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TEXAS

Eastern Texas has few sites recognized as virgin or even as only lightly and selectively logged. The approximately 600,000 acres of pure Longleaf Pine savanna once found in southeastern Texas have been for the most part converted to pine plantations. Much of the Longleaf Pine savanna that remains suffers from livestock grazing, wildlife management practices, and disruption of natural fire regimes, as described by Bridges and Orzell (1989). Good relict areas of Post Oak savanna are almost impossible to find, according to Fred Smeims. The remnants of Post Oak savanna described in the scientific literature of earlier decades have pretty much disappeared (1993).

On the other hand, Ike McWhorter, East Texas Land Steward of The Nature Conservancy, points out that Texas has many Longleaf stands that are restorable and that with stewardship could become old growth. At The Nature Conservancy's Roy E. Larsen Sandylands Sanctuary, for instance, Longleaf Pine stands that were mostly or entirely cut in the past are beginning "to act as old growth" and to take on the structure of old growth. In Angelina National Forest, Longleaf Pine undergoing prescribed burns could already be mistaken for virgin Longleaf by someone not well acquainted with old growth. McWhorter hopes that people will see the potential to restore forests as well as to preserve the primary forests that remain (McWhorter 1993).

In addition to the areas described below, old growth sites include 15 or 20 acres of Cross Timbers forest, actually overgrown Post Oak savanna, within a 60-acre site at the **Fort Worth Nature Center** (Tarrant County)(Stahle et al. 1985, Stahle 1993, Clark 1993); some 20 acres of old-growth Blackjack Oak-Post Oak-Black Hickory woodlands on a sandhill in the 1582-acre **Purtis Creek State Park** (Henderson and Van Zandt Counties) (Singhurst 2001); a 5- or 6-acre **Longleaf Pine roadside park**, owned and managed by the state (Sabine County)(Gidlund 1990); 5 to 10 acres of probably uncut beech-magnolia slope forest grading into floodplain forest, in the **Turkey Creek Unit of Big Thicket Preserve** (McWhorter 1993); and 3 or 4 apparently uncut acres of remnant forest including giant Pecan trees, surrounded by prairie, and protected by the city of **Mesquite** (Dallas County)(Moore 1992).

The US Forest Service (USFS) adopted a Revised Land and Resource Management Plan for the National Forests and Grasslands in Texas in 1996. Prior to the revision process, USFS entered into a cooperative agreement with the Texas Natural Heritage Program that provided for a "systematic assessment of natural diversity in the Texas National Forests." The Natural Heritage Program then conducted a three-year inventory, the results of which are presented in a report by Steve Orzell, the principal investigator (Orzell 1990).

Little Sandy Hunting and Fishing Club, northeastern Texas (Wood County)

Thirty-five hundred to 3900 acres of old-growth bottomland hardwoods. Trees are predominantly Sweetgum, Overcup Oak, Willow Oak, and Water Oak. Club records go back only to the 1890s, since which time the area has not been cut. There are no stumps or other obvious signs of earlier logging, and the area is replete with snags and downed trees. The Hunting Club, which owns the land, has given an easement to the US Fish and Wildlife Service (USFWS). The easement prohibits timber harvest unless both parties agree to it. The land was the subject of a suit against FWS, because its preservation prevented construction of a reservoir (Neal 1992, 2003).

Balcones Canyonlands National Wildlife Refuge, northeast of Austin (Travis County)

One thousand to two thousand acres of old-growth Ashe Juniper woodland within the 80,000-acre acquisition boundary of the Wildlife Refuge. As of February 2003, the Refuge occupied 19,500 acres, of which 10,500 were Ashe Juniper woodland. The staff is protecting all existing old growth, allowing thousands of additional acres to become old growth, and eliminating young Ashe Juniper on hundreds of other acres where it has grown up due to fire suppression and where its elimination will recreate grasslands and specialized habitats like those needed by the Black-capped Vireo. The Golden-cheeked Warbler is dependent on old-growth or old second-growth juniper-oak woodland—trees at least five meters tall and at least 35-50 years old. Black-capped Vireos, on the other hand, need scrub oak brushland, a fire successional habitat, and do not like young juniper woodland (Sexton 2003).

