

## The Stephen F. Austin Mast Arboretum's Ornamental Plant Evaluation Program<sup>®</sup>

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### INTRODUCTION

The Stephen F. Austin (SFA) Mast Arboretum has experienced steady growth and development since its inception in 1985. Most of the 8-ha (20-acre) on-campus property lies in the floodplain of LaNana Creek, a normally docile stream that bisects the garden. Soils are generally well drained, slightly acidic, and loblolly pine, oaks, river birch, sweetgum, sycamore, Florida maple, hornbeam, elm, hackberry, pecan, and hickory dominate the native flora. Nacogdoches is Zone 8 with an average annual rainfall of 1219 mm (48 inches). June through August is characteristically hot and dry. In recorded history, 1 Sept. 2000 was the record high 44.4°C (112°F), and 23 Dec. 1989 was the record low -17.8°C (0°F).

### RESOURCES

**SFA Mast Arboretum.** A 4-ha (10-acre) site on the western banks of La Nana Creek. Plants are set in theme gardens: a dry garden, shade garden, Asian valley, herb garden, daylily garden, rock garden, lines of vines, numerous perennial borders, hollies and conifers, and shrub and tree collections. Most of the garden enjoys a "solid-set" sprinkler irrigation. The Arboretum acquires about 800 to 1000 accessions each year, and an active plant mapping program is in place. The horticulture facility primarily serves the needs of about 40 students majoring in Horticulture, as well as students in the Department of Agriculture in related fields, and features a headhouse [232 m<sup>2</sup> (2500 ft<sup>2</sup>)], two greenhouses [743 m<sup>2</sup> (8000 ft<sup>2</sup>)] and container yards [557 m<sup>2</sup> (6000 ft<sup>2</sup>)].

**Ruby M. Mize Azalea Garden.** A new 3.2-ha (8-acres) "across-the-creek" resource of the SFA Mast Arboretum. In 1997, the property was a greenbriar, dewberry, and privet infested understory under a patriarch forest. In 2001, the Azalea garden features 2.1 ha (5.2 acres) of bed space, 3.4 km (2.1 miles) of trails, solid-set sprinkler irrigation, and 7598 total plants. Of that, 5461 fall into the azalea world. The remainder include a wide assortment of collections, including 116 camellia species and varieties, 146 *Acer* species and cultivars (mostly *Acer palmatum*), a 268-m (880-ft) long run of 129 *Hydrangea* family members under pine tree shade. There is also the "Buxus and Cephalotaxus Garden" (a small area set aside for the few garden visitors enamored only by the color green). In addition, *Loropetalum*, *Magnolia*, *Michelia*, *Illicium*, *Styrax*, and *Gardenia* species and cultivars are now well established.

**Stephen F. Austin Pineywoods Native Plant Center (PNPC).** This center is the latest development. Long known in the region as the Tucker estate, the 16.2-ha (40-acre) property has been forest since the 1930s, with the key feature the Tucker

House — a 1920s restored home of superb architecture. The PNPC is part of the SFA campus and only 0.8 km (0.5 mi) north of the Arboretum and Ruby M. Mize Azalea Garden on LaNana creek. The PNPC, dedicated in 1999, is home to the Lady Bird Johnson Wildflower Demonstration Garden [7466 m<sup>2</sup> (24,000 ft<sup>2</sup>) of garden beds], officially sanctioned in March 2000 and only the third garden in the U.S. to achieve affiliate status. The PNPC mission is to serve as a germplasm repository and garden setting for the plants of the Pineywoods, with emphasis placed on significant ornamental genera. In addition, the PNPC serves as an umbrella for a number of endangered plant conservation projects (white firewheel, Texas trailing phlox, Neches river rose mallow, golden gladdess, white bladderpod, and others).

## WOODY PLANT EVALUATION

**Abelia.** After 3 years, abelia evaluation at the SFA Mast Arboretum, there are some excellent plants in the offering. In Mike Dirr's shop, open-pollinated *A. chinensis*, most likely crosses with varieties in the *A. ×grandiflora* group, are past the evaluation stage and 'Rose Creek' and 'Canyon Creek' are new releases. In addition to starts on all the Dirr selections, we picked seventeen 3.8-liter (1-gal) containers out of the original block of 300. One of our plants (SFA Selection No. 9) will be available for trial purposes next year. Future work must consider crosses of Mexico's spectacular *A. floribunda* with *A. chinensis* or *A. ×grandiflora* cultivars; the combination, if successful, would create some exciting results.

