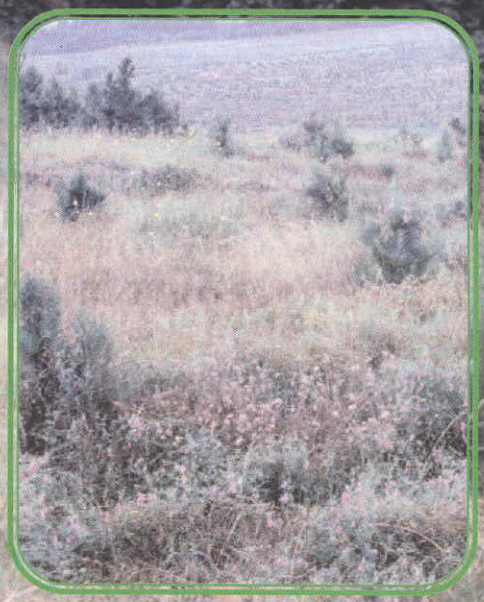
Bayou Pierre Cooperative River Basin Study

Executive Summary and Selected Excerpts

NRCS
Natural Resources Conservation Service



April 2004

Bayou Pierre
Cooperative River Basin Study

United States Department of Agriculture –
Natural Resources Conservation Service

Alexandria, LA

Bayou Pierre Cooperative River Basin Study

Prepared for
The Citizens of Caddo, De Soto, Natchitoches and Red River Parishes
Red River Levee and Drainage District
Natchitoches Soil and Water Conservation District
Red River Soil and Water Conservation District
De Soto Soil and Water Conservation District
Sabine Soil and Water Conservation District
Caddo Soil and Water Conservation District
Natchitoches Levee and Drainage District
Police Jury of Natchitoches Parish
Red River Parish Police Jury
Police Jury of Sabine Parish
Caddo Parish Commission
De Soto Parish Police Jury
Caddo Levee District
City of Shreveport

A Cooperative Planning Effort Coordinated By:

United States Department of Agriculture
Natural Resources Conservation Service
Alexandria, Louisiana

April 2004

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EXECUTIVE SUMMARY

The Bayou Pierre River Basin is one of the most diverse basins in Louisiana. Rapid development is taking place in the extreme northern area of the basin. The diverse basin has a complex set of resource concerns. A Technical Steering Committee (TSC) representing private and public entities was charged with identifying existing conditions, resource problems, and developing an assortment of alternative solutions, within the study area. The local sponsors for the study are: Caddo, De Soto, Natchitoches, Red River, and Sabine Soil and Water Conservation Districts; Caddo Levee District; Caddo Parish Commission; City of Shreveport; De Soto Parish Police Jury; Natchitoches Levee and Drainage District; Police Jury of Natchitoches Parish; Police Jury of Sabine Parish; Red River Parish Police Jury, and the Red River Levee and Drainage District.

The objectives of the study are to identify and analyze the related land and water resources within the area and develop a strategy to enhance the quality of life of the residents of Caddo, De Soto, Natchitoches, Red River, and Sabine Parishes. This study helped to bring all concerns forward and to get groups together to identify and address resource concerns of the study area.

Five Public Scoping Meetings were held throughout the basin. From the five public meetings, 103 Problems/Issues/Concerns were recorded. Due to the similarity of the problems/issues/concerns from the citizens, they were grouped into broad-based categories. Sixty percent of the comments were related to flooding, 14% were related to planning, 8% were concerned with water quality issues, 7% were recreation comments and 4 % dealt with watershed protection.

Alternative solutions were developed to address the dominant problems identified above. While no funding mechanism is in place to implement recommended solutions, potential sources have been identified. Programs available through the United States Department of Agriculture and Department of Interior offer financial assistance to landowners to implement wetland and floodplain restoration measures. Financial assistance through the Statewide Flood Control program may be available to implement some of the structural flood protection alternatives.

INTRODUCTION

BACKGROUND

In June 1995, The Natural Resources Conservation Service (NRCS) received a letter from the Red River Levee and Drainage District requesting that NRCS (the Soil Conservation Service at that time) initiate a River Basin Study of Bayou Pierre. The initial request from the drainage district expressed concern with flooding and drainage problems in the basin. Since the first request in 1995, NRCS has received thirteen additional letters of sponsorship resulting in a total of fourteen sponsors for this cooperative study. The study began in 1999.

AUTHORITY

The Bayou Pierre Cooperative River Basin Study (BPCRBS) is authorized under Section 6 of Public Law 83-566 (PL 83-566), the Watershed Protection and Flood Prevention Act, as amended. This law was legislated under the tenure of the 83rd Congress in August 1954. It authorizes the United States Department of Agriculture (USDA) to cooperate with other federal, state, and local agencies to make surveys and investigations of the watersheds of rivers and other waterways as a basis for the development of coordinated programs. Such surveys form the framework for appraising water and related land resources and formulating alternatives for conservation, use, and development.

SPONSORS, PARTICIPANTS, AND COOPERATING ENTITIES

The local sponsors for the study are: the Red River Levee and Drainage District Coushatta, Louisiana; Natchitoches Soil and Water Conservation District, Red River Soil and Water Conservation District, De Soto Soil and Water Conservation District, Sabine Soil and Water Conservation District, Caddo Soil and Water Conservation District, Natchitoches Levee and Drainage District, Police Jury of Natchitoches Parish, Red River Parish Police Jury, Police Jury of Sabine Parish, Caddo Parish Commission, De Soto Parish Police Jury, Caddo Levee District, and the City of Shreveport.

Other participants in the study are United States Geological Survey (USGS), United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (FWS), Federal Emergency Management Agency (FEMA), Environmental Protection Agency (EPA), U. S. and State Senators and Representatives, Louisiana Department of Environmental quality (LDEQ), Louisiana Department of Transportation and Development (LDOTD), Louisiana Cooperative Extension Service (LCES), Louisiana Department of Agriculture and Forestry (LDAF), Louisiana Department of Wildlife & Fisheries (LDWF), Louisiana Audubon Council, Coalition of Wallace Lake Flood Victims, Red River Coalition, Red River Valley Association (RRVA), Red River

Waterway Commission (RRWC), land owners and other stakeholders within the basin area.

The planning process for the study was a locally led initiative consisting of a Technical Steering Committee (TSC). The Technical Steering Committee is chaired by Cliff Conine of the Natchitoches Levee and Drainage District. Members of the TSC served on this interdisciplinary team to coordinate a broad-based planning effort to analyze and address the problems within the study area. The TSC was composed of members of the above listed sponsors and cooperating agencies.

OBJECTIVES OF THE REPORT

The objectives of the study are to identify and analyze the related land and water resources within the area and develop a strategy to enhance the quality of life of the residents of Caddo, De Soto, Natchitoches, Red River, and Sabine Parishes. The study will:

1. Establish baseline conditions and identify problems of the land and water resources within the study area;
2. Develop alternatives that address the problems in a manner that is environmentally, economically, and socially sound and acceptable to the residents of the study area;
3. Outline a broad-based plan to address the problems of the area and identify Federal, state, and local agencies and organizations that provide technical and financial assistance.

USE OF THE REPORT

The report will serve as a guide to the best use or combination of uses of water and related land resources to meet foreseeable short-term and long-term needs in the basin. Ultimately the report will be used in part or entirety by individuals, agencies, and other stakeholders in solving problems and funding measures to improve the quality of life within the study area.

MAPS AND FIGURES

The report contains maps, figures, and tables that will aid the reader in understanding various components of the text.

APPENDICES

The report has several appendices that contain detailed support data used in compiling the report. This material will provide clarification to the reader by providing additional information or further research within the study area. Appendix A contains the sponsor list and contact information for agencies and groups to help implement the alternatives listed in this river basin study. The letters of request for the study are on file with the

Water Resources Staff of the Natural Resources Conservation Service in Alexandria, Louisiana. Biological Resources such as species of fish, birds, plants and the Christmas Bird Counts in the study area can be found in Appendix B. Appendix C contains contact information for agencies and groups to help implement the alternatives listed in this river basin study. Appendix D contain resource maps of the refuges, the water quality monitoring stations, watershed units, and the oil and gas well locations in the study area. A list of prior studies, reports, and existing water projects can be found in Appendix E.

PHYSICAL SETTING

LOCATION AND SIZE

The study area encompasses 704,253 acres in portions of Caddo, De Soto, Red River, Sabine, and Natchitoches Parishes Louisiana (Figure 1). The project boundary is further defined by beginning at the confluence of Bayou Pierre and the Red River in Natchitoches Parish proceed Northwesterly along the levee system on the west bank of the Red River through Red River Parish and into Caddo Parish, roughly to Interstate 20. Proceed in a Southwesterly direction going into east Texas at a point just north of the Bethany Community in Caddo Parish taking in the Boggy Bayou Watershed. Return in a southeasterly direction re-entering Louisiana south of Bethany Community and then to Kickapoo Community in De Soto Parish. Follow the ridge south through De Soto Parish that divides the Red River and Sabine River Watersheds going through Mansfield and Pelican. Staying on the ridge in a Southerly direction enter Sabine Parish going through Pleasant Hill, Belmont, and Fort Jesup. Turn in a northeasterly direction and enter Natchitoches Parish going between Robeline and Hagewood then North of Sibley Lake Watershed. Return to the point beginning at the confluence of Bayou Pierre and Red River.

The major urban areas within the study area are Shreveport and Mansfield. In addition there are numerous small settlements and communities within the project area. The general drainage pattern that exists in the study area is from the north to south. Bayou Pierre is the initial drainage outlet for most of the area and it outlets into the Red River in the vicinity of Powhatan, Louisiana.

CLIMATE

The climate of the study area is influenced principally by its subtropical latitude, the huge landmass to the north, and the proximity of the warm waters of the Gulf of Mexico. In summer the prevailing southerly winds provide a moist climate, but occasionally the pressure distribution is such as to bring west or north winds and hot dry weather. In winter the area is alternately subjected to moist tropical air and cold dry air. As such, winter temperature fluctuation can be rather extreme in a short time frame.

The relative humidity is 60 percent or more approximately 72 percent of the time and less than 40 percent only 7 percent of the time. There is a chance that the temperature will fall below 20 degrees Fahrenheit (°F) or –7 degrees Celsius (°C) or lower on one or more days in 9 out of 10 years. Temperatures of 32 °F (0 °C) or lower occur on an average of 43 days a year, and temperatures of 90 °F (32 °C) or higher occur on an average of 103 days a year. There is a 50 percent chance of a freeze after March 26th in the spring and before November 8th in the fall. There is a 20 percent chance of a freeze after April 4th in

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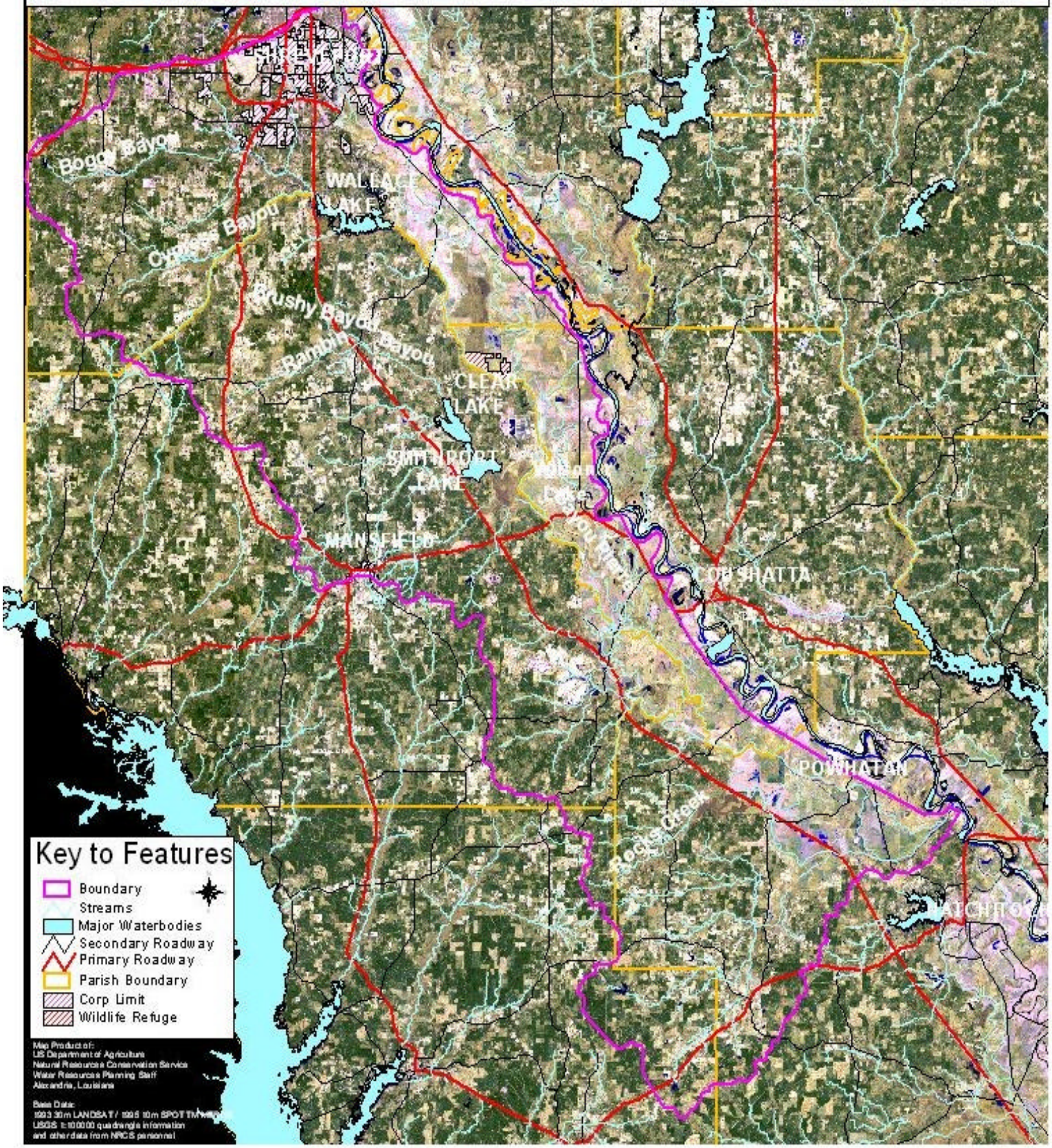


Figure 1

the spring and before October 27th in the fall. The average frost-free period is approximately 222 days a year according to the NRCS Soil Survey.

The average temperature for the year is approximately 66 °F (19 ° C) with extremes on record of a maximum of 114 °F (46 °C) and a minimum of –14 °F (-26 °C). The annual average precipitation is approximately 48.5 inches or 116.3 centimeters (cm) with an extreme minimum and maximum of 30.24 inches (76.8 cm) and 78.91 inches (200.4 cm) respectively.

TOPOGRAPHY AND GEOLOGY

The study area is in the upper part of the Gulf Coastal Plain. The relief is nearly level to gently sloping. Elevations within the study area range from approximately 200 feet National Geodetic Vertical Datum (NGVD) in the northern reaches to 140 feet NGVD in the south. Dominant physiographic features include oxbow lakes, bayous, swamp, natural levees, and abandoned streams.

The study area is included within the Red River Valley which may be divided into an alluvial section underlain by materials deposited by the Red River during the Pleistocene or Glacial period; and a marginal layer underlain by Tertiary and older rocks (USACE 1950). The alluvial geology has a more pronounced influence on the problems within the study area and as such, will be discussed in more detail.

The Red River Valley is entrenched into the Midway Group of the Paleocene series of the Tertiary System. Pleistocene and Recent Age sediments have been deposited in the valley (USACE 1976). The hydraulic connection of the Red River to the Mississippi River was the driving force in the formation of the entrenched valley and is associated with glaciation. The formation was not caused by the migration of the actual ice masses but the subsequent runoff associated with the thawing of the ice. During glacial stages the sea level fell, which in turn, increased the gradient of the streams and prompted the cutting of the entrenched valleys (USACE 1949). During the interglacial stages when the ice masses were melting the gradients became less steep due to sea level rise and caused the valley to be filled with sediments carried by the river. The present valley fills exhibits a similar gradation of fill material from coarse to finer materials. These sediments deposited within these glacial periods are now overlain by alluvial deposits resulting from the overflow of the Red River.

The floor of the entrenched valley is highly irregular and within the study area is near 75 feet deep. The shape of the valley is steep sided with a shelf-like floor gently sloping to the deepest part of the trench. The deepest portion usually has a small V shape that marks the position of the flow of the channel in glacial times of steep gradients when degradation was at its greatest. There are areas that occur within the valley where the ancient materials are at or near the surface and are surrounded by the Recent sediments to form “islands”. The sediments that form the floor of the entrenchment are a firmer and

more erosion resistant material of the Tertiary age than the overlying clays, silts, sands, and gravel of the Recent alluvial material (USACE 1950).

The Red River has meandered throughout the valley during the Recent period. The width of meander within the Red River Valley is approximately 2 miles. Since the final removal of the Red River Raft in 1873, the Red has been in or near its present day location. However, prior to the removal of the Raft the channel meandered through bayous that are adjacent to the River.

HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Northwestern Louisiana was occupied for thousands of years before European settlement. In the upland areas, along small streams and bordering the river valleys, projectile points and tools of early and late Paleo-Indian peoples have been found (Webb 1948b; Gagliano and Gregory 1965). The oldest campsites in the Caddo area of northwestern Louisiana are those of the San Patrice culture, thought to date between 8000 and 6000 BC. This culture, which some students look upon as late Paleo-Indian and others as early Archaic, was named for a stream in De Soto and Sabine parishes (Webb 1946).

The first widespread occupation of northwestern Louisiana by pottery making, farming people was that of Coles Creek culture. This culture developed along the lower Mississippi Valley, in Louisiana and Mississippi, including the Lower Red River, starting about AD 700.

The Caddo Indians were the aborigines of Caddo Parish. The Caddo Indians are the principal southern representatives of the great Caddoan linguistic family, which include the Wichita, Kichai, Pawnee, and Arikara. Their confederacy consisted of several tribes or divisions, claiming as their territory the whole of lower Red River. The number of tribes formerly included in the Caddo Confederacy can not now be determined. Only a small number of the Caddo survive, and the memory of much of their tribal organization is lost. One tribe division that exists today in the study area is the Caddo Adais Indians, Inc. The Adai village was located on a small creek near the present town of Robeline, Louisiana, about twenty-five miles west of Natchitoches. The Adais Indians of the Caddo Indian Nation were mostly farmers. This was also the site of the Spanish Mission, Los Adaes. The first historical mention of the Adai was made by Cabeca de Vaca, who in his “Naufragios”, referring to his stay in Texas, about 1530, called them Atayos (Glover 1932).

One of the most important cultural sites is near Gahagan located on the west side of the Red River, almost equidistant between Natchitoches and Shreveport. Formerly it was situated on an old channel but much of the channel and site have been destroyed by river caving.

Many other small settlements of earlier times are known to have existed in the study area but have not been studied as extensively as the Gahagan site, 30 to 40 altogether between Natchitoches and the Arkansas state line (Thomas Campbell and Ahler 1977 Webb

1975). These sites are found in the Red River Valley, on lateral lakes and streams, and in the uplands. Apparently, the occupants of these lesser sites were simple farming, gathering, hunting, and fishing folk who did not share in the exotic materials of the complex regional centers. They probably did participate in ceremonies, festivities, and renewals of faith by visits to the centers and may exchange for leadership and protection.

One of the Civil War's bloodiest battles west of the Mississippi took place in Mansfield, Louisiana on April 8, 1864. The Mansfield battlefield was also known as the Sabine Cross-Roads and Pleasant Grove Red River Campaign. The intent of this battle was to capture Shreveport. By this time, Major General Nathaniel P. Bank's Red River Expedition had advanced about 150 miles up Red River. Major General Richard Taylor without any instructions from his commander, Gen. E. Kirby Smith, decided that it was time to try and stem this Union drive. He established a defensive position just below Mansfield, near Sabine Cross-Roads, an important communications center. On April 8, 1864, Banks men approached, driving Confederate calvary before them. For the rest of the morning, the Federals probed the Rebel lines, In late afternoon, Taylor, though outnumbered, decided to attack. His men made a determined assault on both flanks, rolling up one and then another of Bank's divisions. Finally, about three miles from the original contact, a third Union division met Taylor's attack at 6:00 p.m. and halted it after more than an hour's fighting. That night, Taylor unsuccessfully attempted to turn Banks's right flank. Banks withdrew but met Taylor again on the 9th at Pleasant Hill. Mansfield was the decisive battle of the Red River Campaign, influencing Banks to retreat back toward Alexandria (National Park Service 2002).

After the Battle of Pleasant Hill on April 9, 1864, Brig. Gen. Tom Green led his men to Pleasant Hill Landing on the Red River, where, about 4:00 p.m. on April 12, 1864, they discovered grounded and damaged Union transports and gunboats, the XVI and XVII army corps river transportation, and U.S. Navy gunboats, with supplies and armament aboard. Union Brig. Gen. Thomas Kilby Smith's Provisions Division, XVII Corps, troops, and the Navy gunboats furnished protection for the army transports. Green and his men charged the boats. When Green attacked, Smith's men used great ingenuity in defending the boats and dispersing the enemy Hiding behind bales of cotton, sacks of oats, and other obstructions. In the attack, Green was killed. The Confederates withdrew and most of the Union transports continued downriver (National Park Service 2002).

Fort Jesup State Historic Site is an 1850's American military installation. The 21-acre site has a museum, picnic pavilion, trails and an historic kitchen building from the 1850's.

Fort St. Jean Baptiste State Historic Site is a reconstruction of a 1732 French fortification. The 7-acre site has an entire reconstruction of the original timber fort, interpretive signage, and a museum will be completed soon.

INVENTORY OF EXISTING RESOURCES

SOILS

Within the study area most of the soils originated from one of three kinds of parent material: Gulf Coastal Plain sedimentary deposits, old alluvium deposited chiefly by an ancestral Red River, and recently deposited Red River Alluvium.

The Gulf Coastal Plain sedimentary deposits consist of beds of material that ranges in texture from sand to clay. They are generally acid and highly leached. They are old deposits of Tertiary age laid down in former extensions of the Gulf of Mexico.

The old alluvium from which the extensive stream terraces formed is of Pleistocene age. Sandy, permeable, old natural levee deposits have been leached and are commonly acid. The clay is dominantly montmorillonite. Fine textured parent material of this type is less thoroughly leached, is generally high in bases, and contains clay dominated by montmorillonite. Stratification, typical of alluvial sediments, is a common feature.

Recent Red River alluvium consists primarily of water-laden sediments derived from the Reddish Prairie soils of western and central Oklahoma and northwestern Texas. Along the eastern side of the Red River floodplain the parent material has been influenced locally by sediments derived from Coastal Plain soils and deposited by tributary streams. Typically, the alluvium from the Red River is reddish brown in color and alkaline or calcareous in reaction.

All of the alluvium has been laid down by river water. Before manmade levees were built, the river overflowed its channel during flood stage and water spread over the floodplain. The coarser sediments carried in suspension were dropped in bands parallel to and near the channel. These low ridges, consisting of fine sand and silt are known as natural levees. When the flood receded and left water standing in the lowlands, the finest sediments, of clays, settled out. These slack-water clays do not settle until the water is still.

The simple pattern of coarser sediments near the channel and fine sediments in the slack-water lowlands is common along the Red, as well as near old abandoned river courses in the floodplain. Over the centuries, the Red River has meandered back and forth across much of the floodplain. Many old abandoned cutoffs and oxbow lakes are left as evidence of former courses. Sometimes natural levees laid down earlier have been cut out, sometimes-sandy sediments have been deposited on top of slack-water clays. Thus, the normal pattern of sediment distribution from a single channel has been partly or completely destroyed in many places, and beds of alluvium of widely contrasting textures may be superimposed. Since the construction of the manmade levee system that parallels the present channel, the flooded area has been greatly reduced.

The locations of the major soil associations within the study area can be found in their descriptions in Figure 2. Narratives of the soil associations are as follows:

Betis - Briley

This map unit consists of gently sloping soils on broad ridgetops and gently sloping to strongly sloping soils on side slopes. Slopes on ridgetops generally are long and smooth and range from 1 to 5 percent. Slopes on Side slopes generally are short and convex and range from 1 to 12 percent. The map unit is about 57 percent Betis soils, 40 percent Briley soils, and 3 percent soils of minor extent. The Betis soils are somewhat excessively drained. The Briley soils are well drained. Most areas of this map unit are used as woodland or pasture. A small acreage is used for homesite development. The Betis soils are moderately well suited to woodland and the Briley soils are also well suited to woodland. The dominant trees are loblolly pine and shortleaf pine. The main concerns in producing and harvesting timber are restricted use of equipment and seeding mortality caused by the sandy texture and droughtiness. Trafficability is poor when the surface layer is dry.

Bowie – Ruston

This map unit consists of soils on convex ridgetops and side slopes in the uplands. The landscape consists of broad or narrow ridgetops and gently sloping side slopes. This map unit is about 60 percent Bowie soils, 23 percent Ruston soils, and 17 percent soils of minor extent. The Bowie soils are moderately well drained and gently sloping. Most areas are used as woodland. A few small areas are used for pasture or homesite development. These soils are well suited to woodland. Few limitations effect this use.

Briley – Betis – Trep

This map unit consists of gently sloping soils on broad ridgetops and gently sloping to strongly sloping soils on side slopes. The landscape is dissected by deeply incised streams and a well defined, branching drainage system. Slopes on ridgetops generally are long and smooth and range from 1 to 5 percent. Side slopes are generally short and convex and range from 1 to 12 percent. The map unit is about 36 percent Briley soils, 22 percent Betis soils, 12 percent Trep soils, and 30 percent soils of minor extent. The Briley soils are well drained. The Betis soils are somewhat excessively drained, and the Trep soils are moderately well drained. Most areas of this map unit are used as woodland or pasture. A small acreage is used for homesite development. The Briley and Trep soils are well suited to woodland, and the Betis soils are moderately well suited to woodland. The dominant trees are loblolly pine and shortleaf pine. The main concerns in producing and harvesting timber are restricted use of equipment and seedling mortality caused by the sandy texture and droughtiness. Trafficability is poor when the surface layer is dry.

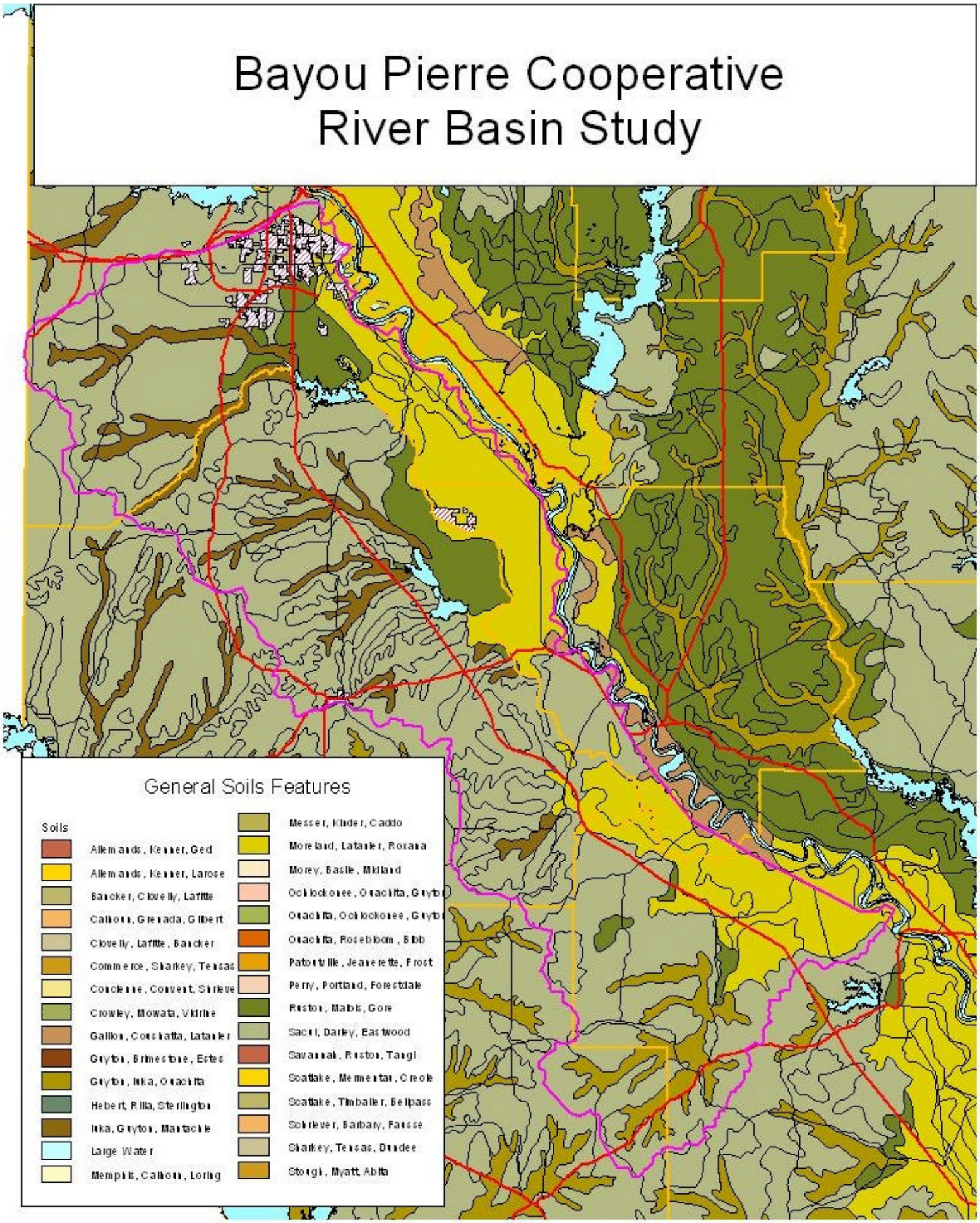

Bayou Pierre Cooperative
River Basin Study
General Soils Features
Soils
Allemands, Kenner, Ged
Allemands, Kenner, Larose
Bancker, Clovelly, Lafitte
Calhoun, Grenada, Gilbert
Clovelly, Lafitte, Bancker
Commerce, Sharkey, Tensas
Concline, Convent, Shrieve
Crowley, Mowata, Vidrine
Gallion, Constantia, Latanier
Gryton, Brimestone, Estes
Gryton, Inka, Ouachita
Hebert, Rilla, Sterlington
Inka, Gryton, Mantachie
Large Water
Memphis, Calhoun, Loring
Messer, Kinder, Caddo
Moreland, Latanier, Roxana
Morey, Basile, Midland
Ouachita, Rosebloom, Bibb
Patoutville, Jeanerette, Frost
Perry, Portland, Forestdale
Ruston, Malbis, Gore
Sacul, Darley, Eastwood
Savannah, Ruston, Tangi
Scattake, Timballer, Bellpass
Shrieve, Barbary, Fausse
Sharkey, Tensas, Dundee
Stough, Myatt, Abita

Figure 2

Coushatta – Moreland – Severn

This association consists of soils that are nearly level, well-drained, loamy soils and somewhat poorly drained clayey soils on the Red River alluvial plain. Slopes are mostly less than 1 percent. The map unit is about is about 52 percent Coushatta soils, 17 percent Moreland soils, 15 percent Severn soils, and 16 percent soils of minor extent. Coushatta soils are loam, well drained, and moderately permeable. Moreland soils are clayey, somewhat poorly drained, and very slowly permeable. Severn soils are loamy, well drained and moderately rapidly permeable. The Coushatta and Severn soils are used mainly for crops, mainly cotton. The Moreland soils are used mainly for pasture and crops, mainly soybeans and grain sorghum. The Coushatta and Severn soils have few limitations for cropland use. The clayey Moreland soils are somewhat difficult to work and they need to be drained.

Eastwood – Keithville – Bowie

This map unit consists of gently sloping soils on narrow to broad ridgetops and gently sloping to strongly sloping soils on side slopes. Slopes on ridgetops range from 1 to 5 percent, and slopes on side slopes range from 1 to 12 percent. The map unit is about 68 percent Eastwood soils, 14 percent Keithville soils, 10 percent Bowie soils, and 8 percent soils of minor extent. The Eastwood soils are moderately well drained and are gently sloping to strongly sloping. The moderately well drained Keithville soils are gently sloping. The moderately well drained Bowie soils are gently sloping to strongly sloping. Most areas of this map unit are used as woodland or pasture. A few small areas are used for homesite development. The soils are well suited to woodland. Loblolly pine, shortleaf pine, sweetgum, southern red oak, and hickory are dominant on the Eastwood soils. Loblolly pine, shortleaf pine, and sweetgum are dominant on the Keithville and Bowie soils. The use of equipment is limited in winter and spring because of wetness. Erosion is a hazard in moderately sloping and strongly sloping areas of the Eastwood soils.

Eastwood – Meth

This map unit consists of soils on convex ridgetops and side slopes in the uplands. The landscape consists of gently sloping ridgetops and moderately sloping and strongly sloping side slopes. Slopes range from 1 to 12 percent. It is about 71 percent Eastwood soils, 14 percent Meth soils, and 15 percent soils of minor extent. The Eastwood soils are moderately well drained and are gently sloping or strongly sloping. The Meth soils are well drained and moderately sloping. They are on the upper parts of the side slopes. Most areas are used as woodland. These soils are moderately well suited to woodland. The main management concern is a moderate equipment limitation caused by the clayey subsoil in the Eastwood soils. Erosion is a hazard along logging roads and skid trails.

Forbing – Gore – Guyton

These soils are on ridgetops, side slopes, and broad flats in the uplands and on broad flats on stream terraces and in drainageways. Slopes range from 0 to 8 percent. The map unit is about 25 percent Forbing soils, 20 percent Gore soils, 19 percent Guyton soils, and 36 percent soils of minor extent. The Forbing soils are moderately well drained and are very gently sloping and moderately sloping. They are on ridgetops and side slopes in the uplands. The Gore soils are moderately well drained and gently sloping. They are also on ridgetops and side slopes in the uplands. The poorly drained Guyton soils are in drainageways and on broad flats in the uplands and on stream terraces. Most areas are used as woodland. These soils are moderately well suited to woodland. In some areas logging activities are limited by wetness during winter and early spring. In the more sloping areas, erosion is a hazard along logging roads and skid trails.

Forbing – Messer – Gore

These soils are on ridgetops, side slopes, and broad flats in the uplands. Slopes range from 0 to 8 percent. This map unit is about 33 percent Forbing soils, 19 percent Messer soils, 16 percent Gore soils, and 32 percent soils of minor extent. Forbing soils are very gently sloping to moderately sloping, moderately well drained, and on side slopes. Messer soils are moderately well drained and are on low, rounded mounds. Gore soils are gently sloping, moderately well drained, and on low ridges or upper parts of side slopes. This map unit is used mainly for woodland. These soils are moderately well suited to woodland. In some areas logging activities are limited by wetness during winter and early spring. In the more sloping areas, erosion is a hazard along logging roads and skid trails.

Gore – Acadia – Wrightsville

In this map unit the landscape has slight to moderate relief. It has convex ridgetops, side slopes, and broad flats and depressional areas on the uplands. This map unit is about 39 percent Gore soils, 24 percent Acadia soils, 21 percent Wrightsville soils, and 16 percent soils of minor extent. The Gore soils are gently sloping, moderately well drained, and are on convex ridgetops and side slopes. The Acadia soils are nearly level, somewhat poorly drained, and are on broad, slightly convex ridgetops. The Wrightsville soils are level, poorly drained, and are on broad flats and in depressional areas. The soils in this map unit are mainly used as woodland. Small acreages are used for pasture or cultivated crops. The soils in this map unit are moderately well suited to use as woodland. The potential productivity of loblolly pine and hardwoods is high. Logging operations during winter and early spring are limited by wet soil conditions. Erosion is a hazard along logging roads and skid trials in the gently sloping areas.

Guyton – Iuka

This map unit consists of soils on narrow flood plains along streams that drain the uplands. Flooding is frequent. It occurs mainly in winter and spring but can occur during

any part of the year. Slopes are less than 1 percent. This map unit is about 64 percent Guyton soils, 13 percent Iuka soils, and 23 percent soils of minor extent. The Guyton soils are poorly drained and on low flats. The Iuka soils are moderately well drained and are on slightly convex natural levees and on microhighs. Most areas of this map unit are used as woodland, which consists of hardwoods or mixed hardwoods and pines. The soils in this map unit are moderately well suited to woodland. Seasonal wetness and flooding limit the use of equipment in winter and spring and cause moderate or severe seedling mortality. The soils easily become compacted if heavy equipment is used during wet periods.

Iuka – Guyton – Mantachie

This map unit consists of soils on narrow flood plains along streams that drain the uplands. Flooding is frequent. It occurs mainly in winter and spring but can occur during any part of the year. Slopes are less than 1 percent. This map unit is about 24 percent Iuka soils, 19 percent Guyton soils, 15 percent Mantachie soils, and 42 percent soils of minor extent. The Iuka soils are moderately well drained and are on slightly convex natural levees and on microhighs. The Guyton soils are poorly drained and are on low flats. The Mantachie soils are somewhat poorly drained and are on low flats. The Mantachie soils are somewhat poorly drained and are on low slightly convex natural levees. Most areas of this map unit are used as woodland, which consists of hardwoods or mixed hardwoods and pines. The soils in this map unit are moderately well suited to woodland. Seasonal wetness and flooding limit the use of equipment in winter and spring and cause moderate or severe seeding mortality. The soils easily become compacted if heavy equipment is used during wet periods.

Keithville – Eastwood

This map unit consists of soils on ridgetops and side slopes in the uplands. Slopes range from 0 to 12 percent. It consists of about 47 percent Keithville soils, 24 percent Eastwood soils, and 29 percent soils of minor extent. The Keithville soils are gently sloping and moderately well drained. They are on narrow or broad ridgetops and gentle side slopes. The Eastwood soils are moderately well drained and are gently sloping or strongly sloping. They are on narrow ridgetops and on side slopes. Most areas are used as woodland. The potential production of pine timber is high. The main management concerns are a moderate seedling mortality rate and a moderate equipment limitation caused by wetness. Erosion is a hazard in the strongly sloping areas.

