

Ecological Mapping Systems Report- Russell Grasslands and Forest Preserve



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Submitted 2 February 2026



On August 20, 2025, a total of 16 points were surveyed on the Russell Preserve through independent efforts or with assistance from Mr. George Russell.



Figure 1: Site map of Russell preserve.

The Russell Preserve is in San Jacinto Co. on the Western stretch of Lake Livingston and is ~20 mi E of Huntsville, TX. This preserve features several smaller tracts that are either privately managed or conservation easements through the Texas Land Conservancy and Native Prairies Association of Texas. Across the 10 tracts shown, five contain at least one point describing the vegetation communities present. Each collected point measures species dominance for trees, shrubs, and herbs along with the cover of each stratum, general cover of broad-leaf vs needle-leaf evergreens, any recorded disturbance on the landscape, landcover, and an assigned EMS class. It is important to note that the described communities may not list all species present but rather is meant to describe the more prominent plants that can be related to a specific EMS class.

Northern Tracts



Figure 2: Map of points at Russell preserve prairie tract and beaver and otter sanctuary.

On the northern half of the preserve sits an intact calcareous prairie (fig.4) whose boundaries are evident from where the tree line begins. In this unique system, we can find a vast diversity of warm-season bunchgrasses like little bluestem (*Schizachyrium scoparium*), Indiangrass (*Sorghastrum nutans*), silver bluestem (*Bothriochloa laguroides*), and big bluestem (*Andropogon gerardii*) intermixed with other associated herbs including black-eyed Susan (*Rudbeckia hirta*), snow on the prairie (*Euphorbia bicolor*), beebalm (*Monarda punctata*), prairie tea (*Croton monanthogynus*), and common ragweed (*Ambrosia artemisiifolia*). Patches of yellow bluestem (*Bothriochloa ischaemum*) can occasionally be seen but remain more limited in its distribution. Woody cover is sparse (<5%) to non-existent where observed and often does not grow beyond the size of a pole tree due to shallow soil conditions. Since this prairie was surveyed in August 2025 (or post flowering season), it is important to note that this community is likely to experience drastic seasonal variation in its floral composition.

One plot on the SW corner of the prairie tract along FM 980 is especially unique when compared to other grassland sites. All points surveyed within the larger intact prairie exist on the Beaumont formation, a quartz-rich sandstone layer, whereas the inclusion is on a Fleming, a layer made up predominantly of calcareous and sand clays that overlay Catahoula sandstone. These heavier clay soils are floristically unique and capable of supporting taxa found in regions of central and North Texas. Certain species include warm season graminoids like little bluestem, hairy grama (*Bouteloua hirsuta*), and sideoats grama (*B. curtipendula*), as well as other herbs like scaly blazingstar (*Liatris squarrosa*), purple beardtongue (*Penstemon cobaea*), prairie bluets (*Stenaria nigricans*), beebalm (*Monarda spp.*), and pasture heliotrope (*Euploca tenella*) (see fig.3)



Figure 3: Fleming Prairie inclusion.



Figure 4: Southern Calcareous Mixedgrass Prairie.

Small 'Catahoula' barren inclusions (fig.5) can be observed near the edges of the larger prairie, which are represented by thinner loam soils with an underlying sandstone bedrock. Herbaceous cover varied extensively (50-75+%) but always exhibited some degree of bare ground exposure. Trees and shrubs remain limited in their ability to persist with only few species of prickly pear (*Opuntia spp.*) present. Herbaceous cover shared some species overlap with adjacent prairies areas, but also displayed hardier sandy groups adapted to endure xeric conditions like threeawn (*Aristida spp.*), Virginia Whitlow-wort

(*Paronychia virginica*), plains lovegrass (*Eragrostis intermedia*), compact prairie clover (*Dalea compacta*), and narrowleaf gumweed (*Grindelia lanceolata*). These communities remained relatively sparse across the property and often did not exceed 30 m² in size.



Figure 5: Catahoula barrens.



Figure 6: Open pine forest with yaupon dominated understory.

