Sometimes people want to use them for aesthetic reasons. Some are used for insect deterrents; some have specific uses," the herbalist explained.

Herbs can be cultivated as companion plants to other garden plants. Basil grown beside a tomato plant, for example, enhances the flavor of the fruit. Herbs also have medicinal purposes and can be used for teas, dyes, and arts and crafts.

Perennial herbs that grow well in the Nacogdoches area and are easy to grow include chives, comfrey, garlic, horseradish, lemon balm, Mexican mint marigold (also referred to as winter tarragon), mints, oregano, rosemary, which is "quite hardy," sage, shallots, thyme, and lavender, which is "not easy to grow, but everyone likes it," according to Kurt.

He offers eight easy steps to growing herbs in containers.

•Choose a container — wood, plastic, terra cotta, etc. The size should be proportionate to the plant.

•Be sure the container has good drainage. There should be holes in the base.

•Fill 1/5 full with coarse draining material, either rocks, wood chips, bark, etc.

•Fill container with a soil mix consisting of two parts wet peat moss, one part coarse vermiculite and one part perlite. Commercial plant soil is also acceptable, if you've had good luck with it in the past, Kurt said. Fertilize as needed, and use lime as needed to adjust pH, "or create and use your own tried and tested mix."

•Plant herb seedlings at original soil line.

•Water herb plants well to ensure good root-soil contact.

•Move containerized plant as needed for sun, warmth, aesthetics, etc.

•Repot plant as needed.

Herbs grow the best in containers and raised beds. Root growth and stem and leaf production would be limited if grown in window boxes. "Ninety percent would prefer full sun," Kurt said. "A sunny location and sandy loam with plenty of added organic matter" is preferable, but the key to success in growing herbs, or any plant, "is to have a desire to grow plants."

"Herbs produce more oils when grown under limited stress," he continued. "Underwatering is preferred...root rot occurs with overwatering."

Allow the soil to drain well between waterings, then water thoroughly.

Kurt keeps detailed instructions for growing plants, including recommendations for fertilizing, pesticide and composte use, mulching and pruning. He points out there are several books on growing herbs, and also uses information from county extension offices.

The herbalist is in great demand as speaker to many area garden clubs, when he is not working full time, attending Stephen F. Austin State University, working on his commercial herb and plant farm in Pollok, or planning herb gardens for others.

He has designed theme gardens, including "Biblical gardens" which consist of herb plants mentioned in the Bible, a culinary herb garden for a local country club chef, and is planning a garden for the SFA Arboretum.

Kurt is also a member of the Nacogdoches Mens' Garden Club, a member of the board of directors for the Ark-La-Tex Herb Society and serves on the steering committee for the Herb Growers Conference.

HERB GARDENER — Kurt 'Gardener' Whiting, herb and native plant farmer, shows some varieties of herbs his farm donated for use in the Horticulture Gardens at Stephen F. Austin State University. Herbs planted in the gardens include rosemary, yarrow, and oregano among others. Herbs are becoming more popular for aesthetic and insect deterrent purposes in gardens as well as for their most popular use in cooking. The plants can also be used in teas, dyes, potpourri and for medicinal purposes, Kurt says. (Staff photo by Terry Driskell)

Steve and Cathy DaSilva own an interesting nursery east of town. This young couple have thousands of container plants ready for sale and many are quiet unusual. While they have an unabided passion for native species, they also carry azaleas and other more common stock. In March, Steve presented the arboetum with a very unusual tree, Araucaria araucana 'Angustifolia', a Monkey Puzzle tree. We quickly placed the tree in a prominent place in the Phase I garden. While

somewhat marginal for our area, the tree is listed by Krussman as a Zone 8 species. Placed on the south side of the Agricultural building, the specimen should find a happy home in the well drained soils of a raised bed. We'll keep our fingers crossed! Thanks, Steve and Cathy. Visit their nursery this spring (569-1657).

NEW ADDITION — A Parana' pine, a rare form of a monkey puzzle tree native to Brazil, was recently donated to the Arboretum at Stephen F. Austin State University. Horticulture students, including (front, from left) Dwayne Johnson, Barry Abatie, Margaret Taylor, Jeff Anderson, and Tom Slack planted the tree near the Agriculture Building on campus in the Horticulture Gardens. Also pictured is Dr. David Creech, (back left) associate professor of agriculture, and Steve Da Silva of Salamander Creek Farms, donators of the rare tree. (Staff photo by Shirley Luna)

March 13, 1988 Daily Sentinel

The spring, 1988 class is busy getting ready for the spring rush of garden chores. The Phase 1 and 2 areas are being spruced up and will soon be home to over five thousand bedding plants. We are going for another Ageratum A to Zinnia Z display on the hillside facing the Intramural field. Stop by and enjoy our progress!

Plants: Lone Star Nursery, San Antonio, Texas provided us with another round of container plants for our "western" area. Thank you, Shannon Smith.

We received boxwoods from Mr. Albert Hitchcock, a new and generous friend of the Arboretum. Besides giving us his Horticulture magazines (published monthly by Horticultural Partners, 755 Boylston ST., Boston, Massachusetts 02116 at $18.00 per year), HortScience, and other periodicals, Mr. Hitchcock arranged for a very special plant gift. We received a small carton of boxwood plants from Mount Vernon, Virginia. An attached note from the Mount Vernon Ladies Association of the Union read, "The cuttings that make this English Boxwood plant were taken from hedges planted during George Washington's time, November, 1798. Boxwood was a very popular plant during colonial times and is becoming more and more popular today. They require little care and their pests are easily controlled". Thank you, Albert Hitchcock. We have potted the plants into one-gallon containers and look forward to giving them a special place in the garden in one year.

J.C. Raulston, North Carolina State University Arboretum, Raleigh, North Carolina continues to amaze me. Two gifts made our plant inventory grow another 150 plants, diverse ones at that. The first collection included many uncommon plants propagated for testing at distant locations. Some of the landscape plants are recent introductions from a 1985 Korean plant hunting expedition. The other box arrived in February and was comprised of a collection of Juniperus horizontalis cultivars, fifty-two in all. Monte Bales, a graduate student, and I enjoyed potting these into one-gallons and kicked around ideas on just where such a complete collection of creeping junipers might best be displayed. Thank you, J.C. Incidentally, for one of the best Arboretum Newsletters around (other than our very own) you might want to try Dr. Raulston's (Friends of the NCSU Arboretum Newsletter, Dept. of Horticultural Science, NCSU, Box 7609, Raleigh, North Carolina 27695-7609 at $20 per year). Watching J.C.'s newsletter evolve into the slick, fact-crammed, graphic, computer-generated document he mails out today is inspiration to improve our own. It is a wealth of plant information for the dollar.

BOOK REVIEWS

Odenwald, Neil and J. Turner. 1987. Identification, Selection, and Use of Southern Plants for Landscape Design. Claitor's Publishing Division, Baton Rouge, Louisiana. 660 pp. This reference book is authored by the Director of the School of Landscape Architecture at LSU and by a practicing landscape architect, artist, and teacher at Austin, Texas. It very thoroughly covers hundreds of common and not-so-common plants. In a one-page format, the species and related species are described, illustrated by a line-drawing, and detailed in a remarks section. I have no doubt that this is going to be one of my most useful references.

Hightshoe, G.L. 1988. Native Trees, Shrubs, and Vines for Urban and Rural America - A Planting Design for Environmental Engineers. Van Nostrand Reinhold Company, New York. 819 pp. For some reason, I have not warmed to this book. It is very detailed and is authored by a Professor of Landscape Architecture at Iowa State University. He is a strong advocate of the "accelerated inventory" and preservation of rare and threatened ecosystems. A good text if one wants to find a list of, say, vines adapted to a moist habitat or if one wants to get information on susceptibility of a species to various environmental stresses, urban tolerance, hardiness, native habitats, etc. It fails to list available cultivars on some species. For instance, the river birch, Betula nigra "Heritage", is an excellent, heavy bark exfoliating variety now available in the trade. To suggest that there are no commercial varieties available of the witch hazel, Hamamelis virginiana, is to suggest that the author is not keeping up with his friends in horticulture and has missed out on the delight of "Arnold's Promise" in full bloom. All in all, though, a very heavy, detailed text.

