

and loss due to the continued increase in the population growth and associated development throughout Louisiana are some of the greatest threats to the state's wildlife and fisheries species. However, in areas which are experiencing population declines, the potential for habitat improvements for many of Louisiana's wildlife and fish species should be greater.

C. Recent Trends in Consumptive and Non-consumptive Recreational Use in Louisiana

Sportspersons and wildlife watchers across the United States spend \$110 billion annually, 1.1 percent of the Nation's gross domestic product. In the southeastern region of the country, 19 percent of the population identify themselves as anglers, 9 percent are hunters, and 25 percent of the population participates in wildlife viewing activities (USDI et al. 2003).

Data provided by the latest National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (USDI et al. 2003) show that for the year 2001, 1.6 million people participated in fishing, hunting, and wildlife-watching activities in Louisiana. These activities resulted in roughly \$1.6 billion in expenditures with the majority spent on equipment (58%) and trip-related (36%) expenses. A total of 970,000 sportspersons participated in fishing and 12.1 million recreational fishing trips were made. Total expenditures were \$703 million with 57% trip-related, 39% for equipment, and 5% for other expenses. A total of 333,000 sportspersons participated in hunting and 6.3 million hunting trips were made. Total hunting expenditures were \$446 million with 61% spent on equipment, 27% trip-related, and 12% for other expenses. A total of 935,000 people participated in wildlife-watching activities and 2.4 million trips were made. Total expenditures were \$168 million with 58% spent on equipment, 33% trip-related and 9% for other expenses.

D. Ecological Regions and Aquatic Drainage Basins in the State

1. Terrestrial Systems:

Louisiana contains a highly diverse ecological landscape and the physiographic distribution of species often corresponds to ecological boundaries. Areas which share similar ecological attributes such as vegetation, soils, geology, climate, hydrology, and wildlife can be classified as ecoregions. Using an ecoregion approach to conservation planning will allow LDWF to facilitate the implementation of the CWCS by identifying research and information needs, assessing environmental resources, determining regional conservation goals, and maximizing to the extent possible the limited agency resources currently available for species of conservation concern. For terrestrial species and habitats this strategy will follow the ecoregional habitat classification developed by The Nature Conservancy (TNC), which is adapted from Bailey (1995) and modified by the LNHP (Fig. 2.3).

