

COLUMBIA BOTTOMLANDS FOREST AND WOODLAND

Nature Serve ID: *Previously undescribed system.*

Geology: On extensive Quaternary alluvium along rivers and major drainages, but also found on adjacent Beaumont and Lissie Formations.

Landform: On the level to gently rolling uplands of the coastal prairie and floodplains. Significant local topographic relief associated with terraces, depressions, levees and swales of the floodplains of the lower Colorado, Brazos, and San Bernard Rivers and their major tributaries.

Soils: Primarily on the Clayey or Loamy Bottomland ecological site types, but also found on blackland and claypan soils within the basin.

Description: This system occurs on Quaternary alluvium and adjacent Pleistocene terraces (Beaumont and Lissie Formations) along the Brazos, San Bernard, and Colorado Rivers (as they pass through these Pleistocene formations), and adjacent streams such as Oyster Creek, Caney Creek, and Linnville Bayou. Chocolate Bayou represents the eastern extent of this system as the forest grades into systems more closely resembling the West Gulf Coastal Plain Small Stream and River Forest system to the northeast. Tres Palacios Creek represents the southwestern limit of this system, as floodplains further south and west share closer affinity to coastal rivers such as the Mission and Aransas. This system occupies a generally level landscape, punctuated by a series of swales, depressions, and natural levees. Much of the flooding experienced by this system results from seasonal precipitation and tropical storms, not from over-bank flooding. Over-bank flooding is infrequent, occurring about every 15 to 25 years (M. Lange, Pers. Comm.). Soils are frequently clayey bottomlands (such as Pledger or Brazoria clays) or loamy bottomlands (such as those of the Asa or Norwood series). This system expresses a range of communities along a moisture gradient ranging from the wettest sites along stream margins and depressions, to somewhat drier sites on ridges and natural levees. Herbaceous communities and open water typically characterize the wettest sites, with species such as *Eleocharis quadrangulata* (squarestem spikesedge), *Sagittaria graminea* (grassy arrowhead), *Sagittaria platyphylla* (delta arrowhead), *Ludwigia* spp. (water-primroses), *Saururus cernuus* (lizard's tail), *Azolla caroliniana* (Carolina mosquito-fern), and *Lemna obscura* (little duckweed). Such very wet sites may have *Taxodium distichum* (baldcypress) and *Salix nigra* (black willow) in the overstory, or may be shrub swamps dominated by *Cephalanthus occidentalis* (common buttonbush) and/or *Forestiera acuminata* (swamp privet). Sites inundated somewhat less frequently, such as meander scars, abandoned oxbows, and channels, are often dominated in the overstory by species including *Fraxinus pennsylvanica* (green ash), *Ulmus americana* (American elm), and *Carya aquatica* (water hickory), while the woody understory of these sites are typically open and may be dominated by *Cephalanthus occidentalis* (common buttonbush) and/or *Forestiera acuminata* (swamp privet). Rarely, *Leitneria floridana* (corkwood) may be a conspicuous component of the shrub layer. Herbaceous cover is often patchy and can include species such as *Phanopyrum gymnocarpon* (savannah panicum), *Echinodorus cordifolius* (heartleaf burhead), *Carex* spp. (carices), *Rhynchospora corniculata* (horned beakrush), *Saururus cernuus* (lizard's tail), *Polygonum punctatum* (water smartweed), *Hygrophila lacustris* (Gulf swampweed), *Boehmeria cylindrica* (false nettle), *Mikania scandens* (climbing hemp-weed), and *Lemna obscura* (little duckweed). Flats and ridges that are only occasionally flooded are often dominated by *Celtis laevigata* (sugar hackberry), *Ulmus crassifolia* (cedar elm), *Quercus nigra* (water oak), and *Quercus shumardii* (Shumard oak). Shrubs on these sites include *Ilex*

vomitorea (yaupon), *Sapindus saponaria* var. *drummondii* (western soapberry), *Malvaviscus arboreus* var. *drummondii* (Drummond Turk's cap), *Symphoricarpos orbiculatus* (coralberry), and *Callicarpa americana* (American beautyberry). *Sabal minor* (dwarf palmetto) and *Carex cherokeensis* (Cherokee sedge) are more abundant on these sites, and other species such as *Toxicodendron radicans* (poison ivy), *Chasmanthium sessiliflorum* (narrowleaf woodoats), *Chasmanthium latifolium* (creek oats), *Calyptocarpus vialis* (straggler daisy), *Oplismenus hirtellus* ssp. *setarius* (basketgrass), and *Polygonum virginianum* (jump seed) may be present. Clay backflats in this landscape may be dominated by *Quercus virginiana* (coastal live oak) and *Carya illinoensis* (pecan), and *Quercus virginiana* (coastal live oak) may also share dominance with other canopy species on natural levees of these river systems. Blackland soils on the Pleistocene surface (such as those of the Lake Charles series) are often occupied by a forest dominated or co-dominated by *Quercus nigra* (water oak), *Celtis laevigata* (sugar hackberry), *Ulmus crassifolia* (cedar elm), *Fraxinus pennsylvanica* (green ash), and less frequently *Quercus virginiana* (coastal live oak). The shrub layer on these sites is often well-developed and typically dominated by *Ilex vomitorea* (yaupon), sometimes with *Sabal minor* (dwarf palmetto), *Cornus drummondii* (roughleaf dogwood), and *Prunus caroliniana* (Carolina laurelcherry) also present. Vines are commonly encountered including species such as *Vitis mustangensis* (mustang grape), *Toxicodendron radicans* (poison ivy), *Ampelopsis arborea* (peppervine), and *Berchemia scandens* (Alabama supplejack). *Chasmanthium sessiliflorum* (narrowleaf woodoats), *Carex cherokeensis* (Cherokee sedge), *Carex crus-corvi* (crowfoot sedge), *Urochloa platyphylla* (broadleaf signalgrass), and *Juncus* spp. (rushes) and numerous other species are commonly found in the herbaceous layer. It is unclear whether these typically prairie dominated surfaces are now occupied by woodland and forest due to a disruption in natural fire cycle and disturbance, or whether the unique hydrology or other environmental factors of the Columbia Bottomlands leads to this incongruity. *Tillandsia usneoides* (Spanish moss) is a frequently encountered epiphyte in these forests. Riverside woodlands, along major rivers, have *Platanus occidentalis* (American sycamore) and *Populus deltoides* (eastern cottonwood) in the canopy (David Rosen, Pers. Comm.). The non-native tree *Triadica sebifera* (Chinese tallow) may often be encountered, sometimes as a significant or dominant component of the canopy.

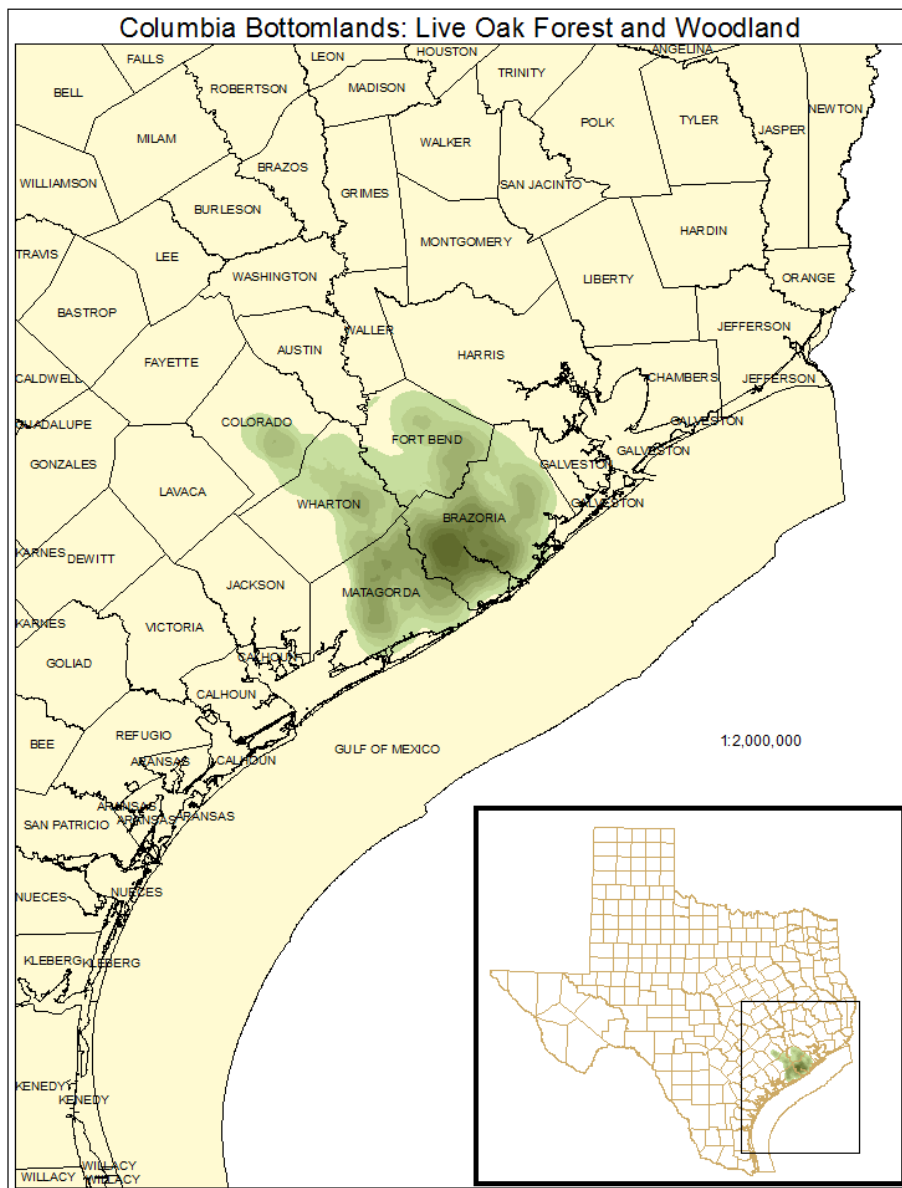
ECOLOGICAL MAPPING SYSTEMS:

COLUMBIA BOTTOMLANDS: LIVE OAK FOREST AND WOODLAND

Mapping System ID: 4702

EMS Description: This type typically occupies slightly drier sites on levees and ridges and is dominated by *Quercus virginiana* (coastal live oak). This is the region of transition between *Quercus virginiana* (coastal live oak) and *Quercus fusiformis* (plateau live oak). We refer to live oaks in this section of the coast as *Quercus virginiana* (coastal live oak), though the true taxon, or taxa, is not known.

Distribution Map:



Example:



Public Land Occurrence:

Brazoria National Wildlife Refuge: US Fish and Wildlife Service

Brazos Bend State Park: Texas Parks & Wildlife Department

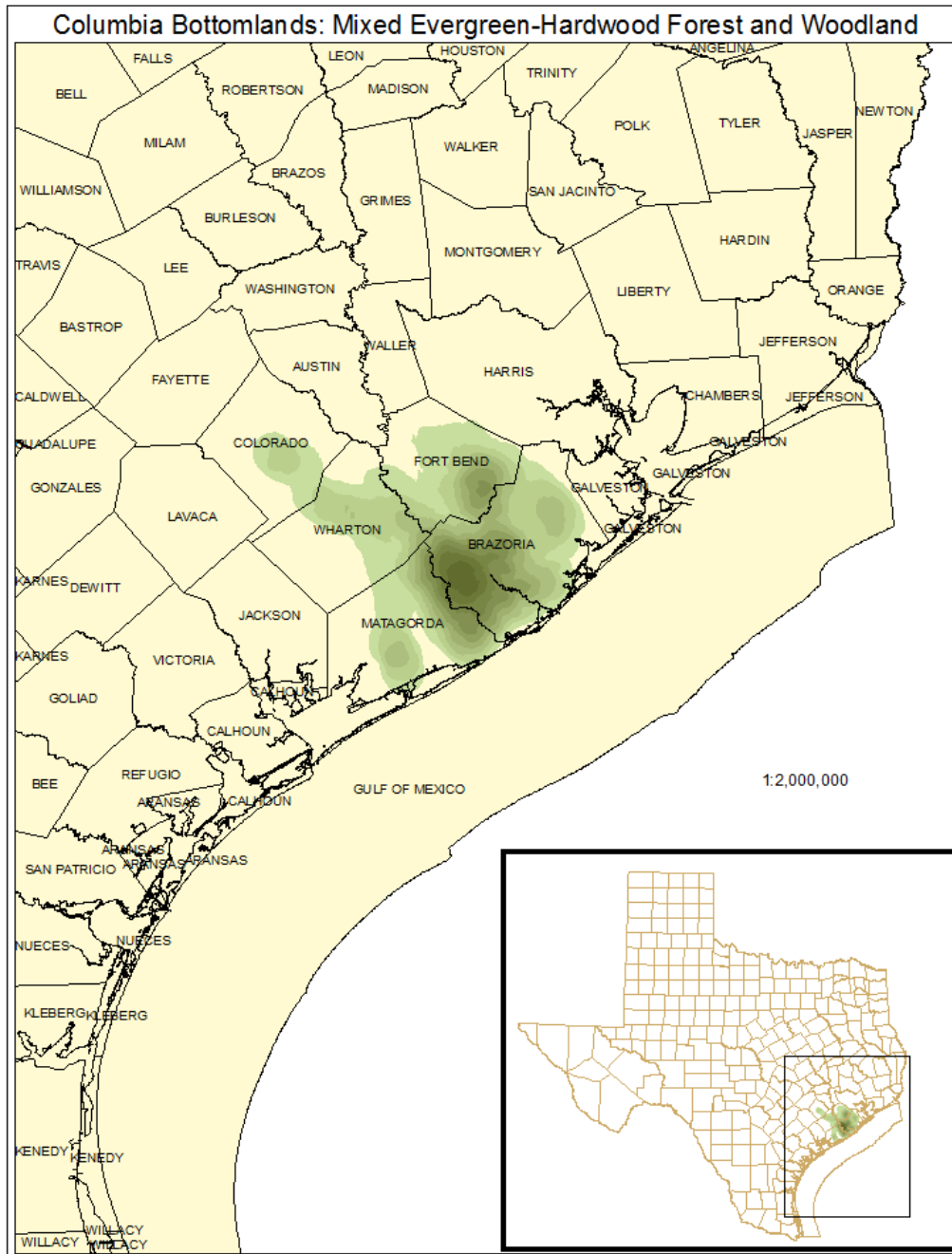
San Bernard National Wildlife Refuge: US Fish and Wildlife Service

COLUMBIA BOTTOMLANDS: MIXED EVERGREEN / HARDWOOD FOREST AND WOODLAND

Mapping System ID: 4703

EMS Description: Forest and woodland with the canopy shared between *Quercus virginiana* (coastal live oak) and hardwood species described for the system.

Distribution Map:



Example:



Public Land Occurrence:

Brazos Bend State Park: Texas Parks & Wildlife Department

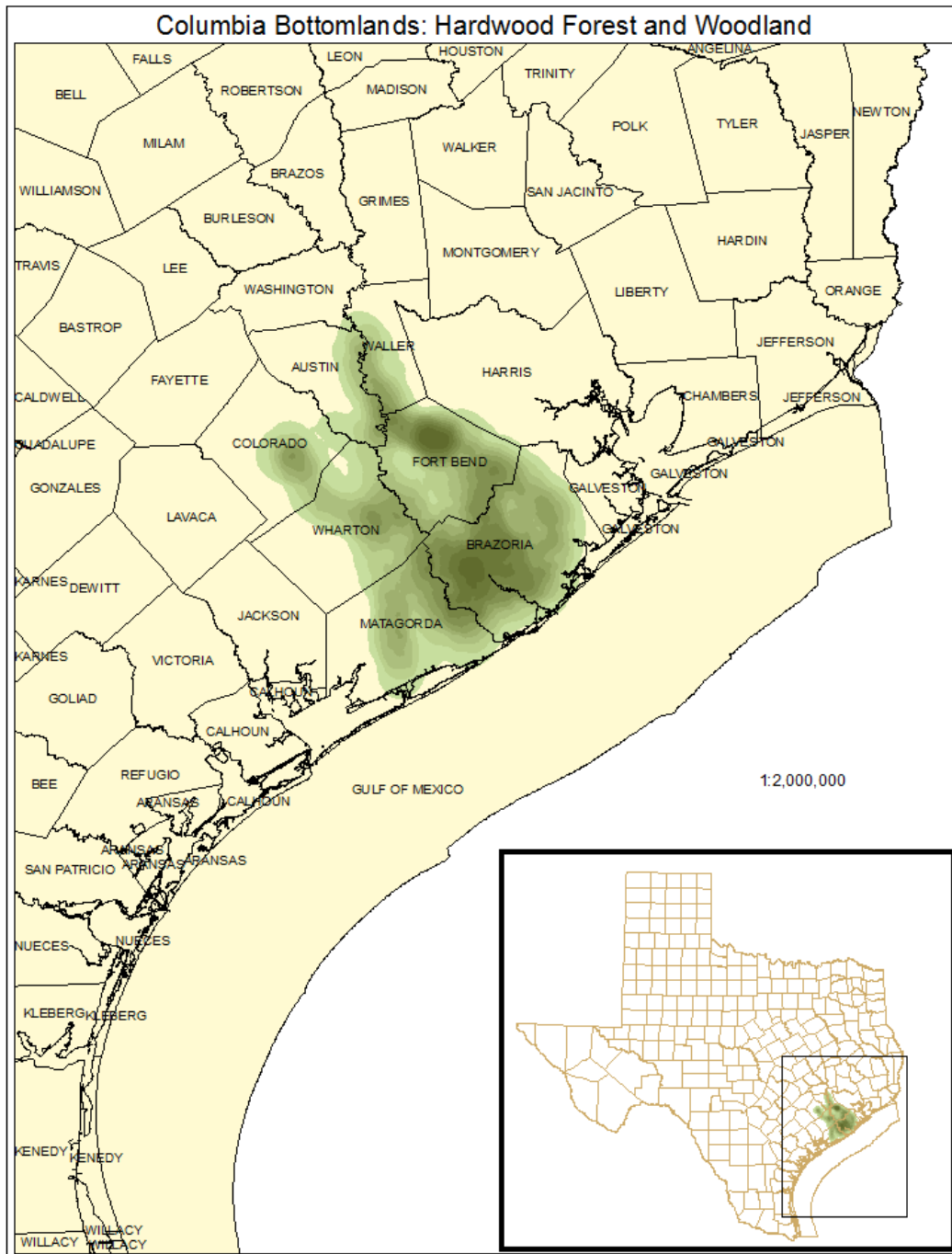
San Bernard National Wildlife Refuge: US Fish and Wildlife Service

COLUMBIA BOTTOMLANDS: HARDWOOD FOREST AND WOODLAND

Mapping System ID: 4704

EMS Description: About 47% of the system is represented by this forest and woodland characterized by a deciduous canopy of species described for the system.

Distribution Map:



Example:



Public Land Occurrence:

Brazoria National Wildlife Refuge: US Fish and Wildlife Service

Brazos Bend State Park: Texas Parks & Wildlife Department

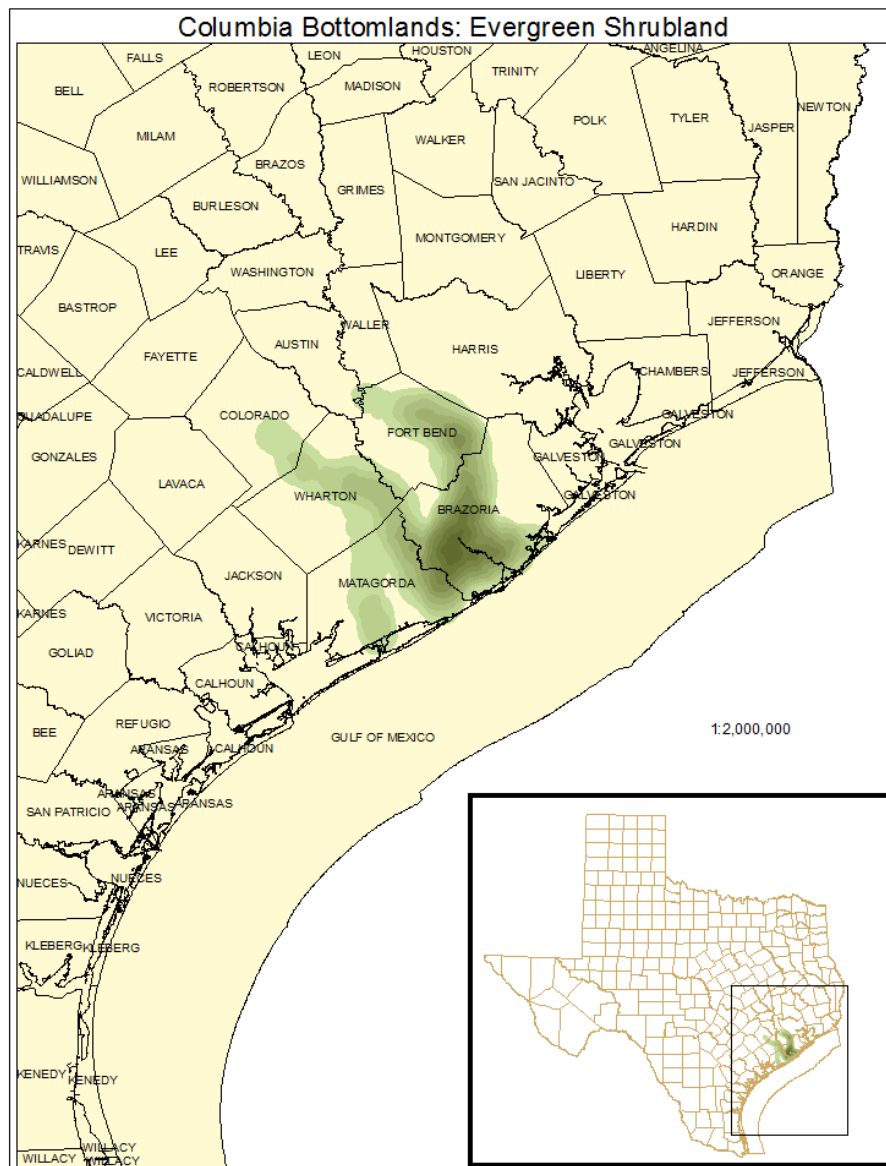
San Bernard National Wildlife Refuge: US Fish and Wildlife Service

COLUMBIA BOTTOMLANDS: EVERGREEN SHRUBLAND

Mapping System ID: 4705

EMS Description: Shrublands or sparse woodlands with a well-developed shrub layer with species such as *Ilex vomitoria* (yaupon), *Sabal minor* (dwarf palmetto), *Quercus virginiana* (coastal live oak), *Rosa bracteata* (Macartney rose), or *Baccharis* spp. (baccharis). These shrublands are often the result of disturbance. Areas where cover in the shrub layer is dominated by *Triadica sebifera* (Chinese tallow) may also be mapped as this type. Species such as *Celtis laevigata* (sugar hackberry), *Quercus virginiana* (coastal live oak), and *Salix nigra* (black willow) may also be present.

Distribution Map:



Example:

Not available at this time.

Public Land Occurrence:

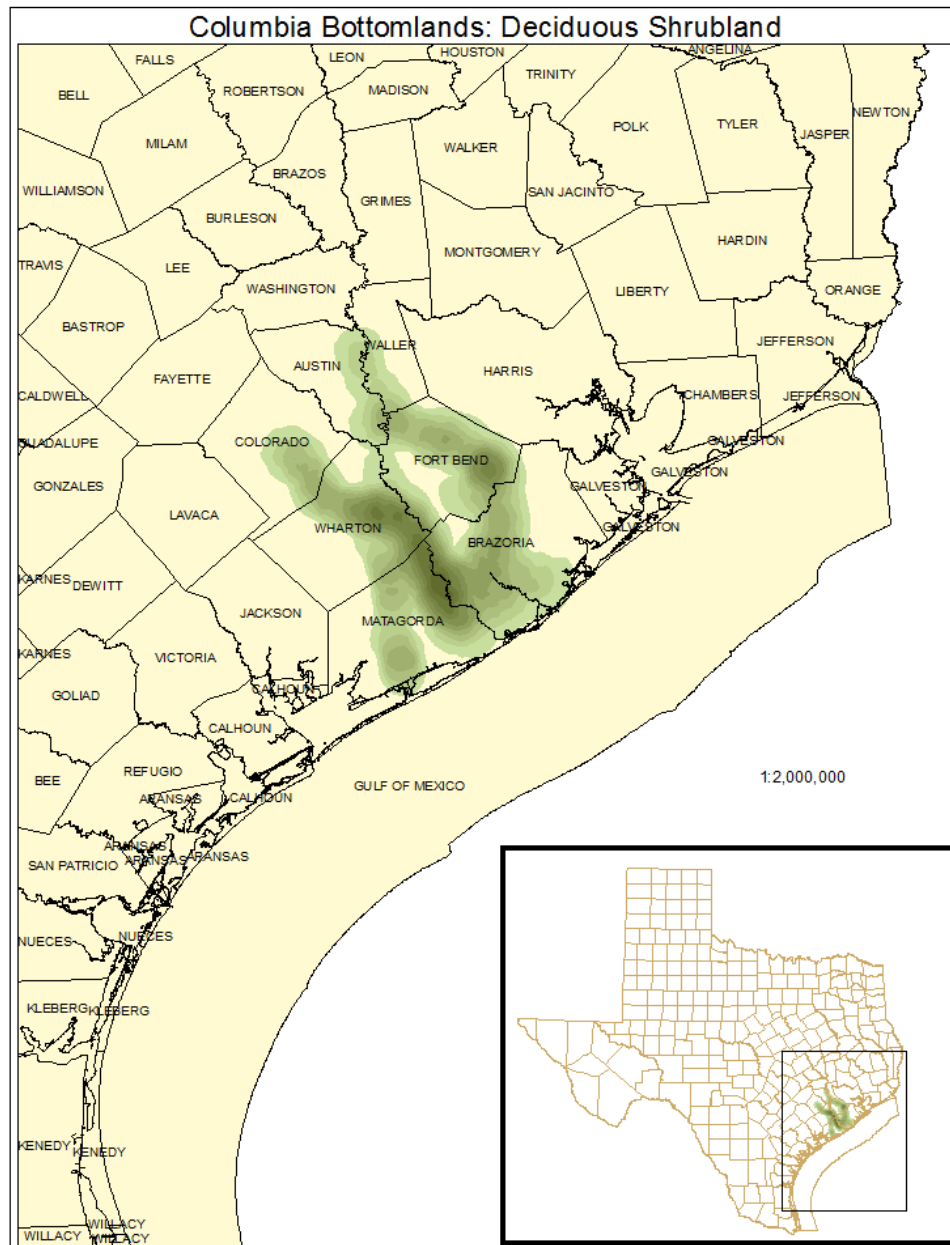
None.

COLUMBIA BOTTOMLANDS: DECIDUOUS SHRUBLAND

Mapping System ID: 4706

EMS Description: Shrub dominated sites that may have a sparse woody overstory with species in the shrub layer such as *Cephalanthus occidentalis* (common buttonbush), *Salix nigra* (black willow), *Forestiera acuminata* (swamp privet), and/or *Cornus drummondii* (roughleaf dogwood). *Triadica sebifera* (Chinese tallow) may be a conspicuous component of these shrublands, which often result from disturbance.

Distribution Map:



Example:

Not available at this time.

Public Land Occurrence:

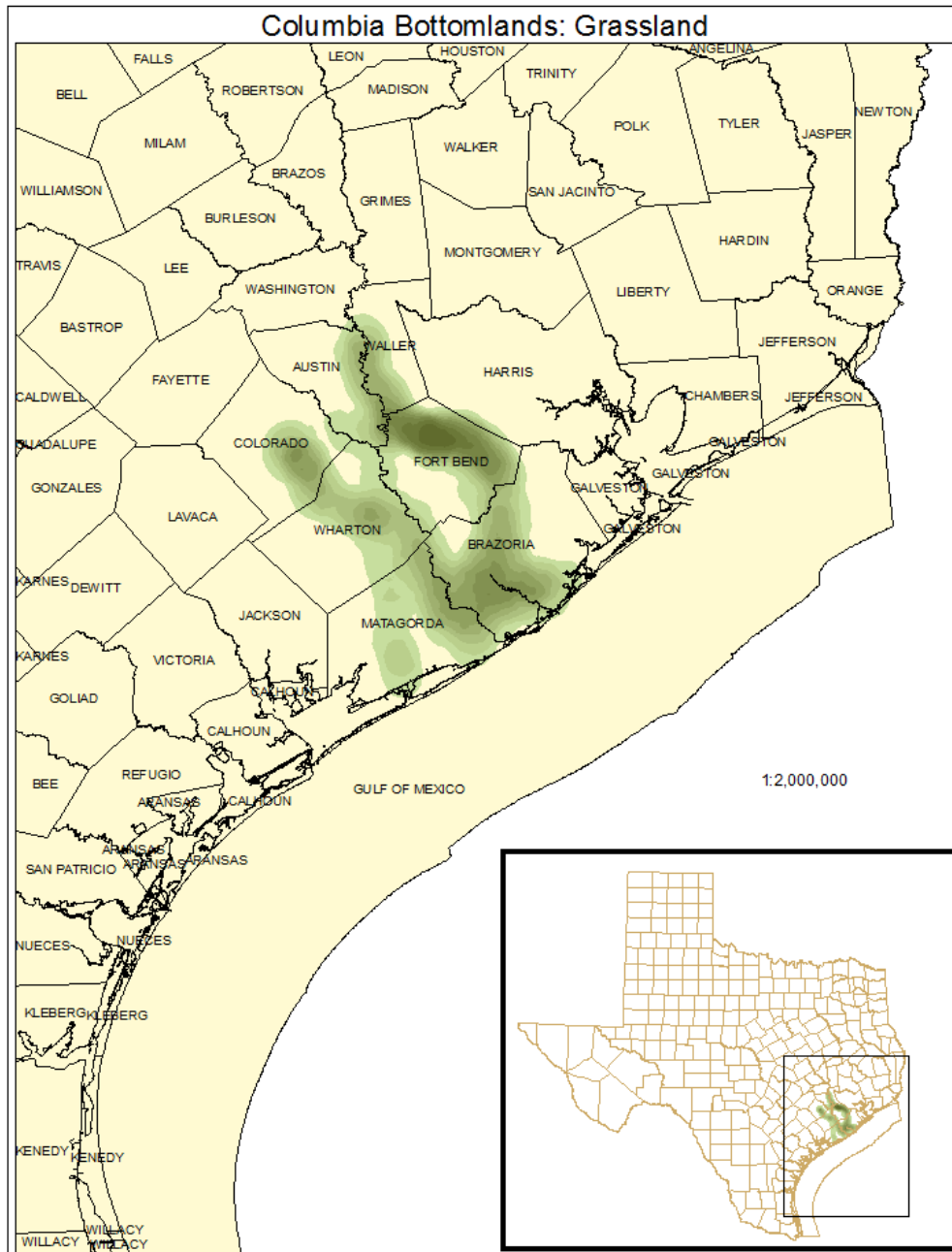
None.

COLUMBIA BOTTOMLANDS: GRASSLAND

Mapping System ID: 4707

EMS Description: These are herbaceous dominated sites occupying bottomland soils and lacking significant shrub or overstory canopy cover. They are mostly managed grasslands dominated by grasses such as *Cynodon dactylon* (bermudagrass), *Paspalum notatum* (bahiagrass), and *Lolium perenne* (Italian ryegrass).

Distribution Map:



Example:



Public Land Occurrence:

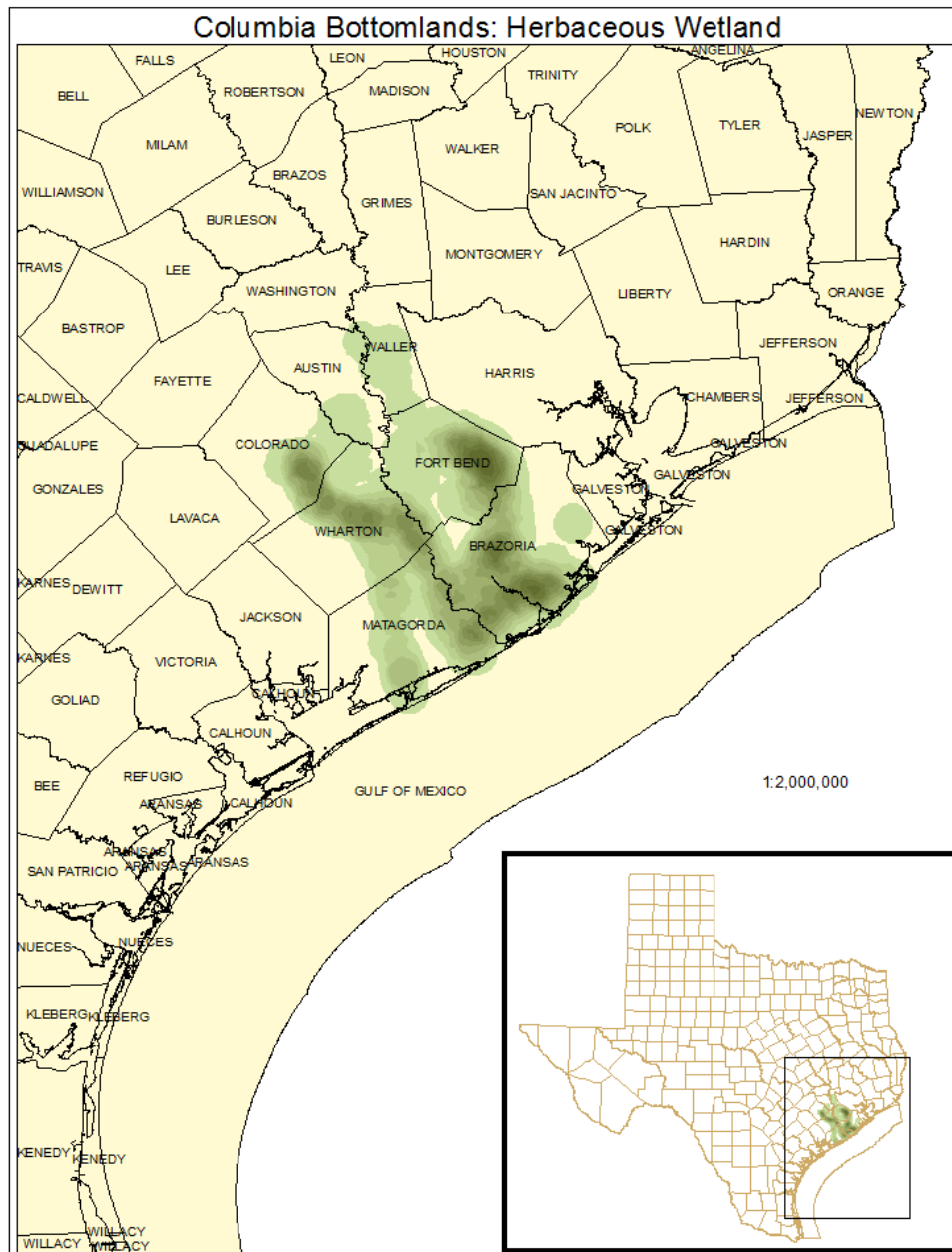
None.

COLUMBIA BOTTOMLANDS: HERBACEOUS WETLANDS

Mapping System ID: 4717

EMS Description: Wetlands dominated by herbaceous species such as *Carex crus-corvi* (crowfoot sedge), other *Carex* spp. (carices), *Eleocharis quadrangulata* (squarestem spikesedge), *Rhynchospora* spp. (beaksedges), *Juncus* spp. (rushes), *Sagittaria* spp. (arrowheads), *Saururus cernuus* (lizard's tail), *Echinodorus cordifolius* (heartleaf burhead), *Typha* spp. (cattails), and/or *Polygonum* spp. (smartweeds).

Distribution Map:



Example:



Public Land Occurrence:

Brazoria National Wildlife Refuge: US Fish and Wildlife Service

Brazos Bend State Park: Texas Parks & Wildlife Department

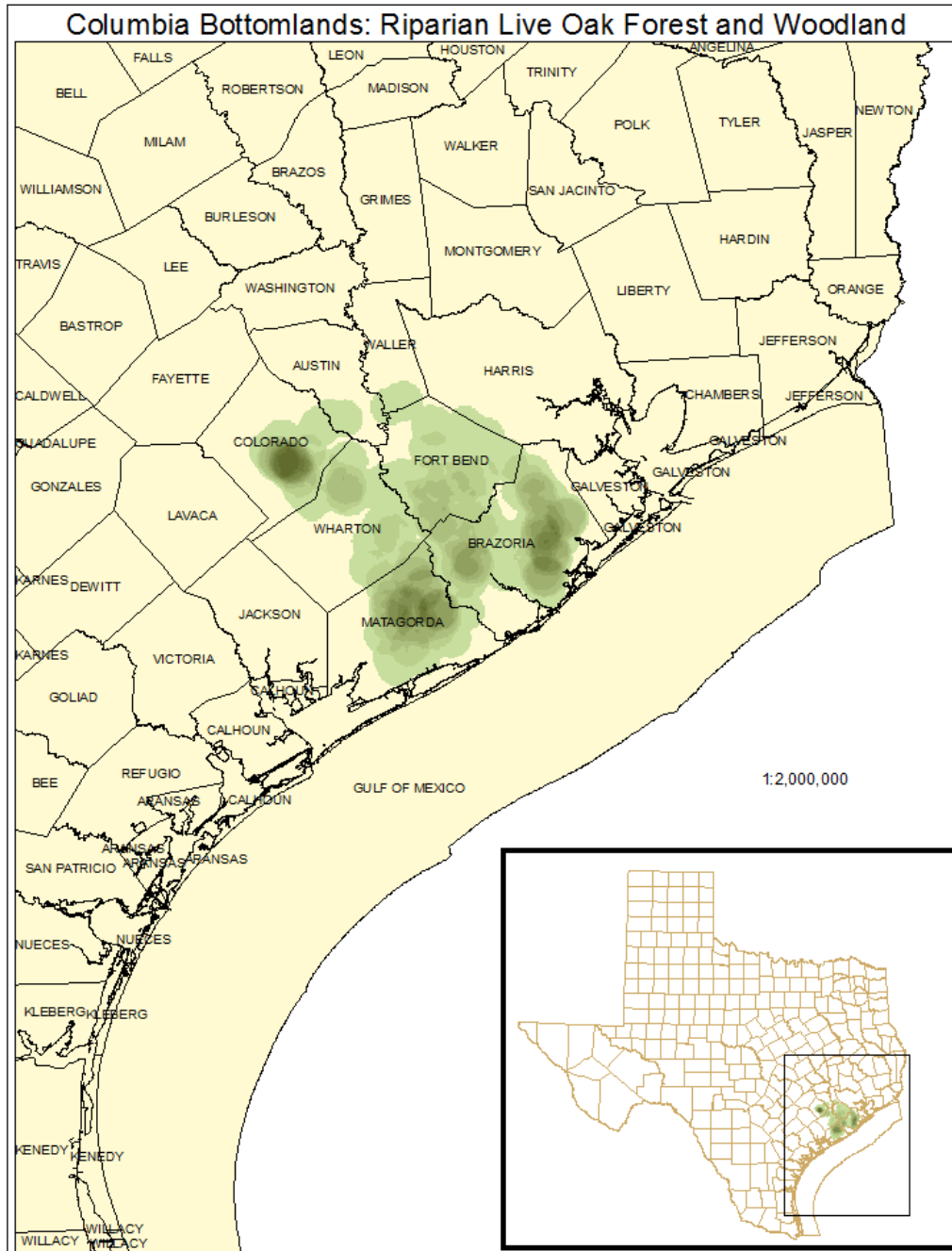
San Bernard National Wildlife Refuge: US Fish and Wildlife Service

COLUMBIA BOTTOMLANDS: RIPARIAN LIVE OAK FOREST AND WOODLAND

Mapping System ID: 4712

EMS Description: Forests or woodlands along drainages outside of bottomland soils, but within the Columbia Bottomlands landscape, where the canopy is dominated by *Quercus virginiana* (coastal live oak).

Distribution Map:



Example:

Not available at this time.

