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3rd Lone Star Regional Native Plant Conference

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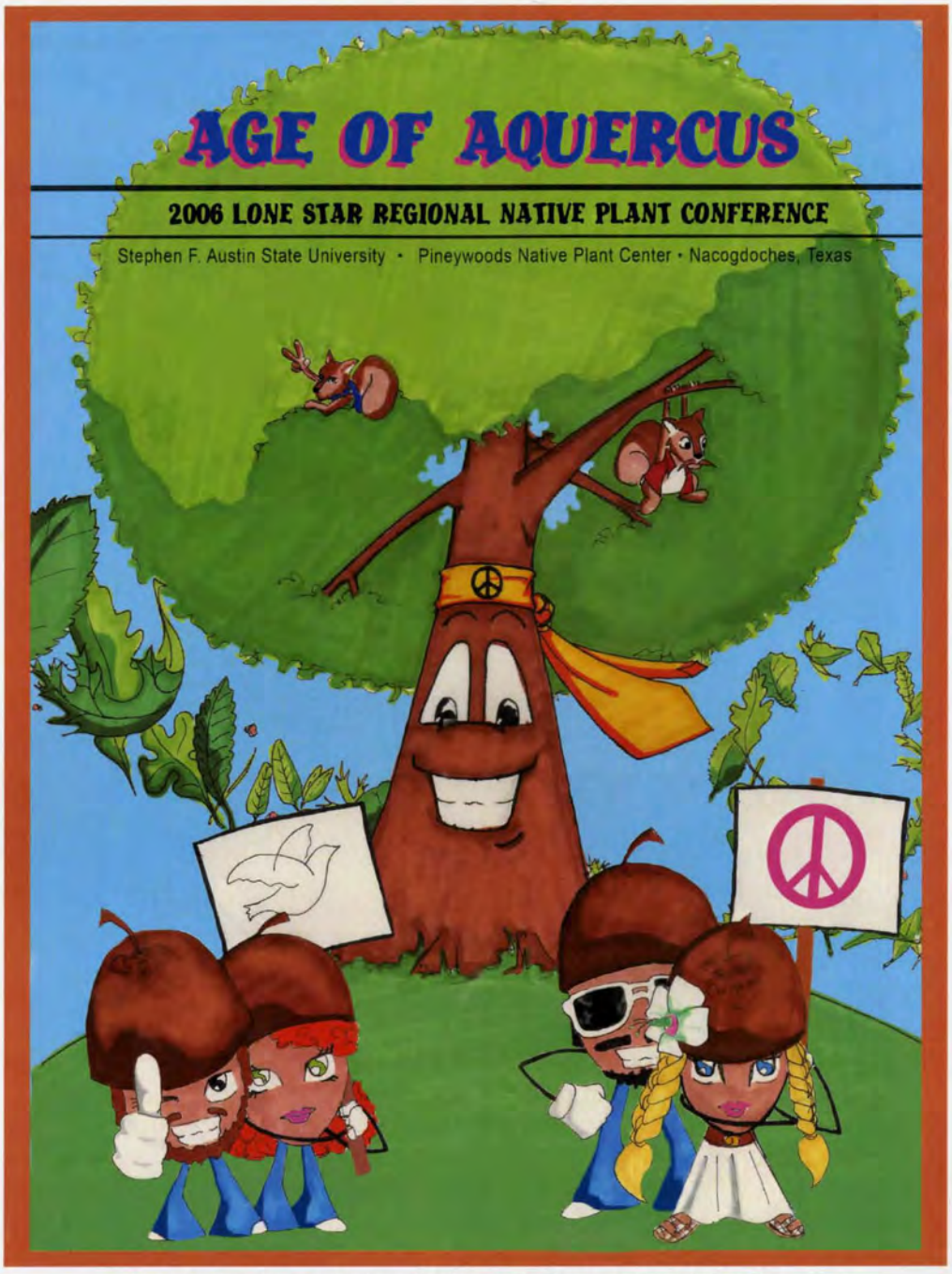

In Association with the Cullowhee Native Plant Conference

Proceedings

of the

3rd Lone Star Regional Native Plant Conference

Hosted by

Stephen F. Austin State University

Pineywoods Native Plant Center

Nacogdoches, Texas

May 24-28, 2006

Proceedings

of the

3rd Lone State Regional Native Plant Conference

Hosted by
Stephen F. Austin State University
Arthur Temple College of Forestry and Agriculture
SFA Pineywoods Native Plant Center

Nacogdoches, Texas

May 24-28, 2006

ACKNOWLEDGMENTS

The Cullowhee Native Plant conference began almost twenty years ago with the University of North Carolina at Cullowhee serving as the host institution for an annual multi-day celebration of native plants. The conference is a unique mixture of plant enthusiasts, nurserymen, landscapers, botanists, academics, and horticulturists. The speakers address native plant concerns, research projects, conservation efforts and landscape use topics. It's a great conference. In fact, the annual July conference has been such a success that the 450 "slots" that the conference can support fill up in just a few days. That response prompted the creation of three satellite conferences representing their specific region. The regional conferences allow for nationally known speakers to address region-specific topics and for participants from near and afar to enjoy the local flora.

The Pineywoods Native Plant Center is proud to host the third Cullowhee Lone Star Regional Native Plant Conference. Please thank the speakers for taking time to share with participants. The SFA Mast Arboretum Volunteers deserve a big round of applause for handling so much of the workload that goes into putting on a conference of this scale. Elyce Rodewald, the PNPC and Mast Arboretum's educational programs coordinator, did a masterful job handling registration and program details. Peter Loos, conference co-Director and PNPC volunteer, deserves special thanks for helping with speakers and other program details. Thanks to Martha Sullivan and Roger Hughes for all they have done to make registration go smoothly. Dawn Stover, Barbara Stump, and Jon Roach are part of what make this place tick, and thanks go out to graduate students Kim Benton, Amanda Camp, Lacey Stokes, LiJing Zhou and Heath Lowery. Michael Clanahan and Keri Blackburn worked tirelessly to keep the preparations running smooth. All the student assistants deserve thanks for pitching in to bring the plant sale to reality and for sprucing up the PNPC gardens. Finally, make sure you thank Greg Grant, the on-the-ground Research Associate for the Pineywoods Native Plant Center, and all the PNPC student workers, for going beyond the call of duty to handle all of the problems that arose in lodging, rooms, meals, tours, transportation, and a myriad of other details. I know they'll be glad to get back to gardening!

David Creech

TABLE OF CONTENTS

Bald is Beautiful

David Creech and LiJing Zhou
Pineywoods Native Plant Center
Stephen F. Austin State University
Nacogdoches, Texas

Introduction

Bottomland swamps and coastal forests are important components of forested systems in the southern United States (Dickson et al. 1965). Along the Louisiana Gulf Coast, portions of these forests are under increasing stresses associated with deep flooding and saltwater intrusion (Williston et al.1980). Degradation of coastal forests and associated wetland habitats by excessively deep flooding and saltwater intrusion is dramatically high, especially in the Mississippi River Delta (Earles 1975). It is therefore necessary that superior trees should be selected for resisting the flooding and saltwater intrusion in coastal environment. *Taxodium* has numerous attributes that qualify it as a landscape and coastal wetland tree. It is well–adapted to wetland habits and has fast growth, salt-tolerance, and alkalinity tolerance. It also can withstand hurricanes. The evaluation of the potential of *Taxodium* is important in order to identify attributes of *Taxodium* and to meet the need for establishing superior trees in coastal areas. We have initiated projects at Stephen F. Austin State University to make selections of superior Montezuma cypress clones for propagation and further evaluation, to test and compare the salt tolerance of T302 (a Chinese hybrid) and common bald cypress, to examine the factors that influence *Taxodium* cutting propagation, and to evaluate and compare growth and leaf nutrient content of *Taxodium* genotypes.

Literature Review

Taxodium is in the cypress family, Taxodiaceae, one of several genera in the family commonly known as cypresses. Once three separate species under the same genus *Taxodium*, current taxonomy has placed all of Taxodium into one species with three botanical varieties (Arnold and Denney 2006) For the purpose of brevity, the three genotypes will be referred to in this article as BC, PC, and MC.

Taxonomy:

Taxodium distichum (L.) Rich.var. *distichum* (Baldcypress)

Taxodium distichum var. *imbricarium* (Nutt.) Croom (Pondcypress)

Taxodium distichum var. *mexicana* Gordon (Montezuma cypress)

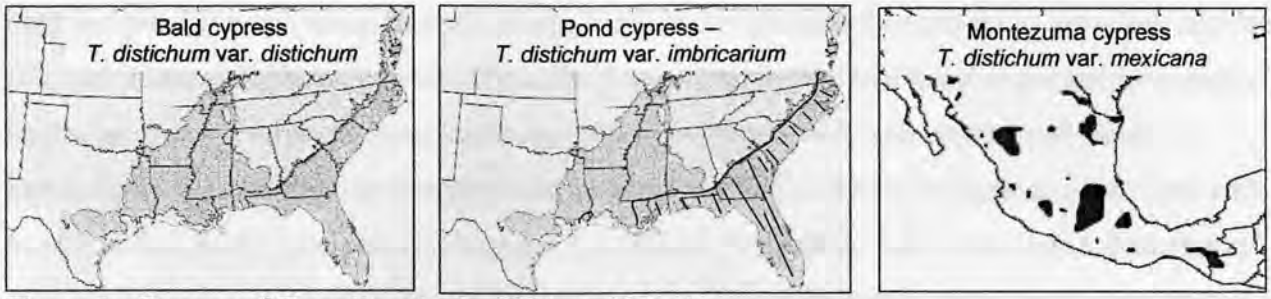

Figure 1. Ranges of Taxodium in the USA and Mexico

BC – bald cypress are the most commonly encountered Taxodium in the native forests of the southern USA, typically associated with streams, rivers, lakes and wetlands – and in urban landscapes across its range. BC are durable, long-lived deciduous conifers particularly well-adapted to wetland habitats (Cox 1988). The species performs admirably in drier spots if given a little attention during the establishment years. The tree is pollution-tolerant and excels in compacted, low-oxygen or swampy conditions. It stands strong in the face of hurricane, is amazingly long lived (1000+ years) and, with time, can become quite huge. Finally, BC is easy to grow from seed and is relatively free of pests and diseases. Superior clones are usually grafted but cutting propagation, while a bit difficult, can be successful. The prevalence of knees (pneumatophores) is considered a negative in most landscaping circles; the knees interfere with routine maintenance programs. BC in the western areas of its range is less prone to push knees or they never do. There are over 45 cultivars of BC (http://www.raretrees.org/taxodium.html) in the trade that include clones that are pendulous, contorted, dwarf, salt tolerant, of good form, etc. These are generally grafted, somewhat expensive, and thus rarely encountered in landscapes.

PC – Pond cypress – is smaller than bald cypress and found only in the southern regions of the BC cypress range. In areas where the two botanical varieties overlap, intermediates have been reported but have not been fully exploited. PC is relatively easy to distinguish via the nature of the feathery foliage which is ascendant, rather than more splayed and flat as is bald cypress – but this may not always be consistent and Hardin was first to speculate on the nature of intermediates

where BC and PC ranges overlap (Hardin 1983). There are several cultivars of PC – and landscapers often use the tree as a specimen particularly when moist soil conditions exist.

MC – Montezuma cypress is native to the tip of South Texas, Mexico and a few remnant populations in New Mexico. The tree does not produce knees, has a much faster growth rate than bald and pond cypress, tends to push foliage early in the spring and continues to grow late into the fall, and tolerates high-salt and alkaline soils. Unfortunately, the tree is not considered a superior landscape tree – it rarely forms a leader and often develops a wide and unbalanced form. Landscapers feel the tree "fails to grow old gracefully." MC can become huge and live over 2000 years. In fact, a MC near Oaxaca, Mexio – the famous "Arbole de Tule" tree - has a diameter of over 50 feet and is considered the world's largest tree. In several trials in the South over the last two decades, MC consistently has a faster growth rate than BC and PC. MC can shed all of its foliage in a summer or fall drought but successfully pushes new foliage when rainy weather returns.

Value of Taxodium

Taxodium has numerous attributes that qualify it as a supreme urban landscape tree and as a species to mediate harsh coastal wetlands and floodplains of major rivers in the south. The tree once dominated large swaths across the southern landscape in the hurricane belt and has a fascinating history in USA forestry. The wood has long been valued for its long life and resistance to warp once cured - and cypress bark is popular in landscaping circles as long-lived mulch that doesn't wash away in rains. Riverine swamps of BC cause floodwaters to spread out, slow down, and infiltrate the soil. Thus, these stands reduce damage from floods and act as sediment and pollutant traps. Coastal stands reduce inland damage from hurricanes. Unfortunately, the species was heavily cut in the late 1800s and early 1900s. While few patriarchs survive, even second and third growth cuts have not prevented the species from being quite resilient when environment conditions fit its preference.

Genetic Improvement in *Taxodium*

Genetic variation in *Taxodium* has received limited attention in the USA and most trees planted in the USA are seedlings from a wide range of provenances. Very little attention has been paid to superior genotypes as a seed source. Most of the cultivars in the trade are the result of chance

finds in the wild or in the nursery and are generally grafted and rarely encountered in landscapes. While most studies conclude that BC and PC are not distinctly different enough to be separate species, researchers note that there is considerable variation in characteristics and the genetic foundation for improvement is quite broad (Lickey 2002). Tsumura et al. (1999) also found very little genetic differentiation between bald and pond cypress, but their study included only 20 individuals from each of six populations of BC and seven populations of PC in Florida and extreme southern Georgia. Beilman (1947), Flint (1974), McMillan (1974), and Sharma and Madsen (1978) reported on seed source and provenance variation. Faulkner and Oliver (1983) found source effects for cone size and seed weight, but failed to find geographic variation for number of insect galls per cone, height, and diameter, but because the scope of their work was rather limited they were unable to detect geographic variation. The seed characters and young seedling growth of BC from 11 locations in six American states were reported in a Chinese article and the results indicated there were significant differences among 34 progenies concerning the measured variables (Huang Li-bin, Wang Qi-ming ,Li Xiao-chun, Wang Wei, Chen Zhi-ying and Jiang Zhi-xin. 2000) . Pezeshki, DeLaune, and Choi (1995) found salt tolerance differences among populations of BC. In that study, populations from freshwater had greater height growth, net shoot biomass, and net root biomass, when compared to brackish populations. They identified a need for further investigation to explore population variations in performance to identify plants tolerant of environmental stresses. In another study, compared to *Nyssa aquatica*, BC seedlings were able to grow unaffected by fly ash concentrations up to 10% in sand, concluding that BC was highly recommended for wetlands containing fly ash. In one study, seed origin of MC had no effect on cumulative germination percentage for two seed sources from New Mexico (St. Hilaire 2001). BC is also a high flood tolerance species, and this may be associated with the rapid recover of stomatal conductance, transpiration and photosynthesis after the removal of flooding. The salt tolerance of BC from different provenances revealed differences, but they all have a good pollution tolerance. In 2002, several experiments were conducted to determine the effects of varied soil water and salt levels (alone and in combination) on the growth, biomass allocation, the uptake of nutrients and photosynthetic characteristics of BC seedlings in Nanjing, China. The results showed that there were significant effects of soil water and salt contents on growth and uptake of nutrients of BC. The relative height growth, relative ground diameter growth and biomass increment decreased with increase of soil salt content and decrease of soil water content. The net photosynthetic rate, stomatal conductance, chlorophyll a concentration, chlorophyll b concentration, and chlorophyll content decreased with increasing of soil content at varying soil

water content, but transpiration rate and respiration rate had no unanimous changing tendency. Krauss et al. (1996, 1998, and 1999) studied intraspecific variation of salinity tolerance in BC and found genotypes with significantly improved tolerances. All of the above-mentioned studies dealt with *Taxodium* as a forest tree and not as an ornamental for the nursery and landscape industry.

Hybrids

Chinese scientists are convinced that Taxodium hybridization promises to combine the best characteristics of superior parents. In 1988, clones T302 - (a BC X MC hybrid), T401 (PC X MC), and T202 (PC X BC) were selected in China primarily for growth rate and tolerance to alkaline and salt-rich coastal floodplains. All hybrids are intermediate types so far as photosynthetic activities are concerned; the genetic influence of the male parent was greater than that of the female ones. The height and breadth of the hybrids have positive correlation with photosynthetic intensity. The results of stem analysis of T302 and BC grown on alkaline low-land show that the height, DBH and volume growth of T 302 are 147%, 149% and 331% of BC. The mean annual increment and current annual increment curve of volume indicate that T 302 could grow well under alkaline soil condition, while BC would be comparatively inhabited. T302 is also recommended in China for soils with pH 8.0~8.5 and salt concentrations <.2%. T301, T401, T302 have higher salt tolerance than BC and PC. Other attributes of T302 included 159% faster growth than BC, good columnar form, and longer foliage retention in fall and early winter, and no knees.

T302 has been in the USA since January 2002 and is currently under evaluation in over 30 locations in southern USA. The clone was named 'Nanjing Beauty' in 2004 as a cooperative introduction of the SFA Mast Arboretum and Nanjing Botanical Garden. In March 2005, the SFA Mast Arboretum received two new clones from Professor Yin Yunlong's program at the Nanjing Botanical Garden; T140 and T27 are considered more evergreen than T302 and both demonstrate strong salt tolerance. The clones were selected from a field population of T302 X MC – with strong MC characteristics and improvements in growth rate, salt tolerance, form and vigor. T140 grows faster than T27, which produces a wider profile. Nanjing scientists believe they have selected another clone, T1, that may be superior to both T140 and T27, but more genotype X environment studies are needed. The foundation of the most recent selections comes originally from crosses made by Professor Chen and Liu in 1992 at the Nanjing Botanical

Garden. Pollen from MC was applied to a female T302 and fifteen selections were made in 1995. The main characteristics for selection were 1) fast growth rate, 2) dark green color during the growing season and a red-orange leaf color in the autumn, and 3) evergreen leaves. In 2006 or 2007, the results from T140 and T27 will be reported and registered with the Chinese Forestry Department. It will be at least five years before T140 and T27 enter commerce. In June, 2005 there were less than 100 each of these two clones. T118, T120 and T149 have already been registered with the Chinese Forestry Department at the provincial level, while T302 has been registered at the national level.

A new intergeneric hybrid *Taxodiomeria peizhongii* Z.J.Ye, J.J.Zhang et S.H. Pan, gen. nov. (a cross between *Taxodium mucronatum* Ten. and *Cryptomeria fortunei* Hooibrenk ex Otto et Dietr.) was created in Nanjing, China in 1963. The hybrids are semi-evergreen, grow fast, hold up to strong winds, have no buttswells and buttresses, and the trunk is usually divided at a height of 5-8 m into two or more primary branches. They thrive in ordinary garden soil, wetlands and saline sea-shores with a soil PH ranging from 6.5 to 8.6. The trees can grow in saline soil with 0.4% salt. They are useful for landscape planting as well as for large-scale windbreaks in reverie and coastal regions. This unique hybrid is not yet available in the USA.

In the USA, there has been recent interest in selecting superior Taxodium genotypes. Work by Donald Rockwall (Gainesville, Florida) Ken Krauss (Lafayette, Louisiana), Mike Arnold and Geoff Denney (College Station, Texas), and work at Stephen F. Austin State University (Nacogdoches, Texas) will result in superior landscape and coastal wetland genotypes.

Salt Tolerance

Many coastal wetlands of the southeastern United States are threatened by increases in flooding and salinity as a result of both natural processes and man-induced hydrologic alterations (Conner and Brody 1989). If predicted climate changes occur, the consequent rise in sea level will cause flooding and salt water intrusion in many coastal areas (Epstein et al. 1980). Salt can damage trees in two ways. Salt within the soil can adversely affect soil structure and damage a tree's roots, causing the crown to thin; however, aerial deposition of salt on the above-ground parts of a plant causes the most damage. And ocean spray is the primary culprit. During extreme conditions, such as hurricanes, salt spray can affect plants as far as 50 miles inland, although most damage

occurs within 1,000 feet of the shore. Salt damage may take various forms: delayed bud break, reduced leaf size, desiccated leaf margins and tips, premature fall coloration and leaf fall, bud and stem dieback, and reduced shoot growth. Salt produces these symptoms by altering osmotic pressure and, where soil is salty, upsetting the mineral nutritional balance. Damage to trees can be minimized by avoiding the use of salt around landscape plants. But, obviously, the salt content of ocean spray can not be changed. It is therefore essential that species selected for landscape planting in areas exposed to ocean spray be able to survive and remain attractive in such environments.

Propagation

Seed propagation is simple for freshly harvested seeds and quick stands are normal with immediate sowing. A brief alcohol soak is thought to improve percent germination. Superior clones are propagated commonly by grafting. However, cutting propagation is feasible if cuttings come from young, vigorous trees. Yin Yunlong of the Nanjing Botanical Garden reports that T302, selected in 1988, is no longer easy to root, a condition attributed to chronological and physiological age factors. To counter lower rooting percentages, a strict protocol for achieving success has been developed. Chinese nurserymen encourage one year old clones to produce vigorous cutting wood in the second year. T302 plants are field planted at close spacing. The plants are grown one year and then cut back in the winter to 1' tall. This severe pruning results in vigorous upright shoots that provide cuttings in June that root in good percentages, and produce upright growing plants of better form than trees produced from side branches. Cuttings are rooted under part shade using intermittent mist and a well drained mix in rooting beds. While rooting hormones are utilized, cutting wood quality and maintaining good turgor is recognized as critical for high rooting percentages. One upright shoot is left on the stock tree to grow for the rest of the season – a tree that can then be dug for sale as a straight 6 – 8' tree at the end of the second year. Chinese scientists found significant variation among the provenances and families in Genus *Taxodium* in six rooting characters including survival rate, rooting rate, sum of adventitious roots, total length of adventitious roots, rooting performance indexes and length of terminal shoots (Huang Li-bin, Wang Qi-ming ,Li Xiao-chun, Wang Wei, Chen Zhi-ying and Jiang Zhi-xin 2000).

Conclusions

Taxodium is one of the ancient and special genera that call the South home. The fact that it is recognized world-wide as an important landscape and coastal wetland species indicates great promise in selecting superior clones. There has been very little selection of superior types and that arena shows great promise. Work in Louisiana, Florida and Texas should result in exciting new cultivars adapted to a wide range of conditions and landscape requirements.

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From the Ground up-Past, Present, and Future of the Lady Bird Johnson Wildflower Center

ANDREA DELONG-AMAYA
DIRECTOR OF HORTICULTURE, LADY BIRD JOHNSON WILDFLOWER CENTER

Where would the native plant movement be today without the pioneering vision of Lady Bird Johnson, the "Environmental First Lady", to use native species to preserve regional identity and promote spiritual connections between people and the natural world? Founded in 1982 by Mrs. Johnson and her friend and actress, the late Helen Hays, the Lady Bird Johnson Wildflower Center has been a living expression of her work to advance a better understanding and appreciation of native plants.

What was then called the National Wildflower Research Center moved from its original site in east Austin to a new facility which opened in 1995 in south Austin, where it is now located. In honor if the First Lady, the organization was renamed the Lady Bird Johnson Wildflower Center in 1998.

Major programs of the Wildflower Center consist of horticulture (the gardens and growing facilities), plant conservation, environmental education, landscape restoration, and the Native Plant Information Network. Other projects include our quarterly Native Plants Magazine and our affiliate organizations program.

It has been realized for much of our history that the award winning architecture of the Wildflower Center has unfortunately overshadowed the horticultural exhibits. As a leading national botanic garden for native plants, plants must be the centerpiece of the garden. The Wildflower Center's gardens and natural areas are both a living laboratory and tangible demonstration of our mission—to increase the sustainable use and conservation of native wildflowers, plants and landscapes. Last year, in an effort to create gardens with greater appeal to a wider audience, a new garden master plan was designed that will incorporate more stylized and formal gardens as well as naturalistic exhibits. This plan will help position the Wildflower Center to become the premier native plant botanic garden in the country.

Implementation will take place in several phases, the first of which will include an enticing children's garden and a much needed entry garden/orientation gallery. Also envisioned are more homeowner demonstration gardens, an upgrade of the existing Meditation Garden, the conversion of the current Demonstration Gardens to a Sun Garden, and a new Reception Garden. The long-range strategy features a park-like Cypress Stream, a Granite Outcrop, a Fern Grotto, a Wedding Garden, a Formal Garden, and a Shade Garden.

The plan is ambitious—it will cost more than $10 million—but it has the strong support of the Wildflower Center's board and will allow us to further our educational goals in a fun and engaging way. As the plan progresses, we hope you will support us as we make our gardens even more beautiful and compelling.