Keithville – Eastwood – Metcalf

This map unit consists of soils on ridgetops and side slopes in the uplands. The landscape in these areas is one of short, complex slopes on narrow, gently sloping ridgetops and strongly sloping side slopes along deeply incised streams. Slopes range from 0 to 12 percent. This map unit is about 35 percent Keithville soils, 24 percent Eastwood soils, 21 percent Metcalf soil, and 20 percent soils of minor extent. The Keithville soils are gently sloping, moderately well drained, and are on narrow or broad

ridgetops and gentle side slopes. The Eastwood soils are moderately well drained, gently sloping or strongly sloping, and are on narrow ridgetops and on side slopes. The Metcalf soils are somewhat poorly drained, nearly level, and are on broad ridgetops. Most areas are used and are well suited for woodland. The potential for production of pine timber is high. The main management concerns are a moderate seedling mortality rate and a moderate equipment limitation caused by wetness. Erosion is a hazard in the strongly sloping areas.

Keithville – Woodtell – Messer

This map unit consists of soils on broad ridges, in swales, and on side slopes. Slopes range from 0 to 12 percent. It consists of about 31 percent Keithville soils, 24 percent Woodtell soils, 18 percent Messer soils, and 27 percent soils of minor extent. Keithville soils are gently sloping, moderately well drained, and on ridgetops. Woodtell soils are very gently sloping to moderately steep, moderately well drained, and on short side slopes. Messer soils are moderately well drained and on low, circular mounds. This unit is used mainly for pasture and woodland. The potential for pasture is fair. The potential for producing and harvesting timber is good for the Keithville and Messer soils but fair for the Woodtell soil. The main limitations of the Woodtell soil of timber production are moderate growth rates, moderate seedling mortality, and moderate equipment limitations.

Moreland – Armistead – Caspiana

This map unit consists of soils on the lower parts of the natural levees of the Red River and its tributaries. Slopes range from 0 to 1 percent. It consists of about 44 percent Moreland soils, 13 percent Armistead soils, 13 percent Caspiana soils, and 30 percent soils of minor extent. Moreland soils are somewhat poorly drained and are at the lower elevations. Armistead soils are also somewhat poorly drained and are at slightly higher elevations that the Moreland soils. The Caspiana soils are well drained and are on the higher parts of the landscape. This unit is used mainly for cultivated crops and pasture. The main limitations are wetness and the clayey surface textures of the Moreland and Armistead soils.

Moreland – Latanier – Armistead

In this map unit, the landscape typically has very little relief. It is mainly broad flats, natural levees, and backswamps on the Red River alluvial plain. Slopes are generally less than 1 percent, but can range from 0 to 3 percent along narrow channel scars. It consists of 55 percent Moreland soils, 32 percent Latanier soils, 8 percent Armistead soils, and 5 percent soils of minor extent. All of these soils are somewhat poorly drained. The Moreland soils are in low positions on natural levees. The Latanier and Armistead soils are in intermediate positions on natural levees. Most areas of the soils in this map unit have been cleared and are used for crops, mainly soybeans and grain sorghum. Small acreages are used as pasture or woodland. The soils in this map unit are moderately well suited to cultivated crops and well suited to pasture. Wetness and poor tilth are the main limitations. A surface drainage system is needed to remove excess water.

Moreland – Severn – Norwood

This map unit consists mainly of broad flats, high natural levees and backswamps on the Red River alluvial plain. Slopes are generally less than 1 percent, but can range from 0 to 3 percent along old channel scars. It consists of 39 percent Moreland soils, 33 percent Severn soils, 19 percent Norwood soils, and 9 percent soils of minor extent. If not protected by the Red River levee systems, these soils are subject to flooding. Moreland soils are somewhat poorly drained and are on lower parts of the landscape. Severn and Norwood soils are well drained and are generally at the highest positions on the landscape. This unit is used mainly for cultivated crops, but a few large tracts on the unprotected side of the levee system are used for pasture. Where protected from flooding, this unit has excellent potential for cultivated crops and has only slight limitations for this use.

Moreland – Yorktown

This map unit is on broad flats and backswamps on the flood plain of the Red River. Slopes are generally less than 1 percent. It consists of 83 percent Moreland soils, 12 percent Yorktown soils, and 5 percent soils of minor extent. The Moreland soils are somewhat poorly drained and are in low positions on natural levees and in backswamps. The Yorktown soils are very poorly drained and are in old stream channel scars and depressional areas. The soils in this map unit are used about equally as cropland and woodland. Most areas of the occasionally flooded Moreland soils have been cleared and are used for cultivated crops or pasture. Soybeans and grain sorghum are the main crops. The frequently flooded Moreland and Yorktown soils are used as woodland for timber production and as wildlife habitat.

Norwood – Roxana – Gallion

This map unit consists of high ridges or natural levees adjacent to the Red River and former channels and distributaries of the Red River. Slopes are 0 to 1 percent. The soils are protected from flooding by a network of levees. It consists of about 57 percent Norwood soils, 17 percent Roxana soils, 13 percent Gallion soils, and 13 percent soils of minor extent. All of these soils are well drained and are on high positions on natural levees of the Red River. Most of the soils in this map unit are used for cultivated crops, mainly cotton, corn, and soybeans. The soils in this map unit are well suited to cultivated crops and pasture. The loamy surface layer, high and medium fertility, and level slopes favor these uses. Wetness is a slight limitation for crops in some areas of the Gallion soils. Land grading or smoothing and a surface drainage system can reduce wetness.

Ruston – Malbis – Smithdale

This map unit consists of soils on uplands and is dominated by narrow to broad, gently sloping ridgetops and strongly sloping and moderately steep side slopes. The landscape is dissected by a well-defined, branching drainage system. Slopes range from 1 to 20

percent. It consists of about 36 percent Ruston soils, 22 percent Malbis soils, 22 percent Smithdale soils, and 20 percent soils of minor extent. The Ruston soils are well drained and are on gently sloping, convex ridgetops. The Malbis soils are well drained and are on gently sloping, convex ridgetops. The Malbis soils are moderately well drained and are on gently slopping, broad ridgetops and on side slopes. The Smithdale soils are well drained and are on strongly sloping and moderately steep side slopes. The soils in this map unit are mainly used as woodland. In many small areas, they are used as pastures or homesites. The soils are well suited to use as woodland. The potential productivity of loblolly pine is high. The soils have few limitations for this use; however, management that minimizes the risk of erosion is needed.

Sacul

This map unit consists of moderately sloping to steep soils on side slopes. Slopes are short and range from 5 to 30 percent. It consists of about 94 percent Sacul soils and 6 percent soils of minor extent. The Sacul soils are moderately well drained. Most areas of this map unit are used as woodland. A few small areas are used as pasture. The moderately sloping and strongly sloping Sacul soils are well suited to woodland, and the moderately steep and steep Sacul soils are moderately well suited to this use. The dominant trees are loblolly pine and shortleaf pine. Because of seasonal wetness, the use of equipment is limited in winter and early spring. Erosion is a hazard along logging roads and skid trails.

Sacul – Kirvin – Keithville

This map unit consists of soils on the narrow to broad ridgetops and side slopes of interstream divides. These soils are dominantly gently sloping but in some areas around the head of small drainageways, are moderately sloping or strongly sloping. Slopes range from 1 to 12 percent. It consist of about 67 percent Sacul soils, 15 percent Kirvin soils, 12 percent Keithville soils, and 6 percent soils of minor extent. The Sacul soils are gently sloping to strongly sloping and are well drained. The Keithville soils are gently sloping and moderately well drained. Most areas of this map unit are used as woodland. The soils in this map unit are well suited to woodland. The dominant trees are loblolly pine, shortleaf pine, and sweetgum. Logging is limited in areas of the Sacul and Keithville soils during winter and early spring because of wetness and the clayey subsoil.

Sacul – Larue – Mahan

This map unit is in the uplands and consists of narrow ridgetops and moderately sloping to steep side slopes along deeply incised streams. Slopes range from 1 to 12 percent. It consists of about 60 percent Sacul soils, 24 percent Larue soils, 5 percent Mahan soils, 11 percent soils of minor extent. The Sacul soils are moderately well drained and are gently sloping, strongly sloping, or steep. The Larue soils are well drained and are gently sloping. They are on ridgetops and on the upper parts of side slopes. The Mahan soils are well drained, are gently sloping or moderately sloping, and occur on ridgetops. Most areas are used as woodland. A few small tracts are used for pasture or homesite

development. These soils are moderately well suited to woodland. The main limitations are droughtiness in the Larue soils and the hazard of erosion on the steep Sacul soils.

Severn – Moreland – Roxana

This map unit consists mainly of broad flats and high natural levees and back swamps on the Red River alluvial plain. Slopes are generally less than 1 percent, but can range from 0 to 3 percent along old channel scars. It consists of about 88 percent Severn soils, 7 percent Moreland soils, 3 percent Roxana soils, and 2 percent soils of minor extent. If not protected by the Red River levee system, these soils are subject to flooding. Severn and Roxana soils are well drained and are generally at the highest positions on the landscape. The Moreland soils are somewhat poorly drained and are on lower parts of the landscape. This unit is used mainly for cultivated crops, but a few large tracts on the unprotected side of the levee system are used for pasture. Where protected from flooding, this unit has excellent potential for cultivated crops and has only slight limitations for this use.

WATER RESOURCES

The study area has an adequate supply of water available for agricultural, municipal, industrial, and domestic use. Both ground and surface water are used to meet these consumptive demands. For Caddo Parish the total water use has ranged from .38 million gallons per day (Mgal/d) to 92.39 (Mgal/d). In De Soto Parish, the total water use range from .12 to 16.97 Mgal/d. Natchitoches parish water use ranges from .49 to 12.69 Mgal/d. The water use in Red River Parish ranges from .01 to .74 Mgal/d. Natchitoches Parish has water use ranging from .49 to 12.69 Mgal/d. Sabine Parish has a water use that ranges from .02 to 2.39 Mgal/d. In Red River Parish the water consumption for the period of 1960 – 1990 ranged from approximately 0.75 Mgal/d to about 2 Mgal/d with an extreme of approximately 7.5 Mgal/d in 1975 (Lovelace 1990).

Surface Water

The principal source of surface water for the study area is the Red River. The average discharge of the Red River for a period of 1928-75 was 24,900 cubic feet per second. During summer months the flows within the Red River are usually at the lowest. Maximum sediment discharge usually occurs during May. There has been a decrease in the concentrations of dissolved solids, chloride, and sulfates. However, high concentrations of chloride and sulfate have been a problem in the past, especially during low flow events. The majority of high levels of chloride can be attributed to inflow from the Texas and Oklahoma regions of the Red River Basin.

In the Rivers and Harbors Act of 1968, Congress authorized the U.S. Army Corps of Engineers to construct the current Red River Waterway project. The plan specified five lock and dam structures in Louisiana between Avoyelles Parish near Marksville and the Shreveport-Bossier area. The Red River Navigation Project provides a channel nine feet deep and 200 feet wide from the mouth of the river to Shreveport and Bossier City. The

total distance of that part of the river was reduced by 50 miles as a result of channel realignments for shipping convenience. An added benefit, these realignments straighten out bends in the river, leaving behind beautiful oxbow lakes, suitable for excellent recreational developments. Included in the Red River Master Plan for Recreation, many of these areas, as well as thousands of acres of other riverfront properties, have designated as locations for extensive land and water sports facilities (Red River Valley Association).

While the aforementioned changes have benefited some user groups and some species Of fish and wildlife, that alteration of riverine habitat may have adversely impacted other resources and users. Creation and/or maintenance of vessel and vehicular access will be required to ensure that the public will be able to utilize the oxbows created through channelization. Frequent management and maintenance of those oxbow lakes must be conducted to reduce high rates of sedimentation and prolong their recreational values. Additionally, the development of recreational properties along those oxbows can be expected to reduce the amount of bottomland forest habitat in the area and contribute to nonpoint source pollution to those water bodies (US Fish & Wildlife Service).

A project that could pave the way for future utilization of the Red River as a source of irrigation water is the Red Bayou Irrigation Project. This project is located in northeast Caddo Parish and is a bout 13,800 acres in size. The project is in the early plan development. Preliminary surveys has indicated that it would be possible to construct a pump station in the Red River for the purpose of moving irrigation water from the river into Red Bayou. One or more weirs would have to be constructed in the channel of Red Bayou to maintain irrigation pools. Once implemented this project will decrease the demand placed on the limited amount of water in the Red River Alluvial Aquifer.

Figure 3 will depict the surface-water withdrawals for the Red River Basin. The one-page summary includes withdrawals by category of use, by parish, and withdrawals from major water bodies in the Red River Basin. Below the name of the basin is a location map showing the areal extent of the basin (modified from Garrison and Covay 1994). The three tables list withdrawals by category of use and the total withdrawal from surface sources within the basin, withdrawals by parish for the basin, and withdrawal by major water body within the basin.

Groundwater

The two primary sources of ground water within the study area are the Red River alluvial aquifer and the Wilcox-Carrizo Aquifer. A small portion of the study area is underlain by the Sparta Aquifer as well. The alluvial aquifer is the primary source of water for domestic, livestock, and irrigation uses.

The Red River Alluvial Aquifer is the largest and in some cases the only available source of fresh ground water. The aquifer consist of fine to medium sand in the upper part of the deposit to coarse sand and gravel in the lower reaches. The alluvial deposits are about

65 feet deep in the study area and confined by a clay, sandy clay, or silt layer. The aquifer thickness averages about 45 feet within the study area. The alluvial aquifer is the most permeable aquifer in the area. Water in the alluvial is under both artesian and water table conditions. The alluvial aquifer is recharged from infiltration of rainfall; from streams when the stage of the stream exerts a head differential greater than the potentiometric head of the aquifer; and from the under-lying Wilcox-Carrizo aquifer in areas where its potentiometric head is greater than that of the alluvial.

The hardness of the water within the alluvial aquifer ranges from 330 to 560 milligrams per liter (mg/l) with an average of 415 mg/l. The iron concentration ranges from 0.02 to 10 mg/l and averages 5.5 mg/l. The manganese concentration is likely to be relatively higher than 0.05 mg/l, which is the maximum value established in the primary standards of the Safe Drinking Water Act. As such, the alluvial aquifer has the potential for being the primary source of water for public supplies. However, treatment is required to reduce hardness and other minerals within the water (Whitfield 1980). Withdrawals by parish and withdrawals in million gallons per day are shown in Figure 5.

The Carrizo - Wilcox underlies the alluvial deposits within the area. Some of the study area is also in the Red River Alluvial Aquifer. The Carrizo – Wilcox formation is the principal source of public-supply systems within the western fringes of the study area. There are areas within the aquifer where chloride concentrations may exceed 250 mg/l. The typical yield of a well screened in this aquifer will range from 40 to 280 gal/min. The thickness of the aquifer generally ranges from 280 to 390 feet in thickness with the water-producing lens of sand averaging approximately 30 feet at various levels within the formation. These waters, producing fine grain sand layers, are deposited in layers that are broken by confining beds of clay or lignite. The thickness of the water producing sands can vary significantly within a short horizontal distance. Due to the variability in sand thickness, it is usually necessary for several test holes to be drilled before an adequate sand can be found.

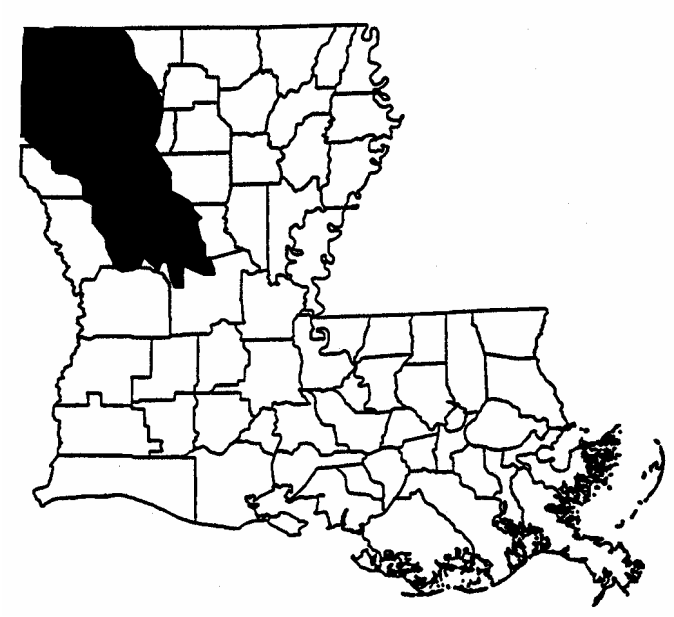
The Sparta is pumped in a large area of north central Louisiana and in a narrow band through the project area covering Natchitoches and Sabine parishes. Groundwater movement is eastward toward the Mississippi River Valley and southward toward the Gulf of Mexico, except when altered by heavy pumping, and the hydraulic conductivity varies between 25 to 100 feet/day. The maximum depths of occurrence of freshwater in the Sparta range from 200 feet above sea level, to 1,700 feet below sea level.

Withdrawals from the Carrizo - Wilcox aquifer by parish and withdrawals in million gallons per day is shown in Figure 4. Withdrawals from the Red River Alluvial Aquifer are shown in Figure 5. The Sparta Aquifer is depicted in Figure 6.

Figure 3

RED RIVER

SURFACE-WATER BASIN



Withdrawals by Parish

Parish	Mgal/d
Bienville	0.14
Bossier	9.74
Caddo	140.35
De Soto	.11
Natchitoches	30.62
Rapides	407.48
Red River	.44
Webster	.40

Withdrawals, in million gallons per day (Mgal/d)

Public Supply	61.73
Industry	13.19
Power Generation	499.87
Rural domestic	.00
Livestock	1.76
Rice irrigation	7.19
General irrigation	2.36
Aquaculture	3.17
Total	**589.27**

Withdrawals by Major Water Body

Water Body	Mgal/d
Bayou Pierre	3.78
Black Lake	1.23
Caddo Lake	94.54
Cross Lake	44.96
Lake Rodemacher	407.48
Little River	3.36
Red River	21.18
Sibley	5.12

Figure 4

CARRIZO-WILCOX AQUIFER

Withdrawals by Parish

Parish	Mgal/d
Bienville	0.80
Bossier	2.64
Caddo	3.90
De Soto	2.20
Natchitoches	1.42
Red River	.99
Sabine	1.67
Webster	.93

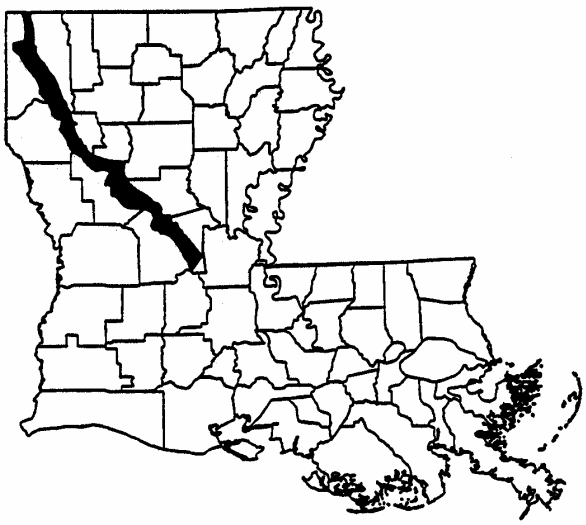
Withdrawals, in million gallons per day (Mgal/d)

Public Supply	6.78
Industry	.70
Power Generation	.00
Rural domestic	4.40
Livestock	.47
Rice irrigation	.67
General irrigation	1.35
Aquaculture	.20
Total	**14.56**

Figure 5

RED RIVER

ALLUVIAL AQUIFER



Withdrawals by Parish

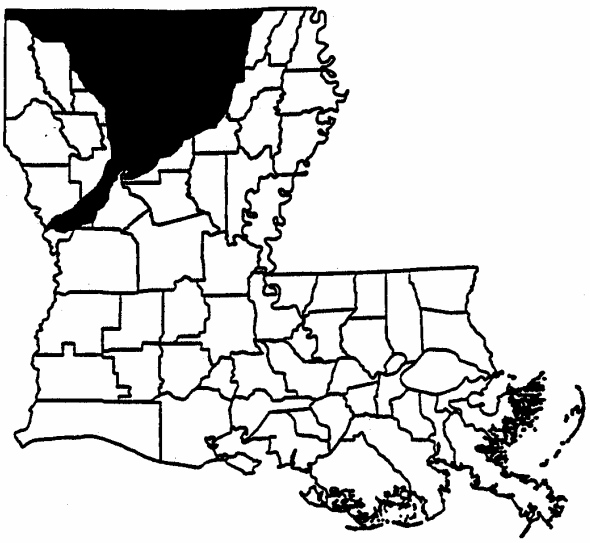
Parish	Mgal/d
Avoyelles	0.91
Bossier	.40
Caddo	1.29
Catahoula	.36
De Soto	.03
Grant	.02
Natchitoches	2.11
Rapides	1.65
Red River	.75
Winn	.01

Withdrawals, in million gallons per day (Mgal/d)

Public Supply	.16
Industry	.00
Power Generation	.00
Rural domestic	.17
Livestock	.45
Rice irrigation	3.17
General irrigation	1.94
Aquaculture	1.62
Total	**7.52**

Figure 6

SPARTA AQUIFER



Withdrawals by Parish

Parish	Mgal/d
Bienville	12.33
Bossier	.40
Caddo	.03
Caldwell	.05
Claiborne	2.97
Jackson	1.93
LaSalle	.03
Lincoln	8.86
Morehouse	2.77
Natchitoches	.36
Ouachita	23.20
Sabine	.52
Union	5.67
Webster	5.79
Winn	3.38

Withdrawals, in million gallons per day (Mgal/d)

Public Supply	37.70
Industry	27.06
Power Generation	0.00
Rural domestic	1.43
Livestock	1.45
Rice irrigation	.49
General irrigation	.08
Aquaculture	.07
Total	**68.28**

Groundwater Rights in Louisiana

Groundwater may be defined as fresh water situated beneath the land but within 2500 feet of the surface; it is a natural resource very often taken for granted. Although Louisiana's groundwater law is not clear, we are generally considered an absolute ownership state. The State of Louisiana has recognized that the economic development and well-being of the state is inextricably connected to the use of freshwater from the state of Louisiana's surface and aquifer sources. As a result, Executive Order Governor Murphy J. Foster 00-44 created Louisiana State Water Policy Advisory Task Force. Article 490 of the Louisiana Civil Code seems to be consistent with the absolute ownership law by stating that a landowner owns everything on, above or below his land. However, in respect to groundwater, the courts have interpreted this article to mean that a landowner does not have absolute ownership, but only owns the water after he has captured it.

Article 667 says that although a landowner may do with his estate whatever he pleases, still he cannot harm his neighbor. This article appears to restrict absolute ownership, but it is questionable as to whether or not this Article can be applied to the use of groundwater. Along with these Article, the Mineral Code also addresses the ownership of groundwater. The Mineral Code treats groundwater as a mineral and goes along with the court's interpretation of Article 490 saying that a landowner does not actually own the water below his land but only owns it once he has pumped it out of the ground.

Constitutional Amendment 10, known as the Groundwater Conservation amendment was included on Louisiana November 5, 2002 Election Ballot. The amendment was sponsored by Senator Max Malone , R-Shreveport during the 2001 Regular Session. The passage of this amendment would authorize the Louisiana Legislature to create programs to provide loans, grants and other subsidies to farmers who voluntarily forgo irrigating with groundwater in periods of drought. It would also assist those in agriculture in developing other water resources for irrigation. The amendment failed with the results being 46 percent for, and 54 percent against.

Surface Water Monitoring

The Louisiana Department of Environmental Quality Office of Water Resources surface water monitoring program is intended to measure development towards achieving water quality goals at the state and national levels and to gather baseline data used in establishing and reviewing the state water quality standards, thereby providing a database for use in determining the assimilative capacity of the waters of the state. Information is also used to establish permit limits for wastewater discharges.

The surface water-monitoring program consists of a fixed station long-term network, intensive surveys, individual studies, and wastewater discharge compliance sampling. LDEQ and its forerunner agencies have maintained a surface water quality-monitoring program since the 1950's. This program has consisted of collecting water samples from designated points on waters across the state on a monthly or bimonthly basis. These samples are analyzed for 23 different chemical parameters and for bacteria. The purpose

of such a program is to provide baseline or background data on a water body and to monitor long-term trends in water quality. Over the years, monitoring stations have been discontinued or added as needs or conditions changed. Samples collected monthly, or bimonthly, from the stations are analyzed in the LDEQ laboratory using procedures detailed by the state and the Environmental Protection Agency approved Quality Assurance Plan.

Parameters monitored under the monthly ambient surface water quality network for LDEQ include pH, temperature, dissolved oxygen, salinity, alkalinity, hardness, turbidity, conductivity, sulfates, true color, chlorides, total Kjelhahl nitrogen, total dissolved solids, total suspended solids, arsenic, cadmium, chromium, copper, mercury, lead, nickel, nitrate, and nitrite N., total phosphorous, total organic carbon, and coliform bacteria.

Designated Uses of Water Bodies

Each sub-segment in the river basin has been assigned certain designated uses by LDEQ. The Clean Water Act requires that these designated uses be maintained. Both numerical and non-numerical criteria have been established for each of these use categories. Support of designated uses is based upon frequency of exceedances of water quality criteria. In general, the main criteria considered in the determination of use attainment are: Primary Contact Recreation – fecal coliform bacteria - 400/100 ml; Secondary Contact Recreation – fecal coliform bacteria – 2000/100 ml; Fish and Wildlife Propagation – dissolved oxygen – 5 mg/L (fresh water); Public Water Supply – total coliform bacteria – 10,000/100mL, fecal coliform bacteria – 2000/100 ml. The designated uses are as follows:

1. Primary Contact Recreation (PCR) – All sub-segments
2. Secondary Contact Recreation (SCR) – All sub-segments
3. Fish and Wildlife Propagation (FWP) – All sub-segments
4. Agriculture (AGR) – All sub-segments
5. Outstanding Natural Resources (ONR)

Water Quality Stations

US Geological Survey Monitoring Stations

Four stations in the Bayou Pierre River Basin are currently monitored by the United States Geological Survey (USGS) Office. A map of these monitoring stations is contained in Appendix D. These sites are located in hydrologic unit 11140206 that is included in the Watershed Unit Map shown in Appendix D also. These four stations are:

1. Bayou Pierre at Shreveport, LA (07350700)
2. Cypress Bayou Near Keithville, LA (07351500)
3. Bayou Pierre Near Lake End, LA (07351750)
4. Bayou Pierre at Powhatan, LA (07351755)

Bayou Pierre at Shreveport, LA (07350700) is located at Latitude 32°27'20", Longitude 93°44'06", Caddo Parish, at bridge on East 70th Street, 1.5 miles east of Interstate 49 on Hydrologic Unit 11140206. This station has a drainage area of approximately 14.2 square miles.

Cypress Bayou Near Keithville, LA (07351500) is located at Latitude 32°18'00", in Southwest SW) ¼ section 8, Township 15 North, Range 14 West, Caddo Parish on Hydrologic Unit 11140206 on downstream side of bridge on U.S. Highway 171, immediately downstream from Texas and Pacific Railroad bridge, 2.0 miles south of Keithville, and 6.0 miles upstream from mouth of Boggy Bayou.

Bayou Pierre Near Lake End, LA (07351750) is located at Latitude 31°53'40", in E ½ sec. 36, T.11 N., R. 10 W., Natchitoches Parish, Hydrologic Unit 11140206, near right bank on downstream side of bridge on State Highway 174, ½ mile downstream from Jims River, and 2.9 miles southwest of Lake End.

Bayou Pierre at Powhatan, LA (07351755) is located at Latitude 31°51'37", Longitude 93°12'22", Natchitoches Parish, at bridge on State Highway 485, 1.0 miles southwest of Powhatan, and 11.8 miles upstream from mouth. The drainage area is 879 square miles.

Louisiana Department of Environmental Quality Monitoring Stations

The Louisiana Department of Environmental Quality (LDEQ) maintains 4 monitoring sites in the Bayou Pierre Study area. According to LDEQ most of the sites only have data through May of 1988, which is when the 5 year rotating basin plan came into effect. For the year 2002, the Red River Basin is being sampled intensively. All of the sites are located in subsegments 100601-100606. The newer sites (0983 and up) were recently assigned for the 2002 sampling survey. Some of the older sites will have been picked up again in 2002. Site 0143 only had data through 1989 due to the fact that this site was replaced by two other sites on Bayou Pierre. A map of the monitoring sites is located in Appendix D. Site 0143 only had data through 1989. The site numbers, names, and locations are as follows:

Bayou Pierre near Lake End, Louisiana (100606, site no. 0143) located at bridge on State Hwy 174, 0.5 miles downstream from mouth of Jims River and 2.9 miles southwest of Lake End. Data on this site has been collected from January 12, 1987 to December 12, 1989.

Bayou Pierre west of Grand Bayou, Louisiana (100606, site no. 0277) located at U.S. Highway 84 bridge, 0.7 miles upstream from Bailey Bayou, 2.8 miles west of Grand Bayou, Louisiana. Data on this site has been collected from January 8, 1990 to May 11, 1998.

Bayou Pierre near Shreveport, Louisiana (100601, site no. 0278) located at State Highway 526 bridge, 0.75 mile northeast of Forbing, Louisiana 8.0 miles south of Shreveport, Louisiana.

Brushy Bayou near Shreveport, Louisiana (100603, site no. 0279) located at Louisiana Highway 526, 8.25 miles south of Shreveport, Louisiana.

Cypress Bayou south of Shreveport, Louisiana (100603, site no. 0280) Cypress Bayou at Linwood Avenue, 12 miles south of Shreveport, at Caddo-De Soto Parish line, Louisiana.

Clear Lake north of Mansfield, Louisiana (100605, site no. 0281) located at Louisiana Highway 509, 10.25 miles north of Mansfield, Louisiana, Clear (Edwards) Lake/Smithport Lake.

Degree of Support of the Surface Water Bodies

Results of ambient surface water monitoring are used to determine if water bodies are meeting their designated uses. All site-specific data is available from LDEQ, and can be easily obtained from their website www.deq.state.la.us/planning/305b/1998/305b-atab10.htm. For 1998, the following degrees of support were listed:

1. 100606 – Insufficient Data
2. 100601 - Not Meeting Its Designated Use
3. 100603 - Not Meeting Its Designated Use
4. 100605 - Threatened
5. 100602 - Insufficient Data

Suspected Sources and Causes of Water Impairment

The following includes all of the suspected causes and sources in the Bayou Pierre River Basin according to the 1998 LDEQ 305b Report.

Suspected Causes	Suspected Sources
Organic Enrichment/Low Dissolved Oxygen	Unknown
Pathogen Indicators	Unknown
Metals	Unknown
Cadmium	
Lead	
Mercury	
Copper	

Total Maximum Daily Load

Section 303(d) of the 1972 Clean Water Act (CWA) requires all states to develop a list of their state's impaired waterbodies. The 303(d) list of impaired waterbodies consists of those waterbodies that do not meet state regulatory water quality standards even with the current pollution controls in place (even after point sources of pollution have installed the minimum levels of pollution controls). The CWA also requires all states to establish

priority rankings for waters on the 303(d) list and develop Total Maximum Daily Loads (TMDLs) for these waters based on their individual priority ranking.

A TMDL is a pollution budget for a specific waterbody (river, lake, stream, etc.) It is the maximum amount of a pollutant (sum of allowable pollutant loads from point and nonpoint sources) that can be released into a waterbody without causing the waterbody to become impaired and/or violate state water quality standards. A TMDL also must include a margin of safety to allow for any uncertainties in the scientific methods used to derive the TMDL (water quality modeling assumption, etc.)

Point sources originate from a stationary location or fixed facility from which pollutants are discharged directly into a waterbody. Some examples of point sources include:

- Wastewater effluent, both municipal and industrial facilities
- Runoff and infiltration from confined animal feeding operations
- Runoff from active mine sites and oil fields
- Runoff and leachate from waste disposal sites

Pollution sources, which are diffuse and do not have a single point of origin or are not introduced into a receiving stream from a specific outlet, are considered nonpoint sources of pollution. Some examples of nonpoint sources are:

- Runoff from row-crop agriculture (including return flow from irrigated agriculture)
- Runoff from pasture and range
- Runoff from forested areas
- Runoff from roads, highways and parking lots
- Runoff from urban stormwater
- Runoff from lawns and gardens
- Activities on the land that generate pollution, such as logging, wetland conversion for development and construction
- Natural sources, such as leaves, organic nutrients and wildlife feces

Most of the attention about TMDLs has been focused on agriculture and forestry. However, municipalities, urban areas, business and industry, and rural subdivisions are also subject to TMDLs. Municipalities can be affected in three ways. The discharge limits for solids, biochemical oxygen demand (BOD), and nutrients from sewage plants are subject to being lowered, which can be quite expensive to comply with. Urban stormwater may contain high loadings of many types of pollutants including nutriments, fecal coliform bacteria, oil and grease, metals and pesticides.

EPA is under a court order or consent decree in many states to ensure that TMDLs are established. The CWA authorizes the states to develop TMDLs, but if the states do not develop the TMDLs, then EPA must develop them. Region 6 EPA signed a memorandum of understanding (MOU) agreeing to establish 609 TMDLs for 196 waterbodies in Louisiana over a 12-year period. TMDLs for the Red River Basin is scheduled for completion by March 31, 2005.

Drainage Patterns

The Bayou Pierre Study area lies totally within the alluvial plain of the Red River. Before man's intervention, floodwaters regularly flowed over the banks of the Red River into this valley. Floodwater and excess rainfall within the basin were drained by a network of streams running parallel to Red River. These streams and the overall alluvial valley were quite flat and contained many large areas of natural depression. The runoff was quite slow and the land remains inundated for long periods.

The most important obstruction to natural drainage patterns was the construction of a levee system along the Red River. Since its expansion in 1946 this levee has not been breached. Backwater flooding from the Red River is now insignificant. The levee easily retained the 100-year flood of 1990.

Bayou Pierre Operations and Maintenance

According to the US Army Corps of Engineers 1976 Operations & Maintenance report for Bayou Pierre, Louisiana, Public Law 738 was authorized in June 1936 (USACE 1976) . It provided for channel enlargement on Bayou Pierre at intervals extending from the confluence with Bayou Wincey near Hanna, Louisiana, to the confluence with the Red River about 12 miles northwest of Grand Ecore, Louisiana. This reach of Bayou Pierre nearly parallels the general course of the Red River and forms a portion of the southwesterly boundary of Red River Parish. Act 761, the Flood Control Act of 28 June 1938, modified Act 738 and transferred maintenance responsibility from local interest to the Federal Government.

Channel enlargement on Bayou Pierre was distributed over a reach of 12.9 miles at a cost of $299,529 and was completed in FY 1939. The O&M Plan that was developed consisted of applying herbicides at various stages in the stream to allow for the eradication of noxious broadleaf vegetation that grows over the streambank and the removal of drift and debris that accumulates in the stream and on the various bridge crossings.

The flood control project on Bayou Pierre, vicinity of Shreveport, Louisiana, was authorized by Act of Congress, approved 24 July 1946 according to the April 1950 Corps of Engineers Operation and Maintenance Manual. This project area is located along the upper reaches of Bayou Pierre between Miles 64.7 and 84.87. This Act treated only the lower part of the project relative to which the Caddo Levee District had furnished assurances of local cooperation, and outside the City of Shreveport. The work was initiated on July 28, 1943 and was completed in July 1948. Works of improvement consisted of channel improvement of Bayou Pierre by clearing and snagging from Mile 64.7 to Mile 75.64 and by channel enlargement from 75.64 to Mile 83.26. The Act required that the Caddo Levee District appoint a permanent committee or organization headed by an official who was to be called the "Superintendent." Periodic inspections of the project shall be made by the Superintendent.

The flood control project on Bayou Pierre, vicinity of Shreveport, Louisiana, Shreveport Section was authorized by Congress and approved on July 24, 1946. The Shreveport section consisted of channel improvement of Bayou Pierre and east Bayou Pierre by enlargement from Mile 83.26 to Mile 84.17 and by clearing and snagging above this point to Mile 84.87; of West Branch Bayou Pierre by enlargement from Mile 83.6 to Mile 83.8 and of Ockley Drive Ditch by enlargement from Mile 0.00 to Mile 0.37. Ockley Drive Ditch and West Branch Bayou Pierre have been further improved by means of channel paving.

Work on the Shreveport Section was initiated in October 1948 and completed in March 1949. The City of Shreveport was required to appoint a permanent committee or organization headed by a Superintendent, who was to be in charge of a force responsible for the efficient operation and maintenance of the project.

BIOLOGICAL RESOURCES

Special Emphasis Areas

Special-emphasis areas include the 1, 337-acre Bayou Pierre Wildlife Management Area (WMA) in the Cannisinia Lake area of De Soto Parish, which is owned and managed by the Louisiana Department of Wildlife and Fisheries (LDWF). The Bayou Pierre WMA includes a waterfowl refuge and a dove field adjacent to Bayou Pierre, and an information station and field office; no trapping or fishing is allowed on the refuge portion. There are several tracts in the Bayou Pierre Basin enrolled in the NRCS' Wetlands Reserve Program (WRP) and the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program, as well as a former Farmers Home Administration inventory tract incorporated into Bayou Pierre WMA. Of the enrolled properties, only one WRP tract is located near the Bayou Pierre channel and no WRP or Partners tract encompasses the Bayou Pierre riparian zone.

Aquatic Habitats and Fishery Resources

Major water bodies in the study area include Bayou Pierre, the Red River, Wallace Lake, Cannisnia Lake, Clear Lake-Smithport Lake, and Bayou Pierre Lake. Fisheries possibly occurring in the basin can be found in Appendix B. Aquatic habitat include the Bayou Pierre channel and its slackwater areas and floodplain. Much of Bayou Pierre has been affected by channelization and enlargement for flood control purposes. It is characterized by banks of varying steepness, turbid waters, and variable flows that respond to seasonal flooding and local rainfall events. In an unmodified bayou or stream, diverse aquatic habitats are created and maintained by bank caving, shoaling, log and debris jams, channel migration, and seasonal overbank flows. Many of those features, however, disappear with channelization and bank stabilization improvements. Most slow-flowing bayous also are characterized by dissolved oxygen depletions during the summer, where nutrient-rich waters experience high biological oxygen demand. Currently, the timing, extent, and frequency of average flows, stormwater discharges, and overbank flows along Bayou Pierre are undocumented.

