

CROSSTIMBERS OAK FOREST AND WOODLAND

Nature Serve ID: CES205.682

Geology: The eastern occurrences of this system are associated with sandy members of the Cretaceous Woodbine Formation, while western occurrences occupy soils derived from the sands of the Cretaceous Trinity Group (such as Paluxy, Antler, and Twin Mountain-Travis Peak Sands). Further west, in the fringe of the Western Crosstimbers, the system occurs on more rugged, rocky and gravelly sites derived from Pennsylvanian formations.

Landform: Gently rolling, moderately dissected uplands, and irregular plains becoming more rugged in the western fringe of the distribution of this system.

Soils: Sands or sandy loams, some with a claypan, are characteristic of this system. Ecological Sites typical of the eastern expressions include Sandy Loam, Tight Sandy Loam, Claypan Prairie, Sandstone Hill, and Sandy. Those more typical of the western expressions include Sandy Loam, Loamy Sand, Tight Sandy Loam, Sandy, Rocky Hill, and Clay Loam.

Parent Description: This system is generally described as a savanna or woodland dominated by *Quercus stellata* (post oak) and/or *Quercus marilandica* (blackjack oak) and occurring in southwest-northeast trending bands separated by the Grand Prairie. Other species in the canopy may include *Ulmus crassifolia* (cedar elm), *Quercus fusiformis* (plateau live oak), *Celtis laevigata* (sugar hackberry), and *Juniperus virginiana* (eastern redcedar). The understory may have been historically dominated by *Schizachyrium scoparium* (little bluestem), but current understory composition may be largely determined by land use history and grazing pressure. In the east, where precipitation is greater, tallgrass species such as *Andropogon gerardii* (big bluestem) and *Sorghastrum nutans* (Indiangrass) may be important components of the understory, or occupy prairie patches. In the drier west, shortgrass species such as *Bouteloua dactyloides* (buffalograss) become more conspicuous. Other graminoid species that may be present include *Schizachyrium scoparium* (little bluestem), *Paspalum setaceum* (fringeleaf paspalum), *Sporobolus compositus* (tall dropseed), *Bouteloua curtipendula* (sideoats grama), *Bouteloua hirsuta* (hairy grama), *Bouteloua rigidiseta* (Texas grama), *Bothriochloa laguroides* ssp. *torreyana* (silver bluestem), *Nassella leucotricha* (Texas wintergrass), and *Aristida* spp. (threeawn). Non-native species such as *Bromus catharticus* (rescuegrass), *Cynodon dactylon* (bermudagrass) and *Bothriochloa ischaemum* var. *songarica* (King Ranch bluestem) frequently dominate the herbaceous layer. With the disruption of a natural fire cycle, branching of overstory species may be continuous to near ground level, reducing light penetration and leading to reduced herbaceous cover. The shrub layer may contain species such as *Smilax bona-nox* (greenbrier), *Rhus glabra* (smooth sumac), *Rhus trilobata* (skunkbush sumac), *Crataegus* spp. (hawthorn), and *Symphoricarpos orbiculatus* (coral-berry). Sites dominated by *Prosopis glandulosa* (mesquite), sometimes with *Ziziphus obtusifolia* (lotebush) as a common shrub component, are particularly common to the west. Juniper (including *Juniperus virginiana* (eastern redcedar), *Juniperus ashei* (Ashe juniper), and *Juniperus pinchotii* (redberry juniper), depending on the site) dominated sites are also frequently encountered. Prairie openings and inclusions tend to occur on tighter soils.

The Eastern Crosstimbers occupy a relatively narrow band, approximately 20 miles wide running from McLennan County in the south to the Red River. The Western Crosstimbers is a broader belt, running from about Callahan County in the south, north and east to Montague County. The Western Crosstimbers can further be divided into the Main Belt which has developed on soils derived from the Cretaceous Trinity Group sands, and the more westerly Fringe which has developed on the more rugged and rocky/gravelly sites derived from Pennsylvanian formations.

