



Chapter 9: The Prairies and Cross Timbers

The Prairies and Cross Timbers is a "crossroads" containing a mixture of landscapes described in adjacent regions, including oak woodlands, juniper brakes, and prairies. The "Cross Timbers" are two north-south belts of woodland that extend south from the Oklahoma border for about 160 miles, cutting across the upper Trinity and Brazos watersheds. The Eastern Cross Timber occurs on loose sandy soils and supports vegetation similar to the Post Oak Savannas. The Western Cross Timber is wider, covering some 4 million acres from Montague County to Brown County in the south, and contains areas of oak woodland on sandy soils, with large inclusions of limestone (Dyksterhuis 1948). Vegetation on limestone formations is similar to uplands of the Edwards Plateau, supporting woodlands of Ashe juniper, post oak, plateau live oak, and Texas oak. The two Cross Timbers are separated by areas of former tall grasslands, the Grand Prairie or Fort Worth Prairie, on calcareous dark clays. Floodplains contain deciduous woodlands similar to those in the Blackland Prairie and Edwards Plateau (Tharp

1939, Frost 1949, Dyksterhuis 1946, Diggs et al. 1999). Many southeastern species reach the limit of their ranges in this region (Correll and Johnston 1970).

Early accounts describe dramatic boundaries between Cross Timbers and intermediate prairies. An early writer described the Cross Timbers as "walls of woods" and wrote, "The remarkable uniformity which characterizes the Cross Timber ... induced some persons to believe that it is a work of art" (Kennedy 1841, in Dyksterhuis 1948). Agriculture, ranching, and the effects of fire suppression have obscured gradients in the vegetation of the region, but they are still noticeable (Dyksterhuis 1948).

Plant Communities of the Prairies and Cross Timbers

68b. Upland post oak-blackjack oak woodlands (Cross Timbers).

Synonyms: Cross Timbers (Küchler 1974); Post Oak-Blackjack Oak Series (Diamond 1993); Post Oak-Blackjack Oak Forest Alliance, in part (Weakley et al. 2000).

Description: Uplands in the East and West Cross Timbers support relatively short, slow-growing, park-like woodlands or savannas of post oak and blackjack oak, with some cedar elm, sugarberry, plateau live oak, eastern redcedar, sumacs, and other shrubs. The herbaceous layer at relatively undisturbed remnants may contain little bluestem, gramas, big bluestem, Indiangrass, tall dropseed, or panicums; heavily grazed native pastures are dominated by annual forbs and "increaser" grasses such as buffalograss, Texas wintergrass, purple threeawn, and fringeleaf paspalum. Mesquite and prickly pear occur in disturbed areas, becoming very abundant to the west. Sites on very shallow soils may contain elements of glade vegetation, with oldfield threeawn, narrowleaf pinweed, and other species (Parker 1856, Dyksterhuis 1948, Orzell 1990, Hoagland et al. 1999).

Status: Though still extant, this community has been altered by overgrazing; formerly open, park-like stands are now brushy, possibly due to fire suppression (Dyksterhuis 1948). Relict examples of true savanna are uncommon. Relatively

mature examples of post oak woodlands are preserved at the Hagerman National Wildlife Refuge and Fort Worth Nature Center (Marcy 1982, Kroh and Nisbet 1983, J. Williams pers. comm.). Less intact examples occur at the Cross Timbers Research Natural Area and at Lake Mineral Wells and other state parks (Orzell 1990, TPWD 1996).

Suggested Priority for Further Protection of Community: Fairly Low

71b. Oak-juniper dry-mesic forests (Cross Timbers).

Synonyms: Oak-Mesquite-Juniper Parks/Woods (McMahan et al. 1984); Texas Oak Series (Diamond 1993); Buckley Oak Forest Alliance, in part (Weakley et al. 2000).

Description: Uplands, slopes, and canyons in the western Cross Timber and forested areas of the Grand Prairie are similar to upland woodlands of the Edwards Plateau, with shin oak, Ashe juniper, cedar elm, Texas ash, Texas oak, post oak, and hackberries forming mottes or woodlands. Evergreen and skunkbush sumacs, elbowbush, redbud, Texas persimmon, Mexican-buckeye, and coralberry are common shrubs. Eastern redcedar and Shumard oak replace Ashe juniper and Texas oak north and east of Dallas (Seaman pers. comm.). Natural openings include sideoats grama, Texas grama, little bluestem, silver bluestem, tridens and other grasses, with numerous forbs such as white prairie-clover and slender greenthread (Cox 1983, McMahan et al. 1984, Orzell 1990, TPWD 1990a, TPWD 1993, TPWD 1996b). Mature, almost nonspecific closed stands of eastern redcedar occur on terraces of the Red River in North Texas, with deciduous holly and other calciphilic species; the relationship between these stands and other juniper forests in Texas is unclear (Singhurst pers. comm.).

Status: Some protected areas contain fairly good examples, including Meridian, Eisenhower, and Dinosaur Valley, State Parks (TPWD 1990a, TPWD 1996).

Suggested Priority for Further Protection of Community: Medium

76b. Pecan-elm floodplain woodlands (Cross Timbers).

Synonyms: Pecan-Elm Forest, in part (McMahan et al. 1984); Pecan-Sugarberry Series (Diamond 1993); Pecan-(Sugarberry) Temporarily Flooded Forest Alliance, in part (Weakley et al. 2000).