FLORA OF EAST TEXAS[1]

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OVERVIEW

East Texas is an area of approximately 62,600 square miles (162,200 square kilometers), delimited on the east by the state border, on the north by the Red River, and extending west and south to Dallas, Austin, and nearly to San Antonio and Houston. While a small region compared to Texas as a whole (approximately 269,000 square miles = 697,000 square km), this 87 county region is about the size of Georgia. It includes the Pineywoods, Post Oak Savannah, Blackland Prairie, and the Red River Area (Fig. 1). The flora includes 3,402 vascular plant species, slightly more than two-thirds of the total for all of Texas (Hatch et al. 1990; Turner et al. 2003), and 3,660 taxa (species, subspecies, and varieties) overall (see Table 1 for summary data on the flora). Representatives of 202 families and 1,079 genera are known. The East Texas flora is thus quite diverse, a phenomenon that is the result of numerous factors that will be discussed below. The origin of the flora is also complex and interesting, being due to a variety of geohistorical factors, some of which will also be mentioned. For the past two centuries, humans have had, and are continuing to have, a tremendous impact on the plants and animals of the region. Presettlement and early settlement conditions were radically different from those found today, and environmental change continues to accelerate. Given current trends, the present generation may be the last with the opportunity to preserve even small remnants of the once extensive natural ecosystems of the area.

ORIGIN OF THE EAST TEXAS FLORA

The flora of East Texas, like that of any relatively large region, has a complex and varied origin. Ultimately, it is the result of the evolutionary and distributional history of each of the component species, as well as a reflection of past and present climate and soil conditions.

[1]Exerpted from Diggs, G.M., Jr., B.L. Lipscomb, M.D. Reed, and R. J. O'Kennon. 2006. *Illustrated flora of East Texas*. Vol. 1 (Ferns and similar plants, Gymnosperms, and Monocotyledons). Sida, Bot. Misc. 26

Vegetational Areas of East Texas

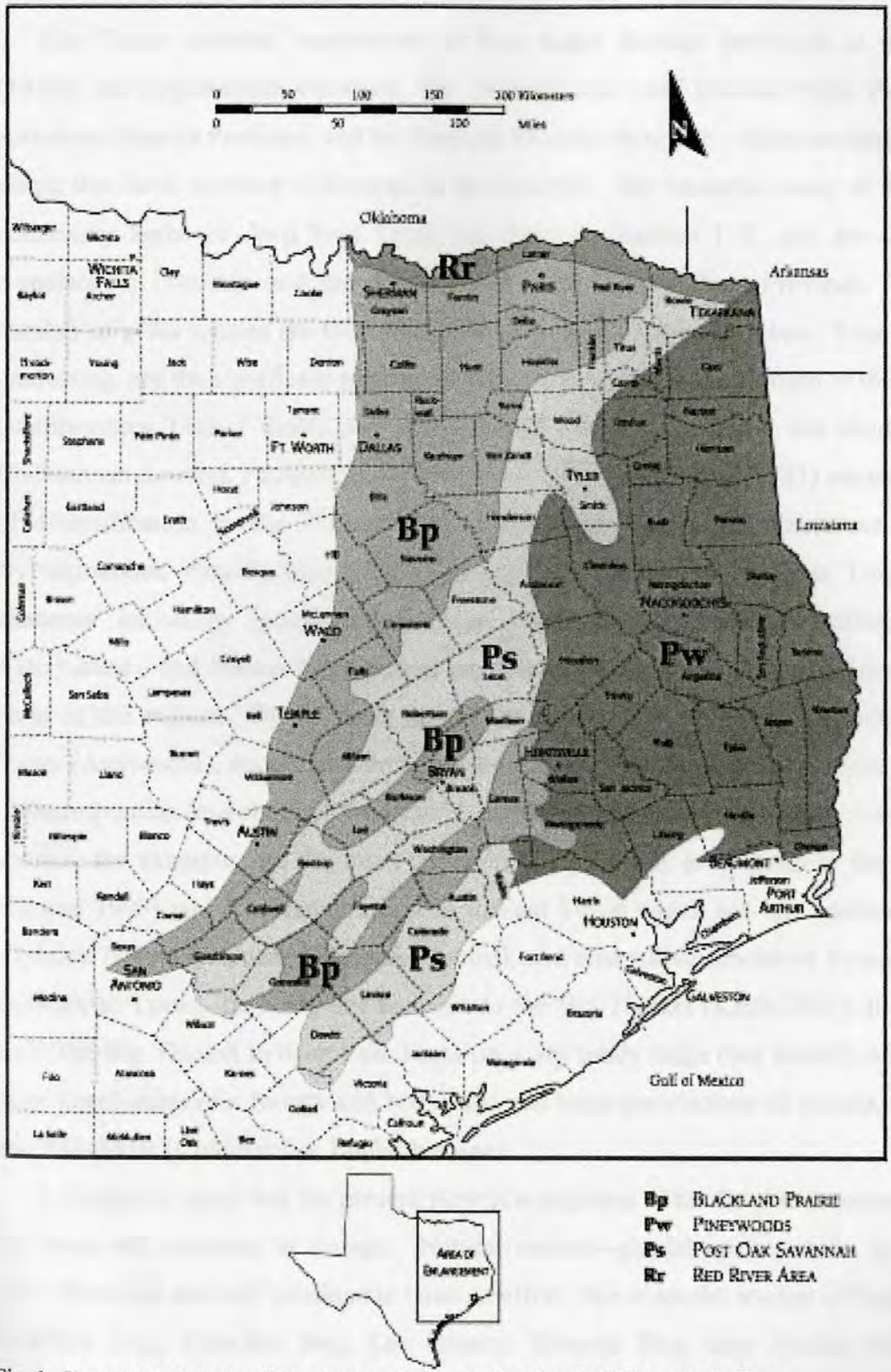

Fig. 1. Vegetational areas of East Texas. Figure produced by BRIT/Austin College.

However, several influences can be observed which together allow at least a broad understanding of how the present flora originated.

East Texas contains components of four major floristic provinces as defined by Thorne (1993): the Appalachian Province, the Atlantic and Gulf Coastal Plain Province, the North American Prairies Province, and the Sonoran Floristic Province—there are thus sets of East Texas plants that have common influences in their origins. For example, many of the forest trees and understory herbs of deep East Texas are from the eastern U.S. and are components of the Appalachian Province and the Atlantic and Gulf Coastal Plain Province. Likewise, a large number of grass species are from the North American Prairies Province. Less obvious, but quite interesting, are the significant number of plants that can trace their origin to the Sonoran Province (southwestern United States and northwestern Mexico, including the Mojave, Sonoran, and Chihuahuan deserts). Families in the East Texas flora that Thorne (1993) emphasized as examples of diversification in the Sonoran Province include Agavaceae, Cactaceae, Menispermaceae, Nyctaginaceae, Passifloraceae, Rafflesiaceae, and Sapotaceae. In East Texas, some Sonoran elements including species of *Aloysia* (Verbenaceae), *Condalia* (Rhamnaceae), *Garrya* (Garryaceae), and *Nolina* (Agavaceae) are found mostly in the drier southern and southwestern parts of the region. Others, such as species of *Acacia* (Fabaceae), *Opuntia* (Cactaceae), and *Yucca* (Agavaceae), occur more broadly—even in the Big Thicket, the wettest part of East Texas. Cylindropuntias (members of the genus *Opuntia* with ± cylindrical stems, Cactaceae) and *Yucca* species, for example, are the most common tall plants in some parts of the Sonoran Province (Thorne 1993) and a connection is seen to East Texas which has one species of cylindropuntia (*Opuntia leptocaulis*, desert christmas cactus), and nine native species of *Yucca*, four of which are endemic to Texas, including one endemic to the Big Thicket (Keith 2003). It is quite striking to be in the Big Thicket in deep East Texas on a dry sandy ridge (but literally only a stone's throw from beech-magnolia forests and bogs) and see large populations of yuccas, prickly-pear cacti, and bull-nettle (*Cnidoscolus*; Euphorbiaceae).

It should be noted that the present view is a snapshot of the flora as it currently exists and that the flora will continue to change. Natural causes—glacial cycles, shifts in weather patterns, etc.—have had and will continue to have an effect. For example, studies of bogs at various Texas localities (e.g., Patschke Bog, Lee County; Boriack Bog, near Austin; Gause Bog, Milam County), as well as larger scale studies and analyses, indicate that near the end of the last glacial maximum, species currently present only much further north (e.g., white spruce, *Picea glauca*; Fig. 2) were present in Texas suggesting a very different climate (Potzger & Tharp 1943, 1947,

1954; Bryant 1977; Bryant & Holloway 1985; Delcourt & Delcourt 1993; Stahle & Cleaveland 1995). Certain present-day plant distributions may thus be relicts of these past climatic conditions (Kral 1966). The current occurrence of the predominantly northern American beech (*Fagus grandifolia*) in the eastern part of the Pineywoods or the unusual occurrence of plants normally found in Eastern Texas in microhabitats of the Edwards Plateau, the Trans-Pecos, or the

Fig. 2. Modern distribution of *Picea glauca* (Pinaceae)
(white spruce) (from Taylor 1993, with permission of Oxford Univ. Press).

Cross Timbers and Prairies are results of past climates. In fact, many otherwise difficult to explain modern plant distributions may be easily accounted for by regarding them as the result of changing climatic conditions of the past. One example is the occurrence of *Cladium mariscoides* (smooth saw-grass, Cyperaceae) disjunct to a few bog localities in East Texas and the far southeastern U.S., but otherwise known only from southeastern Canada and the northeastern U.S. as far south as South Carolina and Tennessee (Bridge & Orzell 1989; Tucker 2002). Another possible example is the occurrence of jack-in-the-pulpit (*Arisaema triphyllum*) in Parker County in the West Cross Timbers. This species is generally limited to mesic environments in the eastern part of the state. Nonetheless, a thriving population can be found in a mesic "rockhouse" microhabitat between sandstone rock walls in Parker County, well to the west of other known locations of this species (Diggs & O'Kennon 2003). It seems likely that this population is a relict from a previously extensive forest that was largely lost as the climate warmed and dried. Other eastern species that have been found surprisingly far west in Texas include eastern hop-hornbeam (*Ostrya virginiana*) in Tarrant County and shag-bark hickory (*Carya ovata*) in Parker County, both separated by more than 120 miles (193 kilometers) from their present distributions in East

Texas. Numerous other examples could be given, including many species and genera typical of East Texas which show up in isolated pockets on the Edwards Plateau (e.g. groundnut (*Apios americana*), cross-vine (*Bignonia capreolata*), witch-hazel (*Hamamelis virginiana*) (Fig. 3), spicebush (*Lindera benzoin*), barbed rattlesnake-root (*Prenanthes barbata*), Carolina rose (*Rosa carolina*), dwarf palmetto (*Sabal minor*), and American basswood (*Tilia americana*)). In addition, many herbaceous species common farther north and east in the U.S. occur in Texas only rarely and erratically in the Pineywoods and

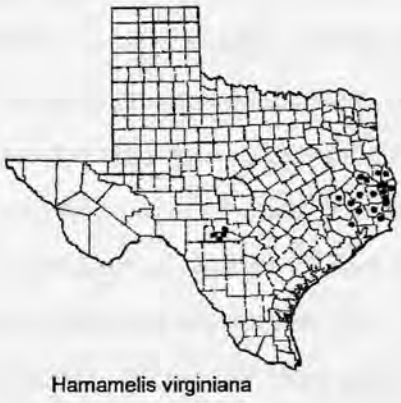

Fig. 3. Texas distribution of witch-hazel (*Hamamelis virginiana*), an example of the numerous species that occur in Texas primarily in East Texas, but with isolated occurrences on the Edwards Plateau (from Turner et al. 2003, with permission of Billie Turner and the Botanical Research Institute of Texas).

have extremely limited distributions. Kral (1966) and MacRoberts and MacRoberts (1997) discussed a number of these "northern woodland elements" south of their normal ranges (e.g., *Erythronium rostratum* (yellow trout-lily), *Lilium michauxii* (Carolina lily), *Sanguinaria canadensis* (bloodroot), *Silene stellata* (widow's-frill), *Trillium recurvatum* (prairie trillium), *Uvularia sessilifolia* (sessile-leaf bellwort)) and indicated that they appear to be relicts of glacial times surviving in areas with particularly favorable soil and moisture conditions (i.e., refugia). Kral (1966) noted that he could walk for miles and then find a large colony of one of these species, apparently reproducing predominantly via vegetative means. These species may thus be "Ice Age holdovers hanging on precariously to the older geologic terraces in the coolest locations in the forest" (MacRoberts & MacRoberts 1997). Thus, the flora of East Texas is in part a unique reflection of glacial times—when northern species like *Fagus grandifolia* (American beech) and *Carya alba* (mockernut hickory) were brought together with plants like *Magnolia grandiflora* (southern magnolia) and *Sabal minor* (dwarf palmetto) (Fritz 1993).

In general, with the exception of the wetter extreme eastern portion, much of East Texas can be considered ecotonal—a transition zone. When looking back over thousands of years, the "history of this ecotonal region involved introduction of *Picea* [spruce] and mesic deciduous vegetation from the north during cool moist intervals, the establishment of oak savannah or an

oak–hickory (*Carya illinoinensis*) association in warmer drier times, and possibly the incursion of arid elements from the west during periods of maximum temperature and dryness" (Graham 1999). In other words, the region has had a varied climate and complex floristic influences, and in order to understand the flora, it is just as important to look for past influences as it is to look for present causes such as current climate and soils.

Certain sets of East Texas plants can trace their origins much deeper into the past. For example, a number of East Texas genera are found in only two parts of the world—eastern North America and eastern Asia. One of the best known of such disjunctions is the genus *Carya* (hickories and pecan)—this genus is only found in these two places (Fig. 4)—a distribution that is now understood. This disjunct distribution pattern has complex origins and has long been of interest to plant geographers (e.g., Asa Gray 1846, 1859). In the geologic past, dispersal between

Fig. 4. Worldwide distribution map of *Carya* (Juglandaceae) showing its disjunct occurrence in eastern Asia and eastern North America (from Wu 1983).

the Eurasian and North American continents was possible across both the Bering and North Atlantic land bridges, and the combined area is considered a single "Holarctic" biogeographic region—in other words, during certain periods of the past, plants could migrate between North America and the Old World. The fossil record shows that many plants had extensive distributions across large areas of the Northern Hemisphere—for example, temperate forests with tropical elements occurred very broadly and reached their maximum extension in the mid-Tertiary Period (the Tertiary extended from 65 million years ago to 1.8 mya). This widespread flora has been referred to as the Arcto-Tertiary flora, the Tertiaro-mesophytic flora, the boreotropical flora, or a mixed mesophytic forest. Geohistorical events from the mid-Tertiary to the present have included changes in the shapes of the northern land masses, fluctuations in sea levels, plate tectonic movements, mountain building, glaciation, and other changes in the climate. As a result,

there have been great changes in the flora, and the ranges of many plants have been greatly restricted (e.g., they have been eliminated from Europe and western North America). A significant number of plants that were once much more widespread now survive in only two widely separated areas, eastern North America and eastern Asia. Though this disjunct distribution pattern has complex and multiple origins, with similar present day distributions differing in time and manner of origin, the consensus is that the eastern Asia–eastern North America pattern is in general a relict of the maximum development of Northern Hemisphere temperate forests (with tropical elements) in the Tertiary geologic period, with greater survival in eastern Asia and eastern North America and higher rates of extinction in Europe and western North America. According to Wen (1999), approximately 65 genera of seed plants have this disjunct distribution. Some East TX examples include, but are not limited to, *Aletris*, *Ampelopsis*, *Apios*, *Brachyelytrum*, *Campsis*, *Carya*, *Diarrhena*, *Halesia*, *Hamamelis*, *Lindera*, *Lyonia*, *Menispermum*, *Nyssa*, *Parthenocissus*, *Penthorum*, *Phryma*, *Podophyllum*, *Sassafras*, *Saururus*, *Stewartia*, *Tipularia*, *Trachelospermum*, *Triosteum*, and *Zizania*) (Li 1952; Little 1970; Graham 1972; Boufford & Spongberg 1983; Hamilton 1983; Hsü 1983; Wu 1983; Ying 1983; Tiffney 1985a, 1985b; Cox & Moore 1993; Graham 1993, 1999; Xiang et al. 1998; Wen 1999, 2001; Dilcher 2000; Donoghue et al. 2001; Xiang & Soltis 2001).

The East Texas flora also contains a considerable number of Texas endemics—species that occur nowhere else and that presumably evolved locally to match unique local conditions. East Texas has a total of 163 species endemic to Texas, of which 26 are limited to East Texas itself, i.e., their natural occurrence is restricted to that area (Carr 2002a, 2002b). Some of these endemics are extremely local in occurrence (e.g., *Gaillardia aestivalis* var. *winkleri*, Winkler's gaillardia, limited to the Village Creek watershed in Hardin County), and others display no obvious common distribution. However, a number do fall into clearly defined patterns, such as West Gulf Coastal Plain endemics and Edwards Plateau endemics.

In addition, the modern flora contains 18% introduced species, brought by humans from various parts of the world and now naturalized in East Texas. Of the 3,402 total species known for East Texas, 619 species or 18% of East Texas' flora, have been introduced since the time of Columbus and have become naturalized.

Not only natural causes, but also human activities (e.g., habitat alteration, human-induced climate changes, introduction of exotic species, etc.) will certainly cause the flora to continue to change. For example, some introduced species are currently having significant adverse impacts on surviving native ecosystems (e.g., see Diggs & Lipscomb 2005). Specific cases of such

invasive exotics include hydrilla (*Hydrilla verticillata*), which now chokes many miles of Texas waterways, Chinese tallow tree (*Sapium sebiferum*), which is invading extensive areas in the Big Thicket, and pincushions or sweet scabious (*Scabiosa atropurpurea*), which is currently taking over roadsides and adjacent areas in the northern part of East Texas (e.g., Dallas, Collin, and Grayson counties) and has the potential of becoming one of the most destructive invasive exotics in grassland habitats.

Diversity (Species Richness) of the East Texas Flora

The 3,402 vascular plant species found in East Texas (slightly more than two-thirds of the total for Texas) make it particularly rich in species for its size (about 62,600 square miles or about 23% of Texas). This can be put in perspective when it is realized that the vascular plant flora of the entire Great Plains (which make up one-fifth of the area of the contiguous United States) consists of 3,067 taxa (Great Plains Flora Association 1977, 1986; Thorne 1993). When the entire flora of North America north of Mexico is considered (estimated at approximately 18,000 species—Thorne 1993), East Texas includes about one out of every six plant species known in the continental United States and Canada. Likewise, when the number of species in three adjacent states, Arkansas (2,877—Arkansas Vascular Plant Manual Committee 2002), Louisiana (3,249—Thomas & Allen 1993–1998), and Oklahoma (2,549 species—Taylor & Taylor 1994), is considered, East Texas again appears particularly diverse. The striking diversity of the area is also apparent when it is realized that there are 202 vascular plant families (as treated in Diggs et al. 2006) in East Texas. This diversity at the family level exceeds all but a handful of states (e.g., Alabama, Florida, Texas). When compared (using the same taxonomic approach to families) with its nearest neighbor to the north, East Texas has 11 more families than all of Oklahoma (Taylor & Taylor 1994), even though Oklahoma is substantially larger.

A number of *interrelated* factors contribute to this diversity:

- **Geologic and associated hydrologic variation** resulting in considerable edaphic variation—e.g., very dry to very wet conditions including bogs and baygalls; acidic to calcareous substrates ranging from Carrizo sands to Weches outcrops and Catahoula sandstone; deep highly fertile soils to highly leached areas and rock outcrops.
- **Climatic variation**—e.g., average annual rainfall ranges from nearly 60 inches at the southeastern portion of the area to less than 28 inches at the southwestern margin.

- **High habitat diversity**—Large numbers of different habitats occur in a relatively small area, each of these supporting a diverse assemblage of species (this is particularly noteworthy for the Big Thicket).
- **Position on the ecotone** or transition zone between the eastern deciduous forests and the central North American grasslands (ecotones frequently contain high levels of diversity—Risser 1995). A quantitative analysis of the east-west floristic transition across Texas (MacRoberts & MacRoberts 2003) demonstrated that this change occurs in an approximately 300 km wide band (see Fig. 5) extending from around 95° to 99° west longitude (roughly from Houston and Tyler on the east to Wichita Falls and San Antonio on the west), with much of this area being within the boundaries of East Texas (depending on the latitude, East Texas as defined here extends from just east of 94° to just west of 98° longitude). Austin, at the western margin of East Texas, is one of the areas where the east and west influences are approximately balanced. While Texas has long been recognized as a transition zone, (e.g., Blair 1950; Gehlbach 1991; Diggs et al. 1999), the MacRoberts and MacRoberts study is the first to quantitatively document the area of most rapid change.

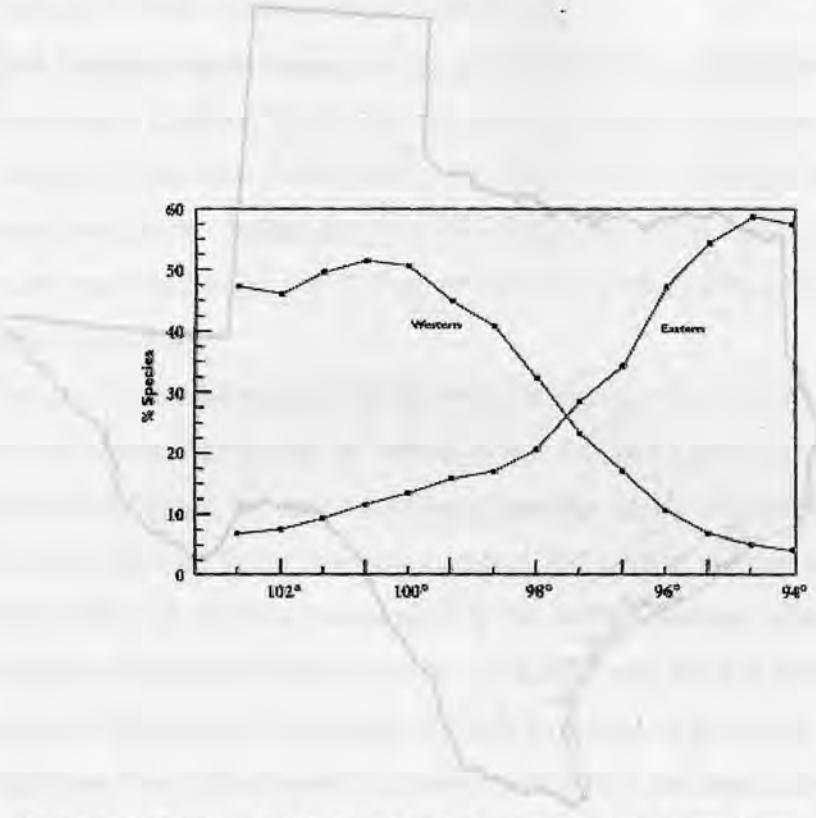

Fig. 5. Percentage of eastern and western species versus longitude across Texas. (modified from MacRoberts & MacRoberts 2003), with permission of the Botanical Research Institute of Texas.

- **Proximity to other source floras**—This intermingling of elements typical of the eastern deciduous forest, southeastern swamps, central North American grasslands, southwestern deserts, and even the tropics is striking and contributes greatly to the overall biological

diversity of the area. The tropical and southwestern desert components of the East Texas flora are probably the least obvious. Sorrie and Weakley (2001) discussed these elements in relationship to the diversity of the Atlantic and Gulf Coastal Plain Floristic Province, and plants of these origins are particularly evident in the flora of East Texas. A few examples of the many genera with tropical affinities include *Asimina*, *Eriocaulon*, *Hymenocallis*, *Sabal*, *Tillandsia*, and *Zephyranthes*. In contrast, *Abronia*, *Coryphantha*, *Lesquerella*, *Manfreda*, *Mentzelia*, *Nolina*, and *Opuntia* are a few of the genera which have affinities with the Sonoran Floristic Province to the west and southwest.

- **Rich biogeographic history**—e.g., remnant Tertiary components (e.g., *Aletris*, *Halesia*, *Hamamelis*, *Lindera*, *Nyssa, Parthenocissus, Penthorum*, *Phryma*, *Podophyllum, Sassafras*, *Saururus*, *Tipularia*—Wen 1999); remnant northern species as the result of glaciation—e.g., American beech. Influences from the distant past (millions of years ago) to the relatively recent past (end of the last ice age) thus have a direct effect on the diversity of the present East Texas flora.

Perhaps the most important of these factors are the area's position on the ecotone between the eastern deciduous forests and the central North American grasslands, and its proximity to the southeastern swamps, the desert southwest, and the nearly tropical area of south Texas. The result is that the East Texas flora is a complex and diverse mixture derived from several major, and quite different, floristic provinces (Thorne 1993). Because of the disparate floristic elements and its mid-continental position, one part of East Texas, the Big Thicket, has been referred to by some as the "Biological Crossroads of North America" (e.g, Gunter 1993). Given the location of the transition zone (MacRoberts & MacRoberts 2003), the description is perhaps even more fitting for East Texas as a whole (Fig. 6).

When all information is considered, the East Texas flora is seen to be a unique assemblage of many different elements all coming together and coexisting in a relatively small area—creating an extremely rich flora.

Fig. 6. The Big Thicket and East Texas as a whole as a "Biological Crossroads" (modified from National Park Service 1997).

WHAT DOES ALL THIS MEAN?

Clearly East Texas is a floristically diverse and botanically fascinating area. However, when one considers that within the last 150 years virtually all of the Pineywoods was cut for timber and almost all of the Blackland Prairie was destroyed for cotton production and other uses, many questions, both practical and philosophical, come to mind regarding the use of land and natural resources. Is it our responsibility to preserve at least a minute fraction of this wonderful and unique natural heritage? How can we justify destroying absolutely everything in the name of so-called progress and economic prosperity? What will future generations of Texans say about the actions of those alive today? Are we the stewards of the natural world or merely its exploiters? Perhaps increased knowledge of the unique natural world of East Texas will stimulate efforts at conservation and preservation.