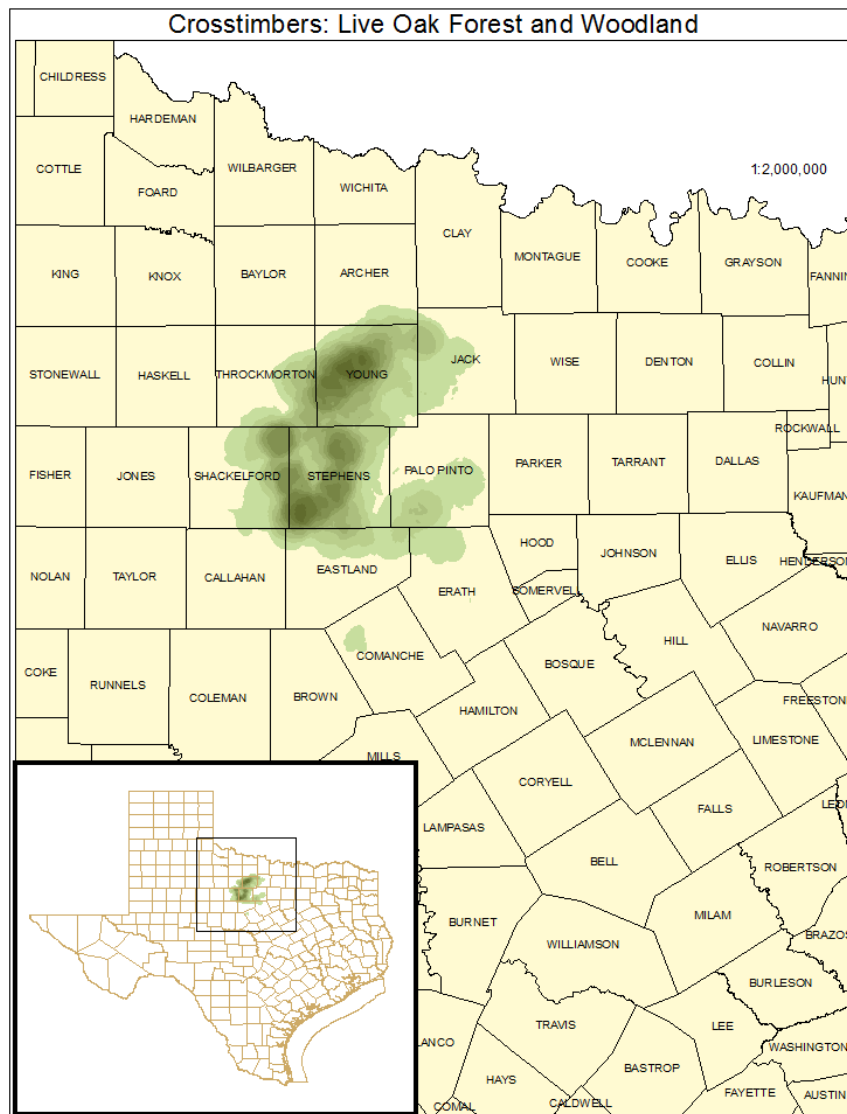
ECOLOGICAL MAPPING SYSTEMS:

CROSSTIMBERS: LIVE OAK FOREST AND WOODLAND

Mapping System ID: 502

EMS Description: This vegetation type is a relatively uncommon component of the system, generally occurring in the eastern Crosstimbers on calcareous substrates. Overstory is dominated by *Quercus fusiformis* (plateau live oak), with *Quercus stellata* (post oak), *Ulmus crassifolia* (cedar elm), *Prosopis glandulosa* (mesquite), and *Juniperus ashei* (Ashe juniper) also present as minor components of the canopy. In some areas it may be difficult to distinguish occurrences of this vegetation type from occurrences of Edwards Plateau Limestone Savanna and Woodland (CES303.660) representing outliers of that system.

Distribution Map:



Example:



Public Land Occurrence:

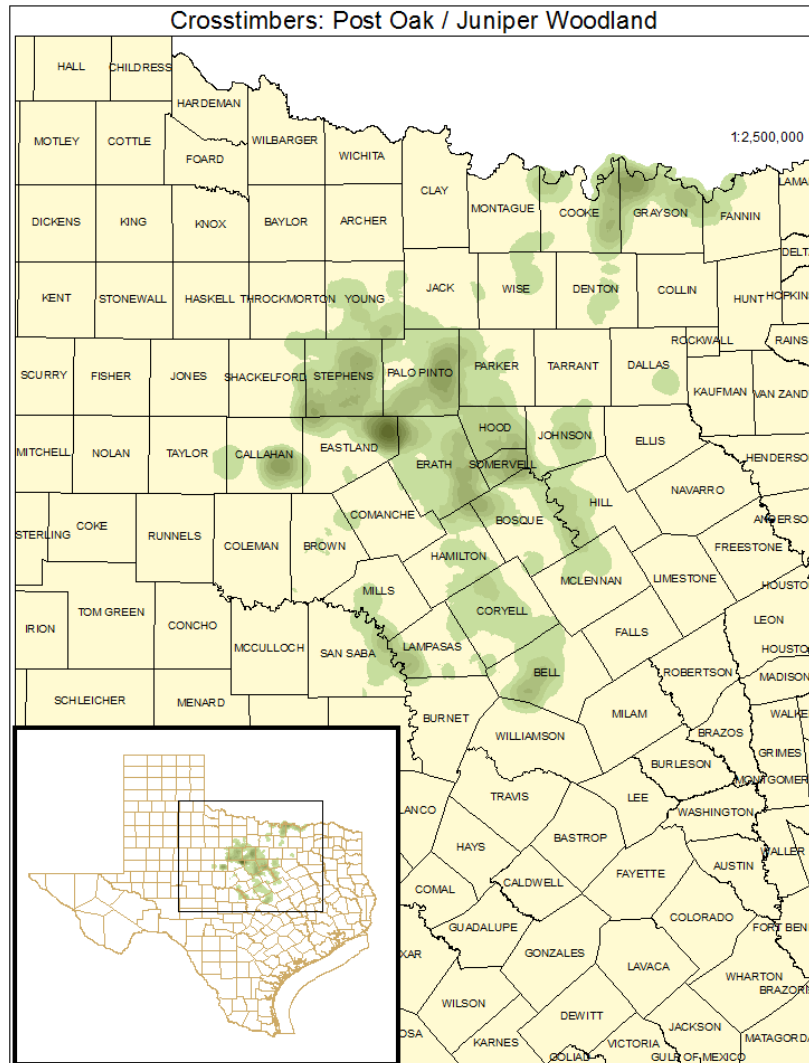
None.