**Acer Species and Cultivars.** The SFA Mast Arboretum has a wide collection of Asian and native maple species and cultivars. *Acer palmatum* is particularly well represented with over 140 cultivars from 15 years to recently planted. *A. palmatum* var. *dissectum* 'Dissectum Nigrum' (syn. 'Ever Red') has held red through the summer, with brilliant new growth. 'Seiryû' is a beautiful cutleaf treeform with good sun tolerance. 'Bloodgood' is a durable proven performer. 'Oto-hime' is a short flattop of immense character and charm. *Acer truncatum* is a fast grower, sun tolerant, drought resistant, with modest fall color. *Acer saccharum* subsp. *floridanum* (syn. *A. barbatum*), is a strong native in our region and fall foliage can be a shouting yellow. *Acer buergerianum*, trident maple, is a superior maple with many fine specimens in our region.

**Bignonia capreolata 'Helen Fredel'**—there are a number of new introductions of this stellar evergreen native vine, and, in our trials, 'Helen Fredel' (a Greg Grant introduction) sports the largest blooms of any we've evaluated ('Tangerine Beauty,' several forms of 'Atrosanguinea,' 'Jekyll,' and 'Dragon Lady.'

**Campsis grandiflora**, the Chinese trumpet creeper offers a large showy bloom; the cross with the native, *C. radicans*, results in a robust hybrid with dark orange blooms, often referred to as a "Madame Galen" type, which is actually a specific cultivar of the cross. Because *C. grandiflora* has self-fertility problems, the transfusion of other *C. grandiflora* clones into the mix might allow greater diversity in flower color and flower size selection potential. A recent acquisition, six seedlings of *C. grandiflora* from the Nanjing Botanical garden, we have yet to see the bloom.

**Cephalotaxus harringtonia**, the Japanese plum yew, and other *Taxus* species, have excellent potential in the Southern shade garden, yet are rarely encountered

in our region. The SFA Mast Arboretum has 31 *Cephalotaxus* taxa in a shade garden trial (most acquired with the help of Mike Dirr). In addition, *T. chinensis* has been a standout in the garden.

***Celtis sinensis* 'Green Cascade'** is one of a kind: a geotropically-challenged woody tree of the highest order. Introduced by Cliff Parks in the early 1980s, we remain enamored by this weeper's charm and grace; properly sited, few trees attract more attention.

***Cinnamomum chekiangensis*** (hardy camphor tree), ***Phoebe chekiangensis*** (a hardy phoebe), ***Persea thunbergii* (syn. *Machilus thunbergii*)** (tabunoki), and ***Daphniphyllum himalense* var. *macropodum*** (Yuzuri-ha) are four interesting broad-leaved evergreens rarely encountered in Zone 8 that have performed well in the SFA Mast Arboretum.

***Euscaphis japonica*, Korean sweetheart tree.** This is another standout slowly becoming more available in the South. Sporting a long-lasting, bright red-pink fruit display in the fall, striped bark, and a small stature, the tree deserves further use. Seed propagation involves cold-moist, warm-moist, cold-moist regimes of 3 or 4 months each to break dormancy.

***Hydrangea*.** The eastern face of the Ruby M. Mize Azalea Garden is a 268-m (880-ft) long stretch of a wonderful lavender spider flowered azalea, 'Koromo Shikibu,' and the second tier is a run of 129 taxa: *Hydrangea macrophylla* (74), *H. serrata* (23), *H. quercifolia* (7), *H. paniculata* (12), *H. aspera* (4), *Schizophragma hydrangeoides* (4), and several other lesser known species. Thirty more will be added in late fall 2001.