Gus Engeling Wildlife Management Area, east-central Texas (Anderson County)

About 2200 acres of potential old-growth Post Oak savanna on rolling, sandy hills within the 11,000-acre Wildlife Management Area (Singhurst 2001). The land was “not extensively cleared” (TPWD 2003). The savanna was grazed from 1901-1942, but the grazing had the positive result of helping to replace the fires that had kept the area open and were by then being suppressed. Prescribed burning every 3 years began in 1950. Savannas were approximately 60% of the site before European settlement. Today about 45% of the site is in sandhill openings. The missing 15% of savanna has been lost to groves of hardwoods, intermixed with the savanna. Tree species in the savanna are Post Oak, Blackjack Oak, Bluejack Oak, and hickories. In the groundlayer are bluestem grasses, forbs, and herbaceous legumes (Singhurst 2001).

Longhorn Army Ammunition Plant, northeastern Texas (Harrison County)

Along Harrison Bayou, 960 acres of “mature hardwood species that were typical of southern bottomland during settlement” (Delk 1993). The water level along the bayou has changed drastically, as the result of flooding caused by a logjam; the subsequent dynamiting of the logjam; and finally the construction of a weir. As a result, the old-growth community, although never logged, is only 100 years old (Neal 2003).

The ammunition plant is no longer operating and the land has been designated as Caddo Lake National Wildlife Refuge. However, the US Fish and Wildlife Service has only secondary jurisdiction over the site at present. Harrison Bayou and other portions of the plant are contaminated from past activities. The Service will not accept primary jurisdiction until the contamination has been cleaned up. Remediation is underway. Meanwhile, the site belongs to the military, and the refuge is an “overlay refuge” (Neal 2003).

Lennox Woods, northeastern Texas (Red River County)

Up to 875 acres of upland and bottomland old growth within a 1400-acre preserve. The preserve is in two tracts: the original 366-acre area and a 1000-acre area on Pecan Bayou. The 366 acres have never been logged, as far as is known. They are comprised of some 140 acres of Shortleaf Pine-oak upland forest and some 226 acres of bottomland hardwoods. The 1000-acre tract has 500 acres of bottomland hardwoods, of which 300 acres are probably old growth. If the 300 acres were cut, they were cut lightly, The Nature Conservancy reports (Eidson 2003). The preserve, which is owned by The Nature Conservancy, is home to Arkansas Meadow Rue, an Endangered species, and to Wildenovi's Sedge, rare in Texas. The Texas Natural Heritage Program ranked the original tract as "A" (Sullivan 1993, TNC 1988, TPWD 2003).

****Dance Bayou Unit of San Bernard National Wildlife Refuge**, southeastern Texas (Brazoria County)

Approximately 650 (Rosen and Miller, 2005) or 910 (Hamilton et al. 2005) acres of old-growth Columbia Bottomland forest in the Dance Bayou Unit of the San Bernard National Wildlife Refuge. The unit is a satellite of the refuge and does not lie within the refuge's boundaries. The oak-elm-pecan forest is a diverse and uneven-aged tree community, with standing snags and fallen trees, tree fall gaps, and super-emergent trees. Small areas have been disturbed for a pipeline right of way, a dirt road, and hunting. However, the forest has experienced no burning, thinning, selective cutting, or overgrazing; and the vegetation is likely to be climax (Hamilton et al. 2005, Rosen and Miller 2005). (*Added July 31, 2007*)

Santa Marie Tract, in the Lower Rio Grande National Wildlife Refuge, southern Texas (Hidalgo County)

Four hundred twenty-two acres of bottomland hardwoods that Michael Bornstein, Wildlife Biologist at the Refuge, is "80-90% confident" have not been disrupted by non-Indians. The tract, which is owned by the US Fish and Wildlife Service, was purchased from the World Wildlife Fund in 1976. It is dominated by Sugarberry and Rio Grande Ash. Cedar Elm and Anacua are among the other species present. The Rio Grande Ash and Anacua cannot be seen elsewhere in southern Texas. The refuge is on the periphery of the ranges of many Central American bird species. Thus many birds rare to the US come through. Also it provides habitat for the Ocelot and Jaguarundi, both Endangered species. The Refuge is closed to the public (Bornstein 1990).

