EAST-CENTRAL TEXAS PLAINS POST OAK SAVANNA AND WOODLAND

Nature Serve ID: CES205.679

Geology: Typical on sedimentary formations of Tertiary age, including Eocene sands such the Queen City, Sparta, and Carrizo Sands, as well as the Wilcox and Claiborne groups. The system also occupies other Teritary formations such as the Goliad and Willis, as well as portions of the Quaternary Willis Formation.

Landform: This system occupies gently rolling to hilly topography. It is moderately dissected by drainages.

Soils: This system usually occurs on sandy to sandy loam soils, often with a marked clay subsurface horizon. Soils of this system are generally Alfisols, and are typically acidic to neutral. Typical Ecological Sites include Claypan Savannah, Claypan Prairie, Sandy Loam, Sandy, and Deep Sand.

Parent Description: This system represents a transition from the woodlands and forests of East Texas to the prairies to the west, specifically the Blackland Prairie. Savannas and woodlands are typically dominated by *Quercus stellata* (post oak), *Quercus marilandica* (blackjack oak), and *Carya texana* (black hickory). Large areas of woodland, particularly in the south and east, are dominated or co-dominated by *Quercus fusiformis* (plateau live oak) or *Quercus virginiana* (coastal live oak, east of the Brazos River). Other species, such as *Quercus incana* (bluejack oak) (on more xeric sites), *Ulmus alata* (winged elm), *Ulmus crassifolia* (cedar elm), *Quercus nigra* (water oak), *Juniperus virginiana* (eastern redcedar), *Celtis laevigata* (sugar hackberry), and *Prosopis glandulosa* (mesquite), can also be present in the overstory. To the east, *Quercus falcata* (southern red oak), *Quercus nigra* (water oak), *Liquidambar styraciflua* (sweetgum), *Pinus echinata* (shortleaf pine), *Pinus taeda* (loblolly pine), and *Carya alba* (mockernut hickory) may be conspicuous in the overstory. Shrubs may attain significant cover in the understory, with species including *Ilex vomitoria* (yaupon) (often dominant), *Callicarpa americana* (American beautyberry), *Sideroxylon lanuginosum* (gum bumelia), *Crataegus* spp. (hawthorn), *Ilex decidua* (possumhaw), *Toxicodendron radicans* (poison ivy), *Smilax bona-nox* (saw greenbrier), *Juniperus virginiana* (eastern redcedar), and *Symphoricarpos orbiculatus* (coral-berry). To the south, this system grades into vegetation more characteristic of south Texas, with *Quercus fusiformis* (plateau live oak) and *Prosopis glandulosa* (honey mesquite) becoming the primary overstory components, and shrubs of south Texas such as *Acacia rigidula* (blackbrush), *Forestiera angustifolia* (desert olive), *Condalia hookeri* (brasil), *Colubrina texensis* (Texas hogplum), *Eysenhardtia texana* (Texas kidneywood), *Opuntia engelmannii* var. *lindheimeri* (Lindheimer pricklypear), and *Diospyros texana* (Texas persimmon) becoming increasingly conspicuous understory components. To the east, *Vaccinium arboreum* (farkleberry), *Morella cerifera* (wax-myrtle), *Diospyros virginiana* (common persimmon), and *Cornus florida* (flowering dogwood) may be common components of the understory. On some sites, *Ilex vomitoria* (yaupon) can form nearly continuous, sometimes impenetrable, dense shrub layer. Mid- and tallgrass species including *Schizachyrium scoparium* (little bluestem), *Sorghastrum nutans* (Indiangrass), and *Panicum virgatum* (switchgrass) are frequent in the understory where light penetration supports herbaceous cover, and also form prairie patches within the savanna, particularly on tighter soils. Other grasses present include *Andropogon gerardii* (big bluestem), *Bothriochloa laguroides* ssp. *torreyana* (silver bluestem), *Paspalum plicatulum* (brownseed paspalum) (to the south), *Nassella leucotricha* (Texas wintergrass), *Dichanthelium* spp. (rosette grasses), *Aristida* spp. (threeawn), and *Sporobolus cryptandrus*

(sand dropseed). Non-native grass species such as *Bothriochloa ischaemum* var. *songarica* (King Ranch bluestem), *Paspalum notatum* (bahiagrass), and *Cynodon dactylon* (bermudagrass) may dominate some sites. Forbs are often conspicuous, and may include species such as *Croton capitatus* (hog croton), *Gaillardia pulchella* (Indian blanket), *Monarda punctata* (spotted beebalm), *Rudbeckia hirta* (blackeyed Susan), *Phlox drummondii* (Drummond phlox), *Commelina erecta* (erect dayflower), *Acalypha radians* (cardinal's feather), *Verbesina virginica* (frostweed), *Aphanostephus skirrhobasis* (lazy daisy), *Froelichia gracilis* (slender snake cotton), *Cnidoscolus texanus* (Texas bull-nettle), and many others.

Drought, grazing, and fire are the primary natural processes that affect this system. Much of this system has been impacted by conversion to improved pasture or crop production. Overgrazing and fire suppression have led to increased woody cover on most extant occurrences and the invasion of some areas by problematic brush species such as *Juniperus virginiana* (eastern redcedar) (to the north) and *Prosopis glandulosa* (honey mesquite) (to the south).

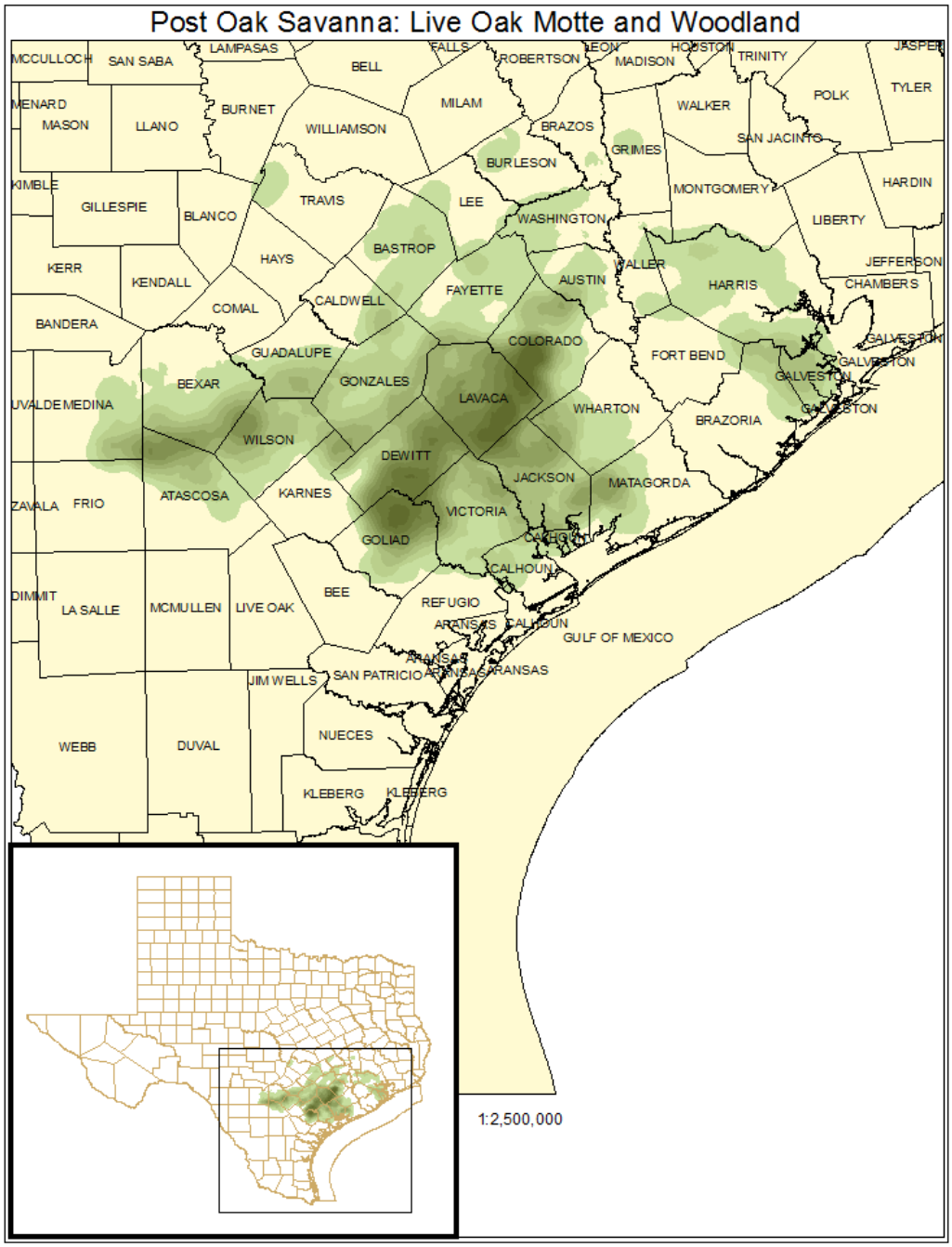
ECOLOGICAL MAPPING SYSTEMS:

POST OAK SAVANNA: LIVE OAK MOTTE AND WOODLAND

Mapping System ID: 602

EMS Description: *Quercus fusiformis* (plateau live oak) or *Quercus virginiana* (coastal live oak) may dominate sites within the Post Oak Savanna. *Quercus stellata* (post oak) may be present in these woodlands, but typically only as a minor component of the canopy, or it may be completely absent. These occurrences become more common and may occupy large areas in the southeastern part of this region, but occur elsewhere as well. In the western portion of the Post Oak Savanna, occurrences tend to occupy Claypan Savannah and Claypan Prairie ecoclasses, though this cover type is less common than others within these soil types. *Ilex vomitoria* (yaupon), *Callicarpa americana* (American beautyberry), *Smilax bona-nox* (saw greenbrier), *Sideroxylon lanuginosum* (gum bumelia), *Toxicodendron radicans* (poison ivy), *Vitis mustangensis* (mustang grape), *Diospyros texana* (Texas persimmon), and *Zanthoxylum clava-herculis* (Hercules' club) may be present in the shrub layer. To the south, *Acacia rigidula* (blackbrush), *Colubrina texensis* (Texas hogplum), *Eysenhardtia texana* (Texas kidneywood), *Forestiera angustifolia* (desert olive), and *Zanthoxylum fagara* (colima) may form a conspicuous shrub layer. *Schizachyrium scoparium* (little bluestem), *Bothriochloa laguroides* ssp. *torreyana* (silver bluestem), and *Nassella leucotricha* (Texas wintergrass) are among the many species of grass that may be present in the herbaceous layer, though many sites may have *Bothriochloa ischaemum* var. *songarica* (King Ranch bluestem), *Paspalum notatum* (bahiagrass), or *Cynodon dactylon* (bermudagrass) as herbaceous dominants.

Distribution Map:



Example:

Public Land Occurrence:

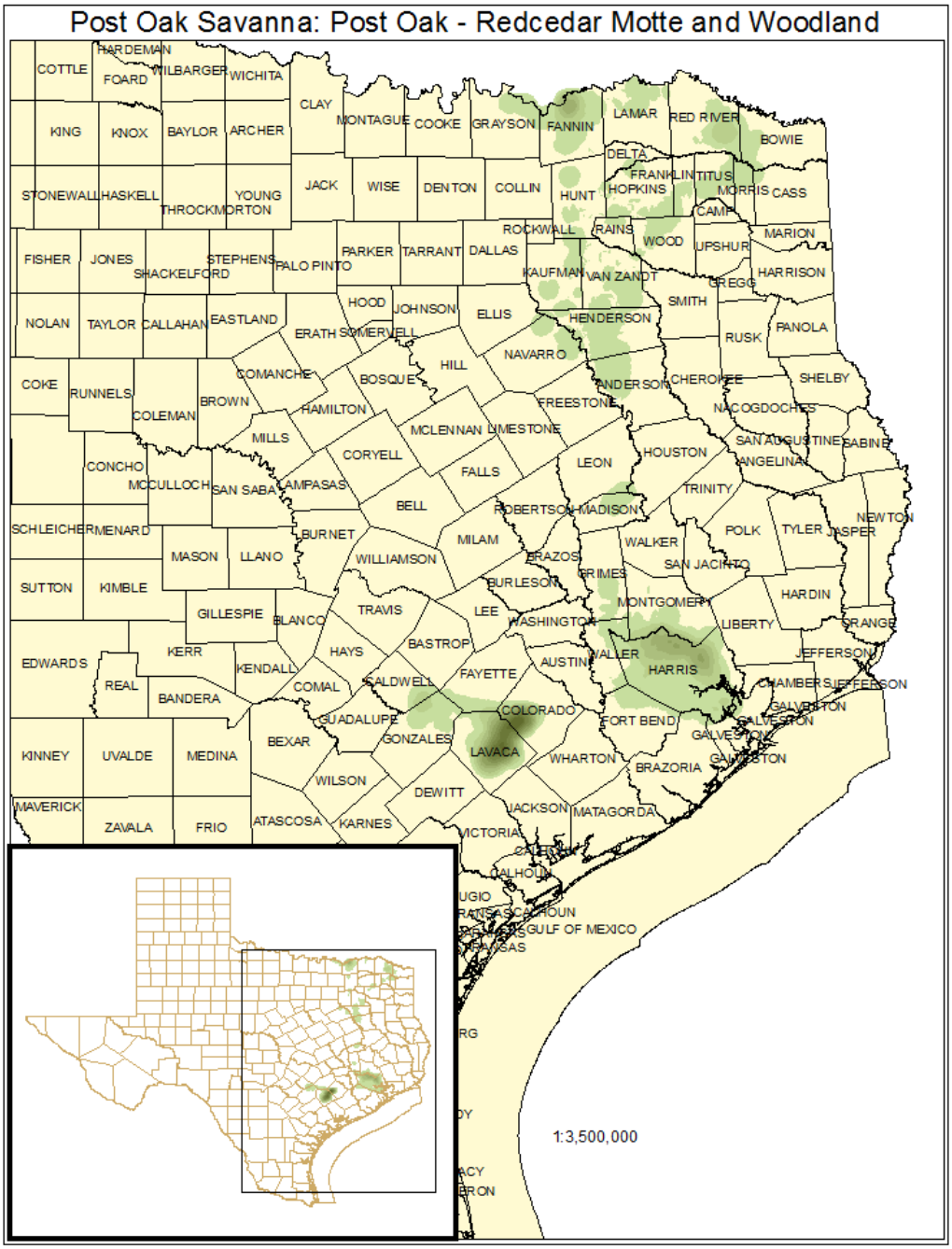
Armand Bayou Nature Center
Bastrop State Park: Texas Parks & Wildlife Department
Lake Texana : Lavaca-Navidad River Authority
Lavon Lake Recreation Area: US Army Corps of Engineers
McKinney Roughs: Lower Colorado River Authority
Memorial Park: City of Houston
Palmetto State Park: Texas Parks & Wildlife Department

POST OAK SAVANNA: POST OAK / REDCEDAR MOTTE AND WOODLAND

Mapping System ID: 603

EMS Description: Occurrences of this woodland are dominated by *Quercus stellata* (post oak) and/or *Quercus fusiformis* (plateau live oak), with *Juniperus virginiana* (eastern redcedar) as either a co-dominant of the overstory or as a conspicuous dominant of the shrub layer. This vegetation type is particularly well-represented on disturbed sites, particularly where fire is excluded. Dynamics described in Ecological Site Descriptions for Claypan Savannah, Sandy Loam, and Sandy sites in the Post Oak Savanna include this vegetation type in the Oak Scrub-Shrubland Community or the Post Oak - Elm Woodland Community. These communities result from the lack of fire and the presence of heavy continuous grazing. This vegetation type may sometimes be incorrectly mapped as Post Oak / Yaupon Motte and Woodland. The shrub layer may be dominated by *Juniperus virginiana* (eastern redcedar), but *Ilex vomitoria* (yaupon) may also be conspicuous. The herbaceous layer is often poorly developed, due to the closed nature of the canopy, resulting in the reduced potential for the development of fine fuels and the consequent maintenance of the redcedar dominance through lack of fire. *Pinus taeda* (loblolly pine) may be in the overstory near the Bastrop Lost Pines ecoregion.