Steitz, Q. 1987. Grasses, Pods, Vines, and Weeds. University of Texas Press, Austin, Texas. 122pp. A picture guide to decorating with Texas Naturals. For those of you with a preconceived notion on just how floral designs should look, this book is a must for shattering illusions. Each species is described, beautifully pictured in the wild, and then given a full-page color treatment as the central ingredient in a floral design piece. The book will give amateur floral designers plenty of new ideas.

Galle, Fred C. 1987. Azaleas. Timber Press, 9999 SW Wilshire, Portland, Oregon 97225. 519 pp. This is the definitive azalea book and is intended for the serious student of this complicated genus. There are over 800 Rhododendron species and breeders have managed to interspecifically hybridize most of these which adds to the confusion. Galle provides an excellent description of the numerous groups available in the trade today. Southern Indicas and Kurumes dominate our east Texas landscapes but many other types are available. Come by and follow our LaNana azalea display this year. Galle's book is no field manual but it will be invaluable to us as we increase our already impressive collection.

PERENNIALS FOR EAST TEXAS LANDSCAPES

It's no secret that herbaceous perennials are making a strong impact on current landscaping thought. Simply, perennials survive year to year from the same root. Many are frozen back to the ground or near the ground and should be pruned after the first heavy frosts in the fall. Many woody plants that make large bushes when grown further south can be included in this group when we grow them in our gardens in Nacogdoches (i.e., Salvia and Anisacanthus). While not exactly "herbaceous" (lacking woody tissue), they are utilized functionally in the landscape as perennials and return from the same root or crown year after year. I have also included in our discussion many perennials that do not return from a clump or root but are, instead, generally perpetuated by the heavy self-sowing nature of the species (i.e., bluebonnet).

Pure perennial borders in the English fashion provide season-long waves of color, texture, and form. They are constantly changing. To manage a perennial border one must learn to recognize what is what. Species that want to "take over" must be prevented from encroaching on areas occupied by the less competitive but equally valuable types. Perennial borders require an understanding of plant performance under local conditions. Many "perennials" sold in the nursery trade are not likely to return year after year. The species described are likely candidates for a perpetual border in this section of East Texas.

While southern gardening used to include numerous perennials tucked in pockets around foundations or out in the yard, they have fallen out of favor with our "round, green blob" theory of landscaping. Perennials do take a little care but, once established, they are generally much less work than annual beds. If a long perennial border seems like just too much work, try parking a few here and there in your landscape. Generally, a clump of three or five is needed to give the desired effect. The following list is based on my own observations and recommendations by Mr. Bill Welch, Extension Landscape Horticulturist, College Station, Texas.

Achillea millefolium, Yarrow, is well adapted to a sun or part-shade garden spot. It reaches one to two feet in height and makes a year-round fern-like ground cover. In bloom, the three-inch white inflorescences are made up of thousands of tiny flowers. Achillea spreads rapidly but is easily controlled because of its very shallow root system. A. filipendulina, a yellow variety, is less adapted to our garden. White, rose, and yellow flowering types are available and if watered occassionaly the plant will bloom all summer. Our first colony in Bed B was lost to wet feet but a colony in Bed C of the Phase 1 area looks well-established. The flower makes an interesting, long-lasting cutflower or dried for winter bouquets. The flower lasts much longer in the vase if the lower leaves are stripped away. A well-drained soil is essential. Clumps need to be divided and reset every three to four years or bare spots will develop. The plant, native to

dry soils in Europe and western Asia, has naturalized in North America.

Ajuga reptans, Carpet Bugle, is a fast-spreading perennial but might find our area just a bit too hot. Place in a deep shade, moist habitat and mulch heavily. The plants spread by stolons that love to creep under a thick layer of bark or pine straw mulch. They only reach four to five inches tall and are not competitive. Because the root system is so shallow, the plant needs summer waterings.

Alcea rosea, Hollyhock, will grow here but is most at home a little to the north of us. Give the plant a morning sun exposure, a well-drained soil, and a heavy mulch. The variety, "Powder Puffs," reached six feet at the corner of the Head house this past summer and the flower spike was cloaked with pink, camellia-like blooms. It will probably persist for two to three years before dying. The plant is easily propagated from seed. A definite showpiece plant for the back of any border. Shorter statured varieties are available.

Allium spp., includes onions, leeks, shallots, chives, and garlic, and many ornamental plants. Allium christophii will survive well in Nacogdoches and is one of the largest-flowering species in the genus. The bulbs should be planted in the spring, six inches deep and eight inches between plants. The plant needs a well-drained soil and mulch in our area. I have seen some specimens of A. giganteum, the Giant Onion, in our area and wonder why it isn't tried more often. The strongly-scented plant grows three or four feet high and the small bright lilac flowers are densely borne, in many-flowered globose umbels about five inches across. A striking cut flower, fresh or dried. The scape supporting the inflorescence may be five feet tall. A striking plant in any perennial border. A. karataviense, moly, and schoenoprasum are worthy of trial.

Anisacanthus wrightii and insignis, Flame Acanthus or Texas Firecracker Plant, is native to Mexico and West Texas. This woody plant reaches three feet and is hardy in Nacogdoches through most winters. The plant flowers on new growth and a vigorous specimen is very showy. It will consistently return from the roots and should probably be pruned close to the ground after the first heavy fall frosts. The plant blooms from June to frost. Hummingbirds and butterflies are attracted to the orange-red blooms. I have heard this plant referred to as "desert honeysuckle". The plant is very drought tolerant with no apparent disease or insect problems. Propagate by seed, softwood or hardwood cuttings.

Aquilegia canadensis, Red Columbine, is a plant meant for the fern garden. It needs shade and moisture. I have been surprised that ours is still with us in its Bed B home, in spite of the fact that the site is quite sunny and dry. While it only reaches one foot high, the blooms are very delicate and are held above the foliage. Propagates by seed or division of clumps. A. hinckleyi or longissima is native furthersto the west, has a pale-yellow, showier bloom but is sensitive to

hard freezes. These two species are quite different from the hybrid columbines which behave best only as cool-season annusls.

Asclepias tuberosa, Butterfly weed, is a native that's worth cultivating more. Yellow-orange flowers are heavy from summer on. While easily established in a sunny, well-drained soil, the root system should never be disturbed. The plant reaches two feet tall and is a food source for numerous butterflies. Yellow, red, or orange cultivars are available. The plant never needs staking and gets showier year after year. The plant emerges late from the ground so don't weed it out. It is easily propagated from seed.

Aster X frakartii, Frakartii Aster, is from the Meditsrranean region and is being promoted by several as a good fall-blooming candidate for our area. I have never seen it in bloom. Welch reports that it is a very drought resistant plant that makes a three-foot mound. The lavender-flowered hybrid prefers a sun to part-shade home.

Beloperone guttata, Shrimp plant, comes in numerous gold and red-brown flowering selections. Easily propagated by divisions or cuttings, the plant provides a long bloom season in the summer and fall. The shrimp plant reaches three feet and needs a sun to part-shade exposure.

Callirhoe involucrata, Winecup, ranges from Texas north into Canada. The common plant prefers full sun and a well-drained bed. Winecups tend to disappear in the summer, then emerge in the fall for a second display. It is propagated by seed or tuber. The plants are invasive in fertile, well-drained landscapes.

Camassia scilloides, Wild Hyacinth, reaches two feet and sports an attractive blue flower spike in April and May. Use them as you would daffodils and try not to disturb them once they find a home in which they prosper. They tolerate full sun but appreciate some protection from mid-day and afternoon exposure. Plant the bulbs four inches deep in late November. You might want to try combining Lantana, daffodils, and Camassia for season-long color.

Canna X generalis, Garden Canna, needs no description to most southerners. Often overplanted, the plant can remain coarse if not tended properly. Flower spikes, while showy, are quite ugly after bloom and must be pruned away to encourage another show. Dwarf cultivars that reach only two to four feet tall are growing in popularity. While they are drought resistant, they make excellent massing candidates along a ditch or wet area. Try the Pfitzer dwarfs. We have uprooted the entire Canna collection that was planted along the Phase 1 fence and have planted them by the Intramural field ditch. They look better from a distance than up close.