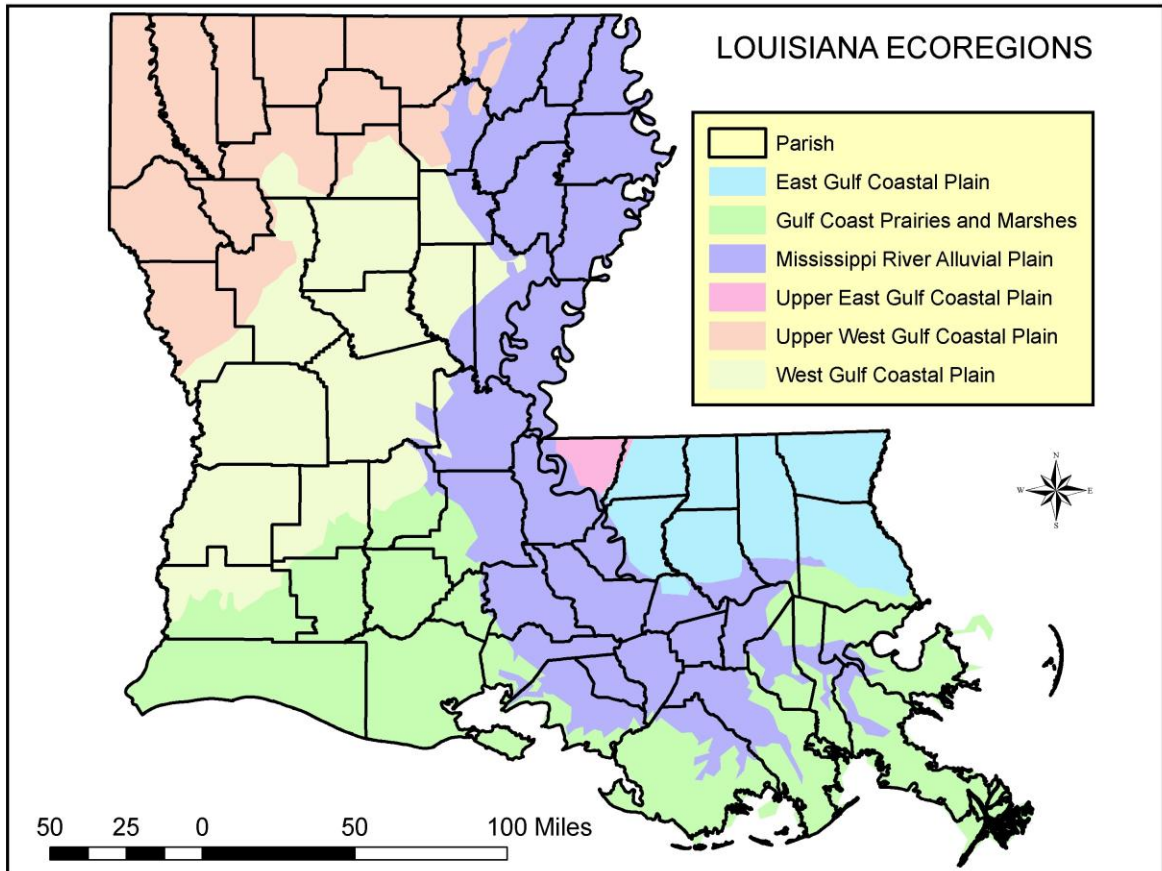


Figure 2.3. Ecoregions of Louisiana.

a. East Gulf Coastal Plain

The East Gulf Coastal Plain (EGCP) ecoregion extends from southwestern Georgia across western Florida, southern Alabama, and Mississippi, and into the Florida Parishes of Louisiana. It occurs in all or parts of East Feliciana, East Baton Rouge, Ascension, Livingston, St. Helena, Tangipahoa, St. Tammany, and Washington Parishes (Fig. 2.4). There is a transition of natural community types across this ecoregion. The western parishes of East Baton Rouge, Livingston, and Ascension contain influences from the Mississippi River Alluvial Plain with some Bottomland Hardwood Forests. Also in these three parishes are the Spruce Pine – Hardwood Flatwoods that appear to be a transition type between the bottomland forests and longleaf

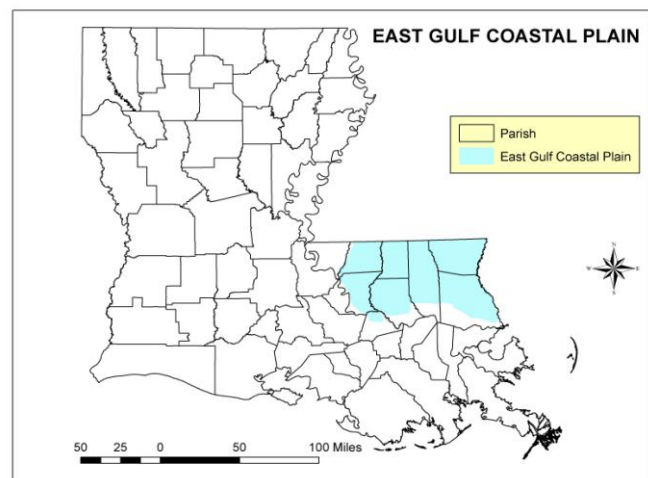


Figure 2.4. East Gulf Coastal Plain Ecoregion.

pine savannahs (Smith 1996). Eastern Longleaf Pine Savannahs, along with the Live Oak – Pine – Magnolia Forests, were once one of the predominant natural community types in the southeastern Florida Parishes. Also found in the EGCP are the Eastern Upland Longleaf Pine Forests, Eastern Hillside Seepage Bogs, and Slash Pine – Pondcypress – Hardwood Forests. Cypress Swamps, Small Stream Forests, and Bayhead Swamps occur throughout the ecoregion. Table 2.1 lists all of the habitats within the ecoregion and the number of species of conservation concern occurring within each habitat.

Table 2.1. Habitats and associated terrestrial species of conservation concern, by taxa, found in the East Gulf Coastal Plain ecoregion.