Unmodified bayous and streams support fish spawning and nursery habitats in pools, slackwater areas, and flooded riparian zones. Slackwater outside of the main channel also contribute to overall stream productivity and diversity by providing major sources of plankton and macroinvertebrate production. The extent to which these habitats persist along Bayou Pierre is unknown, and fish populations are probably limited as a result of past habitat modifications

Terrestrial Habitats and Wildlife Resources

Land use in the study area consists primarily of woodlots, pine plantations, pastures, and rural residential areas. According to EPA's Watershed Information Network, land cover in the Bayou Pierre watershed consists of 25 to 50 percent forest riparian habitat, but notes that estimate is based on insufficient data (EPA 2000b). According to visual inspections at bridge crossings, Bayou Pierre is bordered by a narrow strip of riparian woodlands that varies in width throughout its length from 10 to 25 feet, to 50 to 100 feet. In some areas, particularly downstream of Wemple in De Soto Parish, no riparian zone remains at all and pasture or cleared fields extend to the shoreline.

Upstream of Wemple, much of the land outside the Bayou floodplain, particularly to the south and west, retains large forested areas of upland pine and pine-hardwood cover types (e.g., loblolly and shortleaf pines, and various oak and hickory species). Important forested wetlands are located in the Cannisnia Lake and Clear Lake-Smithport areas.

The Cannisnia Lake area, according to recommendations made by The Nature Conservancy to the Corps in 1994, is the most extensive example of mature hackberry-American elm-green ash-Nuttal oak bottomland hardwood forest community remaining in the Red River alluvial plain of northwest Louisiana. About half of the approximately 6,000-acre area qualifies as a significant natural area with old-growth characteristics, including baldcypress swamps in depressions and sloughs. Most of the Old Spanish Lake Lowlands area in the Little River watershed, between Powhatan and Allen in Natchitoches parish, are former bottomlands now cleared and converted to agriculture. The Old Spanish Lake Lowlands are a focus for acquisition efforts for the Red River NWR, and include several tracts enrolled in WRP and Partners projects.

Agricultural land use in the study area, especially downstream of Wemple, consists primarily of cotton, soybeans, and pasture. When flooded during the winter, crop fields generally provide valuable habitat for migratory waterfowl, especially if located adjacent to bottomland hardwood forests that provide nocturnal roosting cover. The extent and frequency to which such seasonal flooding occurs in the Bayou Pierre Basin is unknown.

The Red River, for example, rarely overflows its banks in northwest Louisiana, and the extent and duration of winter flooding in crop fields is minimal; most such flooding occurs in the area between the river and Louisiana Highway 1, where some fields are still planted in rice. Periods of prolonged and/or intense rain may provide waterfowl feeding areas in depressions and other areas of inadequate interior drainage in soybean, corn,

milo, and rice fields. Because those crops are minor components of agricultural land use in the study area, winter flooding along the Red River and Bayou Pierre is unlikely to provide much benefit to waterfowl. For this reason, most migrating ducks and geese rest only temporarily in northwest Louisiana before moving farther south to more suitable flooded rice and cornfields. Nonetheless, transient species of geese and dabbling ducks commonly observed in the study area include lesser snow goose, white-fronted goose, mallard, green-winged teal, blue-winged teal, pintail, gadwall, and American widgeon.

Other birds that frequent flooded fields and overflow areas adjacent to bayous and streams include wading birds (such as great egret, great blue heron, tricolored heron, green heron, and white ibis) and migrating shorebirds (greater yellowlegs, lesser yellowlegs, dowitchers, and sandpipers). Open-field birds that may be present in non-flooded areas can be found in Appendix B. A field checklist of the birds of the Bayou Pierre River Basin can be found in Appendix B as well.

Riparian habitat along Bayou Pierre has been significantly disturbed by agricultural development and stream modifications for improved drainage and flood control, and now supports a reduced diversity of plant and animal species. Riparian cover generally contains such bottomland species as American sycamore, American elm, hackberry, green ash, eastern cottonwood, black willow, sweet pecan, water-locust, and red mulberry; understory species may include roughleaf dogwood, red maple, and a variety of shrubs and vines. A list of plants commonly found in the study area can be found in Appendix B.

Riparian habitats are particularly valuable to wildlife as travel corridors and transition zones between aquatic and agricultural areas, and often provide the only forested habitat in rural areas characterized by large expanses of agricultural and pasture lands. Riparian woodlands also contribute vital elements to fishery resources in the form of detritus, shade, and in-stream cover. In addition to their wildlife habitat function, both riparian woodlands and forested wetlands floodwater storage areas, and maintain water quality by trapping suspended solids and assimilating dissolved nutrients and pollutants.

Forested wetlands of bottomland hardwood species border study area lakes, especially Cannisnia and Clear Lake-Smithport Lakes. Major species include water oak, Nuttall Oak, sugarberry, sycamore, red maple, green ash, bitterpecan, and sweetgum. In addition, wooded swamps within topographic depressions in those areas contain such species as baldcypress, tupelogum, water elm, and swamp privet. Like riparian woodlands, forested wetlands provide expanded fish spawning and nursery areas during flood season, as well as resting and feeding areas for waterfowl and other birds.

The Red River Basin in Louisiana, including the Bayou Pierre watershed, is located within a major mid-continental bird migration corridor. Many of the neotropical migratory landbirds seen along the Red River are trans-gulf migrants that need riparian woodlands both for stopover feeding and resting habitat during migration, and for nesting habitat during the spring and summer. Riparian woodlands generally provide important breeding and wintering habitat for a variety of migratory and resident birds such as

kinglets, wrens, kingfishers, woodpeckers, vireos, warblers, summer tanagers, and buntings. Raptors such as red-shouldered hawks, Mississippi kites, barred owls, screech owls, and great horned owls commonly nest and forage in these areas.

The value of avian habitat in riparian woodlands and forested wetlands of the Bayou Pierre study area, however, has been compromised due to forest clearing and stream modification. Resident wood ducks, for example, usually nest in riparian zones, using flooded woodlands and vegetated shallow water for brood-rearing habitat; such are scarce along Bayou Pierre. Likewise, undisturbed riparian woodlands are important for the survival of northwest Louisiana's restricted, restocked wild turkey population and for wintering American woodcock.

Mammalian species that may occur in reduced numbers in the study's area's remnant riparian woodlands include eastern cottontail and swamp rabbits, gray and fox squirrels, gray and red foxes, raccoon, opossum, nutria, beaver, mink, and white-tailed deer. The study area is home for numerous species of amphibians and reptiles. A list of these species is found in Appendix B.

Wildlife displacement during floods is not a critical problem in the Bayou Pierre Basin. Visual inspections by FWS of aerial photographs indicate that at least half of the basin's land area has been converted to agriculture, and does not provide high-quality wildlife habitat. Riparian wildlife are adapted to seasonal flood conditions. Individuals of certain species such as small burrowing mammals that are unable to climb trees or move to high ground may perish during floods, but such species also are able to replenish their populations fairly rapidly. The major problems in the Bayou Pierre study area is wildlife displacement due to forest conversion and fragmentation resulting from continued agricultural and urban development. That displacement may increase if new flood control measures contribute toward increased habitat loss.

Recreational benefits associated with fish and wildlife habitats would depend on the availability of access. Most of the land in the Bayou Pierre Basin is privately owned and not open to the general public for hunting, fishing, hiking, birding, or other recreational pursuits. In general, the public may access Bayou Pierre only at highway bridge crossings, and the navigability of Bayou Pierre throughout its length and throughout the year is unknown. One public boat ramp at Clear Lake-Smithport Lake apparently is a popular fishing spot even during the coldest days of winter.

Threatened and Endangered Species

Federally listed threatened or endangered species that may possibly occur in the study area include the threatened bald eagle *(Haliaeetus leucocephalus)*, endangered interior least tern *(Sterna antillarum)*, and endangered red-cockaded woodpecker *(Picoides borealis)*. Nesting colonies of the interior least tern have recently been found on sparsely vegetated sandbars and islands along the Red River north of Natchitoches, but least terns are unlikely to be found more than a few miles from these sites except during migration.

Bald Eagles winter and infrequently nest near large lakes in central and northern Louisiana, and along the Red River in limited numbers, but there are no known nesting sites documented within the Bayou Pierre study area. Eagles may be observed in flight overhead or occasionally foraging over streams. Major threats to the bald eagle include habitat alteration, human disturbance at nest sites, and environmental contaminants (organochlorine pesticides and lead). Any new or undocumented nest site found in the study area should be protected; all Federal activities are generally prohibited within 1,500 feet of bald eagle nests, and certain other activities occurring within the 1,500-foot nesting zone are restricted to the non-nesting season. The Louisiana Department of Wildlife and Fisheries annually monitors and documents eagle nest sites. Eagles are also protected under the Bald Eagle Protection Act and the Migratory Bird Treaty Act.

A red-cockaded woodpecker (RCW) cluster was documented in 1984 within a half-mile of Bayou Pierre's west bank, near Wemple in De Soto Parish. The current status of this cluster, and of other potential undocumented clusters on privately owned lands, is unknown. The RCW is a nonmigratory, territorial species that requires open, park-like stands of mature (fifty years or older) pine stands with sparse hardwood midstories. RCW's excavate roost and nest cavities in living pine trees; the area encompassed by a family group's cavity trees, with the surrounding mature pine foraging habitat, is known as a cluster. Much logging has occurred in the local area since 1984, and the little mature pine forest that remains does not provide good RCW habitat because of excessive hardwood encroachment. Any Federally funded work proposed in the study area at sites containing suitable habitat should be surveyed by a qualified biologist for the presence of RCW clusters. The survey should include a quarter-mile buffer zone around the entire right-of-way proposed for each alternative plan. A copy of the site inspection report should be provided to the FWS office and should include the following: (1) stand characteristics, including pine basal area, number of pines at least 10 inches DBH or older than fifty years, and species of dominant vegetation within each canopy layer; (2) number of active and inactive RCW cavity trees observed; (3) presence or absence of RCWs; and (4) topographic quadrangle maps delineating areas of adequate RCW habitat, cluster sites, and cavity tree locations relative to proposed construction activities. If an active cluster or suitable RCW habitat is present in an area to be cleared, further consultation with the FWS is necessary.

Christmas Bird Count

The primary objective of the Christmas Bird Count is to monitor the status and distribution of bird populations across the Western Hemisphere. The count period is from December 14th to January 5th, in North America is referred to as "early winter." Because many birds at this time are still in the late stages of their southward migration, so it is not "true" winter.

More than 50,000 observers from the Western Hemisphere (predominately the United States) participate each year in this census of early-winter bird populations. The results of their efforts are compiled into the longest running database in orinthology, representing over a century of unbroken data on trends of early-winter bird populations across the Americas.

Within the study area there are three Christmas Bird Counts (C.B.C.). All of the counts are conducted in a fifteen-mile diameter circle from a center point. The Caddo-Bienville Christmas Bird Count has been conducted annually since 1988. The Caddo-Bienville count is conducted in a fifteen-mile diameter circle centered 2.5 miles southeast of McDade. This area encompasses portions of Bossier, Caddo, Bienville, and Red River parishes with the center located approximately Latitude 32° 18'N, Longitude 93°29'W.

The Natchitoches Christmas Bird Count has been conducted annually since 1965. The Natchitoches count has as it center the intersection of highway 71 and Route 6 at Clarence, Louisiana which has a Latitude of 31° 49'N and Longitude of 93°03'W, and is a 7.5 mile radius. By far the most prominent C.B.C. is the Shreveport C.B.C which has been going on since 1950. The center of the Shreveport C.B.C. is within 3 miles of Blanchard, Louisiana, which is located at Latitude 32°32'N 93°53'W. For a listing of the species detected in the annual counts see Appendix B.

Recreation

The study area is adjacent to areas that provide recreational opportunities to the public. These include the Bayou Pierre Wildlife Management Area, which is a 1,337-acre refuge area located in Red River Parish. A map of the management area can be found in Appendix B. More discussion on the management area can be found in the previous Special Emphasis section in this document. The Red River to the east and with the recent system of locks and dams in place, has potential for utilization for water sports and fishing. A series of public boat ramps and recreation areas are planned at numerous points along the Red River.

In addition to the recreational opportunities discussed above, needs for future recreation have been identified. The State of Louisiana prepared the 1993 Statewide Comprehensive Outdoor Recreation Plan (SCORP) which describes significant recreation issues, strategies, and recommendations. During plan preparation, an analysis of recreation demand, supply, and need was conducted. Information was gathered through workshops held across the state; a survey of outdoor recreation use organizations,

communities and parishes; a Lieutenant Governor's Task Force on Outdoor Recreation Resources; and an inventory of federal, state, local, and private recreation programs that together constituted the development of this plan (Louisiana Department of Commerce, Recreation, and Tourism, 1994)

National Wildlife Refuge

The nation's newest wildlife refuge in the project area was recently dedicated in August 2002 with 600 acres being established to trees. The area is the first national wildlife refuge along the Red River Valley, which consists of about 800,000 acres from the Arkansas border to Alexandria. A map of the wildlife area is shown in Appendix D. The Red River NWR Act was recently passed by Congress and has received presidential approval. The authorizing legislation recognizes the Red River Basin in Louisiana, which encompasses the Bayou Pierre Watershed, as an internationally significant resource owing to its location within a major bird migration corridor.

The Bayou Pierre study area essentially coincide with the refuge's proposed Bayou Pierre Floodplain selection area, which is designated from north of the city of Natchitoches to Louisiana Highway 175 southeast of Wallace Lake. That selection includes Clear Lake-Smithport Lake, Cannisnia Lake, Bayou Pierre Lake, and their associated forested wetlands. The selection area also encompasses the Little River Basin, which contains the area known as the Old Spanish Lake Lowlands in Natchitoches Parish. Acquisition of the proposed refuge is strongly supported by the local community in Shreveport, primarily through the efforts of the non-profit Friends of the Red River NWR.

This historic region has been used for migratory birds funneling through the mid-continent from as far north as the Arctic Circle and as far south as South America. Up to 50,000 acres stretching across northwest Louisiana in Caddo, Bossier, Red River, Natchitoches and De Soto parishes may be incorporated into the refuge. The refuge, located in an area known as the Old Spanish Lake Lowlands, is the product of a carbon trapping project that will offset the environmental impacts of fossil fuel emissions, provide new fish and wildlife habitat and bring recreation-driven economic benefits to the northwest Louisiana along the Red River Valley in Natchitoches Parish.

The refuge is to provide for the restoration and conservation of fish and wildlife habitats in the Red River Valley ecosystem in northwest Louisiana. However, since the 1820s, the Red River Valley has been almost totally cleared of its forest cover, primarily due to agricultural production.

The tree shrub planting on the refuge will aid in reducing 275,000 tons of carbon in the next 70 years. Plants remove CO2 from the air and convert it into sugars that are used to produce substances needed to sustain their growth and development. Many of these CO2-derived products, particularly lignin and cellulose, are present in large quantities within the woody tissues of trees and shrubs. Hence, as long as these plants are alive and growing, they actively remove carbon from the air around them (Chambers *et al*., 1998).

ECONOMIC RESOURCES

Population

Table 1 contain summaries for the 1980, 1990 and 2000 Census Bureau population counts for the five parishes in the study area, as well as the state of Louisiana and the United States. Population trends in the basin reflect employment, natural resources development, and changes in technology and transportation.

Table 1. Total Population of Parishes within the Bayou Pierre River Basin.

Population	1980	1990	2000	% Change 80 - '90	% Change 90 - '00
Caddo	252,437	248,253	252,161	-1.7	1.6
De Soto	25,727	25,699	25,494	-0.1	-0.1
Natchitoches	39,863	37,199	39,080	-6.7	5.1
Red River	10,433	9,518	9,622	-8.8	1.1
Sabine	25,280	22,646	23,459	-10.4	3.6
Louisiana	4,206,116	4,221,826	4,468,976	0.4	5.8
United States	226,542,204	248,765,170	281,421,906	9.8	13.1

As illustrated in Table 1, the population in each of the parishes within the basin grow less rapidly than the state and national averages for all periods. The most dramatic decrease was between 1980 and 1990, which reflects the outflow of people during a period of high unemployment.

Education Attainment

Table 2, illustrates an increase in education rates of people of 25 and older for 1990 and 2000. Each parish shows an increase between the two time periods for high school graduation rates. Most all parishes increased the rate of people of 25 and older with Bachelor's degrees or better from college between the two time periods. However, each parish and the State of Louisiana are below the national average for both categories during the time period.

Table 2. Education Attainment (%)

	1990		2000	
Education	High School	College	High School	College
Caddo	73.4	18.2	78.7	20.6
De Soto	64	9.5	70.3	10.2
Natchitoches	65	16.4	72.7	18.4
Red River	57.4	8.7	67.4	8.7
Sabine	61.9	8.3	70.8	11.1
Louisiana	68.3	16.1	74.8	18.7
United States	75.2	20.3	80.4	24.4

Income

Table 3, illustrates that per capita income has increased between 1990 and 2000. However, during both time periods all parishes except Caddo parish were below the state average. During both time periods the state and parishes were below the national average.

Table 3. Per Capita Income.

Income	1990	2000
Caddo	11,604	17,839
De Soto	8,330	13,606
Natchitoches	8,112	13,743
Red River	7,213	12,119
Sabine	8,539	15,199
Louisiana	10,635	16,912
United States	14,420	21,587

The percentage of the population below the poverty level (Table 4) follows the per capita income data. The state and parishes in the data series are all above the national average for population percentage below the poverty level. All parishes have higher rates of poverty than the state average.

Table 4. Percent of People Below the Poverty Level.

	1989	2000
Caddo	24.0	21.1
De Soto	29.8	25.1
Natchitoches	33.9	26.5
Red River	35.1	29.9
Sabine	27.1	21.5
Louisiana	23.6	19.6
United States	13.1	12.4

Employment

Total employment, the five-parish area, increased from 1990 to 2000, reflecting improving economic conditions (Table 5). Red River is the only parish that had an increase in unemployment rate between 1990 and 2000. However, all parishes that are part of the study had a higher unemployment rate than the state and national averages.

Table 5. Civilian Labor Force (CLF) and Unemployment (UE).

	1990		2000	
Employment	**CLF**	**UE**	**CLF**	**UE**
Caddo	111,342	11.2	115,370	9.3
De Soto	9,855	13.4	10,563	8.1
Natchitoches	14,565	13.4	16,538	9.9
Red River	3,538	11.7	3,563	11.9
Sabine	8,471	11.3	9,225	8.2
Louisiana	1,816,917	9.6	1,997,995	7.3
United States	123,473,450	6.3	137,668,798	5.8

Table 6 contains the industrial sector income for the parishes in the study area. The most income is in the manufacturing, services, and governmental enterprises sector. The agricultural sector is the smallest sector for income generated in each of the parishes. The income information is from the Bureau of Economic Analysis data for 1998**.**

Table 6. Industrial Sector Income by Parish within the Study Area.

	Caddo	**De Soto**	**Natchitoches**	**Red River**	**Sabine**
Ag. services, forestry, fishing, & Other 8/	18,221	5,272	(D)	1,140	1,949
Mining	177,721	41,615	(D)	10,633	2,538
Construction	235,264	25,225	24,929	3,963	6,668
Manufacturing	672,336	60,403	89,407	16,223	72,214
Transportation and Public utilities	317,431	13,953	21,397	5,267	10,283
Wholesale trade	277,809	2,757	17,729	1,242	4,921
Retail trade	368,062	16,870	39,682	6,011	21,453
Finance, insurance, and real estate	202,575	7,354	14,021	3,127	8,162
Services	1,221,291	26,797	69,639	13,455	26,528
Government and Government enterprises	840,688	41039	114,066	15650	33,495

(D): Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

Tourism

The office of State Parks lists the following facilities in the study area: The Mansfield State Historic Site, which is a civil war battle, site. The state operates this 178-acre site with a museum, picnic area and trails. Rebel State Historic Site is the site of a grave of an unknown rebel soldier. The 46-acre site has a museum, picnic area and trails.

Los Adaes State Historic Site is a 1730's Spanish fortification site. This 57-acre site has an archaeological workshop, interpretive exhibits and trails. The State of Louisiana plans

to build a “first class” interpretive center at Los Adaes, the site of the former Spanish colonial capital of Texas, near Robeline. The Louisiana Department of Culture, Recreation and Tourism has $250,000 to help develop plans for the site. The site is unique, and the project when completed will be a full reconstruction of the Spanish mission, a partial reconstruction of the presidio and full reconstruction of several housing sites to display daily life in the Spanish colonial period. Los Adaes is located about one mile east of Robeline off Louisiana Highway 6.

The Parish of Caddo Parks and Recreation Department maintains four parks and recreation areas within the project area. Milton “Hookie” Cameron Memorial Park is a one-acre park at the end of Wallace Lake Road on Wallace Lake. The park consists of a circular drive, parking and a boat ramp. The park is primarily used by fishermen and duck hunters to access the lake. The department also maintains a boat ramp at the end of Norris Ferry Road on Wallace Lake.

Hannah’s Park has been developed within the last year in the Mount Pleasant Acres Subdivision. This 1 ½ acre park located on Oak Grove Lane provides a covered picnic area, playground equipment and open space for the neighbor hood.

The largest park and recreation area in the Caddo Parish portion of the study area is the Eddie Jones Park Development located along LA 789 east of LA 169. This project began in 1999 on 1200+ acres owned by the Parish of Caddo, adjacent to the Fort Wade Correctional Center. Approximately 81 acres of this property is in the process of being transferred to the State of Louisiana so that the Department of Veteran Affairs can develop a Veterans Cemetery on the site. Two hundred acres has been donated to a non-profit organization known as Chimp Haven, Inc., to develop a chimpanzee sanctuary. The remaining property will be developed as a nature park with multiple use trails for hiking, nature study, mountain biking and horseback riding. This development is expected to become an important recreation area and tourist attraction for the Parish (Parish of Caddo Parks and Recreation).

Oil and Gas Wells

Louisiana ranks among the top four states in oil and gas production, and is second in per capita energy consumption. It has produced oil and gas for almost a century. In 1870, a night watchman at an ice plant in Shreveport accidentally discovered natural gas emanating from a well drilled in search of artesian water when he struck a match. Gas from the well was piped to the plant to provide illumination, the first use in the state of the fuel that today heats the vast majority of Louisiana homes and places of business. In 1908 the first natural gas pipeline was laid in Louisiana. It brought gas from the Caddo Field to Shreveport. In 1909 construction began on Louisiana's first long-distance oil pipeline, which by 1910 was transporting oil from Caddo Parish to the Baton Rouge refinery which today is known as Exxon. Table 7 shows the oil and gas activity profile of the parishes in the study area. Location of oil and gas wells in the study area can be found in Appendix D depicts the oil and gas locations in the study area.

Table 7. Parish Oil and Gas Activity Profile 2000

Parish	Royalty	Oil Severance	Gas Severance	Total Wells	Employees
Caddo	$745,315.04	$3,160,169	$1,195,732	240,516	3,682
De Soto	$473,449.64	$ 747,181	$3,052,913	13,630	141
Natchitoches	$ 33,415.48	$ 219,973	$ 266,527	1,896	176
Red River	$ 56,761.14	$ 50,664	$ 90,902	2,033	27
Sabine	$ 68.19	$ 110,601	$ 141,336	6,078	77

Coal Mining Operations

Coal is a relatively new source of energy in Louisiana. Large amounts of coal from other states were first consumed in Louisiana in the early 1980's to generate electricity. Production and consumption of Louisiana's coal, all lignite, began in the mid-1980. Although the annual output of lignite has risen to about 3 million short tons, its role in Louisiana's economy is greatly overshadowed by the large amounts of natural gas and crude oil produced in Louisiana.

Lignite was found in the northwestern part of Louisiana as early as 1812, nearly a century before petroleum was discovered in Louisiana. Around the turn of the century, lignite was used to heat a school near Mansfield. In the 1950's and 1960's, lignite was recognized as a potential fuel for generating electricity in the State, and large reserves were delineated in the Dolet Hills area, near Mansfield which is in De Soto Parish. At the time, however, lignite was not cost-competitive. The economics changed in the late 1970's as pricing and legislation limited the use of natural gas as a power plant fuel.

In 1985, the Dolet Hills mine, operated by Dolet Hills Mining Company, began supplying lignite to the power plant's stockpile by use of a 7.5-mile-long conveyor. The following year, the power plant began commercial operations with a generating capability of 650 megawatts. In the late 1989, a second, smaller surface mine, the Red River Mining Company's Oxbow Mine at Coushatta, Louisiana was opened to provide an additional source of lignite, delivered by truck to the power plant. Dolet Hills Lignite Company is a wholly owned subsidiary of Southwestern Electric Power Company (SWEPCO),

employing some 150 people. Dolet Hills surface mine produces approximately 3 million tons of lignite per year for the nearby Dolet Hills Power Station, which is co-owned by SWEPCO and CLECO Power LLC. An inventory, in millions of tons, of the lignite production from Dolet Hills and the Oxbow mines during the years of 1985 – 1992 is shown in Table 8.

Table 8. Louisiana Lignite Production in Millions of tons for 1985-1992.

	Mine		Total
Year	Dolet Hills	Oxbow	(Million Tons)
1985	392,815	0	392,815
1986	2,067,867	0	2,067,867
1987	2,750,652	0	2,750,652
1988	2,889,489	0	2,889,489
1989	2,879,806	102,753	2,982,559
1990	2,746,096	440,093	3,186,189
1991	2,740,733	410,015	3,150,748
1992	2,653,455	553,950	3,207,405

Reclamation Success

The Red River Coal Mining Company was nominated for the Interstate Mining Compact Commission's Reclamation Award in 1999. The Company was especially recognized for its innovative management of groundwater in the mining of a large flood plain area. The Oxbow Lignite Surface Mine, located near Coushatta, Louisiana, supplies approximately 750,000 tons of lignite per year. The mine is a single – seam, dragline, surface operation. The project was unique in several aspects. It was the first time the slurry wall technology was used for such a large flood plain area to manage groundwater.

A dewatering system was installed to remove the existing ground water in the mining area after the slurry wall was in place. Discharged water traversed a mile long stretch of grassy ditch to a sedimentation pond, and was finally released into Bayou Pierre. Discharges were studied and monitored to make certain they met water quality standards.

After the mining activities are completed, the slurry wall will be cut in several places to allow for the re-establishment of ground water flow. The sedimentation pond will be a permanent feature to the reclaimed area. It serves to enhance the appearance of the site and benefit the wildlife (Mineral Information Institute 2002).

PROBLEM IDENTIFICATION

This section of the report will provide background information on the why, what, and how aspects of the study. The discussion will center around why the study was initiated, what the resource problems are, and how the problems impact the area. Discussion will center on the information provided by the sponsors, and members of the Technical Steering Committee. In addition, there were five public scoping meetings held: in 1) Keithville on January 18, 2000; 2) Coushatta February 1, 2000; 3) Stonewall February 8, 2000; 4) Pleasant Hill February 15, 2000; and 5) Natchitoches, LA February 24, 2000. The purposes of these meetings were to solicit public input for the Bayou Pierre Cooperative River Basin Study.

From the five public meetings, 103 Problems/Issues/Concerns were recorded. The TSC reviewed the problems/issues/concerns. Due to the similarity of the problems/issues/concerns from the citizens, they were grouped into broad-based categories shown below. Comments are group as a percentage of the total comments that were received. The dominant problems/issues/concerns are addressed in this section

Problem/Issue/Concern	Percentage of Total Comments
Flooding	60
Planning	14
Water Quality	8
Recreation	7
Watershed Protection	4
Education	2
Irrigation	1
Tourism	1
Previous Watershed	1
Water Supply	1
Economics	1
Wetlands	1
Groundwater Recharge	1

Resource problems/issues/concerns in the study area have been a concern of the constituents of the river basin area for some time. A list of prior studies, report, and existing water projects can be found in Appendix E.

Principal Flood Problems/Drainage Patterns

The Bayou Pierre Cooperative River Basin Study lies within the alluvial plain of the Red River. Before man's intervention, floodwaters regularly flowed over the banks of the Red River into this valley. Floodwater and excess rainfall within the basin were drained

by a network of streams running parallel to the Red River. These streams and the overall alluvial valley were quite flat and contained many large areas of natural depression. The runoff was quite slow and the land remained inundated for long periods.

The most important deterrent was the construction of a levee system along the Red River. Since its expansion in 1946 this levee has not been breached. A current major flooding source is a large watershed external to, but discharging through, the 1,108.6 square mile Bayou Pierre River Basin study area.

Repetitive Flood Losses

A Repetitive Loss property is a property that is insured under the National Flood Insurance Program and has filed two or more claims in excess of $1,000.00 each, within a 10-year period. There are about 40,000 buildings across the country currently insured under the National Flood Insurance Program (NFIP) that have been flooded on more than one occasion and that have received flood insurance claims payments of $1000 or more for each loss. The cost of these multiple loss properties over the years to the NFIP has been astonishing - - $1.8 billion (NFIP 2003). A listing by zip code of the properties that have benefited by FEMA's program in the river basin is shown in Table 9.

Table 9. Federal Emergency Management Agency Repetitive Loss Data up to June 30, 2000

Zip Code	Loss Count	Total Payments
71019	5	$ 42,099
71032	1	$ 488
71052	4	$ 94,505
71105	57	$ 462,361
71106	71	$ 780,620
71108	32	$ 151,445
71115	14	$ 64,426
71118	65	$ 862,501
Total	249	$ 2,458,445

According to FEMA in order to get secured financing to buy, build, or improve structures in Special Flood Hazard Areas (SFHA) you will be required to purchase flood insurance. Lending institutions that are federally regulated or federally insured must determine if the structure is located in a SFHA and must provide written notice requiring flood insurance. There's a big difference between having to buy flood insurance because the law says you must and choosing to buy flood coverage because it's in your best interest to do so. In fact, about 25% of all flood claims occur in so-called moderate or minimal flood risk zones.

According to FEMA, flooding is the leading cause of property loss from natural disasters in the United States. In 1968, Congress created the National Flood Insurance Program. This Federal program provides flood insurance at a reasonable cost in exchange for the careful management of flood-prone areas by local communities. There is a 26 percent chance of experiencing a flood during the life of a 30-year mortgage compared to a 4 percent chance of Fire.

Caddo Parish Portion of the Study

The City of Shreveport is the center of commerce for northwest Louisiana, and has an extensive diversified industrial economy with 380 plants producing more than 700 different products**.**

The growth patterns in the City of Shreveport are typical of a large urban community with private residences, apartments, and shopping centers expanding away from the central business district. The principal direction of movement has been to the south. Northward movements have been limited by the geographical barriers of Cross Lake, the Red River, and their floodplains. In the last few years, however the availability of land above the floodplains has dwindled and construction has begun to infringe on low lands.

A major concern to the constituents in the northern extremities of the study area is the flooding problems associated with Wallace Lake. According to the Corps of Engineers, the Wallace Lake flood control dam was completed in 1946. Wallace Lake is a "dry dam" flood control lake constructed on Cypress Bayou. The Cypress Basin reaches north to Interstate 20 and westward into Texas. The fee-purchased land was limited to the damsite area (approximately 280 acres) and on each side of the Kansas City Southern Railway rights-of-way crossing the reservoir, with the rest of the reservoir area in privately owned land over which the Government was granted perpetual flowage easements. These easements, in general, forbid construction below an elevation of 158 feet, National Geodetic Vertical Datum (NGVD), but structures may be built between 158 and 165 feet, NGVD, at the risk of the owner, according to the Corps. The project provides substantial protection to approximately 90,000 acres of agricultural lands below the dam.

The Corps of Engineers has the right of water level control up to an elevation of 165 feet. The spillway and outlet works of Wallace Lake are a combined structure, that is automatic in operation, consisting of an uncontrolled, overfall concrete spillway and an uncontrolled outlet structure. The spillway is 644 feet in width and is located in the dam near the south abutment. The outlet works are located in the center of the spillway and consists of an entrance section, four rectangular conduits, 3 x 8.25 feet, and a separate stilling basin. The discharge capacity of the spillway with the surcharge pool at maximum elevation 170.7 feet is 112,700 cubic feet per second including conduit discharge. The discharge capacity of the conduits with the pool at elevation 158.9, spillway crest, is 2,600 cubic feet per second (USACE 1975).

The Coalition of Wallace Lake of Flood Victims have identified the following problems associated with the Wallace Lake Reservoir:

- **Flooding of Homes**

- **Closing of Highways**
  Disruption of traffic flow on I-49
  Linwood Avenue (Major thoroughfare) closed for two weeks
  Secondary roads closed for several days
  Soil base problems (I-49 sinking in spots)

- **Economy**
  City of Shreveport/Caddo Parish growth and revenues

- **Extreme Fluctuation in Lake Levels**
  Lake levels fluctuates from 2,000 to 10,000 acres in 2-3 days.

- **Environmental Results**
  The Bayou Pierre watershed in its natural state was a major tributary to help drain northwest Louisiana. The main factors that have impacted the natural drainage are:

- The levee system along the Red River which prohibited water from the west flowing directly into the river thus causing this water to flow along bayous parallel to the river and ultimately into the river downstream.
- Development of metropolitan Shreveport, thus eliminating forests and fields that were the natural and absorbed runoff. This conversion to hard surface speeds up the flow of more runoff.
- This runoff traditionally was dispersed and absorbed but it is concentrated and accelerated into the natural tributaries that do not have the carrying capacity to handle this increased volume.

The Red River, which forms the easterly boundary of the City of Shreveport, is one of the principal rivers in the State of Louisiana. Its mouth is formed at the Old River control structure that regulates the diversion of low water from the Mississippi River. The City of Shreveport sits at mile 277 of the Red River, which has a drainage area of 60,614 square miles at that point. The city is protected from possible flooding of the river by the natural high ground of the central business district and a system of artificial levees for the remaining portions of its length. Very little direct runoff from the City of Shreveport flows into the Red River.

All runoff from the City of Shreveport does eventually reach the Red River. Runoff from the northern portion of the City flows into the Cross-Bayou Basin, which intersects the Red River, just north of the central business district. The majority of the area runoff flows into the Boggy Bayou or Brush Bayou basins, which flow into Wallace Lake and then connect, to Bayou Pierre.

The Boggy Bayou Basin drains the southwestern section of the City of Shreveport. The area is largely undeveloped. The topography of the area varies from 160 feet NGVD along Boggy Bayou to 320 feet NGVD at the headwaters of Industrial Park Lateral. Relatively flat topography extends from the downstream reaches of Boggy Bayou, Gilmer Bayou, and Industrial Park Lateral.

Bayou Pierre parallels the Red River from the City of Shreveport to Natchitoches (70 miles) before their confluence. The Bayou Pierre drainage area drains the southeastern portion of the City of Shreveport and this basin is quite unique. The northern portion of the basin and the portion west of Bayou Pierre are heavily urbanized as the land is relatively high. In the area west of Bayou Pierre and south of Southfield Road, the development is relatively sparse, having an estimated 20% urbanization. The land here is quite flat ranging from elevation 140 feet NGVD to 165 feet NGVD.

The Federal Emergency Management Agency, developed several reports regarding flooding problems in Shreveport. Some excerpts from these report are as follows:

> "Primary flood problems in the metropolitan area exist in the Brush Bayou Basin, along portions of the upper reach of Bayou Pierre, and in the alluvial bottom lands that remain exposed to inundation from Red River and Twelve Mile Bayou. (Federal Emergency Management Agency Flood Insurance Study 1995)
>
> "Flooding along Bayou Pierre is, in general, confined to that portion of the basin below the hill line and within the limits of the Red River Alluvial Valley. Floods in Shreveport have been increasingly important during the last 20 years because of its rapid development. The greatest flood of record, that of 1933, overflowed 5,500 acres of bottomland above mile 70, of which 500 acres were in a select residential section of the city. Highest recorded stages for this flood in Bayou Pierre were 165.8 feet Mean Sea Level (MSL) at Ockley Drive Bridge, 167.0 feet in Ockley Drive Ditch, and 171.0 feet at the levee crossing. (Federal Emergency Management Agency Flood Insurance Study 1995)

Natchitoches Parish Portion of the Study

The existing levee system along the Red River consists of a levee running southeast along the west bank from the parish corporate limits above the Village of Powhatan to the confluence of Bayou Pierre, above the City of Natchitoches. The levee resumes below Bayou Pierre and runs in a southern direction across the Cane River to the hills on the south bank in the southeast corner of the parish.

The area north of the City of Natchitoches is subject to backwater flooding of the Red River through bayou Pierre and its tributaries. On April 10, 1945, the Red River reached a stage of 119.79 feet at Grand Ecore approximately 3 miles north of the City of Natchitoches. Although the existing Red River Levee system saved portions of the City of Natchitoches, most the Cane River Basin was flooded.

Inadequate Floodplain Management Due To Rapid Development

The rapid development around and adjacent to south Shreveport has and will continue to impact drainage in both the urban and rural areas within the study area. Development and Floodplain Management around the Wallace Lake area was discussed as a problem during the study duration. As the floodplain is filled with earth, streets, buildings, etc. the volume of storage available for floodwater is depleted. The soil's ability to allow water to infiltrate or percolate into the ground is virtually eliminated when the ground is covered by concrete or other impervious materials. Practically all of the rain that falls on the impervious surface becomes runoff that must be conveyed by the drainage system. These two factors can and have increased flooding within the developing areas.

With the change in land use to urbanization also comes an increase in water pollution. Because most home and business lawns are intensively managed to be aesthetically pleasing to the eye; fertilizer, pesticide, and herbicide use is significantly higher than when the land was used for agricultural or forest usage. These fertilizers and chemicals are flushed into the receiving water bodies in rather large concentrations.

As development occurs it also impacts existing developed areas. What was once an adequate drainage system can become overtaxed by the additional water and causes flooding in the older developed area that had drainage prior to the adjacent land use changes.

While rapid development presents flooding and water quality problems, one of the hardest tasks is enforcing fair and equitable floodplain and zoning ordinances. Minimum requirements have been established by the Federal Emergency Management Administration for developing in floodplains. Zoning is regulated by local governments and commissions. Development creates a tax base that is necessary for any community to survive. There in lies another problem. Zoning and floodplain ordinances are very political issues and must be handled in such a manner that adequate regulations are in place that does not inhibit the growth of the community.

Water Quality

Water quality problems within the study area are primarily from nonpoint sources (NPS) in lieu of point sources. NPS pollution is caused by diffuse sources that are not regulated as point sources and normally are associated with agricultural, silviculture and urban runoff, runoff from construction activities, etc. Nonpoint source pollution does not come from a single source location (such as a single pipe from a factory or waste treatment plant) but generally results from land runoff, precipitation, atmospheric deposition, or percolation (LDEQ 1993). Water quality impairment causes monetary, health, and aesthetic problems within the study area. In addition, fishery and wildlife use is limited, as are the recreational opportunities associated with these resources.