Table 1. SUMMARY DATA ON THE EAST TEXAS FLORA AND COMPARISON WITH OTHER FLORAS

From: [1]Turner et al. 2003; [2]Diggs et al. 1999; [3]Taylor & Taylor 1994; [4]Arkansas Vascular Plant Manual Committee 2002; [5]Thomas & Allen 1993–1998; [6]McGregor 1976; [7]Strausbaugh & Core 1978; [8]Radford et al. 1968; [9]Hickman 1993.

SUMMARY DATA ON THE EAST TEXAS FLORA
AND COMPARISON WITH OTHER FLORAS

SUMMARY OF THE FLORA OF EAST TEXAS*

	FERNS & SIMILAR PLANTS	GYMNOSPERMS	ANGIOSPERMS	MONOCOTYLEDONS	DICOTYLEDONS	TOTAL
Families	19	3	180	46	134	202
Genera	39	4	1036	252	784	1079
Species	73	9	3320	978	2342	3402
Additional Infraspecific taxa	1	0	257	70	187	258

*Dicot and total angiosperm data and totals are tentative pending completion of volumes 2 and 3.

COMPARISON WITH OTHER FLORAS

	East TX	TX[1]	NCTEX[2]	OK[3]	AR[4]	LA[5]	KS[6]	WV[7]	NC&SC[8]	CA[9]
Genera	1079	1328	854	850	942	1010	801	693	951	1222
Species	**3402**	5042	2223	2549	2877	3249	2111	2155	3360	5862
Native Species	2783		1829		2427	2423	1667		2913	4739
Introduced Spp.	619		394		760	826	435		747	1023
Total Taxa	3660	5256	2376	2844	3187		2228			
Area (in 1000s of square miles)	62.6	269	40	70	53	52	82	24	86	164

EAST TEXAS:

ca. 66 % of the species in Texas (in 20 % the land area)
131 % as many species as Oklahoma (in 77 % the land area)
82 % native species (18 % introduced from outside the United States)
163 Texas endemics and 26 East Texas endemics
113 taxa of conservation concern (Vol. 1 only)

Number of Genera and Species of Poaceae	117	410
Number of Genera and Species of Asteraceae	127	398
Number of Genera and Species of Cyperaceae	16	248
Number of Genera and Species of Fabaceae	62	240
Number of Species of *Carex* (largest East Texas genus, Cyperaceae)		80

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My Diversity Is Better Than Yours:
A Mock Debate

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It could quite possibly take an entire lifetime to explain every thought, theory, fact and definition for the words Botanical Diversity. One topic that can be as educational as it can be stimulating, and yet arguably moot, is geopolitical boundaries as parameters defining the area containing a set botanical diversity or simply "My continent/country/state/county is more botanically diverse than yours".

In this paper and presentation, Bill of Alabama and Peter of Texas discuss or debate why their state has the most botanical diversity, which they have done numerous times with numerous others over many meals over the years. There are a number of reasons that make comparing these 2 states interesting. One is that both are Gulf Coast states. Another is that within each state occurs an ecological cross road. In Alabama, located in the central Eastern Deciduous Forest, you have the southern foothills of the Appalachian Mountain chain meeting the Gulf Coast Plains. With Texas, located at the southwestern edge of the Eastern Deciduous Forest, you have the Pineywoods of the Eastern Deciduous Forest meeting the flora of the Rocky Mountains to the west and flora of northern Mexico to the south. The role of Mexican flora is important when discussing Texas because prior to the formation of the Sierra Cascade Mountains, northern Mexico was the southwestern end of the Eastern Deciduous Forest.

We'll explore the apparent paradoxes of diversity:
Southeastern diversity blossoms in response to the restrictions imposed by frequent rain (water and lightning). Western diversity blossoms in response to the restrictions imposed by drought. Southeastern diversity is a measure of the relative stability of landforms and climate over the past 5 million years. Western diversity is a measure of the instability of landforms and climate over the past 5 million years.
Southeastern diversity, perhaps because it is a response to relative stability, is unusually high at the generic level. Western diversity, perhaps because it is a response to a more unstable environment, is high at the species, subspecies and varietal level.

Texas has an edge in grass diversity; Alabama has a much larger diversity of sedges.

The following list compares a sampling of data for each state:

	Alabama	Texas
Average Annual Rain Fall	50" (North) - 70" (South)	10" (West) - 50" (East)
Size	52,423 sq. miles or 33,550,000 acres	267,339 sq. miles or 171,100,000 acres
TOTAL # PLANT SPECIES:	2902	4509
# *Acer spp.*	10	6
# *Carya spp.*	9	11
# *Ilex spp.*	12	7
# *Magnolia spp.*	9	3
# *Pinus spp.*	8	10
	Alabama	Texas
# *Quercus spp.*	30	48
# *Taxodium spp.*	2	3
# *Rhododendron spp.*	15	3
# *Styrax spp.*	2	7
# *Yucca spp.*	4	17
# *Lupinus spp.*	3	7
# *Monarda spp.*	10	16
# *Salvia spp.*	6	25
# *Sarracenia spp.*	10	1
# *Trillium spp.*	22	4
# Orchid species	55 (in 21 genera)	55 (in 21 genera)
# *Andropogon spp.*	12	6
# *Muhlenbergia spp.*	11	45
# *Sporobolus spp.*	6	20
# *Carex spp.*	140	90

One can not argue that Alabama not only has more species of a number of genre that are the foundation of what defines the Eastern Deciduous Forest than Texas, but also that of any state in the eastern United States. That makes a strong case for species diversity. One could say that is strengthened by the fact that in some cases, certain genre in Texas have species from ecological regions outside the range of the Eastern Deciduous Forest. For example, a number of Oaks and Pines found in Texas are Rocky Mountain species. It could also be argued that the ecosystem in Alabama is more stabilized that that of Texas because of species diversity. Stability should reduce the number of relic species (relic species being a species remaining from a different environmental situation; Example: northern plant species that migrated south during last ice age or possibly deposited during glacial regression).

Texas has its own attributes to claim being most diverse. Being located at the southwest edge of the Eastern Deciduous Forest range means an upper hand over a number of states (Alabama included) in several ways. First, it is generally accepted that edges of ecological ranges contain some of the most genetic diversity for numerous species. With water becoming a greater factor influencing our environment, be it less rain/snowfall or higher demand for human usage, the higher drought tolerance of Texas flora could and may serve as the genetic reserve and therefore secure the survival of numerous southern Eastern Deciduous Forest species.

Then there is the whole Greenhouse Effect scenario of increased temperatures along with its effect on water. Heat tolerance and Texas go hand in hand. One can only imagine what role a plant could play in a species' ability to survive a 10^0 rise in average annual temperature. This would certainly include relic species. Take for example *Acer grandidentatum*, Lost Maple found in central Texas. This Sugar Maple is considered a relic from either when the Eastern Deciduous Forest was part of northern Mexico, or quite possible from the last glacial migration. This plant resides in the harshest of conditions (+/- 20" rainfall a year and dry upper 90^0 temps) day in and day out for months at a time. While discussing the flora of Texas one has to consider Mexico in the equation if for no other reason than, as easy as it is to "dismiss" species of several genre as being "Mexican species", those include Eastern Deciduous Forest mainstays and Texas natives in the northern Mexico mountains (though often with a different species name than the American counterpart) such as Flowering Dogwood, Shagbark Hickory, Southern Magnolia and Cypress.

This paper only scratches the surface of whose diversity is better, that of Alabama or that of Texas. There are pros and cons for each state, some of which have been pointed out in this paper. There will probably be twice as many of each for each state during the presentation, and even then it would only be a start to the debate which means many many more mealtime conversations about "whose diversity is better" in the future for Bill and Peter, who recommend that others give it a try.

Made in the Shade: Southern Natives for Your Shade Garden

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3rd Lone Star Regional Native Plant Conference
Stephen F. Austin State University
Nacogdoches, Texas

Introduction

During my 25 years of involvement within the gardening-with-native-plants movement, by far the most oft-repeated amateur gardening question directed to me has been, "I'm having difficulty finding things that do well in the shade. Can you help?" It is interesting that the geographical setting in which the vast majority of such questions have been posed has been either at the Acadiana Park Nature Center, at our little native plant nursery, or in some gorgeous arboretum which happens to be hosting a native plant symposium and/or plant sale – all of which are bursting at the seams with lushly-forested habitats possessing dozens upon dozens of shade-loving species.

How and why the art of shade gardening has lagged so far and for so long behind that of sun gardening is a question best left to gardening philosophers, of which this state seems to host no small amount. For the purposes of this presentation, rather, I shall focus directly upon providing plant-solutions to this seemingly ubiquitous problem. First, however, we should have a quick look at the ecological context of shade gardening.

Qualities of Light, Soil, and Moisture in the Shade Garden

As is the case with any garden, successful plant selections within shade garden settings hinge upon a thorough understanding of sunlight qualities, soil types, and moisture regimes within each setting. For the purposes of this presentation, I'll forgo most of the detailed soil and moisture discussion and focus more closely on the various types of occluded sunlight exposure inherent to shade gardens, along with respective effects on plants.

Part-Shade (PS) – For the purposes of this presentation, is defined as an area receiving no more than 2-4 hours of direct sunlight preceded (or followed) by substantial shade. It is important to note that within the range of most southern U.S. habitat types, most plant species which are characterized as "sun-lovers" will also do well under part-shade conditions.

Bright-Filtered-Light (BFL) – Also known as "high shade," this light quality most often occurs beneath tall, high-limbed, shade trees accompanied by minimal interference within the mid-story level. Standing beneath such a setting, gardeners often refer to this situation as the "cathedral effect." Here, sunlight conditions are mild and gentle, and will accommodate the greatest diversity of so-called "sun-loving" and "shade-loving" plant species.

Dappled-Light (DL) – More shade than light, but patches of direct sunlight nonetheless penetrate down to ground level at various times of the day. It is at this level of light which many "sun-loving" plants exhibit diminished performance.

Heavy-Shade (HS) – Or, "deep-shade" where little if any direct sunlight strikes the ground. Here, with only a few notable exceptions, only dedicated "shade-lovers" can thrive.

Southern U.S. Native Plant Species Selections

The following is a much-abridged listing of southern U.S. natives which are noteworthy for their abilities to thrive under various qualities of occluded light, along with a short discussion of cultural considerations for each . Here, I've attempted to stick with species which 1) have exhibited decent latitudes of adaptability regarding varying soil types and moisture regimes (unless otherwise noted), and 2) are currently/relatively available within the southern U.S. native nursery trade.

Woody Species

Azaleas, Deciduous *(Rhododendron spp.)* – Numerous species; all preferring wet-mesic, acidic, sandy-loam soils, PS (morning sun best) or BFL.

Beautyberry, American *(Callicarpa americana)* – A shade garden staple! Any shade quality (PS, BFL, DL, DS) is fine; mixing a white-fruited form in with several purple-fruited plants is a nice touch.

Bird Pepper or *Chile Pequin* *(Capsicum annuum glaberissimum)* – Our only native, perennial, pepper! Along with turk's cap, rouge plant, and tropical sage, it is a fairly common sub-canopy species of our chenieres, oak-mottes, and other coastal forests. PS, BFL.

Cherry, Black *(Prunus serotina)* – Truly prefers PS/BFL, dry-mesic soils.

Crossvine *(Bignonia capreolata)* – One of the few native vines to actually bloom well in PS/BFL conditions; any soil; other native woody vine considerations for PS/BFL include Trumpet Honeysuckle *(Lonicera sempervirens)* and Carolina Jessamine *(Gelsemium sempervirens)*. All of these species are evergreen.

Florida Leucothoe *(Agarista populifolia)* – Outstanding small tree/large shrub; evergreen; exceedingly adaptable re: soil type and shade quality. "Foundation tree."

Hawthorns *(Crataegus spp.)* – Ecologically, a sun-loving, "pioneer" group, but some species do especially well in reduced light, especially Parsley Haw *(C. marshallii)* and Green Haw *(C. viridis)*, and particularly in PS/BFL.

Hollies *(Ilex spp.)* – Too many shade-tolerant species to detail here; but for PS & BFL consider Yaupon *(I. vomitoria)* and American Holly *(I. opaca)*.

Hornbeam, American *(Carpinus caroliniana)* – Perfect for a mid-story specimen (fall/winter color; trunk) under BFL, and also performs happily in PS and even DL.

Hydrangea, Oak-leaved *(Hydrangea quercifolia)* – Wonderful coarse texture and fall/winter leaf color; PS/BFL and limey soils best.

Magnolia, Deciduous *(Magnolia spp.)* – Several species available; they really like sandy-loam soils and northeastern exposures; PS/BFL, with the majority of the direct light coming around mid-day.

Magnolia, Sweetbay *(Magnolia virginiana)* – Very nice in PS/BFL. Soil adaptable.

Maples *(Acer spp.)* -- All native southern U.S. species perform admirably in PS/BFL. Consider especially under-utilized species such as Southern Sugar Maple *(Acer barbatum)* and Chalk Maple *(Acer leucoderme)*, both of which seem happiest within some sort of occluded light situation.

Palmetto, Dwarf *(Sabal minor)* – Always a stunning architectural presence in the garden; handles any quality of shade and any soil/moisture regime.

PawPaw *(Asimina triloba)* – Small tree; coarse, "tropicaloid" foliage; best for PS & BFL, but will perform in DL as well. Excellent as a "foundation tree."

Plums *(Prunus mexicana/umbellata)* – The 2 most shade-adapted species are Mexican Plum and Flatwoods Plum (aka "American Sloe"); both small trees; the former with fragrant blooms, best soil adaptability; the latter with the most dense floral display, predilection for sandier soils.

Red Buckeye *(Aesculus pavia)* – Outstanding small tree/large shrub selection for any soil, moisture, and shade quality. Caution: defoliates in the middle of the growing season. Consider for "foundation tree" as well.

Redbud, Eastern *(Cercis canadensis)* – Small tree; highly-adaptable as to soil, moisture, and sunlight; shade-wise, blooms best in PS/BFL.

Saint Andrew's Cross *(Hypericum hypericoides)* – Shows off best in PS/BFL.

Silverbell, Two-winged *(Halesia diptera)* – Good for PS/BFL; prefers mesic to wet-mesic soils with at least some sandy-loam component to them.

Spicebush *(Lindera benzoin)* – Must have shade and wet-mesic soils.

Star Anise *(Illicium floridanum)* – aka "Star Bush"; evergreen magnolia family large-shrub; performs well under all shade categories, but much-prefers sandy wet-mesic soils.

Strawberry Bush *(Euonymus americana)* – Sparse, see-through quality; wonderful late summer/fall fruit display; wet-mesic soils under PS/BFL.

Turk's Cap or Drummond's Wax-mallow *(Malvaviscus drummondii)* – Stoloniferous sub-shrub which lays down and behaves itself beautifully in BFL/DL.

Viburnum, Maple-leaved *(Viburnum acerifolium)* – Awesome groundcover under BFL/DL.

Virginia Sweetspire *(Itea virginica)* – Many cultivars available today; all do well in PS/BFL.

Witch Hazel *(Hamamelis virginica)* – Nice fall/winter color; winter blooming; PS/BFL.

Herbaceous Species

Alum Root *(Heuchra spp.)* – Long-lived in PS/BFL; prefers mesic/dry-mesic soils.

Blue Star *(Amsonia spp.)* – Long-lived shade plants, especially for PS/BFL/DL; mesic to wet-mesic soils; most popular species include *A. tabernaemontana, A. ludoviciana, A. hubrechtii.*

Cardinal Flower *(Lobelia cardinalis)* – Listed as a biennial; acts more like an annual, but certainly worth the effort to plant each year. Thrives in PS/BFL/DL.

Ferns – Too many species to cover properly, here. Keep in mind that ferns not native to your particular habitat type can be problematic. Best to start with local "weedy" species and branch out from there.

Grasses -- Many gardeners are pleasantly surprised at the shade-adaptability of numerous native and exotic species, especially under PS/BFL conditions. Personal favorites include Big Bluestem *(Andropogon gerardii)*, Little Bluestem *(Schizacrium scoparium)*, and of course River Oats *(Chasmanthium latifolium)*, a natural shade-lover.

Indian Pink *(Spigelia marilandica)* – The Queen of all southern U.S. native shade-loving perennials. Handles any shade quality with ease; tough and long-lived.

Irises *(Iris spp.)* – Do wonderfully under most types of deciduous shade. Included within this group are species such as *I. virginica, I. fulva, I. brevicaulis, and I. giganticaerulea.*

Meadow Rue *(Thalictrum spp.)* – Known to be a plant group for sunny places, it has shown much adaptability to BFL/DL conditions, adding much textural interest there.

Mist Flower *(Eupatorium coelestinum)* – Excellent late summer/early fall blooms in PS/BFL.

Penstemon, Gulf Coast/Sharp-sepaled *(Penstemon tennuis)* – The most shade-tolerant of our natives; PS/BFL/DL

Phlox *(Phlox spp.)* – Best for shade (PS/BFL/DL) is Woodland Phlox *(P. divarcata)*; but also check out Prairie/Downy Phlox *(P. pilosa)*, especially for PS/BFL in mesic to dry-mesic soils.

Purple Coneflower *(Echinacea purpurea)* – Surprisingly shade-tolerant, especially in PS/BFL.

Rain Lily *(Zephranthes atamasco)* – Dependable blooms after each growing-season rain; PS/BFL/DL.

Ruellia, Creeping *(Ruellia humilis)* – aka "wild petunia," a demure little groundcover which must have a mostly shady niche.

Solomon's Seal *(Polygonatum spp.)* – Native to mesic/dry-mesic deciduous uplands, especially in combination with basswood and redbud. BFL/DL.

Spider Lily *(Hymenocallis lireosme)* – As with the irises, spider lily lives happily in deciduous shade, especially in mesic/wet-mesic soils.

Tropical Sage *(Salvia coccinea)* – A "can't miss" in any shady situation; "wild type" genetics offer excellent self-seeding, as well.

Violets *(Viola spp.)* – One or more species in just about any forested habitat around. Give them a chance in your garden; they don't ask for anything, and brighten up the early-spring/spring garden.

What's Hot?/What's Not

George Hull
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1. *Acalypha monostachya* 'Raspberry Fuzzies'
2. *Agave isthmensis*
3. *Agave ovatifolia*
4. *Agave parryi* v. *truncata*
5. *Caesalpinea cacalaco* 'Smoothie'
6. *Caesalpinea paraguariensis*
7. *Calliandra* x 'Sierra Starr'
8. *Chilopsis linearis* 'Art's Seedless'
9. *Dasylirion texana*
10. *Guaiacum coulteri*
11. *Hamelia erecta* 'Sierra Red'
12. *Hesperaloe funifera*
13. *Hesperaloe parviflora*
14. *Leucophyllum langmaniae* 'Lynns Everblooming'
15. *Lonicera* 'Pam's Pink'
16. *Manfreda maculosa*
17. *Manfreda* x 'Macho Mocha'
18. *Muhlenbergia capillaries* 'Regal Mist'
19. *Nolina lindheimeri*
20. *Nolina texana*
21. *Panicum virgatum*
22. *Parthenocissus* sp. 'Hacienda Creeper'
23. *Salvia* x 'Trident'
24. *Sophora secundiflora*
25. *Tecoma stans* 'Gold Star'
26. *Tecoma* x 'Sunrise'
27. *Vitis californica* 'Rogers Red'
28. *Yucca pallida*
29. *Yucca rostrata*
30. *Yucca thompsoniana*

Art and Science: A Botanist's Eye:
Redouté and the Art of Floral Illustration

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Synopsis

A Botanist's Eye...looks at the magnificent history and evolution of art and botanical science from the first century AD through the life of Pierre-Joseph Redouté (1759–1840), one of the greatest botanical illustrators and flower painters of all time. *A Botanist's Eye*...places his work against the social and historical background of the era's delight in the exotic, which brought a fascination throughout Europe with new plants and animals from distant places.

The 18th century has been called justifiably, the *golden age of botany and by all rights was the golden age of botanical illustration.* It was a century of plant classification, of systematic plant hunting around the world, of professionalism, and within a degree, of experiment. This is the age of Pierre-Joseph Redouté for he was at his prime and excelled as a botanical artist during the golden age of botany. The combined botanical expertise with beautiful composition made his paintings admired by artists and valued by scientists. Out of the hundreds of plants Redouté painted many are found in American gardens or are found wild or naturalized/established across the US.

Redouté's most important creative period began in the late 1700s, when he became the chief botanical artist and painter for Napoleon's first wife, Joséphine. Empress Joséphine was determined to fill her Parisian gardens with the rarest plants that the Old and New Worlds could furnish. With distinguished botanists on staff and Redouté as artist, she poured out untold sums in the purchase and cultivation of choice flowers and in the publication of magnificent folios to record them for posterity.

With current estimates of a staggering 100,000 + species still to find, twenty-first century plant hunters are searching the forests, deserts, prairies, mountains, everywhere, for much the same reasons as early naturalists did centuries ago. Science calls for art to help document its researches. The result is the continuation of a long and beneficial collaboration between art and science.

Filled with incredible visuals and delivered in an exciting lecture style format, this program resonates with history, art and science. It is sure to delight art lovers, teachers, students, gardeners, horticulturists, florists, botanists, history buffs, and anyone with a curiosity in botanical art and science.

"Yard Art and Handmade Places: Extraordinary Expressions of Home
2006 Lone Star Regional Native Plant Conference
by Jill Nokes

Throughout my career my connection to native plants has always been through people. I was fortunate, as were others here at this conference, to have had Benny Simpson and Lynn Lowrey as mentors when I studied horticulture in graduate school. Although I had lived in Texas all my life, I had never really explored it until I went botanizing with them. Later, while giving programs or consulting on landscape projects and being inside someone's personal space, I was introduced to many different communities and learned a lot about people's attitudes to the natural world. As the years went by, I found myself wanting more and more to explore the ways people shape and organize the space around their home to express something very personal. I'm not talking about style or design, but rather special qualities not copied or borrowed from someone else. In my new book I hope to contribute something fresh about the way we look at how residential property can be transformed into extraordinary places of memory and meaning.

I realize now that a lifetime of looking at the vernacular, meaning local, undeveloped, landscape well prepared me for the search for special yards and gardens. Benny and Lynn taught me to be drawn to places that are characteristic of a certain area and not found anywhere else. Gradually I learned the many ways one region differs from another, and began to understand how private yards fit within this greater landscape context.

Often when visiting towns before writing this book, my hosts would take me to see restored historic home of some important person, or the display garden at the visitor's center. While these are often good ways to learn about a community, I was always eager instead to roam the cemeteries and abandoned gardens to admire heirloom species, or to wander on the edge of town searching out remnant stands of native plants, or cruise working class neighborhoods where people were still doing their own yard work and might have something different to look at.

Why are these places worth looking at? As Kevin Keim, director of the Charles Moore Center remarks, "As we all sense that *everywhere* looks more and more like *nowhere*, we seek out places that make us feel as though we were *somewhere.*"

More and more people seem eager swap individual expression for conformity in exchange for a sense of control over the social order. But security, orderliness, and predictability are benefits that

come with a price: a more generic-looking landscape, less understanding and tolerance of "outsiders", as well as a diminished sense of community and long-term attachment.[1]

In contrast, the homeowners I will show you remind us that the garden can be a powerful gesture of hospitality and sociability. The unexpected playful outrageousness of many of these yards is often a source of pride and delight to the neighborhood rather than a despised aberration from the norm because they provide a kind of "intermediate zone where individuals, families, neighbors and strangers can interact."[2]

Once, almost everyone participated in the great adventure of building, whether it was a root cellar, corral, barn, or home. Today, construction technology is so complex that building has become restricted to professionals. The yard and garden remain one of the few realms where people of ordinary skills and means can shape and organize space to express themselves. And it's the public display of yards and gardens that separate this kind of creativity from other indoor private creativity that is not out there for view.

Texas, with its ten vegetational areas or eco-regions offers many different contexts by which to consider whether a particular regional response or practice develops in reaction to local weather, soils, cultural affiliations, and history. Some of these gardens exist in climates so harsh and extreme that it's hard for outsiders to fully appreciate the challenge it means to gardening, or to just being outdoors. Like pioneer settlers who struggled to carve out a homestead from the wilderness, attachment to place is sometimes amplified by the difficulty required to achieve it. In other instances, as we shall see, the struggles preceding the embellishment and decoration of property were not so much environmental as personal or societal. After overcoming some private adversity or a daunting environmental challenge such as getting trees established on a dry, windy plain, the garden becomes a symbol of endurance, of permanence, a steadfast declaration of, "I was here, I did this. This is where I call home."

Texas offers much to the study of vernacular gardens because its ecological, historical and cultural diversity make what we find here relevant to garden-making elsewhere in the United States. Its enormous urban populations and rural enclaves provide ample variety for comparisons to other cities and regions.

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1 Low, Setha. *Behind the Gates: Life, Security, and the Pursuit of Happiness in Fortress America.* Routledge Press, New York. 2003.