| Habitat | Amphibian | Bird | Butterfly | Mammal | Reptile | Total |
|--|-----------|------|-----------|--------|---------|-------|
| Eastern Longleaf Pine Savannah | 8 | 14 | 2 | 5 | 8 | 37 |
| Eastern Upland Longleaf Pine Forest | 4 | 13 | 1 | 5 | 10 | 33 |
| Mixed Hardwood-Loblolly Pine/Hardwood Slope Forest | 4 | 14 | 2 | 6 | 7 | 33 |
| Shortleaf Pine/Oak-Hickory Forest | 0 | 18 | 4 | 5 | 2 | 29 |
| Bottomland Hardwood Forest | 2 | 16 | 2 | 5 | 3 | 28 |
| Small Stream Forest | 2 | 14 | 3 | 5 | 2 | 26 |
| Agriculture/Cropland/Grassland | 0 | 12 | 6 | 4 | 0 | 22 |
| Slash Pine-Pond Cypress-Hardwood Forest | 7 | 11 | 0 | 3 | 1 | 22 |
| Live Oak-Pine-Magnolia Forest | 1 | 11 | 0 | 3 | 4 | 19 |
| Bayhead Swamp/Forested Seep | 2 | 12 | 1 | 3 | 0 | 18 |
| Cypress-Tupelo-Blackgum Swamp | 1 | 10 | 1 | 4 | 1 | 17 |
| Spruce Pine-Hardwood Flatwood | 3 | 3 | 1 | 4 | 2 | 13 |
| Eastern Hillside Seepage Bog | 2 | 3 | 1 | 2 | 0 | 8 |

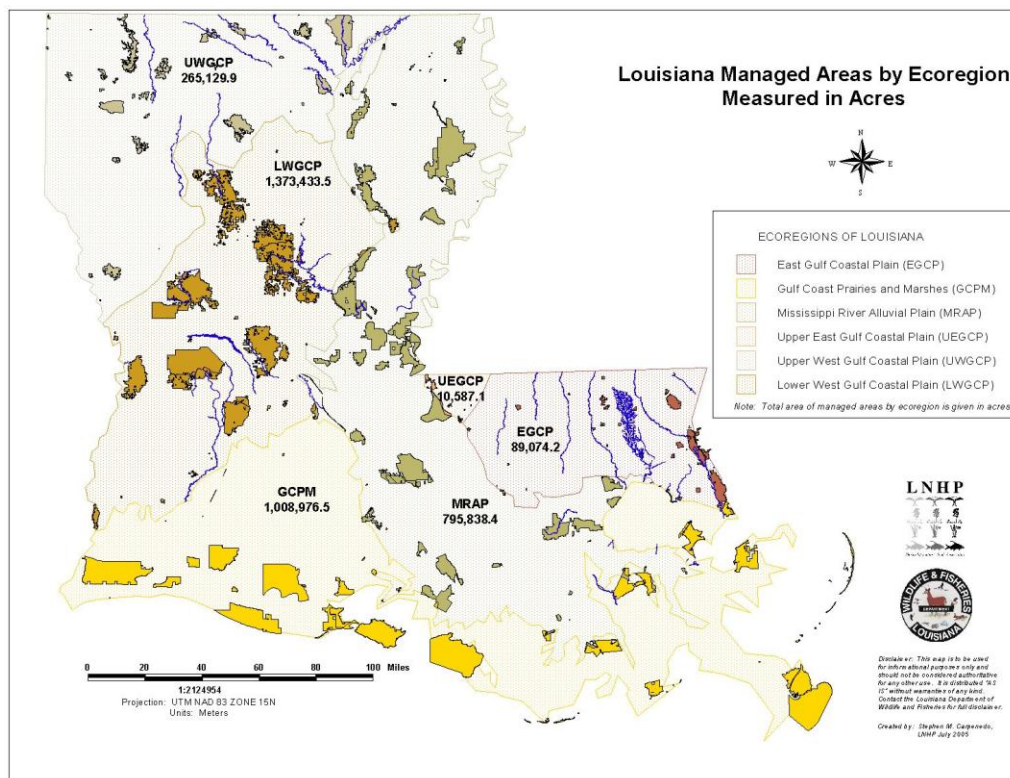


Figure 2.5. Managed areas and scenic streams in Louisiana.

Managed areas within Louisiana comprise 3.5 million acres and are found in all ecoregions of the state (Fig.2.5, Appendix A). In the EGCP, federal lands include Camp Villere National Guard Base, Bogue Chitto National Wildlife Refuge (NWR) and the northern parts of Big Branch Marsh NWR. Wildlife Management Areas include Hutchinson Creek, Sandy Hollow, Ben's Creek, Waddill, Lake Ramsey Savannah, Tangipahoa Parish School Board, and Pearl River. State parks include Tickfaw, Fairview-Riverside, and Fontainebleau. State historic sites include Port Hudson and Centenary.