Bull Creek, central Texas (Travis County)

Several hundred acres of Texas Oak-Ashe Juniper woods that may be old growth. The acreage is found near two forks of Bull Creek, between which is a subdivision (Diamond 1993 and 1997, Sullivan 1993). Texas Parks and Wildlife graded the occurrence "B" (TPWD 1998).

SABINE NATIONAL FOREST, in eastern Texas

--**Mill Creek Cove Research Natural Area** (Sabine County). A 225-acre beech-magnolia forest without evidence of logging. The area is comprised of two peninsulas of old-growth beech-magnolia on the western shore of Toledo Bend Reservoir (USFS 1996a, USFS 1996c).

McWhorter told us of additional ravines with beech-magnolia forest that has never been cut because of the slope. Acreage of each of these forests is much smaller than that of Mill Cove (1993). Rob Evans of the National Forests in Texas mentioned an old-growth slope forest in a drainage. This site has fewer beech and magnolia trees but more rare species in the understory than has Mill Creek (1993).

B. R. MacRoberts and M. H. MacRoberts later studied systematically what they termed beech-hardwood forest (both American Beech-White Oak and American Beech-Southern Magnolia forest) on the Sabine National Forest. They found that many of the "deepest and steepest ravines" "may never have been logged." The highest quality ravines occur in a band running from the northwest to the southeast of the forest (1997).

--**Beech Ravines Scenic Area**, Tenaha District (Sabine County). On 827 acres within a 1020-acre Scenic Area, a series of "deep cut, north and east facing, steep-sided ravines" with "mature hardwood ravine forests (Grade A-B)." Sweetgum, Black Gum, Water Oak, and American Beech dominate the canopy. Chalk Maple predominates in the understory. On the

narrow ravine bottoms and slopes is a rich spring-flowering herbaceous layer. The uplands have mature second-growth mixed pine-hardwood forests (Orzell 1990). USFS classifies the Scenic Area as unsuitable for timber management (USFS 1996b).

--**Stark Tract Natural Heritage Area**, Yellow Pine District (Newton and Sabine Counties). A 448-acre area composed of diverse communities, some of them Grade A (relatively stable or undisturbed). Longleaf Pine has been logged on some sandhills but "exceptional" stunted hardwood woodlands remain on deep ridge deposits. Bluejack Oak, Post Oak, and Blackjack Oak dominate the woodlands. "Significant undisturbed dry mixed pine-hardwood and dry-mesic hardwood forest" are found on the upper slopes of ravines. The southern end of the tract includes "high quality (grade A) dry upland longleaf pine savannas," which harbor many relic Longleaf Pines (Orzell 1990). Natural Heritage Areas, including the Stark Tract, are outside the timber base (USFS 1996b).

--**Matlock Hills Natural Heritage Area**, Tenaha District (Sabine County). A 215-acre area containing "A-B" examples of "mesic ravine forest, sandhill woodland, acid seeps on forested valley slopes, and acid spring branches." The overstory of the mesic forests is dominated by White Oak, Southern Red Oak, White Ash, Black Gum, and Bitternut Hickory. Eastern Hophornbeam and Chalk Maple are common in the understory. Xeric hardwoods dominate the sandy ridgetops and upper slopes as a result of past logging (Orzell 1990).

--**Upper Colorow Creek Scenic Area**, Tenaha District (Sabine County). Within a 230-acre Scenic Area, 128 acres of "relatively undisturbed mesic slope forests (Grade A-B), mesic ravine forests, and wet rock outcrops." The mesic forests support "an exceptional assemblage of northern and eastern forest flora disjunct to southeastern Texas," including Toothwort (*Dentaria laciniata*), Bloodroot (*Sanguinaria canadensis*), and Perfoliate Bellwort (*Uvularia perfoliata*) (Orzell 1990). Also in the Scenic Area are upland hardwood and pine, apparently not old growth. With the 1996 forest management plan, management was to become that of a Botanical Area rather than of a Scenic Area (USFS 1996b). Like Beech Ravines Scenic Area, Upper Colorow Creek is classified as unsuitable for logging (USFS 1996c). A USFS review team recommended 360 acres at Upper Colorow Creek for RNA status (USFS 1996a).