2 Sheehy, Colleen Josephine. *The Flamingo in the Garden: American Yard Art and the Vernacular Landscape.* New York. Garland Publishing. 1998. pg. 60.

These yards and gardens I am going to show you are as unique as the people who made them, yet still share many things in common. Often people who are different in every way will use the same words to describe their yard or their feelings about it. What they all shared is a strong identification with the particular spot where they live, and a determination to use their property to publicly express a very personal vision of what it means to live and belong there. In this context, the idea of home is described as being more than just real estate and property values. Instead, it is seen as something mythic and something remembered and yearned for. The best examples represent an important contribution by an individual and family to a life-affirming order. From them I learned that, as Robin Doughty writes in his book about early Anglo settlement in Texas, that "Human industry transforms a location, a given space, into a place, a repository of meaning."[3]

To begin my field research, the criteria I established for selecting the kinds of yards I might include in the book were simple: the gardens had to be made by the owner and family themselves. They could not be designs copied from magazines, or built and maintained by a landscape company. I was looking for *occupied* spaces. Most front yards in America are empty foregrounds of lawn that mainly serve as a setting for the house or as a buffer from one's neighbors. But the yards that drew my attention are all active, living spaces in which decoration, work, cooking, and recreation all have their place and are used regularly.

Most research of the history of landscape design has focused on formal, elite gardens to document their size, location, inventory, and the intent of the architect or owner. In contrast, the study of vernacular landscapes is often removed from horticulture and garden design and is devoted instead to analyzing how an individual's connection to a larger ethnic or cultural group is expressed through recognized patterns, practices, and as growing urbanization, media saturation, and the restless mobility of the general population contribute to the dilution of "pure" expression, I discovered that my initial inclination to assign the creative efforts of individuals into categories of ethnicity, race, or even as products of unschooled naiveté, was limiting and incomplete. Listening over and over again to the audio interviews I recorded with the garden makers, I began to realize that what makes these places worth looking at is something more than ethnic or cultural branding. By appreciating the different ways people use their yard or garden to create particularly exuberant statements about themselves, their history, or background, or even religious beliefs, I

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[3] Doughty, Robin W. *At Home in Texas: Early Views of the Land.* College Station, Texas A&M University Press. 1987. pg.4.

learned that the larger meaning binding all these places together is what they have to say about the relationship of the owner to his or her homeland.

I hope that by hearing these stories, you will discover that the objects on display are less interesting than the connection we feel to others when we are inside the yard itself. When we view these places only as curiosities or oddities, or focus our attention mainly on the assembly of material objects, we risk distancing ourselves from the makers, and reduce their achievement to an exotic or even fetishized installation. When this dominates the discussion, we miss the opportunity to view the garden as "a place for mundane tasks, spiritual refreshment, and the expression of ideals, beliefs, and aesthetic values [4]

What did I find when I started looking? Before looking at specific yards and gardens, let me share with you a sample of what I call "Repertoire of the Garden"

Gates, walls, and fences are often the most durable garden features in a climate marked by extremes of heat, frost, and drought. Thanks to abundant geologic and human resources, Texas has an astounding variety of fences and rockwork to admire. Sometimes the rocks even come with stories.

Old wagon-wheels, farm machinery, and wheel rims are frequently used as accents in pipe fences, gates and even furniture. Here is where ordinary welders reveal their artistic side, using casts-off materials to create enclosure and signature statements.

The frontier spirit is still vividly present in west Texas. Wide open spaces and plenty of highway frontage have inspired more people than you might guess to set up elaborate tableaus of false-fronted western towns that include playhouse-sized saloons, chapels, jails, homesteads, etc. Torch-art cutouts of steers being roped or bucking broncos are common decorations on ranch entries. Miniature windmills, see-saw scale pump jacks and statues of deer, buffalo and other varmints are used to populate the scene of idealized history.

The wash pot was one of the most common utensils found in rural Texas before WWII. [5] Too valuable (and also too heavy!) to throw out, many of these enjoy prominent placement in the yard as planters. These family heirlooms often serve as markers in an effort to recover remembered landscapes where important activities that used to involve the whole family used to take place.

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[4] Westmacott, Richard. *African-American Gardens and Yards in the Rural South.* Knoxville. University of Tennessee Press. 1992. pg. 1

[5] Sitton, Thad, and Lincoln King, eds. *The Loblolly Book.* Austin, Texas. Texas Monthly Press. 1986. pg. 119.

To explore the idea of whether extreme landscapes somehow mark the people who live there, I went to the Panhandle looking for windbreaks: those extensive plantings of trees begun during the Dust Bowl era. In an area where trees do not want to go, planting tiny seedlings is a daunting enterprise. These windbreaks may exceed the scale of what is normally thought of as a yard and garden, but they significantly change the environment around the house, from which they are viewed and enjoyed.

Other gardens are remarkable because they transform depleted property into an idealized landscape of their own imagination. Perhaps their remains a little bit of the romantic explorer in those people whose devotion to their hobby has surpassed average ambitions of mere decoration and style. It's as if through passionate expertise and collecting, they attempt to create their own version of paradise with special plants.

Sometimes people remain in a ruined landscape, one that has been exploited and destroyed, because their family has been there for five generations. Kinship, natural features, and a deep belief that land is identity all contribute to a person's desire to remain in the old home place, where memories, familiar understanding of the landscape, and a secure place in the community give life meaning.

In several instances, yard displays began when indoor collections ran out of room and overflowed outside. Some recurrent objects in the yard reflect important regional and ethnic variations. The *nicho* or *capilla* (yard shrine) is a good example. Nichos are generally built as the result of a *promesa* (promise or vow) made to a favorite saint or the Blessed Mother or Jesus.[6] Petitions may be made for some form of intervention during a life crisis such as a debilitating illness, or a family member in military service. The petitioner pledges to dedicate a shrine to that saint if the petition is granted, or simply to declare one's religiosity. It announces to passers-by that "this is a Catholic home" or "this home has received a miracle".

Mexican-American Gardens are marked by a wide variety of qualities that are usually recognized by people who have been raised in that tight-knit community. Mary Saldaña insisted: "You cannot have a Mexican garden without chile pequin, albaca, nopalitos, hierba buena, zempazuchitl, ruda, sábila, a fig and lemon tree, and estifiate." Besides plants, these gardens are often characterized by the use of bright colors, flowering plants, and a profusion of both new and recycled decorative objects. Neighbors often share a preference for fencing, walls, and borders to

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[6] Vidaurri, Cynthia L. "Texas-Mexican Religious Folk Art in Robstown, Texas." in *Hecho en Tejas: Texas-Mexican Folk Arts and Crafts.* ed. Joe S. Graham, Denton, Texas. University of North Texas Press. 1991. pg. 228.

mark the limits and boundaries of their property. Sometimes these edges and layers set up a procession of discovery from the public zone and the curb, to the private recesses of the front door and porch. Fences also provide a walkway along the front in neighborhoods that lack sidewalks. These are not privacy fences installed to keep people out, but are used more for a framework and backdrop for arranging and presenting the display, and for keep pets close by. Through the abundance of objects, "Mexican American yard decoration is a patterned presentation that promotes an ideal of abundance and riches which is not tied to economic status. The Mexican-American yard evokes a pastoral scene through the use of conventional animal images and the cultivation of brightly colored plants. [7] Another feature so well represented in Mexican-American Gardens, but common to almost everyone I included was the notion that although vivid display was important to most, it was seldom separate from or valued more than the satisfaction derived from just plain working in the garden. This includes the on-going act of arranging and re-arranging objects, or putting in long hours on the property after a full day's work, scouring flea markets or garage sales for new objects to showcase, swapping specimens at a plant society meeting. Thus working is viewed not as a burden or obligation, but as an essential part of creativity that provides its own satisfaction.

It was almost inevitable that some of the places I encountered during the fieldwork for this book would fall into the broad category of Outsider or Visionary Art. Many times my scouts and guides in different communities assumed I was *only* looking for these over-the top extravagant environments. But what are these places, exactly, and what do they mean? Beardsley describes them as "part architecture, part sculpture, part landscape, visionary environments seem insistently and purposefully to defy the usual categories of art practice'. [8]
Each of the four "imaginary environments" in this book have little in common visually, but all incorporate a message about home and belonging.

A traditional Islamic saying describes a garden as "a comfortable place to meet with God in an earthly setting. A garden is where rocks, leaves, water, and plants all have a sacred role to play."[9] The idea of the earthly garden, co-created with God as a foretaste of heavenly paradise, is a familiar theme in landscape history, and so it is no surprise that many of these homeowners assigned religious meaning to their gardens. Some even described spiritual experiences they had while working in their garden. Many of the garden makers used the same religious language to

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7 Jasper, Pat, and Kay Turner. "Art Among Us" Arte Entre Nosotros" in *Hecho en Tejas* pg. 56.

8 Beardsley, John. *Gardens of Revelation: Environments by Visionary Artists.* New York. Abbeville Press. 1995. pg. 7

9 Scott Ogden, personal communication.

describe their garden. Declarations of, "Welcome to my Garden of Eden," or "This is my sanctuary," were repeated over and over. Others used words like *blessing*, *redemption*, and *sacred* to describe both the space and action that takes place on their property. Some gardens were intentionally dedicated as a holy work. Some evolved into refuges from the travails of the everyday world. Still others were intended to serve as beacons of hope in marginalized neighborhoods. Whether or not they were planned this way from the beginning, most gardeners felt that their achievement in some way reflected a higher purpose.

There are more than four seasons in a garden. Someone once remarked that gardening and dance are the most ephemeral of art forms. And the more extravagant the gesture, whether it be in materials or devotion, the more fragile the space becomes. Who can quantifiy passion? Once the maker is gone, the garden inevitably changes or ceases to exist.

The delight we experience in seeing a yard that has been decorated to the hilt, either for a holiday, or as an everyday celebration of someone's space and territory, can help us have a better understanding of both built and natural surroundings because we have allowed ourselves to stop, get out of the car, and become engaged. We interact, react, remember, and become part of the poetry. We don't care if some people think yard displays are tacky, and we will ignore those who warn us: "Don't try this at home." And if we haven't forgotten what hard, sweaty work feels like, we'll be able to appreciate the effort folks made to have something to show. And who knows? Maybe we'll get inspired to make something of our own. When we do, we'll be in good company. John Beardsley encourages us to try:

> "These environments are the gifts of magical thinkers who recycle the waste materials and shared myths of our culture for common benefit. There is a private labor with a public aim: to find an extraordinary way to share their convictions with the world. It is consequently not to be dismissed as some form of crazy behavior, but embraced instead as a positive challenge to both our artistic and our social norms – to the limits of tolerance – to our determination to construct a more democratic culture, and to our capacity to acknowledge the marvelous.[10]"

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[10] Beardsley, John. *Gardens of Revelation: Environments of Visionary Artists.* New York. Abbeville Press. 1995. pg. 190.

Lynn R. Lowrey, Native Plant Pioneer
1917 – 1997

Mary Anne Pickens

According to many of Lynn Lowrey's friends, he never met a plant he didn't like. Born in Mansfield, Louisiana, on May 30, 1917, Lynn grew up among much of the same vegetation that he later found when he moved to Texas. His love and appreciation for those plants prompted him to encourage others to try them in their gardens, and by so doing, he became one of the first nurserymen to actively promote using native plants in both residential and commercial landscapes.

Lynn received his Bachelor of Science in Horticulture from Louisiana State University in 1940. In the early 1950s, he came to Houston and soon afterwards opened his own nursery. He later recalled that when he put out a sign advertising native azaleas, that "it must have brought in at least one car a week." He reflected, "Maybe people thought that wild plants in Texas couldn't be very good for 'civilized plantings.' I have heard the statement in the past, 'Why that grows wild' as if that was an indictment and it couldn't be considered for planting."

Not one to be discouraged, Lynn continued to "botanize" and to search for garden worthy plants. He enjoyed having friends go collecting with him, and he was soon botanizing with Robert Vines, Ed Mc Williams and L. G. Marsters, Jr. in the Houston area. Moving westward, he enjoyed the company of Benny J. Simpson, Barton Warnock, and Carroll Abbott. Years later, Lynn wrote, "Plant hunting with Benny, Carroll Abbott, and Barton Warnock was like an expedition looking for gold nuggets."

Marion Drummond remembers climbing fences while botanizing with Lynn in Louisiana and Texas. "Walking fields, hedgerows, and climbing cliffs with him was like reading a botany textbook and I now so wish I'd had a tape recorder with me as he was always in a teaching/learning mode. To walk the gardens he designed was like entering a virtual habitat. I always carried away with me not only an education but also a sense of such overwhelming generosity of spirit."

Through the years, Lynn became friend and mentor to horticulturists across the state. At Lynn's memorial service, Scooter Cheatam described him as the "Pied Piper of the plant kingdom" and said that "once he started playing that flute," everyone would drop what they were doing to follow him on his plant collecting excursions. In Lynn's quiet manner, he taught and inspired everyone he encountered. He was widely respected for his knowledge and corresponded with horticulturists literally from around the world. Often they came to visit him. Patsy Anderson recalled that when horticulturists came to Washington to visit the United States Arboretum, they would often detour by way of Texas to visit with Lynn.

We all have been recipients of plant gifts from Lynn, and everyone agrees that he actually preferred to give plants rather than sell them. I was reminded of this again, and couldn't help but laugh when I recently read some of Lynn's correspondence with Sir Harold G. Hillier of Hillier Nurseries in Winchester, England. Hillier, a gentleman who collected extensively in various places from Mexico to New Zealand, managed to make one trip to Mexico with Lynn. After receiving some plants from Lynn, he wrote, "It is very generous of you to suggest giving me this plant material, but I really feel I should meet your invoice price."

The Lowery Nursery occupied several different sites in Houston, but during the 1970s, Lynn relocated his nursery to Conroe, Texas. At this nursery, he published his Lowrey Nursery newsletters, offering numerous philosophical gems about using native plants. Although Lynn never published a book, he wrote both for his own newsletter and for other publications, including *The American Horticultural Magazine*, Carroll Abbott's *Texas Wildflower Newsletter*, The Native Plant Society of Texas newsletter, and *The American Nurseryman*. He was ahead of his times in recognizing the need for bio-diversity, using fruiting plants for wildlife, and using locally adapted plants for greater success. In a tribute to Lynn, David Creech wrote: "Before it was politically correct, Lynn spoke and wrote quietly on biodiversity, taking advantage of microhabitats, understanding the importance of site preparation, plant community development, natural form in design, using superior and adapted natives and exotics and the list goes on."

By giving away plants, he encouraged others to try them and help him test them.
Some of the East Texas plants Lynn recommended were *Acer saccharum, Cyrilla racemiflora, Itea virginica, Crataegus marshallii, Crataegus opaca, Fagus grandifolia, Ilex decidua, Bignonia*

capreolata and Asimina triloba. A yellow berried *Ilex vomitoria,* named "Saratoga Gold" was a significant native that he promoted.

Moving west and south, he considered the Texas Pistache, *Pistacia texana,* and the Anacacho Orchid, *Bauhina lunarioides*, two of the rarest plants in Texas. He propagated both and is largely responsible for introducing them in to the horticultural trade. He loved collecting in Mexico and is well known for his work with the Mexican oaks, particularly *Quercus polymorpha, Q. rhyzophylla* and *Q.canbyii*. He, along with Dr. Ray Jordan and Emmet Dodd, while on a trip to Mexico, discovered a new species of legume, subsequently named *Myrospermum sousanum.* Other plants that he promoted were a pink form of *Scutellaria suffretescens* and *Ruellia brittoniana* var. *Katie*.

The SFA Arboretum is full of plants that Lynn loved. When I visited here several years ago, David Creech gave me a tour, pointing out various Lowery plants. One was labeled VIP, still in Lynn's handwriting. "A Very Important Plant," said David, "but, all plants were very important plants to Lynn."

During the last few years of his life, Lynn worked with his daughter and son-in-law, Patsy and Mike Anderson, at Anderson Nursery in Houston. His last horticultural work and contribution to society were with a little known Chinese plant, *Camptotheca acuminata.* His propagation material was donated to the Stehlin Foundation in Houston and to Xylomed Research in Monroe, Louisiana, for cancer research. In Lynn's honor, Dr. Li Shiyou, subsequently named another species *Camptotheca lowreyana.*

Generous and thoughtful to the end, when Lynn was last admitted to the hospital the Friday afternoon before his death, he insisted on carrying a fruit tree in a 5-gallon container to give to his oncologist. Lynn passed away on June 28, 1997.

As time moves on, it is important that we not only remember Lynn as the pioneer that he was, but that we continue his legacy of studying, learning, sharing, and teaching. Look around you--the seeds of knowledge planted by Lynn R. Lowrey continue to flourish both far and wide.

The Pulling Together Initiative
by Dr. Damon Waitt

Those of us who care deeply about native plants and habitats understand how important they are to our sense of place. But even as we are working to protect our plant heritage from land development and other pressures, native flora across the country – in our backyards, along our roadways, on our farms and ranches, in our parks and natural areas – are facing a less obvious but equally serious threat from non-native invasive plants.

In partnership with state and federal agencies, non-governmental organizations, the nursery industry, and other stakeholders, the Wildflower Center is organizing a new effort to address the issue of non-native invasive plants on a statewide level. The program is called the "Pulling Together Initiative" and its goals are to to determine the scope of the problems caused by invasive plants, raise awareness among the public and government leaders, and identify the most effective actions that should be taken to stop the spread of invasive plants.

To help achieve these goals the Wildflower Center will hosted a statewide conference on invasive plants in November that included two days of professional meetings and one day of public awareness/educational outreach. The Center is also pilot testing an Early Detection Citizen Science program that directly engages the public in detecting and reporting harmful species and is working with partners to develop an invasive plant database. For more information on the Pulling Together Initiative, visit www.texasinvasives.org.

EDIBLE/USEFUL PLANTS

From: "Edible Plants of the Gulf South" by Allen, Allen and Winters, 2005

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EDIBLE PLANTS

Scientific Name	Common name	Part used
Acer spp.	Maple	inner bark, seeds, leaves
Allium spp.	Onions	bulbs & leaves
Alternanthera philoxeroides	Alligatorweed	leaves
Amaranthus spp.	Amaranth	seeds, shoots, leaves
Ambrosia	Ragweed	seeds
Amelanchier arborea	Service Berry	fruits
Amphicarpaea bracteata	Hog Peanut	underground fruits
Apios americana	Ground Nut	tubers
Arisaema dracontium	Green Dragon	corms
Arisaema triphyllum	Jack in the Pulpit	corms
Arundinaria gigantea	Cane/Bamboo	shoots & seeds
Asclepias spp.	Milkweed	flower buds, leaves, fruits
Asimina triloba	Pawpaw	fruits
Brasenia schreberi	Water Shield	leaves, mucilage, roots
Callicarpa americana	French Mulberry	fruits
Callirhoe spp.	Wine Cup	roots & leaves
Capsella bursa-pastoris	Shepherd's Purse	stem tips, leaves, seeds,roots
Cardamine spp.	Native Water-Cress	leaves
Carya spp.	Hickory Nut	fruits
Castanea pumila	Chinquapin	seeds
Celtis spp.	Hackberry	fruits
Centella erecta	Centella	leaves
Cerastium spp.	Mouse-Eared Chickweed	leaves
Cercis canadensis	Red Bud	young pods & flowers
Chenopodium album	Lamb's Quarters	seeds & whole plant
Chionanthus virginica	Fringe Tree	fruits
Cichorium intybus	Chicory	roots, leaves, flowers
Cirsium spp.	Thistle	roots, leaves, & pith
Claytonia virginica	Spring Beauty	leaves & corms
Commelina spp.	Day Flower	shoots
Corylus americana	hazelnut	seed
Crataegus spp.	Hawthorn	fruits
Cryptotaenia canadensis	wild chervil	leaves, seed
Cyperus esculentus, rotundus	Chufa/Nut Grass	tubers
Dalea candida, purpurea	Prairie Clover	roots
Diospyros virginiana	Persimmon	fruits
Duchesnea indica	wild strawberry	fruits
Eclipta prostrata	Eclipta	tips
Elaeagnus spp.	Elaeagnus	fruit, seed
Erodium cicutarium	Stork's Bill	leaves, stems, roots
Fagus grandifolia	Beech	bark, leaves, & fruits
Foresteria acuminata	Swamp Privet	fruits

Fraxinus spp.	Ash	fruits
Galium aparine	Bedstraw	tips
Gaylussacia spp.	huckleberry	fruit
Gleditsia triacanthos	Honey Locust	fruits
Halesia diptera	Silver Bell	fruits
Helianthus spp	Sunflower	seeds, tubers
Hemerocallis fulva	Day Lily	flower buds
Impatiens capensis	Touchmenot	seeds
Ipomoea spp.	Morning glory	leaves, stem tips, roots
Iva annua	Sumpweed	seeds
Juglans nigra	Black Walnut	fruits
Krigia dandelion	False Dandelion	tubers
Lactuca spp.	Wild Lettuce	leaves
Lamium spp	Henbit	tips
Laportea canadensis	Wood Nettle	stem tips, leaves
Lepidium virginicum	Peppergrass	shoots
Lespedeza spp.	Lespedeza	leaves
Liatris spp.	Blazing Stars	corms
Liquidambar styraciflua	Sweetgum	resin
Lonicera japonica	Japanese Honeysuckle	flowers, leaves, buds
Lycopus spp.	Bugleweeds	tubers
Malus(Pyrus)angustifolia	Crab Apple	fruits
Medeola virginiana	Indian Cucumber	rhizome
Mitchella repens	Partridgeberry	fruits
Mollugo verticillata	Carpet Weed	plant
Morus spp.	Mulberry	fruits
Myriophyllum spicatum	Water Milfoil	roots, leaves
Nelumbo luteum	Water Chinquapin	young leaves, seeds, rhizomes
Nuphar spp.	Splatterdock	rhizomes & seeds
Nymphaea spp.	Water Lily	leaves & rhizomes
Nyssa spp.	Black Gum	fruits
Oenothera biennis	Evening Primrose	leaves & roots
Opuntia spp.	Cactus	fruit, stem, seeds
Oxalis spp.	Wood Sorrel	roots & leaves
Passiflora incarnata	May Pop	fruits
Peltandra virginica	Arrow Arum	seed, flowering stem, rhizome
Perilla frutescens	Perilla	leaves, flower clusters, seeds
Photinia pyrifolia	Red Chokecherry	fruit
Phragmites communis	Reed	rhizome tips & seeds
Phyllostachya aurea	Yellow Bamboo	stem tips
Physalis spp.	Groundcherry	fruits
Phytolacca americana	Pokeweed	leaves
Pinus spp.	Pines	seeds
Plantago spp.	Plantain	leaves
Platanus occidentalis	Sycamore	sap
Podophyllum peltatum	Mayapple	fruit
Polygonatum biflorum	Solomon's Seal	rhizomes & stem tips
Polygonum spp.	Knotweed/Smartweed	shoots & seeds
Poncirus trifoliata	Trifoliate Orange	fruit

Pontederia cordata	Pickerel Weed	shoots & seeds
Populus deltoides	Cottonwood	inner bark, seeds, sap, leaves
Portulaca oleracea	Purslane	leaves & seeds
Proboscodea louisianica	Unicorn Plant	fruit, seeds
Prunus angustifolia	Chickasaw Plum	fruit
Prunus americana & umbellata	Wild Plum (Sloe)	fruit
Prunus serotina	Blackcherry	fruit
Psoralea spp.	Sampson's SnakeRoot	root
Pteridium aquilinum	Bracken Fern	fiddleheads & rhizomes
Pueraria lobata	Kudzu	root, young stem & leaves
Pyracantha coccinea	Firethorn	fruit
Quercus spp.	Oak	acorns
Rhexia virginica	Meadow Beauty	tubers & leaves
Rhus spp.	Sumac	fruit
Rosa spp.	Rose	petals, hips, & seeds
Rubus spp.	Blackberry	fruits & stem tips
Rumex spp.	Dock	leaves
Sagittaria spp.	Wapato/Arrowhead	tubers
Sambucus canadensis	Elderberry	fruit, flowers,& stem tips
Sassafras albidum	Sassafras	leaves
Scirpus spp.	Bulrush	rhizome, stem, seed, pollen
Smiliciana racemosa	False Solomon's Seal	fruit, leaves, stem tips, roots
Smilax spp.	Saw Brier	tubers & shoots
Sonchus spp.	Sow Thistle	leaves
Stachys floridana	Woundwort	tubers
Stellaria media	Chickweed	leaves
Symplocos tinctoria	Horsesugar	leaves
Taraxacum officinale	Dandelion	rootstock & leaves
Tilia spp.	Basswood	inner bark & young buds
Tradescantia spp.	Spiderwort	shoots
Trifolium spp.	Clover	young leaves, flower buds
Trillium spp.	Trillium	young leaves
Tripsacum dactyloides	Eastern Gamma Grass	fruits-seeds
Typha latifolia	Cattail	stem tips, rhizomes, pollen
Ulmus rubra	Slippery Elm	inner bark
Urtica spp.	Stinging Nettle	leaves
Uvularia spp.	Bellwort	leaves, stem tips, rhizomes
Vaccinium spp.	Blueberry, Huckleberry	fruits
Valerianella radiata	Corn Salad	leaves
Viburnum spp.	Possum haw	fruits
Viola spp.	Violet	leaves & flowers
Vitis spp.	Grapes	tendrils, leaves, & fruits
Yucca spp.	Beargrass/Yucca	root, fruit, flowers
Zizania aquatica	Wild Rice	seeds
Zizaniopsis miliacea	Rice Cut Grass	rhizome tips