As one of Louisiana's fastest growing areas, the EGCP will continue to experience the pressures of urban expansion and this poses the toughest challenge in balancing the needs of wildlife with that of humans. Population estimates from the 2000 census totaled 870,000 and is projected to increase by 8% to 945,000 in 2005 and by 15% to over 1 million by 2010 (LDED 2004).

b. Upper East Gulf Coastal Plain

The Upper East Gulf Coastal Plain (UEGCP) ecoregion includes portions of five states from western Kentucky and Tennessee down through Mississippi and Alabama and into Louisiana where a very small portion extends into West Feliciana Parish (Fig. 2.6). Within this small area of the state, Southern Mesophytic Hardwood Forest is the predominant natural community type that developed on loess hills with steep ravines and intermittent or spring-fed streams. Other associated community types include Hardwood Slope Forests and Mixed Hardwood –

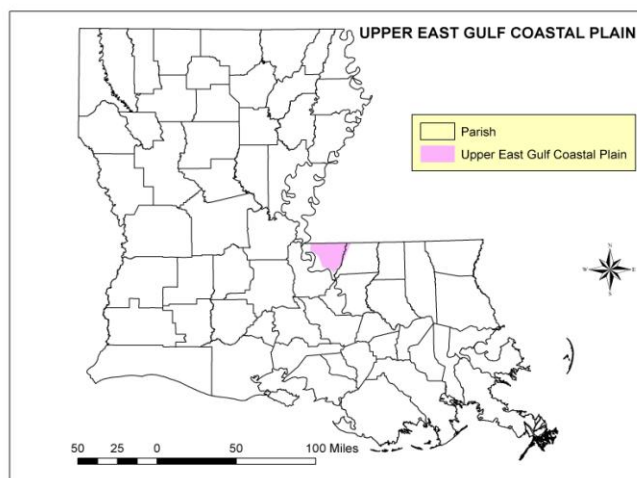


Figure 2.6. Upper East Gulf Coastal Plain Ecoregion.

Loblolly Forests. Bottomland Hardwood Forests, Small Stream Forests, and Cypress Swamps also are found in low-lying areas of this ecoregion with level to gentle topography. Table 2.2 lists all of the habitats within the ecoregion addressed within the strategy along with the number of species of conservation concern occurring within these habitats. The only state-managed area is Tunica Hills WMA. State historic sites include Locust Grove and Audubon (Fig. 2.5, Appendix A).

Table 2.2. Habitats and associated terrestrial species of conservation concern, by taxa, found in the Upper East Gulf Coastal Plain ecoregion.

| Habitat | Amphibian | Bird | Butterfly | Mammal | Reptile | Total |
|-------------------------------------|-----------|------|-----------|--------|---------|-------|
| Southern Mesophytic Hardwood Forest | 3 | 11 | 2 | 6 | 2 | 24 |
| Small Stream Forest | 1 | 14 | 1 | 5 | 1 | 22 |
| Agriculture/Cropland/Grassland | 0 | 14 | 3 | 3 | 0 | 20 |

c. Mississippi River Alluvial Plain

The Mississippi River Alluvial Plain (MRAP) ecoregion extends from the very southern tip of Illinois down through southeastern Missouri, encompasses all of eastern Arkansas, the delta region of Mississippi and into northeast Louisiana then south following the Mississippi River to where its bottomland forests meet the coastal marshes. The ecoregion includes all or portions of East Carroll, West Carroll, Morehouse, Ouachita, Richland, Madison, Franklin, Caldwell, Tensas, Catahoula, LaSalle, Concordia, Avoyelles,

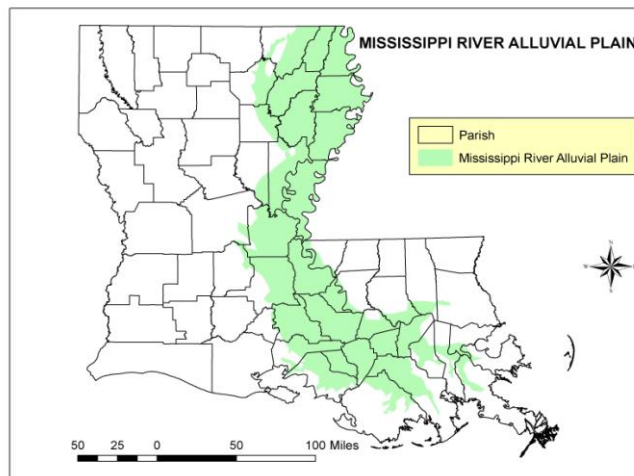


Figure 2.7. Mississippi River Alluvial Plain Ecoregion.