ANGELINA NATIONAL FOREST, in eastern Texas

--**Upland Island Wilderness Area** (Graham Creek Wilderness Area), Angelina District (Angelina and Jasper Counties). A 3172-acre Wilderness Area with extensive park-like stands of Longleaf. "Most of the longleaf pine is second growth, averaging 40-70 years," but there are "remnant older growth stands (90+ years old)" (Orzell 1990, p. 417). The Wilderness Area includes Graham Creek Bottoms (542 acres), "noteworthy for its undisturbed mature hardwood bottomland forest which is of high quality (Grade B)" (Orzell 1990, p. 291)

--**Longleaf Ridge Special Area**, Angelina District (Angelina and Jasper Counties). Approximately 32,000 acres (Record of Decision, p. 10) between Sam Rayburn Reservoir and the Neches River and adjacent to the Upland Island Wilderness Area. The principal vegetation is Texas Natural Heritage Program's Longleaf Pine-Little Bluestem Series" (USFS 1996a EIS-Appendix D, p. 200). The area was "established primarily for special enhancement of the westernmost example of longleaf pine communities and species such as the "Red-cockaded Woodpecker. It is subject to prescribed burns, where appropriate, but as a whole is not protected from logging (USFS 1996c).

---**Boykin Spring Longleaf** (Angelina and Jasper Counties). Approximately 90 acres of old-growth Longleaf Pine within a 380-acre area recommended by Texas Parks and Wildlife and a USFS review committee for a Research Natural Area (RNA). The herbaceous layer has "near climax composition," and the 380 acres, which include seepage bogs and pockets of deep sand,

support more than 170 herb species (Diamond 1993, Sullivan 1989). According to USFS comments on the proposed RNA, “the area was commercially thinned about 20 years ago. The effects of this are not apparent at this time [1996]” (USFS 1996a). It is not clear whether the entire 380 acres were thinned or just the part not said to be old growth. Diamond spoke of “patches” of old growth in Boykin Spring Longleaf (1995).

According to Evans, Longleaf Pine is in quite good condition on the extensive Longleaf Ridge Special Area. Patches of Slash Pine have been planted, but in the interior are naturally pure stands of Longleaf Pine, including areas of old trees (1993). Orzell recommended that the 233 acres immediately around Boykin Spring, called Boykin Annex, be evaluated for inclusion with Boykin Spring Longleaf as an RNA (Orzell 1990).

---*McGee Bend* (Jasper County). “Old-growth bottomland hardwoods, with areas of pine and hardwood mixtures; several bald cypress sloughs” within a 400-acre area (USFS 1996a). Orzell wrote of 60 acres of mature to old-growth mesic hardwood slope forest and an abandoned slough with a canopy of old-growth bald cypress (1990 p. 319). A USFS review team recommended that the hardwoods become an RNA. McGee Bend is on the Angelina River (USFS 1996a).

---*Shearwood Creek Natural Heritage Area* (Angelina and Jasper Counties). A 1442-acre area with diverse communities, some of them apparently old growth. The area includes extensive dry upland Longleaf Pine savanna (Grade B) in which some of the “old-growth stands” are comparable to those at Boykin Spring Longleaf site. One of the xeric sandhills (Grade A-B) is the largest Longleaf-Bluejack Oak sandhill “with old-growth relic trees” in the Angelina and supports more than 50 native sandhill forbs. An “outstanding (Grade A), old-growth, 22 acre, possibly virgin baygall community” is located along Shearwood Creek (Orzell 1990).

---*Rocky Branch Barrens*, Angelina District (Jasper County). A 73-acre “high quality (Grade A) example of a Catahoula Formation barrens-woodland community type.” Post Oak dominates woodlands that surround a prairie-like barrens. In the understory of the woodlands are Farkleberry, Yaupon, and Parsley Hawthorn. Long-leaf Spikegrass (*Chasmanthium sessiliflorum*) is the main herb in the woodlands (Orzell 1990, p. 356). The barrens is within the Catahoula Barrens. Two other barrens within Catahoula Barrens, Black Branch and Buck Branch, were graded “B” by Orzell (Orzell 1990); (USFS 1996a).

Emmaus Retreat, central Texas (Travis County)

One hundred to two hundred acres of low, dense, Ashe Juniper-oak forest that may be old growth. The woodland lies on the steep slopes and uplands of a single canyon on the south side of the Colorado River (Diamond 1993 and 1997, Sullivan 1993).k

Davis Hill State Park, eastern Texas (Liberty County)

A 3000-acre State Park with possible old growth of undetermined acreage. The old growth would be a stream bottom community associated with a salt dome (Neal 2003).