Distribution Map:



Example:

Public Land Occurrence:

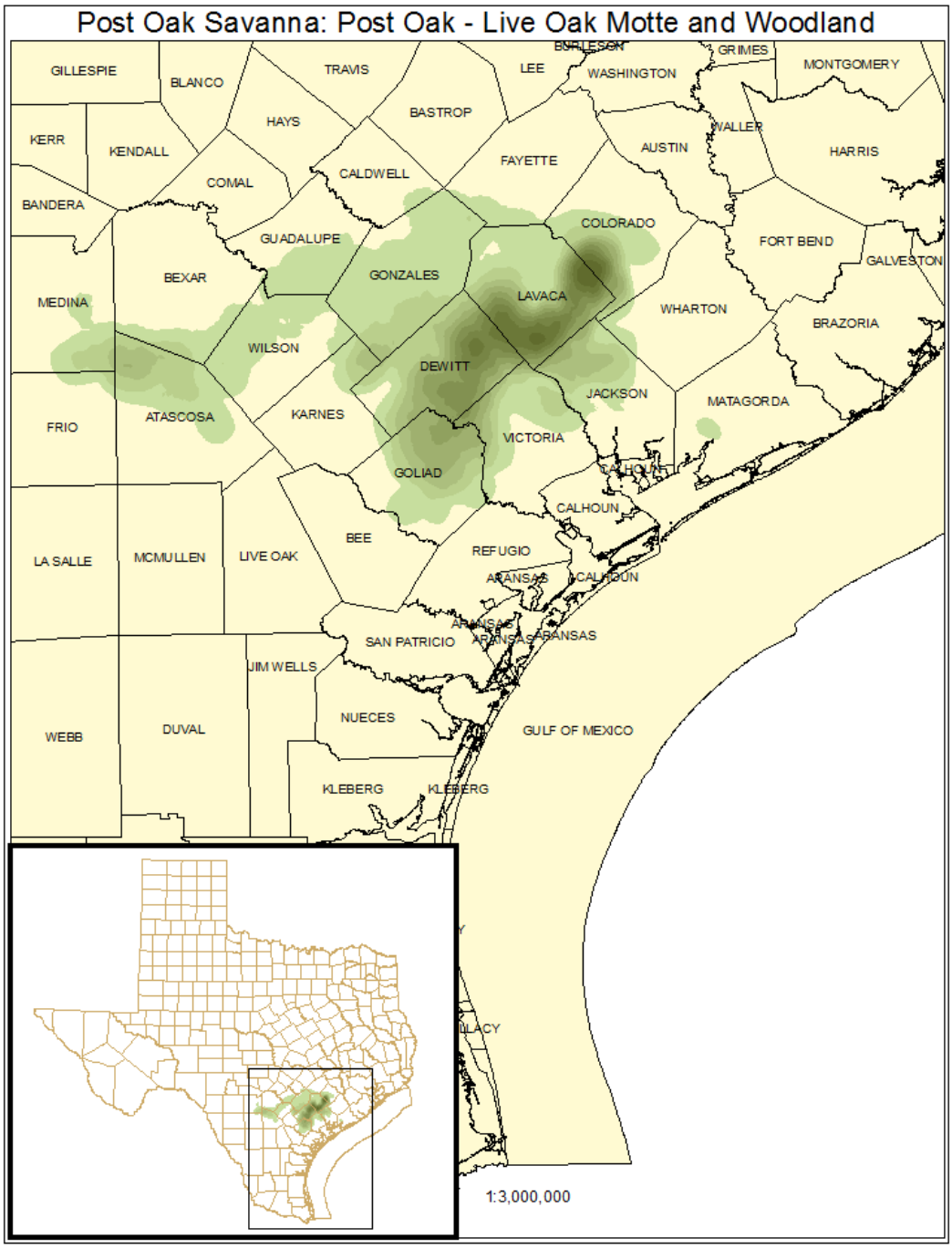
Caddo National Grasslands, Lake Fannin: US Forest Service
Caddo National Grasslands Wildlife Management Area: Texas Parks & Wildlife Department
Gus Engeling Wildlife Management Area: Texas Parks & Wildlife Department

POST OAK SAVANNA: POST OAK – LIVE OAK MOTTE AND WOODLAND

Mapping System ID: 633

EMS Description: This mixed woodland type is typically dominated by *Quercus fusiformis* (plateau live oak) and *Quercus stellata* (post oak). *Prosopis glandulosa* (honey mesquite), *Celtis laevigata* (sugar hackberry), and *Ulmus crassifolia* (cedar elm) are also commonly encountered in the overstory. *Ilex vomitoria* (yaupon), *Callicarpa americana* (American beautyberry), *Prosopis glandulosa* (honey mesquite), and *Acacia farnesiana* (huisache) are commonly encountered in the shrub layer. Southern occurrences may have species such as *Condalia hookeri* (brasil), *Diospyros texana* (Texas persimmon), and *Opuntia engelmannii* var. *lindheimeri* (Lindheimer pricklypear) as significant components of the shrub layer. Herbaceous cover is typically low.

Distribution Map:



Example:

Public Land Occurrence:

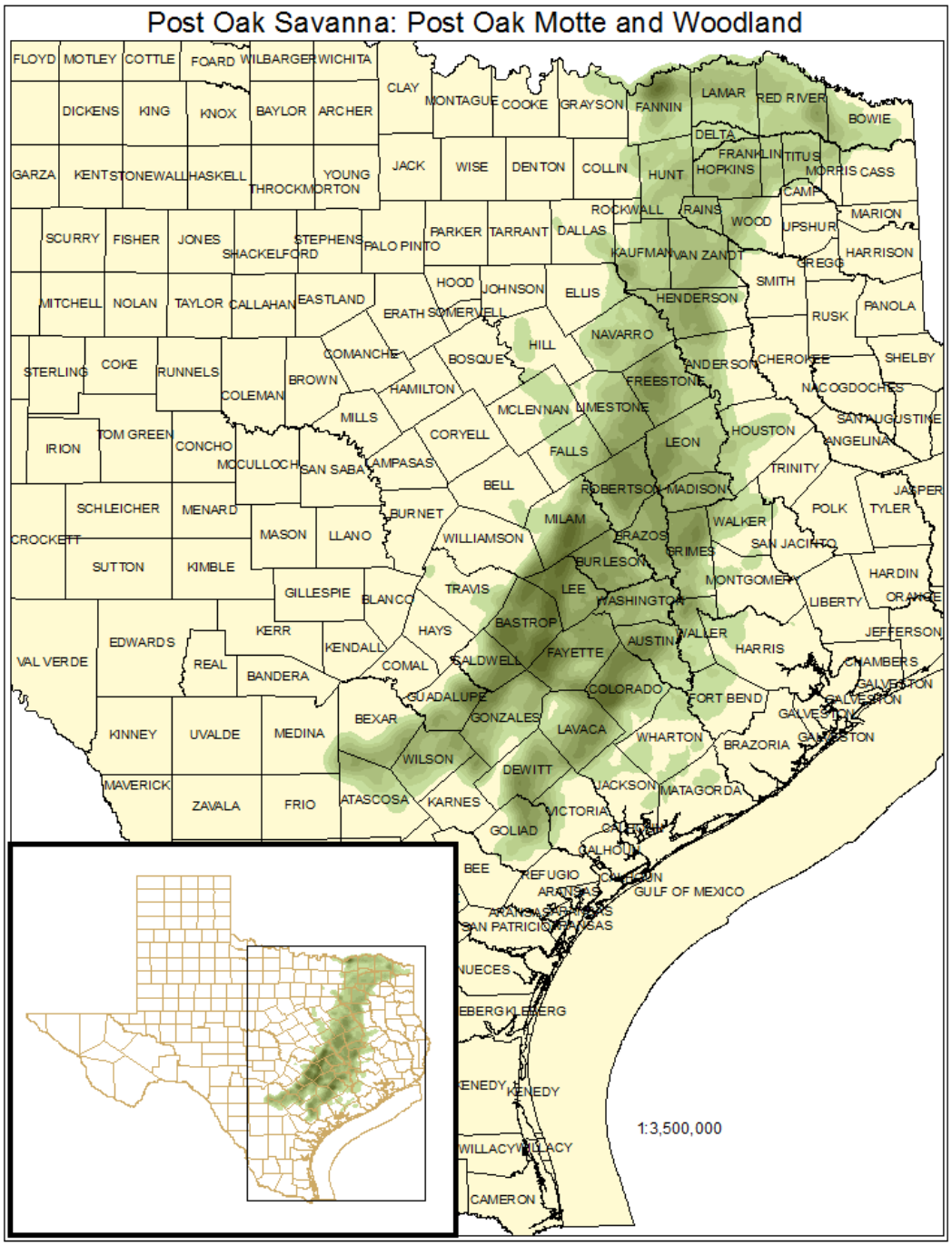
Lake Texana Recreation Area: Lavaca-Navidad River Authority