Rapides, Evangeline, St. Landry, Pointe Coupee, West Feliciana, West Baton Rouge, East Baton Rouge, Iberville, St. Martin, Lafayette, Iberia, St. Mary, Assumption, Terrebonne, Lafourche, St. James, Ascension, St. John the Baptist, Livingston, Tangipahoa, St. Charles, Jefferson, Orleans, Plaquemines, and St. Bernard Parishes (Fig. 2.7). The MRAP, rich in alluvial sediments, is known primarily for Bottomland Hardwood Forest natural community types as well as associated Cypress and Cypress-Tupelo Swamps. In addition, the northeastern portion of this ecoregion contains both Wet and Mesic Hardwood Flatwoods which are found on Macon Ridge. Table 2.3 lists all of the habitats within the ecoregion and the number of species of conservation concern occurring within each habitat.

Table 2.3. Habitats and associated terrestrial species of conservation concern, by taxa, found in the Mississippi River Alluvial Plain ecoregion.

| Habitat | Amphibian | Bird | Butterfly | Mammal | Reptile | Total |
|--------------------------------|------------------|-------------|------------------|---------------|----------------|--------------|
| Agriculture/Cropland/Grassland | 1 | 24 | 1 | 4 | 0 | 30 |
| Bottomland Hardwood Forest | 2 | 17 | 1 | 5 | 2 | 27 |
| Batture | 0 | 14 | 0 | 1 | 2 | 17 |
| Cypress-Tupelo-Blackgum Swamp | 1 | 10 | 1 | 4 | 1 | 17 |
| Hardwood Flatwoods | 1 | 10 | 0 | 5 | 1 | 17 |
| Live Oak Natural Levee Forest | 0 | 14 | 0 | 1 | 1 | 16 |
| Sandbars | 0 | 3 | 0 | 0 | 2 | 5 |

Federal lands include Indian Bayou WMA (COE), Black Bayou Lake, Handy Break, Tensas River, Bayou Cocodrie, Catahoula Lake, Lake Ophelia, Grand Cote, Cat Island, Atchafalaya, and Bayou Teche NWRs. Wildlife Management Areas include Bayou Macon, Big Colewa Bayou, Floy McElroy, Russell Sage, Ouachita, Big Lake, Buckhorn,

Boeuf, Dewey W. Wills, Red River, Three Rivers, Grassy Lake, Spring Bayou, Pomme De Terre, Thistlethwaite, Sherburne, Joyce, Manchac, Maurepas Swamp, Attakapas Island, and Elm Hall. State parks include Chemin A Haut, Lake Bruin, Lake Fausse Point, and Cypremort Point. State historic sites include Poverty Point, Winter Quarters, Marksville, and Longfellow-Evangeline (Fig. 2.5, Appendix A).

d. Upper West Gulf Coastal Plain

The Upper West Gulf Coastal Plain (UWGCP) ecoregion extends from south-central and southwestern Arkansas over to the extreme southeastern portion of Oklahoma and down into eastern Texas east to parts of northeastern Louisiana. It occurs in all or portions of Caddo, Bossier, Webster, Claiborne, Union, Morehouse, Ouachita, Lincoln, Jackson, Bienville, Natchitoches, Red River, Sabine, and DeSoto Parishes (Fig. 2.8).

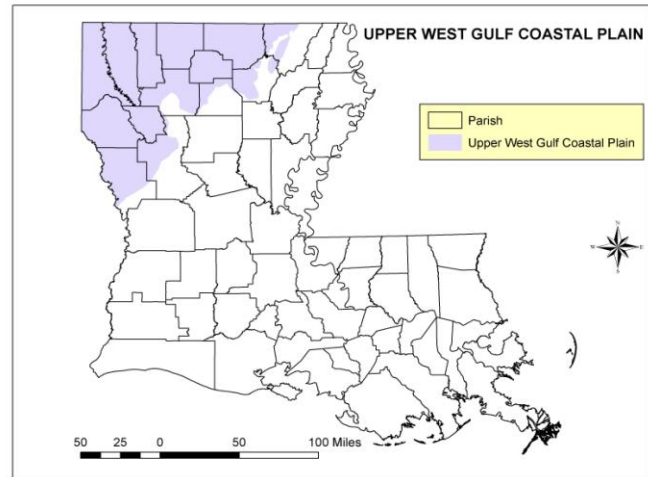


Figure 2.8. Upper West Gulf Coastal Plain Ecoregion.