The Deep Bottom, northeastern Texas (Denton County)

A 230-acre forest described as “transitional old growth.” Some stands within the forest are classic old growth; the rest are old, but lack large trees as a result of high grading, the only logging since the arrival of Europeans. Hackberry, Cedar Elm, and Green Ash predominate in respect to basal area, density, and frequency. Many trees are 150-200 years in age and more than 3 feet across. Unfortunately the creation of “Lake” Ray Roberts upstream in 1987 put an end to cyclical flooding. The Hackberry, elm, and ash are still replacing themselves, but the presence of Bur Oak and Black Walnut in the forest suggest that the water table is changing and that

eventually the composition of the forest may change. The forest is owned by the US Army Corps of Engineers, which bought the land as a flood easement. The Corps has given the City of Denton a long-term lease on the property; Texas Parks and Wildlife manages it for recreational use only (Barry and Kroll 1999).

Garner State Park, south-central Texas (Uvalde County)

Extensive old-growth Ashe Juniper-oak woodland within the 1420-acre State Park. Ranked “AB” (TPWD 1998), the old growth covers both sides of a big ridge. The Frio River, with Baldcypress and sycamore trees alongside it, flows through the park (Carr 2001).

Lost Maples State Natural Area, northwest of San Antonio (Bandera and Real Counties)

Old-growth Ashe Juniper woodlands (Diamond 1997, Carr 1998) and little logged hardwoods (Carr 1998, Heideman 2003) within the 2174-acre Natural Area. The Ashe Juniper is on the dryer uplands, of which a major portion has been logged. The hardwoods, Uvalde Bigtooth Maple, Live Oak, other oaks, and cherry are mostly along the bottom and lower slopes of the Natural Area’s canyons, where only patches of forest may have been logged. The park is very rugged with steep canyon slopes, and hills, and cliffs (Heideman 2003).

Coledo Creek, southeastern Texas (Goliad County)

As of 1983, 120 acres of "relatively undisturbed" Post Oak savanna on property owned by the Central Power and Light Company of Corpus Christi. Along with Post Oak and native grasses were Blackjack Oak, Yaupon, Live Oak, and mesquite, among other species. The mature and old Post Oak on 70 acres of the tract were 250 to 300 years old and 18 to 30 feet tall. A powerline corridor cut through the site, and a reservoir and dirt roads bounded it on the east and west sides. Nevertheless, the University of Arkansas Tree-Ring Laboratory, which determined the age of the trees, believed that there were probably additional old-growth stands in the vicinity. (Stahle et al. 1985, Stahle 1993, Sullivan 1993, Allen 1993).

Texas has many additional Post Oak savanna sites in varying condition. Most of those in which the University of Arkansas Tree-Ring Laboratory has dated trees are less than 40 acres in size (Stahle 1993).

Cedar Creek Islands Wildlife Management Area, northeastern Texas (Henderson County and Kaufman County)

One hundred and ten acres of likely old growth on the 144-acre Big Island (Kaufman County) within the Wildlife Management Area. Shumard Oak, Post Oak, and Blackjack Oak are among the trees. May Apple (*Podophyllum peltatum*) and Trout Lily (*Erythronium albidum*) bloom in the herbaceous layer. No exotics are present. Singhurst does not believe that the 110 acres have experienced any logging (2001). Big Island is the largest of three islands in Cedar Creek Reservoir/Lake, which comprise the Management Area. At one time Big Island was a terrace on a river.

Pedernales Falls State Park, west of Austin (Blanco County)

Old-growth Ashe Juniper-oak woodland and possible old-growth Texas Oak-Chinquapin Oak woodland within the 5212-acre park. The Ashe-Juniper-oak woodland, located on upland terraces with sinkholes, is about 100 acres in extent (Carr 1998, Singhurst 2001). Diamond describes it as a representative Ashe Juniper old-growth site (1997), but the Texas Parks and Wildlife Department gives it a “B” grade (TPWD 1998). On the other hand, the Texas Parks and Wildlife Department gives an “A” grade to the band of Texas Oak series vegetation, on slopes

along the Pedernales River (TPWD 1998). The band is some 100 to 120 feet wide and perhaps half a mile long and includes an endemic mock-orange (Singhurst 2001).