POST OAK SAVANNA: POST OAK MOTTE AND WOODLAND

Mapping System ID: 604

EMS Description: This vegetation type generally represents the deciduous woodland component of the system. The typical occurrence is dominated by *Quercus stellata* (post oak), with *Quercus marilandica* (blackjack oak) and/or *Quercus fusiformis* (plateau live oak) (particularly in the south) also present. *Carya texana* (black hickory) may be a significant component of the overstory, particularly on deep sands. Depending on site history and edaphic conditions, other species may be present in the overstory or may be better represented as shrubs. Such species as *Celtis laevigata* (sugar hackberry), *Prosopis glandulosa* (honey mesquite), *Quercus nigra* (water oak), *Diospyros virginiana* (eastern persimmon), *Juniperus virginiana* (eastern redcedar), *Ulmus alata* (winged elm), and *Ulmus crassifolia* (cedar elm) are often overstory components, and are often stunted (< 12 m in height). The shrub layer includes species such as *Callicarpa americana* (American beautyberry), *Ilex decidua* (possumhaw), *Ilex vomitoria* (yaupon), *Sideroxylon lanuginosum* (gum bumelia), *Smilax bona-nox* (saw greenbrier), *Symphoricarpos orbiculatus* (coral-berry), *Vaccinium arboreum* (farkleberry), and *Zanthoxylum clava-herculis* (Hercules' club). Herbaceous components are often represented by components of the surrounding prairies, primarily *Schizachyrium scoparium* (little bluestem), but also *Sorghastrum nutans* (Indiangrass), *Andropogon gerardii* (big bluestem), and, to the south and east, *Paspalum plicatulum* (brownseed paspalum). Other grass species may include *Bothriochloa laguroides* ssp. *torreyana* (silver bluestem), *Elymus canadensis* (Canada wildrye), *Panicum virgatum* (switchgrass), *Paspalum floridanum* (Florida paspalum), *Paspalum setaceum* (thin paspalum), *Sporobolus compositus* (tall dropseed), and *Tridens flavus* (purpletop).

Distribution Map:



Example:

Public Land Occurrence:

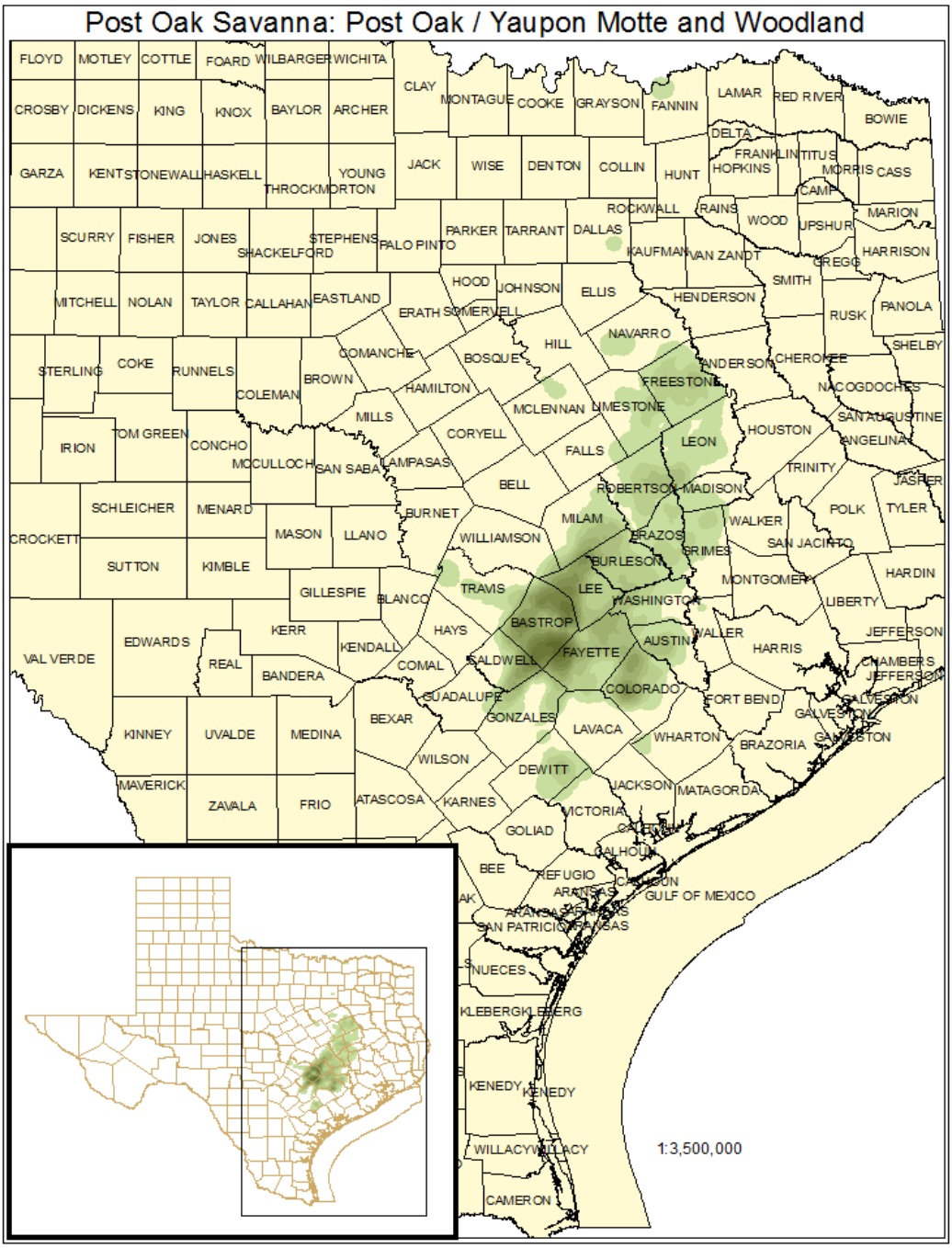
Bastrop State Park: Texas Parks & Wildlife Department
Caddo National Grasslands - Bois D'Arc Unit: US Forest Service
Caddo National Grasslands – Lake Fannin: US Forest Service
Caddo National Grasslands Wildlife Management Area: Texas Parks & Wildlife Department
Calaveras Lake Park: Texas Parks & Wildlife Department
Fairfield Lake State Park: Texas Parks & Wildlife Department
Fort Boggy State Park: Texas Parks & Wildlife Department
Goliad State Park: Texas Parks & Wildlife Department
Gus Engeling Wildlife Management Area: Texas Parks & Wildlife Department
Lake Texana: Lavaca-Navidad River Authority
Lavon Lake Recreation Area: US Army Corps of Engineers
M. O. Neasloney Wildlife Management Area: Texas Parks & Wildlife Department
McKinney Roughs: Lower Colorado River Authority
Navarro Mills Lake Recreation Area: US Army Corps of Engineers
Palmetto State Park: Texas Parks & Wildlife Department
Pat Mayse Wildlife Management Area: Texas Parks & Wildlife Department
Somerville Lake Recreation Area: US Army Corps of Engineers

POST OAK SAVANNA: POST OAK - YAUPON MOTTE AND WOODLAND

Mapping System ID: 613

EMS Description: Many occurrences of this common vegetation type may have an exceedingly dense shrub layer dominated by *Ilex vomitoria* (yaupon). Such occurrences are conspicuous and widespread where lack of fire and heavy continuous grazing have allowed this woody species to dominate. The overstory is dominated by *Quercus stellata* (post oak). *Juniperus virginiana (*eastern redcedar) or, in southern occurrences *Quercus fusiformis* (plateau live oak) may also be present. Dynamics described in Ecological Site Descriptions for Claypan Savannah, Sandy Loam, and Sandy sites in the Post Oak Savanna include this mapping system in the Oak Scrub-Shrubland Community. The dense shrub layer is generally dominated by *Ilex vomitoria* (yaupon), almost to the exclusion of other shrub species, and the closed shrub canopy limits the development of a significant herbaceous layer. Near the Bastrop Lost Pines region, *Pinus taeda* (loblolly pine) may be an important overstory tree.