SPICE PLANTS

Scientific Name	Common name	Part used
Allium spp.	Onion	leaves, bulbs
Capsella bursa-pastoris	Shepherd's Purse	roots, seeds
Cardamine bulbosa	Spring Cress	rootstock
Celtis spp.	Hackberry	pits
Centella erecta	Centella	leaves
Chenopodium ambrosioides	Mexican Tea	whole plant
Cryptotaenia canadensis	Wild Chervil	leaves
Geum canadense	White Avens	roots
Juniperus virginianum	Juniper, Cedar	fruits
Lepidium virginicum	Peppergrass	seeds
Lindera benzoin	Spice Bush	leaves & fruits
Magnolia spp.	White Bay, Magnolia	leaves, flowers
Monarda spp.	Bee Balm	whole plant
Myrica cerifera	Wax Myrtle	leaves
Perilla frutescens	Perilla	leaves, flower clusters, seeds
Persea palustris	Red Bay	leaves
Polygonum spp.	Knotweed/Smartweed	leaves
Poncirus trifoliata	Trifoliate Orange	fruit peels
Prunus serotina	Black Cherry	fruit
Pycnanthemum spp.	Mountain Mint/Sage	whole plant
Sassafras albidum	Sassafras	roots & leaves
Trifolium spp.	Clover	flowers
Yucca spp.	Beargrass/Yucca	flowers
Xanthoxyllum clava-herculis	Toothache Tree	fruits

TEA/DRINK PLANTS

Scientific Name	Common name	Part used
Ceanothus americanus	New Jersey Tea	leaves
Chenopodium album	Lamb's Quarters	whole plant
Cyperus spp.	Chufa/Nut Grass	tubers
Dalea candida, purpurea	Prairie Clover	leaves
Diospyros virginiana	Persimmon	leaves
Elaeagnus spp.	Elaeagnus	fruit
Galium spp.	Bedstraw	whole plant
Gleditsia triacanthos	Honey Locust	seed pulp
Hamamelis virginiana	Witch Hazel	leaves
Ilex opaca	American Holly	leaves
Ilex vomitoria	Yaupon	leaves
Ilex spp.	Holly	leaves
Juniperus virginiana	Juniper, Cedar	twigs
Laportea canadensis	Wood Nettle	leaves
Lespedeza capitata	Lespedeza	leaves
Lindera benzoin	Spicebush	leaves & twigs
Lonicera japonica	Japanese Honeysuckle	flowers, leaves, buds
Magnolia virginiana	White Bay	leaves
Monarda spp.	Oswego Tea	leaves
Monarda fistulosa	Wild Bergamot	leaves

Morus spp.	Mulberry	young stem tips
Myrica cerifera	Wax Myrtle	leaves
Oxalis spp.	Wood Sorrel	leaves
Pinus spp.	Pines	needles
Plantago spp.	Plantain	leaves
Polygonum spp.	Smartweed/Knotweed	leaves
Poncirus trifoliata	Trifoliate Orange	fruit
Prunus serotina	Black Cherry	fruit
Pueraria lobata	Kudzu	flowers
Pycnanthemum spp.	Mountain Mint	whole plant
Rhexia virginica	Meadow Beauty	leaves & stems
Rhus copallina	Sumac	fruits & flowers
Rubus spp.	Blackberry	young stem tips
Rumex spp.	Dock	leaves
Sambucus canadensis	Elderberry	flowers
Sassafras albidum	Sassafras	roots
Solidago odora	Sweet Goldenrod	leaves & flowers
Stellaria media	Chickweed	leaves
Taraxacum officinale	Dandelion	leaves
Tilia spp.	Basswood	flowers & leaves
Trifolium spp.	Clover	flowers
Ulmus spp (rubra)	Elm	inner bark
Urtica spp.	Stinging Nettle	leaves
Viola spp.	Violet	leaves, flowers
Vitis spp.	Grapes, Muscadines	fruits, sap

How to Make a Hypertufa Water Basin

Hypertufa vessels appear to be stone, but are instead a blend of sand, cement and peat. In England, hypertufa mixture is used to coat old sinks so they look like antique stone troughs. These faux troughs are filled with coarse planting media and used to grow alpine plants.

I've made a few planters and a whole series of water basins. These are round or oval and usually about a foot across. After seasoning, I settle them into soil in a planting bed to catch rain. The rustic basins fit well into naturalized landscapes or even into Japanese gardens.

I've given many water basins as gifts. It's fun to go visiting and see how my pals are using their hypertufa. In various gardens I've seen them used as a bird baths, a dog water dish and an accent piece in a children's garden

- To create a water basin, assemble the following materials:
  Bowls or planters to be used as molds
  Plastic to line the molds (garbage bags work just fine)
  A large pail to mix materials and a smaller measuring container
  A piece of quarter inch hardware cloth to be used as a screen
  Portland cement concrete, coarse sand and sphagnum peat
  Iron sulfate or copperas - This is optional. You need this if you want to stain the vessel.
  Latex gloves, a wire brush and a chisel
- Screen the peat to remove sticks and lumps. Screen the cement if needed. I screen by placing the hardware cloth over my mixing pail and running the materials through it. A rectangular screen similar to those used for screening compost would work even better.
- Measure equal parts by volume of screened peat, cement and sand. I combine about a gallon of each ingredient to make a basin about 1 foot across. I add about 1 cup of iron sulfate into the dry mix to give the final product a rich brown color.
- Don your latex gloves and thoroughly combine all dry ingredients. Add water a little at a time. Mix well after each addition. Stop adding liquid when the mixture is moist enough to hold together but not soggy. A handful of the mixture should retain its shape when released from a firm grasp. I generally use about 1 gallon of water to achieve this consistency. Be aware that the mixture is caustic. Wear latex gloves when handling it. whether it is wet or dry.
- Pack the mixture into a plastic lined mold. Make sure the sides and base are 2 to 3 inches thick. If the mold is larger than 2 feet across, reinforcing wire or fiberglass concrete reinforcing fiber should be added. Most of my molds are around one foot across. My favorite is an old bowl-shaped planter.
- Leave the mold alone for about 48 hours in a dry sheltered place. Remove the new basin from its mold when it is dry enough that a finger tip will not dent the surface but moist enough that a fingernail will leave a mark. After separating the basin from its mold, distress by scouring with the wire brush. Use a chisel or other blunt object to gouge the surface, creating the appearance of carved stone.
- Keep the basin in a dry place out of direct sun for about a month. Before siting in the garden, rinse repeatedly to remove chemicals. With time, moss will grow on the outer surface and give a natural weathered look. To hasten the aging, dowse the surface with manure tea, diluted buttermilk or the water in which rice has been boiled.
- If you want a planter instead of a water basin, be sure to add drainage holes by inserting sticks or dowels when the mixture is wet. For a light weight planter, substitute perlite, vermiculite, finely ground pine bark or fired clay aggregate for some or all of the sand.

Note: This handout was prepared by Gail Barton for the 3rd LoneStar Regional NativePlant Conferrence

The Botany of Archaeology

By Neal Stilley

Native Plants and their importance in the Prehistoric Diet

Archaeology, in short, is the study of cultural remains or artifacts. To understand these human artifacts one needs to have some understanding of the cultural variations and evolution that produced these artifacts. Ethnographic studies (living cultures) in North America, especially the West, (Southwest and Pacific Northwest) have given archaeologists an insight in understanding how native people lived in prehistoric times. For example, ethnographic accounts tell us that acorns were the most important plant staple of the California Indian.

This presentation will focus on plants of southwest Texas.

In the arid climates of the Southwest, rock shelters have preserved plant remains showing us the plants the people who occupied these sites utilized. In open sites the carbonized plant remains are the only windows into the past food economics.

The Trans-Pecos region of Southwest Texas has yielded several sites revealing the prehistoric plant usage through numerous occupations. This presentation will focus on two sites with yucca seed remains and the experimental work with yucca baccata and yucca torreyi fruits and nutritional values. It will also include other uses of the yucca plant species, including the making of cordage, soap, paint used for rock art, and use of the bloom stalk for friction fire starting. There will also be a discussion of other desert plant species, including the agave lechuguilla.

OUTLINE

Yucca

A. Use of fruit as part of prehistoric diet
   1.Yucca baccata and Yucca torreyi (see nutritional values Fig. 1 and Table 1 from Leslie Thompson Ph.D. Texas Tech University Food and Animal Science Department)

B. Leaves as fiber material for cordage making

C. Bloom stalk as material for friction fire starting

D. Yucca root used for soap making and emulsifier for rock art paint.

Agave lechuguilla

A. The processing of agave lechuguilla as a food resource

Sotol (Dasylirion texanum)

A. Bloom stalks for friction fire starting

B. Seeds as a coffee substitute

C. Food resource

Acorns (Quercus species)

A. Food resource/processing

Mesquite (Prosopis pubescens [screwbean] and glandulosa [honey])

A. Food resource

Fig.1
A 100 gram portion of the yucca fruits (3.53 ounces) contains an average of 204 calories, which makes up 10% of the recommended daily amount, based on a 2000 calorie a day diet.

The 3.53 ounce portion of the yucca baccata and torreyi provided 59% and 63% respectively, of the daily recommended amount of sodium.

A 3.53 ounce portion also provided 24% (baccata) and 21% (torreyi) of the daily recommended amount of potassium.

A 3.53 ounce serving would contain 110 mg. (baccata) and 47 mg. (torreyi) of Phosphorus, which is approximately 10% of the reference daily intake of phosphorus.

Anything 10% or over is considered a good sources of a nutrient and anything 20% or higher is considered an excellent source.

Table 1. Composition (on a wet matter basis) and chemical characteristics of dried fruits from *Yucca baccata* and *torreyi*

Constituent/ Characteristic	*Y. baccata*	*Y. torreyi*
Aw	0.37	0.44
pH	4.72	4.66
Moisture (%)	14.79	14.93
Ash (%)	3.30	2.80
Nitrogen (%)	0.57	0.28
Protein (%)	3.54	1.76
Crude fat (%)	9.12	5.44
Starch (%)	5.21	1.56
Total sugars (%)	24.39	32.58
Total dietary fiber (%)	10.30	15.83
Calories (kcal/100 g)[a]	214.6	192.6
Minerals		
Phosphorus (mg/100 g)	110	47
Sodium (mg/100 g)	1420	1519
Potassium (mg/100 g)	827	733

[a]Calories as kcal/100 g were estimated by [(% Sugar + % starch + % protein) x 4.0 kcal/g] + (% crude fat x 9 kcal/g)

Watson's Preserve Plant List

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Woody Plants

Acer rubrum	Red Maple
Acer sacharinum	Sugar Maple
Aesculus pavia	Red Buckeye
Alnus serrulata	Hazel Alder
Arailia spinosa	Devil's Walking Stick
Aronia arbutifolia	Chokecherry
Asimina triloba	Dwarf Pawpaw
Betula nigra	River Birch
Callicarpa Americana	American Beautyberry
Carpinus caroliniana	Hornbeam
Carya cordiformis	Bitternut Hickory
Carya tomentosa	Mockernut Hickory
Cephalanthus occidentalis	Common Buttonbush
Cercis Canadensis	Eastern Redbud
Chionanthus virginicus	Fringetree
Cornus florida	Flowering Dogwood
Crataegus brachycantha	Blueberry Hawthorn
Crataegus marshalii	Parsley Hawthorn
Crataegus opaca	May Hawthorn
Cyrilla racemiflora	Leatherwood
Euonymous Americana	Strawberry Bush
Fagus grandifolia	American Beech
Fraxinis pensylvatica	Green Ash
Halesia diptera	Two-winged Silverbell
Hamamelis virginica	Witch Hazel
Ilex opaca	American Holly
Ilex vomitoria	Yaupon
Itea virginiana	Virginia Sweetspire
Juniperus virginiana	Eastern Redcedar
Liquidambar styraciflua	Sweetgum
Magnolia grandiflora	Southern Magnolia
Magnolia virginiana	Sweetbay Magnolia
Morus rubra	Red Mulberry
Myrica cerifera	Wax Myrtle
Ostrya virginiana	Hophornbeam
Persea borbonia	Red Bay
Pinus echinata	Shortleaf Pine
Pinus palustrus	Longleaf Pine
Pinus taeda	Lobloly Pine
Platanus occidentalis	Sycamore
Prunus mexicana	Mexican Plum

Prunus serrotina	Black Cherry
Quercus alba	White Oak
Quercus michauxii	Swamp Chestnut Oak
Quercus nigra	Water Oak
Quercus phellos	Willow Oak
Rhamnas caroliniana	Carolina Buckthorn
Rhododendron canescens	Piedmont Azalea
Rhododendron oblongifolia	White Azalea
Rhus copallina	Shining Sumac
Sabal minor	Palmetto
Sassafras albidum	Sasafras
Styrax Americana	American Snowbell
Symplocos tinctoria	Horse Sugar
Taxodium distichum	Bald Cypress
Ulmus alata	Winged Elm
Ulmus Americana	American Elm
Viburnum dentatum	Arrowood Viburnum
Viburnum rufidulum	Rustyblackhaw Viburnum

Herbaceous Plants

Arisaema dracontium	Green Dragon
Arisaema quinatum	Five Leaved Jack-in-the-pulpit
Tradescantia hirsutiflora	Hairy-flowered Spiderwort
Lilium michauxii	Carolina Lily
Erythronium rostratum	Trout Lily
Polygonatum biflorum	Great Solomon Seal
Hypoxis hirsute	Yellow Star-grass
Habenaria clavellata	Green Rein Orchid
Corallorhiza wisteriana	Spring Coral Root
Claytonia virginica	Spring Beauty
Podophyllum peltatum	May Apple
Cardamine bulbosa	Spring Cress
Oxalis violacea	Wood Sorrel
Viola walteri	Walter's Violet
Monotropa uniflora	Indian Pipe
Gelsemium sempervirens	Carolina jessamine
Asclepias variegata	White Flowered Milkweed
Salvia lyrata	Lyre-leaf Sage
Penstemon laxiflorus	Loose-flowered Penstemon
Bignonia capreolata	Cross-vine
Campsis radicans	Trumpet-creeper
Epifagus virginiana	Beech-drops
Ruellia nudiflora	Violet Ruellia
Mitchella repens	Partridge Berry
Lonicera sempervirens	Coral Honeysuckle
Wahlenbergia marginata	Wahlenbergia
Chasmanthium	Inland Sea Oats
Polystichum acrosticoides	Christmas Fern
Thelyteris kunthii	Wood Fern

Dr. David Creech

Preliminary Checklist of the Vascular Plants of
The Pineywoods Native Plant Center, Nacogdoches County, Texas
Spring Flora March 27 & 28 1999
Singhurst J.R., M. Norman, and H. Gaylord

Singhurst, Norman, and Gaylord (1999) base this checklist of the vascular plants Tucker Estate on reports. Nomenclature follows Correll and Johnston (1970) and Johnston's update (1990). Common names follow Correll and Johnston or Hatch et al. (1990). Additions to this checklist are anticipated and in the absence of voucher specimens, this list should not be considered authoritative.

CONIFERS

CUPRESSACEAE	**CYPRESS FAMILY**
Juniperus virginiana	eastern red cedar
PINACEAE	**PINE FAMILY**
Pinus taeda	loblolly pine
Pinus echinata	shortleaf pine
TAXODIACEAE	**TAXODIUM FAMILY**
Taxodium distichum	bald cypress

FERNS AND FERN-ALLIES

ASPLENIACEAE	**SPLEENWORT FAMILY**
Asplenium platyneuron	ebony spleenwort
DENNSTAEDTIACEAE	**BRACKEN FERN FAMILY**
Pteridium aquilinum	tailed bracken fern
OPHIOGLOSSACEA	**ADDER'S TONGUE FERN FAMILY**
Botrychium dissectum	lace frond grape fern
Botrychium virginianum	rattlesnake fern
POLYPODIACEAE	**POLYPODY FERN FAMILY**
Anthrinum felix-femina	downy maiden fern
Polypodium plypodioides	resurrection fern
SCHIZAEACEAE	**CLIMBING FERN FAMILY**
Lygodium japonicum	Japanese climbing fern
WOODSIACEAE	**CLIFF FERN FAMILY**
Onoclea sensibilis	sensitive fern

Woodsia obtusa	blunt lobed cliff fern

FLOWERING PLANTS

ACANTHACEAE	**ACANTHUS FAMILY**
Ruellia humilis	low ruellia
ACERACEAE	**MAPLE FAMILY**
Acer negundo	boxelder
Acer saccharum	sugar maple
Acer rubrum	red maple
AIZOACEAE	**CARPETWEED FAMILY**
Mullugo verticillata	Indian chickweed
AMARANTHACEAE	**AMARANTH FAMILY**
Amaranthus sp.	amaranth
ANACARDIACEAE	**SUMAC FAMILY**
Rhus aromatica	fragrant sumac
Rhus glabra	smooth sumac
Rhus toxicodendron	poison ivy
ANNONACEAE	**CUSTARD APPLE FAMILY**
Asimina triloba	pawpaw
APIACEAE	**CARROT FAMILY**
Cicuta maculata	water hemlock
Hydrocotyle verticillata	whorled pennywort
Sanicula canadensis	Canada sanicle
AQUIFOLIACEAE	**HOLLY FAMILY**
Ilex opaca	American holly
Ilex decidua	deciduous holly
Ilex vomitoria	yaupon holly
ARACEAE	**ARUM FAMILY**
Arisaema dracontium	green dragon
Arisaema triphyllum	jack-in-the-pulpit
ARALIACEAE	**GINSENG FAMILY**
Aralia spinosa	Devil's walking stick
Hedra helix	English ivy (introduced)
AREACEAE	**PALM FAMILY**
Sabal minor	dwarf palmetto
ARISTILOCHIACEAE	**BIRTHWORT FAMILY**

Aristolochia seperentaria	Virginia dutchman's pipe
ASCLEPIADACEAE	**MILKWEED FAMILY**
Matelea gonocarpa	milkweed vine
ASTERACEAE	**SUNFLOWER FAMILY**
Achillea millifolium	common yarrow (intoduced)
Antennaria parlinii	pussytoes
Aster patens	skydrop aster
Bidens sp.	beggarticks
Chaetopappa asteroides	common least daisy
Cirsium sp.	thistle
Conyza canadensis	horse weed conyza
Elephantopus tomentosus	hairy elephant foot
Erigeron strigosus	prairie fleabane
Eupatorium capillifolium	dog fennel
Eupatorium coelistinum	blue mist flower
Eupatorium sp.	eupatorium
Gamochaeta purpureum	greenleaf cudweed
Gnaphilium obtusifolium	fragrant cudweed
Helenium amarum	bitter sneezeweed
Helianthus sp.	sunflower
Krigia caespitosa	weedy dwarf dandelion
Krigia dandelion	tuber dwarf dandelion
Lactuca ludoviciana	wild lettuce
Lactuca sp.	wild lettuce
Senecio obovatus	golden groundsel
Solidago auriculata	clasping leaf goldenrod
Solidago sp.	solidago
Soliva pterosperma	lawn burweed
Sonchus asper	spiny leaved sawthistle
Taraxacum officinale	common dandelion
Verbesina virginica	frostweed
Vernonia sp.	ironweed
BERBERIDACEAE	**BARBERRY FAMILY**
Nandina domestica	nandina
Podophyllum peltatum	may apple
BETULACEAE	**BIRCH FAMILY**
Carpinus caroliniana	blue beech
Ostrya virginiana	eastern hophornbeam
Betula nigra	river birch
BORAGINACEAE	**BORAGE FAMILY**
Myosotis macropsperma	spring forget me not
BRASSICACEAE	**MUSTARD FAMILY**

Capsella bursa-patoris	shepard's purse
Cardamine bulbosa	spring cress
Lepedium virginicum	poor man's peppergrass
CACTACEAE	**CACTUS FAMILY**
Opuntia stricta	southern spineless cactus
CAMPANULACEAE	**BLUEBELL FAMILY**
Lobelia cardinalis	cardinal flower
Triodanis perfoliata	clasping Venus lookingglass
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**
Lonicera japonica	Japanese honeysuckle
Sambucus candensis	common elderberry
Viburnum rufidulum	blackhaw viburnum
CARYOPHYLLACEAE	**PINK FAMILY**
Cerastium brachypodum	shortstalk chickweed
Cerastium glomeratum	clustered flowered chickweed
Sagina decumbens	pearlwort
Spergula arvensis	corn spury
Stellaria media	common chickweed
CISTACEAE	**ROCKROSE FAMILY**
Lechea mucronata	hairy pinweed
Lechea tenuifolia	narrowleaf pinweed
CLUSSIACEAE	**ST. JOHN'S WORT FAMILY**
Hypericum hypericoides	St. Andrew's cross
Hypericum stans	St. Peterswort
Hypericum walteri	Walter's St. John's wort
COMMELINACEAE	**SPIDERWORT FAMILY**
Commelina erecta	erect dayflower
Commelina virginica	Virginia dayflower
Tradescantia hirsutiflora	hairy spiderwort
CONVOLVULACEAE	**MORNING GLORY FAMILY**
Dichondra carolinensis	ponyfoot
CORNACEAE	**DOGWOOD FAMILY**
Cornus florida	flowering dogwood
Nyssa sylvatica	black gum
CYPERACEAE	**SEDGE FAMILY**
Carex amphiloba	amphibious sedge
Carex caroliniana	Carolina sedge
Carex crus-corvi	crowfoot sedge
Carex sp.	sedge

Carex sp.	sedge
Cyperus esculentus	yellow nutsedge
Cyperus retroflexus	oneflower flatsedge
Eleocharis sp.	spikerush
Fimbristylis sp.	fimbry
Scirpus koilolepis	small bullrush
Scirpus sp.	bullrush
EBENACEAE	**PERSIMMON FAMILY**
Diospyrus virginiana	common persimmon
ERICACEAE	**HEATH FAMILY**
Vaccinium arboreum	farkleberry
EUPHORBACAE	**SPURGE FAMILY**
Acalypha gracilens	slender three seeded mercury
Acalypha ostrayefolia	three seeded mercury
Cnidosculus texanus	bull nettle
Croton capitatus	wooly croton
Sapium sebiferum	Chinese tallow tree
Tragia sp.	noseburn
FABACEAE	**LEGUME FAMILY**
Albizia julibrissin	mimosa tree
Cercis canadensis	red bud
Chamaecrista fasiculata	partridge pea
Desmodium sp.	beggar's ticks
Desmodium sp.	beggar's ticks
Galactia glabella	downy milkpea
Lespedeza sp.	bush clover
Trifolium campestre	low hop clover
Trifolium incarnatum	crimson clover
Trifolium repens	white clover
Viccia caroliniana	Carolina vetch
Viccia ludoviciana	deer vetch
FAGACEAE	**BEECH FAMILY**
Quercus alba	white oak
Quercus falcata	southern red oak
Quercus lyrata	overcup oak
Quercus marilandica	blackjack oak
Quercus michauxii	swamp chestnut oak
Qurcus nigra	water oak
Quercus nuttallii	Nuttall oak
Quercus phellos	willow oak
Quercus shumardii	shumard oak
Quercus similis	bottomland post oak
Quercus stellata	post oak

Quercus velutina	black oak
GERANIACEAE	**GERANIUM FAMILY**
Geranium carolinianum	Carolina geranium
HAMAMELIDACEAE	**WITCH HAZEL FAMILY**
Liquidambar styraciflua	sweetgum
HIPPOCASTANACEAE	**BUCKEYE FAMILY**
Aesculus pavia	red buckeye
IRIDACEAE	**IRIS FAMILY**
Sisyrinchium exile	blue-eyed grass
JUGLANDACEAE	**WALNUT FAMILY**
Carya cordiformis	bitternut hickory
Carya ovata	shagbark hickory
Carya texana	black hickory
Carya tomentosa	mockernut hickory
Juglans nigra	black walnut
LAMIACEAE	**MINT FAMILY**
Lamium amplexicaule	henbit
Prunella vulgaris	common selfheal
Scutellaria cardiophylla	heartleaf skullcap
LAURACEAE	**LAUREL FAMILY**
Sassafras albidum	sassafras
LILIACEAE	**LILY FAMILY**
Allium canadense	Canada garlic
Allium drummondii	Drummond's onion
Camassia scilloides	wild hyacinth
Erythronium albidum	white trout lily
Hypoxis hirsuta	common goldenstar
Lilium michauxii	Carolina lily
Nothoscordum bivalve	false garlic
Polygonatum biflorum	solomon's seal
Smilax bona-nox	saw greenbriar
Smilax glauca	cat greenbriar
Smilax hispida	bristly greenbriar
Smilax laurifolia	laurel greenbrar
Smilax rotundifolia	common greenbriar
Yucca louisianensis	Louisiana yucca
LOGANIACEAE	**LOGONIA FAMILY**
Gelsemium sempervirens	Carolina jessamine
Polypremum procumbens	juniper leaf