CROSTIMBERS: POST OAK / JUNIPER WOODLAND

Mapping System ID: 503

EMS Description: Sites co-dominated by *Juniperus* species (*Juniperus virginiana* (eastern redcedar) to the north and east, and *Juniperus pinchotii* (redberry juniper) and *Juniperus ashei* (Ashe juniper) elsewhere are frequently encountered. Such sites, thought to result from disruption in the fire regime, may have *Quercus stellata* (post oak) and *Quercus marilandica* (blackjack oak) as co-dominants in the canopy. The dense canopy cover by cedars often results in limited light penetration and the consequent reduction in herbaceous cover. In central and southern portions of the Crosstimbers, areas over limestone substrate that are mapped as this type may be dominated by *Quercus buckleyi* (Texas oak), *Quercus fusiformis* (plateau live oak), and *Juniperus ashei* (Ashe juniper). *Ulmus crassifolia* (cedar elm) and *Celtis laevigata* (sugar hackberry) may also be important canopy species.

Distribution Map:



Example:



Public Land Occurrence:

Caddo National Grasslands – Lake Fannin: US Forest Service

Hagerman National Wildlife Refuge: U. S. Fish and Wildlife Service

Ham Creek Park: City of Blum

Lake Whitney Recreation Area: US Army Corps of Engineers

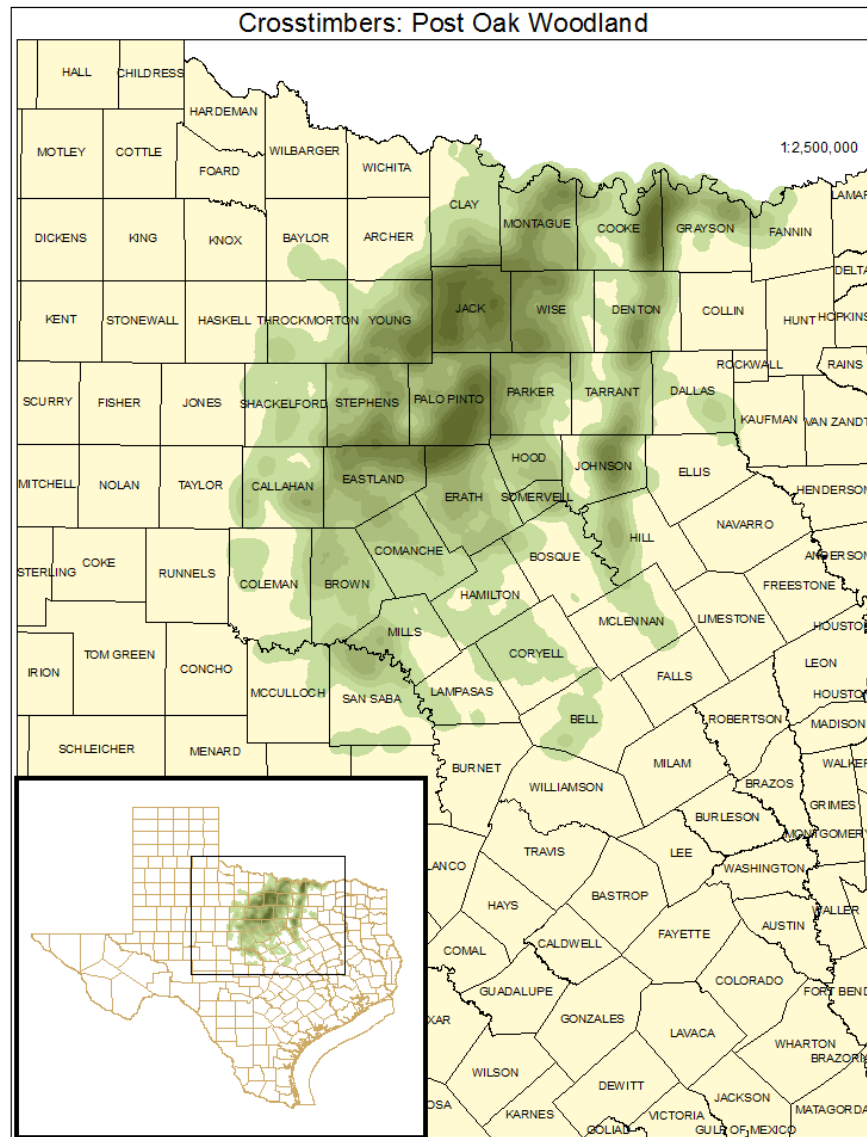
Ray Roberts Lake Wildlife Management Area: Texas Parks & Wildlife Department

CROSTIMBERS: POST OAK WOODLAND

Mapping System ID: 504

EMS Description: This vegetation type represents the typical occurrence dominated by the usual *Quercus stellata* (post oak) and *Quercus marilandica* (blackjack oak), with other canopy species such as *Carya texana* (black hickory), *Ulmus crassifolia* (cedar elm), *Quercus fusiformis* (plateau live oak), *Juniperus virginiana* (eastern redcedar), and *Celtis laevigata* (sugar hackberry) present. The overstory may be relatively closed, resulting in reduced herbaceous cover. In some situations, *Prosopis glandulosa* (mesquite) may be relatively dense. Grass species, particularly *Schizachyrium scoparium* (little bluestem), are present in the understory, and may form prairie openings in the woodland.