Description: River floodplains in the Cross Timbers are similar to those of the Edwards Plateau, except that bur oak may be dominant along with elms, pecan, hackberries, western soapberry, and various vines and forbs (TPWD 1990e, Sanders 1997). This community extends into the Rolling Plains along the Colorado River, but dominant species gradually drop out to the west and are replaced by mesquite, little walnut, netleaf hackberry, and brush species (Maxwell 1979, Amos pers. comm.). Stream banks and wetlands in North Texas may support eastern cottonwood, sycamore, black willow, switchgrass, Torrey rush, western ragweed, smartweeds, warty spurge, plains coreopsis and other ephemeral forbs (Penfound 1953).

Status: This community occurs at Dinosaur Valley State Park and other sites and is similar to other bottomland types in Texas.

Suggested Priority for Further Protection of Community: Fairly Low

80. Upland Mollisol tall grasslands.

Synonyms: Silver Bluestem-Texas Wintergrass Grassland (McMahan et al. 1984); Little Bluestem-Indiangrass Series, in part (Diamond 1993); Little Bluestem-Sideoats Grama Herbaceous Alliance (Weakley et al. 2000).

Description: Grasslands occur on calcareous Mollisols derived from limestones and shales at the western edge of the Blackland Prairie (e.g. the Whiterock Cuesta) and more extensively in the Grand Prairie or Fort Worth Prairie. Similar grasslands occur on benches and in openings in the Cross Timbers and eastern Edwards Plateau. As with other grasslands, these communities are (or were) dominated by little bluestem, big bluestem, Indiangrass, tall dropseed, sideoats grama, Texas cupgrass, and other grasses, differing primarily in the composition of subdominant species. Silver bluestem, Texas wintergrass, Texas grama,

purple threeawn, hairy grama, seep muhly, buffalograss, and other native grasses have been encouraged by grazing (Dyksterhuis 1946). Abundant forbs include prairie bluets, heath aster, daleas, cusp gayfeather, narrowleaf dyschoriste, ironweeds, compass plants, tallbread scurf-pea, and Lindheimer daisy as well as species preferring calcareous soils, such as greenthreads, velvet bundleflower, false-pennyroyals, stiffstem flax, false gaura, and Parks nailwort (Collins et al. 1975, TPWD 1990e, Orzell 1990, Eidson pers. comm.).

Status: Unlike other grassland areas of eastern and central Texas, significant areas of native grassland remain in the Grand Prairie. However, most sites have been invaded by woody species or introduced grasses such as King Ranch bluestem or have been altered in composition by overgrazing (Dyksterhuis 1946, Sanders 1997). Fair to poor examples exist at tracts owned by the city of Dallas, Lake Mineral Wells State Park, and Cross Timbers Research Natural Area (TPWD 1996, Orzell 1990).

Suggested Priority for Further Protection of Community: High

Table 9. Conservation areas in the Prairies and Cross Timbers, with types of vegetation occurring within each area.

Conservation Area	Vegetation Types Occurring in Area	Acreage in Conservation Area	Source
Aquila State WMA	68b,76b (10%)	6,100 (land)	Marcy 1982, TPWD 1996
Bonham State Park (TPWD)	23 (1%),71b,76b,80 (11%)	261	Singhurst pers. comm.
Cross Timbers Research Natural Area (USFS)	68b (28%),71b (25%),80 (<40%)	380	Orzell 1990
Cleburne State Park (TPWD)	66,71b,76b	528	Sanders 1997
Dinosaur Valley State Park	26 (3%), 66, 68b,71b,77,80	1,274	TPWD 1996, 1990e
Eagle Mountain Lake (City of Fort Worth)	26 (45%),67 (25%), 68b (19%),71b (5%),80 (4%)	401	TPWD 1996
Eisenhower State Recreation Area	27,31,71b	457	
Fort Worth Nature Center/Refuge (City of Fort Worth)	26 (25%),68b (40%),80 (5%)	3,412	Denkhaus pers. comm.
Hagerman National Wildlife Refuge (USFWS)	21,26,27 (6%),29,32	11,320	J. Williams pers. comm.
Heard Wildlife Sanctuary (City of McKinney)	26,31,32, 71b	274	Cox 1983
Lake Brownwood State Park	67 (37%),71b (9%)	538	TPWD 1996
Lake Benbrook (COE)	68b	part of 1,578	
Lake Mineral Wells State Park/Trailway	26,66,68b (56%)	2,843	TPWD 1996
Lake Whitney State Park	68b,80 (30%)	955	Singhurst pers. comm.
Meridian State Recreational Area	66 (50%)	502	TPWD 1996
Miller Springs Nature Center	66,67,76b	260	
Mother Neff State Park	66 (38%),76b (16%),80 (43%)	259	TPWD 1996
Possum Kingdom State Park	66 (50%),67 (40%), 68b (8%)	1,728	TPWD 1996
Ray Roberts Lake State Park and WMA	68b (14%)	21,020 (land)	TPWD 1996
Vivian Malone Preserve (NAPA)	66,76b,80	145	
Total: 52,657 acres (.46 percent of region)			
Abbreviations of Managing Entities: TPWD=Texas Parks and Wildlife Dept. COE=U.S. Army Corps of Engineers USFS=U.S. Dept. of Agriculture Forest Service NAPA=Natural Area Preservation Association			