Chrysanthemum leucathemum, Ox-eye Daisy, is native to the northeast corner of Texas and the eastern United States. It grows to only one foot tall and makes a nice evergreen groundcover. It appreciates full sun and can be propagated by seed or division. The two-inch daisies bloom from April to frost if the spent flowers are occasionally "mowed" away.

While it does spread, it is reported to be less invasive than Shasta Daisy.

Chrysanthemum maximum, Shasta Daisy, is a trouble-free, dependable perennial for our area. Try the early-flowering, dwarf types since the flowers last longer and do not need support. Shasta daisies can be prodded into reblooming in waves if the dead flowers are sheared away after they are spent. They should be divided and reset every two years to encourage vigorous growth and heavy bloom.

Chrysanthemum spp., Garden Mums, are another common perennial that needs little introduction. While it is most often used as a fall-blooming annual, the plant can be utilized as a dependable ground cover with two major bloom periods in the spring and fall. Bed A, the entrance bed, is now well established to mums and dianthus. The plant needs pinching to produce maximum blooms. Mums should be cut to the ground after the first few fall freezes brown the tops. The spring growth can be allowed to flower or can be pinched at six to eight inches to make for a brighter, though somewhat later bloom period. In July, the plant should be pinched and then repinched in August to create a bright fall bloom. They do require maintenance to achieve perfection.

Cooperia drummondii, Rain Lily, is native to our area and makes neat, attractive clumps. White flowers appear in September to October. The foliage stays green all year and the bulbous plants love a mulch. They bloom heaviest in the fall and can be divided almost anytime provided sufficient moisture is available. This plant should not be confused with the popular Rain Lilies most often found in the Texas trade, Zephyranthes. Plant the bulbs four to six inches deep in a sun to part-shade, sand-to-clay location.

Coreopsis grandiflora, Baby Sun Coreopsis, is available in a number of hybrid cultivars; many are excellent for our area. Try "Baby Sun" or "Sunray". The plant reaches one foot and blooms in the spring and summer with a cloak of bright yellow flowers. C. lanceolata, Golden Wave, is native to East and Southeast Texas, reaches two feet tall and prefers a full sun location. C. tinctoria is an annual with a dark red spot in the center of a yellow bloom. All are easily propagated by division, cuttings, layerings, and seed.

Crocosmia potsii, Montebretia, is a relative of the gladioli and is classified as a cormous herb of South Africa. Propagated by offsets or seeds, the plant is easily grown. Popular as a garden accent and cut flower, the plant must be cut back after bloom to avoid an untidy appearance. Blooming in early summer, reaching two to three feet tall, the red-orange blooming form is apparently best adapted to our area.

Cuphea micropetala, Cigar plant, is also called "Mexican oleander" and is attractive as a three to four foot mound even when not in bloom. It is drought-tolerant, has shiny lance-shaped leaves and attracts hummingbirds. The tubular yellow to red flowers are borne on a twelve inch flower spike. The plant blooms in the summer and fall and needs a sunny,

well-drained area.

Delphinium virescens, White or Prairie Larkspur, is very tolerant of hot weather and is native to the Edwards plateau and northward. Give it one of your best, well-drained garden spots and, because the plant is tall and slender, make sure you plant several starts in a clump. Generally, the plant is only one to two feet tall but under optimal conditions it can grow to over five feet. This species is not to be confused with numerous delphiniums offered in Texas nurseries, few of which can make it through the summer. The plant is poisonous so don't plant where livestock can browse.

Dianthus spp., Pinks or Dianthus, is a large genus, over three hundred species, full of potential landscape candidates. While most types will live and flower successfully for two to three years, perennial types are few. There are reports of a double-flowered, red "pink" that does well in the humid South, but I have been unable to locate the clone. Classification of this group is confusing. We have a scarlet Dianthus that has performed nicely in Bed B1. The plant rarely reaches six inches tall, makes a tight mat, and is rather tolerant of abuse. It needs to be sheared occasionally to encourage more blooms.

Echinacea angustifolia, Purple Coneflower, is best planted as an improved cultivar. Although the native is beautiful in its own right, varieties like "Bright Star" are better garden plants. Flowering begins in April and ends at first frost. An excellent cut flower candidate, the plant can be propagated by seed or division. There is a white form but it is not common. Full sun and a well-drained soil are required. While the plant itself seldom exceeds eighteen inches, I have seen flower spikes over four feet tall.

Echinocereus triglochidiatus var. melanacanthus, Claret Cup cactus, is native from Mexico to Colorado and is very winter hardy. The one-foot tall cactus sports two to three inch blooms that range in color from purple to pink to scarlet. In our area, find a spot that's well-drained and do all you can to keep water away from the plant.

Eupatorium caelestinum, Perennial Ageratum, Blue Boneset, or Foamflower, is an Ageratum look-alike. It grows to two feet tall, and blooms from late July to November. It's lavender blooms can make a luxurious mass. It is very heat and drought tolerant. It is invasive in full sun fertile areas so be ready to keep it in a restricted spot.

Eustoma grandiflorum, Texas Bluebell, is probably best grown from seed and treated as an annual. It is native to Colorado, Nebraska, New Mexico, and Texas. This wildflower has been picked by roadside visitors in some places to the point that it has been lost. The two to three inch blooms are generally lavender, appear in June, and last until August.

Gaillardia spp., Indian Blanket, is available now in several garden forms. Perennial selections such as "Little Goblin" make tight mounding floriferous plants for the garden. They are heat and drought tolerant. G. pulchella is native and can be established in any well-drained garden where reseeding

is allowed. The plant begins blooming in May. Keep the spent blooms cut off and the plant will bloom throughout the summer. About August let the plant go to seed. Next spring weed out any seedlings that have left your desired spot. The plant is invasive and is commonly propagated by seed.

Gladiolus spp., Gladiolus, is another common southern landscape accent piece. There are few plants that provide such a magnificent cutflower. The plant is difficult to use in a shrub row but should be set into an area specifically for cutflowers. Because the flower spike is tall and spindly, the plant should be staked. The corms should be planted in the spring and, in our area, lifted in the fall. Corms can be planted at two week intervals in the South, starting in March, and will then provide season-long floral displays for your table. Spray to control thrips and mites if possible. After blooming, the green leaves should be encouraged as they are responsible for building a bigger corm and numerous cormlets for next year's display. Many of you enjoyed cutting from our "Glad" bed last year and we hope that you can do the same soon.

Gladiolus byzintinus, Baby Gladiolus, is the "old-fashioned" gladiolus still found in many Southern gardens. It is available through several mail-order sources. Spikes and flowers are about half the size of normal glads and the corms develop clumps that return faithfully in most gardens. A red-purple flowering type is most common. White is also found. Because they are short-statured, only three feet tall, they do not need to be staked.

Hebranthus texanus, Copper lily, is a one-foot plant that loves swampy, sunny places. It is native to East Texas and looks beautiful massed in front of garden beds. The bright yellow blooms appear in September.

Helianthus maximiliani, Maximillian Daisy, does get large. Ours grew to six feet tall in Bed B. This fall bloomer forms a tenacious clump that gets larger every year. The three-inch yellow flowers appear in the fall and are quiet showy. The plant needs to be at the back of a perennial border and needs a short-statured plant at its front, primarily to hide shoots that are often sparse in foliage near the ground. With full sun, a well-drained soil, and minimal care, this plant will return year after year.

Hemerocallis spp., Daylilies, are delightful additions to any garden. Provided with a well-drained soil, mulch, and a little watering, the plants will bloom and bloom and bloom. We are blessed with the help of Ms. Jean Barnhart in fine-tuning our daylily displays. The "Stout Medal" series is the best of the best, selected by the American Hemerocallis Society, and we intend to give the collection a final home later this year. For now, the plants are growing as a front facer on the northeast corner of the Agriculture Building (and have endured over one month of hot asphalt-laden air as our roof is repaired!). Because they are heavily mulched, they will be fine. "Aztec Gold" is a popular variety as are some of the new minatures. The range of colors, flower shapes, plant forms,

and habit is amazing to many. Be careful about starting a collection, though. It's somewhat addicting.