Public Land Occurrence:

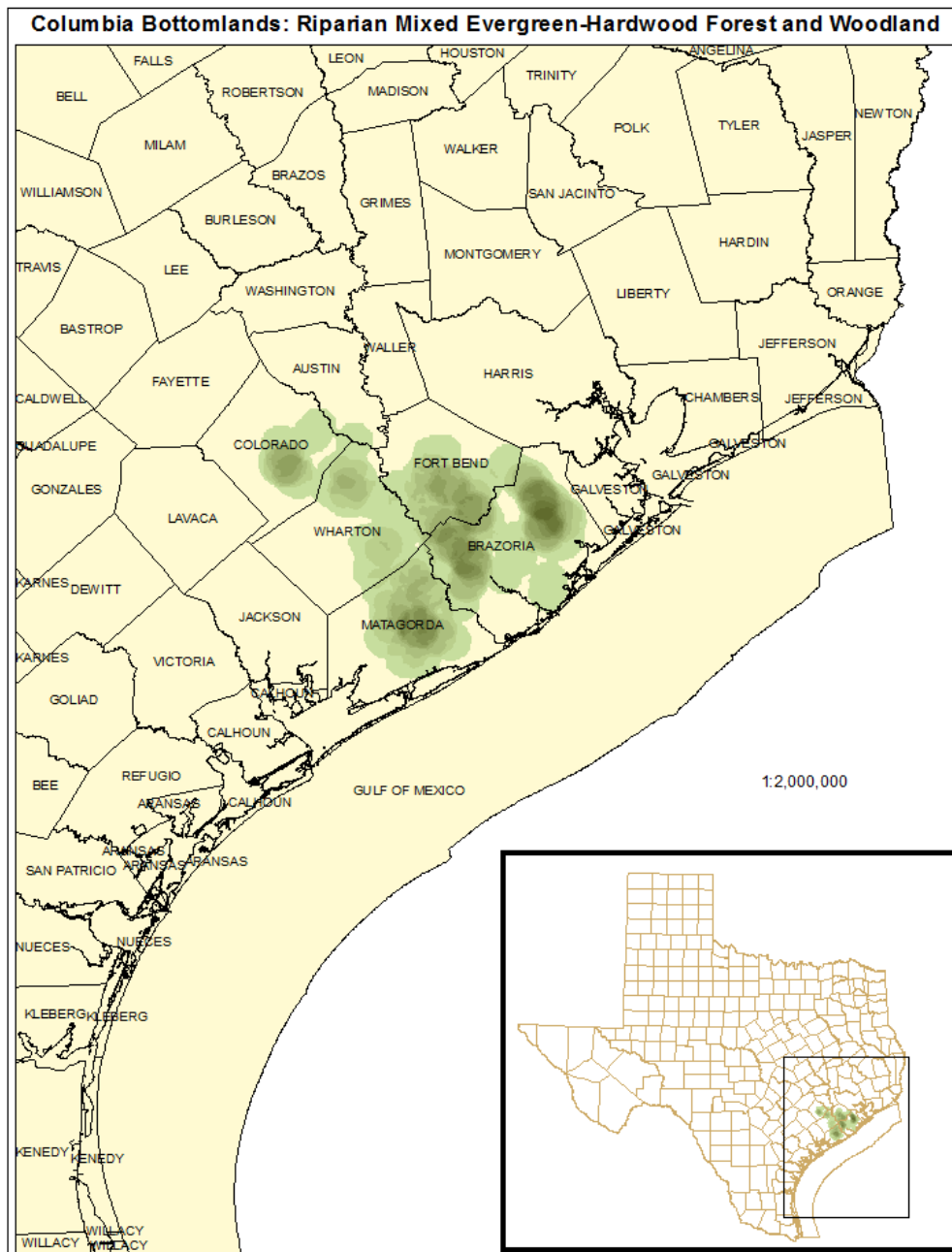
None.

COLUMBIA BOTTOMLANDS: RIPARIAN MIXED EVERGREEN / HARDWOOD FOREST AND WOODLAND

Mapping System ID: 4713

EMS Description: Forests or woodlands along drainages outside of bottomland soils, but within the Columbia Bottomlands landscape, where the canopy is co-dominated by *Quercus virginiana* (coastal live oak) and deciduous species.

Distribution Map:



Example:



Public Land Occurrence:

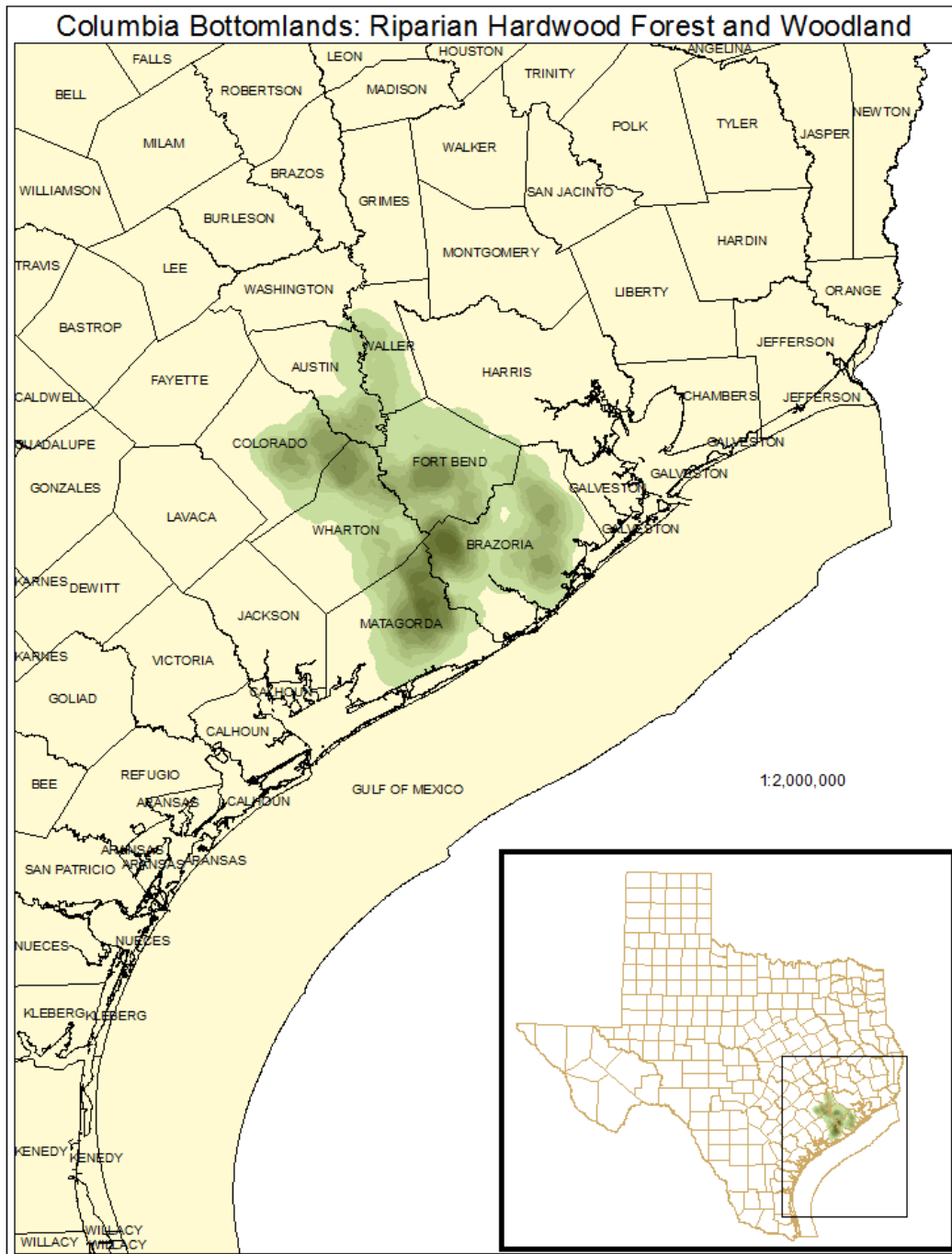
None.

COLUMBIA BOTTOMLANDS: RIPARIAN HARDWOOD FOREST AND WOODLAND

Mapping System ID: 4714

EMS Description: Forests and woodlands with a deciduous canopy that occupy sites along drainages but outside of bottomland soils.