Distribution Map:



Example:



Public Land Occurrence:

Aquilla Wildlife Management Area: Texas Parks & Wildlife Department

Fort Worth Nature Center: Tarrant County

Grapevine Lake Recreation Area: US Army Corps of Engineers

Hagerman National Wildlife Refuge: U. S. Fish and Wildlife Service

Lake Lewisville Recreation Area: US Army Corps of Engineers

Lake Mineral Wells State Park: Texas Parks & Wildlife Department

Lake Whitney Recreation Area: US Army Corps of Engineers

LBJ National Grassland, Cross Timbers Research Natural Area: US Forest Service

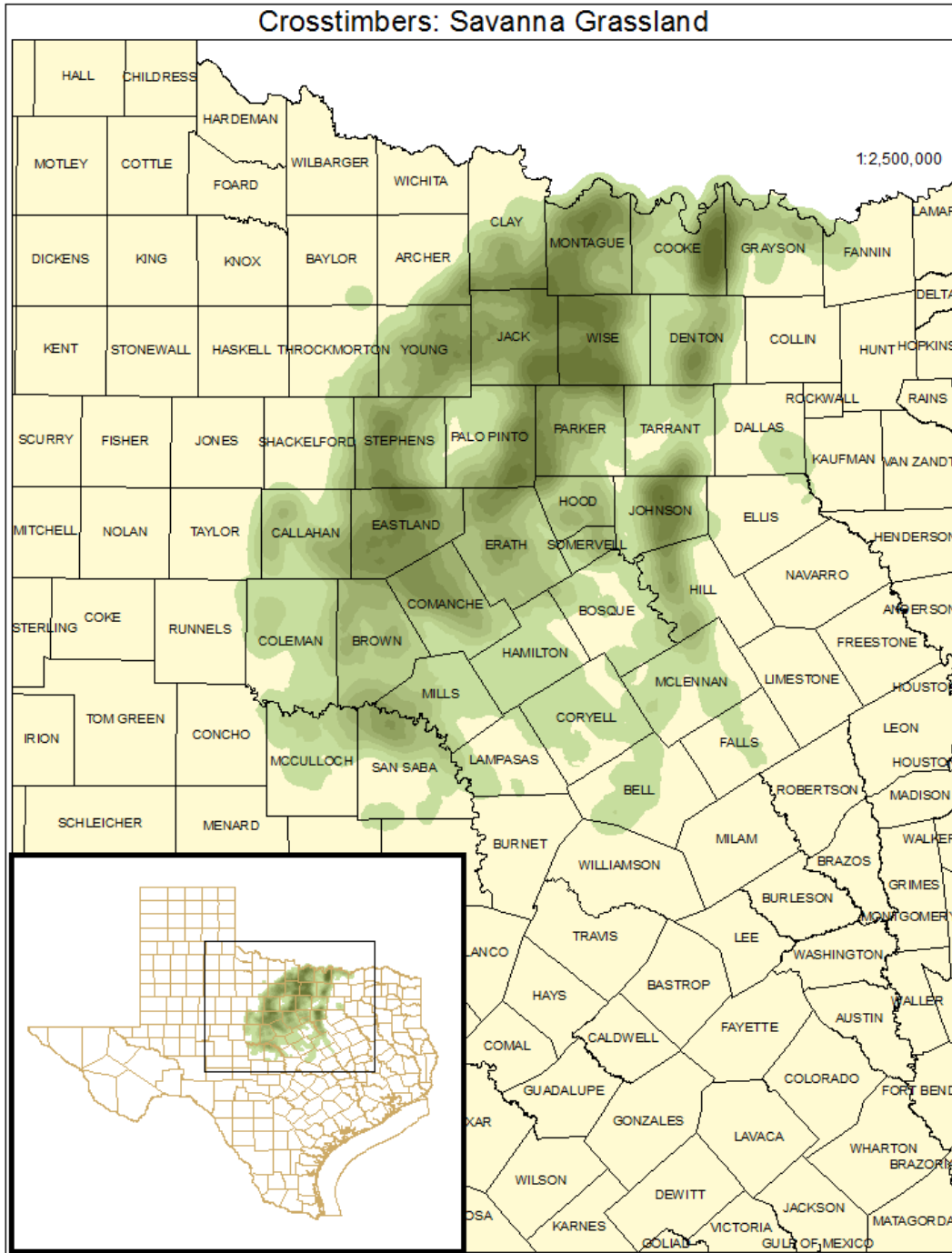
Ray Roberts Lake Wildlife Management Area: Texas Parks & Wildlife Department