Wooded areas on the northern tract consisted largely of open pine forests (fig.6), particularly loblolly pine (*Pinus taeda*). Within these areas, shrubs and pole trees are relatively dense (50-75%) with yaupon holly (*Ilex vomitoria*) acting as a clear dominant followed by other species like American beautyberry (*Callicarpa americana*), American sweetgum (*Liquidamber styriflua*), cockspur hawthorn (*Crataegus crus-galli*), and honey locust (*Gleditsia triacanthos*). Herbs are widespread and include various grasses like beaked panicgrass (*Coleataenia anceps*), slender woodoats (*Chasmanthium laxum*), tridens (*Tridens spp.*), and other intermixed forbs. Depending on location, a few hardwood stands can be identified across higher elevations with drier tree species shown like post oak (*Quercus stellata*), winged elm (*Ulmus alata*), and shortleaf pine (*Pinus echinata*).

Southern Tracts

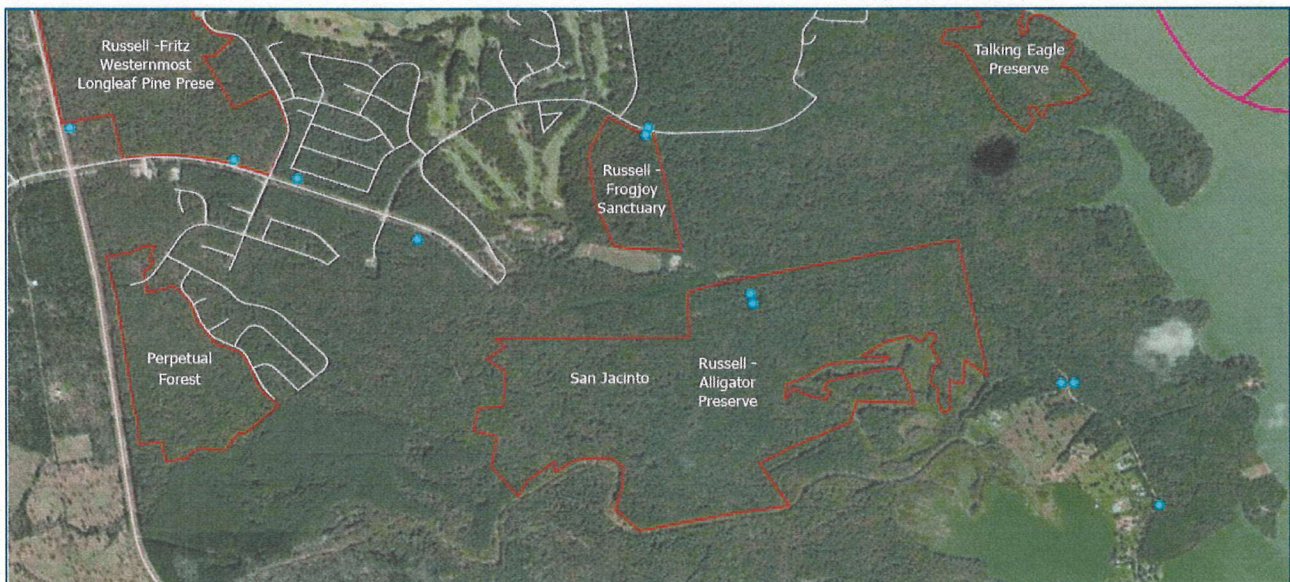


Figure 7: Map of points at Russell preserve longleaf, alligator, and frogjoy sanctuary tracts.

As you migrate east on Waterwood Parkway, the landscape gradually transitions into more hardwood and pine flatwood communities (fig.8) due to its flatter topography and presence of mesic hardwoods like willow oak (*Quercus phellos*), swamp laurel oak (*Quercus laurifolia*), green ash (*Fraxinus pennsylvanica*), and bottomland post oak (*Quercus similis*). Within these communities, moisture accumulation tends to be more consistent and is mainly driven by temporary or seasonal precipitation rather than streams and flood events. Shrubs are less frequently encountered (<25%) and consist of immature species found within the tree canopy, as well as dwarf palmetto (*Sabal minor*) and yaupon holly. Herbs follow a similar pattern with their sporadic cover of wetter species like slender woodoats, Cherokee sedge (*Carex cherokeensis*), hop sedge (*C. lupulina*), and cottonmouth grass (*Phanopyrum gymnocarpon*). Bare ground is often easily seen and widespread. The boundaries of these communities appear from the end of Waterwood Parkway to the edge of Lake Livingston and are restricted due to anthropogenic pressures such as residential development.

Just west of the flatwood areas described exists another noteworthy community within the Longleaf Pine Preserve tract where one can observe managed mature stands of longleaf pine (*Pinus palustris*). Aside from this predominant species, these woodlands can range in different pine and hardwood species including different oaks (*Quercus spp.*), American sweetgum, yaupon holly, and American beautyberry depending on the conditions present. Herb cover is generally more limited due to the density of woody species but includes slender woodoats, prairie blazingstar (*Liatris pycnostachya*), thinseed paspalum (*Paspalum setaceum*), and purpletop tridens (*Tridens flavus*).