***Illicium*.** The anise trees of American and Asian origin offer all kinds of exciting possibilities, particularly with several species just now reaching the United States. *Illicium floridanum* (the Florida anise) and *I. parviflorum* (small anise tree) have been underutilized in our stretch of the South for years. *Illicium parviflorum* 'Forest Green' has proven to be the best candidate for full sun conditions of all anise trees tested. *Illicium floridanum* 'Halley's Comet' has been vigorous. Pink-, white-, and "salmon-" flowering forms are available and a variegated clone is in the trade. *Illicium floridanum* 'Compactum' is an attractive truly smaller version of the species. McCartney's *Illicium* 'Woodland Ruby' is a cross of *I. mexicanum* and a white-flowered form of *I. floridanum*, with significantly larger flowers than either of its parents in our garden. More recently, the Asian species are now finding their spot in the gardens of the Southern U.S.A. Four cultivars of *I. anisatum*, the star anise, exist, and it is the slowest growing species in our garden. On the other hand, *I. henryi*, the Chinese anise tree, introduced in 1976 by Bob McCartney from a source in England, is vigorous, dense in foliage with showy red-pinkish flowers. *Illicium henryi* is currently our favorite with glossy leaves and pink flowers. It is best suited for a partial shade location. *Illicium mexicanum* is spectacular when properly sited and grown properly, but has been less adaptable than other anises. The most exciting part of the *Illicium* picture is that many species (mostly in China) remain uncollected or are just now entering the trade. At the SFA Mast Arboretum, *I. oligandrum* was recently acquired via the University of Connecticut program, and survived the 2000 winter with no damage (temperatures dipped into high teens). *Illicium simsonii* is a recent entrant into the U.S. and features large, creamy flowers; ours acquired from Bill McNamara at Quarry Hill Botanical garden. Our latest

acquisition is *I. verum*, described by the RHS as a small tree that grows up to 7.6 m (25 ft) with yellowish flowers, via David Park, Camellia Forest Nursery in North Carolina.

**Loropetalums.** Few Chinese plants have surged to the head of the pack as quickly as Chinese fringe flower, *Loropetalum chinense*. The advent of sizzling hot pink blooms and burgundy foliage forms in the early 1990s (var. *rubrum*) has led to a plethora of cultivars and forms. Dirr lists 19 cultivars and the list is growing. 'Burgundy' remains a winner; 'Zhuzhou Fuchsia' appears to be more upright. We are evaluating four taxa blessed with a nana or compacta reputation. In the first three years, 'Ruby' has lived up to its reputation as slightly dwarfed in one side by side comparison. "Head's compact form" and others are in trial. The Chinese fringe flower is destined to expand in use all across the Southern U.S.

**Magnolia.** Many magnolias are well adapted to the climate and soils of East Texas. The Arboretum features 93 deciduous and evergreen *Magnolia* taxa with over half under 5 years of age. A line of *M. grandiflora* cultivars is being developed on the south face of the Azalea Garden. The yellow-flowering deciduous hybrids are well represented and always generate favorable comments.

**Mexican Oaks.** The Mexican oaks are well represented in the SFA Mast Arboretum with several standout specimens. Our favorite is *Quercus rysophylla* (loquat-leaved oak) with sandpaper like leaves that are almost fully evergreen in our climate. *Quercus polymorpha* (Monterrey oak and other names) and *Q. canbyi* (Canby oak) have performed well in our region and are popular in the Texas trade. There are many oaks of Mexico and west Texas that deserve testing in dry, sunny sites in more eastern states.

**Rhododendrons.** These are primarily evaluated in the Ruby M. Mize Azalea Garden with 53 hybrid groups and 511 cultivars represented. Best represented are Southern indicas (18), Kurume (16 cultivars), Satsukis (192), Back Acres (15), Girard (15), Glenn Dale (26), Gartrell numbered hybrids (19), Huang (16), Robin Hill (19), and the Encore group. The deciduous azaleas of the South and their hybrids are in their second year, with four major collections including Confederate (6), Aromi (3), Maid in the Shade (5), and Pastel series by Woodlanders (7).