The UWGCP was once recognized as the Shortleaf Pine – Oak – Hickory region of Louisiana, existing on sandy and clayey uplands above the range of longleaf pine in the West Gulf Coastal Plain (Newton, 1972). Upon settlement, the majority of the shortleaf pine was logged and has been replaced most recently by loblolly pine plantations. However, some natural stands of Shortleaf Pine - Oak - Hickory Forest still exist in this ecoregion. Western Xeric Sandhill Woodlands occur on xeric sands in the UWGCP. Hardwood Slope Forests and Mixed Hardwood - Loblolly Forests develop on more mesic conditions. Wet bottomlands include natural communities such as: Forested Seeps, Bayhead Swamps, Small Stream Forests, Bottomland Hardwood Forests, and Cypress Swamps. Table 2.4 lists all of the habitats within the ecoregion and the number of species of conservation concern occurring within each habitat.

Federal lands include the upper parts of Red River, Upper Ouachita, and D'Arbonne NWRs, the Caney Ranger District of Kisatchie National Forest (KNF), and the East Range of Barksdale Air Force Base (AFB). Wildlife Management Areas include Soda Lake, Bayou Pierre, Loggy Bayou, Jackson-Bienville, and Sabine. State Parks include Lake Claiborne, Lake D'Arbonne, Lake Bistineau, and North Toledo Bend. State historic sites include Mansfield, Los Adaes, and Fort Jessup (Fig. 2.5, Appendix A).

Table 2.4. Habitats and associated terrestrial species of conservation concern, by taxa, found in the Upper West Gulf Coastal Plain ecoregion.

| Habitat | Amphibian | Bird | Butterfly | Mammal | Reptile | Total |
|---|-----------|------|-----------|--------|---------|-------|
| Shortleaf Pine/Oak-Hickory Forest | 2 | 20 | 6 | 5 | 4 | 37 |
| Agriculture/Cropland/Grassland | 2 | 20 | 6 | 3 | 1 | 32 |
| Mixed Hardwood-Loblolly Pine/ Hardwood Slope Forest | 2 | 17 | 5 | 5 | 3 | 32 |
| Western Upland Longleaf Pine Forest | 3 | 13 | 6 | 5 | 4 | 31 |
| Small Stream Forest | 3 | 15 | 3 | 6 | 1 | 28 |
| Bottomland Hardwood Forest | 4 | 15 | 1 | 3 | 3 | 26 |
| Bayhead Swamp/ Forested Seep | 1 | 12 | 3 | 3 | 0 | 19 |
| Cypress-Tupelo-Blackgum Swamp | 1 | 10 | 0 | 3 | 1 | 15 |
| Western Xeric Sandhill Woodland | 1 | 7 | 2 | 1 | 4 | 15 |
| Hardwood Flatwoods | 1 | 9 | 0 | 3 | 1 | 14 |
| Calcareous Prairie | 0 | 5 | 3 | 2 | 1 | 11 |
| Calcareous Forest | 0 | 4 | 0 | 1 | 1 | 6 |
| Saline Prairie | 0 | 3 | 0 | 2 | 1 | 6 |

e. Lower West Gulf Coastal Plain

The Lower West Gulf Coastal Plain (LWGCP) ecoregion occurs from central Louisiana into eastern Texas. It includes all or portions of Ouachita, Jackson, Caldwell, Catahoula, LaSalle, Rapides, Avoyelles, Evangeline, Allen, Jefferson Davis, Calcasieu, Beauregard, Vernon, Sabine, Natchitoches, Grant, Winn, and Bienville Parishes (Fig. 2.9). This ecoregion is distinguished by a wide range of natural community types but is primarily known for its longleaf pine forests. In the central portion of this ecoregion, Western Upland

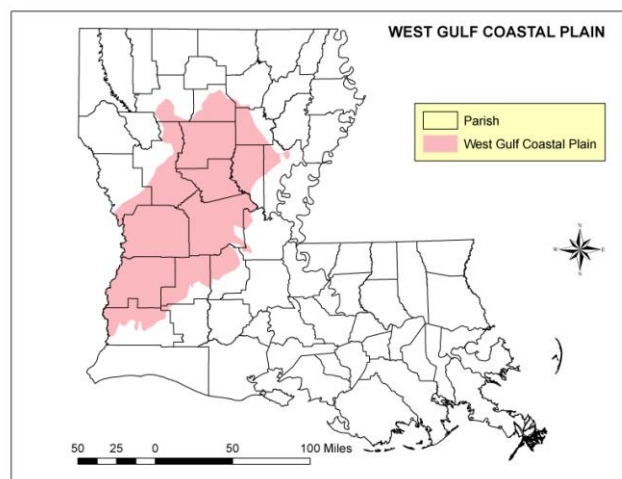


Figure 2.9. Lower West Gulf Coastal Plain Ecoregion.