MAGNOLIACEAE	**MAGNOLIA FAMILY**
Magnolia grandiflora	southern magnolia
MALVACEAE	**MALLOW FAMILY**
Modiola caroliniana	modiola
Sida rhombifolia	diamondleaf mallow
MENISPERMACEAE	**MOONSEED FAMILY**
Cocculus carolinus	Carolina snailseed
MORACEAE	**MULBERRY FAMILY**
Morus rubra	red mulberry
Maclura pomifera	Bois d'arc
MYRICACEAE	**WAXMYRTLE FAMILY**
Myrica heterophylla	waxmyrtle
OLEACEAE	**OLIVE FAMILY**
Fraxinus americana	white ash
Fraxinus pennsylvanica	green ash
Ligustrum sinense	Chinese privet
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Ludwegia sp.	seedbox
Oenothera laciniata	cutleaf evening primrose
Oenothera speciosa	showy evening primrose
OXALIDACEAE	**WOOD SORREL FAMILY**
Oxalis dillenii	yellow wood sorrel
Oxalis violacea	violet wood sorrel
PAPAVERACEAE	**POPPY FAMILY**
Corydalis micrantha	scrambled eggs
Sanguinaria canadensis	bloodroot
PASIFLORACEAE	**PASSION FLOWER FAMILY**
Passiflora lutea	yellow passion flower
PHRYMACEAE	**LOPSEED FAMILY**
Phryma leptostachya	lopseed
PHYTOLACACCEAE	**POKEWEED FAMILY**
Phytolacca americana	pokeweed
PLANTAGINACEAE	**PLANTAIN FAMILY**
Plantago lanceolata	English plantain
POACEAE	**GRASS FAMILY**

Andropogon glomeratus	bushy bluestem
Andropogon virginicus	broomsedge bluestem
Arundinaria gigantea	switch cane
Briza minor	little quaking grass
Chasmanthium latifolium	broadleaf chasmanthium
Chasmanthium sessiliflorum	sessile flowered chasmanthium
Cynodon dactylon	Bermuda grass
Digitaria ciliaris	southern crabgrass
Elymus virginicus	Virginia wildrye
Melica mutica	twoflower melic
Oplismenus hirtellus	basketgrass
Panicum sp.	panicum
Panicum sp.	panicum
Paspalum urvillei	vaseygrass
Poa annua	annual bluegrass
Stenotaphrum secundatum	St. Augustine grass
Stipa leucotricha	Texas wintergrass
Tridens flavus	purple top
PLANTANACEAE	**PLANE TREE FAMILY**
Plantanus occidentalis	sycamore
POLEMONIACEAE	**PHLOX FAMILY**
Phlox pilosa	downy phlox
POLYGONACEAE	**KNOTWEED FAMILY**
Polygonum sp.	Smartweed
Rumex hastatulus	heartwing dock
PORTULACACEAE	**PURSLANE FAMILY**
Claytonia virginica	spring beauty
RANUNCULACEAE	**BUTTERCUP FAMILY**
Ranunculus sp.	buttercup
RHAMNACEAE	**BUCKTHORN FAMILY**
Berchemia scandens	Albama supplejack
Rhamnus caroliniana	Carolina buckthorn
ROSEACEAE	**ROSE FAMILY**
Agrimonia microcarpa	slender agrimony
Crataegus marshallii	parsley hawthorn
Crataegus spathulata	pasture haw
Duchesni indica	Indian strawberry
Geum canadense	white avens
Prunus caroliniana	Carolina cherry laurel
Prunus mexicana	Mexican plum
Prunus serotina	black cherry
Rosa multiflora	Japanese rose

Rubus trivalis	southern dewberry
RUBIACEAE	**MADDER FAMILY**
Diodia teres	rough buttonweed
Diodia virginiana	Virginia buttonweed
Galium aparine	catweed bedstraw
Hedyotis crassifolia	small bluets
Mitchella repens	partridge pea
RUTACEAE	**CITRUS FAMILY**
Zanthoxylum clava-herculis	prickly ash
SALICACEAE	**WILLOW FAMILY**
Salix nigra	black willow
Populus deltoides	eastern cottonwood
SAPOTACEAE	**SAPODILLA FAMILY**
Bumelia lanuginosa	woolybucket bumelia
SAXIFRAGACEAE	**SAXIFRAGE FAMILY**
Lepuropetalon spathulatum	lepuropetalon
SCROPHORULACEAE	**FIGWORT FAMILY**
Castilleja indivisa	Texas Indian paintbrush
Veronica peregrina	purslane spedwell
SOLANACEAE	**NIGHTSHADE FAMILY**
Physalis sp.	ground cherry
Solanum carolinense	Carolina horse nettle
TILIACEAE	**LINDEN FAMILY**
Tilia americana	American basswood
ULMACEAE	**ELM FAMILY**
Celtis laevigata	Texas sugarberry
Ulmus americana	American elm
Ulmus crassifolia	cedar elm
Ulmus rubra	slippery elm
URTICACEAE	**NETTLE FAMILY**
Boehmeria cylindrica	false nettle
Urtica chamaedryoides	heartleaf nettle
VALERIANACEAE	**VALERIAN FAMILY**
Valerianella radiata	beaked cornsalad
VERBENACEAE	**VERVAIN FAMILY**
Callicarpa americana	American beautyberry
Phyla lanceolata	northern frog fruit

Verbena officinale	Texas verbena
VIOLACEAE	**VIOLET FAMILY**
Viola rafinesquii	field pansy
Viola walteri	Walter's violet
Viola sp.	violet
VITACEAE	**GRAPE FAMILY**
Ampelopsis arborea	peppervine
Parthenocissus quinquefolia	Virginia creeper
Vitis aestivalis	summer grape
Vitis mustangensis	mustang grape
Vitis rotundifolia	muscadine grape

Partial Plant List for Ivy Payne Wildlife Refuge Elkhart, Texas

Major contributors – Sonnia Hill, Kay Fleming, Heinz Gaylord – Additional contributions – Jason Singhurst, Walter Holmes, Ron and Ruth Loper, and David Bezanson

FORBS:

Botanical Name	Common Name
Acalypha gracilens	Copper Leaf
Achillea millefolium	Common Yarrow
Allium canadense	Wild Onion
Ambrosia artemisifolia	Common Ragweed
Ambrosia trifidia	Giant Ragweed
Antennaria fallax	Pussytoes
Argemone albiflora	Prickly-poppy
Arisaema dracontium	Green Dragon
Arisaema triphyllum	Jack-in-the Pulpit
Arnoglossum ovatum	Lance-leaf Indian Plantain
Asclepias tubersoa	Butterfly Weed
Asclepias variegata	White-flowered milkweed
Asclepias verticillata	Whorled Milkweed
Asclepias viridiflora	Green Antelope-horn Milkweed
Asperula arvensis	Woodruff
Aster ericoides	Heath Aster
Aster patens	Purple daisy
Aster pilosus	White-heath aster
Aster subulatus	Annual aster
Aster texanus	Texas Aster
Astragalus distortus	Bent-pod milk-vetch
Baptisia nuttalliana small	Cream False Indigo
Bidens aristosa	Beggarticks
Boehmeria cylindrica	Bog Hemp
Cacalia ovata	Indian Plantain
Callirhoe papaver (Cav.) Gray	Winecups
Cardamine bulbosa	Springcress
Castilleja indivisa	Indian Paintbrush
Chamaecrista fasciculate	Partridge Pea
Chamaecrista nictitanus	Sensitive Partridge Pea
Chamaesyce maculata (L)	Spotted Euphorbia
Cirsium carolinianum (walt.)	Purple Thistle
Cirsium horridulum michx.	Yellow Thistle/Bull Thistle
Cnidoscolus texanus	Texas bull-nettle
Commelina erecta L.	Erect Dayflower
Corallorrhiza wisteriana Conrad	Spring Coral Root Orchid
Coreopsis lanceolata	Lance Leaf Coreopsis
Coreopsis tinctoria	Plains Coreopsis
Corydalis micrantha	Southern Corydalis/Butter and Eggs
Croptilon divaricatum	Slender Golden Weed
Croton capitatus	Goatweed

Croton texensis	Texas Croton
Delphinium carolinianum	Blue Larkspur
Desmodium nudiflorum	Bare Stem Ticktrefoid
Desmodium paniculatum	Panicled Desmodium
Diodia virginiana	Button Weed
Echinacea sanguinea Nutt	Purple coneflower
Elephantopus carolinianus	Elephant's Foot
Erigeron philadelphicus L.	Philadelphia Fleabane
Erythronium albidum	White Trout Lily
Eupatorium capillifolium	Dog Fennel
Eupatorium coelestinum	Blue Mist Flower
Eupatorium album L.*	White Boneset
Eupatorium fistulosum	Joe-Pye Weed
Euphorbia dentata	Wild Poinsettia
Froelichia floridana	Cotton Weed
Galium pilosum Ait.	Bedstraw
Gaura longiflora	Tall Gaura
Geum canadense	Prairie Smoke
Glandularia canadense (L.)	Rose Vervain
Hedyotis nigricans	Prairie Bluets
Hedyotis crassifolia	Small Bluets
Hedyotis australis	Southern Bluets
Helenium flexuosum	Purple Head Sneeze Weed
Helianthus hirsutus	Sunflower
Heterotheca submaxillaris	Golden Aster
Hymenocallis liriosme	Spider Lily
Hymenopappus artemisi	Wooly white
Hypericum drummondi	St. John's Wort
Hypericum hypericoides (L.)	St. Andrew's Cross
Hypoxis hirsuta (L.)	Yellow Star Gras
Indigofera miniata	Scarlet Pea
Ipomopsis rubra	Standing Cypress
Krigia dandelion	Potatoe Dandelion
Kummerowia striata	Japanese Lespedeza
Lespedeza repens	Creeping Bush Clover
Lespedeza virginica	Slender Bush Clover
Liatris aspera	Rough Gay Feather
Linaria canadensis	Old-Field Toad Flax
Listera australis	Southern Tway-Blade Orchid
Lithospermum incisum	Fringed Puccoon
Lithospermum caroliniense	Golden Puccoon
Lobelia cardinalis	Cardinal Flower
Lobelia inflata	Indian Tobacco
Malvaviscis arboreus	Texas Mallow/Turk's Cap
Mitchella repens	Partridge Berry
Monotropa uniflora	Indian Pipe
Nemastylis geminiflora	Celestial or Ghost Iris
Nemastylis purpurea	Purple Pleat-Leaf Iris
Northoscrodum bivalve	False Garlic

Oneothera speciosa	Showy Primrose
Opuntia humifosa	Prickly Pear Cactus
Oxalis pricea	Yellow Wood Sorrel
Oxalis rubra	Woodsorrel
Oxalis violacea	Violet Wood Sorrel
Palafoxia rosea	Rose Palafoxia
Penstemon cobea	Foxglove
Penstemon laxiflorus	Piney Woods penstemon
Phlox drummondi	Drummond Phlox
Phlox pilosa	Prairie Phlox
Podophyllum peltatum L	May Apple
Polygala polygama	Bitter Milkwort
Polypremum procumberns	Juniper Leaf
Prunella vulgaris	"Heal All" or "Self Heal"
Pycnanthemum albescens	Mountain Mint
Ranunculus carolinianus	Carolina Buttercup
Ratibidia columnifera	Mexican Hat or Coneflower
Rhus aromatica	Aromatic Sumac
Rhynchosia latiflolia	Broad-Leaf Snout-bean
Rhynchosia minima	Least-Snout Bean
Rudbeckia hirta	Brown-eyed Susan
Rudbeckia grandiflora	Rough Coneflower
Ruellia humilis	Wild Petunia
Ruellia pedunculata	Wild Petunia
Sabatia angularis	Rose Pink Sabatia
Sabatia campestris	Meadow Pink
Salvia lyrata	Lyre-Leaf Sage
Sanicula canadensis	Black Snake Root
Saururus cernuus L.	Lizards Tail
Scutellaria cardiophylla	Heart-Leaf Skull Cap
Scutellaria integrifolia	Rough Skullcap
Scutellaria ovata	Egg-Leaf Skullcap
Senecio glabellus	Butterweed
Senecio sp	Groundsel
Sida spinosa	Prickly sida
Solanum carolinense	White Nightshade
Solanum dimidatum	Purple Nightshade
Solanum elaegnifolium	Silver Nightshade
Solidago canadensis	Common Goldenrod
Spiranthes cernua	Nodding Ladies Tress Orchid
Spiranthes vernalis	Spring Ladies Tress Orchid
Stylosanthes biflora	Pencil Flower
Taenidia integerrima *	Yellow Pimpernel
Tephrosia virginiana	Goat's Rue
Thalictrum dasycarpum	Meadow Rue
Tipularia discolor	Fall Crane Fly Orchid
Tradescantia hirsutiflora	Hairy Spiderwort
Tralescantia ohioensis	Ohio Spiderwort
Tridodanis perfoliatia	Venus' Looking Glass

Triosteum perfoliatum *	False Horse Gentian
Verbascum thapsus	Common Mullein
Verbena brasiliensis	Brazilian vervain
Verbena halei	Texas Vervain
Verbena rigida	Tuber Vervain
Verbensina virginica	Frost Weed
Vicia Caroliniana	Wood Vetch
Viola palmata	Trilobe violet
Viola pedata	Bird's Foot Violet
Viola rafinesquii	Field Pansy
Viola sororia	Wooly Blue Violet
Viola walteri	Walter's violet
Zigadenus nutallii	Death Camas
Zizia aurea	Golden Alexander

Ferns

Asplenium platyneuron	Ebony Spleenwort
Botrychium dissecta	Dissected Grape Fern
Botrychium virginianum	Rattlesnake Fern
Onoclea sensibilis	Sensitive Fern
Osmunda cinnamomea	Cinnamon Fern
Polypodium polypodioides	Resurrection Fern
Polystichum acrostichoides	Christmas Fern
Pteridium aquilinum	Bracken Fern
Woodsia obtusa	Blunt-Lobed Woodsia
Woodwardia areolata	Netted Chain Fern
Woodwardia virgincia	Virginia Chain Fern

Grasses

Androspogon gerardii	Big Bluestem
Andropogon glomeratus	Bushy Bluestem
Andropogon virginicus	Broomsedge Bluestem
Bothriochloa laguroides	Silver Bluestem
Carex sp	Carex
Chasmanthium laxum	Wood Oats
Chasmanthium latifolicem	Broadleaf Woodoats
Lolium perenne L.	Rye Grass
Melilotus officinalis	Yellow Sweet Clover
Oplismenus hirtellus	Basket grass
Panicum dichantheliem	Panic Grass
Paspalum dilatatum	Paspalum/Dallas Grass
Paspalum notatum	Bahia Grass (non-native)
Sorghum halepense	Johnson Grass (non-native)
Trifolium campestre	Low Hop Clover
Tridens flavus	Purple Top
Trifolium pretense L.	Red Clover
Tripsacum dactyloides	Eastern Gammagrass

Shrubs

Arundinaria gigantea	Bamboo (Switch Cane)
Baccharis halimifolia	Sea Myrle
Callicarpa Americana	American Beauty Berry or French Mulberry
Cephalanthhus occidentalis	Buttonbush
Euonymus americanus	Strawberry Bush
Ligustrum sinense	Chinese Privet/non-native
Myrica cerifera	Wax Mytrle
Nandina domestica	Nandina(escaped non-native)
Sambucus canadensis	Elderberry
Symphoricarpus orbiculata	Snow Berry

Trees

Acer barbatum	Florida Maple
Acer negundo	Box Elder
Acer rubrum	Red Maple
Acer saccharium L.	Sugar Maple
Albizia julibrissin	Mimosa(non-native)
Aralia spinosa	"Devils Walking Stick"
Catalpa speciosa	Northern Catalpa
Carpinus caroliniana	American Hornbeam
Carya alba (L.)	Mockernut Hickory
Carya cordiformis	Pig-Nut Hickory
Carya illinoiensis	Pecan
Carya myristiciformis	Nutmeg Hickory
Carya ovata	Shagbank Hickory
Carya texana	Black Hickory
Celtis laevigata	Sugar Hackberry
Cercis canadensis	Eastern Redbud
Chionanthus virginicus	Fringe Tree
Cornus florida	Flowering Dogwood
Cornus drummondi	Rough-Leaf Dogwood
Crataegus marshallii	Parsley Hawthorn
Diospyros virginiana	Eastern Persimmon
Frangula caroliniana	Carolina Buckthorn
Fraxinus americana	White Ash
Fraxinus	Green Ash
Gleditsia triacanthos	Honeylocust
Ilex deciduas	Deciduous Holly
Ilex opaca	American Holly
Ilex vomitora	Yaupon
Juglans nigra	Black Walnut
Juniperus virginiana	Eastern Red Cedar
Liquidamber styraciflua	Sweetgum
Liriodendron tulipifera	Yellow poplar
Maclura pomifera	Osage-Orange
Melia azedarach	Chinaberry
Morus rubra	Red Mulberry
Nyssa aquatica	Black Gum

Nyssa Sylvatica	Black Tupelo
Ostrya virginiana	Eastern Hophornbean
Pinus echinata	Short-Leaf Pine
Pinus taeda	Loblolly Pine
Platanus occidentalis	Sycamore
Prunus angustifolia	Chickasaw Plum
Prunus mexicana	Mexican Plum
Prunus caroliniana	Carolina Laurel Cherry
Prunus serotina	Wild Black Cherry
Quercus alba	White Oak
Quercus falcata	Southern Red Oak
Quercus lyrata	Overcup Ok
Quercus marilandica	Backjack Oak
Quercus nigra	Water Oak
Quercus phellos	Willow Oak
Quercus shumardii	Shumard Oak
Quercus stellata	Post Oak
Rhus copallinum	Winged Sumac
Rhus glabra	Smooth Sumac
Robinia pseudoacacia	Black Locust
Salix nigra	Black Willow
Sassafras albidum	Sassafras
Sideroxylon lanuginosum	Gum bumelia
Sophora affinis	Eve's Necklace
Ulmus americana	American Elm
Ulmus rubra	Slippery Elm
Ulmus elata	Winged Elm
Ulmus crassifolia	Cedar Elm
Vaccinium arborea	Farkleberry
Viburnum rufidulum	Rusty Blackhaw
Xanthoxylum clava	Prickly Ash
Xanthoxylum hirsutum	Toothache Tree

Vines

Ampelopsis arborea (L.) koehne	Pepper Vine
Aristolochia reticulate Jacq.	Dutchman's Pipe
Aristolochia tomentosa	Yellow Dutchman's Pipe
Berchemia scandens	Rattan Vine
Bignonia capreolata	Crossvine
Campsis radicans	Trumpet Creeper
Centrosema virginianum	Butterfly Pea
Clematis dioscoreifolia	White Clematis
Clitoria mariana L.	Pigeon Wings
Cuscuta compacta	Dodder
Gelsemium sempervirens	Carolina Jessamine
Ipomoea cordatotriloba	Heasrtshaped
Ipomoea pandurata (L.)	Morning Glory/Wild Potato Vine
Lonicera japonica	Japanese Honeysukle
Lonicera semperviren	Coral Honeysuckle

Matelea decipiens	Climbing Milkvine
Matelea gonocarpos	Climbing Milkvine
Parthenocissu quiquefolia	Virginia Creeper
Passiflora incarnata	Passion Flower
Passiflora lutea	Yellow Passion Flower
Rhus Toxicodenron	Poison Ivy
Rubus argutus	Blackberry
Rubus trivialis	Southern Dewberry
Smilax bona-nox	Saw Green Briar
Smilax glauca	Cat Green Briar
Smilax rotundiflora	Common Greenbriar
Smilax sarsapapilla	Sarsapanulla Vine
Strophostyles helvula	Amberique Bean
Vitis aestivalis	Summer Grape
Vitis mustangensis	Mustang Grape
Vitis rotondifolia	Muscadine
Wisteria frutescens	Kentucky Wisteria

* Rare or uncommon

Yucca cernua Plant List

by Eric Keith

Acer	rubrum	ACERACEAE	red maple
Yucca	cernua	AGAVACEAE	weeping or nodding yucca
Rhus	copallina	ANACARDIACEAE	wing rib sumac
Rhus	toxicodendron	ANACARDIACEAE	poison ivy
Sanicula	canadensis	APIACEAE	Canada sanicle
Ilex	vomitoria	AQUIFOLIACEAE	yaupon holly
Sabal	minor	ARECACEA	Dwarf palmetto
Asclepias	tuberosa	ASCLEPIADACEAE	butterfly milkweed
Ambrosia	bidentata	ASTERACEAE	two toothed ragweed
Baccharis	halimifolia	ASTERACEAE	eastern baccharis
Coreopsis	lanceolata	ASTERACEAE	lance leaf coreopsis
Echinacea	pallida	ASTERACEAE	purple cone flower
Erigeron	stigosus	ASTERACEAE	prairie fleabane
Iva	angustifolia	ASTERACEAE	narrowleaf sumpweed
Silphium	radula	ASTERACEAE	
Vernonia	texana	ASTERACEAE	Texas ironweed
Campsis	radicans	BIGNONIACEAE	trumpet creeper
Heliotropium	tenellum	BORAGINACEAE	pasture heliotrope
Lobelia	appendiculata	CAMPANULACEAE	earleaf mayapple
Lonicera	japonica	CAPRIFOLIACEAE	Japanese honeysuckle
Viburnum	dentatum	CAPRIFOLIACEAE	arrow wood viburnum
Hypericum	hypercoides	CLUSIACEAE	St. Andrews cross
Cornus	florida	CORNACEAE	flowering dogwood
Nyssa	sylvatica	CORNACEAE	black gum
Juniperus	virginiana	CUPRESSACEAE	eastern red cedar
Diospyros	virginiana	EBENACEAE	common persimmon
Vaccinium	arboreum	ERICACEAE	farkleberry
Cercis	canadensis	FABACEAE	red bud
Erythrina	herbacea	FABACEAE	coral bean
Gleditsia	tricanthos	FABACEAE	honey locust
Quercus	falcata	FAGACEAE	southern red oak
Quercus	nigra	FAGACEAE	water ioak
Quercus	stellata	FAGACEAE	post oak
Aesculus	glabra	HIPPOCASTANACEAE	Ohio buckeye
Carya	tomentosa	JUGLANDACEAE	mockernut hickory
Sassafras	albidum	LAURACEAE	sassafras
Smilax	bona-nox	LILIACEAE	saw greenbriar
Smilax	smallii	LILIACEAE	Smalls greenbriar
Yucca	louisianensis	LILIACEAE	Louisiana yucca
Gelsemium	sempervirens	LOGANIACEAE	Carolina jessamine
Magnolia	grandiflora		southern magnolia
Magnolia	pyramidata	MAGNOLIACEAE	pyramid magnolia
Pinus	taeda	PINACEAE	loblolly pine
Pinus	echinata	PINACEAE	short-leaf pine
Pinus	palustris	PINACEAE	long-leaf pine
Chasmanthium	sessiliflorum	POACEAE	sessile flowered chasmanthium

Panicum	flexile	POACEAE	wiry witchgrass
Schizacharium	scoparium	POACEAE	little bluestem
Crataegus	marshallii	ROSACEAE	parsley hawthorn
Rubus	louisianus	ROSACEAE	Louisiana blackberry
Bumelia	lanuginosa	SAPOTACEAE	woollybucket bumelia
Penstemon	laxiflorus	SCROPHULARIACEAE	pink penstemon
Vitis	aestivalis	VITACEAE	summer grape
Vitis	rotundifolia	VITACEAE	muscadine grape

Scrappin' Valley Plant List

by Eric Keith

Acer	rubrum	ACERACEAE	red maple
Mollugo	verticillata	AIZOACEAE	Indian chickweed
Froelichia	floridana	AMARANTHACEAE	Florida snakecotton
Rhus	copallina	ANACARDIACEAE	wing rib sumac
Rhus	toxicodendron	ANACARDIACEAE	poison ivy
Rhus	vernix	ANACARDIACEAE	poison sumac
Asimina	parviflora	ANNONACEAE	dwarf pawpaw
Sanicula	canadensis	APIACEAE	Canada sanicle
Ilex	vomitoria	AQUIFOLIACEAE	yaupon holly
Sabal	minor	ARECACEA	Dwarf palmetto
Asclepias	amplexicaulis	ASCLEPIADACEAE	blunt leaf milkweed
Asclepias	tuberosa	ASCLEPIADACEAE	butterfly milkweed
Asplenium	platyneuron	ASPLENIACEAE	ebony spleenwort
Ambrosia	psilostachya	ASTERACEAE	western ragweed
Baccharis	halimifolia	ASTERACEAE	eastern baccharis
Echinacea	pallida	ASTERACEAE	purple cone flower
Erigeron	stigosus	ASTERACEAE	prairie fleabane
Marshallia	tenuifolia	ASTERACEAE	marshallia
Rudbeckia	grandiflora	ASTERACEAE	rough coneflower
Rudbeckia	scabrifolia	ASTERACEAE	bog coneflower
Silphium	radula	ASTERACEAE	
Vernonia	texana	ASTERACEAE	Texas ironweed
Carpinus	caroliniana	BETULACEAE	blue beech
Ostrya	virginiana	BETULACEAE	eastern hophornbeam
Campsis	radicans	BIGNONIACEAE	trumpet creeper
Woodwardia	areolata	BLECHENACEAE	netted chain fern
Lobelia	appendiculata	CAMPANULACEAE	earleaf mayapple
Viburnum	dentatum	CAPRIFOLIACEAE	arrow wood viburnum
Viburnum	nudum	CAPRIFOLIACEAE	possumhaw viburnum
Hypericum	hypercoides	CLUSIACEAE	St. Andrews cross
Tradescantia	hirsutiflora	COMMELINACEAE	hairy spiderwort
Tradescantia	reverchonii	COMMELINACEAE	Reverchon's spiderwort's
Cornus	florida	CORNACEAE	flowering dogwood
Nyssa	sylvatica	CORNACEAE	black gum
Juniperus	virginiana	CUPRESSACEAE	eastern red cedar
Pteridium	aquilinum	DENNSTAEDTIACEAE	tailed bracken fern
Diospyros	virginiana	EBENACEAE	common persimmon
Rhododendron	canescens	ERICACEAE	hoary azalea
Vaccinium	amoenum	ERICACEAE	largecluster blueberry
Vaccinium	arboreum	ERICACEAE	farkleberry
Vaccinium	elliottii	ERICACEAE	Elliot blueberry
Vaccinium	stamineum	ERICACEAE	dewberry
Vaccinium	virgatum	ERICACEAE	rabbiteye bleberry
Croton	argyranthemus	EUPHORBIAACEAE	silver croton
Cercis	canadensis	FABACEAE	red bud
Erythrina	herbacea	FABACEAE	coral bean
Fagus	grandifolia	FAGACEAE	American beech