Distribution Map:



Example:

Public Land Occurrence:

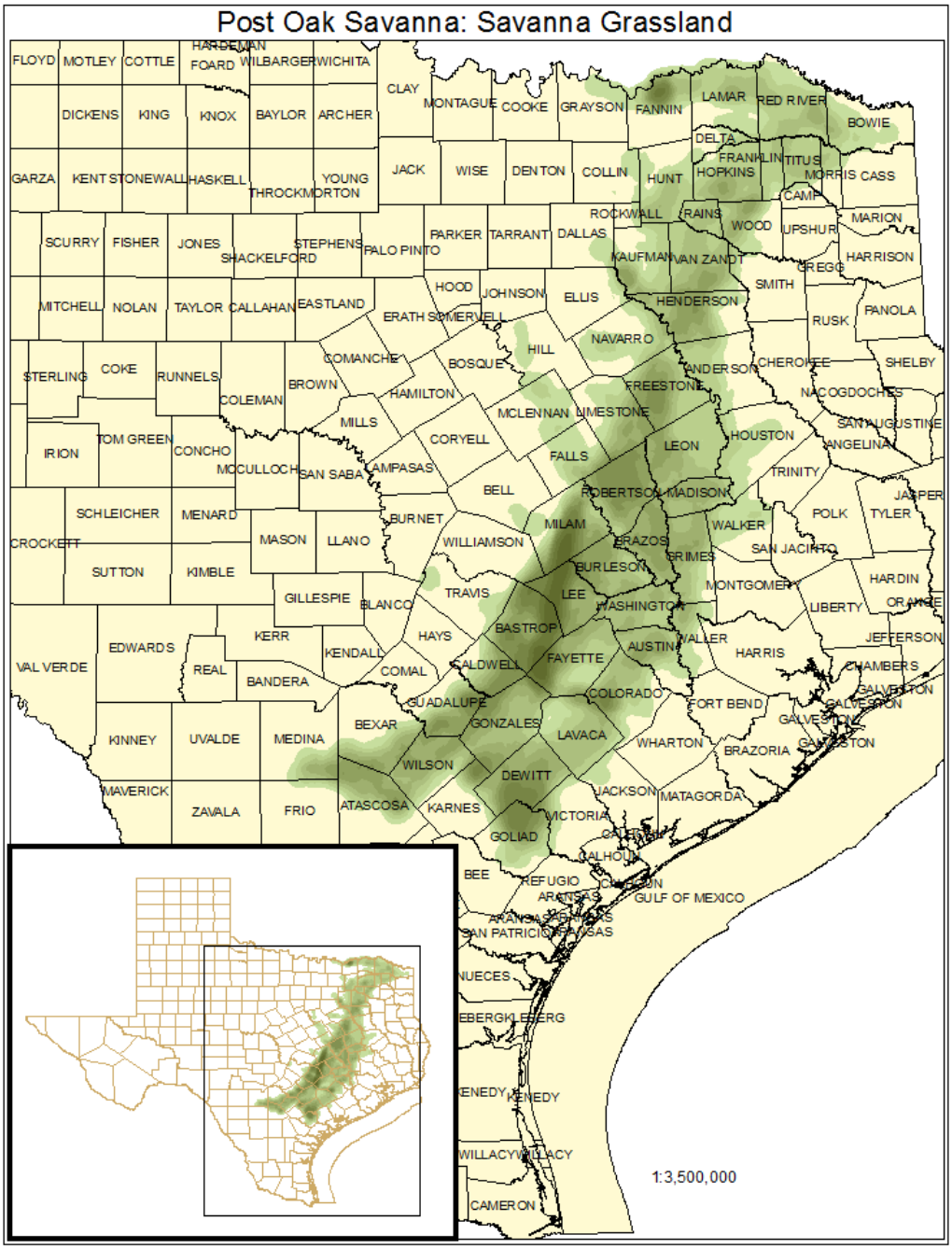
Caddo National Grasslands – Lake Fannin: US Forest Service
Fairfield Lake State Park: Texas Parks & Wildlife Department
Fort Parker State Park: Texas Parks & Wildlife Department
M. O. Neasloney Wildlife Management Area: Texas Parks & Wildlife Department
McKinney Roughs: Lower Colorado River Authority
Normangee City Park: City of Normangee
Palmetto State Park: Texas Parks & Wildlife Department
Somerville Lake Recreation Area: US Army Corps of Engineers
South Shores Park: Lower Colorado River Authority

POST OAK SAVANNA: SAVANNA GRASSLAND

Mapping System ID: 607

EMS Description: This vegetation type represents the herbaceous expression of the overall system, which is a mosaic of woody and herbaceous cover types as suggested by reference to a savanna. These grasslands are often dominated by mid- and tallgrass species often present in the understory of woody expressions of the system. Dominant species include *Schizachyrium scoparium* (little bluestem), *Sorghastrum nutans* (Indiangrass), and *Panicum virgatum* (switchgrass). Other grasses present include *Andropogon gerardii* (big bluestem), *Bothriochloa laguroides* ssp. *torreyana* (silver bluestem), *Paspalum plicatulum* (brownseed paspalum) (to the south), *Nassella leucotricha* (Texas wintergrass), and *Sporobolus cryptandrus* (sand dropseed). Non-native grass species such as *Bothriochloa ischaemum* var. *songarica* (King Ranch bluestem), *Paspalum notatum* (bahiagrass), *Panicum coloratum* (kleingrass), *Dichanthium annulatum* (Kleberg bluestem), and *Cynodon dactylon* (bermudagrass) may dominate some sites. These grasslands may be difficult to differentiate in areas of transition to Blackland Prairie or Coastal Prairie. Claypan Savannah and Claypan Prairie ecoclasses may support occurrences of this vegetation type, particularly where land management practices including prescribed fire and other forms of brush management are implemented.

Distribution Map:



Example:

Public Land Occurrence:

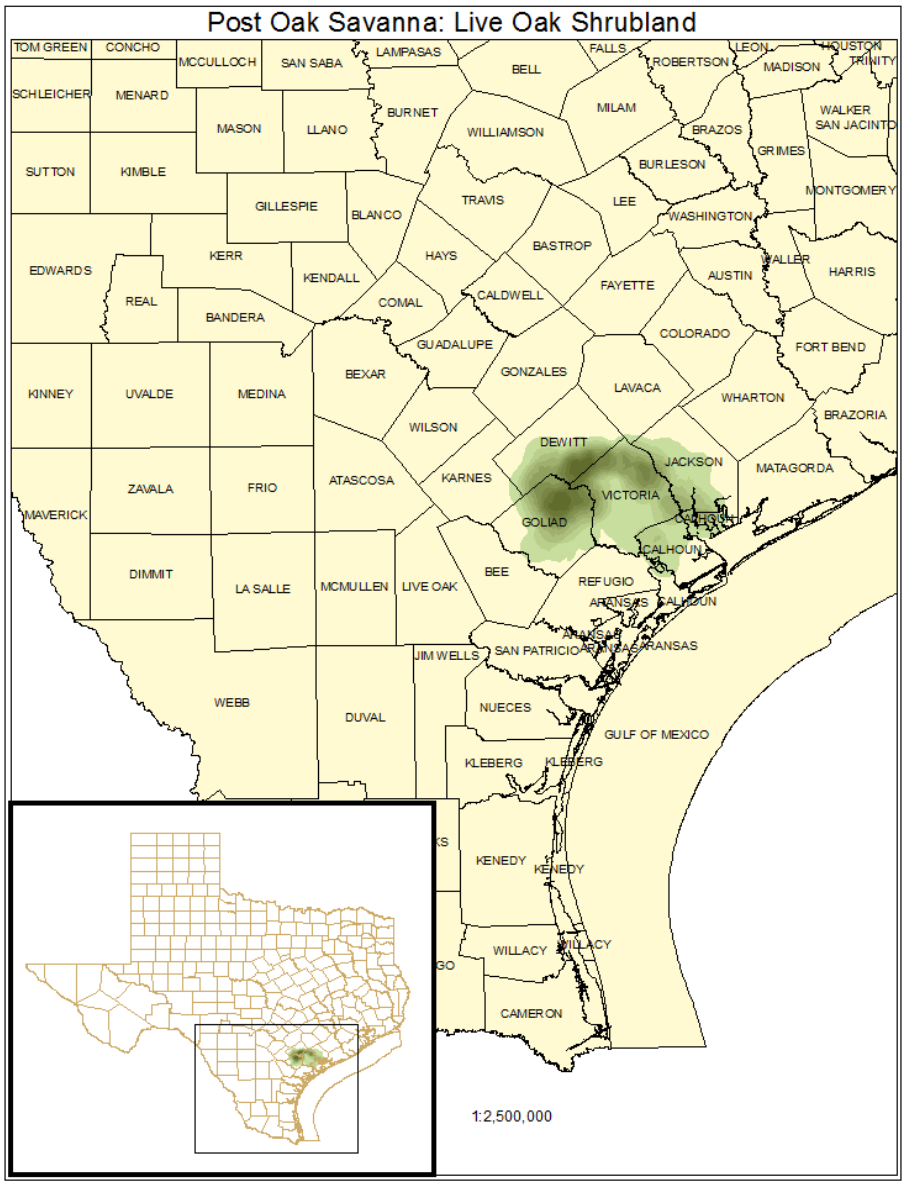
Bastrop State Park: Texas Parks & Wildlife Department
Caddo National Grasslands – Bois D'Arc Unit: US Forest Service
Caddo National Grasslands – Lake Fannin: US Forest Service
Caddo National Grasslands Wildlife Management Area: Texas Parks & Wildlife Department
Calaveras Lake Park: Texas Parks & Wildlife Department
Gus Engeling Wildlife Management Area: Texas Parks & Wildlife Department
M. O. Neasloney Wildlife Management Area: Texas Parks & Wildlife Department
McKinney Roughs: Lower Colorado River Authority
Navarro Mills Lake Recreation Area: US Army Corps of Engineers
Palmetto State Park: Texas Parks & Wildlife Department
Pat Mayse Wildlife Management Area: Texas Parks & Wildlife Department
Purtis Creek State Park: Texas Parks & Wildlife Department
Somerville Lake Recreation Area: US Army Corps of Engineers

POST OAK SAVANNA: LIVE OAK SHRUBLAND

Mapping System ID: 605

EMS Description: These evergreen shrublands often occur on sandy soils in the vicinity of live oak woodlands. They are dominated by the shrub form of *Quercus fusiformis* (plateau live oak, often referred to locally as running live oak) that may represent clones forming dense, more or less continuous, shrub canopy with occasional emergent live oaks. Some sites may also have other shrub species such as *Ilex vomitoria* (yaupon), *Acacia rigidula* (blackbrush), and/or *Condalia hookeri* (brasil). The closed shrub canopy limits the development of the herbaceous layer.

Distribution Map:



Example:

Public Land Occurrence:

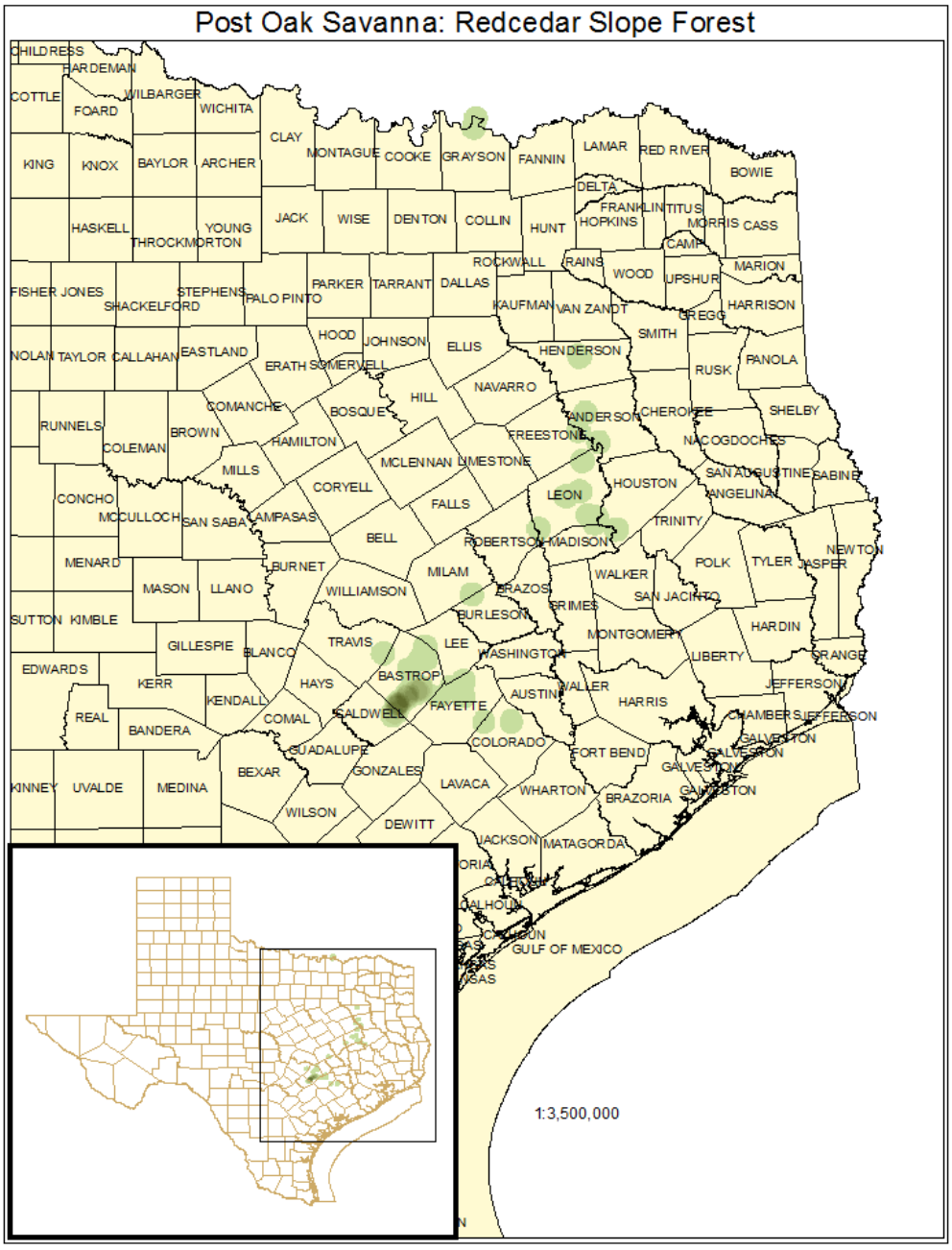
None.

POST OAK SAVANNA: REDCEDAR SLOPE FOREST

Mapping System ID: 621

EMS Description: Uncommon, relatively closed canopy woodland or forest on slopes greater than twenty percent and dominated by *Juniperus virginiana* (eastern redcedar). This type often occupies the Sandstone Hill ecoclass and is often associated with areas near the contact of the Reklaw Formation and the Carrizo Sand.