Longleaf Pine Forests are found in association with Hardwood Slope Forests, and Mixed Hardwood - Loblolly Forests. Forested Seeps and Western Hillside Seepage Bogs occur along slopes and at lower elevations. The LWGCP contains unique geologic formations occurring in northeast to southwest bands across the ecoregion from Caldwell to Vernon Parish. These uplifted formations, the Jackson, Catahoula, Cook Mountain, and Fleming formations, present distinctive soil types and conditions which influenced the development of natural community types along these formation bands. Depending on the formation type and degree of uplift, calcareous clays, sandstones, saline deposits, siltstones and ironstones have shaped the development of natural communities such as the Calcareous Forests, Calcareous Prairies, Saline Prairies, and Sandstone Glades/Barrens of this ecoregion. The south and southwestern portions of the LWGCP ecoregion in Louisiana are known for Western Longleaf Pine Savannahs and associated Flatwoods Ponds and Seepage Bogs. This portion of the ecoregion is the transition zone between

Louisiana's coastal prairies and upland longleaf pine forests. Table 2.5 lists all of the habitats within the ecoregion and the number of species of conservation concern occurring within each habitat.

Table 2.5. Habitats and associated terrestrial species of conservation concern, by taxa, found in the Lower West Gulf Coastal Plain ecoregion.

| Habitat | Amphibian | Bird | Butterfly | Mammal | Reptile | Total |
|---|-----------|------|-----------|--------|---------|-------|
| Agriculture/Cropland/Grassland | 1 | 23 | 7 | 3 | 1 | 35 |
| Shortleaf Pine/Oak-Hickory Forest | 2 | 19 | 5 | 5 | 3 | 34 |
| Mixed Hardwood-Loblolly Pine/ Hardwood Slope Forest | 2 | 16 | 4 | 6 | 2 | 30 |
| Western Upland Longleaf Pine Forest | 3 | 13 | 5 | 4 | 3 | 28 |
| Small Stream Forest | 3 | 14 | 2 | 6 | 1 | 26 |
| Bottomland Hardwood Forest | 3 | 16 | 1 | 3 | 2 | 25 |
| Western Longleaf Pine Savannah | 2 | 16 | 2 | 2 | 2 | 24 |
| Bayhead Swamp/ Forested Seep | 1 | 12 | 2 | 2 | 0 | 17 |
| Cypress-Tupelo-Blackgum Swamp | 1 | 10 | 0 | 2 | 1 | 14 |
| Calcareous Prairie | 0 | 5 | 4 | 2 | 1 | 12 |
| Western Xeric Sandhill Woodland | 0 | 7 | 2 | 0 | 3 | 12 |
| Calcareous Forest | 0 | 4 | 0 | 2 | 1 | 7 |
| Saline Prairie | 0 | 3 | 0 | 2 | 1 | 6 |
| Sandstone Glade/Barren | 1 | 3 | 1 | 0 | 1 | 6 |
| Western Hillside Seepage Bog | 0 | 3 | 0 | 0 | 0 | 3 |

Federal lands include the lower portions Red River NWR and the Calcasieu, Catahoula, Kisatchie, and Winn Ranger Districts of KNF. Military lands include Fort Polk, Peason Ridge, and Camp Beauregard. Wildlife Management Areas include Boise-Vernon, Sabine Island, Walnut Hills, Marsh Bayou, Alexander State Forest, West Bay, Little River, Elbow Slough, and Sicily Island. State Parks include Caney Creek Lake, Chicot, South Toledo Bend, and Sam Houston Jones (Fig. 2.5, Appendix A).

f. Gulf Coast Prairies and Marshes

The Gulf Coast Prairies and Marshes (GCPM) ecoregion occupies the coastal zone of the Gulf of Mexico and stretches from Mexico up through Texas and into Louisiana. In Louisiana it occurs from the southwest portion of Louisiana's coastal prairie region and southwest coast, extending east along the entire coastal area to southeast Louisiana. The GCPM occurs in all or portions of Lafayette, Acadia, St. Landry, Evangeline, Allen, Jefferson Davis, Calcasieu, Cameron, Vermilion, Iberia, St. Mary, Terrebonne, La Fourche, St. Charles, St. John the Baptist, Jefferson,