CROSTIMBERS: SAVANNA GRASSLAND

Mapping System ID: 507

EMS Description: This is a primarily herbaceous vegetation type, representing the graminoid dominated component of the savanna as it occurs within this system. Occurrences tend to occur on tighter soils (such as on Clay Loam, Clayey Upland, Claypan Prairie, and Claypan Savanna ecoclasses), but are often dependant on appropriate land management (such as prescribed fire and/or brush control) that ensures reduced woody cover. Woody canopy represents less than 25% cover. Historically, *Schizachyrium scoparium* (little bluestem) likely dominated these grasslands, but current composition may be largely determined by landuse history and grazing pressure. In the east, where precipitation is greater, tallgrass species such as *Andropogon gerardii* (big bluestem) and *Sorghastrum nutans* (Indiangrass) may be important components. In the drier west, shortgrass species such as *Bouteloua dactyloides* (buffalograss) become more conspicuous. Other graminoid species that may be present include *Schizachyrium scoparium* (little bluestem), *Nassella leucotricha* (Texas wintergrass), *Paspalum setaceum* (fringeleaf paspalum), *Sporobolus compositus* (tall dropseed), *Bouteloua curtipendula* (sideoats grama), *Bouteloua hirsuta* (hairy grama), *Bouteloua rigidiseta* (Texas grama), *Bothriochloa laguroides* ssp. *torreyana* (silver bluestem), and *Aristida* spp. (threeawn). Non-native species such as *Cynodon dactylon* (bermudagrass), *Bromus arvensis* (Japanese brome), *Bromus tectorum* (cheatgrass), and *Bothriochloa ischaemum* var. *songarica* (King Ranch bluestem) are often significant components. It may be difficult to distinguish occurrences of this vegetation type from occurrences of Southeastern Great Plains Tallgrass Prairie (CES205.685) to the east and Central Mixedgrass Prairie (CES303.659) to the west. *Prosopis glandulosa* (mesquite) is a common shrub in this type, and some areas have fairly dense mesquite cover.

Distribution Map:



Example:



Public Land Occurrence:

Aquilla Wildlife Management Area: Texas Parks & Wildlife Department

Fort Worth Nature Center: Tarrant County

Hagerman National Wildlife Refuge: U. S. Fish and Wildlife Service

Lake Lewisville Recreation Area: US Army Corps of Engineers

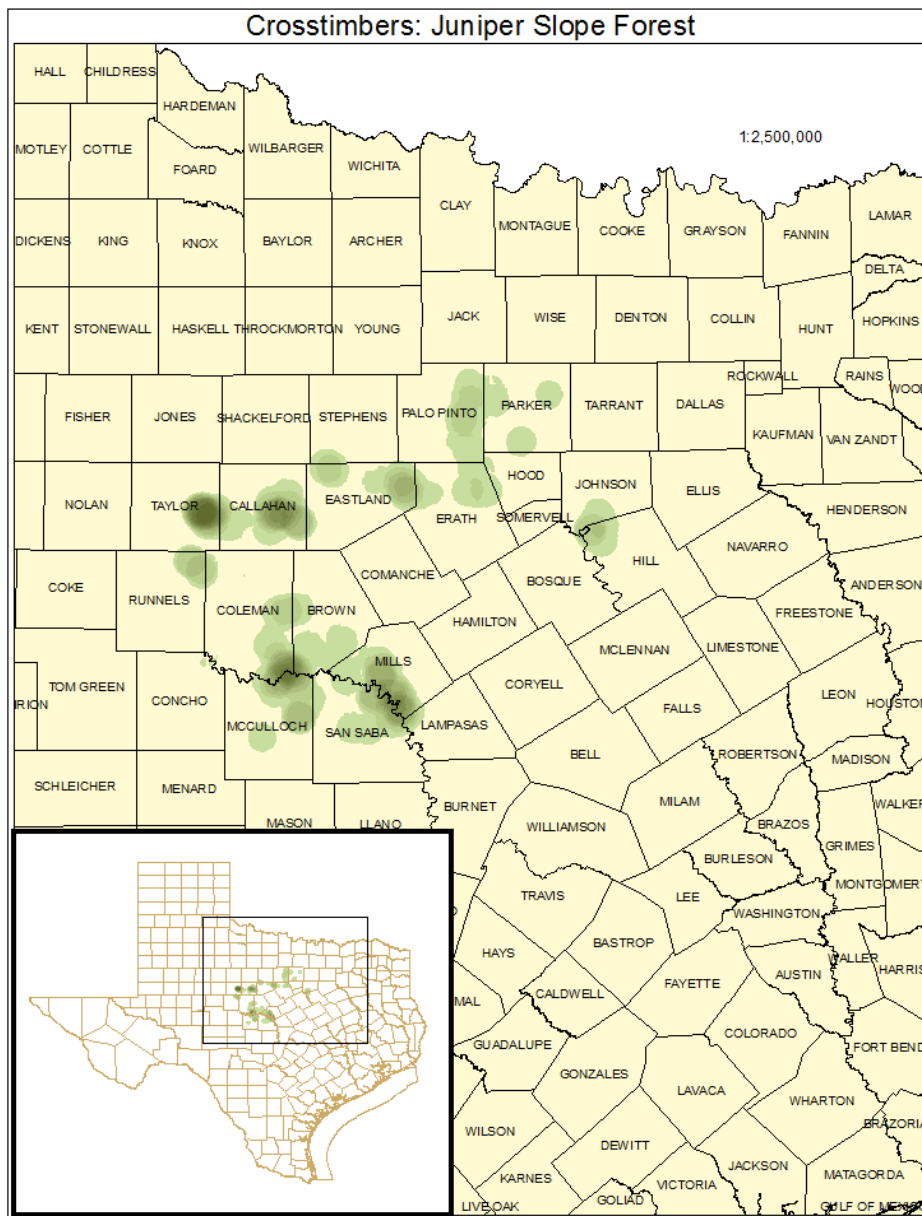
Ray Roberts Lake Wildlife Management Area: Texas Parks & Wildlife Department