Distribution Map:



Example:



Public Land Occurrence:

Brazos Bend State Park: Texas Parks & Wildlife Department

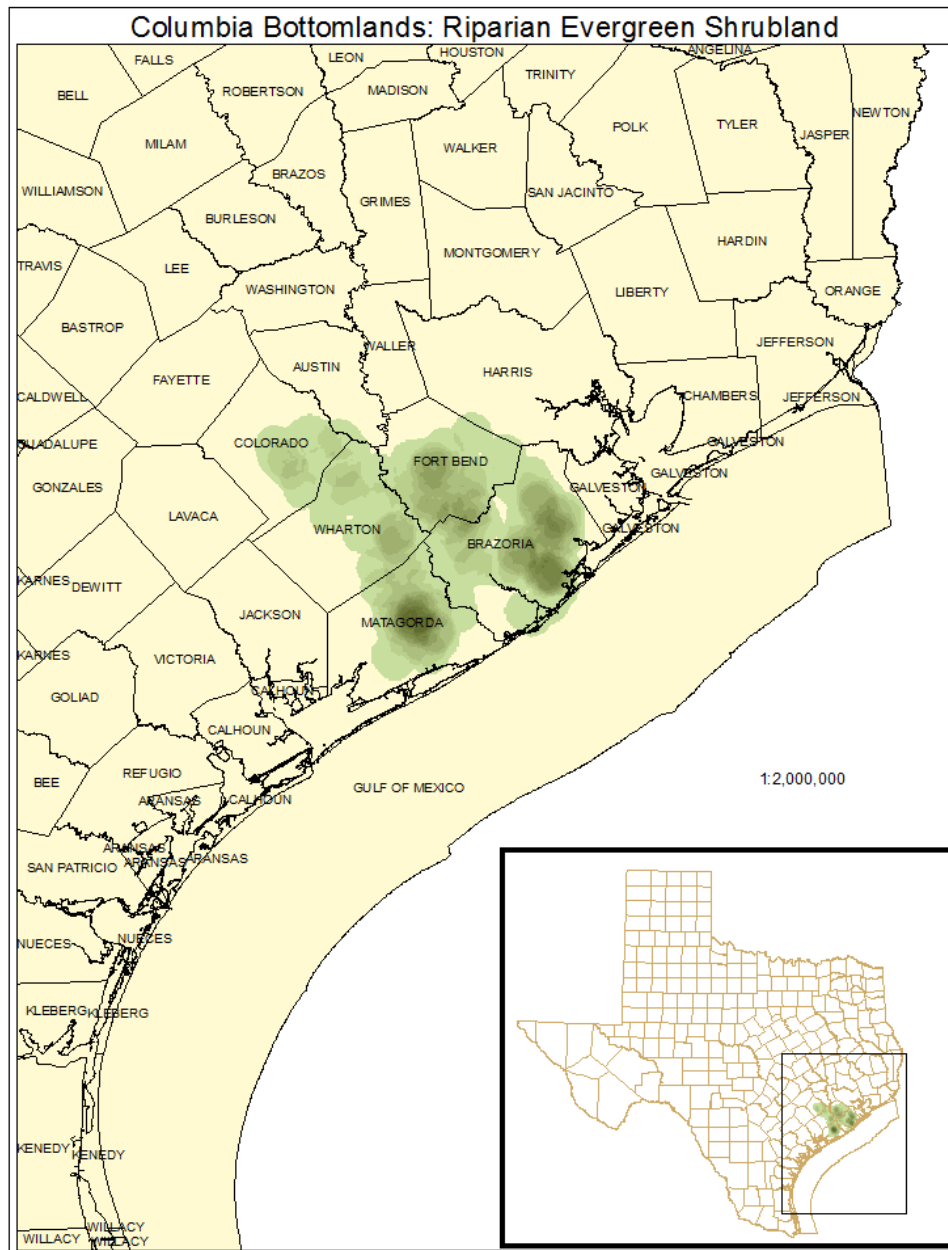
San Bernard National Wildlife Refuge: US Fish and Wildlife Service

COLUMBIA BOTTOMLANDS: RIPARIAN EVERGREEN SHRUBLAND

Mapping System ID: 4715

EMS Description: Evergreen shrublands, often resulting from disturbance that occupy sites along drainages but outside of bottomland soils. Species such as *Baccharis* spp. (baccharis), *Rosa bracteata* (Macartney rose), *Ilex vomitoria* (yaupon), or small *Quercus virginiana* (coastal live oak) sometimes dominate this type. Some sites dominated by *Triadica sebifera* (Chinese tallow) may be mapped as this type.

Distribution Map:



Example:

Not available at this time.

Public Land Occurrence:

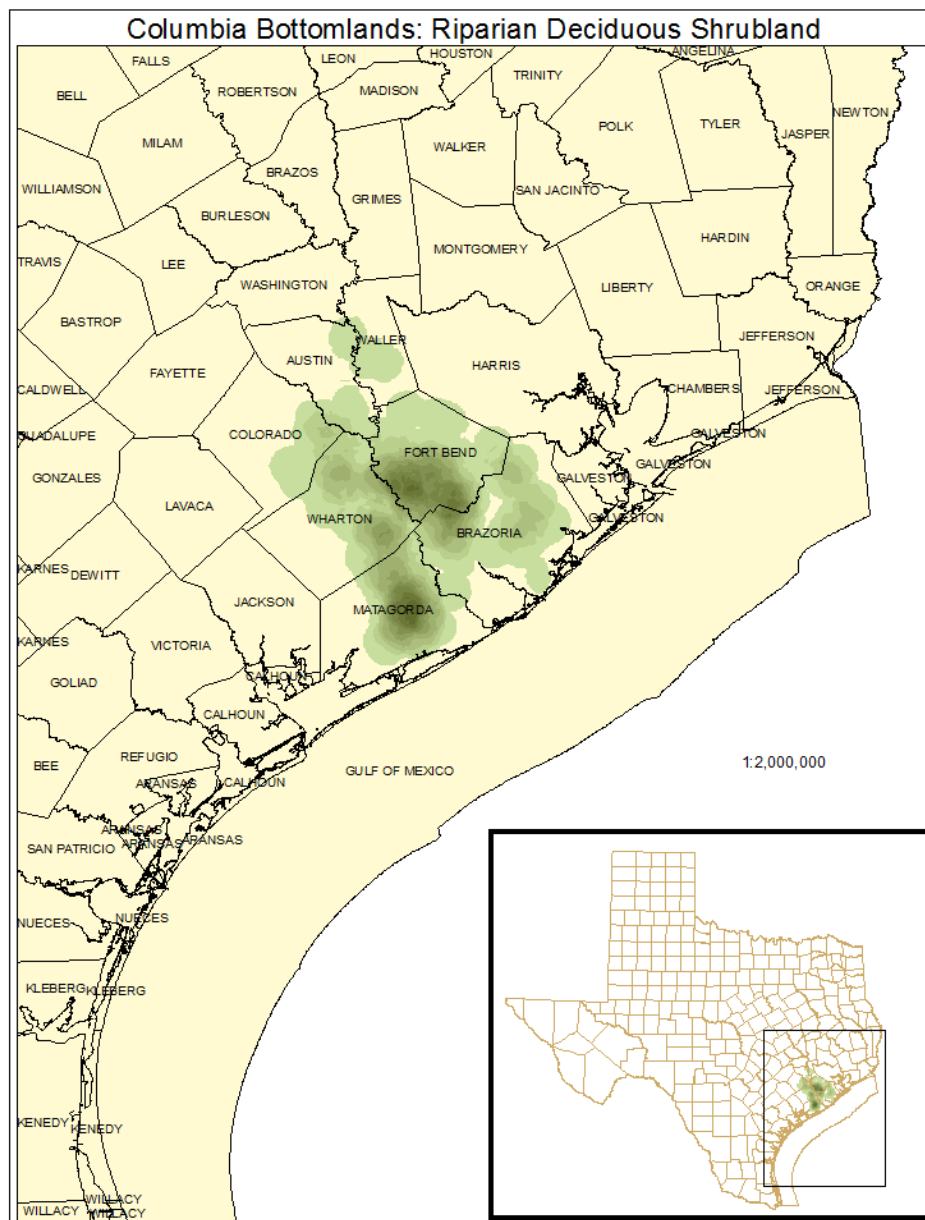
None.

COLUMBIA BOTTOMLANDS: RIPARIAN DECIDUOUS SHRUBLAND

Mapping System ID: 4716

EMS Description: Shrublands dominated by deciduous species along drainages that are outside of bottomland soils and are often the result of disturbance. Species such as *Sapindus saponaria* var. *drummondii* (western soapberry), *Cephalanthus occidentalis* (common buttonbush), *Cornus drummondii* (roughleaf dogwood), or *Sesbania drummondii* (rattlebox sesbania) may be dominant. Disturbed sites may be dominated by *Prosopis glandulosa* (honey mesquite), *Acacia farnesiana* (huisache), or *Triadica sebifera* (Chinese tallow).

Distribution Map:



Example:

Not available at this time.