Quercus	falcata	FAGACEAE	southern red oak
Quercus	incana	FAGACEAE	bluejack oak
Quercus	margaretta	FAGACEAE	sand post oak
Quercus	marilandica	FAGACEAE	blackjack oak
Quercus	nigra	FAGACEAE	water ioak
Quercus	stellata	FAGACEAE	post oak
Hamamelis	virginiana	HAMAMELIDACEAE	common witch hazel
Liquidambar	styraciflua	HAMAMELIDACEAE	sweetgum
Aesculus	glabra	HIPPOCASTANACEAE	Ohio buckeye
Carya	tomentosa	JUGLANDACEAE	mockernut hickory
Physostegia	digitalis	LAMIACEAE	false draggonhead
Pycnantheum	albescens	LAMIACEAE	white bracted mountain mint
Sassafras	albidum	LAURACEAE	sassafras
Smilax	bona-nox	LILIACEAE	saw greenbriar
Smilax	laurifolia	LILIACEAE	laurel greenbriar
Smilax	smallii	LILIACEAE	Smalls greenbriar
Yucca	louisianensis	LILIACEAE	Louisiana yucca
Gelsemium	sempervirens	LOGANIACEAE	Carolina jessamine
Lycopodium	carolinianum	LYCOPODIACEAE	Carolina clubmoss
Lycopodium	prostratum	LYCOPODIACEAE	creeping clubmoss
Rhexia	mariana	MELASTOMATACEAE	Maryland meadow beauty
Mirabilis	albida	NYCTAGINACEAE	four o' clock
Osmunda	cinnamonea	OSMUNDACEAE	cinnamon fern
Osmunda	regalis	OSMUNDACEAE	royal fern
Pinus	taeda	PINACEAE	loblolly pine
Pinus	echinata	PINACEAE	short-leaf pine
Pinus	elliottii	PINACEAE	slash pine
Pinus	palustris	PINACEAE	long-leaf pine
Andropogon	gerardii	POACEAE	big bluestem
Chasmanthium	sessiliflorum	POACEAE	sessile flowered chasmanthium
Schizacharium	scoparium	POACEAE	little bluestem
Sorghastrum	elliottii	POACEAE	slender Indiangrass
Crataegus	marshallii	ROSACEAE	parsley hawthorn
Rubus	louisianus	ROSACEAE	Louisiana blackberry
Bumelia	lanuginosa	SAPOTACEAE	woollybucket bumelia
Sarracenia	alata	SARRACENIACEAE	yellow pitcher plant
Penstemon	laxiflorus	SCROPHULARIACEAE	pink penstemon
Selaginella	arenicola	SELAGINELLACEAE	Sand selaginella
Thelypteris	kunthii	THELYPTERIDACEAE	widespread maiden fern
Vitis	aestivalis	VITACEAE	summer grape
Vitis	rotundifolia	VITACEAE	muscadine grape
Athyrium	filix-femina	WOODSIACEAE	southern lady fern
Xyris	ambigua	XYRIDACEAE	yelloweyed grass
Xyris	baldwiniana	XYRIDACEAE	Badwin's yellow eyed grass
Xyris	difformis	XYRIDACEAE	southern yelloweyed grass
Xyris	drummondii	XYRIDACEAE	Drummond's yelloweyed grass
Xyris	scabrifolia	XYRIDACEAE	rough yelloweyed grass

Matlock Hills & Colerow Creek Field Trips
Joe Liggio

COMMON NAME	FAMILY	Matlock Hills (USFS-SABA)	Colorow Creek (SNF-SABA)
red maple	Aceraceae	x	x
southern sugar	Aceraceae	x	x
chalk maple	Aceraceae	x	x
sugar maple	Aceraceae		
red buckeye	Hippocastanaceae	x	x
beaked agrimony	Roseaceae	x	
hazel alder	Betulaceae	x	
sicklepod	Brassicaceae		
devil's walkingstick	Araliaceae	x	x
green dragon	Araliaceae		
jack-in-the-pulpit	Araceae	x	x(s)
Virginia snakeroot	Aristolochiaceae	x	x
Texas dutchman's pipe	Aristolochiaceae	x	x
groovestem Indian plaintain	Asteraceae		x(s)
giant cane	Poaceae	x	x
redring milkweed	Asclepiadaceae	x	
pawpaw	Annonaceae	x	x
smallflower pawpaw	Annonaceae		
ebony spleenwort	Aspleniaceae	x	x
common ladyfern	Dryopteridaceae	x(s)	x(s)
Alabama supplejack	Rhamnaceae	x	x
cross vine	Bignoniaceae	x	
smallspike false nettle	Urticaceae	x	
sparselobe grapefern	Ophioglossaceae	x	
rattlesnake fern	Ophioglossaceae	x	x
bearded shorthusk	Poaceae	x	x
American beautyberry	Verbenaceae	x	x
bulbous bittercress	Brassicaceae	x	
toothwort	Brassicaceae		x
Willdenow's sedge	Cyperaceae		
fringed sedge	Cyperaceae	x	
white edge sedge	Cyperaceae	x	x(s)
slender woodland sedge	Cyperaceae		
black edge sedge	Cyperaceae		
sharpscale sedge	Cyperaceae	x	
flat-spiked sedge	Cyperaceae		
reflexed sedge	Cyperaceae		
lined sedge	Cyperaceae		
American hornbeam	Betulaceae	x	x
mockernut hickory	Juglandaceae		
bitternut hickory	Juglandaceae	x	x
chinkapin	Fagaceae	x	x
sugarberry	Ulmaceae		x
eastern redbud	Fabaceae	x	x
Indian woodoats	Poaceae	x	

longleaf woodoats	Poaceae	x	x
fringe tree	Oleaceae	x	x
Virginia springbeauty	Portulacaceae	x	x
swamp leather flower	Ranunculaceae		
spring coralroot	Orchidaceae	x	x
flowering dogwood	Cornaceae	x	x
parsley hawthorne	Rosaceae	x	x
littlehip hawthorn	Rosaceae		
wild comfrey	Boraginaceae	x	x
Kentucky lady's slipper	Orchidaceae	x	x
swamp titi	Cyrillaceae		
nakedflower ticktrefoil	Fabaceae	x	x
sessileleaf ticktrefoil	Fabaceae	x	x
Bosc's panicgrass	Poaceae		
deertongue	Poaceae	x	
Ravenel's rosette grass	Poaceae	x	
fourleaf yam	Dioscoreaceae	x	x
wild yam	Dioscoreaceae		
spikerush	Cyperaceae	x	
elephant foot	Asteraceae	x	x
devil's grandmother	Asteraceae	x	
beech drops	Orobanchaceae	x	x
redcardinal	Fabaceae	x	
white trout lily	Liliaceae		
yellow trout lily	Liliaceae	x	x
strawberry bush	Celastraceae	x(s)	x(s)
American beech	Fagaceae	x	x
white ash	Oleaceae	x	x
erect milkpea	Fabaceae	x	
licorice bedstraw	Rubiaceae	x	x
hairy bedstraw	Rubiaceae	x	
evening trumpetflower	Loganiaceae	x	x
white avens	Rosaceae		
spring avens	Rosaceae	x	x
American witchhazel	Hamamelidaceae	x	x
Ozark witchhazel	Hamamelidaceae		
Carolina silverbell	Styracaceae	x	
queendevil	Asteraceae	x	
American alumroot	Saxifragaceae		
spiked crested coralroot	Orchidaceae		
spring spiderlily	Liliaceae		
St. Andrew's cross	Clusiaceae	x	
American holly	Aquifoliaceae	x	x
deciduous holly	Aquifoliaceae	x	
yaupon holly	Aquifoliaceae	x	
Georgia holly	Aquifoliaceae	x	
jewelweed	Balsaminaceae		
purple fiveleaf orchid	Orchidaceae		
Virginia sweetspire	Grossulariaceae	x	
veiny pea	Fabaceae	x	x
Carolina lily	Liliaceae	x	x
northern spicebush	Lauraceae		x(s)
sweetgum	Hamamelidaceae	x	x

twayblade orchid	Orchidaceae	x	
tuberous stoneseed	Boraginaceae		
Japanese honeysuckle	Caprifoliaceae	x	
bulbous woodrush	Juncaceae	x	x
southern magnolia	Magnoliaceae	x	x
sweetbay	Magnoliaceae	x	
green adder's-mouth orchid	Orchidaceae		
angularfruit milkvine	Asclepiadaceae	x	
twoflower melicgrass	Poaceae	x	
Florida Keys hempvine	Asteraceae	x	x(s)
sharpwing monkeyflower	Scrophulariaceae		
partridgeberry	Rubiaceae	x	x
Indianpipe	Monotropaceae	x	x
red mulberry	Moraceae	x	
largeseed forget-me-not	Boraginaceae	x	x
wax myrtle	Myricaceae	x	x
crowposion	Liliaceae	x	x
blackgum	Nyssaceae	x	x
Virginia pennywort	Gentianaceae		
basketgrass	Poaceae	x	x
cinnamon fern	Osmundaceae	x	x
royal fern	Osmundaceae	x	x
eastern hop hornbeam	Betulaceae	x	x
tufted yellow woodsorrel	Oxalidaceae	x	x
roundleaf ragwort	Asteraceae	x	x
Virginia creeper	Vitaceae	x	x
green passion flower	Passifloraceae	x	
Canadian lousewort	Scrophorulaceae	x	x
thicket bean	Fabaceae	x	
broad beechfern	Thelypteridaceae	x	x
downy phlox	Polemoniaceae		
American lopseed	Verbenaceae	x	x
shortleaf pine	Pinaceae		x
loblolly pine	Pinaceae	x	x
autumn bluegrass	Poaceae	x	x
mayapple	Berberidaceae	x	x
great solomon's seal	Liliaceae		
jumpseed	Polygonaceae		
hairy leafcup	Asteraceae		
resurrection fern	Polypodiaceae		
Christmas fern	Dryopteridaceae	x	x
tall rattlesnakeroot	Asteraceae		
barbed rattlesnakeroot	Asteraceae	x	x
black cherry	Roseaceae		x
white oak	Fagaceae	x	x
southern red oak	Fagaceae	x	x
laurel oak	Fagaceae		
chestnut oak	Fagaceae	x	x
chinquapin oak	Fagaceae		x
water oak	Fagaceae	x	x
willow oak	Fagaceae		

shummard oak	Fagaceae	x	
Carolina buckthorn	Rhamnaceae	x	x
peidmont azalea	Ericaceae	x	x
Carolina wild petunia	Acanthaceae		
sabal palmetto	Arecaceae	x	
lyreleaf sage	Lamiaceae	x	x
elderberry	Caprifoliaceae		
seaside brookweed	Primulaceae		
bloodroot	Papaveraceae	x	x
black snakeroot	Apiaceae	x	x
sassafras	Lauraceae	x	x
whip nutrush	Cyperaceae	x	
heartleaf skullcap	Lamiaceae	x	x
widowsfrill	Caryophyllaceae		
fire pink	Caryophyllaceae		
white blue-eyed grass	Iridaceae		
sawtooth greenbrier	Smilacaceae		
cat greenbrier	Smilacaceae	x	
roundleaf greenbriar	Smilacaceae	x	x
lanceleaf greenbrier	Smilacaceae	x	x
sasparilla vine	Smilacaceae	x	x
carionflower	Smilacaceae		
bristly greenbrier	Smilacaceae	x	
blue-stem goldenrod	Asteraceae	x	x
clasping leaf goldenrod	Asteraceae	x	x
woodland pinkroot	Loganiaceae	x	x
eastern featherbells	Liliaceae		
American snowbell	Styracaceae		
Grand snowbell	Styracaceae		x
Drummond's aster	Asteraceae	x	
calico aster	Asteraceae	x	
common sweetleaf	Symplocaceae	x	x
yellow pimpernel	Apiaceae	x	
purple meadow-rue	Ranunculaceae		
parsnip	Apiaceae	x	
American basswood	Tiliaceae	x	x
cranefly orchid	Orchidaceae	x	x
poison ivy	Anacardiaceae	x	
hairyflower spiderwort	Commelinaceae	x	x
heartleaf noseburn	Euphorbiaceae	x	
Sabine River wakerobin	Liliaceae	x	x
greater marsh St. Johnswort	Clusiaceae		
yellowfruit horse-gentian	Caprifoliaceae		
threebirds orchid	Orchidaceae		
American elm	Ulmaceae		
slippery elm	Ulmaceae		
perfoliate belwort	Liliaceae	x	x
sessileleaf belwort	Liliaceae		
farkleberry	Ericaceae		
Elliott's blueberry	Ericaceae	x(s)	x(s)
smallflower blueberry	Ericaceae	x	x
gravelweed	Asteraceae		

mapleleaf viburnum	Caprifoliaceae	x	x
southern arrowwood	Caprifoliaceae	x	x
possumhaw	Caprifoliaceae	x	
rusty blackhaw	Caprifoliaceae	x	x
Carolina vetch	Fabaceae	x	
sand violet	Violaceae		
southern coastal violet	Violaceae	x	x
common blue violet	Violaceae		x
prostrate blue violet	Violaceae	x	x
muscadine grape	Vitaceae	x	x
bluntlobe cliff fern	Dryopteridaceae		
netted chainfern	Blechnaceae	x	x

yellow bractspike	Acanthaceae
golden zizia	Apiaceae

Plant List for Weches Outcrop/ Stewart Ranch

Peter Loos
P.O. Box 520
Chireno, TX 75937

Weches Outcrop

1. Water Oak, *Quercus nigra*
2. Chinkapin Oak, *Quercus muhlenbergia*
3. Lanceleaf Buckthorn, *Rhamnus lanceolata*
4. Wild Privet, *Foresteria ligustrina*
5. Rusty Blackhaw, *Viburnum rufidulum*
6. Eve's Necklace, *Sophora affinis*
7. Roughleaf Dogwood, *Cornus drummondii*
8. Red Buckeye, *Aesculus pavia*
9. Eastern Red Cedar, *Juniperus virginiana*
10. Possumhaw Holly, *Ilex decidua*
11. Youpon, *Ilex vomitoria*
12. Hercules Club, *Zanthoxylum clava-herculis*
13. Green Haw, *Crataegus virdis*
14. Sweetgum, *Liquidambar styraciflua*
15. Locust, *gledistia triacanthos*
16. Wild Onion, *Allium canadense*
17. Windflower, *Anemone sp.*
18. Whorled Milkweed, *Asclepias verticillata*
19. Sundrops, *Calylophus drummondianus*
20. White Bladderpod, *Lesquerella pallida*
21. Gayfeather, *Liatris mucronata*
22. Beebalm, *monarda citridora*
23. Crow Posion, *Nothoscordum bivalve*
24. Showy Evening Primrose, *Oenothera speciosa*
25. Palafoxia, *Palafoxia rosea*
26. Lyreleaf Sage, *Salvia lyrata*
27. Prairie Clover, *Petelostemon pulcherrimum*
28. Meadow Pink, *Sabatia campestris*
29. Sedum, *Sedum pulchellum*
30. False Aloe, *Agave virginica*
31. Blue-eyed Grass, *Sisyrinchium spp.*
32. Butterfly Weed, *Asclepias tuberosa*
33. Prairie Phlox, ***Phlox pilosa***
34. Larkspur, *Delphinium sp.*
35. Wild Petunia, *Ruellia humilis*
36. Wild Petunia, *Ruellia pedunculata*
37. Aster, *Aster texanus*
38. Aster, *Aster subulatus*
39. Lady's Tress, *Spiranthes cernua*
40. Heal All, *Prunella vulgaris*
41. Violet, *Viola rafinesquii*

42. Violet, *Viola pratincola*
43. Dock, *Rumex pulcher*
44. Senna, *Cassia obtusifolia*
45. Hedeoma, *Hedeoma hispidum*
46. Arkansas Savory, *Satureja arkansana*
47. Side Oats Grama, *Bouteloua curtipendula*
48. Quaking Grass, *Briza minor*
49. Beaked Panicum, *Panicum anceps*
50. Panicum, *Panicum hallii*
51. Sedge, *Carex muhlenbergii*
52. Dropseed, *Sporobulus asper*
53. Purpletop Grass, *Tridens flavus*
54. Peppergrass, *Lepidium virginicum*
55. Leavenworthia, *Leavenworthia texana*
56. Poa Grass, *poa annua*
57. Love Grass, *Eragrostis hirsuta*
58. 3 Awn Grass, *Aristida spp.*

Stewart Ranch

1. Loblolly Pine, *Pinus Taeda*
2. Georgia Holly, *Ilex longipes*
3. Rusty Blackhaw, *Viburnum rufidulum*
4. Possunhaw Viburnum, *Viburnum nudum*
5. Arrowwood Viburnum, *Viburnum dentatum*
6. Willow Oak, *Quercus phellos*
7. White Oak, *Quercus alba*
8. Overcup Oak, *Quercus lyrata*
9. Water Oak, *Quercus nigra*
10. Blueberry, *Vaccinium anomeum*
11. Deerberry, *Vaccinium staninium*
12. Farkleberry, *Vaccinium arboreum*
13. Mapleleaf Viburnum, *Viburnum acerifolia*
14. Witch Hazel, *Hamamelis virginiana*
15. Sassafras, *Sassafras albidium*
16. Black Hickory, *Carya texana*
17. Mockernut Hickory, *Carya tomentosa*
18. Red Maple, *Acer rubrum*
19. Florida Sugar Maple, *Acer barbatum*
20. Paw Paw, *Asimina triloba*
21. Muscadine Grape, *Vitis rotundifolia*
22. American Holly, *Ilex opaca*
23. Hop Tree/ Wafer Ash, *Ptelea trifoliata*
24. Green Ash, *Fraxinus pennsylvatica*
25. Youpon, *Ilex vomitoria*
26. Hoary Azalea, *Rhododendron canescens*
27. Hazel Alder, *Alnus serrulata*
28. Southern Magnolia, *Magnolia grandiflora*
29. Sweetbay Magnolia, *Magnolia virginiana*
30. Beech, *Fagus grandiflora*

31. Blackgum, *Nyssa sylvatica*
32. Strawberry Bush, *Euonymous americana*
33. Virginia Sweetspire, *Itea virginica*
34. Mayhaw, *Crataegus opaca*
35. Hawthorn, *Crataegus sp.*
36. Parsley Hawthorn, *Crataegus marshallii*
37. Sweetleaf, *Symplocos tinctoria*
38. Devil's walking Stick, *Aralia spinosa*
39. Palmetto, *Sabal minor*
40. Cat Briar, *Smilax bona-nox*
41. Cat Briar, *Smilax laurelifolia*
42. Cat Briar, *Smilax pumila*
43. Dogwood, *Cornus florida*
44. Swamp Privet, *Foresteria acuminata*
45. Royal Fern, *Osmunda regalis*
46. Cinnamon Fern, *Osmunda cinnamonea*
47. Elderberry, *Sambucus canadensis*
48. Crossvine, *Bignonia capreolata*
49. Red Buckeye, *Aesculus pavia*
50. Silverbell, *Halesia diptera*
51. Fringe Tree, *Chionanthus virginiana*
52. Ironwood, *Carpinus caroliniana*
53. Hop Hornbeam, *Ostyra virginiana*
54. Sweetgum, *Liquidambar styraciflua*
55. Sumac, *Rhus copallina*
56. Aromatic Sumac, *Rhus aromatica*
57. Indian Cherry, *Rhamnus caroliniana*
58. New Jersey Tea, *Ceanothus americanus*
59. Red Bay, *Persea borbonia*
60. Netted Chain Fern, *Woodwardia areolata*
61. Violet, *Viola sp.*
62. Walter's Violet, *Viola walterii*
63. Partridge Berry, *Mitchella repens*
64. Cardinal Flower, *Lobelia cardinalis*
65. Dewberry, *Rubus sp.*
66. Lady Fern, *Athyrium felix-femina*
67. Bracken Fern, *Pteridium aquilinum*
68. Jack-in-the-pulpit, *Arisaema triphyllum*
69. Solomon's Seal, *Polygonatum biflorum*
70. Wake Robin, *Trillium gracile*
71. Mayapple, *Podophyllum peltatum*
72. Southern Twayblade, *Listera australis*
73. Spring Coralroot, *Corallorhiza wisteriana*
74. Indian Pipe, *Monotropa uniflora*
75. Carolina Jessamine, *Gelsemium sempervirens*
76. White-flowered Milkweed, *Asclepias variegata*
77. Mountain Mint, *Pycnanthemum albescens*
78. Beech Drops, *Epifagus virginiana*
79. Catchfly, *Silene subcillata*

80. Cabbageleaf Coneflower, *Rudeckia maxima*
81. Pink Scale Gayfeather, *Liatris elegans*
82. Asters (numerous), *Aster spp.*
83. Goldenrods (several) *Solidago spp.*
84. Camphor Weed, *Pluchea camphorata*
85. Eastern Gamma Grass,*Tripsacum dactyloides*
86. Switch Grass, *Panicum virgatum*
87. Panicum Grass (several), *Dichanthelium spp.*

Birding 101

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Bird List for SFA Pineywoods Native Plant Center
Compiled by David E. Wolf
May 2002

____ Great Blue Heron
____ Snowy Egret
____ Cattle Egret
____ Green Heron
____ Yellow-crowned Night Heron
____ Black Vulture
____ Turkey Vulture
____ Wood Duck
____ Mississippi Kite
____ Sharp-shinned Hawk
____ Cooper's Hawk
____ Red-shouldered Hawk
____ Broad-winged Hawk
____ Red-tailed Hawk
____ American Kestrel
____ American Woodcock
____ Mourning Dove
____ Inca Dove
____ Yellow-billed Cuckoo
____ Barred Owl
____ Common Nighthawk
____ Chimney Swift
____ Ruby Throated Hummingbird
____ Belted Kingfisher
____ Red-headed Woodpecker
____ Red-bellied Woodpecker
____ Yellow-bellied Sapsucker
____ Downy Woodpecker
____ Hairy Woodpecker
____ Northern Flicker
____ Pileated Woodpecker
____ Eastern Wood-Pewee
____ Acadian Flycatcher
____ Eastern Phoebe
____ Great Crested Flycatcher
____ Eastern Kingbird
____ Scissor-tailed Flycatcher

____ White-eyed Vireo
____ Yellow-throated Vireo
____ Blue-headed Vireo
____ Warbling Vireo
____ Red-eyed Vireo
____ Blue Jay
____ American Crow
____ Purple Martin
____ Barn Swallow
____ Carolina Chickadee
____ Tufted Titmouse
____ Red-breasted Nuthatch
____ White-breasted Nuthatch
____ Brown-breasted Nuthatch
____ Brown Creeper
____ Carolina Wren
____ House Wren
____ Winter Wren
____ Golden-crowned Kinglet
____ Ruby-crowned Kinglet
____ Blue-gray Gnatcatcher
____ Eastern Bluebird
____ Grey-cheeked Thrush
____ Swainson's Thrush
____ Hermit Thrush
____ Wood Thrush
____ American Robin
____ Gray Catbird
____ Northern Mockingbird
____ Brown Thrasher
____ European Starling
____ Cedar Waxwing
____ Blue-winged Warbler
____ Golden-winged Warbler
____ Tennessee Warbler
____ Orange-crowned Warbler
____ Nashville Warbler
____ Northern Parula
____ Yellow Warbler
____ Chestnut-sided Warbler
____ Magnolia Warbler
____ Yellow-rumped Warbler
____ Black-throated Green Warbler
____ Blackburnian Warbler
____ Yellow-throated Warbler
____ Pine Warbler
____ Bay-breasted Warbler
____ Black-and-white Warbler
____ American Redstart