Dissolved Oxygen (DO)

Low dissolved oxygen level has been identified as a problem in the study area. As organic materials decompose, they consume oxygen. Excessive quantities of organic materials result in oxygen depletion in the receiving stream due to this decomposition process. As oxygen levels are depleted, the ecosystem of the stream can become unbalanced and the result can be fish kills and nuisance conditions. A few examples of oxygen-demanding substances include animal droppings, sewage overflows, leaves, agricultural crop debris, and grass clippings. As such, the lower DO levels at certain times of the year, especially in summer and low flow periods, have resulted in limited propagation of fishery resources in the effected bayous or channels within the study area.

Sediments

Sediment loading within the monitored water bodies in the river basin is proportional to soil erosion and the type of soil eroded. The soils within the study area are very fine-grained silts and clays with some sands. These fined grained materials are easily eroded and the clay particles will stay in suspension under very low energy environments. Sediments can smother benthic organisms, interfere with photosynthesis by reducing light penetration (turbidity), and fill in waterways which increases flooding. In addition, nutrients, pesticides, and other organic compounds can attach to the sediment particles and be flushed into the water body (LDEQ Nonpoint Source Assessment Report 1993). As discussed earlier, the sediments that settle within the waterways pose significant maintenance costs and the pesticides and other nutrients present a threat to human, fisheries, and animal health.

Nutrients

Water quality problems associated with nutrient loading are most noticeable in the fall. It is during these low flow periods of late summer and fall that alga blooms and associated fish kills are more numerous. In general, the runoff from lands used for agricultural uses has a significantly higher nutrient concentration than forestlands. The same is true for the runoff from urban areas. The principal nutrients are washed from fertilized fields and lawns into the receiving stream. In addition, these nutrients can be attached to soil particles that have been eroded and suspended in the runoff. While nutrients are essential to plant growth in a water body, excess causes alga blooms that in turn impacts fisheries production. As with the other forms of pollution, nutrient pollution causes financial and health problems within the study area.

Watershed Protection

Watershed protection is the onsite treatment of watershed areas for the primary purpose of reducing offsite soil and water related resource problems associated with floodwater, erosion, sediment, and agriculture related pollutants.

Louisiana Department of Environmental Quality Nonpoint Source Management Plan has indicated that Wallace Lake was not meeting the designated uses for either contact recreation (primary and secondary) or fish and wildlife propagation. The suspected causes for this lack of use support included organic enrichment/low dissolved oxygen, pathogen indicators, metals, lead and mercury. As a result of the findings the Environmental Protection Agency (EPA) Region 6 approved this project for funding through the FY 2000 Section 319 grant. (Nonpoint News 2001). Three sites have been selected for monitoring. The agricultural site is a dairy, there is a forestry site and the urban site consists of a subdivision that is partially developed and partially undeveloped. Monitoring of these sites will commence May 2003 and will continue for 3 years.

The development of the watershed plan is based on land-use and nonpoint source pollutant loading data from three demonstration areas within the watershed. In-stream water quality, hydrology and biological data will also be collected to establish a baseline indication of aquatic health from which to measure and track improvement as the watershed plan is implemented. (LDEQ Nonpoint News 2001)

Wallace Lake is scheduled for development of a total maximum daily load (TMDL) by December 2005; therefore the data collected will also help with the nonpoint source portion of that calculation. (Nonpoint News 2001)

Best management practices will be implemented at forestry, urban and agricultural demonstration sites in order to quantify the nonpoint source pollutant-loading rate that occurs. There have been forested areas within the watershed of Wallace Lake and other locations within the study area where timber was harvested and tops and debris were left after harvest.

The aforementioned demo sites will also be utilized for education and outreach to local landowners within the watershed as a method to inform them of their cost effectiveness and their water quality benefits. (Nonpoint News 2001)

Groundwater Management

Louisiana has historically been regarded as a water-rich state. Water rights have provoked minimal litigation in Louisiana, however the state's legislators have attempted coordinating the development and protection of water resources and regulating the use of water. Groundwater resources in the study area must be managed carefully in order to avoid water-level declines, declining well yields, and local water quality deterioration. A national survey in 1978 listed Louisiana as one of only eight states where over half or close to half of the state's land mass is subject to groundwater depletion – the others being Nebraska, Kansas, Oklahoma, Texas, Colorado, New Mexico, and Arizona. In

fact, of all of these states, Louisiana appeared to have the largest percentage of its surface area affected by depletion. Groundwater resources could be threatened by the unrestrained uses of the resource.

Irrigation

According to the Water Use in Louisiana, 2000 Report, over 8 million gallons of water per day is pumped for rice from the Carrizo-Wilcox, the Red River Alluvial and the Sparta Aquifers in the study area. A concern on the part of the farmers in the area is that the water is not evenly distributed. The Bayou Pierre River Basin area partially overlays the Red River Alluvial Aquifer, which is very shallow and contains water with an extremely high iron content. Many producers have installed wells only to find that water could not be pumped in sufficient quantities to meet their needs. In order to decrease the demand placed on the limited amount of water in the Red River Alluvial Aquifer water from the Red River could be utilized.

Recreation

There is concern by the residents in the project area with Clear Lake, which is a natural Lake, and Smithport Lake, a manmade lake. Together these lakes have 2959 acres of surface water at 131.6′ mean sea level (Powell Appraisal Service 2002). The amount of fishing has decreased in recent years due to the amount of aquatic vegetation. Aquatic plant life is desirable in aquatic habitats. However, when aquatic plants begin to flourish and negatively affect human activities, these plants are referred to as “weeds.” The “weed” determination may be based on the location in which the plants are growing such as boating lanes or around boat docks. Problems also arise when the aquatic plants interfere with the intended use of the body of water such as swimming, skiing or fishing. The aquatic vegetation that is causing problems includes duckweed, hydrilla, and lilly pads.

A lack of public boat ramps in the study area has hampered water sports and fishing to some extent. As mentioned previously. The one public boat ramp at Clear Lake-Smithport Lake is a popular fishing spot.

There is also some public concern for the recreation around Fort Jesup (hiking trail, Los Adaes, Rebel State Park, Caddo Dai Tribe). These areas including the roads in the vicinity of Fort Jesup need improving. There is a combination of dirt and blacktop roads that recreation enthusiast have to utilize.

Aquatic Health of Study Area

The U.S. Environmental Protection Agency (EPA) has determined an overall index of aquatic health in the Bayou Pierre watershed, based on indicators of current conditions and future vulnerability of aquatic resources (EPA 2000a). The score for Bayou Pierre indicates "more serious water quality problems” but “low vulnerability to stressors such as pollutant loadings, “ and that aquatic conditions in general are “well below state water

quality goals" (EPA 2000a). Available EPA data suggest that pollutants or other aquatic stressors are a low-priority problem, indicating a relatively low potential for future declines in aquatic health and a low vulnerability index for aquatic species at risk. EPA's interpretation of the overall watershed score for Bayou Pierre notes that actions to prevent declines in aquatic conditions are appropriate, but at a lower priority than in more vulnerable watersheds.

Serious problems exist, however, regarding Bayou Pierre's designated use attainment and ambient water quality, especially in regard to dissolved oxygen, ammonia, phosphorus, and pH. Agricultural runoff also registers a high vulnerability indicator due to nitrogen, sediments, and pesticides. EPA notes that the Bayou Pierre watershed index is based on insufficient data, especially regarding land-use cover, fish and wildlife consumption advisories, and source water condition (EPA 200a and 2000b)

Fish and Wildlife

The major fish and wildlife resource issues disclosed by this preliminary review concern both aquatic and terrestrial habitats along Bayou Pierre. Reduced aquatic habitat diversity, including that associated with both main channel and slackwater areas, and associated changes in fish populations, could result from additional modifications for channelization, bank stabilization, and flood damage reduction. Altered aquatic habitats support a lower diversity and reduced abundance of fish species. Many of those species are tolerant of the low dissolved oxygen conditions that commonly occur in warm, low-flow conditions; many also are of potential recreational importance.

Terrestrial habitat losses would occur with the destruction of riparian woodlands at construction sites, along flooded shorelines upstream of dams or weirs, and with increased agricultural and residential development in response to improved flood control. Moreover, habitat losses resulting from all these impacts would be cumulatively related to losses from prior stream modifications.

Education

There are many stakeholders in a river basin. However many of the stakeholders are not aware of the need for such items as watershed protection, non-point source pollution, control restrictions on developing in a floodzone, best management practices, various conservation practices, sources of technical and financial assistance.

ALTERNATIVE SOLUTIONS TO PROBLEMS

Alternative solutions or recommendations were discussed at the various public meetings. Each of the alternate solutions will be discussed under the corresponding problem area. This display of solutions is not to be perceived as the only options that could reconcile the resource problems in the study area.

Flooding

General

Floods kill people and destroy homes in many parts of the United States every year. Federal agencies estimate that an average of over 125 people die every year in the United States because of flooding, although losses vary widely from year to year. Property damages ranges into the billions each year, and has been rising in recent decades (Environmental Health Center 2003).

Vicinity of Wallace Lake

One of the major concerns in the project area is flooding associated with Wallace Lake. Wallace Lake was constructed as a large retention pond to hold water and release it at a rate that could be handled by the existing natural outflow. According to the U.S. Army Corps of Engineers, Wallace Lake is functioning as it was designed to do. The problem is that because of upstream development, within the floodplain and watershed, there is a greater volume of runoff, which is also flowing faster into the basin.

The U.S. Army Corps of Engineers reveals that the Wallace Lake Dam controls runoff from about 1 percent of the drainage area of the Red River below Denison Dam.

In May of 1975 the U.S. Army Corps of Engineers New Orleans District completed a Master Reservoir Regulation Manual on Wallace Lake (Cypress Bayou, Louisiana). The purpose of the manual was to present detailed information pertinent to Wallace Lake. Among other data this manual revealed that from the period of 1949 to 1969, the flood damage prevented by Wallace Lake was $1,067,000 ($5.5 million in present dollars).

In October 1989 a Reconnaissance Report on Wallace Lake Area (Boggy Bayou) was completed by the U.S. Army Corps of Engineers Vicksburg District. The Board of Commissioners, Caddo Parish, Louisiana, requested that the Corps investigate the flooding problems along Boggy Bayou. The decision was made to take the Wallace Lake area as the study area because of the public's views on flooding in the area. The purpose of the study was to identify the problem(s), determine if there is a solution, determine if the proposed solution would be in the Federal interest, and determine the local interests' willingness and ability to share in the funding of a subsequent feasibility study. Field

investigations and door-to-door surveys were made along each stream to determine the number of structures damaged and the extent of structural damages due to flooding. The number of structures damaged were of insufficient number to economically justify further study on all streams except Buchanan and Boggy Bayous. Several channel cross sections were taken along Boggy and Buchanan Bayous to supplement the existing cross sections. From the 1989 report several alternatives were considered: headwater – retention dams, levees, and channel improvement. Because of urban growth and terrain, only channel improvement was engineeringly feasible.

In fiscal year 1998 the Corps of Engineers received a work allowance of $100,000 to conduct a reconnaissance study of the Wallace Lake area. The purpose of the study was to identify the flooding problems associated with the Wallace Lake area, investigate possible improvements to reduce or eliminate flood damages, determine if there is a feasible alternative for damage reduction, develop a Project Study Plan (PSP) to conduct further feasibility level studies, and identify a local sponsor to cost share the feasibility study. The study addressed two alternative solutions to the flooding problems, but the Corps noted that the dam was functioning as designed and that it does not cause flooding. Rapidly increasing urbanization in south Shreveport was compounding the problems.

Based on the Corps site surveys, 344 structures were identified within the Wallace Lake project area. Structures were divided into eight damage reaches based on their location along Boggy Bayou. The easement area identified those structures located in the flowage easement area below elevation 158.0 feet, NGVD), the "prohibited" area, and between 158.0 to 165.0, NGVD, the "owner-at-risk" area. Of the 344 structures identified in the project area, 103 structures were in the flowage easement area. Thirty-nine of the structures were in the "prohibited" area and 84 were in the "owner-at-risk" area. From this study the Corps of Engineers summarized that the flood damages incurred resulted in average annual benefits that were insufficient to justify a project of the magnitude required to appreciably reduce flood damages in the area. Also their evaluation illustrated that the majority of the damages and potential average annual benefits were derived from the 103 structures within the "prohibited" and "owner-at-risk" flowage easement area.

The Corps of Engineers stated that in order to further assist the functionality of the Wallace Lake project, they requested that the Caddo Levee District publish a notice in the Levee District's journal or any other publication to inform property owners in the Wallace Lake area that their lands are subject to an easement and servitude, and additionally, that any dwelling or other structure maintained for human habitation will not have a first-floor elevation of less than 158.0 feet, NGVD. Any structure that includes a landfill below elevation 158.0 feet, NGVD, would require written permission from the Corps.

The alternatives given below were gathered from input at the public scoping meetings, private firms, grassroots organizations and governing entities.

Alternatives to Address the Wallace Flooding Problem

- Create several mini-retention ponds upstream along the bayous that feed Wallace Lake. Public linear parks, such as the Fant Parkway, along the various drainages with a series of ponds where weirs retaining water year round would create ponds for wildlife (fish, mammals, birds) and human enjoyment. Wetlands would develop with natural aquatics such as Louisiana iris, cypress trees, and lily pads, etc. These wetlands would become a teaching laboratory both to understand the natural and the man-made hydraulics. The linear parks or string of pearls would become a family recreational destination point for taxpayers and tourists alike. The proposed Wallace Lake linear parks could be linked with Shreveport's linear park (Fant Parkway) then Cross Bayou and along Cross Lake to the Cooper Road area; thus through paths and trails connect several lakes, parks, two universities, Sci-Port Expo, Barnwell, and other planned amenities along Cross Bayou.

- There is a place where an arm of Toledo Bend goes to the east and to the east of this arm over the drainage divide there is another co-linear drainage that flows east to Bayou Pierre. It may be possible to dredge between these two arms and allow the excess water from Broadmoor, Wallace Lake, and Bayou Pierre during high water to overflow into Toledo Bend. If this channel were made deeper there would be recreational potential. In theory one could then go by canoe from Shreveport down Bayou Pierre and into Toledo Bend. Or also with a portage over the dam from Wallace Lake with its proposed retention ponds upstream. There could even be a marina south of southeast Shreveport that could serve separate, but direct access to both Toledo Bend and the river. Should this alternative of cutting a channel to connect the two arms show to be infeasible, then a large siphon or inverted siphon could be investigated.

- Toledo Bend Reservoir provides important economic benefits to Louisiana and Texas, and provides valuable recreational opportunities to citizens of those States and to visitors from other locales. It also provides important habitat to many species of fish and wildlife. Certain areas of Toledo Bend are experiencing water quality problems. Therefore, any future considerations for the dredging proposal should carefully assess the potential effects of introducing contaminants and sediments from Wallace Lake and Bayou Pierre into the Toledo Bend Reservoir, since it already suffers from impaired water quality. Additionally, creation of a new channel could have adverse impacts on the hydrology and fish and wildlife resources of the study area. Some streams could experience significant reduction in flows and volumes, while others could experience increased flows, volumes, and turbidity (US Fish & Wildlife Service).

- Present openings (4) on the Wallace Lake Dam Spillway are 8 feet 3 inches wide and 3 feet high. The pool stage is 142 feet Mean Sea Level (MSL). The pool stage could possibly be lowered to 140 feet MSL by removing the block structures within the spillway

- Improve the channel capacity of Wallace Lake discharge streams by removing man-made debris and dense stands of young willows, cane, and greenbrier from within the streams below Wallace Lake to prevent tailwater effects on structure capacity.

- The sponsors in Caddo Parish could utilize FEMA's Property Acquisition Program (Buyouts). Buyout projects, while 75 percent funded by FEMA, are administered by the State and local communities. The Corps of Engineers have identified 344 residential and commercial structures as having potential impacts from flooding in the Wallace Lake area. The spillway of Wallace Lake is at elevation 158.0 feet, National Geodetic Vertical Datum (NGVD). Corps surveys show that 39 structures were constructed on lands below 158 feet, NGVD, and there were 84 structures constructed in the restricted easement areas at elevations between 158 and 165 feet, NGVD, at owner's risk. Buyouts would be strictly voluntary. No homeowners would be forced to relinquish their property. Homeowners who decide not to participate in the buyout might need to take risk reduction measures such as elevating their homes.

- Provide a survey at the 158 foot elevation to individual property owners to that each landowner knows where the flood easement is on their property

Lower Extremities of the River Basin

One of major items of concern in the south-central portion of the river basin is where Bayou Pierre traverses through Red River Parish. A local landowner in Red River Parish has been instrumental in preparing a slide presentation that depicts typical lack of maintenance cases associated with Bayou Pierre. There are areas that are choked with debris and silt bars and bridges with drift stacked against the upstream side. Debris removal from channels and bridge crossings. The Red River Levee & Drainage District does not have the financial resources, technical expertise and capabilities of alleviating or solving these problems in the lower extremities of the basin.

Alternatives to Address the Flooding Issues in the Lower Extremities of the River Basin were gathered at the public meetings.

- Build span bridges (no pilings). Between Red and De Soto Parishes the La Coute bridge is the worst. The highway 84 bridge in Red River clogs also.
- Monitor commercial timber operations (harvest tops instead of leaving them – utilize a chipper).
- Start at the confluent of Red River and Bayou Pierre and work upstream performing maintenance dredging resulting in a cross-sectional area capable of providing efficient flow. If applicable, maintenance dredging of channels will also include leaving gaps in the levee systems allowing overbank flow to enter adjacent wetlands for more storage of floodwaters.
- Look for alternatives that will result in restoration of the natural hydrology of the area to the highest extent possible. These include:
    1. Urging DOTD to implement measures that will consider effect on hydrology in the basin when performing highway or road improvements;

2. Reviewing all state and federal joint public notices for actions proposed to take place within the basin to reassure that the activity will not adversely impact existing drainage patterns;
3. Cooperating with landowners and land managers in the basin which have control over large water impoundments in order to expand equally beneficial measures that could result in a boost in flood water storage and improve aquatic resource production;
4. Provide information to local planning and zoning commissions about the importance of considering imperviousness when addressing new land development proposals.

Inadequate Floodplain Management Due to Rapid Development

Uncontrolled development can impact and aggravate almost all of the problems previously identified. Without some effort on the part of local officials, continued development without some foresight of the consequences will only worsen the resource problems of the area. Minimum floodplain regulations have been identified by the Federal Emergency Management Agency that are administered through the Flood Insurance Program. In addition, local floodplain regulations have been adopted by either the incorporated or unincorporated areas within the study area. Some floodplain regulations such as elevating above the 100-year flood elevation may prevent that structure from flooding but may have a long-term impact on the flood elevation as the floodplain is filled.

Local governments should mandate stormwater detention as a part of all-new subdivisions, malls, hospitals, shopping centers, industries, and other land uses beyond the 100-year floodplain. In existing subdivisions, local governments could purchase or acquire easements on remaining wetlands for stormwater storage. Design and rehabilitation of recreation facilities in the study area should include a stormwater detention component and extensive use of porous pavement. Communities in the entire Bayou Pierre study area would be benefited by reestablishing vegetative buffer strips or other best management practices along bayous and streams to slow runoff, trap sediment, and detain stormwater.

Information should be provided to local planning and zoning commissions about the importance of considering imperviousness when addressing new land development proposals. Imperviousness here is defined as the sum of roads, parking lots, sidewalks, rooftops, and other impermeable surfaces of the urban landscape. Intensive development activities inevitably accelerate runoff as a result of parking lots, streets, and rooftops. The total runoff from a one-acre meadow would fill a standard size office to a depth of about two feet (218 cubic feet). By way of comparison, if that same acre were completely paved, a one-inch rainstorm would completely fill an office, as well as the two next to it.

The community must regulate proposals for subdivisions. Subdividing is the division of a parcel of land into two or more separate lots for resale purposes. It is important to

review not only proposals for individual structures but also proposals for large scale developments, which might not even involve structural projects in the early stages. The laying out of lot and street patterns, the grading of land, and provision for utilities and storm water drainage will affect the flood risk to which later structural development will be exposed.

Section 60.3 (b) (3) of the National Flood Insurance Program Regulations states that all new subdivision proposals and other proposed developments (including proposals for manufactured home parks and subdivisions) greater than 50 lots or 5 acres, whichever is the lesser, include within such proposals base flood elevation data. By reviewing these proposals the community can require the developer to make any necessary revisions to minimize the flood damage potential. The items of greatest concern are public facilities and utilities and the drainage system, because of their role in determining the pattern and location of future development.

Floodplain Management Regulations

The regulatory requirements set forth by FEMA are the minimum measures acceptable for the National Flood Insurance Program (NFIP) participation. More stringent requirements adopted by the local community or State take precedence over the minimum regulatory requirements established for flood insurance availability. FEMA recommends communities take the following steps to help prevent damage and loss:

- Remove all debris from culverts, streams and channels to allow the free flow of potential floodwaters.
- Adopt policies now that will ensure that if flood destruction does occur, community redevelopment plans and actions will minimize future flood losses.
- Elevate electrical power stations and other utility facilities to ensure that vital services are not interrupted during flooding.

Mitigating Adverse Impacts

Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. There are various methods of mitigation that could be utilized to offset the impact of development that exceeds local standards. Types of mitigation actions to reduce flood losses include those that modify human occupancy of the floodplain or watershed (usually a nonstructural measure) or modify the flood (usually a structural measure). Examples of implementation include enforcement of regulations and master plans, as well as delivery of programs and services. A no adverse impact strategy most likely will contain elements of each.

Table 10 presents the three negative effects that are most likely to result somewhere in the river basin when development activity takes place on floodprone land: increased flood stages, increased velocities, increased flows, and erosion and sedimentation. These are the problems that must be managed, mitigated, or prevented by the locality in order to achieve a no adverse impact floodplain or river basin. The examples are intended to demonstrate some remedial techniques but are not all-inclusive. Community approaches need to include development in the entire river basin, since any of this can create new floodprone land (Larson and Plasencia 2001).

Table 10. Some Adverse Impacts of Development on Floodprone Lands, Remedy Options to Mitigate Them, and Benefits/Limitations of those Options..[1]

INCREASED FLOOD STAGES

Contributing Condition	Remedy	Comment
Floodplain encroachment	Implement no-rise floodway standard	Effectively used in many states and localities
Increased flow due to development (increased runoff from development will lead to higher flood stages)	Implement retention/detention standard	Commonly used to maintain existing flow, but must manage volumes and peaks or downstream flooding is increased
	Construct regional storage facilities	Commonly used to maintain existing flow, but must manage volumes and peaks or downstream flooding is increased
	Map to future-conditions hydrology	Does not address flooding of existing uses in floodplain
	Acquire land or flowage easements	Provides compensation for those impacted downstream
	Increased freeboard for constructed floors	Does not address flooding of existing uses in floodplain
	Channel or levee	Can move problem downstream

[1] This table was recreated from a study "No Adverse Impact: A New Direction in Floodplain Management Policy". It shows the relationship between development of floodprone lands and the impact of options on these lands.

INCREASED VELOCITY

Contributing Condition	Remedy	Comment
Floodplain encroachment	Manage velocity at upstream and downstream limits	Places requirement on those encroaching to match predevelopment velocities on adjacent properties
Increased flow due to development (Increased flows translate into higher velocities)	Implement retention/detention standard	Could be used to maintain preexisting velocity
	Construct regional storage facilities	Could be used to maintain preexisting velocity
	Map to future-conditions hydrology	Accepts that there will be increased velocities, provides an opportunity to protect new development. Does not address existing development
	Acquire land or flowage easements	Provides compensation for those impacted by increased velocity
Channelization and levees	Design so that velocities at upstream and downstream limits are returned to pre-project conditions	The impact to downstream properties is currently ignored in many flood control projects
	Utilize a restoration and setback levee approach	Provides structural flood protection while reducing adverse impacts to natural floodplain functions

INCREASED FLOWS

Contributing Condition	Remedy	Comment
Increased flow due to development	Implement retention/detention standard	Can immediately address adverse impact on the site of origin. Must also address volumes and peaks to avoid increasing downstream flooding.
	Construct regional storage facilities	Can be used to address existing problems. Must also address volumes and peaks to avoid increasing downstream flooding
	Manage to future – conditions hydrology	Accepts that there will be increased flows, provides an opportunity to protect new development. Does not address existing development
Floodplain encroachment (loss of natural floodplain storage)	Implement no-rise standard	Preserves floodplain storage that may be adversely impacted by future encroachment, naturally attenuates flood flows

EROSION & SEDIMENTATION

Contributing Condition	Remedy	Comment
Channel migration	Setbacks	Avoids inducing additional Erosion on other properties
	Bank stabilization	Can lead to instabilities in rest of floodplain although effective in some locations
Channel downcutting	Grade control structures;	Best used in highly impacted streams with significant infrastructure at risk
	Meander restoration	This method slows velocities and can lead to reduced channel downcutting while allowing for natural system restoration

Increased Flood Stages

One of the primary problems of managing floodplains and watersheds subject to development, as seen in Table 9, is increased flood stages (or depths). The primary existing control on future flood stages is the NFIP floodway standard, which allows flood depths to be increased up to 1 foot above nature's floodway as a result of floodplain encroachments. The impacts of this 1-foot increase in the flood stage on existing properties and future construction are not considered under the NFIP. The effect of the NFIP's 1-foot rise standard is that the future condition of the watershed or floodplain is given little or no consideration by states and communities.

To address this lack, some state and local governments require new buildings to be constructed 1–3 feet above the current flood elevation. Other tools that some are using include developing local regulatory floodplain maps premised on a fully developed or "future condition" watershed condition, utilizing local and regional basins to store excess runoff such that flood peaks are not increased; or some are exploring the concept of permanent easements that allows future overflow. Each of these techniques lends themselves towards either a regulatory or project based implementation, and are only some of the tools that could be considered (Larson and Plasencia 2001).

Increased Velocity

Whenever the discharge in a stream is increased without an offsetting increase in cross-sectional flow area, or when the cross-sectional flow area is decreased due to fill or development in the floodplain, velocities will increase. Increased velocity also commonly occurs when levees are installed, pinching in the river. The impact of these actions can be erosion from increased velocity and/or increased flooding or damage downstream. Approaches that limit or result in reduced floodplain encroachment that would increase velocities will prevent this problem. Retention or regional storage options that limit runoff from new development to the amount of discharge that existed before development will also prevent increased velocities (Larson and Plasencia 2001).

Increased Flow

A third area of concern is the management of increased flow. These increases are generally the result of paving of watersheds or the loss of in-stream storage due to filling or development. Communities continue to implement and evaluate retention and detention basins so that new development does not increase flow. If properly designed, retention/detention can limit downstream flood damage, and be readily blended into the developed landscape (Larson and Plasencia 2001).

Need for a Local Plan

The tendency in floodplain management to date has been to manage part of the impact while ignoring the rest. The net result is that well-intended actions are leading to unmanaged reactions in the system. A well-done plan would include a technical analysis to quantify current and future conditions; it would incorporate mitigation techniques to minimize impacts; it would identify implementation measures to manage all of the hazard factors identified; it would include strong citizen involvement so the plan is equitable; and it would ultimately provide a vision for future use of the community's land within and outside the floodplain (Larson and Plasencia 2001).

Drainage Impact Study

The City of Shreveport and the Town of Keithville should pass joint resolutions requiring drainage impact studies for all new development. The purpose of a Drainage Impact Study is to identify potential drainage problems that may occur as a result of a proposed development and to determine theoretical solutions to mitigate any adverse impacts. These resolutions should stipulate the method to be used in each analysis. Not only should the site-specific impacts be analyzed but the compound effect of future development. This analysis should consider both upstream and downstream effects and mitigation applied accordingly. One possible tool that is available to make these analyses in the upper reaches is the Bayou Pierre Diversion Channel Feasibility Study that was done by Balar Associates, Inc., and Demopulos and Ferguson, Inc.` Some engineering modeling could be done. The model could be used to predict changes and the associated impacts before a measure is implemented. Proper use of the model and drainage impact studies can prevent an increase in flood risks.

Water Quality and Watershed Protection

Most of the problems identified in the Bayou Pierre River Basin area are linked to one another. Communities across the nation are finding that their water resources are degrading in response to growth and development. Communities such as the ones in the study area quickly find many reasons to protect local watersheds whether it is because of economic benefits, recreation, flood prevention, scenery or the overall quality of life. In many cases, if one problem is solved it will improve or solve another problem. The following alternatives are offered to enhance water quality in the study area.

Reduce Gully Erosion

Installation of measures to stop gully erosion will also improve water quality. The suspended solids and attached pollutants will be reduced.

Utilize Best Management Practices

Continue to implement and monitor the results of existing and additional Best Management Practices (BMPs). BMPs describe any practice or routine procedure designed to reduce pollutants that can be picked up by runoff or reduce the amount of

pollutants in the run-off before they reach a body of water. BMPs are designed to reduce pollutants such as sediments, nutrients, heavy metals, bacteria, pesticides, or any form of contaminating pollutants in run-off. While there are numerous BMPs that are being implemented within the agricultural sector, there are many more that are applicable, as well as those suited to urban areas. Some examples of BMPs include pollution source controls (proper fertilizer application techniques), conservation tillage, grade stabilization structures, temporary silt fences around construction sites, and sediment retention or detention ponds. In many cases BMPs cost little to nothing to implement and are incorporated into normal operations.

Timber Harvesting

Private landowners should consider utilizing contractors who have completed 30 hours of instruction in the Louisiana Master Logger Program. Individuals who have completed the program will have undergone training in timber harvesting and transportation, OSHA regulations, harvesting planning & best management practices, business management for professional contract loggers and erosion control.

Some Best Management Practices for felling trees in the study area to consider include:

- When possible, trees should be directionally felled away from water bodies.
- Remove only tops and limbs that have fallen into any water body during harvesting.
- Inspect all stream courses to be sure they are free from excessive debris.

Restore and Preserve Wetlands

Encourage the preservation of existing wetlands and the restoration of converted wetland areas. Wetlands serve as detention areas that filter pollutants from the water body as it overflows. Wetland development can be one through such programs that offer incentives such as WRP, CRP, etc., and voluntary restoration or enhancement efforts in which there is no compensation to the landowner. These programs will be discussed in more detail under the wetland section of the report.

Utilize Floodplain Management Measures

Implement and enforce measures that assure development in floodplains is done in such as manner that the integrity of the floodplain is maintained. Floodplains provide areas where floodwaters are detained or stored when the channel conveyance system is exceeded. These detention areas allow suspended sediments and other contaminants to settle. Where possible, grass areas and earthen open channel drains should be utilized in lieu of concrete and curb and gutter drainage to retard the flushing of pollutants into the receiving water body.

TMDL Implementation

The TMDL will be established for the study area will contain the key elements outlined below:

- Waterbody name and location
- Identification of the pollutant
- The water quality standard for the waterbody
- Amount of pollutant allowable to meet standards (pollution budget)
- Load reduction needed to meet standards
- Sources of the pollutant
- Wasteload allocation for point sources
- Load allocation for runoff (nonpoint sources) and other sources of pollution
- Margin of safety
- Consideration of seasonal variation
- Public comment period
- EPA review and approval

When this area's TMDL is established, the State of Louisiana must provide reasonable assurances that all affected sources will be able to meet their allocated load reductions. For point sources, reasonable assurance is to be provided through the Louisiana Pollutant Discharge Elimination System (LPDES) permits. For nonpoint sources, reasonable assurance will consist of a watershed implementation plan, which describes the types of voluntary actions, or Best Management Practices (BMPs), that are necessary to achieve compliance and the delivery mechanism that will be used to ensure their implementation throughout the watershed.

For control of pollutants from nonpoint sources, BMPs will continue to be implemented through the current nonregulatory, cooperative program. LDEQ will closely monitor BMP implementation and provide advice and assistance in pursuing innovative methods in the control of nonpoint source pollutants.

The success of the TMDL program largely resides with the agricultural, silvicultural, industrial and municipal facilities, and urban communities within the Bayou Pierre study area. Without the cooperation from these stakeholders, TMDL implementation will not be successful.

Erosion and Sedimentation

Communities often permit development that causes erosion or sedimentation problems at the site of a development or on other property along the stream. Master plans for all development in the watershed may not exist, thus leading to unintended impacts. This is analogous to providing enough landfill space for new growth. Channelization and bank stabilization designs generally are measured for site-specific performance, but their impacts on channel geomorphology are often overlooked. In some cases this has led to

the creation of instabilities, causing channel downcutting and bank erosion (Larson and Plasencia 2001.

Groundwater Recharge

The river basin study area covers parts of three aquifers in Northwest Louisiana. These aquifers have been declining due to subsurface withdrawal for industrial and domestic use. One of the potential solutions to reduce withdrawal rates is to utilize surface water for industrial and agricultural uses where available. This requires projects that move surface water into the bayous and other streams to provide a consistent supply for these user groups. See Irrigation below for a potential solution to reducing groundwater withdrawal.

Irrigation

In order to utilize water from the Red River, a possible alternative could be to construct a pump station or stations in the Red River for the purposes of moving irrigation water into the study area utilizing Bayou Lumbre, Caspiana Bayou and Grand Bayou. An extensive engineering analysis would have to be done for this alternative. Factors that would have to be considered are:

- Economic feasibility. Cost would be in the millions of dollars
- A pumping station with a capacity of 145 cubic feet per second is necessary to irrigate about 5,00 acres.
- Weirs would have to be constructed in the bayou(s) to maintain irrigation pools.
- Woody vegetation and silt bars that obstruct flow would have to be cleared in order to facilitate the flow of irrigation water.

Beneficial Programs

In lieu of or in conjunction with the structural measures that have been listed with the alternatives, non-structural alternatives, where applicable, may be preferred. These alternatives may or may not provide monetary and/or tax incentives to the landowners for allowing their property to revert to wetlands or retain their floodplain traits. A few of these programs that provide flood protection benefits will be briefly presented within this section and discussed in detail in the alternate solutions listed under Loss of Wetland Resources.

Conservation Reserve Program (CRP): This program is used to remove land from agricultural production that will yield the highest environmental benefits. Areas subject to flooding may qualify for this program. Under CRP, the Farm Service Agency (FSA) will cost-share with landowners to implement an approved conservation plan and pay landowners annual rental payments for 10 to 15 years to maintain those practices.

Flood Risk Reduction Program: This program authorizes voluntary contracts that provide one lump-sum payment to landowners that farm land with high flood potential. This

payment will equal 95 percent of the seven-year agricultural market transition payments to offset estimated federal outlays on frequently flooded land. In return, landowners agree to comply with applicable wetlands and highly erodible land requirements and to forgo commodity loans, crop insurance, conservation payments, and disaster payments. This program is administered through FSA.

Wetlands Reserve Program (WRP): This is a voluntary program that offers landowners financial incentives to restore and protect wetlands on private property. Landowners who participate in WRP record a conservation easement on their property or enter into a restoration agreement in exchange for land payments and/or cost-share payments for restoration practices. This program is administered through NRCS.

Flood Flow Easements: While there is no known use of such of a program in this state except in the case or lakes or reservoirs, the importance of such a program should not be underestimated. While wetlands are very important to the ecosystem, equal or more important are floodplains. While wetlands and floodplains are generally characteristics by a hydric or wet condition, in many cases a floodplain is void of wetland characterized such as vegetation. Floodplains provide temporary reservoirs or storage areas for excess runoff and provide many of the same benefits of wetlands such as aquifer recharge and water quality improvement. Local units of government should solicit assistance in developing and implementing a program where flowage easements associated with the 100-year floodplain can be obtained and the private landowner compensated to retain or restore this easement area.

Recreation

The study area offer an excellent potential for supplying a significant part of the resource-oriented and water-based recreational demand. Some of the demand for water-based recreational activities can be met by enhancement of existing water bodies through improved management, access, control, and water quality, removal of obstructions, and development of adjacent recreational facilities. The State Parks and Recreation Commission and the Louisiana Department of Wildlife and Fisheries can satisfy a substantial portion of the recreational demand if provided with the necessary support. Increased financial support will give these agencies the opportunity to expand their programs and properly maintain existing facilities.

Aquatic Health of Smithport and Clear Lakes

Environmentally sound and cost-effective management decisions should be the basis of any aquatic weed control program. All control measures will affect the environment, so it is important to consider the intended use of the water body. Physical constraints such as shallow water or obstacles can impair herbicide applications. Water quality variables such as total alkalinity or the possibility of dissolved oxygen depletions are important considerations. Potential impacts on fish and wildlife populations must also be considered. As with any alternative measure, the economic feasibility is a major factor. Some alternatives that could be considered include:

- **Drawdown.** Drawdown is limited to lakes with adequate water control structures and a reliable source of water for refilling the lake. Drawdowns are usually conducted during winter to expose plants to drying and freezing. The advantages include low cost as well as oxidation and consolidation of sediment. Drawdowns also increase options for chemical controls because some chemicals are more effective when applied to dry water bottoms. One disadvantage of drawdowns is that they may reduce desirable species and allow tolerant species to spread further. There may also be some loss of recreational benefits such as duck hunting and spring fishing.

- **Chemical Control.** There are about 200 herbicides registered in the United States but only 10 are labeled for aquatic sites. These chemicals can effectively control aquatic weeds. A consideration is that as dead aquatic plants decay, oxygen in the surrounding water is used in the process. If large quantities of plants are killed with one treatment, dissolved oxygen in the water may be reduced to the point that fish and other aquatic organisms die. Therefore, it is usually desirable to treat only a portion of a weed problem at a time. This allows the body of water to recover lost oxygen before subsequent treatments. The possibility of low oxygen becomes more serious as water temperatures rise in late summer. If possible, weed problems should be dealt with when water temperatures are between 70 and 80 degrees F.

Fish and Wildlife Habitat

A major planning objective, is that the cooperative watershed study identify ways to maintain or enhance aquatic and terrestrial habitat diversity along Bayou Pierre. Based on the current state of knowledge and growing public interest in preserving and restoring natural aquatic ecosystems, any plan that further modifies Bayou Pierre for flood damage reduction also should include measures to maintain fish and wildlife habitats characteristics of natural stream ecosystems. Such habitat elements could be provided by designing control structures to preserve flows downstream of dams or weirs, adding structural modifications for fish movement, rehabilitating pools and slackwater areas, placing in-stream sources of coarse woody debris, and maintaining or creating habitat diversity. Riparian habitat losses should be minimized as much as practicable by depositing excavated spoil material in cleared uplands, and by restoring riparian floodplains through reforestation of bottomland hardwood species.