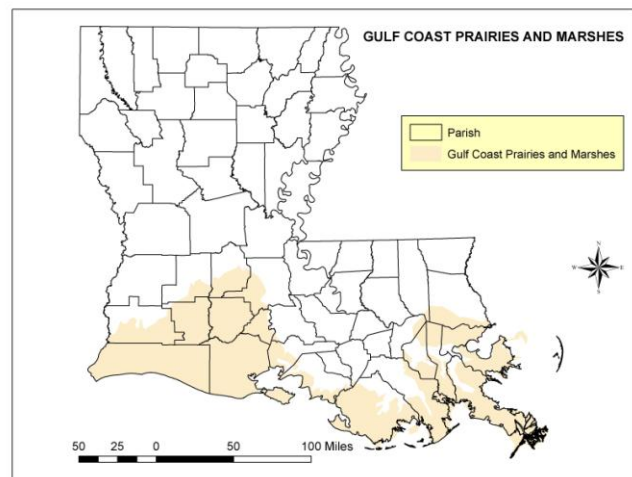


Figure 2.10. Gulf Coast Prairies and Marshes Ecoregion.

Plaquemines, St. Bernard, Orleans, St. Tammany, and Tangipahoa Parishes (Fig. 2.10).

As its name implies, this ecoregion's boundaries are defined by the coastal prairie and marsh natural community types. Louisiana's coastal prairies, once encompassing an estimated 2.5 million acres in the southwest portion of the state, now are considered critically imperiled with less than 600 acres remaining. The coastal marsh areas are comprised of salt, brackish, intermediate, and fresh marsh types across the coastal region. Associated natural communities include Cypress and Cypress-Tupelo Swamps, Coastal Live Oak-Hackberry Forests (cheniers) of the southwest coast, Live Oak Natural Levee Forests of the southeast coast, and some Bottomland Hardwood Forests. Also, the Salt Dome Hardwood Forests are unique to the south-central coast occurring on salt domes in this area. Table 2.6 lists all of the habitats within the ecoregion and the number of species of conservation concern occurring within each habitat.

Federal lands include Jean Lafitte National Historic Park and Sabine, Cameron Prairie, Lacassine, Shell Keys, Mandalay, Bayou Savage, Brenton, and Delta NWRs. Wildlife Management Areas include Rockefeller, Louisiana, Paul J. Rainey Wildlife Sanctuary, Marsh Island, Atchafalaya Delta, Terrebonne Barrier Islands, Pointe-Aux-Chenes, Salvador, Timken, Wisner, Pass-A-Loutre, and Biloxi. State Parks include Bayou Segnette, Cheniere au Tigre, Grande Isle, Palmetto Island, and St. Bernard (Fig. 2.5, Appendix A).

Table 2.6. Habitats and associated terrestrial species of conservation concern, by taxa, found in the Gulf Coast Prairies and Marshes ecoregion.

| Habitat | Amphibian | Bird | Butterfly | Mammal | Reptile | Total |
|--------------------------------------|------------------|-------------|------------------|---------------|----------------|--------------|
| Brackish Marsh | 0 | 30 | 5 | 0 | 1 | 36 |
| Agriculture/Cropland/Grassland | 1 | 27 | 5 | 1 | 1 | 35 |
| Freshwater Marsh | 0 | 27 | 3 | 0 | 1 | 31 |
| Intermediate Marsh | 0 | 26 | 5 | 0 | 0 | 31 |
| Salt Marsh | 0 | 20 | 5 | 0 | 1 | 26 |
| Barrier Islands | 0 | 17 | 2 | 0 | 6 | 25 |
| Coastal Prairie | 1 | 17 | 3 | 1 | 2 | 24 |
| Vegetated Pioneer Emerging Delta | 0 | 23 | 0 | 0 | 0 | 23 |
| Bottomland Hardwood Forest | 2 | 10 | 3 | 2 | 1 | 18 |
| Coastal Live Oak-Hackberry Forest | 0 | 7 | 2 | 1 | 2 | 12 |
| Salt Dome Hardwood Forest | 0 | 8 | 2 | 2 | 0 | 12 |
| Coastal Dune Grassland/Shrub Thicket | 0 | 6 | 2 | 1 | 2 | 11 |
| Cypress-Tupelo-Blackgum Swamp | 1 | 5 | 1 | 1 | 1 | 9 |
| Coastal Mangrove-Marsh Shrubland | 0 | 6 | 2 | 0 | 0 | 8 |
| Live Oak Natural Levee Forest | 0 | 7 | 0 | 0 | 0 | 7 |
| Barrier Island Live Oak Forest | 0 | 3 | 0 | 0 | 1 | 4 |