Fort Parker State Park, east-central Texas (Limestone County)

On a bluff within the 1458-acre park, possible old growth with Shumard Oak, and Bur Oak. As far as Singhurst can determine, the forest has never been disturbed. The land is in a location that could never have been plowed, and the trees are very mature (Singhurst 2001). The park manager agrees that plowing could not have taken place, but he thinks that there is no way to know whether the site is actually old growth. He puts the acreage at between 20 and 110 acres (Fisher 2003).

Atlanta State Park, northeastern Texas (Cass County)

About 80 acres of unlogged pine-oak forest on bluffs overlooking Wright Patman "Lake," formed by Wright Patman Dam. Within a matrix of Shortleaf Pine and White Oak are Sugar Maple, Red Maple, and Paw Paw, among other species. A significant herbaceous layer includes lady slippers, orchids, and Solomon's Seal. Atlanta State Park is 1475 acres in size (Singhurst 2001, Berry 2003).

Cooper Lake State Park's South Sulphur Unit, northeastern Texas (Hopkins County)

Within the 3210-acre South Sulphur Unit of the State Park, possible old growth as a Shagbark Hickory-Shumard Oak slope community and also bluff terrace (Singhurst 2001). The park is at the juncture of tall grass prairie and Post Oak savanna.

Guadalupe River State Park and Honey Creek Ranch State Natural Area, just north of San Antonio (Comal County)

Old-growth Ashe Juniper woodland within the 1940-acre State Park and the adjacent Natural Area (Diamond 1997). A stand with 45 acres in the Park but extending from the Park onto private property is "B" grade. It is on a gentle, dry rocky limestone slope (TPWD 1998). Approximately another 5 acres of old growth Ashe Juniper woodland is in small scattered stands (Singhurst 2001). Much of the Park has been cleared of juniper in order to restore savanna (Carr 1998).

Spring Creek Forest Preserve, northeastern Texas (Dallas County)

Three 8- to 10-acre little-disturbed areas of prime oak-hickory bottomland within a 185-acre preserve. The balance of the tract, which extends some 2 miles along Spring Creek, is regenerating. All of the prime areas have had "very little cutting." One was only grazed by livestock in the hottest and driest time of the year. The others were grazed a little more, and had some open gravel pits. The dominant trees in the preserve are ash, elm, Pecan, Sugarberry, Shumard Oak, and Chinquapin Oak. The regenerating areas have the same species as the prime areas, but elm and ash are more prominent outside the prime areas. The city owns part of the preserve; Dallas County, part. They have acquired the preserve little by little since 1980 and now have 30 acres left to buy to make the whole contiguous (Frey 1993 and 2003, Nixon 1991).

Allen, Ray, Environmental Consultant, Central Power and Light. 1993. Personal communication.
Anderson, R. S., Texas A&M University, Dept. of Entomology. 1989, May 5. Letter to Edward C. Fritz.