Public Land Occurrence:

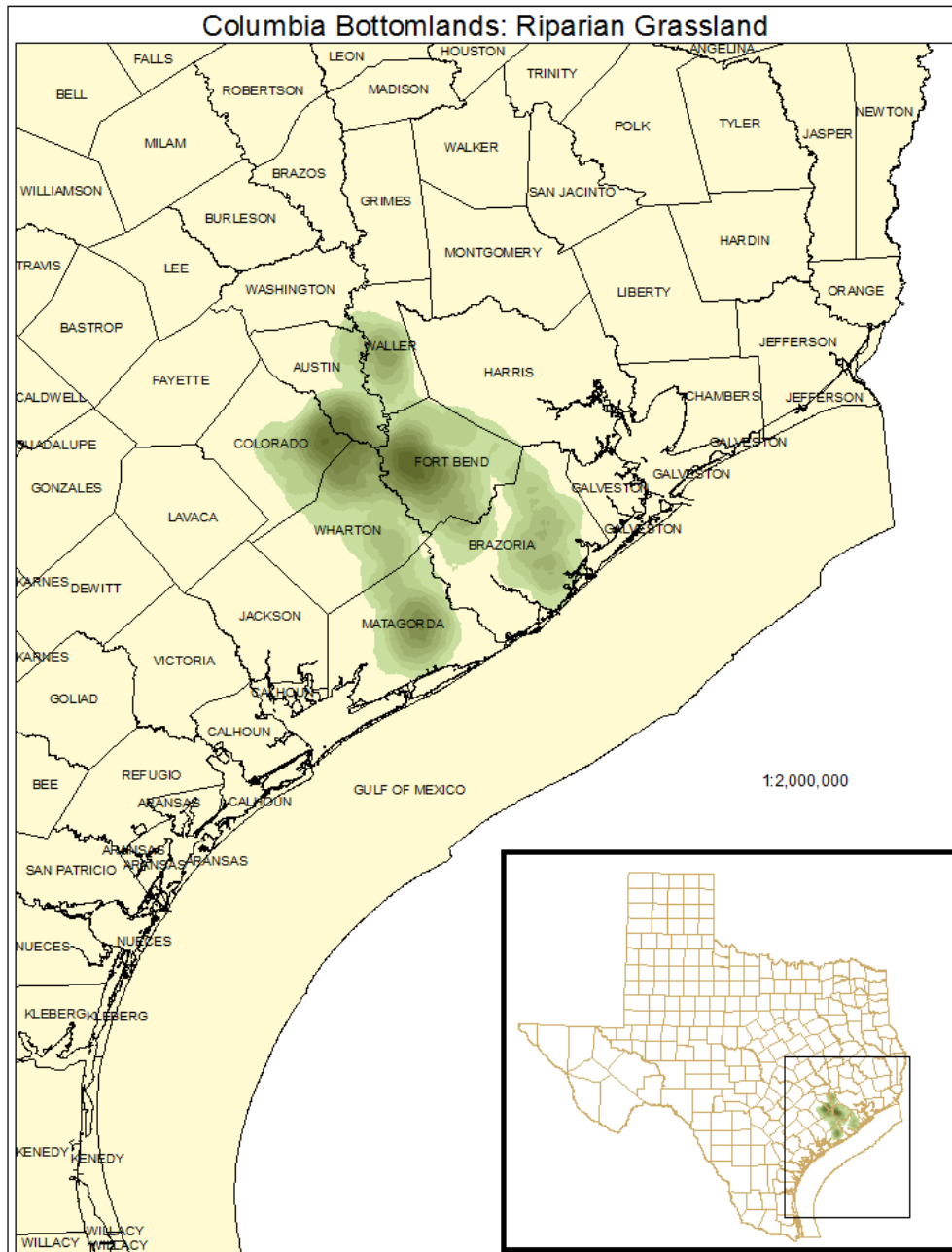
None.

COLUMBIA BOTTOMLANDS: RIPARIAN GRASSLAND

Mapping System ID: 4727

EMS Description: These are typically managed grasslands on upland drainages. Most are dominated by non-native species such as *Bothriochloa ischaemum* var. *songarica* (King Ranch bluestem), *Cynodon dactylon* (bermudagrass), *Paspalum notatum* (bahiagrass), and *Lolium perenne* (Egyptian ryegrass).

Distribution Map:



Example:



Public Land Occurrence:

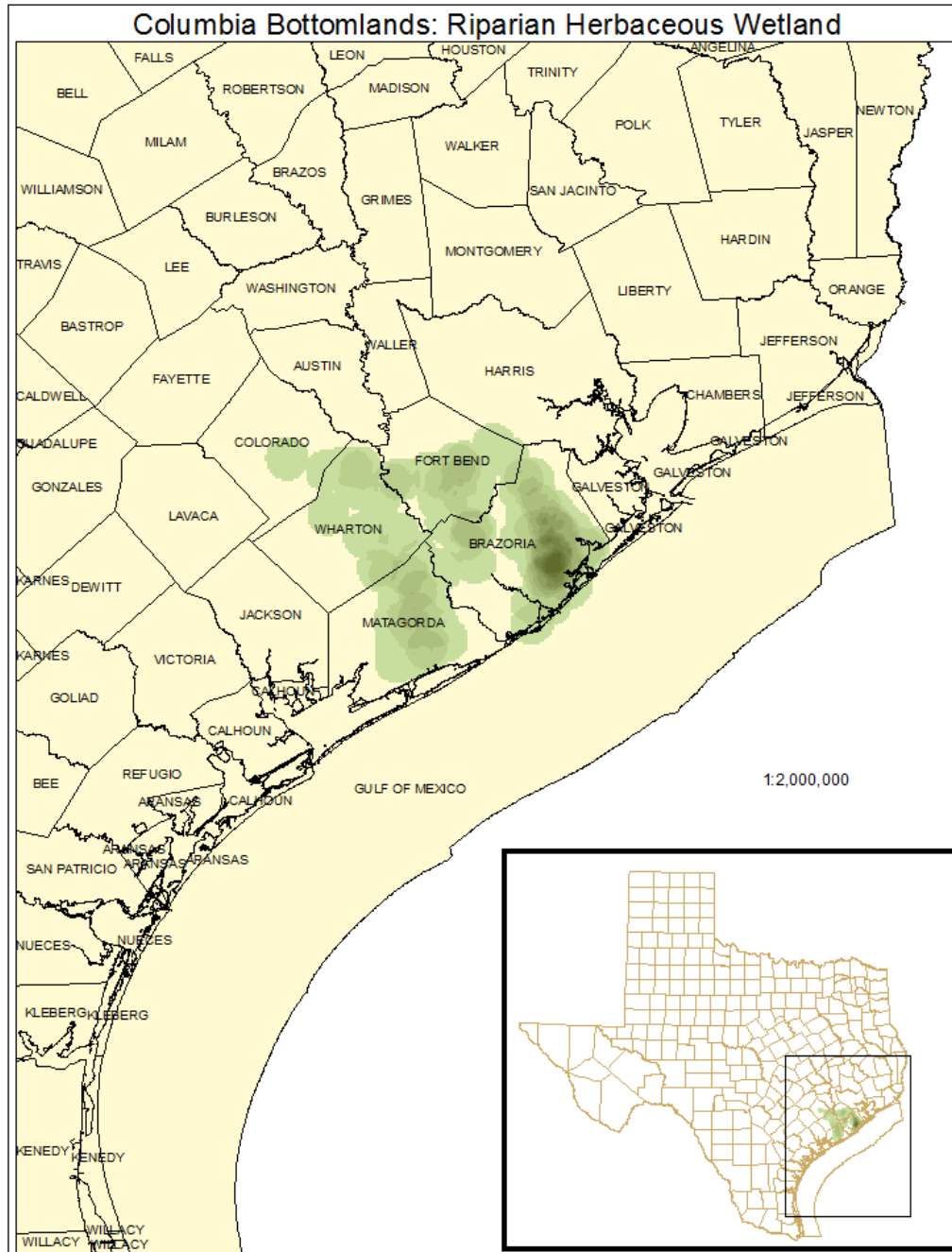
None.

COLUMBIA BOTTOMLANDS: RIPARIAN HERBACEOUS WETLAND

Mapping System ID: 4737

EMS Description: Herbaceous wetlands along upland drainages outside of bottomland soils. These wetlands are often dominated by sedges, rushes, and forbs such as *Polygonum* spp. (smartweeds).

Distribution Map:



Example:

Not available at this time.

Public Land Occurrence:

Brazoria National Wildlife Refuge: US Fish and Wildlife Service