CROSTIMBERS: JUNIPER SLOPE FOREST

Mapping System ID: 521

EMS Description: This is a very minor component of the system, occupying slopes greater than twenty percent and dominated by *Juniperus ashei* (Ashe juniper), *Juniperus virginiana* (eastern redcedar), or less commonly, *Juniperus pinchotii* (redberry juniper). This vegetation type is mapped in the southern part of the Western Crosstimbers, where it is frequently associated with slopes on calcareous substrates. These occurrences might be more appropriately considered outliers of Edwards Plateau: Ashe Juniper Slope Forest.

Distribution Map:



Example:



Public Land Occurrence:

Lake Mineral Wells State Park: Texas Parks & Wildlife Department

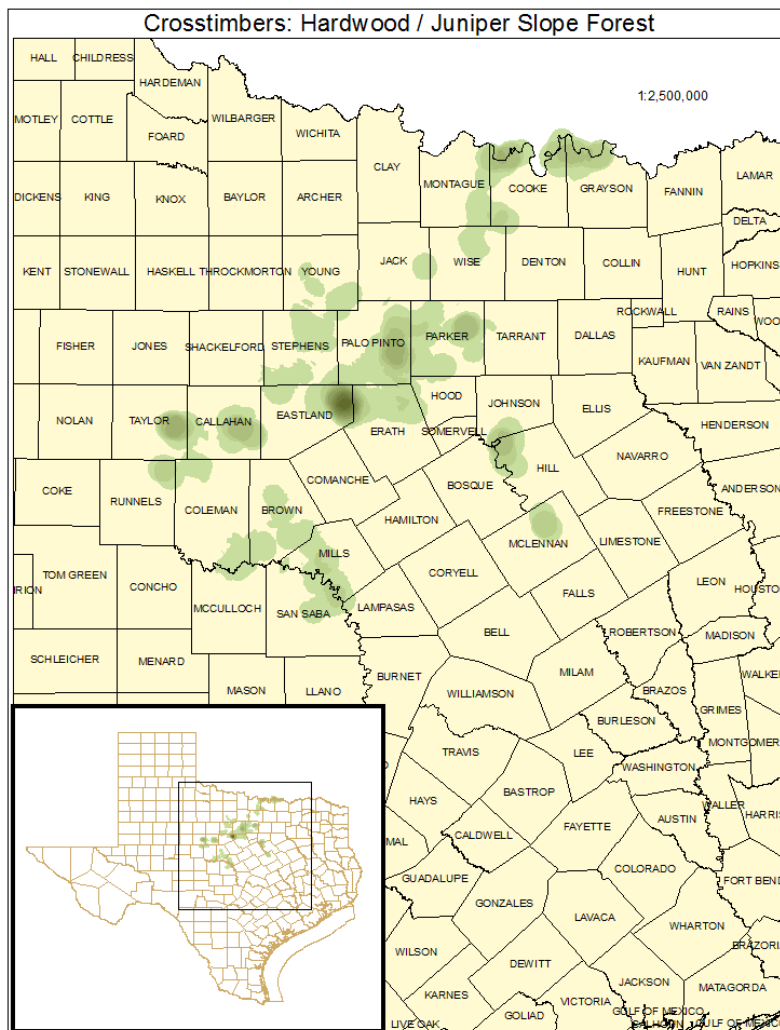
Lake Whitney Recreation Area: US Army Corps of Engineers

CROSTIMBERS: HARDWOOD / JUNIPER SLOPE FOREST

Mapping System ID: 523

EMS Description: Forests occupying slopes greater than twenty percent with canopies co-dominated by deciduous hardwood species (such as *Quercus stellata* (post oak), *Quercus buckleyi* (Texas oak), *Quercus marilandica* (blackjack oak), *Ulmus crassifolia* (cedar elm)) and juniper species (including *Juniperus pinchotii* (redberry juniper), *J. virginiana* (eastern redcedar), or *J. ashei* (Ashe juniper), depending on the site)). On some mesic slopes on limestones or chalks of the northern Crosstimbers, and into the Blackland Prairie, *Quercus shumardii* (Shumard oak) and *Quercus muehlenbergii* (chinkapin oak) may become the co-dominants in the vegetation type. The overstory canopy tends to be more closed than the upland counterparts, and shrub and herbaceous cover is consequently reduced. Occurrences of this type in the southern part of the Western Crosstimbers frequently occupy slopes on calcareous substrates and may be more appropriately considered as Edwards Plateau Slope forest.