Wetlands and Associated Resources

Wetlands provide areas for flood storage, filtering where water quality is improved, aquifer recharge, habitat for wildlife, and recreation. As stated above, loss of wetlands can be attributed to changes in land use associated with development and the demand for agricultural products. There are numerous programs that are available to private landowners that promote the restoration and enhancement of wetlands. Some of these programs provide monetary incentives to the landowner to maintain and restore wetlands. In addition, there are other means to enhance and preserve wetland areas. Some of these alternate solutions are shown below.

The following represent some of these programs administered by USDA and FWS that create, restore, enhance, or protect wetland areas.

Conservation Reserve Program (CRP): This program which is administered by Farm Service Agency (FSA) was briefly discussed under Flooding Alternatives. The 2002 Farm Bill enhances the CRP to better conserve and improve natural resources. The Commodity Credit Corporation and the FSA focus on enrolling land that will yield the highest environmental benefits when taken out of production. CRP offers annual rental payments and cost-share assistance to farmers to establish long-term conserving covers (e.g., grass and trees) on eligible land. Contracts are for a minimum of 10 years and maximum of 15 years.

CRP Wetland Enrollment Pilot Program: This program allows enrollment of farmed wetland acres in CRP. Contract can include up to 10 acres of wetland, although not more than 5 would be eligible for payment. Buffer acreage is limited to 3 times the wetland acreage.

CRP Continuous Sign-Up: This program is for high priority practices and allows enrollment of land in riparian buffers, filter strips, grass waterways, and other high-priority practices without competition. Producers may enroll entire fields as buffers through the continuous sign-up when more than 50% of the field is eligible (through continuous sign-up) and farming is infeasible on the remainder of the field. Payments on the remaining acreage are limited to general sign-up rates.

Wetlands Reserve Program (WRP): This voluntary program is administered by NRCS and enables the Secretary of Agriculture to purchase long-term or permanent easements and provide cost sharing to producers who agree to restore wetland on agricultural land. Restoring wetlands wildlife habitat is a priority. As previously mentioned wetlands are to be restored through permanent easements, 30-year easements, restoration cost-share agreements, or any combination of these options. Lands accepted into the program are subject to a Wetland Reserve Plan of Operation developed by NRCS, the landowner, and FWS which identifies practices to restore the functional values of the wetland (tree planting, ditch plugs, levee breaches, etc.) Compatible uses of lands encumbered by conservation easements usually include responsible timber harvest, hunting and fishing, or leasing of hunting and fishing. Eligible lands include farmed wetland cropland, prior converted cropland, farmed wetland pasture, riparian wetlands, hydrologically degraded rangeland, pasture or forested areas, limited buffer areas and certain wetlands previously restored under other programs.

Wildlife Habitat Incentives Program: Wildlife Habitat Incentives Program (WHIP) is a conservation program authorized by the 1996 Farm Bill. The program provides technical assistance and cost-share payments to landowners interested in improving upland wildlife habitat, wetland wildlife habitat, threatened or endangered species habitat, fisheries and other wildlife habitat. NRCS administers the program with input from FSA, FWS, LDWF, and local Soil and Water Conservation Districts. Landowners may receive cost-

share payments amounting to 75 percent of the cost of establishing eligible conservation practices, but total payments may not exceed $10,000 per individual. NRCS will develop a Wildlife Habitat Development Plan of Operations which identifies necessary conservation practices, baseline wildlife habitat conditions, and a schedule of implementation and maintenance. Cost-shared conservation practices must be maintained for a minimum of 10 years.

Partners for Wildlife: Through this program the FWS provides technical and financial assistance for habitat restoration and enhancement on private lands. The emphasis of this program is to restore the hydrology and vegetation on altered wetland sites toward the original or historic wetland condition. Management treatments that stall or prevent the natural succession (such as creating moist-soil impoundments on former bottomland hardwood areas) must be limited to no more than 30 percent of the project site. Landowners can be reimbursed for up to 100 percent of the cost of restoration practices. However, for most projects the maximum amount that can be expended on a person's property per year is $10,000. Although not mandatory, some financial or in-kind contribution from the landowner may aid in the selection of the project by the FWS Private Lands Committee that ranks project applications. Project implementation is contingent upon completion and signature of a 10-year or longer Wildlife Development Agreement between the landowner and FWS that specifies each party's commitment to the project. When restoration requires a long period to accrue, such as reforestation of bottomland hardwoods, longer agreements of 25-years or more are typically negotiated.

Seasonally Flooded Wetland Easements: Solicit Federal and State agencies to establish and implement a program where private landowners were compensated to retain overflow floodplain areas to serve as storage areas and; where applicable, allow these areas to convert to wetlands. This program would be similar to the Flood Risk Reduction Program discussed under the flooding section with the exception it would not be limited to farmland.

Retention Type Grade Stabilization Structures: In applicable areas treat gully erosion with retention type grade stabilization structures. This type of structure can create a pond area above the inlet pipe. This pond will serve as a shallow water area and offer the benefits of such a wetland type area. In addition, it will provide a watering area for wildlife and livestock. This type retention area should be developed in rural pasture and woodland areas.

Education and Public Outreach Program

Public entities and grassroots organizations should develop a public awareness program to educate the public on the rewards of properly managing soil, water, and related resources. Included should be such topics as wetland restoration and preservation, point and nonpoint pollution, etc.

The program should include public seminars and workshop, printed stickers and brochures, as well as school projects such as poster and essay contests. Ideas and

suggestions for this program can be obtained from federal agencies such as EPA, NRCS, and the Louisiana Cooperative Extension Service; state agencies such as LDEQ and LDAF; local groups such as the chamber of commerce; and local businesses, corporations, and industries that are always seeking ways to improve their public relations. In many cases these groups can provide both financial and technical support.

Bayou Pierre Coalition

In order to address the flood concerns associated with the lower extremities of Bayou Pierre, a Bayou Pierre Coalition composed individuals from Caddo, De Soto, Red River and Natchitoches Parishes could be organized. The coalition could seek strategies to fund engineering surveys of the lower extremities of Bayou Pierre

Potential Partners

Solving the resource problems within the Bayou Pierre River Basin Study area would be a comparatively effortless task if there were a boundless source of money available to fund corrective measures within the study area. However, with only limited funds available from local, state, and federal sources, implementing the proposed alternative solutions will require a united effort by private landowners, local, state, and federal government entities; and developers and businesses within the project area. Possible funding sources that could be utilized in the Bayou Pierre Study area are listed in Appendix C. The accomplishment of implementing land treatment options such as BMPs, flooding issues, wetland and floodplain restoration, etc., will rely greatly on a voluntary effort by private landowners. The following groups or agencies are a few sources that administer programs that provide financial and/or technical assistance to solve resource problems. A more specific listing of the sponsors, and resource entities can be found in Appendix C.

Federal Agencies

Farm Service Agency (FSA): FSA administer farm commodity, crop insurance and conservation programs for farmers and makes farm ownership and operating loans. FSA programs are primarily directed at agricultural producers or, in the case of loans, at those with farming experience. State and parish FSA committees whose members are actively engaged in farming or ranching administer and oversee FSA programs and field activities.

Natural Resources Conservation Service (NRCS): NRCS works directly with private landowners and land users (cooperators) to help them protect their natural resources. NRCS personnel work with land users on agricultural land, forestland, wetlands, and other lands to plan, design, and install soil and water conservation practices that reduce erosion and improve water quality. They work in close cooperation with soil and water conservation districts through field offices to provide the technical assistance cooperators need. Using its wide variety of expertise regarding soils, vegetation, wildlife, and engineering, NRCS offers conservation planning to landowners for purposes of

conservation compliance or development of specific cooperator needs. Plans can be developed to reduce erosion, improve water management and conservation, develop and enhance wildlife habitat, etc. These services are provided to the cooperator at no expense.

Financial assistance is available to land users through the Watershed Protection and Flood Prevention Act (PL-83-566). Once a watershed project is approved for operation within an area, cost share is available to landowners to implement measures that benefit water quality, wildlife, and reduce flood damages.

Louisiana Cooperative Extension Service: The Louisiana Cooperative Extension Service (LCES) is part of the land grant college system and is the educational arm of USDA in Louisiana. Administered through the Louisiana State University Agricultural Center, LCES has offices in all parishes. Each office is staffed with Extension agents with expertise in agriculture and natural resource conservation and management. The LCES field staff is supported by specialist who helps coordinate parish outreach activities. These specialists have expertise in wetland resources, wildlife, forestry, aquaculture, agriculture and natural resources, economics, agronomy, crop production, water quality, environmental education, etc. LCES parish agents provide educational information to all agricultural and natural resource user groups through numerous outreach techniques. Educational services are free and available to everyone.

Fish and Wildlife Service (FWS): The FWS provides technical and financial assistance to landowners to benefit wildlife and waterfowl habitat. FWS also coordinates with other agencies by providing technical assistance to those agencies in wildlife habitat creation and restoration projects. FWS helps to meet habitat restoration needs on private lands in the Bayou Pierre Basin through the Partners for Fish and Wildlife Program. The Partners program provides technical and financial assistance to private landowners to restore and enhance fish and wildlife habitat on their property, with a focus on bottomland hardwoods reforestation and restoration of historic hydrologic conditions. FWS expects the Partners program to become more active in the Red River and Bayou Pierre watersheds with establishment of the Red River NWR.

U.S. Geological Survey (USGS): USGS collects information on surface and ground water and publishes this information for public information. They also establish and maintain stream-gauging stations that record stage and discharges at many locations throughout the United States. USGS works closely with LADOTD in both ground and surface water studies and publications.

U.S. Army Corps of Engineers (USACE): The USACE Vicksburg District encompasses 68,000 square miles in three states, with a $220-million annual resources program. The Vicksburg District current missions include flood control, water supply, navigation, emergency operations, hydropower, water quality recreation and environmental resources. Vicksburg's multi-disciplined team of engineers, planners, and environmental, municipal, and recreation specialist are also available, as needed, for Federal and state customers on a reimbursable basis. One of the largest civil works districts in the nation;

Vicksburg is a center of expertise for many engineering and environmental capabilities. New programs allow the Corps to partner with local agencies and groups to meet their engineering needs.

Federal Emergency Management Agency (FEMA): A branch of the Environmental Protection Agency, FEMA has ten regional offices. Each region serves several states, and regional staff work directly with the states to help plan for disasters, develop mitigation programs, and meet when major disasters occur. FEMA also has programs that help communities prepare for natural disasters in order to reduce possible catastrophic damage. The Bayou Pierre River Basin is located in FEMA's Region VI.

Resource Conservation and Development (RC&D): RC&D's were established in the Agriculture Act of 1962 to provide a program that empowered rural people to help themselves. The focus on local direction and control has made RC&D one of the most successful programs of the federal government. The Bayou Pierre Basin is served by the Twin Valley RC&D Council.

State Agencies

Louisiana Department of Agriculture and Forestry (LDAF): The Louisiana Department of Agriculture and Forestry provides education and financial assistance to landowners and communities.

Office of Soil and Water Conservation (OSWC): The OSWC is designated as the state agency that cooperates with NRCS to carry out federal conservation programs. The OSWC provides technical assistance and administrative support to the 43 statewide soil and water conservation districts. These are local units of government through which landowners and landusers receive technical assistance to plan and apply conservation measures on their lands to conserve soil, water, wildlife habitat and related resources. The OSWC works closely with other state and federal resource management agencies that serve to broaden and extend resource management practices on the landscape. The OSWC is responsible for the preparation and establishment of BMPs to achieve environmental compliance in various agricultural operations. Conservation districts serve as local sponsors for PL-566 Watershed projects.

Louisiana Office of Forestry (LOF): LOF provides professional technical assistance to private landowners regarding management of existing timber sales, establishment of new stands and marketing timber. Properties of any size are eligible for LOF assistance in developing a general forest management plan and in establishing new stands of trees. For ownership of fewer than 200 acres, LOF will assist the landowner with marking timber and conducting timber sales. LOF implements the Stewardship Incentive Program (SIP) to landowners which provides up to $10,000 per year for cost-shared practices for a 10 year contract period.

Louisiana Department of Transportation (LADOTD): LADOTD provides technical and financial assistance to local units of government through the PL-566 watershed program

administered by the NRCS. The water resources section of LADOTD absorbed the Office of Public Works that provided technical and financial assistance for many public works projects such as airports, drainage, levees, etc. The water resources section in each LADOTD District Office has planning and design records, and, in some cases construction and "as built" drawings of many of these projects. In many cases LADOTD financial assistance is provided to replace inadequate road crossings within watershed projects. LADOTD has administered construction contracts for NRCS on watershed projects in the state of Louisiana. In addition, LADOTD provides technical assistance to local units of government such as police juries and levee and drainage districts.

Louisiana Department of Environmental Quality, Office of Water Resources (LDEQ-OWR): The Office of Water Resources is responsible for managing the quality of the state's ground and surface water. LDEQ-OWR monitors and manages a network of water quality stations throughout the state. Water samples are collected on set time intervals and analyzed for pollutants such as pesticides, herbicides, nitrates, suspended solids, etc. and conveys this information to the public. LDEQ-OWR is responsible for administering the U.S. Environmental Protection Agency's Section 319 program of the Clean Water Act. Section 319 deals with nonpoint pollution. LDEQ-OWR works with NRCS and local soil and water conservation districts in implementing demonstration projects on private lands that will reduce nonpoint pollution.

Louisiana Department of Wildlife & Fisheries (LDWF). LDWF offers technical assistance regarding a wide variety of fish and wildlife and their habitats. For general information on fish ponds, non-game species, upland game, waterfowl, deer, aquatic weed control, urban and backyard nuisance animal control, wildlife habitat creation and management contact the nearest LDWF District Office found in Appendix A. Programs that are administered through LDWF include: Guide Services, Education Programs, Nongame Programs/La. Natural Heritage Program, New Interactive Website for Kids, Hide Quality RFP 2002, Fur and Alligator Advisory Council, Coastwide Nutria Control Program, and the Louisiana Wildlife and Fisheries Foundation.

Local Organizations and Associations

Red River Valley Association (RRVA): The Red River Valley Association is a nonprofit; member supported organization dedicated to the development of the land water resources of the Red River Basin. With lobbying as its primary function its strength is from the voice of its members which are chiefly from the Red River Valley states of Texas, Oklahoma, Arkansas, and Louisiana. Only through the RRVA's lobbying efforts have milestone projects such as navigation, chloride control, levee and bank stabilization, and many other worthwhile enterprises along the Red River became reality. Some of the objective of the RRVA include: 1) Enhancing the drainage systems and control the effects of flooding, as well as agricultural related projects; 2) Enhancing water quality through chloride control; and 3) Aiding in environmental enhancement efforts such as reforestation, wetland preservation, and wildlife aquatic refuge construction. The RRVA is eager to work with local, state, and federal entities in securing funds to implement projects that will correct resource problems within the valley.

Soil and Water Conservation Districts (SWCDs): In Louisiana, SWCDs have the responsibility of conserving Louisiana's soil and water resources since 1938, when the Louisiana Legislature passed the Soil Conservation District Lay, Act 370. The objectives, as stated in the law, are to provide for conservation of the state's soil and water resources, control and prevent soil erosion preserve wildlife, protect public lands, and promote the health, safety, and general welfare of the people of the state. The Act recognized Louisiana's farm, grazing, and other crops for domestic use and export. Other inventories made on the status and condition of natural and related resources furnish data for resource analyses and evaluation, programming, and planning at the state and national levels. The Bayou Pierre River Basin has five SWCDs: Caddo, De Soto, Natchitoches, Red River, and Sabine. Their principle function is to provide technical assistance to local landowners in implementing measures that will conserve soil, water, and other related resources. In addition, they serve as local sponsors for federal and state funded projects. These SWCDs meet monthly and meetings are open to the general public.

Levee and Drainage Districts: The levee and drainage districts are charged with providing and maintaining levee-toe drainage and levee maintenance for a large part of the river basin. They work with other local, state, and federal agencies and private landowners in this endeavor. The rules and regulations of the levee and drainage districts are designed to promote the most effective use of all lands, waters and facilities governed by the districts. The Natchitoches Levee and Drainage District and the Red River Levee and Drainage District are two of the local governing bodies as well as sponsors of the Bayou Pierre Cooperative River Basin Study.

Police Juries: Louisiana is unique in the nation in that it has parishes that are governed in most cases by police juries. The jury system provides government close to the people. The jury performs the legislative functions of enacting ordinances, establishing programs and setting policy. It is also an administrative body in that it is involved in preparing the budget, hiring and firing personnel, spending funds, negotiating contracts and in general, directing the activities under its supervision. The Police Jury of Natchitoches Parish, Red River, Sabine, De Soto, and the Caddo Parish Commission are five local governing bodies as well as sponsors of the Bayou Pierre Cooperative River Basin Study.

Civil Rights Compliance

A civil rights impact analysis was performed as required by Departmental Regulation 4300-4. The purpose of this regulation is to assure that no individuals that are socially or economically disadvantaged, minorities, women, or persons with disabilities are negatively impacted by any policy, program, or action administered by the U.S. Department of Agriculture (USDA). The civil rights policy for USDA and its programs states:

> "No person or group shall be discriminated on the basis of race, color,

> sex, national origin, religion, age, disability, or marital or familial status in any employment practice or in any program conducted or assisted by the Department of Agriculture."

Under this policy "major civil rights impacts" are those consequences of proposed policy actions which, if implemented, will negatively and disproportionately affect minorities, women, or persons with disabilities who are employees, program beneficiaries or applicants for employment or program benefits in USDA-conducted or assisted programs by virtue of their race, color, sex, national origin, religion, age, disability, or marital or familial status.

The civil rights impact analysis weighed the problems and recommended alternate solutions presented and concluded the overall impact to all people within the study area should be of a positive nature.

All alternate solutions whether offered through actual construction activities or government incentive programs administered directly to private landowners shall be offered in an equal and unbiased manner to all people without regards to race, color, national origin, age, disability, marital or familial status. Implementation of recommended alternate solutions should enhance the natural resources within the area, which in turn, will improve and sustain the quality of life of all people within the Bayou Pierre River Basin area.

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APPENDIX A. Sponsors and Resource Entities

BAYOU PIERRE CRBS SPONSORS AND RESOURCE ENTITIES

Caddo Parish Sponsors

Caddo Soil and Water Conservation District
1402 Hawn Avenue
Shreveport, Louisiana 71137
(318) 676-3333/3334 Ext. 3

City of Shreveport
P.O. Box 31109
Shreveport, Louisiana 71130
(318) 673-6000

Caddo Levee District
P.O. Box 78282
Shreveport, Louisiana 71137-8282
(318) 221-2654

Caddo Parish Commission
525 Marshall Street, Suite 200
Shreveport, Louisiana 71101
(318) 226-6930

Caddo Parish Resource Entities

Natural Resources Conservation Service
1402 Hawn Avenue
Shreveport, Louisiana 71137
(318) 676-3333/3334 Ext. 3

Louisiana Department of Wildlife & Fisheries District I Office
P.O. Box 915
Minden, Louisiana 71055
(318) 371-3050

U.S. Army Corps of Engineers
276 Miller Road
Bossier City, Louisiana 7112
(318) 549-3000

Wallace Lake Coalition
9308 Cana
Shreveport, Louisiana 71118
(318) 687-7972

Audubon Society
Box 5504
Shreveport, Louisiana 71135-5504
(318) 869-1932

Red River Valley Association
P.O. Box 709
Shreveport, Louisiana 71162
(318) 221-5233

Farm Service Agency
P.O. Box 7099
Shreveport, Louisiana 71137-7099
(318) 676-3461

Louisiana Office of Forestry District 4
P.O. Box 550
Minden, Louisiana 71058-0550
(318) 371-3007

Louisiana Cooperative Extension Service
2408 East 70th St.
Shreveport, LA 71105-4702
(318) 226-6805o

Louisiana Department of Transportation & Development
P.O. Box 38
Shreveport, Louisiana 71131
(318) 676-7427

Historic Preservation of Shreveport
401 Market Street #1110
Shreveport, Louisiana 71101
(318) 222-8088

Louisiana Department of Environmental Quality
1525 Fairfield
Shreveport, Louisiana 71011
(318) 676-7476

Watershed Management Initiative LSU-S
201 Pennsylvania
Shreveport, Louisiana 71105
(318) 868-3121

Red River Research Station
7350 Camelback Drive
Shreveport, Louisiana 71105
(318) 741-7430

De Soto Parish Sponsors

De Soto Parish Soil and Water
Conservation District
R.C. Bridges Building
Mansfield, Louisiana 71052
(318) 872-4949 Ext. 3

De Soto Parish Police Jury
P.O. Box 898
Mansfield Louisiana 71052
(318) 872-0738

De Soto Parish Resource Entities

Natural Resources Conservation Service
R.C. Bridges Bldg.
211Washington Ave.
(318) 872-4949

Louisiana Department of Wildlife &
Fisheries District I Office
P.O. Box 915
Minden, Louisiana 71055
(318) 371-3050

Louisiana Cooperative Extension Service
P.O. Box 739
Mansfield;, Louisiana 71052-0739
(318) 872-0533

Farm Service Agency
211 Washington Street
Mansfield, Louisiana 71052-2605
(318) 872-4814

Louisiana Office of Forestry District 6
P.O. Box 137
Natchitoches, Louisiana 71458-0137
(318) 357-3126

Louisiana Wetlands Management District
Route 2, Box 401A
Farmerville, Louisiana 71241
(318) 726-4400

Natchitoches Parish Sponsors

Natchitoches Parish Soil and Water
Conservation District
Agricultural Service Center
6949 LA HWY 1 Bypass
Natchitoches, Louisiana 71457

Natchitoches Levee & Drainage District
448 Jefferson Street
P.O. Box 1209
Natchitoches, Louisiana 71458-1209
(318) 357-1853

Police Jury of Natchitoches Parish
P.O. Box 799
Natchitoches, Louisiana 71458-0799
(318) 352-2714

Natchitoches Parish Resource Entities

Natural Resources Conservation Service
Agricultural Service Center
6949 LA HWY 1 Bypass
Natchitoches, Louisiana 71457
(318) 357-8366 Ext. 3

Louisiana Cooperative Extension Service
624 Second Street
P.O. Box 225
Natchitoches, Louisiana 71458-0225
(318) 357-2224

Louisiana Wetlands Management District
Route 2, Box 401A
Farmerville, Louisiana 71241
(318) 726-4400

Farm Service Agency
Agricultural Service Center
6949 LA HWY 1 Bypass
Natchitoches, Louisiana 71457-5796
(318) 352-7100

Louisiana Office of Forestry District 6
P.O. Box 137
Natchitoches, Louisiana 71458-0137
(318) 357-3126

Louisiana Department of Wildlife & Fisheries District III Office
1995 Shreveport Highway
Pineville, Louisiana 71360

Red River Sponsors

Red River Soil and Water Conservation District
P.O. Box 349
1311 Ringgold Avenue
Coushatta, Louisiana 71019
(318) 932-4352 Ext. 3

Red River Levee & Drainage District
P.O. Box 433
Coushatta, Louisiana 71019
(318) 932- 2150

Red River Parish Police Jury
P.O. Box 709
Coushatta, Louisiana 71019-709
(318) 932-5719

Red River Parish Resource Entities

Natural Resources Conservation Service
Administration Building
Red Oak Road
P.O. Box 349
Coushatta, Louisiana 71019
(318) 932-4352

Louisiana Department of Wildlife & Fisheries District I Office
P.O. Box 915
Minden, Louisiana 71055
(318) 371 -3050

Farm Service Agency
P.O. Box 310
Coushatta, Louisiana 71019-0310
(318) 932-4231

Louisiana Office of Forestry District 6
P.O. Box 137
Natchitoches, Louisiana 71458-0137
(318) 357-3126

Louisiana Cooperative Extension Service
2015 Red Oak Road
P.O. Box 1364
Coushatta, Louisiana 71019
(318) 932-4342

Ed Lester
Lester Farms
P.O. Box 524
Coushatta, Louisiana 71019
(318) 932-3798

Louisiana Wetlands Management District
Route 2, Box 401A
Farmerville, Louisiana 71241
(318) 726-4400

Sabine Parish Sponsors

Sabine Parish Soil and Water Conservation District
R. C. Bridges Building
211 South Washington Avenue
Mansfield Louisiana 71502
(318) 872-4949 Ext. 3

Police Jury of Sabine Parish
400 Courthouse Street
Many, Louisiana 71449
(318) 796-3475

Sabine Parish Resource Entities

Natural Resources Conservation Service
290 Pico Street
Wrights Shopping Center
Many, Louisiana 71449
(318) 256-3491 Ext. 3

Louisiana Cooperative Extension Service
820 west Main Street
Many, Louisiana 71449
(318) 256-3406

Louisiana Wetlands Management District
Route 2, Box 401A
Farmerville, Louisiana 71241
(318) 726-4400

Farm Service Agency
1100C South Third Street
Leesville, Louisiana 71446
(318) 239-2341

Louisiana Office of Forestry District 6
P.O. Box 137
Natchitoches, Louisiana 71458-0137
(318) 357-3126

Other Resource Entities

U.S. Environmental Protection Agency Region 6
1445 Ross Avenue
Dallas Texas 75202-2733

Representative Beverly Bruce
Louisiana House of Representatives
P.O. Box 884
Mansfield, LA 71052
(318) 872-1666

U.S. Army Corps of Engineers
Vicksburg District
4155 Clay Street
Vicksburg, Mississippi 39180
(601) 631-7108

U.S. Fish & Wildlife Service
646 Cajundome Blvd., Suite 400
Lafayette, Louisiana 70506
(337) 291-3123

Sara Traigle, Project Director
Senator John Breaux's Office
503 Hart Senate Office Building
Washington, D.C. 20510-1803

Jennifer M. Hoffman, Staff Assistant
Congressman Jim McCrery's Office
6425 Youree Drive, Suite 350
Shreveport, Louisiana 71105

Bubba Gesser, Project Director
Senator Mary Landrieu's Office
702 Hart Senate Office Building
Washington, D.C. 20510

APPENDIX B. Biological Resources.

FISH POSSIBLY OCCURRING WITHIN BAYOU PIERRE RIVER BASIN

Common Name	**Scientific Name**
Chestnut lamprey	Ichthyomyzon castaneus
Shovelnose sturgeon	Scaphirhynchus platorynchus
Paddlefish	Polyodon spathula
Alligator gar	Atractosteus spatula
Spotted gar	Lepisosteus oculatus
Longnose gar	Lepisosteus osseus
Shortnose gar	Lepisosteus platostomus
Bowfin	Amia calva
American eel	Anguilla rostrata
Skipjack herring	Alosa chrysochloris
Gizzard shad	Dorosoma cepedianum
Threadfin shad	Dorosoma petenense
Goldeye	Hiodon alosoides
Mooneye	Hiodon tergisus
Grass pickerel	Esox americanus
Chain pickerel	Esox niger
Mexican tetra	Astyanax mexicanus
Goldfish	Carassius auratus
Grass carp	Ctenopharynogodon idella
Common carp	Cyprinus carpio
Cypress minnow	Hybognathus hayi
Central silvery minnow	Hybognathus nuchalis
Eastern silvery minnow	Hybognathus reginus
Speckled chub	Hybopis aestivalis
Flathead chub	Hybopis gracilis
Silver chub	Hybopis storeriana
Gravel chub	Hybopis x-punctata
Golden shiner	Notemigonus crysoleucas
Pallid shiner	Notropis amnis
Emerald shiner	Notropis atherinoides
Blackspot shiner	Notropis atrocaudalis
Ghost shiner	Notropis buchanani
Ironcolor shiner	Notropis chalybaeus
Striped shiner	Notropis chrysocephalus
Pugnose minnow	Notropis emiliae
Beautiful shiner	Notropis formosus
Ribbon shiner	Notropis fumeus
Bluehead shiner	Notropis hubbsi
Red shiner	Notropis lutrensis
Taillight shiner	Notropis maculatus

Fish (continued)

Common Name	Scientific Name
Chub shiner	Notropis potteri
Silverband shiner	Notropis shumardi
Weed shiner	Notropis texanus
Redfin shiner	Notropis umbratilis
Blacktail shiner	Notropis venustus
Mimic shiner	Notropis volucellus
Fathead minnow	Pimephales promelas
Bullhead minnow	Pimephales vigilax
Creek chub	Semotilus atromaculatus
River carpsucker	Carpiodes carpio
Quillback	Carpiodes cyprinus
Blue sucker	Cycleptus elongatus
Creek chubsucker	Erimyzon oblongus
Lake chubsucker	Erimyzon sucetta
Smallmouth buffalo	Ictiobus bubalus
Bigmouth buffalo	Ictiobus cyprinellus
Black buffalo	Ictiobus niger
Spotted sucker	Minytrema melanops
Blacktail redhorse	Moxostoma poecilurum
Blue catfish	Ictalurus furcatus
Black bullhead	Ictalurus melas
Yellow bullhead	Ictalurus natalis
Channel catfish	Ictalurus punctatus
Black madtom	Noturus funebris
Tadpole madtom	Noturus gyrinus
Freckled madtom	Noturus nocturnus
Brown madtom	Noturus phaeus
Flathead catfish	Pylodictis olivaris
Pirate perch	Aphredoderus sayanus
Blair's starhead topminnow	Fundulus blairae
Golden topminnow	Fundulus chrysotus
Blackstripe topminnow	Fundulus notatus
Blackspotted topminnow	Fundulus olivaceus
Mosquitofish	Gambusia affinis
Inland silversides	Morone chrysops
Yellow bass	Morone mississippiensis
Striped bass	Morone saxatilis
Banded pygmy sunfish	Elassoma zonatum
Green sunfish	Lepomis cyanellus
Warmouth	Lepomis gulosus
Orangespotted sunfish	Lepomis humilis
Bluegill	Lepomis macrochirus

Fish (continued)

Common Name	**Scientific Name**
Dollar sunfish	Lepomis marginatus
Longear sunfish	Lepomis megalotis
Redear sunfish	Lepomis microlophus
Spotted sunfish	Lepomis punctatus
Bantam sunfish	Lepomis symmetricus
Spotted bass	Micropterus punctulatus
Largemouth bass	Micropterus salmoides
White crappie	Pomoxis annularis
Black crappie	Pomoxis nigromaculatus
Western sand darter	Ammocrypta clara
Scaly sand darter	Ammocrypta vivax
Mud darter	Etheostoma asprigene
Bluntnose darter	Etheostoma chlorosomum
Creole darter	Etheostoma collettei
Fountain darter	Etheostoma fonticola
Swamp darter	Etheostoma fusiforme
Slough darter	Etheostoma gracile
Harlequin darter	Etheostoma histrio
Goldstripe darter	Etheostoma parvipinne
Cypress darter	Etheostoma proeliare
Redfin darter	Etheostoma whipplei
Backwater darter	Etheostoma zoniferum
Logperch	Percina caprodes
Blackside darter	Percina maculata
Dusky darter	Percina sciera
River darter	Percina shumardi
Sauger	Stizostedion canadense
Freshwater drum	Aplodinotus grunniens
Striped mullet	Mugil cephalus

AMPHIBIANS POSSIBLY OCCURRING WITHIN BAYOU PIERRE RIVER BASIN

Common Name	**Scientific Name**
Spotted salamander	Ambystoma maculatum
Marbled salamander	Ambystoma opacum
Mole salamander	Ambystoma talpoideum
Small-mouthed salamander	Ambystoma texanum
Three-toed amphiuma	Amphiuma tridactylum
Dusky salamander	Desmognathus fuscus
Dwarf salamander	Eurycea quadridigitata
Eastern Newt	Notophthalmus viridescens
Lesser siren	Siren intermedia
American toad	Bufo americanus
Woodhouse's toad	Bufo woodhousei
Northern cricket frog	Acris crepitans
Cope's gray treefrog	Hyla chryoscelis
Green treefrog	Hyla cinerea
Spring peeper	Hyla crucifer
Strecker's chorus frog	Pseudacris streckeri
Striped chorus frog	Pseudacris triseriata
Eastern narrow-mouthed toad	Gastrophryne carolinensis
Eastern spadefoot	Scaphiopus holbrookii
Crawfish frog	Rana areolata
Bullfrog	Rana catesbeiana
Green frog	Rana clamitans
Pickerel frog	Rana palustris
Southern leopard frog	Rana sphenocephala

REPTILES POSSIBLY OCCURRING WITHIN BAYOU PIERRE RIVER BASIN

Common Name	**Scientific Name**
Common snapping turtle	Chelydra serpentina
Alligator snapping turtle	Macroclemys temminckii
Painted turtle	Chrysemys picta
Chicken turtle	Deirochelys reticularia
Mississippi map turtle	Graptemys kohnii
False map turtle	Graptemys pseudogeographica
River cooter	Pseudemys concinna
Cooter	Pseudemys floridana
Eastern box turtle	Terrapene carolina
Ornate box turtle	Terrapene ornata
Common slider	Trachemys scripta
Eastern mud turtle	Kinosternon subrubrum
Razor-backed musk turtle	Sternotherus carolinatus
Common musk turtle	Sternotherus odoratus
Smooth softshell turtle	Apalone mutica
Spiny softshell turtle	Apalone spinifer
Slender glass lizard	Ophisaurus attenuatus
Green anole	Anolis carolinensis
Texas horned lizard	Phrynosoma cornutum
Eastern fence lizard	Sceloporus undulatus
Coal skink	Eumeces anthracinus
Five-lined skink	Eumeces fasciatus
Broad-headed skink	Eumeces laticeps
Prairie skink	Eumeces septentrionalis
Ground skink	Scincella lateralis
Six-lined racerunner	Cnemidophorus sexlineatus
Scarlet snake	Cemophora coccinea
Racer	Coluber constrictor
Ring-necked snake	Diadophis punctatus
Corn snake	Elaphe guttata
Rat snake	Elaphe obsoleta
Eastern hognose snake	Heterdon platyrhinos
Prairie kingsnake	Lampropeltis calligaster
Common kingsnake	Lampropeltis getulus
Milk snake	Lampropeltis triangulum
Coachwhip	Masticophis flagellum
Green water snake	Nerodia cyclopion
Plain-bellied water snake	Nerodia erythrogaster
Southern water snake	Nerodia fasciata
Diamondback water snake	Nerodia rhombifera
Rough green snake	Opheodrys aestivus
Graham's crayfish snake	Regina grahamii

Reptiles (cont)

Common Name	**Scientific Name**
Glossy crayfish snake	Regina rigida
Brown snake	Storeria dekayi
Red-bellied snake	Storeria occipitomaculata
Flat-headed snake	Tantilla gracilis
Western ribbon snake	Thamnophis proximus
Common garter snake	Thamnophis sirtalis
Rough earth snake	Virginia striatula
Smooth earth snake	Virginia valeriae
Eastern coral snake	Micrurus fulvius
Copperhead	Agkistrodon contortrix
Cottonmouth	Agkistrodon piscivorus
Timber rattlesnake	Crotalus horridus
Pigmy rattlesnake	Sistrurus miliarius
American alligator	Alligator mississippiensis

BIRDS POSSIBLY OCCURRING WITHIN BAYOU PIERRE RIVER BASIN

Common Name	**Scientific Name**
Red-throated Loon	Gavia stellata
Common Loon	Gavia immer
Least Grebe	Tachybaptus dominicus
Pied-billed Grebe	Podilymbus podiceps
Horned Grebe	Podiceps auritus
Red-necked Grebe	Podiceps grisegena
Eared Grebe	Podiceps nigricollis
Western Grebe	Aechmophorus occidentalis
Yellow-nosed Albatross	Diomedea chlororhynchos
Cory's Shearwater	Calonectris diomedea
Greater Shearwater	Puffinus gravis
Sooty Shearwater	Puffinus griseus
Audubon's Shearwater	Puffinus lherminieri
Wilson's Storm-Petrel	Oceanites oceanicus
Leach's Storm-Petrel	Oceanodroma leucorhoa
White-tailed Tropicbird	Phaethon lepturus
Masked Booby	Sula dactylatra
Brown Booby	Sula leucogaster
Red-footed Booby	Sula sula
Northern Gannet	Morus bassanus
American White Pelican	Pelecanus erythrorhynchos
Brown Pelican	Pelecanus occidentalis
Great Cormorant	Phalacrocorax carbo
Double-crested Cormorant	Phalacrocorax auritus
Olivaceous Cormorant	Phalacrocorax olivaceus
Anhinga	Anhinga anhinga
Magnificent Frigatebird	Fregata magnificens
American Bittern	Botaurus lentiginosus
Least Bittern	Ixobrychus exilis
Great Blue Heron	Ardea herodias
Great Egret	Casmerodius albus
Snowy Egret	Egretta thula
Little Blue Heron	Egretta caerulea
Tricolored Heron	Egretta tricolor
Reddish Egret	Egretta rufescens
Cattle Egret	Bubulcus ibis
Green-backed Heron	Butorides striatus
Black-crowned Night-Heron	Nycticorax nycticorax
Yellow-crowned Night-Heron	Nyctanassa violaceus
White Ibis	Eudocimus albus
Glossy Ibis	Plegadis falcinellus
White-faced Ibis	Plegadis chihi

Birds (cont)

Common Name	**Scientific Name**
Roseate Spoonbill	Ajaia ajaja
Wood Stork	Mycteria americana
Fulvous Whistling-Duck	Dendrocygna bicolor
Black-bellied Whistling-Duck	Dendrocygna autumnalis
Tundra Swan	Cygnus columbianus
Trumpeter Swan	Cygnus buccinator
Greater White-fronted Goose	Anser albifrons
Snow Goose	Chen caerulescens
Ross' Goose	Chen rossii
Brant	Branta bernicla
Canada Goose	Branta canadensis
Wood Duck	Aix sponsa
Green-winged Teal	Anas crecca
American Black Duck	Anas rubripes
Mottled Duck	Anas fulvigula
Mallard	Anas platyrhynchos
Northern Pintail	Anas acuta
Blue-winged Teal	Anas discors
Cinnamon Teal	Anas cyanoptera
Northern Shoveler	Anas clypeata
Gadwall	Anas strepera
Eurasian Wigeon	Anas penelope
American Wigeon	Anas americana
Canvasback	Aythya valisineria
Redhead	Aythya americana
Ring-necked Duck	Aythya collaris
Greater Scaup	Aythya marila
Lesser Scaup	Aythya affinis
Harlequin Duck	Histrionicus histrionicus
Oldsquaw	Clangula hyemalis
Black Scoter	Melanitta nigra
Surf Scoter	Melanitta perspicillata
White-winged Scoter	Melanitta fusca
Common Goldeneye	Bucephala clangula
Bufflehead	Bucephala albeola
Hooded Merganser	Lophodytes cucullatus
Common Merganser	Mergus merganser
Red-breasted Merganser	Mergus serrator
Ruddy Duck	Oxyura jamaicensis
Masked Duck	Oxyura dominica
Black Vulture	Coragyps atratus
Turkey Vulture	Cathartes aura