____ Prothonotary Warbler
____ Ovenbird
____ Northern Waterthrush
____ Kentucky Warbler
____ Mourning Warbler
____ Common Yellowthroat
____ Hooded Warbler
____ Wilson's Warbler
____ Canada Warbler
____ Summer Tanager
____ Scarlet Tanager
____ Eastern Towhee
____ Chipping Sparrow
____ Field Sparrow
____ Song Sparrow
____ Lincoln's Sparrow
____ White-throated Sparrow
____ Dark-eyed Junco
____ Northern Cardinal
____ Rose-breasted Grosbeak
____ Indigo Bunting
____ Painted Bunting
____ Red-wing Blackbird
____ Common Grackle
____ Brown-headed Cowbird
____ Orchard Oriole
____ Baltimore Oriole

Naconiche Creek

Larry Shelton
15449 FM 1878
Nacogdoches, TX 75961
936-564-0499

Pine-Oak Upland
Gayfeather-*Liatris elegans*
Old plainsman-*Hymenopappus artemisaefolia*
Pinewoods lily-*Eustylis purpurea*
Purple coneflower-*Echinacea sanguinea*
Green-eyes-*Berlandiera x betonicifolia*

Beech-White Oak Slopes
Paw paw-*Asimina triloba*
Great Solomon seal-*Polygonatum biflorum*
Jack-in-the-Pulpit-*Arisaema triphyllum*

Sweetgum-Oak Floodplain
Spotted touch-me-not-*Impatiens capensis*
Yellow lotus-*Nelumbo lutea*
Arrow arum-*Peltandra virginica*
Buttonbush-*Cephalanthus occidentalis*

WOODY PLANTS

Scientific Name	**Common Name**
Acer rubrum	red maple
Alnus serrulata	witch alder
Betula nigra	river birch
Bartonia spp.	screw stems
Cornus florida	flowering dogwood
Euonymous americanus	spindletree
Fagus grandifolia	American beech
Itea virginica	Virginia sweetspire
Ilex glabra	gallberry holly
Ilex opaca	American holly
Liquidambar styraciflua	sweetgum
Lycopodium spp.	clubmoss
Lyonia ligustrina	huckleberry
Lyonia mariana	stagerbush
Magnolia virginiana	sweetbay magnolia
Myrica spp.	wax myrtle
Nyssa sylvatica	black gum
Pinus taeda	loblolly pine
Quercus alba	white oak
Quercus nigra	water oak
Quercus phellos	willow oak

Rhus toxicodendron	poison ivy
Rhus vernix	poison sumac
Sambucus canadensis	elderberry
Rubus spp.	dewberry
Smilax spp.	greenbriar
Vacciniun corymbosum	elliott's blueberry
Viburnum nitidum	shiny viburnum
Viburnum nudum	possumhaw viburnum
Vitis spp.	Grape

HERBACEOUS PLANTS

Scientific Name	**Common Name**
Apteria aphylla	nodding nixie
Ariseama triphyllum	jack-in-the-pulpit
Bartonia texana	Texas screwstem
Boehmeria cylindrica	small-spike false nettle
Burmannia biflora	two flower burmannia
Burmannia capitata	cap burmannia
Carex spp.	sedge
Commelina spp.	day flower
Eupatorium fistulosum	joe pye weed
Hydrocotyle spp.	penny wort
Hypericum walteri	Walter's St. John's wort
Hypericum spp.	St. John's worts
Listera australis	tway blade orchid
Mayaca aublettii	bog moss
Melanthium virginicum	bunch flower
Osmunda cinnomomea	cimmamon fern
Osmunda regalis	royal fern
Onoclea sensibilis	sensitive fern
Parnassia assarifolia	grass of parnassas
Plantanthera ciliaris	yellow fringe orchid
Plantanthera clavellata	small wood orchid
Habenaria repens	Nuttall habenaria
Pogonia ophioglossoides	rose pogonia
Saururus cernuus	common lizard tail
Solidago spp.	goldenrod
Viola spp.	violets
Woodwardia areolata	chain fern

BIOS OF SPEAKERS AND TOUR LEADERS

Jeff Abt, a longtime Nacogdoches resident and a big fan of horticulture at SFA, began his collegiate career at SFA in the College of Forestry. From there he answered a higher calling transferring to Dallas Baptist University and then to Southwestern Baptist Theological Seminary to become an Ordained Southern Baptist Minister. His studies at seminary helped prepare Jeff for the Latin and Greek he would use in practice as a horticulturist, which he's been for over 20 years.

Jeff has written the gardening column for the Nacogdoches Daily Sentinel for the past 12 years, and his passion for photography has led to assignments for the Sentinel photographing news and sporting events. Jeff and his wife Leabeth share a profound love of literature, and his own writings can be found in numerous gardening magazines as well as historic journals. Jeff's fondness for things historic led to his long standing membership in Historic Nacogdoches Incorporated and his position as Chairman of the Historic Nacogdoches Landmark Preservation Committee. Most recently, Jeff decided to create his own neighborhood where he built three New Orleans style row houses and design the landscaping to suit his tastes.

Charles Allen is a Research Associate with Colorado State stationed at Fort Polk, Louisiana. He is a retired Professor of Biology from the University of Louisiana at Monroe and a charter member of the Louisiana Native Plant Society (LNPS). He served as President of LNPS from 1995-1997 and has organized and led many field trips throughout Louisiana. He is the coauthor of "**Edible Plants of the Gulf South**", "**Trees Shrubs and Woody Vines of Louisiana**", and "**Grasses of Louisiana,** 3rd ed". He is also the coauthor of "**Wildflowers of Louisiana**" that is under review by LSU Press. He has presented "**Edible and Useful Plants**" to many groups including LSU Master Garden Class-West Monroe; Lone Star Regional Native Plant Conf.-Nacogdoches, TX; Tyler Native Plant Society-Tyler, TX; Louisiana Archaeological Week-Ft Polk and Sulphur; Haynesville Butterfly Festival-Haynesville; Cajun Prairie Society-Eunice; and Mississippi Native Plant Society-Gulfport.

Gail Barton has been teaching Horticulture at Meridian Community College for over 20 years. She has spoken to many regional and state native plant conferences and owned a retail mail order nursery (Flowerplace Plant Farm). She is a gardening columnist, editor of *Garden Path* Newsletter and author of a gardening book- *Basic Gardening: A Guide For the Deep South.* In her spare time, she maintains a website at www.gailbarton.com. Gail and her husband Richard Lowery love on 6 acres of land in Meridian, Mississippi and enjoy exploring it with their 6 dogs.

Mike Berkley, co-owner of Growild, Inc.in Fairview, TN, began his nursery 10 years ago out of sheer frustration of the lack of availability of North American native plants. Today he and his partner Terri Barnes grow over 950 species and varieties of native plants with Middle Tennessee genotypes being the main emphasis. Specializing in Natural Designing with Native Plants, Mike has had the pleasure of working with two greenroof projects using all native plants in Nashville, TN. that offer an attractive alternative to traditional roofs, addressing growing concerns about urban quality of life. Mike continues his motto of 'putting a native everywhere' with projects such as greenroofs, rain gardens, and prairies in commercial, government and residential landscapes to inspire the public to appreciate the functional diversity and beauty of native plants.

Mark Bronstad, tour leader, received a BS in Horticulture from SFA in 1989 and has been with Doremus Nursery, Warren, Texas, ever since. The nursery specializes in native plants of the Southeast, bamboo, as well as general nursery stock. Email: EDoremus3@aol.com

Paul Cox received both his BS and MS from Stephen F. Austin State University. He has worked at San Antonio Botanical Garden in various capacities for 28+ years. He is the senior author of Texas Trees-A Friendly Guide and Macmillan's Wildflower Gardening. He is also the father of five children ages 25 to 2.

Dr. Dave Creech, Professor of Horticulture, has been at Stephen F. Austin State University since September, 1978. He received his BS from Texas A&M University in 1970, his MS from Colorado State University in 1972, and his PhD from Texas A&M University in 1978. His teaching responsibilities include courses in fruit and vegetable production, greenhouse management, landscape plant materials, plant propagation, and nursery management. His research effort has focused on blueberry germplasm evaluation, adapted landscape plant materials, alternative crop/alternative technology/crop nutrition studies, Geographic Information Systems applications in Arboretum development, native plant conservation, and landscape ecology. He is the author of numerous scholarly and trade articles and lectures widely.

Dr. Creech has enjoyed numerous international consultancies since 1981 to Pakistan, Guatemala, Nepal, Israel and China. Dr. Creech was President, 1991-1992, of the Native Plant Society of Texas, an 1800 member, 31-chapter organization dedicated to the conservation, selection and use of the native plants of Texas. He is the creator and Director of the eighteen-acre SFA Mast Arboretum, an on-campus resource that has enjoyed steady growth, development, utilization and visitation since its inception in 1985. He is co-Director with Dr. James C. Kroll of SFA's Pineywoods Native Plant Center.

Andrea Delong-Amaya is the Director of Horticulture at the Lady Bird Johnson Wildflower Center in Austin, TX.

George M. Diggs, Jr. has been a faculty member in the Biology Department of Austin College since 1981 and is active in the College's Center for Environmental Studies.? He was made a Research Associate at the Botanical Research Institute of Texas in 1994. His research specialties include the plants of Texas and tropical Latin America, and taxonomic studies on the Ericaceae (blueberry family). He has done field work in Africa, Australia, Central and South America, Mexico, Canada, and the United States. He co-authored the *Illustrated Flor of North Central Texas* (1999) and?the *Illustrated Flora of East Texas, Vol. 1* (2006).

Bill Finch is the environment editor of the Mobile Press-Register and writes a weekly garden column. His garden column has won the National Headliners Award for best specialty newspaper column, and the environmental team at the Register has won numerous national awards for coverage of issues ranging from the health of Southern forests to mercury contamination in Gulf of Mexico fish.

Since 1986 **William R. Fontenot** has dedicated his career in biology to restoring the ecological integrity in lands, from the smallest urban gardens to the largest wildlife management areas. Fontenot's desire to alternate school semesters with jobs led him in and out of an intriguing array of establishments, from bars and cafes to research labs, supply ships, and oil rigs.

In 1980 he received his M.S. in freshwater fish ecology from the University of Louisiana at Monroe. In 1986 he began his career with Lafayette Parish Municipal Government, working first as curator of natural sciences as the Lafayette Natural History Museum, then as manager of the Acadiana Park Nature Center, where he continues on today. In 2001, Fontenot was honored in receiving the Louisiana Wildlife Federation's ***Professional Conservationist of the Year*** award.

Since 1987 he and wife Lydia have also operated Prairie Basse (pron. *"Bahsse")*, a wildlife plant nursery, design, and ecological consulting business.

As a professional naturalist, he has led thousands of guided tours, and has lectured at dozens of universities, botanic gardens, arboreta, and other research institutions from Austin to Atlanta and north to New York. He serves as a member of the Louisiana Ornithological Society's Louisiana Bird Records Committee, The Louisiana Nature Conservancy's Technical Advisory Board, and as Past President of the Louisiana Native Plant Society, Past Director of the Gulf Coast Native Plant Conference, and Past Program Director for the Culowhee, NC Landscaping With Native Plants Conference. He has published over 900 natural history-related articles in various newspapers, magazines, and scientific journals, and has authored/coauthored 3 books:Native Gardening in the South (1992), A Cajun Prairie Restoration Chronicle (1995), and Gulf Coast Birds (2001).

Heinz Gaylord is currently a Professor of Psychology at Stephen F. Austin State University. He received his Ph.D. in Physiological Psychology (Neuroscience) from the University of Texas at Austin and then became a Research Scientist in the Life Sciences Division of Technology Incorporated located in San Antonio, Texas and later joined the faculty at SFA in 1969, serving as chairman of the department from 1973 until 2000.

He has memberships and strong interests in a variety of environmental and nature oriented organizations such as the North American and Gulf States Mycological Societies (Fungi); Native Plant Society of Texas, Audubon Societies at the national, state, and local levels and groups such as The Nature Conservancy, Sierra Club, Big Thicket Association, Texas Committee on Natural Resources and Natural Area Preservation Association (NAPA). He is a land steward for several NAPA preserves including the Ivy Payne Wildlife Refuge in Elkhart, Texas, He may be contacted at hgaylord@sfasu.edu.

Greg Grant is our host at the PNPC. After doing time at the San Antonio Botanical Garden, Naconiche Gardens, and Mercer Arboretum, Greg Grant has come home to stay, as Research Associate at the Stephen F. Austin Pineywoods Native Plant Center. For those of you who don't know Greg, here's an ABBREVIATED summary of his eclectic and entertaining career.

Greg Grant is a horticulturist, naturalist, garden writer, and plant developer from Arcadia, Texas. He is co-author of *Home Landscaping-Texas* (2004) and *The Southern Heirloom Garden* (1995), a contributing editor for *Texas Gardener* and *Ornamental Outlook* magazines, and a regular contributor to *Neil Sperry's Gardens.*

He has degrees in floriculture and horticulture, both from Texas A&M University and has attended post graduate classes at Louisiana State University, North Carolina State University (under the late J. C. Raulston), and Stephen F. Austin State University. He has experience as a horticulturist at Mercer Arboretum and San Antonio Botanical Gardens, an instructor at Stephen F. Austin and Louisiana State Universities, an award winning horticulturist with the Texas

Agricultural Extension Service, director of research and development at Lone Star Growers, and with The Antique Rose Emporium.

Greg has introduced a number of successful new plants to the Texas nursery industry including: Blue Princess and Pinwheel Princess verbenas, Texas Maroon bluebonnet, Gold Star esperanza, Laura Bush and VIP petunia, John Fanick phlox, Stars and Stripes pentas, Pam's Pink honeysuckle, LeCompte and Salinas pink vitex, Henry and Augusta Deulberg sages, Helen Fredel crossvine, Pam Puryear and Big Momma Turk's Cap, and the Marie Daly and Nacogdoches roses.

He has traveled extensively to hundreds of botanical gardens throughout the United States and Europe and is a popular and entertaining speaker. He is a graduate of the Benz School of Floral Design, a member of the Native Plant Society of Texas and the Garden Writers Association of America, and a lifetime member of The Southern Garden History Society. His garden and farm have been featured in a number of books and periodicals including *Texas Gardener*, *Woman's Day*, and *The Dallas Morning News*.

Greg, who is the seventh generation is his family to live in nearby Shelby County, lives in his great-great grandparent's old farmhouse, where he tends to two terriers (Rosie and Lily), a forest full of *Trillium recurvatum*, and one hundred bluebird houses. He is currently working on the restoration of his great-grandparent's dog trot house and creating a small Texas Aceretum. Welcome him back, hopefully for the last time!

George Hull is a graduate cum laude with distinction in horticulture from The Ohio State University. He has a Bachelor's degree in landscape horticulture and a Masters of Science degree. George first came to the Phoenix area in 1972 where he worked with the Harper's and Greenworld. He worked 15 years with V & P Nurseries developing new cultivars such as the Chilopsis 'Rio Salado'. He has been with MSWN since 1999 and is responsible for new plant introductions. He is a member of Southern Region of the International Plant Propagators Society in Arizona and a member of the nursery industry invasive plant committee. George also teaches plant care, arid plant identification and landscape design in the night school program at Glendale Community College and in the School of Landscape Architecture at Arizona State University. He may be reached at the nursery or by email at: george@mswn.com

Eric Keith received his Bachelor of Science degree in Environmental Science from Stephen F. Austin State University in 1995. He has eleven years experience in natural resources management, consultation, and planning including the areas of endangered species, ecological classification and assessments, plant identification and taxonomy, wetland regulations, and environmental compliance. After graduation, Eric worked three years at the Environmental Division of Fort Polk Military Reservation as a wildlife biologist and botanist intern. For the last eight years, he has worked as a Project Manager at the environmental consulting company, Raven Environmental Services Inc., in Huntsville, TX.

Dr. James Kroll has a BS and MS in Biology From Baylor University. He went on to receive his doctorate from Texas A&M University. Dr. Kroll has been with College of Forestry at Stephen F. Austin State University since 1973. In 1975, he founded the Institute for White-tailed Deer Management and Research. He co-founded the Pineywoods Native Plant Center with Dr. David Creech and in 1997, Kroll founded the Forest Resources Institute. He is currently Director,

Columbia Regional Geospatial Service Center, Director, Forest Resources Institute, Professor of Forest Wildlife and Director, Institute for White-tailed Deer Management and Research, and Co-Director, Pineywoods Native Plant Center.

Dr. Kroll has authored more than 200 technical and popular articles, has authored ten books, and has produced videos for NBC, TNN, and the HSE networks, as well as a video management series. He currently contributes to more than 38 difference magazines including North American Whitetail, Deer and Deer Hunting, Journal of the Texas Trophy Hunter, Texas Parks & Wildlife Magazine, American hunter and Texas Sportsman. Annually, he speaks to several thousand hunters and landowners on aspects of producing and harvesting whitetails.

Dr. Kroll has served on the Board of Directors for the Texas Wildlife Association, Sportsman's Conservationists of Texas, Texas Forestry Association and the Texas System of Natural Areas. He currently serves on the board and as president of the Texas Deer Association.

Joe Liggio is the author of The Wild Orchids of Texas by the University of Texas Press. Joe received the BS in 1972 from Sam Houston State University in Biology and the MS from University of Houston in Environmental Science. He is now working as a natural resource specialist with the Texas Department of Transportation.

Barney L. Lipscomb is the Assistant Director: Administration, Head of Library, Head of Press at the Botanical Research Institute of Texas. In addition to Barney's responsibility in administration, the publications program and as director of the library, Barney is one of the three authors of *Shinners and Mahler's Illustrated Flora of North Central Texas*, and the *Illustrated Flora of East Texas*. Barney serves on the Board of Consultants for the North Texas Poison Center in Dallas, and has research interests in the application of botany to forensic science. As Editor of *Sida, Contributions to Botany* as well as *Sida, Botanical Miscellany,* Barney plays an integral role in disseminating some of the results of the BRIT research staff in our internationally distributed, peer-refereed journals. Barney's personal taxonomic specialty is the family Cyperaceae. Barney has carried out fieldwork in various parts of the U.S., Mexico and Central America. Barney is also representative to the Council of Botanical and Horticultural Libraries (CBHL). Email: barney@brit.org

Peter M. Loos is the owner/operator Ecovirons, located in Chireno, Texas. He is a botanist by love, a horticulturist by trade, and a plant ecologist in his spare time. His professional experiences in various fields of the horticulture industry as well as his Masters degree from SFASU have greatly contributed to his extensive knowledge of Gulf Coast Native Plants and related ecological issues. He is unyielding in his promotion of bio-diversity throughout our environment and is an active member of numerous organizations.

Jill Nokes has been be involved in the area of landscape design, research, and education devoted to native plants for the past 20 years. She has an undergraduate degree in the Plan II program at U.T. and a master's degree in horticulture from Texas A&M. Her thesis was a catalog of propagation information on native Texas woody plants, which she later revised in to my first book, *How to Grow Native Plants of Texas and the Southwest* (second edition, University of Texas Press 2001).

Throughout her career she has continued to focus on the use of native plants in landscape design. Most of her work has been in residential gardens, but currently she is focusing more on large-

scale ecological restoration projects while also continuing to write and lecture.

Glenn Olsen has had a passionate interest in nature, especially birds, since early childhood. He has been involved with organized birding and conservation efforts in Texas since 1988. In addition to bird identification, he has a special interest—and continues his studies—in the relationships of plants, birds, butterflies, and other insects. As a member of the Houston Audubon Society, he has served as vice president of education and is an instructor for Audubon's Beginning and Intermediate Birding classes. Since 1993, he has been actively involved with the Native Plant Society of Texas and has served as State President and Houston Chapter president. Glenn also served as an Audubon Warden monitoring colonial nesting birds in Rockport, Texas, and with the Nature Conservancy's pilot project to introduce captive reared endangered Attwater's Prairie Chickens to their preserve near Texas City, Texas.

In addition to leading professional birding and nature tours for groups and individuals, Glenn gives presentations on birds or native plants to various organizations. He has a degree in philosophy and is an independent benefits planner specializing in retirement planning. Glenn supports the conservation of habitat and educational programs about birds through memberships in the American Birding Association, American Bird Conservancy, Houston Audubon Society, Gulf Coast Bird Observatory, Texas Ornithological Society, Houston Ornithology Group, and the Native Plant Society of Texas among others.

Mary Anne Pickens, a former high school teacher, is a graduate of The University of Texas in Austin. Since her husband's retirement in 1992, they have lived near Columbus in Colorado County, Texas on property that has been in her family since 1834. Upon retirement, Mary Anne has been active in the Native Plant Society of Texas and served as state president in 1997. She is currently president of The Southern Garden History Society. She is an avid gardener, using both native plants and heritage plants from her grandmother's garden. Her great-grandfather was an early Texas horticulturists and operated Pearfield Nursery which he began in 1876.

In 1999, at the request of Dr. William C. Welch, Mary Anne presented a program on Lynn Lowrey for The Southern Garden History Society at its meeting in Houston. In preparation for that program, Mary Anne researched Lowrey's life extensively. Her program today reflects her continued interest in Lowrey's significant horticultural achievements. Her originial paper can be found on Rice University's Lynn Lowrery Arboretum website.

Larry Shelton has owned and operated Osage Woodworks, a custom woodworking business since 1984. Shelton is a naturalist who has been guiding interpretive nature walks since 1985. He has also been closely involved with citizen conservation groups such as the Texas Committee on Natural Resources (TCONR) and the Sierra Club, working on forest management and other resource conservation issues for over 20 years. Shelton has been the head of the stewardship committee for the Naconiche Creek/Grass Lake preserves in Nacogdoches County since 1990.

Neal Stilley is an expert in the field of primitive technology and a highly skilled outdoor education specialist. He studied archeology at Stephen F. Austin State University under the direction of the late Dr. James E. Corbin. He worked as an instructor at the Houston ISD Outdoor Education Center for 8 years and he is also an accomplished naturalist and photographer.
Neal currently serves as an instructor at the Shumla School where he teaches primitive technology and an Archeological Steward for the Texas Historical Commission. Neal also does volunteer archeology work for the Center for Big Bend Studies at Sul Ross State University,

including archeological excavation and rock art recording. Neal conducts numerous archeological education programs across the state throughout the year and serves as the Vice-President of the East Texas Archeological Society. He has served as Co-Directed of Youth Programs for the Texas Archeological Society's annual Field School for the last 5 years.

Dawn Stover is a Research Associate with the SFA Mast Arboretum in Nacogdoches, Texas. She earned a B.S. in Biology from West Texas A&M in 1996, and an M.S. in Agriculture from Stephen F. Austin State University in 1999. Her initial horticultural experience began at Treesearch Farms in Houston. From there she entered graduate school at SFA and continued her horticultural experience in the Forestry Department with Dr. Shiyou Li's *Camptotheca acuminata* research project, and later with the Agriculture Department at the SFA Mast Arboretum.

Mrs. Stover currently maintains the living plant collection within the SFA Mast Arboretum. Current research includes work with *Gaillardia aestivalis var.* winkleri, *Tricyrtis* species, *Farfugium japonicum*, as well as hardiness trials for many tropicals and gingers. She is responsible for maintenance of the arboretum and the horticulture greenhouse facilities. She is responsible for two annual sales that raise money for the arboretum, as well as coordinating student workers and volunteers. Very often, she can be found teaching labs for horticulture students, working with volunteers, or lecturing to a wide variety of gardening enthusiasts. Her first course as an instructor at Stephen F. Austin State University was Annuals and Perennials, which she teaches on a biannual basis. She works closely with the horticulture industry as well as the public.

Damon Waitt holds a Ph.D in Botany from the University of Texas in Austin where he studied the evolutionary ecology and population genetics of *Phlox drummondii* and an M.S in Botany from Louisiana State University Baton Rouge, for work on sex ratio evolution in sedges. Dr. Waitt has served on the faculty of Saint Edwards University and Southwestern University and has extensive experience developing web-based information resources. Dr. Waitt serves as the Wildflower Center's botanical authority and is the author of the Wildflower Center's Native Plant Information Network. Dr. Waitt also serves as the principal investigator on several grants as part of the Wildflower Center's *Pulling Together Invasive Species Initiative.* In addition, he serves on the Texas Forest Service Oak Wilt Commission, the Texas Parks and Wildlife Diversity Policy Advisory Committee, and as President of the Texas Academy of Sciences.

THE AGE OF AQUERCUS

(With apologies to the 5th Dimension and The Age of Aquarius)

When Dave Creech is in the green house
And Peter Loos comes back from Mars
Then oaks will guide the plantings,
And Paul Cox will leave the bars.

This is the dawning of the Age of AQUERCUS
The Age of AQUERCUS

AQUERCUS
AQUERCUS

Plant natives with understanding
Magnolias and oaks abounding
No more tallows or mimosas
Grancy graybeard, oak, cyrilla
And Taxodium distichum
Are the landscapes liberation

AQUERCUS
AQUERCUS

When Dave Creech is in the green house
And Peter Loos comes back from Mars
Then oaks will guide the plantings,
And Paul Cox will leave the bars.

As our hearts go beating through the night
We plant unto the dawn of day
We are the bearers of the knowledge
Our natives will lead the way

We are the spirit of the Age of AQUERCUS
The Age of AQUERCUS
AQUERCUS!
AQUERCUS!

Plant natives with understanding
Magnolias and oaks abounding
Echinacea and Liatris
Gaillardia and Lupinus
Planted on all golf courses
Guided by horticulture forces
Oh care for us; AQUERCUS!

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