Distribution Map:



Example:



Public Land Occurrence:

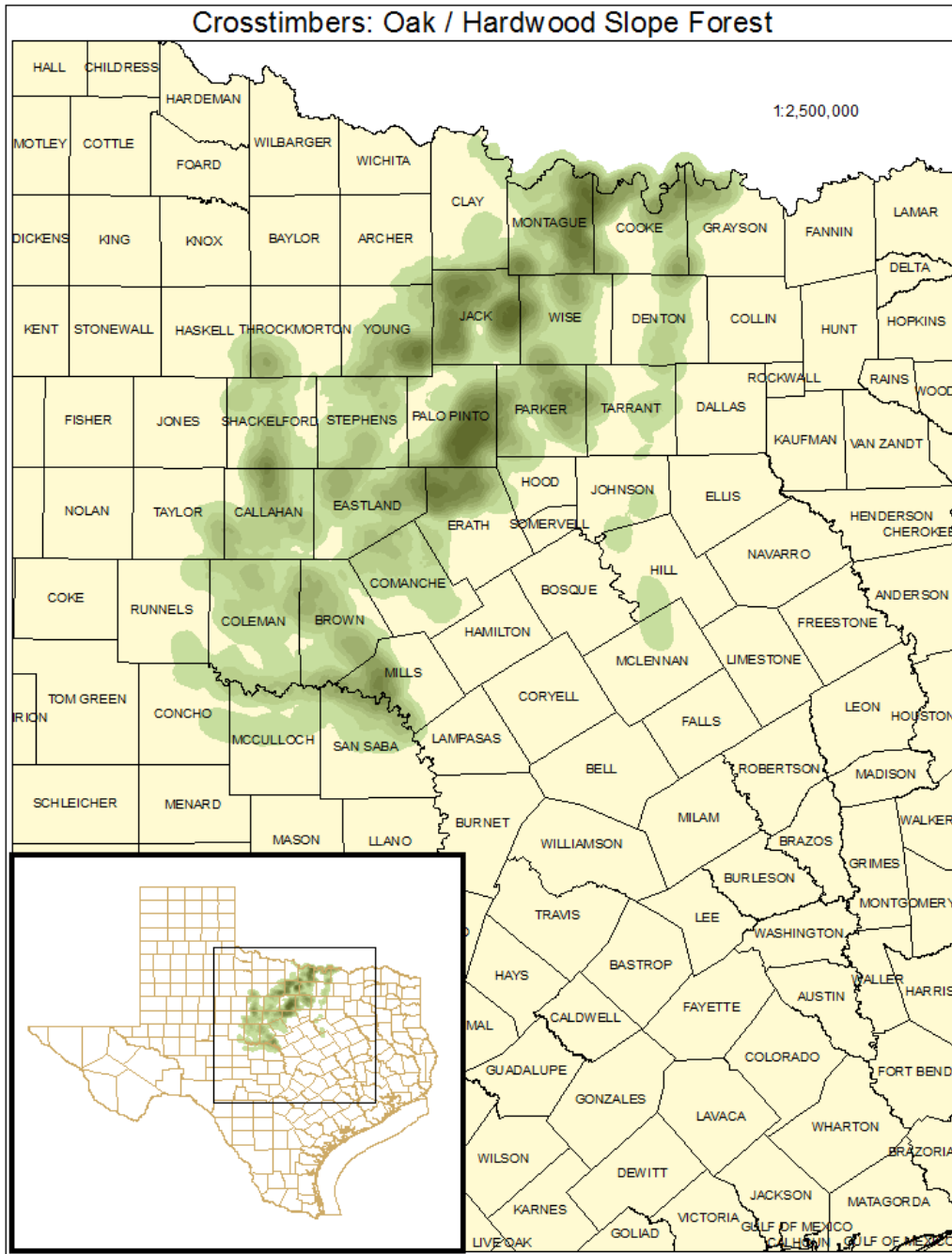
Lake Mineral Wells State Park: Texas Parks & Wildlife Department

Lake Whitney Recreation Area: US Army Corps of Engineers

CROSSTIMBERS: OAK / HARDWOOD SLOPE FOREST**Mapping System ID: 524**

EMS Description: These relatively closed canopy forests on slopes (greater than twenty percent) are dominated in the overstory by deciduous species, primarily oaks such as *Quercus stellata* (post oak), *Quercus muehlenbergii* (chinkapin oak), *Quercus marilandica* (blackjack oak), and *Quercus buckleyi* (Texas oak). *Ulmus crassifolia* (cedar elm), *Sideroxylon lanuginosum* (gum bumelia), *Celtis laevigata* (sugar hackberry), and/or *Celtis laevigata* var. *reticulata* (netleaf hackberry) may also be common in the canopy. These slopes are frequently associated with the Sandstone Hill, Bouldery Hill, or Rocky Hill ecoclasses, with the substrate often derived from underlying sandstones. Evergreen species such as *Quercus fusiformis* (plateau live oak) and *Juniperus* sp. (juniper) may be present, but relatively minor components. On some calcareous slope in the northern part of the Crosstimbers, and into the Blackland Prairie region, *Quercus shumardii* (Shumard oak) and *Quercus muehlenbergii* (chinkapin oak) may dominate or co-dominate, with *Quercus muehlenbergii* (chinkapin oak) tending to dominate drier sites and *Quercus shumardii* (Shumard oak) dominating more mesic sites. On such mesic sites dominated by *Quercus shumardii* (Shumard oak), subdominants may include *Quercus muehlenbergii* (chinkapin oak), *Quercus macrocarpa* (bur oak), *Celtis* sp. (hackberry), and *Ulmus rubra* (slippery elm).