Figure 8: Hardwood flatwood.



Figure 9: Longleaf pine forest.

Ecological Mapping Class Descriptions

Listed below are the EMS (Ecological Mapping Systems) descriptions that pertain to the Russell Preserve based on what was surveyed. As updates continue for the Pineywoods ecoregion, the communities described above will act as a tool to improve mapping accuracy for certain vegetation communities in future updates.

Note: Classes marked with an asterisk () were not specifically observed, however, the property may have once historically supported these classes prior to management.*

West Gulf Coastal Plain Catahoula Barrens

Identifier: CES203.364

Geology: Restricted to surface outcrops of the Oligocene Catahoula geologic formation, an often tuffaceous sandstone.

Landform: Generally level to gently undulating (but sometimes steep), with surface or near surface exposure of the underlying sandstone bedrock.

Soils: Shallow loams, such as Browndell –Rock outcrop. Soils may contain montmorillonitic clays. These thin soils can be extremely xeric during dry periods, but can also be saturated during wetter months.

Description: Vegetation associated with thin soils over the tuffaceous sandstone of the

Catahoula formation is primarily herbaceous. But where the soil is deeper, or fire is excluded for long periods, it can display significant woody cover, with usually stunted representatives of species such as *Pinus palustris* (longleaf pine), *Pinus taeda* (loblolly pine), *Pinus echinata* (shortleaf pine), *Quercus stellata* (post oak), *Quercus marilandica* (blackjack oak), and *Carya texana* (black hickory) dominating the canopy. Shrubs may form a patchy, discontinuous layer with species such as *Ilex vomitoria* (yaupon), *Morella cerifera* (wax-myrtle), *Vaccinium arboreum* (farkleberry), *Forestiera ligustrina* (elbowbush), *Gelsemium sempervirens* (Carolina jessamine), and *Crataegus* spp. (hawthorns) commonly encountered. Maintenance of fire in the landscape will reduce woody cover in these sites, with herbaceous dominated sites displaying increased species richness. On open sites, there may be exposed patches of bedrock or mineral soils, or areas of patchy cover of foliose and/or fruticose lichens. Open sites may have significant herbaceous cover, usually dominated by graminoid species such as *Schizachyrium scoparium* (little bluestem), *Sporobolus clandestinus* (rough dropseed), *Sporobolus silveanus* (Silveus' dropseed), *Schizachyrium tenerum* (slender bluestem), *Tridens strictus* (longspike tridens), *Scleria* spp. (nutrush), and/or *Aristida* spp. (threeawns). *Bigelowia nuttallii* (Nuttall's rayless golden-rod), *Plantago* spp. (plantains), *Minuartia drummondii* (Drummond sandwort), *Chaetopappa asteroides* (common leastdaisy), *Lechea san-sabeana* (San Saba pinweed), *Sabatia campestris* (meadow pink), *Croton michauxii* (narrowleaf rushfoil), *Croton monanthogynus* (doveweed), *Krameria lanceolata* (trailing ratany), *Selaginella arenicola* ssp. *riddellii* (Riddell's spikemoss), *Phemeranthus parviflorus* (prairie flameflower), and a variety of other herbaceous species may also be present. Several sensitive species

are associated with this system, including *Schoenolirion wrightii* (Texas sunnybell), *Spiranthes parksii* (Navasota ladies'-tresses), and *Liatris tenuis* (slender gayfeather). This system typically occurs as small patches and many occurrences were likely missed by the current mapping effort.

VEGETATION TYPES:

Pineywoods: Catahoula Herbaceous Barrens (4307)

West Gulf Coastal Plain Catahoula Herbaceous Barrens

Identifier: CES203.365.7 **MoRAP Code:** 4307

Description: Sites with no or, more commonly, scattered woody canopy.

West Gulf Coastal Plain Southern Calcareous Prairie

Identifier: CES203.379

Geology: Primarily associated with the Fleming Formation, a calcareous clay/sandstone of Miocene age. The Cook Mountain Formation, a marly Eocene formation, may also give rise to clays that support this system.

Landform: Occurs on upper slopes and broad uplands in gently undulating landscapes.