Birds (continued)

Common Name	Scientific Name
Osprey	Pandion haliaetus
American Swallow-tailed Kite	Elanoides forficatus
Black-shouldered Kite	Elanus caeruleus
Mississippi Kite	Ictinia mississippiensis
Bald Eagle	Haliaetus leucocephalus
Northern Harrier	Circus cyaneus
Sharp-shinned Hawk	Accipiter striatus
Cooper's Hawk	Accipiter cooperii
Northern Goshawk	Accipiter gentilis
Harris' Hawk	Parabuteo unicinctus
Red-shouldered Hawk	Buteo lineatus
Broad-winged Hawk	Buteo platypterus
Swainson's Hawk	Buteo swainsoni
White-tailed Hawk	Buteo albicaudatus
Red-tailed Hawk	Buteo jamaicensis
Ferruginous Hawk	Buteo regalis
Rough-legged Hawk	Buteo lagopus
Golden Eagle	Aquila chrysaetos
Crested Caracara	Polyborus plancus
American Kestrel	Falco sparverius
Merlin	Falco columbarius
Peregrine Falcon	Falco peregrinus
Prairie Falcon	Falco mexicanus
Black Francolin	Francolinus francolinus
Ring-necked Pheasant	Phasianus colchicus
Greater Prairie-Chicken	Tympanuchus cupido
Wild Turkey	Meleagris gallopavo
Northern Bobwhite	Colinus virginianus
Yellow Rail	Coturnicops noveboracensis
Black Rail	Laterallus jamaicensis
Clapper Rail	Rallus longirostris
King Rail	Rallus elegans
Virginia Rail	Rallus limicola
Sora	Porzana carolina
Purple Gallinule	Porphyrula martinica
Common Moorhen	Gallinula chloropus
American Coot	Fulica americana
Sandhill Crane	Grus canadensis
Whooping Crane	Grus americana
Black-bellied Plover	Pluvialis squatarola
Lesser Golden-Plover	Pluvialis dominica
Mongolian Plover	Charadrius mongolus

Birds (continued)

Common Name	Scientific Name
Snowy Plover	Charadrius alexandrinus
Wilson's Plover	Charadrius wilsonia
Semipalmated Plover	Charadrius semipalmatus
Piping Plover	Charadrius melodus
Killdeer	Charadrius vociferus
American Oystercatcher	Haematopus palliatus
Black-necked Stilt	Himantopus mexicanus
American Avocet	Recurvirostra americana
Greater Yellowlegs	Tringa melanoleuca
Lesser Yellowlegs	Tringa flavipes
Solitary Sandpiper	Tringa solitaria
Willet	Catoptrophorus semipalmatus
Spotted Sandpiper	Actitis macularia
Upland Sandpiper	Bartramia longicauda
Eskimo Curlew	Numenius borealis
Whimbrel	Numenius phaeopus
Long-billed Curlew	Numenius americanus
Hudsonian Godwit	Limosa haemastica
Marbled Godwit	Limosa fedoa
Ruddy Turnstone	Arenaria interpres
Red Knot	Calidris canutus
Sanderling	Calidris alba
Semipalmated Sandpiper	Calidris pusilla
Western Sandpiper	Calidris mauri
Least Sandpiper	Calidris minutilla
White-rumped Sandpiper	Calidris fuscicollis
Baird's Sandpiper	Calidris bairdii
Pectoral Sandpiper	Calidris melanotos
Purple Sandpiper	Calidris maritima
Dunlin	Calidris alpina
Curlew Sandpiper	Calidris ferruginea
Stilt Sandpiper	Calidris himantopus
Buff-breasted Sandpiper	Tryngites subruficollis
Ruff	Philomachus pugnax
Short-billed Dowitcher	Limnodromus griseus
Long-billed Dowitcher	Limnodromus scolopaceus
Common Snipe	Gallinago gallinago
American Woodcock	Scolopax minor
Wilson's Phalarope	Phalaropus tricolor
Red-necked Phalarope	Phalaropus lobatus
Red Phalarope	Phalaropus fulicarius
Pomarine Jaeger	Stercorarius pomarinus

Birds (continued)

Common Name	**Scientific Name**
Parasitic Jaeger	Stercorarius parasiticus
Long-tailed Jaeger	Stercorarius longicaudus
Great Skua	Catharacta skua
Laughing Gull	Larus atricilla
Franklin's Gull	Larus pipixcan
Little Gull	Larus minutus
Bonaparte's Gull	Larus philadelphia
Ring-billed Gull	Larus delawarensis
Herring Gull	Larus argentatus
Thayer's Gull	Larus thayeri
Lesser Black-backed Gull	Larus fuscus
Glaucous Gull	Larus hyperboreus
Great Black-backed Gull	Larus marinus
Black-legged Kittiwake	Rissa tridactyla
Sabine's Gull	Xema sabini
Gull-billed Tern	Sterna nilotica
Caspian Tern	Sterna caspia
Royal Tern	Sterna maxima
Sandwich Tern	Sterna sandvicensis
Roseate Tern	Sterna dougallii
Common Tern	Sterna hirundo
Forster's Tern	Sterna forsteri
Least Tern	Sterna antillarum
Bridled Tern	Sterna anaethetus
Sooty Tern	Sterna fuscata
Black Tern	Chlidonias niger
Brown Noddy	Anous stolidus
Black Skimmer	Rynchops niger
Ancient Murrelet	Synthliboramphus antiquus
Rock Dove	Columba livia
Band-tailed Pigeon	Columba fasciata
White-winged Dove	Zenaida asiatica
Mourning Dove	Zenaida macroura
Inca Dove	Columbina inca
Common Ground-Dove	Columbia passerina
Monk Parakeet	Myiopsitta monachus
Black-billed Cuckoo	Coccyzus erythropthalmus
Yellow-billed Cuckoo	Coccyzus americanus
Greater Roadrunner	Geococcyx californianus
Smooth-billed Ani	Crotophaga ani
Groove-billed Ani	Crotophaga sulcirostris
Barn-Owl	Tyto alba

Birds (continued)

Common Name	Scientific Name
Flammulated Owl	Otus flammeolus
Eastern Screech-Owl	Otus asio
Great Horned Owl	Bubo virginianus
Snowy Owl	Nyctea scandiaca
Burrowing Owl	Athene cunicularia
Barred Owl	Strix varia
Long-eared Owl	Asio otus
Short-eared Owl	Asio flammeus
Northern Saw-whet Owl	Aegolius acadicus
Lesser Nighthawk	Chordeiles acutipennis
Common Nighthawk	Chordeiles minor
Antillean Nighthawk	Chordeiles gundlachii
Chuck-will's-willow	Caprimulgus carolinensis
Whip-poor-will	Caprimulgus vociferus
Chimney Swift	Chaetura pelagica
Vaux's Swift	Chaetura vauxi
Buff-bellied Hummingbird	Amazilia yucatanensis
Ruby-throated Hummingbird	Archilochus colubris
Black-chinned Hummingbird	Archilochus alexandri
Anna's Hummingbird	Calypte anna
Calliope Hummingbird	Stellula calliope
Broad-tailed Hummingbird	Selasphorus platycercus
Rufous Hummingbird	Selasphorus rufus
Allen's Hummingbird	Selasphorus sasin
Belted Kingfisher	Ceryle alcyon
Red-headed Woodpecker	Melanerpes erythrocephalus
Red-bellied Woodpecker	Melanerpes carolinus
Yellow-bellied Sapsucker	Sphyrapicus varius
Williamson's Sapsucker	Sphyrapicus thyroideus
Downy Woodpecker	Picoides pubescens
Hairy Woodpecker	Picoides villosus
Red-cockaded Woodpecker	Picoides borealis
Northern Flicker	Colaptes auratus
Pileated Woodpecker	Dryocopus pileatus
Olive-sided Flycatcher	Contopus borealis
Western Wood-Pewee	Contopus sordidulus
Eastern Wood-Pewee	Contopus virens
Yellow-bellied Flycatcher	Empidonax flaviventris
Acadian Flycatcher	Empidonax virescens
Alder Flycatcher	Empidonax alnorum
Willow Flycatcher	Empidonax traillii
Least Flycatcher	Empidonax minimus

Birds (continued)

Common Name	**Scientific Name**
Hammond's Flycatcher	Empidonax hammondii
Eastern Phoebe	Sayornis phoebe
Say's Phoebe	Sayornis saya
Vermilion Flycatcher	Pyrocephalus rubinus
Ash-throated Flycatcher	Myiarchus cinerascens
Great Crested Flycatcher	Myiarchus crinitus
Brown-crested Flycatcher	Myiarchus tyrannulus
Great Kiskadee	Pitangus sulphuratus
Sulphur-bellied Flycatcher	Myiodynastes luteiventris
Couch's Kingbird	Tyrannus couchii
Tropical Kingbird	Tyrannus melancholicus
Cassin's Kingbird	Tyrannus vociferans
Western Kingbird	Tyrannus verticalis
Eastern Kingbird	Tyrannus tyrannus
Gray Kingbird	Tyrannus dominicensis
Scissor-tailed Flycatcher	Tyrannus forficatus
Horned Lark	Eremophila alpestris
Purple Martin	Progne subis
Tree Swallow	Tachycineta bicolor
Northern Rough-winged Swallow	Stelgidopteryx serripennis
Bank Swallow	Riparia riparia
Cliff Swallow	Hirundo pyrrhonota
Barn Swallow	Hirundo rustica
Blue Jay	Cyanocitta cristata
American Crow	Corvus brachyrhynchos
Fish Crow	Corvus ossifragus
Carolina Chickadee	Parus carolinensis
Tufted Titmouse	Parus bicolor
Red-breasted Nuthatch	Sitta canadensis
White-breasted Nuthatch	Sitta carolinensis
Brown-headed Nuthatch	Sitta pusilla
Brown Creeper	Certhia americana
Rock Wren	Salpinctes obsoletus
Carolina Wren	Thryothorus ludovicianus
Bewick's Wren	Thryomanes bewickii
House Wren	Troglodytes aedon
Winter Wren	Troglodytes troglodytes
Sedge Wren	Cistothorus platensis
Marsh Wren	Cistothorus palustris
Golden-crowned Kinglet	Regulus satrapa
Ruby-crowned Kinglet	Regulus calendula
Blue-gray Gnatcatcher	Polioptila caerulea

Birds (continued)

Common Name	**Scientific Name**
Northern Wheatear	Oenanthe oenanthe
Eastern Bluebird	Sialia sialis
Mountain Bluebird	Sialia currucoides
Veery	Catharus fuscescens
Gray-cheeked Thrush	Catharus minimus
Swainson's Thrush	Catharus ustulatus
Hermit Thrush	Catharus guttatus
Wood Thrush	Hylocichla mustelina
American Robin	Turdus migratorius
Gray Catbird	Dumetella carolinensis
Northern Mockingbird	Mimus polyglottos
Sage Thrasher	Oreoscoptes montanus
Brown Thrasher	Toxostoma rufum
Curve-billed Thrasher	Toxostoma curvirostre
American Pipit	Anthus spinoletta
Sprague's Pipit	Anthus spragueii
Cedar Waxwing	Bombycilla cedrorum
Loggerhead Shrike	Lanius ludovicianus
European Starling	Sturnus vulgaris
White-eyed Vireo	Vireo griseus
Bell's Vireo	Vireo bellii
Solitary Vireo	Vireo solitarius
Yellow-throated Vireo	Vireo flavifrons
Warbling Vireo	Vireo gilvus
Philadelphia Vireo	Vireo philadelphicus
Red-eyed Vireo	Vireo olivaceus
Black-whiskered Vireo	Vireo altiloquus
Bachman's Warbler	Vermivora bachmanii
Blue-winged Warbler	Vermivora pinus
Golden-winged Warbler	Vermivora chrysoptera
Tennessee Warbler	Vermivora peregrina
Orange-crowned Warbler	Vermivora celata
Nashville Warbler	Vermivora ruficapilla
Lucy's Warbler	Vermivora luciae
Northern Parula	Parula americana
Tropical Parula	Parula pitiayumi
Yellow Warbler	Dendroica petechia
Chestnut-sided Warbler	Dendroica pensylvanica
Magnolia Warbler	Dendroica magnolia
Cape May Warbler	Dendroica tigrina
Black-throated Blue Warbler	Dendroica caerulescens

Birds (continued)

Common Name	Scientific Name
Yellow-rumped Warbler	Dendroica coronata
Black-throated Gray Warbler	Dendroica nigrescens
Townsend's Warbler	Dendroica townsendi
Hermit Warbler	Dendroica occidentalis
Black-throated Green Warbler	Dendroica virens
Blackburnian Warbler	Dendroica fusca
Yellow-throated Warbler	Dendroica dominica
Pine Warbler	Dendroica pinus
Prairie Warbler	Dendroica discolor
Palm Warbler	Dendroica palmarum
Bay-breasted Warbler	Dendroica castanea
Blackpoll Warbler	Dendroica striata
Cerulean Warbler	Dendroica cerulea
Black-and-white Warbler	Mniotilta varia
American Redstart	Setophaga ruticilla
Prothonotary Warbler	Protonotaria citrea
Worm-eating Warbler	Helmitheros vermivorus
Swainson's Warbler	Limnothlypis swainsonii
Ovenbird	Seiurus aurocapillus
Northern Waterthrush	Seiurus noveboracensis
Louisiana Waterthrush	Seiurus motacilla
Kentucky Warbler	Oporornis formosus
Connecticut Warbler	Oporornis agilis
Mourning Warbler	Oporornis philadelphia
MacGillivray's Warbler	Oporornis tolmiei
Common Yellowthroat	Geothlypis trichas
Hooded Warbler	Wilsonia citrina
Wilson's Warbler	Wilsonia pusilla
Canada Warbler	Wilsonia canadensis
Painted Redstart	Myioborus pictus
Yellow-breasted Chat	Icteria virens
Hepatic Tanager	Piranga flava
Summer Tanager	Piranga rubra
Scarlet Tanager	Piranga olivacea
Western Tanager	Piranga ludoviciana
Northern Cardinal	Cardinalis cardinalis
Rose-breasted Grosbeak	Pheucticus ludovicianus
Black-headed Grosbeak	Pheucticus melanocephalus
Blue Bunting	Cyanocompsa parellina
Blue Grosbeak	Guiraca caerulea
Indigo Bunting	Passerina cyanea

Birds (continued)

Common Name	**Scientific Name**
Painted Bunting	Passerina ciris
Dickcissel	Spiza americana
Green-tailed Towhee	Pipilo chlorurus
Rufous-sided Towhee	Pipilo erythrophthalmus
Bachman's Sparrow	Aimophila aestivalis
American Tree Sparrow	Spizella arborea
Chipping Sparrow	Spizella passerina
Clay-colored Sparrow	Spizella pallida
Brewer's Sparrow	Spizella breweri
Field Sparrow	Spizella pusilla
Vesper Sparrow	Pooecetes gramineus
Lark Sparrow	Chondestes grammacus
Black-throated Sparrow	Amphispiza bilineata
Lark Bunting	Calamospiza melanocorys
Savannah Sparrow	Passerculus sandwichensis
Grasshopper Sparrow	Ammodramus savannarum
Henslow's Sparrow	Ammodramus henslowii
LeConte's Sparrow	Ammodramus leconteii
Sharp-tailed Sparrow	Ammodramus caudacutus
Seaside Sparrow	Ammodramus maritimus
Fox Sparrow	Passerella iliaca
Song Sparrow	Melospiza melodia
Lincoln's Sparrow	Melospiza lincolnii
Swamp Sparrow	Melospiza georgiana
White-throated Sparrow	Zonotrichia albicollis
Golden-crowned Sparrow	Zonotrichia atricapilla
White-crowned Sparrow	Zonotrichia leucophrys
Harris' Sparrow	Zonotrichia querula
Dark-eyed Junco	Junco hyemalis
McCown's Longspur	Calcarius mccownii
Lapland Longspur	Calcarius lapponicus
Smith's Longspur	Calcarius pictus
Chestnut-collared Longspur	Calcarius ornatus
Snow Bunting	Plectrophenax nivalis
Bobolink	Dolichonyx oryzivorus
Red-winged Blackbird	Agelaius phoeniceus
Eastern Meadowlark	Sturnella magna
Western Meadowlark	Sturnella neglecta
Yellow-headed Blackbird	Xanthocephalus xanthocephalus
Rusty Blackbird	Euphagus carolinus
Brewer's Blackbird	Euphagus cyanocephalus
Great-tailed Grackle	Quiscalus mexicanus

Birds (continued)

Common Name	**Scientific Name**
Boat-tailed Grackle	Quiscalus major
Common Grackle	Quiscalus quiscalus
Bronzed Cowbird	Molothrus aeneus
Brown-headed Cowbird	Molothrus ater
Orchard Oriole	Icterus spurius
Northern Oriole	Icterus galbula
Scott's Oriole	Icterus parisorum
Purple Finch	Carpodacus purpureus
House Finch	Carpodacus mexicanus
Red Crossbill	Loxia curvirostra
Common Redpoll	Carduelis flammea
Pine Siskin	Carduelis pinus
Lesser Goldfinch	Carduelis psaltria
American Goldfinch	Carduelis tristis
Evening Grosbeak	Coccothraustes vespertinus
House Sparrow	Passer domesticus

MAMMALS POSSIBLY OCCURRING WITHIN BAYOU PIERRE RIVER BASIN

Common Name	**Scientific Name**
Virginia opossum	Didelphis virginiana
Short-tailed shrew	Blarina brevicauda
Least shrew	Cryptotis parva
Eastern mole	Scalopus aquatica
Southeastern myotis	Myotis austroriparius
Eastern pipistrelle	Pipistrellus subflavus
Big brown bat	Eptesicus fuscus
Red bat	Lasiurus borealis
Seminole bat	Lasiurus seminolus
Hoary bat	Lasiurus cinereus
Evening bat	Nycticeius humeralis
Rafinesque's big-eared bat	Plecotus rafinesquii
Brazilian free-tailed bat	Tadarida brasiliensis
Nine-banded armadillo	Dasypus novemcinctus
Eastern cottontail	Sylvilagus floridanus
Swamp rabbit	Sylvilagus aquaticus
Gray squirrel	Sciurus carolinensis
Fox squirrel	Sciurus niger
Woodchuck	Marmota monax
Southern flying squirrel	Glaucomys volans
Plains pocket gopher	Geomys bursarius
American beaver	Castor canadensis
Marsh rice rat	Oryzomys palustris
Eastern harvest mouse	Reithrodontomys humuylis
Fulvous harvest mouse	Reithrodontomys fulvescens
White-footed mouse	Peromyscus leucopus
Cotton mouse	Peromyscus gossypinus
Golden mouse	Ochrotomys nuttalli
Hispid cotton rat	Sigmodon hispidus
Eastern wood rat	Neotoma floridana
Woodland vole	Microtus pinetorum
Common muskrat	Ondatra zibethicus
Roof rat	Rattus rattus
Norway rat	Rattus norvegicus
House mouse	Mus musculus
Nutria	Myocaster coypus
Coyote	Canis latrans
Red wolf	Canis rufus
Red fox	Vulpes vulpes
Gray fox	Urocyon cinereoargenteus
American black bear	Euarctos americanus
Ringtail	Bassariscus astutus

Mammals (continued)

Common Name	**Scientific Name**
Northern raccoon	Procyon lotor
Long-tailed weasel	Mustela frenata
North American Mink	Mustela vison
Striped skunk	Mephitis mephitis
Nearctic river otter	Lutra canadensis
Cougar	Felis concolor
Bobcat	Lynx felis
White-tailed deer	Odocoileus virginianus

Bossier-Caddo-Bienville - center 2.5 mi SE McDade [32°18'N 93°29'W]

Species	2-Jan 1988	31-Dec 1988	30-Dec 1989	29-Dec 1990	28-Dec 1991	2-Jan 1993	2-Jan 1994	2-Jan 1995	1-Jan 1996	5-Jan 1997	4-Jan 1998	2-Jan 1999	2-Jan 2000	1-Jan 2001	5-Jan 2002
Common Loon						3	1	1							
Pied-billed Grebe	18	20	5	4	18	8	7	20	35	59	70	52	53	38	40
Horned Grebe								1							
Am. White Pelican			cw			cw	3	42	2	147	278	830	1148	3413	823
Dbl-crested Cormorant	6062	1251	5586	8599	5840	2396	2160	704	9342	3046	1011	12801	7104	39777	7040
Anhinga	2					2		2	2	6	3		10	2	
American Bittern				1							1				
Great Blue Heron	46	58	74	48	38	68	54	53	101	76	74	78	115	81	144
Great Egret	9	79	2	29	16	59	21	30	163	101	66	85	775	712	192
Snowy Egret										5	14		16	4	
Little Blue Heron										3	2		3		
Tricolored Heron										10	25	2	19	3	9
Cattle Eget										74	37		91	9	
Blk-cr Night-Heron						1				cw		3	2		12
White Ibis											33		161	131	
White-faced Ibis												5	2		
Plegadis sp.													9		
Black Vulture	66	22	36	40	51	137	38	31	13	20	18	70	28	47	cw
Turkey Vulture	120	102	62	88	135	222	111	149	25	85	49	366	103	116	cw
Tundra Swan			3												
Gr. White-fronted Goose											18	215	3		2
Snow Goose		4		380		196		25	1		3	268	18	202	cw
(blue form)	2		20					10	2						
(white form)	2		27												
Ross' Goose											cw	1	2	1	
Canada Goose	cw	8	cw	1		21	6			7				20	4
(small form)				2		2							2		
Wood Duck	491	197	193	45	109	94	226	160	148	101	119	99	2488	245	73
Gadwall	16	13	219	16	170	811	36	217	1191	510	1532	1246	1690	1694	297
American Wigeon	22	2	156	26	26	708	205	435	88	341	505	238		21	2
Mallard	1343	200	1122	229	463	428	134	138	279	180	979	601	1797	1171	176
Blue-winged Teal			cw								2		2		3
Cinnamon Teal													1		
Northern Shoveler	1	cw	13		4	11	4	10	7	105	164	206	177	66	11
Northern Pintail	cw		3	2		5		4	16	1	29	1	15	16	1
Gadwall x N. Pintail			1										32		

Bossier-Caddo-Bienville - center 2.5 mi SE McDade [32°18'N 93°29'W]

Species	2-Jan 1988	31-Dec 1988	30-Dec 1989	29-Dec 1990	28-Dec 1991	2-Jan 1993	2-Jan 1994	2-Jan 1995	1-Jan 1996	5-Jan 1997	4-Jan 1998	2-Jan 1999	2-Jan 2000	1-Jan 2001	5-Jan 2002
Common Loon						3	1	1							
Pied-billed Grebe	18	20	5	4	18	8	7	20	35	59	70	52	53	38	40
Horned Grebe								1							
Am. White Pelican			cw			cw	3	42	2	147	278	830	1148	3413	823
Dbl-crested Cormorant	6062	1251	5586	8599	5840	2396	2160	704	9342	3046	1011	12801	7104	39777	7040
Anhinga	2					2		2	2	6	3		10	2	
American Bittern				1							1				
Great Blue Heron	46	58	74	48	38	68	54	53	101	76	74	78	115	81	144
Great Egret	9	79	2	29	16	59	21	30	163	101	66	85	775	712	192
Snowy Egret										5	14		16	4	
Little Blue Heron										3	2		3		
Tricolored Heron										10	25	2	19	3	9
Cattle Eget										74	37		91	9	
Blk-cr Night-Heron						1				cw		3	2		12
White Ibis											33		161	131	
White-faced Ibis												5	2		
Plegadis sp.													9		
Black Vulture	66	22	36	40	51	137	38	31	13	20	18	70	28	47	cw
Turkey Vulture	120	102	62	88	135	222	111	149	25	85	49	366	103	116	cw
Tundra Swan			3												
Gr. White-fronted Goose											18	215	3		2
Snow Goose		4		380		196		25	1		3	268	18	202	cw
(blue form)	2		20					10	2						
(white form)	2		27												
Ross' Goose											cw	1	2	1	
Canada Goose	cw	8	cw	1		21	6			7				20	4
(small form)				2		2							2		
Wood Duck	491	197	193	45	109	94	226	160	148	101	119	99	2488	245	73
Gadwall	16	13	219	16	170	811	36	217	1191	510	1532	1246	1690	1694	297
American Wigeon	22	2	156	26	26	708	205	435	88	341	505	238		21	2
Mallard	1343	200	1122	229	463	428	134	138	279	180	979	601	1797	1171	176
Blue-winged Teal			cw								2		2		3
Cinnamon Teal													1		
Northern Shoveler	1	cw	13		4	11	4	10	7	105	164	206	177	66	11
Northern Pintail	cw		3	2		5		4	16	1	29	1	15	16	1
Gadwall x N. Pintail			1										32		

Bossier-Caddo-Bienville - center 2.5 mi SE McDade [32°18'N 93°29'W]

Species	2-Jan 1988	31-Dec 1988	30-Dec 1989	29-Dec 1990	28-Dec 1991	2-Jan 1993	2-Jan 1994	2-Jan 1995	1-Jan 1996	5-Jan 1997	4-Jan 1998	2-Jan 1999	2-Jan 2000	1-Jan 2001	5-Jan 2002
American Avocet											3				
Greater Yellowlegs			1	1	4		7	3		cw	24	16	15	4	1
Lesser Yellowlegs													3	9	
Spotted Sandpiper	cw			1		5	3	4	2	7		cw	9	9	2
Least Sandpiper	3			2					117		449	123	80	2	5
Dunlin												6	4		
Long-billed Dowitcher				cw								8	50	6	
dowitcher species											6				
Common Snipe	32	102	7	cw	249	46	112	65	70	cw	895	387	280	507	164
American Woodcock	3	3	2	2	4	1	2	3	cw	3	1	cw	1		
Franklin's Gull											1				
Bonaparte's Gull	cw	2		4	4		1	1	1		7	604	271		43
Ring-billed Gull	89	93	2	26	21	70	47	57	150	32	213	361	307	1677	354
Herring Gull			cw	2		1						1		1	
Forster's Tern				1		1	1	9		41	95	451	233	42	68
tern species	1														
Rock Dove	14	31	337	10	22	44	52	66	57	151	79	289	184	580	67
Mourning Dove	273	83	100	160	277	90	370	185	185	217	170	212	203	734	99
Greater Roadrunner	2		cw	cw											
Barn Owl	4	2	2	1		3	3	5	1	3	3	3	3	7	1
Eastern Screech-Owl	1	3	6	9	8	6	8	5	5	5	15	4	12	6	17
Great Horned Owl	1	5	6	7	1	3	2	cw	5	1	9	cw	6	3	2
Barred Owl	5	4	15	9	5	6	9	3	2	5	7	2	2	2	5
Short-eared Owl													2	1	cw
Belted Kingfisher	11	19	13	5	8	16	16	20	24	21	26	20	24	24	10
Red-headed Woodpecker	3	16	10	2	9	13	13	12	5	14	9	7	25	17	4
Red-bellied Woodpecker	55	53	69	43	81	77	75	86	80	86	96	83	87	93	61
Yell.-bell. Sapsucker	31	28	46	43	42	57	76	59	40	42	40	22	38	45	24
Downy Woodpecker	22	23	23	32	46	47	38	38	24	21	39	17	33	24	14
Hairy Woodpecker	3	8	5	13	8	3	6	6	7	5	6	12	7	3	4
Northern Flicker	104	67	97	62	128	170	87	87	64	40	49	34	67	44	43
Pileated Woodpecker	20	26	34	8	8	12	19	11	29	24	16	5	27	5	4
Eastern Phoebe	17	27	36	31	22	35	60	34	29	36	45	43	57	62	28
Vermilion Flycatcher	cw	2											2	1	
Loggerhead Shrike	59	78	54	47	77	89	68	79	53	27	48	40	21	27	22
White-eyed Vireo					1					1					

Bossier-Caddo-Bienville - center 2.5 mi SE McDade [32°18'N 93°29'W]

Species	2-Jan 1988	31-Dec 1988	30-Dec 1989	29-Dec 1990	28-Dec 1991	2-Jan 1993	2-Jan 1994	2-Jan 1995	1-Jan 1996	5-Jan 1997	4-Jan 1998	2-Jan 1999	2-Jan 2000	1-Jan 2001	5-Jan 2002
Solitary Vireo		1	3	1		2	2	3	1	1	2	1	1		
Blue Jay	163	162	210	102	225	149	204	190	146	107	137	113	131	74	124
American Crow	286	259	335	351	250	239	379	327	454	317	503	716	365	347	325
Fish Crow	3	3	24	48	54	66	13	5	12	104	154	65	74		42
Horned Lark	205	97	120	2	2	61	175		22	40	10	5	13	70	41
Tree Swallow													96		
Carolina Chickadee	92	186	309	163	264	215	252	161	127	145	173	106	143	75	142
Tufted Titmouse	20	90	96	46	85	51	72	36	69	38	54	16	42	17	52
Red-breasted Nuthatch			1						15		2				
Wh.-breasted Nuthatch				1						2	1				
Brown-headed Nuthatch	4		4	2	2	4	8	5	8	11	cw	3	4	3	2
Brown Creeper	1	3	1	14	5	1	2	1			2	1	5	7	3
Carolina Wren	43	59	112	96	65	101	126	68	77	85	76	48	99	45	69
Bewick's Wren	1	1	1		2	1	2	1			1			1	3
House Wren	2	1	10	11	6	3	8	2	5	10	13	8	19	4	17
Winter Wren	3	9	3	7	5	4	10	2	1	1	6	7	14	5	2
Sedge Wren		1	1		1		3	1	2	13	1		31		1
Marsh Wren											20	6	24	7	9
Gold.-crowned Kinglet	25	31	40	19	19	15	16	3	26		5	21	45	15	24
Ruby-crowned Kinglet	37	123	146	141	152	177	203	111	95	51	198	73	148	52	78
Blue-gray Gnatcatcher	cw	2			1	1	4	2	1	6	14		6		2
Eastern Bluebird	83	97	225	205	337	383	141	162	104	235	147	302	170	152	62
Hermit Thrush	20	15	26	25	27	45	29	21	13	17	14	13	7	21	24
American Robin	261	47	460	505	1152	4213	100	1069	423	2830	1989	1082	1109	106	3265
Gray Catbird	1			3		2	5					1			
Northern Mockingbird	78	73	149	74	71	96	83	124	90	61	90	81	76	67	62
Brown Thrasher	53	73	61	35	49	35	50	59	19	11	19	6	28	25	18
European Starling	1194	284	3005	1240	2688	6379	697	536	1501	722	371	2137	1135	1244	
American Pipit	213	36	84	162	291	579	108	405	231	1354	373	1016	952	399	149
Sprague's Pipit				1								1			
Cedar Waxwing	19	96	127	135	176	414	79	59	48	498	126	68	61		303
Orange-crowned Warbler		1	2	5	3	3	13	3	8	4	19	27	24	8	7
Yellow Warbler											1				

Bossier-Caddo-Bienville - center 2.5 mi SE McDade [32°18'N 93°29'W]

Species	2-Jan 1988	31-Dec 1988	30-Dec 1989	29-Dec 1990	28-Dec 1991	2-Jan 1993	2-Jan 1994	2-Jan 1995	1-Jan 1996	5-Jan 1997	4-Jan 1998	2-Jan 1999	2-Jan 2000	1-Jan 2001	5-Jan 2002
Yellow-rumped Warbler	46	120	288	180	142	165	350	106	292	379	508	757	490	232	201
Yel-r (Audubon) Warbler											1				
Pine Warbler	14	10	44	30	81	36	41	20	11	82	23	8	45	17	19
Palm Warbler						1		1			2				
Common Yellowthroat						cw		2			2		5	2	2
Wilson Warbler									1						
East. (Rufous-s.) Towhee	35	6	11	14	30	12	17	2	15	14	3	3	19	11	11
East. (Spotted) Towhee	cw														
Chipping Sparrow	115	87	170	29	64	68	256	66	194	100	115	116	260	32	229
Field Sparrow	42	46	30	42	24	7	112	32	13	13	9	11	116	30	14
Vesper Sparrow	31	21	8		21	95	24	84	15	10		11	30	42	8
Lark Sparrow			1						5						
Savannah Sparrow	76	373	104	162	404	311	382	431	285	105	407	323	515	594	327
Grasshopper Sparrow													1		
Henslow's Sparrow													1		
LeConte's Sparrow		3		3					1	4			134		1
Sharp-tailed Sparrow											8				
Fox Sparrow	31	24	24	13	29	65	30	19	29	13	17	15	33	35	30
Song Sparrow	85	115	162	149	233	192	383	166	260	330	360	295	214	304	242
Lincoln's Sparrow	14	3	8	7	3	5	5	4		4	4	4	1	1	1
Swamp Sparrow	73	70	254	21	36	116	157	81	36	84	141	131	223	112	347
Wh.-throated Sparrow	254	433	948	349	537	514	739	560	534	303	569	520	457	327	767
Harris' Sparrow	4	2	2	cw	1	3		4		4	2	3		9	1
Wh.-crowned Sparrow	71	178	210	197	275	313	369	235	222	220	339	221	201	328	184
Dark-eyed Junco	228	467	662	160	406	229	273	444	151	102	137	213	118	333	180
Dark-e.(Oregon) Junco	2		1		1	1		1		1				1	
Lapland Longspur		6	45	1							cw	cw			6
Northern Cardinal	508	380	468	289	422	577	370	419	383	176	386	216	238	426	433
Red-wing.Blackbird	4209	1665	8318	5202	4826	5533	8255	13799	10524	2677	9119	12903	281856	6421	29466
Eastern Meadowlark	405	330	321	355	511	449	343	541	528	447	162	270	193	708	327
Western Meadowlark		1								1	cw			1	
Rusty Blackbird		40	14	17		5	19	115		5	78	156	39	7	24
Brewer's Blackbird	16	48	74	276	67	120	276	67	369	50	851	841	779	264	284
Common Grackle	21712	10267	2559	3813	3027	774	3534	1639	2088	843	2418	595	2036	313	523

Bossier-Caddo-Bienville - center 2.5 mi SE McDade [32°18'N 93°29'W]

Species	2-Jan 1988	31-Dec 1988	30-Dec 1989	29-Dec 1990	28-Dec 1991	2-Jan 1993	2-Jan 1994	2-Jan 1995	1-Jan 1996	5-Jan 1997	4-Jan 1998	2-Jan 1999	2-Jan 2000	1-Jan 2001	5-Jan 2002
Great-tailed Grackle															10
Brown-headed Cowbird	409	89	1018	2309	1062	2424	591	1610	1429	873	255	286	2046	240	554
blackbird species						800		500			500	10500	5500		1930
Purple Finch	1	cw	16	10		4	9		9						
House Finch				22					41	2		1			
Pine Siskin	5		62						1			cw			
American Goldfinch	99	128	332	152	258	99	283	78	491	147	230	176	278	167	212
House Sparrow	45	15	69	72	191	157	25	99	29	33	30	14	4	74	63
Total Species	97	99	104	106	97	109	104	105	104	107	123	114	130	117	112
Observers	25	22	25	17	16	19	18	16	21	17	21	19	18	19	21
Parties	8-10	9	10	8-9	9	8	8-9	9	12	10	11	10	9	9	
Feeders	1		1						2				1		
Party-Hours:															
Foot	24	34.5	31	34.5	35	39.5	33.5	22.5	21	29.5	31	28	25	17.5	
Car	36	48	40.75	25	37.25	37	39.8	40	42.25	30.5	42.25	58	41	43.5	
ATV	1	3	3	1	2.5	2				2		1	1.5		
Boat	5.5	2	2.5	3	6	3	3.5	5	14.75	10.75	15.5	8	10	3.5	
Party-Miles:															
Foot	20	28.5	24.75	27.25	33.5	30	25.5	19	14	24.5	20	20	9.2	9.5	
Car	189	392.5	361.25	327.75	279	248	308	273.5	302.8	250	310.3	293	239.4	339.5	
ATV	5	5	5	1.5	3	2				1		2	2		
Boat	6	10	5	15	18	8	20	15	80	43	45	30	55	35	
Owling: Hrs.	4.5		4	2.5	3.75	2.75	6	3.5	3.75	5.75	6.75	6	4.75	5	
Miles	30.5		43	20	35.5	15.3	74.8	43.75	41.25	50	44.25	48	21.5	13.2	
Temp. (F)	35-41	45-59	61-51	62-73	47-51	40-46	40-60	28-44	48-58	45-59	59-64	36-59	66-74	26-33	36-42
Wind: (mph)	9-18	7.2	11	10	10	10	0-5	0-5	12	5	10	21-35	10-25	5-10	
Direction	NE	WNW	SE-NW	S	WNW	E	SE	W	NW	N	S	N	SW	NE	

Natchitoches C.B.C. - center Hwy 71 + Rt 6 at Clarence [31°49'N 93°03'W]