**Styraxes.** The snowbells of Asia (and the U.S.) remain underexploited in our section of the Southern U.S. There are good opportunities to improve cultivars. There are over 100 species of *Styrax* in the world and the opportunities for selection are enormous. There are white- and pink-flowering forms of *S. japonicus* and an assortment of weepers. Pink weepers are on the verge of being commercially introduced. The J.C. Raulston Arboretum has been at the front of *Styrax* collection building for many years. Raulston's most significant introduction, *S. japonicus* 'Emerald Pagoda', originally passed around as 'Sohuksan', is a step apart from others of the same species with bigger leaves and flowers. It's proving to be an outstanding small tree in our garden; however, questions about chilling requirement remain (late foliation, blind buds, tufted appearance early in the season; this has been a severe problem in Houston). *Styrax japonicus* 'Rubrus Pendulus', is the latest addition to our established community of styraxes, a gift from Todd Lasseigne at the J.C. Raulston Arboretum. *Styrax japonicus* 'Snowfall', Benibana Group 'Pink Chimes', and 'Carillon' are worthy of any part-shade garden. *Styrax calvescens*, *S. dasyanthum*,

*S. obassia*, and *S. hemsleyanus* have survived years with good vigor. Again, opportunities for selection abound. *Sinojackia rehderiana* is a winner in our region, but perhaps cursed with the handicap name of "Jack tree." It's easily propagated, fast growing, blessed with good foliage, and as floriferous a snowbell as they come. While introduced into the U.S. in 1930, it is only now entering the trade in the Southern U.S. Less vigorous in our garden, the smaller-leaved *Sinojackia xylocarpa* is performing well in the garden. One of the most recent styraxes to enter the U.S. may be *Meliiodendron xylocarpum*, which surprised us with fast growth and a beautiful bloom in May 2000.

**Wisterias.** While there are numerous clones of *W. sinensis* and *W. floribunda* cultivars in the trade, there are few introductions of the southern U.S.A. native, *W. frutescens*. 'Amethyst Falls' is perhaps the most well known, but there are others. 'Memphis Blue' and 'Longwood Purple' are making a mark in Southern gardens. The SFA Mast Arboretum is promoting the clone, 'Dam B', found by Lynn Lowrey near the dam of Dam B, a lake in southeast Texas. It has the longest inflorescences of any native wisteria we've trialed, and repeats bloom during the season under good culture.

**Taxodium distichum.** 'Cascade Falls,' is patented and slowly becoming available in the Southern U.S.A. and *T. mucronatum* 'Sentido', is an outstanding weeping form of the Montezuma cypress introduced by Paul Cox of the San Antonio Botanical Garden. Both are outstanding plants for future landscapes.

## HERBACEOUS PERENNIALS

Dawn Parish, Research Associate of the Mast Arboretum, is responsible for assembling and displaying a wide array of herbaceous plant material in our borders and garden beds. Recent projects include the creation of a "ginger" garden, a cooperative project with Mercer Arboretum, and over 53 salvias are now being propagated for planting and evaluation next year. The mix of Dawn's herbaceous "favorites" for the past 2 years includes a mix of sun and shade-loving standouts: *Gaura lindheimeri* 'Dauphine', *Baptisia australis*, *Rudbeckia subtomentosa*, *Zephyranthes rosea* (syn. *Habranthus rosea*), *Zephyranthes candida*, *Vernonia baldwini*, *Farfugium japonicum* (syn. *Ligularia tussilaginea*), *Petunia* 'Laura Bush', *Verbena* 'Pinwheel Princess', *Costus curvibracteatus*, *Dichorisandra thyrsiflora*, *Musella lasiocarpa*, *Salvia regla*, *Chrysanthemum* 'Country Girl', *Salvia* 'Dark Dancer', *S. xjamensis* 'Moonlight' (syn. *S. greggii* 'Moonlight'), *Muhlenbergia capillaris*, *Echinacea purpurea*, and *E. angustifolia* (syn. *E. sanguinea*).

## CONCLUSIONS

There are many other species and cultivars that deserve attention and study. Ornamental plant evaluation is a long-term proposition and the SFA Mast Arboretum, Ruby M. Mize Azalea Garden, and Pineywoods Native Plant Center are well poised to make a contribution. It is a noble mission providing good plants, adventuresome gardening, and new landscape strategies for the nursery and landscape trades, as well as the gardening public and students.