Distribution Map:



Example:

Public Land Occurrence:

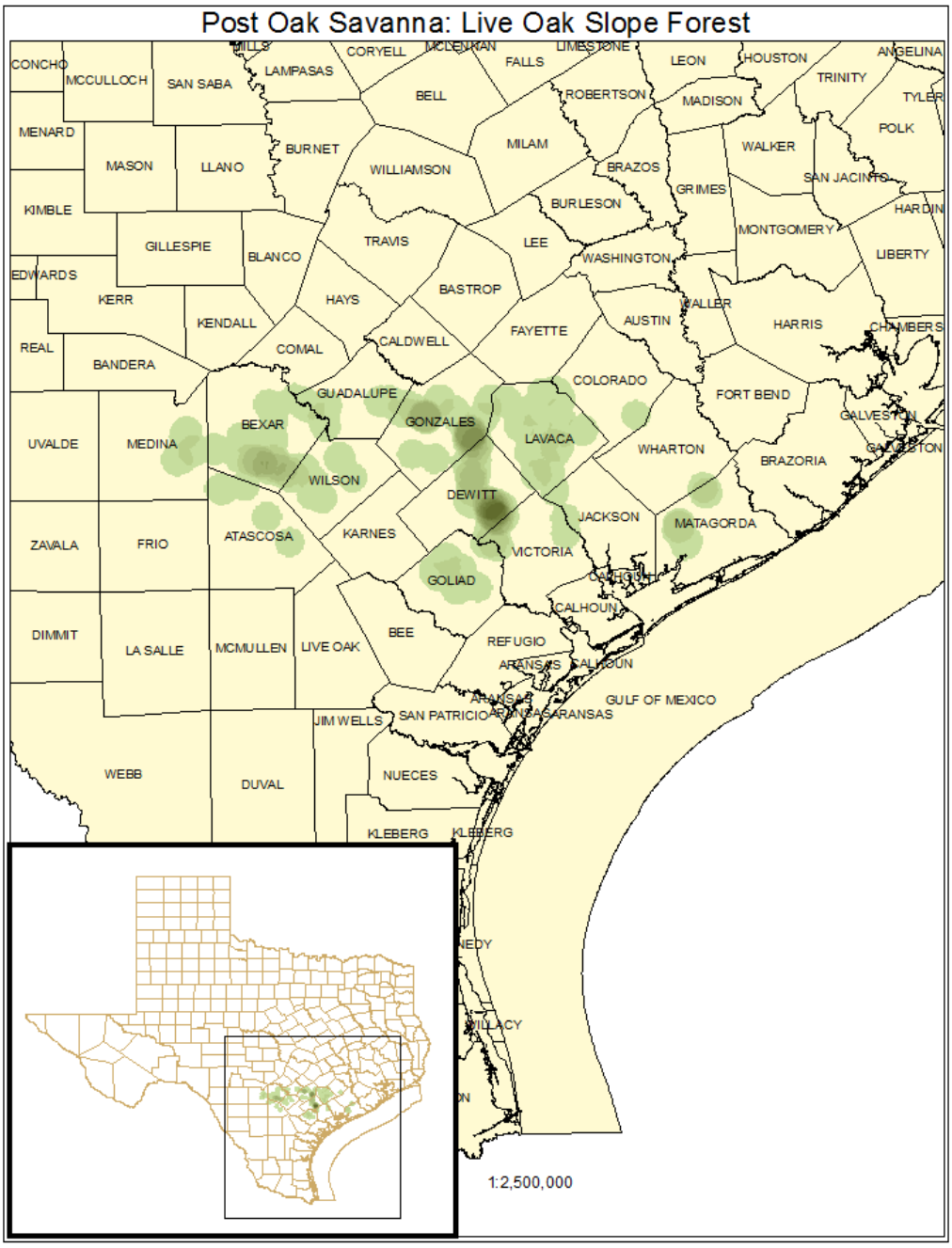
McKinney Roughs: Lower Colorado River Authority

POST OAK SAVANNA: LIVE OAK SLOPE FOREST

Mapping Systems ID: 622

EMS Descriptions: This broad-leaved evergreen forest or woodland is mapped on slopes greater than 20% and is dominated by *Quercus fusiformis* (plateau live oak), though hardwood species may also occur in the canopy.

Distribution Map:



Example:

Public Land Occurrence:

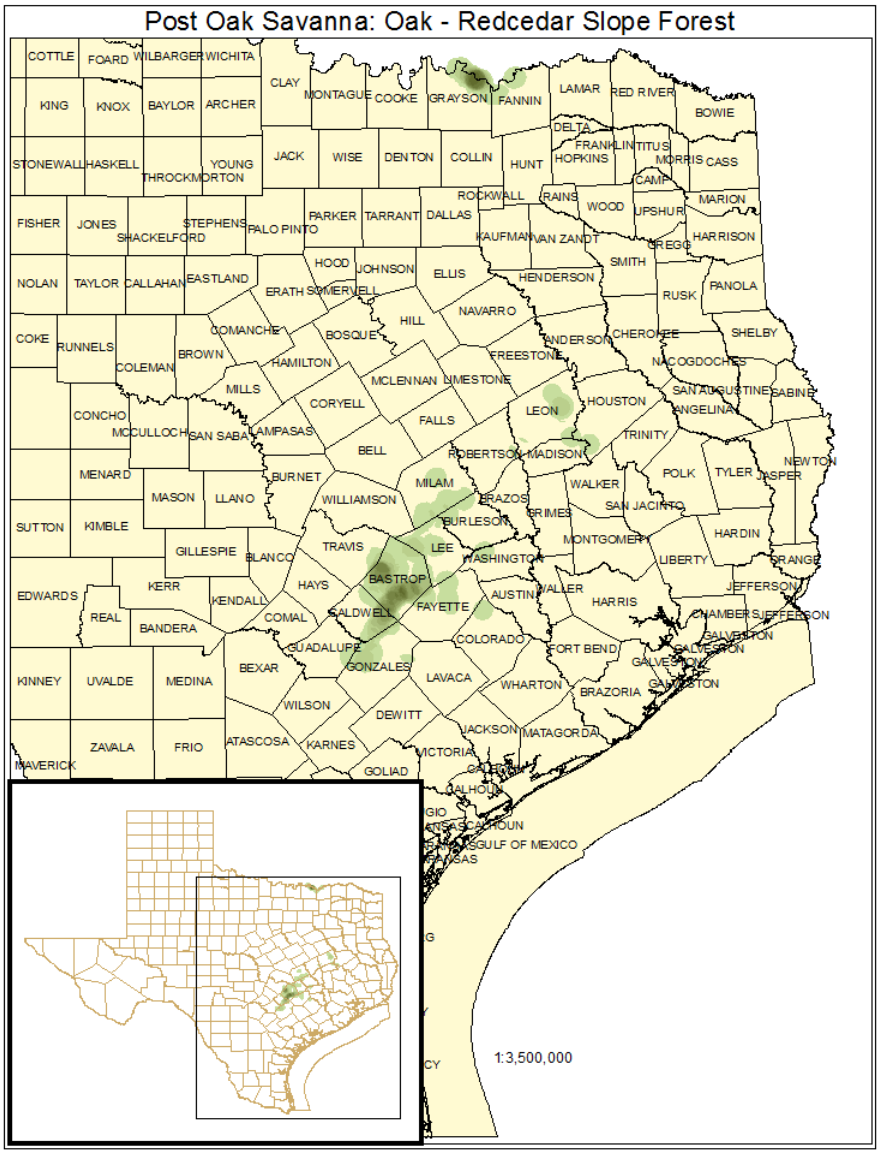
None.

POST OAK SAVANNA: OAK / REDCEDAR SLOPE FOREST

Mapping System ID: 623

EMS Description: Uncommon forest on slopes greater than twenty percent with the canopy co-dominated by oak species (such as *Quercus stellata* (post oak), *Quercus marilandica* (blackjack oak), and *Quercus shumardii* (Shumard oak)) and *Juniperus virginiana* (eastern redcedar). *Ulmus crassifolia* (cedar elm) may also be present to common in the canopy. This type occurs in areas near the Red River on soils of the Shallow and Sandy Loam ecoclasses in Grayson and Fannin counties, as well further south on various soils between Milam and Gonzales counties (in Phase 1). Near the Bastrop Lost Pines region, *Pinus taeda* (loblolly pine) may be an important overstory species.