- Barry, Dwight and Andrew Kroll. 1999. A Phytosociological Description of a Remnant Bottomland Hardwood Forest in Denton County, Texas. *Texas Journal of Science* 51(4):309-16.
- Berry, Marvin, Manager, Atlanta State Park. 2003. Personal communication.
- Bornstein, Michael, Wildlife Biologist, Lower Rio Grande National Wildlife Refuge. 1990. Personal communication.
- Bridges, Edwin L. and Steve L. Orzell. 1989. Longleaf Pine Communities of the West Gulf Coastal Plain. *Natural Areas Journal* 9(4):246-63.
- Carr, Bill, The Nature Conservancy of Texas. 1998 and 2001. Personal communication.
- Clark, Wayne, Director, Fort Worth Nature Center. 1993. Personal communication.
- Delk, James W., Chief, Engineering Management Division. 1993, March 2. Memorandum to the Commander, US Army Materiel Command, forwarded to Wild Earth by Kim Roland.
- Diamond, David. 1990, 1993, and 1995. Personal communications.
- Diamond, David D. 1997. An Old-Growth Definition for Western Juniper Woodlands: Texas Ashe Juniper Dominated or Codominated Communities. Gen. Tech. Rep. SRS-15. Asheville, NC: US Department of Agriculture, Forest Service, Southern Research Station.
- Eidson, Jim, Crosstimbers and Southern Tallgrass Prairie Ecoregion Manager, The Nature Conservancy of Texas. 2003. Personal communication.
- Evans, Rob, National Forests in Texas. 1993. Personal communication.
- Fisher, Tom, Manager, Fort Parker State Park. 2003. Personal communication.
- Frey, Tom, Landscape Architect. 1993 and 2003. Personal communications.
- Gidlund, Carl A., Public Affairs Officer, National Forests in Texas. 1990. Personal communication.
- Hauke, Hayden, Wildlife Biologist and Texas Parks and Wildlife Area Manager. 1993. Personal communication.
- Hamilton, Robert, Wylie C. Barrow, Jr., Keith Ouchley. 2005. Old-Growth Bottomland Hardwood Forests as Bird Habitat, Implications for Contemporary Forest Management, in *Ecology and Management of Bottomland Hardwood Systems: The State of Our Understanding: A Symposium*, Memphis, Tennessee, March 11-13 1999. Puxico, Missouri: Univ. of Missouri-Columbia.
- Heideman, Roy, Superintendent, Lost Maples State Natural Area. 2003. Personal communication.
- MacRoberts, B. R. and M. H. MacRoberts. 1997. Floristics of Beech-Hardwood Forest in East Texas. *Phytologia* 82(1):20-29.
- McWhorter, Ike, East Texas Land Steward, The Nature Conservancy. 1993. Personal communication.
- Moore, Gary, City of Mesquite. 1992. Personal communication.
- Neal, Jim, Texas Parks and Wildlife. 1992. Personal communications.
- Neal, Jim, US Fish and Wildlife Service. 2003. Personal communications.
- Nixon, E. S., J. R. Ward, E. A. Fountain, and J. S. Neck. 1991. Woody Vegetation of an Old-Growth Creekbottom Forest in North-Central Texas. *The Texas Journal of Science* 43(2):157-64.
- Orzell, Steve L., Principal Investigator, Texas Natural Heritage Program. 1990. Inventory of National Forests and National Grasslands in Texas. Austin, Texas: Texas Natural Heritage Program, Texas Parks and Wildlife Department.
- Rosen, David J. and Wesley L. Miller. The Vascular Flora of an Old-Growth Columbia Bottomland Forest Remnant, Brazoria County, Texas. *The Texas Journal of Science* 57, no. 3: 223-228.
- Sexton, Chuck, Wildlife Biologist. Canyonlands Balcones National Wildlife Refuge. 2003. Personal communications.
- Singhurst, Jason, Botanist and Plant Community Ecologist, Wildlife Diversity, Texas Parks and Wildlife. 2001. Personal communication.
- Singhurst, Jason. 2001. Personal communication.
- Smeims, Fred E., Texas A and M University. 1993. Personal communication.
- Stahle, D. W., J. G. Hehr, G. G. Hawks, Jr., M. K. Cleaveland, and J. R. Baldwin. 1985. Tree Ring Chronologies for the Southcentral United States. University of Arkansas Tree-Ring Laboratory. Fayetteville.

- Stahle, D. W. 1993. Personal communication.
- Sullivan, Dorinda, Data Manager, Texas Natural Heritage Program. 1989 and 1993. Personal communications, both with data sheets.
- The Nature Conservancy (TNC). 1988. Texas. The Nature Conservancy Magazine 38(3):31.
- Texas Parks and Wildlife Department (TPWD), Texas Biological and Conservation Data System. 1998. Data sheets.
- Texas Parks and Wildlife Department (TPWD). 2003. Web site: www.tpwd.state.tx.us.
- United States Forest Service (USFS). 1996a. Final Environmental Impact Statement (FEIS) for the Revised Land and Resource Management Plan: National Forests and Grasslands in Texas.
- United States Forest Service (USFS). 1996b. Revised Land and Resource Management Plan: National Forests and Grasslands in Texas.
- United States Forest Service (USFS). 1996c. Record of Decision: Final Environmental Impact Statement (FEIS) for the Revised Land and Resource Management Plan: National Forests and Grasslands in Texas.