Soils: Circumneutral to moderately alkaline, vertic soils such as Ferris, Houston Black, or Wiergate clays.

Description: This graminoid-dominated system occurs within a landscape generally dominated by forest and woodland. It occupies deep vertic soils with circumneutral surface pH, a condition uncommon in the landscape of predominantly acidic, forested soils. Occurrences may reflect a relationship to the blackland prairie further to the west, within the Fayette Prairie, and some consider these small patch prairies to be outliers of the Blackland Tallgrass Prairie. The system may be dominated by species such as *Schizachyrium scoparium* (little bluestem), *Sorghastrum nutans* (Indiangrass), *Bothriochloa laguroides* ssp. *torreyana* (silver bluestem), *Bouteloua curtipendula* (sideoats grama), *Andropogon gerardii* (big bluestem), *Nassella leucotricha* (Texas wintergrass), *Paspalum pubiflorum* (hairyseed paspalum), and *Panicum virgatum* (switchgrass). Non-native grasses such as *Bothriochloa ischaemum* var. *songarica* (King Ranch bluestem), *Bromus arvensis* (Japanese brome), *Cynodon dactylon* (bermudagrass), and/or *Lolium perenne* (Italian ryegrass) may be conspicuous to dominant. Other herbaceous species that may be encountered include *Acacia angustissima* (prairie acacia), *Carex cherokeensis* (Cherokee sedge), *Croton monanthogynus* (doveweed), *Neptunia* sp. (neptunia), *Carex microdonta* (smalltooth sedge), *Grindelia lanceolata* (Gulf gumweed), *Rudbeckia missouriensis* (Missouri coneflower), *Rudbeckia hirta* (blackeyed susan), *Indigofera miniata* (scarlet-pea), *Arnoglossum plantagineum* (groovestem Indian plantain), *Euphorbia bicolor* (snow-on-the-prairie), *Dalea* spp. (prairieclovers), *Coreopsis tinctoria* (plains coreopsis), *Eustoma exaltatum* (tall prairie

gentian), and *Symphotrichum* spp. (asters). Various woody species from the surrounding landscape, including *Pinus taeda* (loblolly pine), *Ulmus alata* (winged elm), *Liquidambar styraciflua* (sweetgum), *Juniperus virginiana* (eastern redcedar), *Crataegus spathulata* (littlehip hawthorn), *Crataegus crus-galli* (cockspur hawthorn), *Sideroxylon lanuginosum* (gum bumelia), and others, may invade these prairies. Non-native woody species, such as *Rosa bracteata* (Macartney rose), may also invade. This may be a result of long-term fire suppression.

VEGETATION TYPE:

Pineywoods: Southern Calcareous Mixedgrass Prairie (4407)

West Gulf Coastal Plain Southern Calcareous Prairie

Identifier: CES203.379 **MoRAP:** 4407

Description: As described above.

West Gulf Coastal Plain Pine-Hardwood Forest

Identifier: CES203.378

Geology: This system is widespread and forms the matrix of the West Gulf Coastal Plain of Texas and therefore occurs on numerous Cenozoic sedimentary formations and some Cretaceous formations of the Mesozoic era. These formations range from sandstone, shale, alluvium, and conglomerate, to marl, with glauconitic formations (Weches) and tuffaceous formations (Catahoula) present.

Landform: The system occurs over a wide variety of landforms, with drier expressions occurring on hilltops and ridges. It occupies slopes and lower landscape positions, where conditions are more mesic, and composition of the system varies across these gradients.

Soils: Numerous soil types are occupied by this system, but are generally alfisols or ultisols. Soils most commonly encountered are sands and loams.

Description: This upland system forms the matrix over much of the West Gulf Coastal Plain. This is particularly the case outside of the range of *Pinus palustris* (longleaf pine). Within the range of *Pinus palustris* (longleaf pine), the historical matrix was often dominated by that species and should be mapped as West Gulf Coastal Plain Upland Longleaf Pine Forest and Woodland (CES203.293). However, given the current patchy distribution of *Pinus palustris* (longleaf pine), the prevalence of plantings of *Pinus taeda* (loblolly pine) and *Pinus elliottii* (slash pine), and the difficulty in identifying the system on the basis of remote-sensing data, we chose to include occurrences of this more restricted system within the West Gulf Coastal Plain Pine-Hardwood Forest. The system occupies a range of topographic and edaphic conditions, replaced by other systems in areas where unique abiotic conditions result in occurrences of other, more restricted, systems. Typical pines that dominate these sites are *Pinus taeda* (loblolly pine) and *Pinus echinata* (shortleaf pine), though *Pinus palustris* (longleaf pine) may