Distribution Map:



Example:



Public Land Occurrence:

Fort Worth Nature Center: Tarrant County

Grapevine Lake Recreation Area: US Army Corps of Engineers

Lake Brownwood State Park: Texas Parks & Wildlife Department

Lake Lewisville Recreation Area: US Army Corps of Engineers

Lake Mineral Wells State Park: Texas Parks & Wildlife Department

LBJ National Grassland, Cross Timbers Research Natural Area: US Forest Service

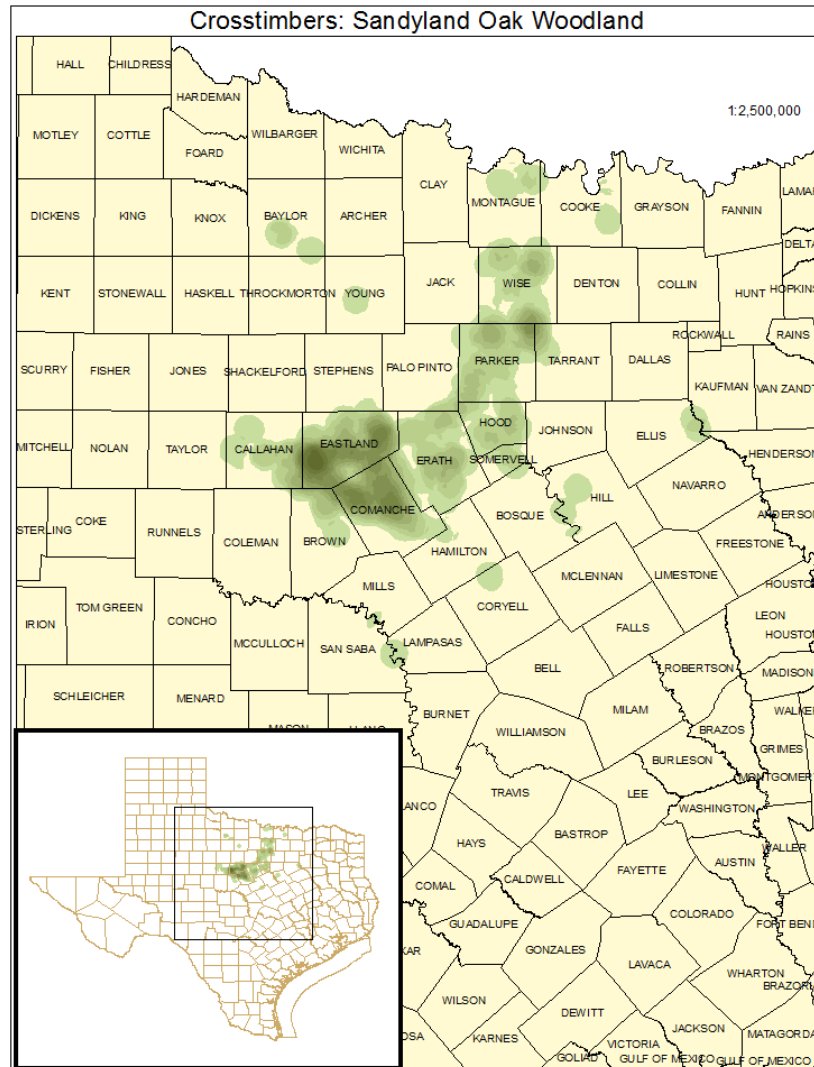
Ray Roberts Lake Wildlife Management Area: Texas Parks & Wildlife Department

CROSTIMBERS: SANDYLAND OAK WOODLAND

Mapping System ID: 534

EMS Description: This vegetation type represents system occurrences that occupy particularly sandy sites (typically Deep Sand, Sand Hill, and perhaps some Sandy ecoclasses), often associated with Paluxy and Antlers Sand or alluvial or eolian deposits. Differentiation of this vegetation type is currently theoretical in anticipation that these sites may be sufficiently distinct to require a separate vegetation type, however field data is largely lacking. These sites are likely dominated by *Quercus stellata* (post oak) and *Quercus marilandica* (blackjack oak). *Quercus margarettae* (sand post oak) may be present in this vegetation type, and sites should be sampled to verify, especially in Eastland and Comanche counties on Antlers Sand or sandstone members of the Twin Mountains Formation. *Carya texana* (black hickory), *Ulmus crassifolia* (cedar elm), and *Celtis laevigata* (sugar hackberry) may be well-represented in the overstory.

Distribution Map:



Example:



Public Land Occurrence:

Fort Worth Nature Center: Tarrant County

Lake Whitney State Park: Texas Parks & Wildlife Department

LBJ National Grassland, Cross Timbers Research Natural Area: US Forest Service