Distribution Map:



Example:

Public Land Occurrence:

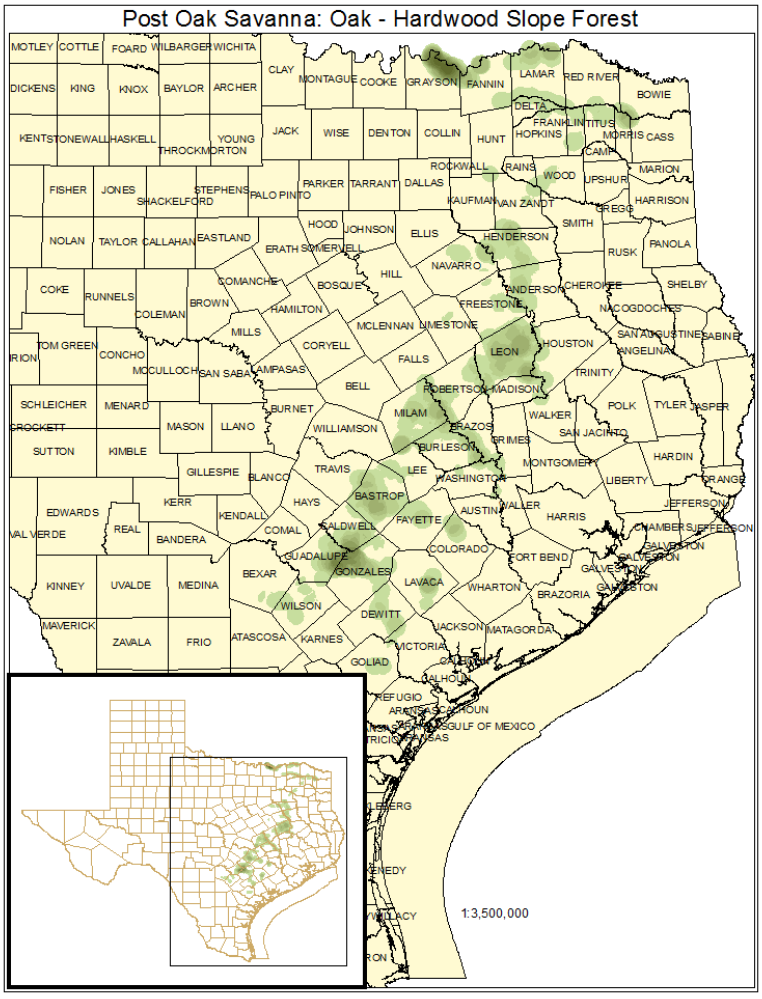
Caddo National Grasslands – Lake Fannin: US Forest Service
Eisenhower State Park: Texas Parks & Wildlife Department
McKinney Roughs: Lower Colorado River Authority
Palmetto State Park: Texas Parks & Wildlife Department

POST OAK SAVANNA: OAK / HARDWOOD SLOPE FOREST

Mapping System ID: 624

EMS Description: This deciduous forest vegetation type is found on slopes greater than twenty percent along the Red River and its tributaries, as well as on slopes from Milam to Gonzales counties and elsewhere. Slopes on calcareous substrates along the Red River may be dominated by species such as *Quercus muehlenbergii* (chinkapin oak), *Quercus shumardii* (Shumard oak), *Ulmus americana* (American elm), and *Ulmus crassifolia* (cedar elm). In the south, slopes are generally not on calcareous substrate and *Quercus muehlenbergii* (chinkapin oak) is lacking. On these sites, slopes may be dominated by *Quercus stellata* (post oak), *Ulmus crassifolia* (cedar elm), *Ulmus americana* (American elm), *Quercus marilandica* (blackjack oak) and *Celtis laevigata* (sugar hackberry) and less commonly *Quercus shumardii* (Shumard oak). This vegetation type is poorly understood, and may be compositionally quite similar to surrounding woodlands. The greater topographic relief associated with this system results in more mesic conditions leading to the development of denser overstory canopy.

Distribution Map:



Example:

Public Land Occurrence:

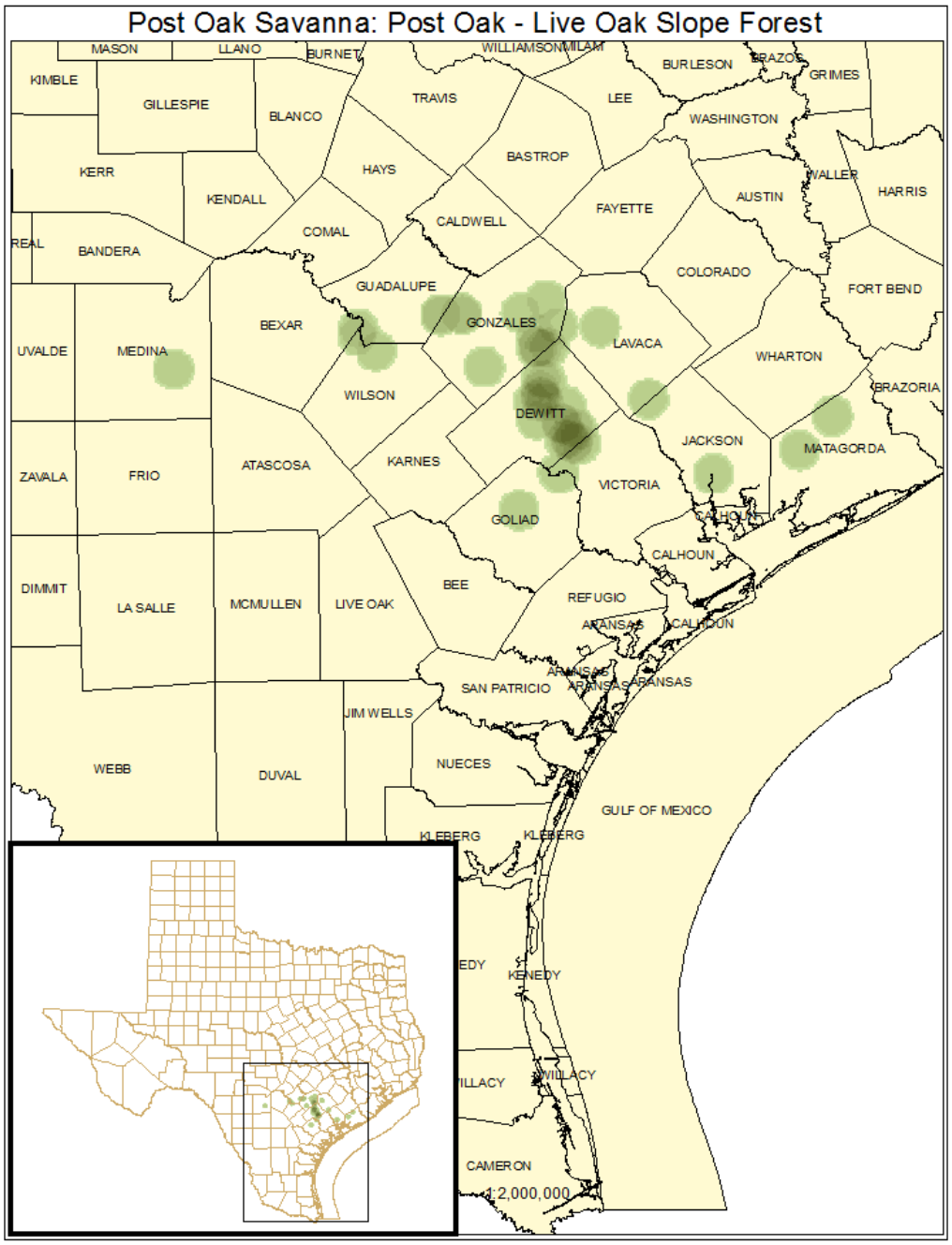
Caddo National Grasslands – Lake Fannin: US Forest Service
Eisenhower State Park: Texas Parks & Wildlife Department
Fort Boggy State Park: Texas Parks & Wildlife Department
Fort Parker State Park: Texas Parks & Wildlife Department
McKinney Roughs: Lower Colorado River Authority
Monument Hill\Kreische Brewery State Historical Sites: Texas Parks & Wildlife Department
Palmetto State Park: Texas Parks & Wildlife Department
Pat Mayse Wildlife Management Area: Texas Parks & Wildlife Department
Purtis Creek State Park: Texas Parks & Wildlife Department
Somerville Lake Recreation Area: US Army Corps of Engineers

POST OAK SAVANNA: POST OAK - LIVE OAK SLOPE FOREST

Mapping System ID: 643

EMS Description: This woodland of mixed broad-leaved evergreen and deciduous overstory is dominated by *Quercus stellata* (post oak) and *Quercus fusiformis* (plateau live oak) and occupies slopes greater than 20%.

Distribution Map:



Example:

Not available at this time.

Public Land Occurrence:

None.