Hibiscus coccineus, militaris, moscheutos and others are becoming a favorite of mine. Plan on seeing some of the new colonies that we are encouraging in the LaNana creek area. H. coccineus, Texas Star Hibiscus, is considered by some to be a native while others argue that the plant is originally from Brazil. It has performed well for us in Bed C. We have several flats of Hibiscus interspecific hybrids that should be interesting. There are few flowers that are as showy as the Texas Star. Give all species a loose, loamy soil full of organic matter; fertilize lightly and water generously. The plant loves to be placed near water. Each year that goes by involves an enlargeing of the clump plus numerous seedlings nearby. Mature plants are very competitive. H. militaris, Soldier Rose Mallow, is found in a white and pink flowered form. Both are interesting. Some of you may have noticed the single specimen in Bed F. While the plant should probably be cut to the ground after the first frost, I found the branching and seed pods to be an interesting winter accent. H. moscheutos, Common or Swamp Rose Mallow, grows to eight feet tall and wide, often covered with a cloak of three to four inch wide flowers in white, pink, or rose. The Confederate Rose, H. mutabilis, with pie-sized flowers in a wide range of colors, is almost too gaudy for some gardeners. Give the plant a protected but sunny spot and it will return year after year.

Hippeastrum roseum, Oxblood lily, originally from Chile, has naturalized over much of East Texas. It grows to one foot and thrives in dry, slightly alkaline areas. The flowers look like red, half-size amaryllis. The plant blooms about like Lycoris radiata with a similar growth habit. The best time to move bulbs is late summer. Sun to part shade is preferred.

Hymenocallis liriosme, Spider lily, has elegant flowers four to six inches wide. The plant is native to wet places in Texas and north to Arkansas and Oklahoma. The two-foot tall plant needs lots of water in a sunny garden spot. H. caroliniana is similar and is native to the southeastern United States. Blooms appear in April and May, unfurl in late afternoon, and are very fragrant.

Ipomopsis rubra, Red Gilia or Standing Cypress, ranges from Central Texas to the eastern United States. The plant can reach six feet in the best sites. Bloom in our area is in May to July and lasts for four weeks or longer. Best propagated by seed because of a strong taproot, the plant can be encouraged in your garden by carefully promoting seedling development each year. The plant needs full sun and is drought tolerant. When the flower spike has bloomed, cut it off to promote reblooming. Inflorescence is generally a very bright orange.

Ipheion uniflorum, Spring Star Flower, native to Argentina and Uruguay, can make a small six-inch accent in any garden. One-inch pale blue flowers appear on six-inch scapes in the early spring and last for two months. Foliage is blue-green and when crushed, the fragrance of onion is quite strong. The plant is a strong candidate for a naturalizing well-drained

area. Sunny locations are preferred.

Iris brevicaulis, Louisiana Iris, is native from Alabama to Texas to Kansas to Ohio. This is just one of the Louisiana Iris types. There are now many hybrid types offered and I'll leave it to the taxonomists to sort out the species. Iris giganticaerulea X fulva X foliosa types are popular. The plants prefer a sun to part-shade area and appreciate a heavy cover of mulch. Plant next to a wet area, a pond, a ditch, or stream for best performance. Provide with azalea fertilizer and they will bloom better.

Iris hybrids, Bearded Iris, is another group in the Iris genus that can be grown in areas where soil drainage is good and humidity is low. The German (tall-bearded) Iris was formerly called Iris germanica but because it was crossed with many other species, its integrity is undetermined. The bearded forms are normally classified according to stature, as miniature dwarf, standard dwarf, intermediate, miniature tall, border, and standard tall. The Dykes Medal is awarded to the outstanding bearded Iris introduction each year. The American Iris Society makes several Awards of Merit to other outstanding cultivars. Look for these in specialist catalogs. Flowers are always spectacular. Sword-like foliage is striking when the plants are massed. Colors range from white to blue, purple, pink, yellow, and rust. Bicolors and pastels are now common. The "white flags" of early southern gardens (Iris X germanica var. "Florentina") are extremely hardy and some colonies in East Texas are over one hundred years old. Iris should be divided and reset every three to four years, barely covering the rhizomes with soil. Blooms occur in spring. Other Iris species worth trying include Iris cristata (Crested Iris), I. kaempferi (Japanese Iris), and I. siberica, the Siberian Iris. Others are available to enthusiasts and collectors.

Kosteletzkya virginica, Seashore Mallow, is in the same family as Hibiscus, Malvaceae. It is native from New York to Florida and then west to Louisiana. The plant in Bed B made an excellent pink show this past summer and fall. Cut the plant back to just above ground; propagate by cuttings or moving seedlings from base of plant. Full sun and moist fertile soils are preferred. Our specimen has been very drought tolerant.

Lantana sellowiana, Trailing Lantana, is native to central and western Texas and is well adapted to the deep South, escaping from cultivation in many locations. It is very drought tolerant, once established, and can be pruned to the ground each year. A heavy mulch is recommended to prevent freezing of the crown. The plant looks best massed in a sunny area. Numerous cultivars are now available. We have established several in the bottomland park. L. horrida, or Texas Lantana, is also native and has a pungent "horrid" smell when the leaves are crushed. L. camara var. mista (West Indian Lantana) has found a home over much of Texas, has larger leaves, but generally looks much the same. Lantana makes an excellent cover for spring flowering bulbs. By the time the

blooms are spent, Lantana is leafing out and effectively hides the leaves of daffodils until they can brown and dry naturally.

Liatris spp., Gayfeather, is a must for the East Texas garden. L. puntata (one to three feet) and L. pycnostachya (three to five feet) are the most drought tolerant. L. spicata is native to the eastern United States and is most often what is available from nurseries. While it grows well here, look for others in specialty catalogs. We have a magnificent plant in Bed B. It was almost five feet tall this past fall and bloomed from September until October. I also learned this past fall that it is loved by bees. While showing the plant off to a tour group, I reached over to hold the plant and got a ridiculous sting. Our plant never needed staking. After bloom, cut the flower stalks to the ground.

Lobelia cardinalis, Cardinal flower, is another native well adapted to a dappled-shade part of your garden. We discovered several natural clumps right on the LaNana creek bank and are trying to encourage their spread. Brilliant red blooms in September are the main calling card for this two-foot to four-foot tall plant. Propagate by cuttings, seed, layering, or root division. It is not robust and must be encouraged to spread. Place it with your azaleas or in any well-watered location. Mulch heavily. To encourage the plant's spread, place a shoot or two down and layer with mulch. Cardinal flowers are great hummingbird attracters and bloom as the birds are migrating south through Texas. On a trip to the San Madre Oriental mountains this past July, we found an impressive colony in bloom. The scarlet flowers were set on robust three-foot plants that had found a home right on the edge of a small stream course. We have a few nice plants in Bed B and are armed with flats for the future.

Lupinus texensis, Texas Bluebonnet, has been the center of much publicity lately. It has always been a well-recognized state flower and it can be grown rather easily in any sunlit garden if a few rules are followed. The nursery business is now offering bluebonnets in small container sizes which makes an easy way to encourage their spread in your garden. L. subcarnosus, is probably best adapted to our part of the state but the remaining four species in Texas can be grown here. The bluebonnets in Bed B came from six small two-inch bluebonnets. This raised bed provides several feet of well-drained soil and was limed prior to planting. The bluebonnet seedlings that emerged in the first and second winter and spring were not weeded out during the first weedings of each spring. After bloom, the plant was allowed to dry and brown (a four or five week process). The seed pods were allowed to split and seed was scattered in other pockets of the bed. Seed germination is often erratic. To naturalize, select an infertile hillside site. Add limestone if needed. Scatter seed in the fall and "scratch it in". Several years of seeding may be necessary.

Lycoris radiata, Red Spider Lily, look great naturalized in awell-lit forest or beneath a ground cover of Vinca major or minor or underneath a mat of Hedera. The plant appears in the spring, dies to the ground during the summer, and then suddenly appears in September, usually after several rains. Coral-red is the most common color. White, pink, and yellow forms exist but are rarely seen. Divide in the summer. Well-drained soils are preferred.