also be present to dominant, within its range. Historically, *Pinus echinata* (shortleaf pine) dominated drier sites, especially to the north. *Pinus taeda* (loblolly pine) was less dominant than in the current landscape, and occupied less dry sites and became more conspicuous to the south. Seventy-five percent or more of the canopy of some occurrences may be occupied by pines, often *Pinus taeda* (loblolly pine). Typical deciduous hardwoods conspicuous in this system include *Liquidambar styraciflua* (sweetgum), *Carya texana* (black hickory), *Quercus stellata* (post oak), *Quercus falcata* (southern red oak), *Quercus alba* (white oak), *Quercus nigra* (water oak), *Ulmus alata* (winged elm), *Ulmus crassifolia* (cedar elm), and *Nyssa sylvatica* (blackgum). Some sites may be primarily deciduous, with 75% or more of the canopy cover occupied by hardwoods. *Ilex vomitoria* (yaupon), saplings and seedlings of overstory species, *Callicarpa americana* (American beautyberry), *Morella cerifera* (wax-myrtle), *Vaccinium arboreum* (farkleberry), and *Cornus florida* (flowering dogwood) commonly occupy the shrub layer, which may be well-developed, with understory canopy cover to 40% or more. Woody vines in this system may be conspicuous and often include *Smilax bona-nox* (saw greenbrier), *Vitis* spp. (grape, often *Vitis rotundifolia* (muscadine grape)), *Parthenocissus quinquefolia* (Virginia creeper), and *Toxicodendron radicans* (poison ivy). The herbaceous layer is generally sparse (often < 20% cover), with *Schizachyrium scoparium* (little bluestem), *Chasmanthium laxum* (slender woodoats), *Chasmanthium sessiliflorum* (narrowleaf woodoats), and *Pteridium aquilinum* (brackenfern) often present to dominant. Forests with dense tree cover 53

(especially evergreen cover), have reduced shrub and herbaceous cover. Herbaceous cover may be additionally limited by dense litter accumulation. Few occurrences of this system can be considered old growth, and much of the system, as it is mapped, constitutes pine plantations or sites recovering from previous logging. *Pinus elliottii* (slash pine) may be used in some plantations.

VEGETATION TYPES:

Pineywoods: Pine Forest or Plantation (3001)

West Gulf Coastal Plain Dry-Mesic Pine Forest

Identifier: CES203.378.1 **MoRAP Code:** 3001

Description: This represents the typical type for the system where the canopy is dominated by pines. Many sites actually represent pine plantations and managed forests, and discriminating between natural pine forest and plantation is problematic using our mapping methods. More than half of the area mapped for this system is represented by this vegetation type, and *Pinus taeda* (loblolly pine) predominates.

Pineywoods: Upland Hardwood Forest (3004) *

West Gulf Coastal Plain Dry-Mesic Upland hardwood Forest

Identifier: CES203.378.4 **MoRAP Code:** 3004

Description: This is a commonly encountered vegetation type of the system, making up about a third of the areal extent of the system. It is dominated by deciduous hardwoods, but may (and often does) have some cover of pine, usually *Pinus taeda* (loblolly pine).

Pineywoods: Dry Pine Forest or Plantation (3011) *

West Gulf Coastal Plain Dry Pine Forest

Identifier: CES203.378.11 **MoRAP Code:** 3011

Description: This is the pine dominated vegetation type that occupies high landscape positions, such as hilltops and ridgetops. Relative to *Pinus taeda* (loblolly pine), *Pinus echinata* (shortleaf pine) tends to be better represented in this drier landscape position. Hardwood species of drier sites, such as *Quercus stellata* (post oak), *Quercus marilandica* (blackjack oak), *Liquidambar styraciflua* (sweetgum), and/or *Carya texana* (black hickory) may be present.

Pineywoods: Dry Upland Hardwood Forest (3014)

West Gulf Coastal Plain Dry Upland Hardwood Forest

Identifier: CES203.378.14 **MoRAP Code:** 3014

Description: This vegetation type has a deciduous dominated canopy and occupies high landscape positions.

West Gulf Coastal Plain Pine – Hardwood Flatwoods

Identifier: CES203.278

Geology: High Pleistocene terraces, mapped in the northern portion of East Texas as Quaternary Fluvial Terrace (or Tile) Deposits.