Species	3-Jan 1965	2-Jan 1966	31-Dec 1966	20-Dec 1969	2-Jan 1971	2-Jan 1972	17-Dec 1972	16-Dec 1973	15-Dec 1974	21-Dec 1975	19-Dec 1976	18-Dec 1977
Red-throated Loon						1						
Common Loon		6	1	6		11			5	8		8
Pied-billed Grebe	13	47	17	61	79	40	65	20	19	16	21	12
Horned Grebe		20	2	52	20	14	16			7	20	42
Eared Grebe				6	4	6	1				6	2
American White Pelican												
Double-crested Cormorant	10	187	3	1	3	6		1			97	80
Anhinga									1	1		1
American Bittern		cw										
Great Blue Heron	6	8	14	19	19	27	12	7	10	17	8	20
Great Egret	79	74	1	77	51	14	38	22	14	3	27	42
Snowy Egret												
Little Blue Heron		28			3	38			1	cw	15	1
Cattle Egret						22		7		1		22
Green Heron						2	1	2				
Black-crowned Night-Heron												
Yellow-crowned Night-Heron												
White Ibis										4		
Black Vulture	1		4	1		4	8		25	8	11	19
Turkey Vulture	9	5	23	31	56	37	34	53	73	32	90	230
Gr. White-fronted Goose											28	
Snow Goose							cw			10		
Snow Goose (blue form)			cw			7						
Snow Goose (white form)						2						
Ross' Goose												
Canada Goose				55								
goose species					flock							
Wood Duck	4	2		10	38	19	49	9	cw	7	16	23
Gadwall	1	144	106	2	4	19	167	6			75	45
American Wigeon	4	9	2	7	5		7					34
Mallard	27	25	48	55	106	21	357	16	40	12	96	14
Mottled Duck												
Blue-winged Teal		12						1	1			
Northern Shoveler	9	11	1	5	2		11	41	4			
Northern Pintail	24	1		6	11	2	3					10
Am. Green-winged Teal				cw	7	1	63	8	20		12	2

Natchitoches C.B.C. - center Hwy 71 + Rt 6 at Clarence [31°49'N 93°03'W]

Species	3-Jan 1965	2-Jan 1966	31-Dec 1966	20-Dec 1969	2-Jan 1971	2-Jan 1972	17-Dec 1972	16-Dec 1973	15-Dec 1974	21-Dec 1975	19-Dec 1976	18-Dec 1977
Canvasback		4	3		51				1	1	16	1
Redhead		20		62	2				3		16	1
Ring-necked Duck	10	9		807	191	17	3	13	cw	1	830	9
Greater Scaup								1	1			
Lesser Scaup	752	167	140	69	50	38	33	101	5	17	16	19
Oldsquaw								1				
Bufflehead		1			91			cw	1		11	1
Common Goldeneye										1		
Hooded Merganser				3					4		cw	
Red-breasted Merganser							2					
merganser sp.												
Ruddy Duck		55	500	678	152	350	705	23	503	535	900	120
Osprey												
Bald Eagle					1	3		cw	1	2	1	1
Northern Harrier	1		1	4	21	10	4	8	1	2	5	8
Sharp-shinned Hawk					3	1			1		cw	
Cooper's Hawk		1						2		1	3	
Accipiter sp.												1
Red-shouldered Hawk			2	3	10	20	4	3	4	9	8	5
Red-tailed Hawk	14	4	6	26	34	53	101	34	20	26	42	85
Red-tail (Harlan's) Hawk	1			1	cw		3					1
American Kestrel	13	7	6	5	12	23	7	12	10	10	26	26
Merlin					1							
Northern Bobwhite	26	30	17	9	34	35	10	15	7	6	38	19
Virginia Rail				1								
Sora				2								
American Coot	2156	11000	346	1188	2794	1100	959	1547	782	13	253	55
Killdeer	28	23	220	190	104	97	102	305	289	256	87	102
Greater Yellowlegs				cw			13					
Lesser Yellowlegs			47									
Spotted Sandpiper					1	3	1	12		2	1	
Semipalmated Sandpiper				1								
Least Sandpiper	97			432	468	580	363	444	435	236	750	112
Pectoral Sandpiper							cw					
Dunlin				3								
Long-billed Dowitcher							4					

Natchitoches C.B.C. - center Hwy 71 + Rt 6 at Clarence [31°49'N 93°03'W]

Species	3-Jan 1965	2-Jan 1966	31-Dec 1966	20-Dec 1969	2-Jan 1971	2-Jan 1972	17-Dec 1972	16-Dec 1973	15-Dec 1974	21-Dec 1975	19-Dec 1976	18-Dec 1977
Common Snipe	29	9	82	207	16	3	25	7	10	81	7	3
American Woodcock	1			4	3	1	16	4	6	2	5	2
Bonaparte's Gull												8
Ring-billed Gull		7								1	2	3
Herring Gull		1										Cw
Forster's Tern												
tern sp.												
Rock Dove	--	--	--	--	--	--	--	--	82	54	99	60
Eurasian Collared-Dove												
Mourning Dove	75	75	37	119	68	42	83	26	28	15	41	38
Inca Dove												
Common Ground-Dove												
Greater Roadrunner	cw	1		cw	3	3		1	1	1	1	3
Common Barn-Owl					1					1		
Eastern Screech-Owl		1		1	2	2	4	1	cw	2		3
Great Horned Owl				1	2	2	5	2			2	
Barred Owl	2			2	1	2	6	2	1	1	1	1
Short-eared Owl												
Belted Kingfisher	9	10	9	12	15	27	14	14	4	23	18	24
Red-headed Woodpecker	13	1	32		9	5	12	4	3	7	4	5
Red-bellied Woodpecker	8	44	81	56	59	42	44	33	30	18	19	27
Yellow-bellied Sapsucker	9	12	23	34	19	11	31	21	24	19	31	29
Downy Woodpecker	10	21	29	31	26	13	9	15	16	7	7	4
Hairy Woodpecker	4	6	4	16	9	4	1	8	6	4	6	12
Northern Flicker	34	70	106	108	93	53	63	78	104	38	81	44
Pileated Woodpecker	7	5	7	9	18	17	20	9	5	11	10	6
Eastern Phoebe	14	13	10	13	10	12	12	7	6	3	18	18
Vermilion Flycatcher	1	1					cw					1
Loggerhead Shrike	46	49	45	45	34	32	35	41	66	26	66	51
White-eyed Vireo				1	5		1		1	1	3	
Blue-headed Vireo				cw	1		3	2	cw	4	4	3
Blue Jay	145	130	247	200	217	130	186	208	171	116	121	76
American Crow	48	86	97	171	244	240	349	503	224	190	201	433
Fish Crow	1	13	6	32	25	67	72	38	11	22	8	31
Horned Lark										60		
Purple Martin						3						

Natchitoches C.B.C. - center Hwy 71 + Rt 6 at Clarence [31°49'N 93°03'W]

Species	3-Jan 1965	2-Jan 1966	31-Dec 1966	20-Dec 1969	2-Jan 1971	2-Jan 1972	17-Dec 1972	16-Dec 1973	15-Dec 1974	21-Dec 1975	19-Dec 1976	18-Dec 1977
Tree Swallow					5	4	12	1			4	
Carolina Chickadee	49	99	111	114	96	52	73	66	118	59	63	58
Tufted Titmouse	37	45	62	48	69	53	39	41	29	22	24	14
Red-breasted Nuthatch				3			1			cw	1	7
White-breasted Nuthatch			2		1							2
Brown-headed Nuthatch	1	6	5	12	17	10	4	3	1	6	6	10
Brown Creeper	7	2	1	1	6	3	5	4	1	3	1	4
Carolina Wren	8	75	79	71	78	88	44	36	69	32	26	20
Bewick's Wren		1	5	2	1	1			1		1	
House Wren	2	1		1	2	2	1	1		4		2
Winter Wren		6	2	5	1	2		1	2	2	1	1
Sedge Wren				50			2					1
Marsh Wren					3							
Golden-crowned Kinglet	9	24	22	100	33	23	11	11	25	8	26	4
Ruby-crowned Kinglet	45	138	49	5	65	63	63	73	113	70	89	101
Blue-gray Gnatcatcher	57	33	104	34	2	8	2	6	3	5		7
Eastern Bluebird					30	53	67	91	27	49	34	82
Swainson's Thrush												
Hermit Thrush	2	3	16	9	2	7	21	14	6	7	21	12
American Robin	61	31	3700	46	1574	370	269	294	109	93	356	925
Gray Catbird				1		2	6			1	1	1
Northern Mockingbird	131	127	177	143	209	100	122	143	183	101	81	81
Brown Thrasher	18	37	42	16	54	29	42	24	18	25	21	32
European Starling	401310	1000	452	1684	3118	96	157	241	349	1280	771	67
American Pipit	41		142	5	31	17	141	30	13	28	19	4
Sprague's Pipit	10	4	3	3	8	1			2	1	cw	1
Cedar Waxwing	129	8	889	62	667	210	688	146	187	113	300	22
Orange-crowned Warbler		14		4	5	7	3		1		6	
Yellow-rumped Warbler	72	117	237	79	78	66	22	135	49	99	44	70
Yellow-throated Warbler		2										
Pine Warbler	9	45	37	27	52	46	23	79	46	31	28	30
Palm Warbler				2								
Black-and-white Warbler												
Common Yellowthroat			2		2	1						1
Eastern (Rufous-sided) Towhee	8	7	45	20	10	8	18	14	5	6	10	13
Bachman's Sparrow					2					4	2	cw

Natchitoches C.B.C. - center Hwy 71 + Rt 6 at Clarence [31°49'N 93°03'W]

Species	3-Jan 1965	2-Jan 1966	31-Dec 1966	20-Dec 1969	2-Jan 1971	2-Jan 1972	17-Dec 1972	16-Dec 1973	15-Dec 1974	21-Dec 1975	19-Dec 1976	18-Dec 1977
American Tree Sparrow												
Chipping Sparrow	36	60	19	35	5	20	8	7	29	35	124	7
Field Sparrow	70	179	158	54	28	23	136	71	119	58	37	30
Vesper Sparrow	4	3	4		5	1	33	3	22	cw	cw	3
Savannah Sparrow	75	305	255	84	137	59	114	75		128	133	74
Grasshopper Sparrow						1	2					
Henslow's Sparrow						3		3				
sharp-tailed sparrow							1					
LeConte's Sparrow	23	9	4	2		25	2	9			cw	5
Fox Sparrow	7	82	77	58	1	3	19	12	12	8	23	18
Song Sparrow	64	174	112	74	54	50	75	28	59	60	50	58
Lincoln's Sparrow	5	4		2	2	5	2	1	5	5	1	
Swamp Sparrow	60	191	56	38	70	37	52	18	22	44	59	28
White-throated Sparrow	488	578	752	442	365	200	190	295	361	336	235	100
Harris' Sparrow		5	1	3								
White-crowned Sparrow	45	75	72	74	130	130	22	39	41	25	111	22
Dark-eyed (Sl.-c.) Junco	28	109	366	369	375	240	182	251	249	48	398	129
Dark-eyed (Oregon) Junco)			2		3	2	2					
Lapland Longspur												
Northern Cardinal	290	314	278	340	314	200	229	306	402	121	196	109
Dickcissel									1			
Red-winged Blackbird	300000	9000	11788	1046	10455	530	4149	1101	7463	1450	2257	669
Eastern Meadowlark	214	284	300	380	849	280	233	270	326	153	226	203
Western Meadowlark	1					1	1					1
Rusty Blackbird	4		18	9	84	1	5	4		6	50	29
Brewer's Blackbird		53	1		3		38	11	56	5	210	115
Common Grackle	900000	6800	22837	11205	5437	360	2278	536	7305	2078	8332	7424
Brown-headed Cowbird	1420	1916	2026	8	140	73	268	29	410	79	50	175
blackbird sp.												
Baltimore Oriole												
oriole species					1							
Purple Finch	4		4	39	31	46	29	60	26	2	96	4
House Finch												
Pine Siskin		4	7	124	10		8	10	4	46	cw	5
American Goldfinch	14	206	207	217	185	120	68	102	46	116	127	50
Evening Grosbeak												3

Natchitoches C.B.C. - center Hwy 71 + Rt 6 at Clarence [31°49'N 93°03'W]

Species	3-Jan 1965	2-Jan 1966	31-Dec 1966	20-Dec 1969	2-Jan 1971	2-Jan 1972	17-Dec 1972	16-Dec 1973	15-Dec 1974	21-Dec 1975	19-Dec 1976	18-Dec 1977
House Sparrow	395	390	175	7	296	46	160	220	307	72	105	32
TOTAL SPECIES	82	92	85	103	110	107	104	95	95	99	98	109
TOTAL INDIVIDUALS	1608994	35021	48028	22092	30512	7112	14279	8653	21702	8875	19036	12923
OBSERVERS	15	14	18	10	17	17	15	27	14	21	21	17
PARTIES	7	7	10	9	9	8	8	12	9	11	13	9
PARTY-HOURS:												
FOOT	41	30	43	37	24	36	36	38	26	37	43	29
CAR	22	9	15	19	41	23	18	38	32	24	26	23
BOAT	5	5	4	9	9	6	2	1	3	11	3	
BLIND												
PARTY-MILES:												
FOOT	17	26	41	47	41	26	26	38	32	26	25	20
CAR	263	141	243	223	347	290	301	463	346	275	324	294
BOAT	10	10	5	15	20	15	5	3	10	10	7	
OWLING: HRS.												
MILES												
FEEDER: #												
HRS.												
TEMP. (F)	45-50	55-65	40-50	40-43	39-64	48-60	24-50	33-38	35-54	31-50	55-66	38-71
WIND: (mph)	10-20	4	0-4	5	10-20	5-10	0-5	10-15	0-5	5-15	0-10	5-15
DIRECTION	NE	SW	SE	SW	S	NW	N	N-NW	NW	NNW	S	S

Natchitoches C.B.C.

Species	17-Dec 1978	23-Dec 1979	21-Dec 1980	3-Jan 1982	2-Jan 1983	18-Dec 1983	16-Dec 1984	5-Jan 1986	4-Jan 1987	18-Dec 1988	17-Dec 1989	16-Dec 1990
Red-throated Loon												
Common Loon	2					1	cw					
Pied-billed Grebe	15	15	29	18	19	25	18	14	9	23	22	4
Horned Grebe	25	9	11	7		12	6	22	3	5	3	2
Eared Grebe		2										
American White Pelican	cw											
Double-crested Cormorant	11	281	9	466	36	101	1317	335	370	1228	200	117
Anhinga									3			1
American Bittern											1	
Great Blue Heron	4	3	15	12	7	23	33	35	31	41	31	28
Great Egret	24	7	13	207	51	133	74	249	170	21	7	50
Snowy Egret												
Little Blue Heron									2			
Cattle Egret	1							48				
Green Heron			1									
Black-crowned Night-Heron												
Yellow-crowned Night-Heron												1
White Ibis							2					
Black Vulture	76	3	2	5	4	1	12	4	9	30	62	
Turkey Vulture	109	53	27	56	98	44	4	80	55	109	56	19
Gr. White-fronted Goose										2		
Snow Goose		15	20	cw			3					54
Snow Goose (blue form)			5			6						
Snow Goose (white form)						4						
Ross' Goose												
Canada Goose									1			
goose species												
Wood Duck	3	4	16	93	12	34	14	10	30	81	44	61
Gadwall	2	16		74	4	7	7	2	4			4
American Wigeon		14		49	17	6	6		3		1	
Mallard	14	13	119	124	33	79	57	95	119		363	192
Mottled Duck												
Blue-winged Teal												
Northern Shoveler	32	1	4	4		12						
Northern Pintail			23	62	7	3	11		4			
Am. Green-winged Teal	1	2	49	64	4	52			1		3	

Natchitoches C.B.C.

Species	17-Dec 1978	23-Dec 1979	21-Dec 1980	3-Jan 1982	2-Jan 1983	18-Dec 1983	16-Dec 1984	5-Jan 1986	4-Jan 1987	18-Dec 1988	17-Dec 1989	16-Dec 1990
Canvasback		12	2	6	1	4			2	3	2	
Redhead	2		2			4	2	1	2			
Ring-necked Duck	40	4	109	32	9	442	52		6		12	
Greater Scaup												
Lesser Scaup	5	32	148	123	8	9	80	7	44	20	1	2
Oldsquaw												
Bufflehead						9	1		13	1	13	
Common Goldeneye									4	1		
Hooded Merganser		2	7	1		1		5				
Red-breasted Merganser			3									
merganser sp.	2											
Ruddy Duck	600	1576	670	1275	370	221	935	1050	262	851	650	960
Osprey						1	cw	cw		1	1	
Bald Eagle	2		1	1	cw	1	1		1			
Northern Harrier	5	2	1	3	3	7	2	3	3	10	1	1
Sharp-shinned Hawk	1		1	6	1	5	1		2	3		1
Cooper's Hawk	2	1		1		1		1	1			
Accipiter sp.												
Red-shouldered Hawk	3	1	5	2	3	12	6	3	2	9	4	1
Red-tailed Hawk	71	33	46	52	49	109	111	64	62	92	43	66
Red-tail (Harlan's) Hawk	1											
American Kestrel	16	15	21	14	20	27	16	31	23	43	27	25
Merlin												
Northern Bobwhite			10		6	11	20			9		
Virginia Rail												
Sora												
American Coot	40		550	216	2508	204	215	56	108	198	20	145
Killdeer	129	91	88	59	23	86	84	119	72	322	132	169
Greater Yellowlegs								5		7		2
Lesser Yellowlegs						1	1	4	3	3	4	
Spotted Sandpiper			5	1								
Semipalmated Sandpiper												
Least Sandpiper	217	225	171	450	220	310	cw	177	6	220		95
Pectoral Sandpiper												
Dunlin												
Long-billed Dowitcher												

Natchitoches C.B.C.

Species	17-Dec 1978	23-Dec 1979	21-Dec 1980	3-Jan 1982	2-Jan 1983	18-Dec 1983	16-Dec 1984	5-Jan 1986	4-Jan 1987	18-Dec 1988	17-Dec 1989	16-Dec 1990
Common Snipe	81		64	25	11		12	19		23	28	4
American Woodcock	2	4			5	4	2	2	6	3	2	
Bonaparte's Gull	2					2						
Ring-billed Gull	1				7		8	2		4	5	9
Herring Gull						5						
Forster's Tern												
tern sp.									1			
Rock Dove	42	26	41	39	41	217	200	85	108	363	559	250
Eurasian Collared-Dove												
Mourning Dove	10	5	21	25	15	68	70	16	74	35	116	62
Inca Dove												
Common Ground-Dove												
Greater Roadrunner			4		2		1		1			
Common Barn-Owl							1	1				
Eastern Screech-Owl	2				2	1	1	1		1	1	1
Great Horned Owl	1	1			2	4	2	3	3	1	1	2
Barred Owl	1			1	3		1	1	2		1	4
Short-eared Owl												
Belted Kingfisher	9	5	17	7	12	23	22	12	26	25	14	19
Red-headed Woodpecker	1		cw		3	1	1	6		6	4	4
Red-bellied Woodpecker	15	11	35	14	14	55	30	42	29	29	33	39
Yellow-bellied Sapsucker	6	9	23	10	13	15	24	14	12	11	26	20
Downy Woodpecker	2	8	15	7	3	17	21	9	6	11	9	14
Hairy Woodpecker	2	5	cw	4	2	6	9	9	11	7	3	5
Northern Flicker	15	14	34	36	43	82	47	33	44	26	34	32
Pileated Woodpecker	5	4	5	3	3	15	8	6	14	16	6	6
Eastern Phoebe	12	2	9		6	7	15	6	3	9	9	9
Vermilion Flycatcher				1				1				
Loggerhead Shrike	41	17	35	15	42	66	20	40	29	48	28	29
White-eyed Vireo	1											
Blue-headed Vireo					1				2	1	1	
Blue Jay	35	67	65	74	64	112	127	87	101	111	110	81
American Crow	115	223	102	122	132	224	274	195	158	266	183	145
Fish Crow		4	2	6	9	8	2	11	24	18	21	2
Horned Lark										45		
Purple Martin												

Natchitoches C.B.C.

Species	17-Dec 1978	23-Dec 1979	21-Dec 1980	3-Jan 1982	2-Jan 1983	18-Dec 1983	16-Dec 1984	5-Jan 1986	4-Jan 1987	18-Dec 1988	17-Dec 1989	16-Dec 1990
Tree Swallow							1					
Carolina Chickadee	30	31	22	19	38	45	31	73	52	77	33	72
Tufted Titmouse	18	6	7	4	8	16	14	26	28	31	12	26
Red-breasted Nuthatch	6		6					4			1	
White-breasted Nuthatch	1						2					
Brown-headed Nuthatch	3		cw							1		5
Brown Creeper	1		1	3		2	2			2		
Carolina Wren	15	25	11	12	25	36	36	24	27	28	20	24
Bewick's Wren						1						
House Wren	1	1		1	1	1		7	2		6	2
Winter Wren	2	1	1			2	2	4				
Sedge Wren							1	1				
Marsh Wren												
Golden-crowned Kinglet	1		2		2	14	3	4	11	23	6	1
Ruby-crowned Kinglet	41	50	77	16	22	52	71	57	36	91	48	120
Blue-gray Gnatcatcher					1		1				1	
Eastern Bluebird	11	3	61	37	15	37	78	74	91	51	78	56
Swainson's Thrush	2											
Hermit Thrush	6	2	2	1	1	7	4	2		4	3	2
American Robin	14	48	816	392	2167	88	149	47	324	91	419	249
Gray Catbird	5	1		2						2		1
Northern Mockingbird	49	58	81	32	117	64	103	88	73	73	77	94
Brown Thrasher	11	18	20	23	35	23	37	21	13	30	25	19
European Starling	118	484	361	355	2278	340	371	171	6294	255	715	301
American Pipit	10	3	10	3	63	7	3	6	7	8	4	49
Sprague's Pipit		4	cw	5	5		1	1		6		
Cedar Waxwing		78	84	39	111	51		169	297	28	123	186
Orange-crowned Warbler	1	2				3	1	2		3		1
Yellow-rumped Warbler	36	84	60	29	91	72	63	83	131	50	87	141
Yellow-throated Warbler												
Pine Warbler	25	4	3		1	10	21	26	49	39	24	20
Palm Warbler												
Black-and-white Warbler												1
Common Yellowthroat							5					
Eastern (Rufous-sided) Towhee	9				3	4	13		2	2	8	3
Bachman's Sparrow							1					

Natchitoches C.B.C.

Species	17-Dec 1978	23-Dec 1979	21-Dec 1980	3-Jan 1982	2-Jan 1983	18-Dec 1983	16-Dec 1984	5-Jan 1986	4-Jan 1987	18-Dec 1988	17-Dec 1989	16-Dec 1990
American Tree Sparrow						1						
Chipping Sparrow	54	51	22	4	11	97	200	113	371	204	370	138
Field Sparrow	7	4	17	5	1	39	29	17	2	22	109	14
Vesper Sparrow			6	6	1	cw	93	2		13		4
Savannah Sparrow	44	16	16	15	19	31	79	142	73	152	29	80
Grasshopper Sparrow												
Henslow's Sparrow												
sharp-tailed sparrow												
LeConte's Sparrow	4	3	4				3	2	2			
Fox Sparrow	2	1	12	4	3		6	5	3	3		2
Song Sparrow	19	5	52	23	27	54	43	20	19	74	88	119
Lincoln's Sparrow												
Swamp Sparrow	12	3	9	4	18	10	15	9	5	9	20	3
White-throated Sparrow	54	116	116	61	117	136	272	158	131	167	290	136
Harris' Sparrow										2		
White-crowned Sparrow	12	7	2	4	14	8	72	32	24	87	97	41
Dark-eyed (Sl.-c.) Junco	82	21	160	29	122	80	125	98	57	112	309	111
Dark-eyed (Oregon) Junco)												
Lapland Longspur												
Northern Cardinal	102	87	102	84	241	93	171	167	183	98	247	148
Dickcissel												
Red-winged Blackbird	425	210	1695	4062	3458	2535	3085	1445	3009	1356	1631	827
Eastern Meadowlark	255	101	138	118	211	290	153	237	198	235	289	215
Western Meadowlark												
Rusty Blackbird	35				3						2	
Brewer's Blackbird	200	10										
Common Grackle	492	481	3189	44392	2543	550	6734	1029	12654	5567	160	116
Brown-headed Cowbird	62	40	50	145	1525	70	12	29	25	30	20	
blackbird sp.												
Baltimore Oriole								2				
oriole species												
Purple Finch	3	22	26		26	9		3	1		8	12
House Finch										3	4	31
Pine Siskin			6		25	cw			51		9	1
American Goldfinch	15	8	199	49	94	90	59	134	227	76	172	72
Evening Grosbeak												

Natchitoches C.B.C.

Species	17-Dec 1978	23-Dec 1979	21-Dec 1980	3-Jan 1982	2-Jan 1983	18-Dec 1983	16-Dec 1984	5-Jan 1986	4-Jan 1987	18-Dec 1988	17-Dec 1989	16-Dec 1990
House Sparrow	40	43	56	225	120	40	75	103	95	76	113	44
TOTAL SPECIES	96	80	85	81	87	93	96	90	89	91	85	83
TOTAL INDIVIDUALS	4191	4969	10157	54075	17511	7948	16229	7658	26651	13573	8554	6224
OBSERVERS	11	4	7	7	6	13	12	20	13	11	12	6
PARTIES	5	4	5	6	5	6	7	7	8-9	5-7	6	5
PARTY-HOURS:												
FOOT	25	12	18	15	11	21	22	29	23	22	20	10
CAR	15	10	9	11	9	21	21	13	19	25	24	22
BOAT		1	3	1	3	4	7	1	2			
BLIND				1								
PARTY-MILES:												
FOOT	17	7	12	9	10	23	17.5	15	19	15	13	11
CAR	182	157	134	246	194	291	239	275	212	296	234	237
BOAT		3	3	3	5	2	6	6	4			
OWLING: HRS.	1				1	1	1	1	1	1	1	1
MILES					10	6	10	3	11	16	6	12
FEEDER: #							2	7		3	2	5
HRS.						1	3	8		6	6	10
TEMP. (F)	35-60	63-72	22-48	65-76	38-49	36-48	65-72	35-55	38-45	28-55	26-33	51-58
WIND: (mph)	0-10	5-35	5-15	5-15	5-15	5-15	0-8	5-8	10-15	0-8	0-8	0-5
DIRECTION	SW	SSW	NNE	SSW	NNW	N-NW	W	NW	N	WSW	NE	E

Natchitoches C.B.C.

Species	15-Dec 1991	20-Dec 1992	19-Dec 1993	18-Dec 1994	17-Dec 1995	5-Jan 1997	21-Dec 1997	26-Dec 1999	23-Dec 2000	22-Dec 2001
Red-throated Loon										
Common Loon	1	1								1
Pied-billed Grebe	13	10	23	28	29	27	64	779	849	37
Horned Grebe	6	18	30	4	11	1	19	102	71	
Eared Grebe								11		
American White Pelican		3						247	471	186
Double-crested Cormorant	1881	560	2113	1749	103	106	403	9132	10113	1627
Anhinga	1	3	5	2	2		1	32	3	10
American Bittern										
Great Blue Heron	38	64	62	34	43	40	42	89	200	51
Great Egret	652	80	82	89	151	85	139	200	205	302
Snowy Egret								2		3
Little Blue Heron									3	
Cattle Egret	2		2			8		3		2
Green Heron										
Black-crowned Night-Heron								1		12
Yellow-crowned Night-Heron										
White Ibis				23	85			23	77	28
Black Vulture	41	33	7	37		8	9	52	98	20
Turkey Vulture	237	82	68	92		66	54	159	89	94
Gr. White-fronted Goose					5		50	1		7
Snow Goose	28		12	10	2			20	218	6
Snow Goose (blue form)										
Snow Goose (white form)										
Ross' Goose								3	13	
Canada Goose				6				17	28	
goose species										
Wood Duck	33	14	31	14	13	14	4	371	151	53
Gadwall				110	76		300	6150	1428	232
American Wigeon				44		1	80	1562	205	36
Mallard	137	148	207	324	295	186	285	235	1537	175
Mottled Duck									2	
Blue-winged Teal										
Northern Shoveler	1			16		15	62	67	418	59
Northern Pintail		3		3	12		18	10	156	1
Am. Green-winged Teal				21	17		150	1804	86	108

Natchitoches C.B.C.

Species	15-Dec 1991	20-Dec 1992	19-Dec 1993	18-Dec 1994	17-Dec 1995	5-Jan 1997	21-Dec 1997	26-Dec 1999	23-Dec 2000	22-Dec 2001
Canvasback			16	1	25	1	2		20	2
Redhead			1		17		13			
Ring-necked Duck			184	44	5	110	147	86	124	
Greater Scaup										1
Lesser Scaup	2		188	51	51	119	163	14	88	101
Oldsquaw										
Bufflehead						11			7	3
Common Goldeneye							1			
Hooded Merganser						2		45	17	10
Red-breasted Merganser		1		1				1	1	1
merganser sp.										
Ruddy Duck	812		647	475	803	33	387	383	1758	5
Osprey	1							4	1	3
Bald Eagle						1	1		1	1
Northern Harrier	7	25	4	11	5	2	7	21	26	9
Sharp-shinned Hawk	2	2	5	6	1	2		5	1	
Cooper's Hawk				3				2	4	1
Accipiter sp.										
Red-shouldered Hawk	8	10	4	4	7	7	4	9	25	6
Red-tailed Hawk	92	108	50	71	59	56	42	60	72	42
Red-tail (Harlan's) Hawk										
American Kestrel	28	45	23	28	14	9	16	23	31	16
Merlin									1	1
Northern Bobwhite		7								
Virginia Rail										
Sora										
American Coot	33	24	178	184	905	364	975	541	589	351
Killdeer	156	47	221	604	167	50	43	599	210	215
Greater Yellowlegs			4	11	1			24	8	1
Lesser Yellowlegs	1	6		3	1			2		
Spotted Sandpiper			2	1	1	4	2	11	7	14
Semipalmated Sandpiper										
Least Sandpiper		2	1	103	193			10	155	1
Pectoral Sandpiper										
Dunlin										
Long-billed Dowitcher								11		

Natchitoches C.B.C.

Species	15-Dec 1991	20-Dec 1992	19-Dec 1993	18-Dec 1994	17-Dec 1995	5-Jan 1997	21-Dec 1997	26-Dec 1999	23-Dec 2000	22-Dec 2001
Common Snipe	2	96	3		27			129	165	298
American Woodcock	1	1						2		
Bonaparte's Gull	6								114	
Ring-billed Gull	18	1	8	7	7		4	40	449	2
Herring Gull	30	1								
Forster's Tern								59	7	
tern sp.										
Rock Dove	82	412	332	383	89	235	54	93	388	52
Eurasian Collared-Dove							16	3	2	2
Mourning Dove	96	73	88	144	101	17	63	170	201	181
Inca Dove							4	cw	13	4
Common Ground-Dove								4		
Greater Roadrunner	2									
Common Barn-Owl					1			2		
Eastern Screech-Owl			2	3	1			5		
Great Horned Owl	2	2	1		1			1		
Barred Owl	3	3		4	3	2		4	3	
Short-eared Owl								3		
Belted Kingfisher	18	26	28	30	20	17	17	34	30	25
Red-headed Woodpecker	7	4	2	6	2	1		15	6	7
Red-bellied Woodpecker	24	32	46	44	16	28	22	56	66	53
Yellow-bellied Sapsucker	23	15	23	9	13	16	14	37	45	5
Downy Woodpecker	7	8	15	11	7	8	9	32	28	22
Hairy Woodpecker	4	5	19	7	9	6	4	2	5	2
Northern Flicker	41	54	61	37	15	24	14	33	43	19
Pileated Woodpecker	9	9	10	7	6	6	4	20	13	11
Eastern Phoebe	33	13	10	19	8	3	7	62	48	39
Vermilion Flycatcher										
Loggerhead Shrike	47	65	67	45	19	14	12	21	15	7
White-eyed Vireo								1		
Blue-headed Vireo	1							2	1	6
Blue Jay	127	131	146	103	79	65	116	111	143	90
American Crow	242	329	460	362	249	446	412	846	886	377
Fish Crow	15	59	44	49	98	17	18	540	1645	374
Horned Lark					6					
Purple Martin										

Natchitoches C.B.C.

Species	15-Dec 1991	20-Dec 1992	19-Dec 1993	18-Dec 1994	17-Dec 1995	5-Jan 1997	21-Dec 1997	26-Dec 1999	23-Dec 2000	22-Dec 2001
Tree Swallow										
Carolina Chickadee	38	68	77	56	24	44	39	129	116	101
Tufted Titmouse	12	22	34	34	21	32	26	60	41	39
Red-breasted Nuthatch	1				2			1	1	
White-breasted Nuthatch										1
Brown-headed Nuthatch		2	14	6		7	2	10	3	4
Brown Creeper		1	1					5		2
Carolina Wren	18	43	45	32	25	27	31	83	52	64
Bewick's Wren									1	
House Wren	3	2		5	7	3		13	9	12
Winter Wren	1	1	3	3		2		5	4	1
Sedge Wren		1						3		
Marsh Wren								2	1	
Golden-crowned Kinglet		2	5		2			33	10	13
Ruby-crowned Kinglet	37	55	63	38	41	44	28	175	104	69
Blue-gray Gnatcatcher	1		2	2		1	2	1		5
Eastern Bluebird	75	128	128	67	39	84	30	105	139	115
Swainson's Thrush										
Hermit Thrush	1	3	2	1	1	2	2	20	19	3
American Robin	205	2285	231	623	37	131	15	160	139	13
Gray Catbird	1									
Northern Mockingbird	133	142	145	124	64	93	78	50	82	50
Brown Thrasher	29	21	14	15	15	6	9	25	22	6
European Starling	211	2574	225	163	665	325	231	200	358	126
American Pipit	5	49	15	94	34	3	5	168	180	165
Sprague's Pipit									1	
Cedar Waxwing	88	94	35	207	46	89	14	104	52	99
Orange-crowned Warbler	1	2	2	1	1		1	4	2	7
Yellow-rumped Warbler	84	111	181	121	73	149	102	402	432	108
Yellow-throated Warbler										
Pine Warbler	10	50	238	16	16	23	17	61	87	61
Palm Warbler								2	1	
Black-and-white Warbler										
Common Yellowthroat		1				1	2	2	1	
Eastern (Rufous-sided) Towhee	3	3	3	2	2	1		18	9	9
Bachman's Sparrow										

Natchitoches C.B.C.

Species	15-Dec 1991	20-Dec 1992	19-Dec 1993	18-Dec 1994	17-Dec 1995	5-Jan 1997	21-Dec 1997	26-Dec 1999	23-Dec 2000	22-Dec 2001
American Tree Sparrow										
Chipping Sparrow	217	172	323	117	60	134	75	585	102	162
Field Sparrow	32	22	64	36	25	35	6	104	9	10
Vesper Sparrow			1				1	10	6	2
Savannah Sparrow	129	63	113	246	117	134	146	495	472	190
Grasshopper Sparrow										
Henslow's Sparrow										
sharp-tailed sparrow										
LeConte's Sparrow		1	1						10	
Fox Sparrow	8	12	2	1	2	3		28	12	3
Song Sparrow	59	47	111	52	45	28	12	216	204	139
Lincoln's Sparrow		1	1					1		4
Swamp Sparrow	5	15	15	21	18	18	2	49	41	41
White-throated Sparrow	157	176	175	208	139	283	191	520	443	236
Harris' Sparrow	1								1	
White-crowned Sparrow	115	65	81	100	102	116	124	61	30	22
Dark-eyed (Sl.-c.) Junco	152	96	117	183	122	82	43	45	135	28
Dark-eyed (Oregon) Junco)										
Lapland Longspur								28	112	
Northern Cardinal	338	390	217	150	209	174	191	241	333	193
Dickcissel										
Red-winged Blackbird	419	805	1380	839	209	5676	3522	5162	12228	5672
Eastern Meadowlark	228	270	358	229	183	128	47	324	322	202
Western Meadowlark								5		
Rusty Blackbird				6				10	109	
Brewer's Blackbird	52	26		216	10	65	50	26	181	4
Common Grackle	5440	1203	3853	3959	567	1829	1137	594	1491	452
Brown-headed Cowbird	22	30	82	151	1501	1035	13	61	1060	445
blackbird sp.										4000
Baltimore Oriole			1					1	cw	
oriole species										
Purple Finch	12		2	1						
House Finch	26	12	54	30	79	45	7	18	4	
Pine Siskin					2					
American Goldfinch	45	94	158	48	79	132	38	305	151	235
Evening Grosbeak										

Natchitoches C.B.C.