Machaeranthera tanacetifolia, Tahoka Daisy or Tansy Aster, is native to the Trans-Pecos south to central Mexico and north to Alberta, Canada. It only grows to two feet tall and is often cloaked with two-inch, lavender flowers from May to frost. The leaves are fern-like, sticky, and usually form a dense one-foot mound. It needs promoting in our area for soils that are sun-lit and well-drained.

Malvaviscus drummondii, Turk's Cap, is native from the southeastern United States to the Edwards Plateau of Texas. The plant can reach nine feet tall and is usually an evergreen along the coast. In Nacogdoches, the plant rarely exceeds five feet tall. It blooms from May to frost and will attract hummingbirds to your garden. After the first frost, stalks should be cut back to near the ground and the plant heavily mulched. Propagate by cuttings, seed, and clump division.

Mentha piperita, Peppermint, is an aromatic perennial herb commonly planted in Nacogdoches landscapes. All cultivars appear to appreciate part-shade to shade, plenty of moisture, and fertile soils. They are invasive in moist areas and may die if forced to endure much time between waterings. Propagate by seed, by cuttings, and by division.

Melampodium cinereum, Blackfoot Daisy or Mountain Daisy, can be placed just about anywhere. While native to limestone areas of Arkansas to Colorado to Texas, it will do quite well here if provided with a neutral pH. It is low-growing and blooms from April to frost and is not tempermental about soil conditions. It will return each spring and be blooming about the same time as bluebonnets. Best flowering is in full sun but it tolerates part-shade conditions.

Narcissus spp., Daffodils and Narcissus, are common spring flowering bulbs in our area of Texas. "Unsurpassable" is an excellent cultivar. Take a look at the fifty varieties that were planted on the Phase 2 fence line. The small cluster flowered types are generally referred to as Narcissus and the large trumpet types as daffodils. The small-flowering, paper-white narcissus has naturalized over much of southeast Texas. Plant bulbs in the fall and divide and reset every few years. For best clump development, it is essential to let the leaves dry and brown naturally. If the plant is cut back prematurely, the plant cannot build healthy bulbs for next year. Many homeowners like to plant the bulbs under an evergreen groundcover of Ajuga, ivy, or periwinkle. There are hundreds, probably thousands, of varieties available.

Opuntia imbricata, Walking Stick Cholla, placed in a high and dry raised bed will make a striking accent cactus to six or more feet. Wet feet kills many that are planted in our

area. Given a one or two-foot bed of coarse sand, a little pine bark and limestone, it should live forever. Propagate by cuttings taken at the "elbows". The three-inch purple flowers are striking. Although slow-growing and finicky about excess moisture, the final product is a striking accent piece to any garden. O. phaeacantha, Texas Prickly Pear, is much lower growing (one to three feet) and is slightly more tolerant of excess moisture than Walking Stick Cholla. Three to four-inch yellow flowers are spectacular. Both are hardy in our area.

Oxalis spp., Oxalis, can be a pest in the southern garden. A perennial, pink flowering cultivar is commonly grown in Lousiana and East Texas. It grows only eight to ten inches tall in part-shade to shady areas. The plant blooms from late winter until late spring and the bulbs are best divided in the early fall. The clover-like foliage is attractive and the plant is usually dormant during the summer.

Passiflora spp., Passionflower, makes an interesting vine in the garden. The genus involves about four hundred species native principally to tropical America. Our own wild species, P. incarnata, is an excellent ornamental in its own right. There are several cultivars available that are more showy. The Passiflora X incense vine in Bed B is striking in bloom. It freezes to the ground after a few fall freezes but has faithfully returned for two years. The plant is susceptible to nematodes and can be propagated by seed or cuttings.

Pavonia lasiopetala, Rock Rose, is well established in Bed B of the Phase 1 area. The plant grows to four or five feet tall and can be a rangy rascal unless pruned back annually. The pink blossoms are hibiscus-like, one and one-half inches across and scattered over the plant from may until frost. It grows better in a tight soil than in a sand but tolerates both well. While very drought-hardy, the plant can live with a little excess moisture. Cut back the plant each year to keep it trim and neat.

Penstemon cobaea, Wild Foxglove, Beard Tongue, or Canterbury Bells, is a favorite of our Bed B collection of Penstemons. Native from the Texas Gulf Coast north and west to Nebraska, the plant blooms in May with light lavender flowers. We are collecting plants that bloom white, lavender, and purple. The snapdragon-like flowers last for weeks in the garden and once spent, they should be cut back to the foliage clump. The plant rarely exceeds two feet and should be planted in a tight three or five-plant colony for best effects. Propagate by seed or division.

Penstemon murrayanus, Scarlet Penstemon, blooms in the mid-summer heat on three-foot plants. The plant is native to East and North Central Texas and is very similar to P. havardii of the Trans-Pecos region. Both have rounded leaves that surround the stem. P. tenuous is another attractive native performing well in Bed B. Penstemons attract hummingbirds and butterflies and should be clumped in groups of five or seven since they are very slender. Propagate by clump division or seed. Full sun and well-drained soils are preferred.

Phlox divaricata, Louisiana Phlox or Wild Blue Phlox, is native to East Texas to western Florida and north to South Dakota. Flower colors range from white to lavender to purple. The plant combines well with spring blooming bulbs. The small, dark, ground-hugging leaves make low attractive clumps and provide an interesting border to any bed. Drought tolerant, the plant should be in every garden. Propagate by seed, division of clumps, or cuttings in early summer.

Phlox drummondii, Drummond's Phlox, grows to six inches and is a fairly common garden plant in our area. The plant self-sows easily in sand so be sure to recognize the young seedlings in the spring. They will quickly provide a blanket of white, pink, red, and purple flowers. The plant dies soon after flowering and going to seed, so plant below lantana or Pavonia to fill the space from June to frost.

Phlox paniculata, Perennial Phlox, is an old-fashioned favorite. If the old blossoms are removed, the plant will flower from late spring to frost. The plants need staking for best display and are most effective when massed. While numerous colors are available in the trade, the only ones that seem to persist in old gardens are the magenta pink and occasionally white forms, according to Welch.

Phlox subulata, Thrift or Moss Pink, is a long-blooming showy plant less than one foot tall. It is useful in rock gardens or tucked in the front of a border. Propagate by division and cuttings taken in the fall. It is best to divide and reset every few years or the planting will degrade.

Physostegia praemorsa, Lionheart, False Dragon-Head, or Obedient Plant, is another popular Bed B herbaceous perennial. Native to our area and Louisiana, the plant reaches two feet tall. It is the shortest of the Physostegias and most drought tolerant. Our clump has a very pale lavender bloom in September and October. The variety "Summer Snow" is white-flowered and blooms earlier than the species, P. virginica. The individual flower stalks protude four to six inches above the leaves to make a striking statement if massed in groups of five or more. The blooms make excellent, long-lasting cut flowers and can be arranged easily. The individual flowers can be gently pushed to a new position that they hold in; thus the name "Obedient plant". Best propagated by seed or division of the clump. P. pulchella and P. angustifolia, and P. digitalis are East Texas natives with similar landscape value. The plants grow naturally in swampy places but are remarkably drought-tolerant if a mulch is utilized.

Plumbago auriculata, Blue Plumbago, is probably best suited to areas south of Nacogdoches but the plant is worth a try. Our colony in Bed C has survived two years but has yet to make an impressive show, inspite of mulch and waterings. The plant is reported to grow up to three feet tall; ours has only reached a sparse one foot and blooms weakly. Considered to be a very drought-tolerant species, the plant is popular in the San Antonio region. Propagate by seed or division.

Lycoris radiata, Red Spider Lily, look great naturalized in awell-lit forest or beneath a ground cover of Vinca major or minor or underneath a mat of Hedera. The plant appears in the spring, dies to the ground during the summer, and then suddenly appears in September, usually after several rains. Coral-red is the most common color. White, pink, and yellow forms exist but are rarely seen. Divide in the summer. Well-drained soils are preferred.

Machaeranthera tanacetifolia, Tahoka Daisy or Tansy Aster, is native to the Trans-Pecos south to central Mexico and north to Alberta, Canada. It only grows to two feet tall and is often cloaked with two-inch, lavender flowers from May to frost. The leaves are fern-like, sticky, and usually form a dense one-foot mound. It needs promoting in our area for soils that are sun-lit and well-drained.