Landform: Very gently undulating to flat surfaces, with local topographic relief provided by ridges and swales.

Soils: Soils tend to be fine-textured. They typically have a somewhat impermeable subsurface horizon, which leads to a perched water table. Saturation results from local rainfall run-on, and alternates with seasonal drying, leading to a xerohydric hydroperiod.

Description: This system primarily occurs within the Flatwoods EPA Level IV ecoregion, but is also found associated with the Pleistocene Fluvial Terraces ecoregion in the northern portion of East Texas. This woodland or forest system is often dominated by more mesic species on interior ridges, including *Pinus taeda* (loblolly pine), *Pinus echinata* (shortleaf pine), *Pinus elliotii* (slash pine), *Quercus stellata* (post oak), *Quercus alba* (white oak), *Quercus falcata* (southern red oak), and *Carya texana* (black hickory). Within the range of *Pinus palustris* (longleaf pine), occurrences that represent West Gulf Coastal Plain Wet Longleaf Pine Savanna and Flatwoods may be mapped as this system. On the

somewhat wetter sites of the swales, species such as *Quercus nigra* (water oak), *Quercus phellos* (willow oak), *Quercus laurifolia* (laurel oak), *Nyssa sylvatica* (blackgum), *Liquidambar styraciflua* (sweetgum), and *Fraxinus pennsylvanica* (green ash) may be dominant. Sites that are even wetter would likely be mapped as West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods. *Triadica sebifera* (Chinese tallow) may invade this system. Mid-story species that may be encountered include *Acer rubrum* (red maple), *Ilex opaca* (American holly), *Ulmus alata* (winged elm), and small members of the overstory. *Morella cerifera* (wax-myrtle), *Ilex decidua* (possumhaw), and *Ilex vomitoria* (yaupon) are commonly encountered shrubs. Herbaceous cover is generally sparse, with species such as *Chasmanthium* spp. (woodoats), *Andropogon glomeratus* (bushy bluestem), and *Gelsemium sempervirens* (Carolina jessamine). Sites dominated by *Pinus taeda* (loblolly pine) or *Pinus elliottii* (slash pine) may often represent plantations or managed forests.

VEGETATION TYPES:

Pineywoods: Longleaf or Loblolly Pine Flatwoods or Plantation (4001)

West Gulf Coastal Pine Flatwoods Forest and Woodland

Identifier: CES203.278.1 **MoRAP Code:** 4001

Description: This mapped type on flatwoods sites are dominated by *Pinus taeda* (loblolly pine), *Pinus elliottii* (slash pine), and to a lesser extent, *Pinus echinata* (shortleaf pine). Within the range of *Pinus palustris* (longleaf pine), this type may represent occurrence of West Gulf Coastal Plain Wet Longleaf Pine Savanna and Flatwoods.

Pineywoods: Hardwood Flatwoods (4004)

West Gulf Coastal Plain Hardwood Flatwoods Forest and Woodland

Identifier: CES203.278.4 **MoRAP Code:** 4004

Description: This mapped type lacks significant evergreen canopy.

West Gulf Coastal Plain Small Stream and River Forest

Identifier: CES203.487

Geology: This system largely occurs on Quaternary Alluvium, but may also be found on other mapped geologic surfaces on drainages lacking significant alluvial development.

Landform: This system occupies small rivers, streams, creeks, and upland drainages. These sites tend to be higher in the watershed where less depositional activity occurs. The local geomorphological variation tends to be less than in the West Gulf Coastal Plain Large River Floodplain Forest.

Soils: This system occupies bottomland soils on small streams. Fewer sites are seasonally or semi-permanently flooded.