Malvaviscus drummondii, Turk's Cap, is native from the southeastern United States to the Edwards Plateau of Texas. The plant can reach nine feet tall and is usually an evergreen along the coast. In Nacogdoches, the plant rarely exceeds five feet tall. It blooms from May to frost and will attract hummingbirds to your garden. After the first frost, stalks should be cut back to near the ground and the plant heavily mulched. Propagate by cuttings, seed, and clump division.

Mentha piperita, Peppermint, is an aromatic perennial herb commonly planted in Nacogdoches landscapes. All cultivars appear to appreciate part-shade to shade, plenty of moisture, and fertile soils. They are invasive in moist areas and may die if forced to endure much time between waterings. Propagate by seed, by cuttings, and by division.

Melampodium cinereum, Blackfoot Daisy or Mountain Daisy, can be placed just about anywhere. While native to limestone areas of Arkansas to Colorado to Texas, it will do quite well here if provided with a neutral pH. It is low-growing and blooms from April to frost and is not tempermental about soil conditions. It will return each spring and be blooming about the same time as bluebonnets. Best flowering is in full sun but it tolerates part-shade conditions.

Narcissus spp., Daffodils and Narcissus, are common spring flowering bulbs in our area of Texas. "Unsurpassable" is an excellent cultivar. Take a look at the fifty varieties that were planted on the Phase 2 fence line. The small cluster flowered types are generally referred to as Narcissus and the large trumpet types as daffodils. The small-flowering, paper-white narcissus has naturalized over much of southeast Texas. Plant bulbs in the fall and divide and reset every few years. For best clump development, it is essential to let the leaves dry and brown naturally. If the plant is cut back prematurely, the plant cannot build healthy bulbs for next year. Many homeowners like to plant the bulbs under an evergreen groundcover of Ajuga, ivy, or periwinkle. There are hundreds, probably thousands, of varieties available.

Opuntia imbricata, Walking Stick Cholla, placed in a high and dry raised bed will make a striking accent cactus to six or more feet. Wet feet kills many that are planted in our

graceful plant. The plants are very drought-resistant and the leaves, when crushed, give off a crisp, pleasant fragrance. Easy to propagate by seed, softwood and hardwood cuttings.

Solidago spp., Goldenrod, is often despised for its contribution to hayfever. That association is probably not true. The Goldenrod is insect-pollinated, not wind-pollinated, and is highly sought after by numerous butterflies and bees. The plant reaches three feet or more and should be grouped in well-defined clumps where a bright yellow floral display might be needed. The plants are fantastic in bloom. Other times of the year are a different story. They should be mowed almost to the ground after bloom. This leaves a green groundcover for the remainder of the year and through the winter. A much aligned plant for our area, particularly in bright, sunny, moist soils. Propagate by seed or division.

Symphytum officinale, Comfrey, is an interesting perennial with large, pubescent leaves. Flowering spikes in the summer may be white, yellow, purple, or rose. The plant can provide a coarse texture in the perennial border. The plant can reach three feet with an equal spread if planted in a sunny, well-drained area. Mulch and fertilize lightly. Propagate by seed, division, or root cuttings.

Tagetes lucida, Mexican Marigold Mint, is a perennial marigold related to garden varieties being sold in nurseries. Native to West Texas and Mexico, many are finding favor in dry gardens. The plant we have is T. lemonii and it has performed well for two years in Bed B. It tends to naturally form a two-foot round mound. Blooms appear in the late fall. I have a wonderful slide of the plant taken January 1, 1987, that found the plant covered with bright yellow blooms. The plant should be pruned to within six inches of the ground. While drought-tolerant, better blooms and plant density has only been possible with good waterings and light fertilizations. Easily propagated by cuttings anytime of the year.

Thelesperma filifolium, Greenthread, False Golden Wave, is native to central Texas. Very similar to Coreopsis in bloom appearance, the plant is comfortable in high pH soils. Our first plants failed in an acid soil. The plants act as freely self-sowing annuals. The seedlings can be set where you want next year's display. T. simplicifolium is a perennial species that returns from the root year after year. Provide a very well-drained soil, some organic matter, limestone, and bark mulch. Propagate by seed or root divison.

Thymus vulgaris, Common Thyme, is reported by Welch to make an excellent ground cover plant in small, enclosed areas. They need a very well-drained soil and at least part sun to prosper. Numerous cultivars are available. Propagate by cuttings or division.

Tradescantia spp., Spiderwort or Virginia Day Flower, ranges over much of the United States. There is little point in trying to understand the taxonomy of the many garden spiderworts that dot the country. Most are interspecific hybrids of varying origin. Bloom color can encompass a wide range of colors including blue, purple, pink, white, and white

with a lavender throat. Some types reach two feet. They thrive under nearly all conditions. They can be used under a tree as a ground cover or allowed to fill an occasional pocket in the perennial border. A colony can be kept in bounds by annual weeding of the annuals. Propagate by seed or division of clumps.

Verbena hybrida, Verbena, is available in many cultivars and is appreciated for color, easy culture, and heat tolerance. V. bipinnatifida, Prairie Verbena, ranges from South Dakota to Mexico and needs full sun and a well-drained soil to prosper. V. elegans var. asperata, Hardy Verbena, is native to Duval and Hidalgo counties in Texas and in Mexico. It tolerates drought and makes a one-foot plant. There are other perennial verbenas available. Propagates easily by cuttings, division of clumps, and seed.

Vernonia baldwinii, Ironweed, ranges from the Edwards Plateau to Minnesota. The plant can reach five feet tall in shade but is usually two to three feet tall in sun. The plant has a bright lavender bloom during the hottest time of the year, August to October. The plant is coarse and prone to mildew after blooming. Probably best used in a distant corner of a large garden. A dense colony in full sun is spectacular when in bloom. The plant returns from a clump and blooms improve with age. Propagate by cuttings in early summer, root division, and fall-sown seed.

Viola odorata, Violets, flower during the winter and in early spring. They were popular in early Southern gardens. The plant appreciates shade, a moist, organic soil and is prone to spider mites in dry, exposed locations. The plant achieves a six to eight-inch height. Propagate by division.

Yucca pallida, Pale Leaf Yucca, makes a one-foot clump and sports a three to five-foot flower stalk. It is stunning in bloom. Native to South Central Texas, the plant is only one of many promising Yucca species that will probably find a place in East Texas landscapes. Their versatility, drought-tolerance, and tough disposition are appreciated where environments are harsh. Y. rostrata and filifera look promising at this writing. Y. thompsoniana can reach ten feet and is a reliably hardy tree-type for our area. A raised well-drained bed is key to survival of this species in East Texas. I am still waiting on a progressive restaurant or fast-food place in Nacogdoches going for the ultimate dry-land, rock garden, desert display.

Zephyranthes candida, White Rain Lily, is a bulbous herb from the La Pata region of South America. The reed-like foliage is a nice ground cover or border to any bed. It flowers after rains. Propagate from seed or divisions. We have scattered this plant across the bottom land area.

Zephyranthes grandiflora, Pink Rain Lily, is native to southern Mexico and Guatemala. Mr. George Rice, former County Extension Agent, showed me a bed of Pink Rain Lily that he started from a few bulbs given to him by a lady in Mexico.

Zexmenia hispida, Zexmenia, ranges from the Edwards Plateau to Mexico. We lost our first few plants in Bed B to

wet feet. Flowering from July to frost, the plant is very floriferous and takes several years to develop into a reliable clump. It appears to creep along the ground and is less than two feet tall.

Zigadenus nuttallii, Death Camas, is famous for its toxicity. The plant is native to north central Texas to Tennessee and Kansas. The flower spikes are well above the lustrous green, lily-like leaves. The flower heads are up to five inches wide and dramatic. The bulbs can be planted into any well-drained loamy soil and mix well with daffodils and providing a later show. They bloom in April and May. Propagate by division of clumps or seed.

RELATED ACTIVITIES

Shelby county courthouse beautification project: In February, we were approached by the Shelby county historical society about the possibility of landscaping the courthouse. This 1885 "Irish castle", recently given a facelift, was in sore need of a plant community. Two of my students, Rick Morris and Shannon Murphy, acted as lead design proposals. Several landscape options were presented to the Historical Society and the Center Chamber of Commerce. The project certainly exposed our SFA Arboretum program to the city of Center and has given the "Arboretum" an interesting outreach aspect. Working with a diverse group of Center citizens, some insisting of this theme or that, some insisting on "zaleas", others on all natives, others on something bright, while still others pleaded for a quiet green glob theory of landscaping . . . all of which led to the reality of working with a council.

The idea of a historical landscape project was rejected after it was explained just what was involved. Old photographs of East Texas courthouses reveal a tendency to "swept earth" near foundations with small trees and plant colonies set well away from the building. Old roses, summersweet, bridals wreath, and numerous spring blulbs might have been pocketed here and there. Deciduous shrubs as a facing or screen were common.The group finally settled on a somewhat conventional landscape that features Ilex vomitoria "Pendula, the weeping Yaupon, as doorway entrance accents. The Saucer Magnolia, Magnolia soulangiana, was selected as a specimen small tree for the four corners of the building. Colonies of dwarf yaupon, Indian Hawthorn, Cleyera, dwarf Wax myrtle, and Nandinas were used as foundation shrubs. Bar Harbor Juniper was utilized as a ground cover for the space under and around the entrance weeping yaupons. Steel edging was used to outline curvilinear beds that were mulched heavily with pine bark. Four ten-foot sugar maples were used as specimen trees well away from the building. The tree-planting program on the Center square is to be accomplished in phases. A key ingredient will be to place trees in such a manner that two things are accomplished: 1) the view of the courthouse from the road is relatively unobstructed and 2) there is no interference with the goings-on of the "Poultry" festival, a

Courthouse landscape project is praised

Dear editor:

My students and I would like to express a note of thanks to all Shelby County citizens involved in the recent landscape project at the courthouse.

It's not often that a project like this can be planned, coordinated and implemented at very low cost in such a brief period of time. The final product is something we will all be proud of.

The Shelby County Hisotircal Commission's efforts to dress up the "Irish Castle" and the courthouse grounds deserves the support of all citizens. The present planting represents the first phase in a garden development plan that promises to create a special, green "oasis" in the middle of our fair city. The need for the project is obvious to all. The prospect of a hot, sun baked "corral" appeals to no one. The master plan calls for a tree-planting project to be implemented on the square in the fall of 1988. Many of the few big trees are stag-headed, weak growing relics with little likelihood of survival into the next century. Tree-planting now will insure shade, cooler temperatures and a more appealing landscape vista in the years ahead. Tree and shrub colonies will be encouraged in several scattered areas. These plant community pockets will not interfere with the view of the courthouse from the street and will still provide plenty of people and vehicular access.

The courthouse foundation planting promises to be a quiet accent to this gracious building. This landscape option, designed by Rick Morris and Shannon Murphy (after input from numerous sources) includes colonies of Indian Hawthorn, Heavenly Bamboo, Cleyera, dwarf Wax Myrtle, Pittosporum and pro- Magnolias highlight the courthouse corners and native Yaupons accent the doorways. Given a little care and attention this summer, the landscape will be at its best in only a year or two. The four ten-foot trees that have been planted on the square are East Texas sugar maples, Acer saccharum, one of the brightest fall-color large trees of our area and a gift of the SFA Arboretum to the courthouse project.

Thanks and recognition go out to George Green, Birdie Chiles, John Reagan Harris, Janet Palmer, Charlene Burke, Sandra Bowles, Suzanne Owen, Barbara Smith, Virginia Rogers, David Chadwick, John Tyson and many others.

Debbie Hippler put in a busy day helping my students wrestle all of the plants into position. Marcille and Pershing Hughes have given numerous volunteer hours to the project. A special note of thanks to the Shelby County Sheriff's Department and the Adult Probation Department for their interest and help. A special "thank you" to Homer Bryce for graciously picking up lunch for all six students involved in the project.

Roy Wooley and Regina Hughes-Wright are due extra credit for working diligently behind the scenes to see to it that the project was finished in time for the visit of the First Lady of Texas. Roy and Regina are enthusiastically committed to bettering our city, turning it into a showplace we can all be proud of. Citizens interested in assisting this project can contact the Shelby County Historical Commission.

Plan and plant for a better America,

Dave Creech
Assoc. Prof.
Horticulture,
SFA State University

HISTORICAL COMMISSION - The Shelby County Historical Commission met recently with Dr. David Creech and some Stephen F. Austin State University landscape students to discuss plans for landscaping the grounds of the Shelby County Courthouse. They discussed plants and bedding materials and Dr. Creech emphasized the importance of an overall design plan. (Staff photo by Candace Velvin)

yearly event that involves considerable traffic on the grounds. The next time you are in Center, stop by and enjoy our students handiwork.

TRAVELS: Since the last newsletter, the Horticulture club has made an expedition to Orlando, Florida and New Orleans, Louisiana. The national and regional meeting of the American Society for Horticultural Science (ASHS) were held in November and February, respectively. In Florida, Bok Tower Gardens was a big charge for all of us. The several hundred acres of garden is accented by a large bell tower surrounded by a moat. Every thirty minutes during visiting hours, music rings out across the garden. Mr. Bok's living legacy is only a few miles from Cypress Gardens, the more popular and intense vacation spot. Cypress Gardens is complete with a zoo, botanical garden, incredible annual displays, ski shows, restaurants, gift shops, etc. Bok tower gardens, on the other hand, offers primarily a view of numerous old plant colonies that have done well on this "highest hill in central Florida". Meandering lanes beneath towering oak and pine forests are accented by old camellia and azalea colonies. The garden is blessed with numerous plant, water, and garden structure vistas. The Japanese gardener who worked many years for Mr. Bok during the early years of this project was granted his request to be buried within view of the grave of Mr. Bok, a grave at the base of the brass door to the Bell tower.

Doremus Nursery: It's always reassuring when I meet another plant enthusiast whose main difficulty is never having met a plant he or she didn't like. Ted Doremus has an interesting and special nursery just south of Warren, Texas. While his first love probably centers on bamboo varieties, he has also assembled a diverse collection of numerous woodies uncommon to the trade. Six students and I visited Ted, March 4th, and were treated to a busy tour. Our main purpose was to pull a few trees and shrubs together for the Shelby county couthhouse project described previously. Ted is the owner of the previous plant collection of Lynn Lowrey, former owner and plant extraordinare of Ecotones Nursery, Kirbyville. Part of our plant catch that day included six ten-foot sugar maples, thirty large-leafed dwarf wax myrtles, Myrica pusila, two flats of Dawn Redwood seedlings, three specimen 5-foot Magnolias (Jane, Ann, and Dr. Merrill), a strange Ilex, two Oakleaf Hydrangeas originally from the Attica Prison grounds in Louisiana, a Dasylirion longissima, a grafted witches-broom loblolly pine (a la J.C. Raulston?) that will reach ten foot or so in many years, and numerous others. Several plants from the SFA Arboretum inventory were given to Ted for testing in his nursery blocks.