Description: This system, occupying the bottomlands of small rivers, streams, and creeks, is primarily dominated by hardwood species such as *Liquidambar styraciflua* (sweetgum), *Quercus nigra* (water oak), *Celtis laevigata* (sugar hackberry), *Fraxinus pennsylvanica* (green ash), *Betula nigra* (river birch), *Quercus phellos* (willow oak), *Quercus laurifolia* (laurel oak), *Ulmus americana* (American elm), *Ulmus crassifolia* (cedar elm), *Ulmus alata* (winged elm), *Quercus pagoda* (cherrybark oak), *Quercus falcata* (southern red oak), *Platanus occidentalis* (American sycamore) and *Acer rubrum* (red maple). *Pinus taeda* (loblolly pine), *Pinus elliottii* (slash pine), and/or *Juniperus virginiana* (eastern redcedar) may be present in the canopy, or occur as a sub-canopy stratum. Wetter sites tend to be dominated by more flood-tolerant species such as *Taxodium distichum* (baldcypress), *Nyssa aquatica* (water tupelo), *Gleditsia aquatica* (water honeylocust), *Carya aquatica* (water hickory), *Quercus lyrata* (overcup oak), *Quercus similis* (bottomland post oak), *Planera aquatica* (water elm), and *Quercus phellos* (willow oak). Shrubs may form dense patches with species such as *Cephalanthus occidentalis* (common buttonbush) or *Planera aquatica* (water elm). The understory of forests may be made of species common to the canopy. Other understory and shrub species that may be common include *Carpinus caroliniana* (American hornbeam), *Ostrya virginiana* (American hop-hornbeam), *Morus rubra* (red mulberry), *Ilex decidua* (possumhaw), *Sabal minor* (dwarf palmetto), *Ilex opaca* (American holly), *Ilex vomitoria* (yaupon), *Morella cerifera* (wax-myrtle), *Callicarpa americana* (American beautyberry), *Itea virginica* (Virginia sweetspire), *Arundinaria gigantea* (giant cane), *Alnus serrulata* (smooth alder), and/or *Maclura pomifera* (bois d'arc). Early successional woodlands may be mapped as shrublands, due to reduced woody cover. These sites may be dominated by early successional species such as *Salix nigra* (black willow), *Gleditsia triacanthos* (common honeylocust), *Platanus occidentalis* (American sycamore), or *Ulmus alata* (winged elm). Non-native woody species that may be present include *Triadica sebifera* (Chinese tallow), *Lonicera japonica* (Japanese honeysuckle), and *Ligustrum* spp. (privets). Woody vines may be conspicuous and include *Berchemia scandens* (Alabama supplejack), *Toxicodendron radicans* (poison ivy), *Brunnichia ovata* (eardrop vine), *Smilax bona-nox* (saw greenbrier), and *Ampelopsis arborea* (peppervine). The herbaceous layer may be well developed in some cases. Non-natives such as *Cynodon dactylon* (bermudagrass), *Lolium perenne* (Italian ryegrass), *Paspalum notatum* (Bahia grass), and *Sorghum halepense* (Johnsongrass) may be dominant. Native herbaceous species of this system include *Chasmanthium laxum* (slender woodoats), *Chasmanthium latifolium* (creek oats), *Dichantheium* spp. (rosette grasses), *Carex cherokeensis* (Cherokee sedge), *Boehmeria cylindrica* (false nettle), *Polygonum* spp. (smartweeds), *Ambrosia trifida* (giant ragweed), *Xanthium strumarium* (cocklebur), *Paspalum floridanum* (Florida paspalum), *Leersia* spp. (cutgrasses), *Tripsacum dactyloides* (eastern gamagrass), *Panicum virgatum* (switchgrass), *Elymus virginicus* (Virginia wildrye), and *Geum canadense* (white avens).

VEGETATION TYPES:

Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest (4804)

West Gulf Coastal Plain Small Stream and River Temporarily Flooded Deciduous Forest

Identifier: CES203.487.4 **MoRAP Code:** 4804

Description: This is the prevalent mapped type for this system, with typical dominant species including *Liquidambar styraciflua* (sweetgum), *Quercus nigra* (water oak), *Celtis laevigata* (sugar hackberry), *Ulmus crassifolia* (cedar elm), and *Fraxinus pennsylvanica* (green ash). Many other hardwood species as mentioned above may be found at these sites.