PLANTS ACQUIRED SINCE LAST NEWSLETTER

SFA	YE	GENUS/SPECIE
454-	87	Acer Palmatum "Orida Nishiki" (Del's)
455-	87	Acer palmatum "Oshio Beni" (Del's)
456-	87	Acer palmatum "Okushime" (Del's)
457-	87	Acer palmatum "Sango Kaku" (Del's)
458-	87	Acer palmatum "Scolopendrifolium" (Del's)
459-	87	Acer palmatum "Seiryu" (Del's)
460-	87	Acer palmutum "Shindeshojo" (Del's)
461-	87	Acer palmatum "Suminagashi" (Del's)
462-	87	Acer palmatum "Superbum" (Del's)
463-	87	Acer palmatum 'Tana' (Del's)
464-	87	Acer palmatum 'Trompenberg' (Del's)
465-	87	Acer palmatum 'Butterfly' (Del's)
466-	87	Acer palmatum 'Akaji Mishike' (Del's)
467-	87	Acer palmatum 'Atrolineare' (Del's)
468-	87	Acer palmatum 'Higasayama' (Del's)
469-	87	Acer palmatum 'Hogyoku' (Del's)
470-	87	Acer palmatum 'Kingsville Variegated' (Del's)
471-	87	Acer palmatum 'Hoshimino' (Del's)
472-	87	Acer palmatum 'Burgundy Lace' (Del's)
473-	87	Acer palmatum 'Moonfire' (Del's)
474-	87	Acer palmatum 'Nomura' (Del's)
475-	87	Acer palmatum 'Norum' (Del's)
476-	87	Acer palmatum 'Nuresagi' (Del's)
477-	87	Acer palmatum 'Ogon Sarasa' (Del's)
478-	87	Acer palmatum 'Omurayama' (Del's)
479-	87	Abies Firma (6) (NCSU)
480-	87	Aphananthe aspera NA 3806/56718 (NCSU)
481-	87	Campsis grandiflora (NCSU)
482-	87	Campsis coreana (NCSU)
483-	87	Catalpa bungei (NCSU)
484-	87	Celtis biondii 'heterophylla' NA 3885/56764 (NCSU)
485-	87	Cercidiphyllum japonicum (NCSU)
486-	87	Chemonanthus nitens (NCSU)
487-	87	Daphniphyllum macropodum NA 3303/56490 (NCSU)
488-	87	Enkianthus serrulatus (?) (NCSU)
489-	87	Euonymus japonica 'Chollipo' (2) (NCSU)
490-	87	Eurya japonica (NCSU)
491-	87	Euschapios japonica NA 3366/56497 (NCSU)
492-	87	Euschapios japonica NA 3531/56531 (NCSU)
493-	87	Euschapios japonica NA 3695/56634 (NCSU)
494-	87	Euschapios japonica NA 3795/56710 (NCSU)
495-	87	Ficus nipponica NA 3532/56532 (NCSU)
496-	87	Fraxinus sieboldi NA 3868/56753
497-	87	Gelsemium rankanii (NCSU)
498-	87	Hovenia dulcis (NCSU)
499-	87	Itea illicifolia (NCSU)
500-	87	Juniperus chinensis 'Expansa aureo variegata' (NCSU)
501-	87	Juniperus deppeana 'McFetters' (NCSU)
502-	87	Lindera erythrocarpa NA 3768/56693
503-	87	Liquidambar styraciflus 'Rotundifolia' (NCSU)
504-	87	Machilus thunbergi NA 3009/56461 (2) (NCSU)
505-	87	Machilus thunbergi NA 3218/56447 (2) (NCSU)
506-	87	Machilus thunbergi NA 3222/56478 (2) (NCSU)
507-	87	Machilus thunbergi NA 3239/56482 (2) (NCSU)
508-	87	Machilus thunbergi NA 3453/56505 (2) (NCSU)
509-	87	Machilus thunbergi NA 3495/56507 (2) (NCSU)
510-	87	Machilus thunbergi NA 3499/56514 (2) (NCSU)
511-	87	Magnolia X 'Ballerina' (NCSU)
512-	87	Parrotia persica 'Pendula' (NCSU)
513-	87	Phellodendron japonicum (NCSU)
514-	87	Picea morrisonicola (NCSU)
515-	87	Pyrus calleryana var fauriei NA 3681/56625 (6) (NCSU)
516-	87	Salix alba 'Chermesina' (NCSU)
517-	87	Salix caprea 'Pendula' (NCSU)
518-	87	Salix chaenomeloides (NCSU)
519-	87	Trochodendron araliioides (NCSU)
520-	87	Vaccinium bracteatum (NCSU)
521-	87	Viburnum awabuki 'Chindo' (NCSU)
522-	87	Viburnum erosum (NCSU)
523-	87	Weigela praecox (NCSU)
524-	87	Zelkova serrata NA 3668/56613 (NCSU)
1-	88	Juniperus horizontalis 'Green Acres' (NCSU)
2-	88	Juniperus horizontalis 'Jade River' (NCSU)
3-	88	Juniperus horizontalis 'Wisconsin' (NCSU)
4-	88	Juniperus horizontalis 'Blue Chip' (NCSU)
5-	88	Juniperus horizontalis 'Prostrata hana' (NCSU)
6-	88	Juniperus horizontalis 'Blue Vase' (NCSU)
7-	88	Juniperus horizontalis 'Wilton' (NCSU)
8-	88	Juniperus horizontalis 'Emerald Isle' (NCSU)
9-	88	Juniperus horizontalis 'Filiinus minimus' (NCSU)
10-	88	Juniperus horizontalis 'Morriana' (NCSU)
11-	88	Juniperus horizontalis 'Plumosa' M029 (NCSU)
12-	88	Juniperus horizontalis 'Watnong' (NCSU)
13-	88	Juniperus horizontalis 'Blue Forest' (NCSU)
14-	88	Juniperus horizontalis 'Bar Harbor' (NCSU)
15-	88	Juniperus horizontalis 'Pulchella' (NCSU)
16-	88	Juniperus horizontalis 'LCH 77-074' (NCSU)
17-	88	Juniperus horizontalis 'Livingston' MN68 (NCSU)
18-	88	Juniperus horizontalis 'Blue Mat' (NCSU)
19-	88	Juniperus horizontalis 'XJV Hermit' (NCSU)
20-	88	Juniperus horizontalis 'Variegata' (NCSU)
21-	88	Juniperus horizontalis 'Exima' (NCSU)
22-	88	Juniperus horizontalis 'Planifolia' M026 (NCSU)
23-	88	Juniperus horizontalis 'Douglas II' (NCSU)
24-	88	Juniperus horizontalis 'Blue Horizon' (NCSU)
25-	88	Juniperus horizontalis 'Yukon Belle' (NCSU)
27-	88	Juniperus Scopulorum 'Horizon' (NCSU)
28-	88	Juniperus horizontalis 'M.O. 14861' (NCSU)
29-	88	Juniperus horizontalis 'Turquoise Spreader' (NCSU)
30-	88	Juniperus horizontalis 'LCH 48' (NCSU)
31-	88	Juniperus horizontalis 'Slow Blue' (NCSU)
32-	88	Juniperus horizontalis 'Humilis' (NCSU)
33-	88	Juniperus horizontalis 'Youngstown' (NCSU)
34-	88	Juniperus horizontalis 'Wilms' (NCSU)
35-	88	Juniperus horizontalis 'Emerson' BBG 7492 (NCSU)
36-	88	Juniperus horizontalis 'Andorra Compacta' (NCSU)
37-	88	Juniperus horizontalis 'Venusta' BBG (NCSU)
38-	88	Juniperus horizontalis 'Livida' (NCSU)
39-	88	Juniperus horizontalis 'RBGH 74038' (NCSU)
40-	88	Juniperus horizontalis 'Alpina' (NCSU)
41-	88	Juniperus horizontalis 'Huges' (NCSU)
42-	88	Juniperus horizontalis 'Emerald Spreader' (NCSU)
43-	88	Juniperus horizontalis 'Admirabilis' (NCSU)
44-	88	Juniperus horizontalis 'Coast of Maine' (NCSU)
45-	88	Juniperus horizontalis 'Tures' Wisc. (NCSU)
46-	88	Juniperus horizontalis 'Blue Acres' (NCSU)
47-	88	Juniperus horizontalis 'Glauca' (NCSU)
48-	88	Juniperus horizontalis 'Prostrater Glauca' (NCSU)
49-	88	Juniperus horizontalis 'Rosedora' (NCSU)
50-	88	Juniperus horizontalis 'Silversheen' (NCSU)
51-	88	Juniperus horizontalis 'Aunt Jenima' (NCSU)
52-	88	Juniperus horizontalis 'Prostrata' M033 (NCSU)
53-	88	Prunus jacquemontii (Lowrey)
54-	88	Acer saccharum (Doremus)
55-	88	Metasequoia glyptostroboides (100 sdlgs) (Doremus)
56-	88	Magnolia X 'Jane' (Doremus)
57-	88	Magnolia X 'Ann' (Doremus)
58-	88	Magnolia X 'Dr Merrill' (Doremus)
59-	88	Hypericum ? (Doremus)
60-	88	Dasylirion longissima (Doremus)
61-	88	Nyssa ogeche (Doremus)
62-	88	Pinus taeda (grafted loblolly witches broom/Raulston/Do
63-	88	Rhododendron chapmanii (Doremus)
64-	88	Ilex X 'Lusterleaf' (Doremus)