Observed Plant List

Scientific Name	Common name	Plant type
<i>Ambrosia artemisiifolia</i>	Common ragweed	Annual forb
<i>Andropogon gerardii</i>	Big bluestem	Perennial grass
<i>Aristida</i> sp.	Unknown Threeawn	-
<i>Bothriochloa ischaemum</i>	Old world/ yellow bluestem	Perennial grass
<i>Bothriochloa laguroides</i>	Silver bluestem	Perennial grass
<i>Bouteloua curtipendula</i>	Sideoats grama	Perennial grass
<i>Callicarpa americana</i>	American beautyberry	Cold deciduous shrub
<i>Carex cherokeensis</i>	Cherokee sedge	Perennial sedge
<i>Carex lupulina</i>	Hop sedge	Perennial sedge
<i>Celtis laevigata</i>	Sugar hackberry	Cold deciduous tree
<i>Chasmanthium laxum</i>	Slender woodoats	Perennial grass
<i>Coleataenia anceps</i>	Beaked panicgrass	Perennial grass
<i>Crataegus crus-galli</i>	Cockspur hawthorn	Cold deciduous tree
<i>Crataegus marshallii</i>	Parsley hawthorn	Cold deciduous tree
<i>Croton capitatus</i>	Hogwort	Annual herb
<i>Croton monanthogynus</i>	Prairie tea	Annual herb
<i>Dalea compacta</i>	Compact prairie clover	Perennial herb
<i>Eragrostis intermedia</i>	Plains lovegrass	Perennial grass
<i>Euphorbia bicolor</i>	Snow on the prairie	Perennial herb
<i>Fraxinus pennsylvanica</i>	Green ash	Cold deciduous tree
<i>Fraxinus</i> sp.	Unknown Ash species	-
<i>Fuirena simplex</i>	Western umbrella sedge	Perennial graminoid
<i>Gleditsia triacanthos</i>	Honey locust	Cold deciduous tree
<i>Grindelia lanceolata</i>	Narrowleaf gumweed	Perennial herb
<i>Hypericum drummondii</i>	Drummon's St. John's-wort	Perennial herb
<i>Ilex decidua</i>	Possumhaw	Cold deciduous tree or shrub
<i>Ilex vomitoria</i>	Yaupon holly	Broad-leaf evergreen shrub
<i>Leersia virginica</i>	White cutgrass	Perennial grass
<i>Liatris pycnostachya</i>	Prairie blazingstar	Perennial herb
<i>Liatris squarrosa</i>	Scaly blazingstar	Perennial herb
<i>Liquidambar styraciflua</i>	American sweetgum	Cold deciduous tree
<i>Monarda punctata</i>	Spotted beebalm	Perennial herb
<i>Nassella leucotricha</i>	Texas wintergrass	Perennial grass
<i>Opuntia humifusa</i>	Low pricklypear	Cactus

Ostrya virginiana	American hophornbeam	Cold deciduous tree
Paronychia virginica	Virginia Whitlow-wort	Perennial herb
Paspalum floridanum	Florida paspalum	Perennial grass
Paspalum setaceum	Thin paspalum	Perennial grass
Penstemon cobaea	Purple beardtongue	Perennial herb
Phanopyrum gymnocarpon	Cottonmouth grass	Perennial grass
Pinus echinata	Shortleaf pine	Needle-leaf evergreen tree
Pinus palustris	Longleaf pine	Needle-leaf evergreen tree
Pinus taeda	Loblolly pine	Needle-leaf evergreen tree
Quercus alba	White oak	Cold deciduous tree
Quercus falcata	Southern red oak	Cold deciduous tree
Quercus laurifolia	Swamp laurel oak	Broad-leaf evergreen tree
Quercus pagoda	Cherrybark oak	Cold deciduous tree
Quercus phellos	Willow oak	Cold deciduous tree
Quercus similis	Bottomland post oak	Cold deciduous tree
Quercus stellata	Post oak	Cold deciduous tree
Rhynchospora caduca	Anglestem beaksedge	Perennial sedge
Rubus trivialis	Southern dewberry	Cold deciduous shrub
Rudbeckia hirta	Black-eyed Susan	Annual or biennial forb
Sabal minor	Dwarf palmetto	Broad-leaf evergreen shrub
Schizachyrium scoparium	Little bluestem	Perennial grass
Sideroxylon lanuginosum	Gum bumelia	Cold deciduous tree
Sorghastrum nutans	Indiangrass	Perennial grass
Stenaria nigricans	Diamondflowers	Perennial herb/forb/subshrub
Triadica sebifera	Chinese tallow	Cold deciduous tree
Tridens flavus	Purpletop tridens	Perennial grass
Tridens strictus	Longspike tridens	Perennial grass
Ulmus alata	Winged elm	Cold deciduous tree
Ulmus americana	American elm	Cold deciduous tree
Ulmus sp.	Unknown elm species	-
Verbena xutha	Gulf vervain	Perennial Herb
Vitis mustangensis	Mustang grape	Cold deciduous vine

Note: The species listed do not encapsulate the entirety of each vegetation community surveyed, but rather the dominant species that were more often encountered.

Additional Photos



Carex lupulina (Hop sedge)



Verbena xutha (Gulf vervain)



Paronychia virginica (Virginia whitlow-wort)



Opuntia humifusa (Low pricklypear)