Species	15-Dec 1991	20-Dec 1992	19-Dec 1993	18-Dec 1994	17-Dec 1995	5-Jan 1997	21-Dec 1997	26-Dec 1999	23-Dec 2000	22-Dec 2001
House Sparrow	63	63	73	85	117	134	48	27	42	69
TOTAL SPECIES	90	90	89	93	90	81	83	123	115	105
TOTAL INDIVIDUALS	63	63	73	85	117	134	48	27	42	69
OBSERVERS	15	13	11	12	11	8	10	10	11	10
PARTIES	7	6-7	7	6-8	6-7	6	7	5	6	
PARTY-HOURS:										
FOOT	15	19	12	22	22	19	11	10.5	21	
CAR	28	31	33	28	26	21	24	32	32.5	
BOAT				1		2		11	6.5	
BLIND										
PARTY-MILES:										
FOOT	11	17	11	16	14	10	10	4	12	
CAR	302	363	303	291	290	211	202	362	268	
BOAT				2		15		68	68	
OWLING: HRS.	0.5	0.5	0.5	0.5	0.5			1	0	
MILES	10	5	1	5	5			10	0	
FEEDER: #			3	4	1	3	3			
HRS.			9	6	2	4	3			
TEMP. (F)	33-58	51-58	38-52	43-60	60-64	55-68	52-66	38-60	28-45	46-75
WIND: (mph)	5	5	5	5	5	5	5	0-5	calm	
DIRECTION	NE	NW	W	W	NE	WNW	W	N		

Shreveport C.B.C. - center 3 miles S. Blanchard [32°32'N 93°53'W]

Species	24-Dec 1950	23-Dec 1951	21-Dec 1952	26-Dec 1953	26-Dec 1954	26-Dec 1955	23-Dec 1956	21-Dec 1957	20-Dec 1958	26-Dec 1959	26-Dec 1960
Common Loon						3		1	8		3
Pied-billed Grebe	19	6		18	5	3		4	10	7	5
Horned Grebe	8			3	1						
Eared Grebe						16			1		
Eared/Horned Grebe											1
American White Pelican					7		1				
Dbl.-crest. Cormorant	67	6		15		18	7	3			2
Anhinga							1				
American Bittern						1					
Great Blue Heron	16	18	7	17	58	35	18	43	20	19	19
Great Egret	21	11			26	7	46	19	1	3	1
Little Blue Heron		2							1		
Cattle Egret											
Green Heron								1			1
Black-crowned Night-Heron		9				1	2	1			
White Ibis											
Black Vulture	20	19	2	22	12	8	49	22	25	12	15
Turkey Vulture	25	20	8	16	21	18	75	43	52	22	25
Greater White-fronted Goose											
Snow Goose									6		
Snow Goose (blue form)									21		
Snow Goose (white form)											
Canada Goose									2		
goose sp.											
swan sp.											
Wood Duck	1						3		42	4	49
Gadwall											
American Wigeon						3	14	11			
Mallard	4	20	2	25	8	27	1	19	12	5	21
Blue-winged Teal											
Northern Shoveler						4					
Northern Pintail		3						2	2		14
Am. Green-winged Teal	9					15	4	4	cw	1	2
Canvasback	207	300		250	5	560	1011	200	151	500	5
Redhead								5			
Ring-necked Duck	6	40		2			2		1	2	
Greater Scaup											

Shreveport C.B.C. - center 3 miles S. Blanchard [32°32'N 93°53'W]

Species	24-Dec 1950	23-Dec 1951	21-Dec 1952	26-Dec 1953	26-Dec 1954	26-Dec 1955	23-Dec 1956	21-Dec 1957	20-Dec 1958	26-Dec 1959	26-Dec 1960
Lesser Scaup	10			1		2		5	3	21	11
White-winged Scoter											
Oldsquaw											
Bufflehead											
Common Goldeneye											
Hooded Merganser	7								1		
Common Merganser											
Red-breasted Merganser									1		
merganser sp.							1				
Ruddy Duck	171	80		57	63	145	291	186	71	76	
duck sp.											
Osprey											
Bald Eagle											
Northern Harrier	cw	5	2	6	4	5	1	1	2	4	1
Sharp-shinned Hawk				1	1	2	1	1	2	2	2
Cooper's Hawk	1	1	1		1		1		1	1	
Accipiter sp.											
Red-shouldered Hawk	15	8	4	5	1	9	7	9	3	10	8
Red-tailed Hawk	7	5	8	9	5	10	9	9	10	5	13
Red-tailed "Harlan's" Hawk			2	1							
Red-tailed "Krider's" Hawk									1		
Rough-legged Hawk							cw		1		
Buteo sp.											
American Kestrel	2	11	4	12	19	10	22	26	19	14	14
Merlin											
hawk sp.											
Northern Bobwhite	10		1	19	13	31	11	39	45	76	30
Virginia Rail											
Sora											
Common Moorhen											
American Coot	75	23		25	54	5	1	2	3	1	2
Killdeer	54	42	64	56	41	163	186	493	149	139	183
Greater Yellowlegs											
Spotted Sandpiper					1						
Western Sandpiper										59	
Least Sandpiper			3	14	102	49	59	21	20		
peep sp.											
Common Snipe	20	107	13	3	16	20	34	141	24	41	54

Shreveport C.B.C. - center 3 miles S. Blanchard [32°32'N 93°53'W]

Species	24-Dec 1950	23-Dec 1951	21-Dec 1952	26-Dec 1953	26-Dec 1954	26-Dec 1955	23-Dec 1956	21-Dec 1957	20-Dec 1958	26-Dec 1959	26-Dec 1960
American Woodcock	cw				1		1		1		
Laughing Gull											
Franklin's Gull											
Bonaparte's Gull				1					20	3	1
Ring-billed Gull	351	250	1	118	226	353	258	600	233	283	100
Herring Gull		1		3	2	1	2	4		6	7
Glaucous Gull											
Forster's Tern											
tern sp											
Rock Dove											
Eurasian Collared-Dove											
Mourning Dove	3	32	5	16	64	64	87	134	164	91	120
Inca Dove											
Greater Roadrunner	cw				1	1		1	1		2
Barn Owl											
Eastern Screech-Owl						2	1	7	3	2	3
Great Horned Owl				4	2	3	1		2	2	5
Snowy Owl											
Barred Owl	2	2	1	4	6	7	9	13	6	7	15
Long-eared Owl											
Short-eared Owl	1			1							
owl sp.											
Belted Kingfisher	9	10	2	5	6	5	5	8	14	7	9
Red-headed Woodpecker		3	6	2	3	5	22	10	2	44	19
Red-bellied Woodpecker	34	37	27	4	45	41	44	84	72	70	75
Yellow-bellied Sapsucker	7	5	7	16	17	17	20	39	36	53	25
Downy Woodpecker	25	23	9	16	14	19	13	44	19	53	36
Hairy Woodpecker	1	2	3	5	9	8	11	18	8	22	17
Red-cockaded Woodpecker	2	6	4	2	3	7	5	12	9	4	7
Northern (Yel.-sh.) Flicker	86	33	47	51	135	134	94	120	142	148	74
Northern (Red-sh.) Flicker				1							
Pileated Woodpecker	3	4		5	6	3	8	4	5	11	7
Eastern Phoebe	9	8	6	2	10	5	15	13	15	6	11
Vermilion Flycatcher									1		
Scissor-tailed Flycatcher											
Loggerhead Shrike	30	28	25	20	47	38	56	97	53	50	62
White-eyed Vireo								1			

Shreveport C.B.C. - center 3 miles S. Blanchard [32°32'N 93°53'W]

Species	24-Dec 1950	23-Dec 1951	21-Dec 1952	26-Dec 1953	26-Dec 1954	26-Dec 1955	23-Dec 1956	21-Dec 1957	20-Dec 1958	26-Dec 1959	26-Dec 1960
Blue-headed Vireo											
Blue Jay	61	61	85	68	150	191	158	297	249	375	258
American Crow	114	66	86	142	113	108	134	131	253	220	199
Fish Crow								3	cw	5	2
crow, species											
Horned Lark					15			10			
Tree Swallow											
Carolina Chickadee	79	63	53	70	66	76	79	131	154	200	144
Tufted Titmouse	19	36	31	39	56	53	79	116	118	162	145
Red-breasted Nuthatch					3			2	2	1	1
White-breasted Buthatch	6	4	8	4	13	5	13	17	21	18	22
Brown-headed Nuthatch	9	3	5	7	20	25	24	27	61	25	13
Brown Creeper	2	3	4	6	6	3	8	3	3	6	8
Carolina Wren	60	42	29	45	71	81	46	95	110	158	142
Bewick's Wren	1	3	2		3	8	5	5	9	5	5
House Wren	4	1			2	4	1	4	3	1	5
Winter Wren	5	8	14	8	6	2	1	5	4	6	6
Sedge Wren	cw					7		3	2		1
Marsh Wren											
Golden-crowned Kinglet	10	9	29	17	84	17	12	49	87	140	92
Ruby-crowned Kinglet	53	11	22	20	59	53	42	171	201	111	164
Blue-gray Gnatcatcher									1		1
Eastern Bluebird	47	58	25	57	61	100	284	140	170	152	54
Hermit Thrush	10	6	8	12	34	25	14	52	40	37	31
American Robin	56	57	1	146	153	93	96	151	87	779	1242
Gray Catbird									1		
Northern Mockingbird	48	28	27	37	72	75	146	450	141	216	143
Brown Thrasher	12	13	22	11	28	39	33	86	69	110	110
European Starling	328	48240	3500	3500	18200	566	2612	850	10500	1900	200
American Pipit	71	22	12	38	59	45	7	36	40	38	43
Sprague's Pipit			3	2	6	1	7	4			1
Cedar Waxwing	30	69	6	14	238	18	116	15	152	440	610
Orange-crowned Warbler	3			2	1	2	2	2	5	6	8
Nashville Warbler											
Tropical Parula											
Yellow-rumped Warbler	64	63	15	97	60	52	43	99	114	80	68
Pine Warbler	25	2	7	21	45	61	45	98	98	61	65

Shreveport C.B.C. - center 3 miles S. Blanchard [32°32'N 93°53'W]

Species	24-Dec 1950	23-Dec 1951	21-Dec 1952	26-Dec 1953	26-Dec 1954	26-Dec 1955	23-Dec 1956	21-Dec 1957	20-Dec 1958	26-Dec 1959	26-Dec 1960
Common Yellowthroat											
Wilson's Warbler											
Summer Tanager											
Western Tanager											
Spotted Towhee			1	1	3	3	4	7		2	
Eastern (Rufous-sided) Towhee	25	20	10	8	32	50	28	122	80	109	130
Bachman's Sparrow											
Chipping Sparrow	cw	11	4	1	48	41		53	64	26	66
Field Sparrow	93	37	94	29	67	122	112	305	267	438	239
Vesper Sparrow			5		6	2	2	6	1	12	14
Lark Sparrow											
Savannah Sparrow	8	3	14	72	36	119	68	171	99	102	174
Grasshopper Sparrow		1									
Henslow's Sparrow											
LeConte's Sparrow	5	4			27	56	7	21	9	7	13
Fox Sparrow	20	42	18	14	11	20	24	13	68	45	34
Song Sparrow	49	16	34	40	99	146	95	181	145	161	128
Lincoln's Sparrow	12				2	15	7	25	9	14	10
Swamp Sparrow	32	7	8	3	52	41	20	64	154	66	37
White-throated Sparrow	188	164	149	184	341	486	416	935	1240	835	1301
Harris' Sparrow	1		3	6	2	1	9	8	6	12	
White-crowned Sparrow	16			2	1	3	17	9	10	62	14
Dark-eyed Junco	203	105	247	54	666	320	302	455	805	851	491
Dark-eyed (Oregon) Junco						1	3	3	3	1	4
Lapland Longspur			2				4	4	6		
Smith's Longspur			35			5	40	1			
Chestnut-collared Longspur							79				
longspur sp.				3							
Northern Cardinal	145	99	79	149	214	253	213	395	510	464	276
Pheucticus sp.											
Red-winged Blackbird	21697	23974	2000	1000	6500	838	1314	868	2600	5400	4660
Eastern Meadowlark	81	59	107	52	118	418	429	410	469	348	252
Western Meadowlark			1	4	5	3	2	3	3	1	2
meadowlark sp.											
Rusty Blackbird	124	71	35	9	32	208	14	14	28	50	35
Brewer's Blackbird		9	4			16	64	46	214	25	12
Euphagus sp.											

Shreveport C.B.C. - center 3 miles S. Blanchard [32°32'N 93°53'W]

Species	24-Dec 1950	23-Dec 1951	21-Dec 1952	26-Dec 1953	26-Dec 1954	26-Dec 1955	23-Dec 1956	21-Dec 1957	20-Dec 1958	26-Dec 1959	26-Dec 1960
Common Grackle	1685	4232	900	1000	4800	651	3161	10162	368	9750	37700
Brown-headed Cowbird	577	3320	2400	57	455	1225	680	269	177	1750	393
blackbird sp.											
Baltimore Oriole											
Purple Finch	1	3		1	27	36		25	4	2	17
House Finch											
Pine Siskin			1		5		2	29	4	3	3
American Goldfinch	30	35	37	29	358	30	155	201	356	247	350
House Sparrow	90	39	15	28	92	111	356	148	650	334	110
TOTAL SPECIES	82	80	75	87	93	98	98	103	108	94	98
TOTAL INDIVIDUALS	27537	82299	10461	7962	34684	8813	14144	20525	22561	28255	51324
OBSERVERS	3	3	2	5	6	6	9	13	9	9	9
PARTIES	2	2	2	2-3	5	5	5-7	9	7	7	6
PARTY-HOURS:											
FOOT	13	15	16	19	30	31	42	58	43	44	39
CAR	6	4	5	10	10	12	12	21	20	25	31
BOAT	2	2		2	3	3	2	7	7	2	2
PARTY-MILES:											
FOOT	13	16	22	25	30	32	40	59	48	47	58
CAR	90	112	63	159	168	155	264	405	294	275	294
BOAT	12	12		10	8	12	8	20	20	16	16
OWLING: HRS.											
MILES											
FEEDER: #											
HRS.											
TEMP. (F)	40-70	39-70	37-55	27-60	49-72	51-63	36-57	34-65	38-57	53-64	48-64
WIND: (mph)	2-10	10-18	5-12	0-7	10-21	4-16	8-24	0-11	6-18	7-21	5-9
DIRECTION	NW-E	S-SE	ESE	SE	SSE	NNE	WNW	SE	N	SE	W-NNE

Shreveport C.B.C.

Species	23-Dec 1961	22-Dec 1962	21-Dec 1963	2-Jan 1965	1-Jan 1966	1-Jan 1967	23-Dec 1967	28-Dec 1968	20-Dec 1969	31-Dec 1970	26-Dec 1971
Common Loon	2	6				2		8	2	1	12
Pied-billed Grebe	20	19	27	14	20	22	64	11	15	14	15
Horned Grebe			2			4	6	1	7	13	
Eared Grebe	2	5	1			2					2
Eared/Horned Grebe											
American White Pelican											
Dbl.-crest. Cormorant							1				
Anhinga											
American Bittern				1	1						
Great Blue Heron	14	33	22	30	30	23	43	21	20	43	37
Great Egret	2	17	1	16							22
Little Blue Heron											
Cattle Egret											
Green Heron											
Black-crowned Night-Heron	2	1	2		1						
White Ibis											
Black Vulture	40	16	9	17	15	7	5	3	6	37	2
Turkey Vulture	45	49	37	63	22	37	23	20	42	21	12
Greater White-fronted Goose											
Snow Goose				1							
Snow Goose (blue form)										6	
Snow Goose (white form)										36	
Canada Goose											
goose sp.											
swan sp.											
Wood Duck	19	5	2	10	29	8	3	10	12	34	4
Gadwall				3		5	3	1		4	1
American Wigeon	1	2	13	4					1	1	
Mallard	13	15	66	32	28	5	10	3	23	26	55
Blue-winged Teal											
Northern Shoveler			2								
Northern Pintail			1							1	
Am. Green-winged Teal			28	10	7	3	11	1	2		1
Canvasback	700	300	270	110	600	1000	300	350	900	350	470
Redhead	2			8		5					
Ring-necked Duck		6		19	1	6	7	1	3		
Greater Scaup											

Shreveport C.B.C.

Species	23-Dec 1961	22-Dec 1962	21-Dec 1963	2-Jan 1965	1-Jan 1966	1-Jan 1967	23-Dec 1967	28-Dec 1968	20-Dec 1969	31-Dec 1970	26-Dec 1971
Lesser Scaup	213	120	3	61	46	1	5	1	3	51	8
White-winged Scoter											
Oldsquaw			1								
Bufflehead								4			4
Common Goldeneye			2								
Hooded Merganser			8								
Common Merganser											
Red-breasted Merganser											
merganser sp.											
Ruddy Duck	1	8	16	1		180	160	100	750	1300	1600
duck sp.											
Osprey											
Bald Eagle									1		
Northern Harrier	2		1		3	1	1	4	3	2	2
Sharp-shinned Hawk	2	1		1			2		1		
Cooper's Hawk					1		1			1	
Accipiter sp.											
Red-shouldered Hawk	6	6	5	5	1	6	6	2	2	1	2
Red-tailed Hawk	9	9	5	7	4	4	5	11	8	9	8
Red-tailed "Harlan's" Hawk				1							
Red-tailed "Krider's" Hawk											
Rough-legged Hawk											
Buteo sp.											
American Kestrel	20	8	14	14	16	15	12	12	11	8	12
Merlin											
hawk sp.											
Northern Bobwhite	3	28	21	61	54	15	10	18	32	3	16
Virginia Rail											
Sora											
Common Moorhen											
American Coot	11	13	160	4	3	18	4	5			
Killdeer	215	140	170	150	120	52	88	29	100	62	77
Greater Yellowlegs											
Spotted Sandpiper			1	2			2	1			2
Western Sandpiper		4	1	29	3		22				
Least Sandpiper										51	35
peep sp.											
Common Snipe	63	32	25	22	9	8	8	8	15	11	21

Shreveport C.B.C.

Species	23-Dec 1961	22-Dec 1962	21-Dec 1963	2-Jan 1965	1-Jan 1966	1-Jan 1967	23-Dec 1967	28-Dec 1968	20-Dec 1969	31-Dec 1970	26-Dec 1971
American Woodcock									3	3	3
Laughing Gull											
Franklin's Gull											
Bonaparte's Gull	9	2					3	2		15	7
Ring-billed Gull	79	340	220	95	38	81	300	240	92	400	320
Herring Gull	cw	6	11	4	2	6	7	4	2		5
Glaucous Gull											
Forster's Tern											
tern sp											
Rock Dove											
Eurasian Collared-Dove											
Mourning Dove	62	120	160	98	110	200	27	11	140	110	160
Inca Dove											
Greater Roadrunner		1	1	2	2	1		1	2		
Barn Owl		3	1	1	1						3
Eastern Screech-Owl	3	4	3	10	4	4	8	2	1	4	12
Great Horned Owl	1	1		3		1	1	1	1	1	
Snowy Owl											
Barred Owl	7	6	6	9	5	4	7	6	4	3	8
Long-eared Owl											2
Short-eared Owl										2	2
owl sp.											
Belted Kingfisher	7	17	7	11	11	10	14	8	14	15	9
Red-headed Woodpecker	19		3	4	6	6	4	2		2	2
Red-bellied Woodpecker	75	80	65	58	36	32	38	23	30	37	55
Yellow-bellied Sapsucker	26	37	20	28	26	24	21	13	22	24	19
Downy Woodpecker	24	33	32	45	64	34	28	4	21	30	29
Hairy Woodpecker	13	16	10	18	10	15	6	4	6	5	10
Red-cockaded Woodpecker	6	3	3	2	3	4	2	2	2	5	4
Northern (Yel.-sh.) Flicker	52	100	100	76	110	100	84	40	100	46	71
Northern (Red-sh.) Flicker											
Pileated Woodpecker	4	11	3	2	12	12	6	4	8	7	3
Eastern Phoebe	15	33	6	11	8	15	9	6	16	10	11
Vermilion Flycatcher				1							
Scissor-tailed Flycatcher											
Loggerhead Shrike	50	41	20	52	46	32	34	23	36	28	23
White-eyed Vireo											

Shreveport C.B.C.

Species	23-Dec 1961	22-Dec 1962	21-Dec 1963	2-Jan 1965	1-Jan 1966	1-Jan 1967	23-Dec 1967	28-Dec 1968	20-Dec 1969	31-Dec 1970	26-Dec 1971
Blue-headed Vireo									1		2
Blue Jay	249	210	190	360	350	150	250	120	200	150	230
American Crow	328	410	160	230	210	330	130	170	250	370	93
Fish Crow	3	3		12	240			3	8	5	1
crow, species											
Horned Lark					17						
Tree Swallow											
Carolina Chickadee	194	410	160	390	310	110	100	60	120	160	270
Tufted Titmouse	167	280	100	350	230	65	92	43	64	76	180
Red-breasted Nuthatch	4	1	3		1	2	1		1	1	1
White-breasted Buthatch	13	17	5	16	8	8	9	3	4	11	16
Brown-headed Nuthatch	46	27	22	19	17	20	18	16	12	26	16
Brown Creeper	9	10	13	14	11	5	3	2	6	6	5
Carolina Wren	70	100	58	120	150	69	75	43	100	66	140
Bewick's Wren	5	4	3		7	6	10	3	3	2	2
House Wren		5	1		1	1	1	1	1	3	7
Winter Wren	4	15	5	18	14	5	9	3	23	13	18
Sedge Wren		3					2				6
Marsh Wren									2		
Golden-crowned Kinglet	138	120	48	62	51	22	21	31	62	71	54
Ruby-crowned Kinglet	175	170	96	130	150	110	140	93	120	150	240
Blue-gray Gnatcatcher		1		3	2	4	1			1	6
Eastern Bluebird	131	120	94	92	43	55	37	11	28	150	100
Hermit Thrush	11	37	26	17	37	32	26	16	42	20	42
American Robin	142	120	91	1100	100	690	100	66	62	310	50
Gray Catbird											
Northern Mockingbird	102	120	89	160	170	110	100	93	110	88	100
Brown Thrasher	82	84	66	110	120	61	89	72	58	54	83
European Starling	2387	670	1000	800	1000	10000	710	630	2500	2300	340
American Pipit	2	150	100	4	8	27		3	21		45
Sprague's Pipit	2	1	1	5	6	1	1			2	2
Cedar Waxwing	52	500	120	530	200	390	55	46	160	300	500
Orange-crowned Warbler	4	6	4	16	8	5	7		5	5	21
Nashville Warbler											
Tropical Parula											
Yellow-rumped Warbler	118	200	59	99	140	74	120	45	56	130	280
Pine Warbler	89	33	48	44	45	18	39	15	43	110	110

Shreveport C.B.C.

Species	23-Dec 1961	22-Dec 1962	21-Dec 1963	2-Jan 1965	1-Jan 1966	1-Jan 1967	23-Dec 1967	28-Dec 1968	20-Dec 1969	31-Dec 1970	26-Dec 1971
Common Yellowthroat									4	1	
Wilson's Warbler		1									
Summer Tanager											
Western Tanager											
Spotted Towhee											
Eastern (Rufous-sided) Towhee	107	120	21	98	100	64	77	59	50	43	23
Bachman's Sparrow	1				1						1
Chipping Sparrow	23	40	80	120	46	40	17	16	100	150	78
Field Sparrow	270	280	300	280	210	69	100	110	110	210	220
Vesper Sparrow	10	9	6	3	7	7	1	4	12	2	16
Lark Sparrow											
Savannah Sparrow	139	160	250	210	150	350	310	210	90	200	270
Grasshopper Sparrow											
Henslow's Sparrow											
LeConte's Sparrow	10	27	25	35	12	16	10	13	1	10	34
Fox Sparrow	25	66	42	50	130	47	34	15	28	34	60
Song Sparrow	75	150	110	100	110	66	56	69	87	48	120
Lincoln's Sparrow	8	25	12	6	11	5	1			1	4
Swamp Sparrow	24	170	49	71	120	26	69	33	46	17	89
White-throated Sparrow	1282	960	560	1200	1000	330	510	300	660	410	600
Harris' Sparrow	4	3	5	3	8	7	4			1	11
White-crowned Sparrow	27	83	14	2	17	8	33	2		3	130
Dark-eyed Junco	737	610	560	620	280	620	190	300	330	440	440
Dark-eyed (Oregon) Junco	1	2	1	2			1			6	1
Lapland Longspur										45	1
Smith's Longspur			4								1
Chestnut-collared Longspur			1								4
longspur sp.											
Northern Cardinal	285	390	270	290	590	200	200	110	280	170	380
Pheucticus sp.											
Red-winged Blackbird	4081	2500	5700	6200	1400	6300	690	1100	360	1800	50000
Eastern Meadowlark	416	410	350	410	400	280	130	120	270	240	190
Western Meadowlark		6	4	4	2	6	2	4	3	2	1
meadowlark sp.											
Rusty Blackbird	2	70	270	35	110	15	26	8	160	35	
Brewer's Blackbird	39	170	180	25	55	23	38	2	12	17	
Euphagus sp.											

Shreveport C.B.C.

Species	23-Dec 1961	22-Dec 1962	21-Dec 1963	2-Jan 1965	1-Jan 1966	1-Jan 1967	23-Dec 1967	28-Dec 1968	20-Dec 1969	31-Dec 1970	26-Dec 1971
Common Grackle	32093	9700	5600	29000	200000	42000	9200	1300	31000	17000	1900
Brown-headed Cowbird	102	430	740	150	860	550	380	470	250	810	130
blackbird sp.											
Baltimore Oriole										3	
Purple Finch	1	52	10	47	21	15	5	67	8	9	39
House Finch											
Pine Siskin	1		5			1	7		19		16
American Goldfinch	167	130	240	500	240	150	98	92	130	290	260
House Sparrow	221	1100	540	170	500	1000	99	43	100	47	18
TOTAL SPECIES	95	100	103	99	95	96	98	90	93	100	104
TOTAL INDIVIDUALS	86111	62761	59672	84781	250757	105799	55415	46642	80206	69047	100762
OBSERVERS	10	12	9	14	13	7	7	6	7	9	10
PARTIES	8	7	7	10	10	6	6	5	6	6	7
PARTY-HOURS:											
FOOT	47	50	45	59	58	33	37	25	44	33	48
CAR	23	18	18	24	22	14	19	10	11	18	13
BOAT	2	2	2	1		2	2	2		3	3
PARTY-MILES:											
FOOT	46	44	38	48	35	32	35	19	31	38	46
CAR	307	328	249	359	339	263	198	150	292	253	232
BOAT	10	7	8	4		10	11	13		17	21
OWLING: HRS.											6
MILES											86
FEEDER: #											
HRS.											
TEMP. (F)	35-49	40-57	25-30	54-78	66-72	36-53	24-51	33-62	42-49	35-51	51-67
WIND: (mph)	12-27	4-11	9-20	8-17	15	1-10	9	5-20	8-14	8-10	2-14
DIRECTION	W-NW	SE	NNE	S-N	S	NW	NE	WNW	E	NW-NE	SSE

Shreveport C.B.C.

Species	23-Dec 1972	15-Dec 1973	14-Dec 1974	22-Dec 1975	19-Dec 1976	2-Jan 1978	17-Dec 1978	15-Dec 1979	27-Dec 1980	26-Dec 1981	1-Jan 1983
Common Loon	2	2	5	5	2	4	2				2
Pied-billed Grebe	17	12	22	31	42	117	69	41	62	26	32
Horned Grebe			28	3			cw	1	3	6	
Eared Grebe				11	4	5		1		78	
Eared/Horned Grebe											
American White Pelican									7		
Dbl.-crest. Cormorant	13	21	1			112	375	181	718	1500	1561
Anhinga					1				5	1	1
American Bittern							1		1	1	
Great Blue Heron	29	27	31	23	34	40	39	32	92	73	39
Great Egret		1	1		19	1	38	53	108		57
Little Blue Heron		1									
Cattle Egret		8	1	7			1				
Green Heron			1								1
Black-crowned Night-Heron											
White Ibis											
Black Vulture	5	2		10	2	6	9	7	6	10	1
Turkey Vulture	37	33	19	67	22	46	52	27	33	30	14
Greater White-fronted Goose											
Snow Goose						11					
Snow Goose (blue form)		3									
Snow Goose (white form)											
Canada Goose											
goose sp.											1
swan sp.											
Wood Duck	8	57	63	14	26	2	22	66	15	54	19
Gadwall	9		3	8	13	13	5	18	6	14	51
American Wigeon	3	2	27			3		19	16		8
Mallard	22		10	328	93	56	62	47	73	175	16
Blue-winged Teal									1		
Northern Shoveler				2	18					1	
Northern Pintail					31						
Am. Green-winged Teal	1		1	11	20	38	13	10	16	29	26
Canvasback	1300	93	300	903	455	750	550	820	827	546	2025
Redhead	2							5	1		
Ring-necked Duck	1	3	4	10	32	11	4	24	10	130	29
Greater Scaup											

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Species	23-Dec 1972	15-Dec 1973	14-Dec 1974	22-Dec 1975	19-Dec 1976	2-Jan 1978	17-Dec 1978	15-Dec 1979	27-Dec 1980	26-Dec 1981	1-Jan 1983
Lesser Scaup	19	119	71	159	28	74		5	47	22	5
White-winged Scoter											
Oldsquaw											
Bufflehead	3			8		4	1	3	34	3	16
Common Goldeneye			2	4					cw		
Hooded Merganser					3		4		8		1
Common Merganser											1
Red-breasted Merganser					1		1				
merganser sp.											
Ruddy Duck	2500	5000	4509	5058	1229	1600	3000	7244	3875	2304	3317
duck sp.											4
Osprey									cw		
Bald Eagle	cw		1	1	1	3	4	2	4		11
Northern Harrier	3	2		3	4	6	1	7	6	3	3
Sharp-shinned Hawk	2	1		1	1	3	1	2	1		1
Cooper's Hawk	2	1	1		1					1	
Accipiter sp.						1					
Red-shouldered Hawk	1	2	4	9	8	8	4	6	18	11	10
Red-tailed Hawk	14	12	8	22	12	35	25	38	45	25	26
Red-tailed "Harlan's" Hawk	1										
Red-tailed "Krider's" Hawk											
Rough-legged Hawk											
Buteo sp.											2
American Kestrel	8	8	10	16	12	16	18	9	11	9	14
Merlin											
hawk sp.									1		
Northern Bobwhite	3	4	13	5	19	30	22	6	7	2	
Virginia Rail											
Sora	1										
Common Moorhen											
American Coot	50	131	52	155	140	773	421	147	267	355	106
Killdeer	126	33	46	65	57	119	69	68	133	80	62
Greater Yellowlegs											
Spotted Sandpiper	3		1	1	1	1	2		4	1	cw
Western Sandpiper											
Least Sandpiper	2				12	11	31		68	14	
peep sp.						27					
Common Snipe	33	9	10	3	12	37	2	1	43	40	1

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Species	23-Dec 1972	15-Dec 1973	14-Dec 1974	22-Dec 1975	19-Dec 1976	2-Jan 1978	17-Dec 1978	15-Dec 1979	27-Dec 1980	26-Dec 1981	1-Jan 1983
American Woodcock	4	1	1	1	1	3	1	1	1	1	7
Laughing Gull											
Franklin's Gull											
Bonaparte's Gull	65	2	15	48	46	150	280	140	100	226	350
Ring-billed Gull	250	51	65	70	272	750	590	570	1200	450	1100
Herring Gull	9				1	8	9	2	22	25	26
Glaucous Gull										1	
Forster's Tern									1	5	1
tern sp											
Rock Dove				5	3	304	430	136	71	500	467
Eurasian Collared-Dove											
Mourning Dove	82	99	124	58	113	139	46	153	95	226	221
Inca Dove											
Greater Roadrunner	4	1		1		1			1		
Barn Owl						1	3	1	3	1	2
Eastern Screech-Owl	7	6	7	5	15	10	6	3	11	2	5
Great Horned Owl					1		4	4	7	2	1
Snowy Owl					1						
Barred Owl	4	3	2	4	5	8	5	2	4	8	6
Long-eared Owl									1		
Short-eared Owl	1		1				1	1			
owl sp.				1							
Belted Kingfisher	21	10	13	23	13	24	18	17	13	11	14
Red-headed Woodpecker		4	3		1	2	2	17	8		9
Red-bellied Woodpecker	58	36	47	45	54	39	30	92	81	40	43
Yellow-bellied Sapsucker	46	26	33	46	55	34	23	57	44	33	26
Downy Woodpecker	28	11	20	26	58	23	16	41	47	42	39
Hairy Woodpecker	4	3	10	15	14	7	10	20	9	6	5
Red-cockaded Woodpecker	1	2	3	5	1	1	2	4	1	3	
Northern (Yel.-sh.) Flicker	130	94	133	117	98	98	74	116	138	93	147
Northern (Red-sh.) Flicker											
Pileated Woodpecker	6	17	23	8	21	14	13	13	18	21	4
Eastern Phoebe	25	8	21	14	15	7	12	7	16	27	17
Vermilion Flycatcher											
Scissor-tailed Flycatcher											
Loggerhead Shrike	47	25	30	45	32	69	47	35	17	36	25
White-eyed Vireo										1	

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Species	23-Dec 1972	15-Dec 1973	14-Dec 1974	22-Dec 1975	19-Dec 1976	2-Jan 1978	17-Dec 1978	15-Dec 1979	27-Dec 1980	26-Dec 1981	1-Jan 1983
Blue-headed Vireo	1	2	7	4	7	4	2	9			1
Blue Jay	172	199	222	373	281	248	236	584	2890	127	283
American Crow	228	164	115	198	207	143	246	297	499	186	167
Fish Crow			15	12	7		15	12	17	2	4
crow, species					12	76					15
Horned Lark											
Tree Swallow	cw										
Carolina Chickadee	195	208	246	213	208	247	124	250	225	218	144
Tufted Titmouse	103	84	62	130	140	76	75	180	141	107	105
Red-breasted Nuthatch	2	1	2	1	1	4	6	1	23	1	
White-breasted Buthatch	16	6	9	9	9	5	6	5	10	9	15
Brown-headed Nuthatch	26	23	14	21	18	15	5	13	17	9	7
Brown Creeper	14	15	16	9	16	10	11	15	21	5	16
Carolina Wren	89	87	84	96	171	57	69	96	58	73	69
Bewick's Wren	1		1	1	5		1	1	3		1
House Wren	6	3		2		1	1	1		3	
Winter Wren	21	18	23	9	31	5	20	16	10	12	17
Sedge Wren	6			2	2		1			2	
Marsh Wren					2						1
Golden-crowned Kinglet	81	64	87	77	146	17	12	38	71	63	29
Ruby-crowned Kinglet	192	412	278	465	416	191	220	403	176	228	128
Blue-gray Gnatcatcher	6			4	1	1		1	4		
Eastern Bluebird	76	84	75	90	82	63	54	134	135	118	90
Hermit Thrush	45	35	49	66	66	42	41	68	60	29	57
American Robin	403	116	409	58	189	78	399	214	155	53	555
Gray Catbird											
Northern Mockingbird	166	52	68	103	98	125	89	92	119	82	121
Brown Thrasher	97	82	58	79	103	98	106	62	99	33	57
European Starling	190	231	81	333	540	425	1295	488	4591	663	488
American Pipit	28			50	33	16	23	48		6	
Sprague's Pipit	2		1			2			2	1	
Cedar Waxwing	138	408	239	148	84	67	274	415	159	111	1628
Orange-crowned Warbler	13	19	6	4	11	7	7	11	13	9	5
Nashville Warbler					1						
Tropical Parula											
Yellow-rumped Warbler	89	183	92	223	148	225	159	243	236	160	180
Pine Warbler	104	66	50	43	93	18	16	30	29	43	48

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Species	23-Dec 1972	15-Dec 1973	14-Dec 1974	22-Dec 1975	19-Dec 1976	2-Jan 1978	17-Dec 1978	15-Dec 1979	27-Dec 1980	26-Dec 1981	1-Jan 1983
Common Yellowthroat		1				1					1
Wilson's Warbler											
Summer Tanager					1	1	1	cw	1		
Western Tanager				2							
Spotted Towhee					1			3			
Eastern (Rufous-sided) Towhee	86	59	41	55	95	19	39	57	84	16	62
Bachman's Sparrow											
Chipping Sparrow	12	29	62	257	18	43	56	252	144	63	202
Field Sparrow	52	68	77	111	99	188	66	138	122	113	124
Vesper Sparrow	3	2	1	10	1	1		5	11	4	10
Lark Sparrow									1		
Savannah Sparrow	136	115	21	275	177	135	38	68	39	96	59
Grasshopper Sparrow											
Henslow's Sparrow								1			
LeConte's Sparrow	14	9	13	15	11	11	5	13	7	6	14
Fox Sparrow	43	29	60	56	44	97	96	59	84	9	8
Song Sparrow	112	37	41	74	153	102	83	64	102	41	26
Lincoln's Sparrow	1	2	4	3		8	3	13		1	1
Swamp Sparrow	40	18	21	61	45	66	28	39	24	6	24
White-throated Sparrow	396	492	444	478	566	334	263	702	927	441	471
Harris' Sparrow	4			1	1			1			
White-crowned Sparrow	10	4	16	7	55	14	28	41	66	7	
Dark-eyed Junco	444	235	353	473	389	340	326	457	547	252	455
Dark-eyed (Oregon) Junco	2	2	1	1	1		cw	1	1	1	1
Lapland Longspur	1					200	6	1			
Smith's Longspur			4			1		1	4		
Chestnut-collared Longspur											
longspur sp.	1							7			
Northern Cardinal	327	238	209	325	441	393	210	352	353	216	404
Pheucticus sp.											
Red-winged Blackbird	2642	1031	1237	1677	1052	182	489	1942	2022	713	1124
Eastern Meadowlark	179	137	97	168	239	184	148	212	202	217	166
Western Meadowlark	1						2	1		1	1
meadowlark sp.	1					150	88				8
Rusty Blackbird	4			200	11	15		35	38	46	4
Brewer's Blackbird	7				5			5	2	7	
Euphagus sp.						40					

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Species	23-Dec 1972	15-Dec 1973	14-Dec 1974	22-Dec 1975	19-Dec 1976	2-Jan 1978	17-Dec 1978	15-Dec 1979	27-Dec 1980	26-Dec 1981	1-Jan 1983
Common Grackle	1632	790	4008	11259	10438	15673	8218	6141	18148	847	9159
Brown-headed Cowbird	250	185	114	27	511		26	77	1159	321	86
blackbird sp.				600			2500				
Baltimore Oriole											
Purple Finch	53	9	19	57	38	42	21	62	42	7	26
House Finch											
Pine Siskin	59	27		7		14			24	39	4
American Goldfinch	103	168	123	176	104	121	98	129	207	204	244
House Sparrow	25	15	5	25	18	99	50	27	83	86	64
TOTAL SPECIES	106	138	95	102	107	105	104	107	111	108	101
TOTAL INDIVIDUALS	14162	12250	15076	26703	20817	26395	22871	24955	42688	13417	26957
OBSERVERS	11	12	11	13	20	16	12	13	14	13	24
PARTIES	7	6	6	7	7	9	6	7	6	7	7
PARTY-HOURS:											
FOOT	52	29	39	51	60	61	42	52	35	40	45
CAR	20	25	12	12	16	10	9	14.5	25	31	28
BOAT	2	5	4	2	2	2					
PARTY-MILES:											
FOOT	42	27	34	32	46	34	24	35	34	24	31
CAR	287	283	180	316	263	318	236	345	437	458	315
BOAT	9	25	12	10	10	5					
OWLING: HRS.			2	3	3	8	5	4	7	5	6.5
MILES			35	30	34	117	-	-	-	-	137
FEEDER: #	1				1	2	2		1	1	1
HRS.					1	7	2		4	2	8
TEMP. (F)	31-62	43-65	37-62	34-48	52-66	31-43	31-56	34-48	28-54	36-66	39-42
WIND: (mph)	0-12	0-15	5-20	0-10	5-18	8-15	13-2	0-9	NW-NE	SW	N
DIRECTION	SE	N	SE-NW	S	S-WSW	NW-N	N-NW	N-NE-SE	5-10	10-29	6-10

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Species	18-Dec 1983	29-Dec 1984	28-Dec 1985	3-Jan 1987	26-Dec 1987	26-Dec 1988	23-Dec 1989	15-Dec 1990	21-Dec 1991	26-Dec 1992	26-Dec 1993
Common Loon			2	1				2		1	
Pied-billed Grebe	31	15	10	31	31	16	151	14		13	28
Horned Grebe			1	1		4	1	2		6	
Eared Grebe											
Eared/Horned Grebe											
American White Pelican						26				18	175
Dbl.-crest. Cormorant	890	900	1017	1024	1617	7374	8163	5646	5739	1987	2980
Anhinga		4						1			
American Bittern											
Great Blue Heron	31	41	32	61	63	70	39	94	65	123	45
Great Egret	75	7	32	20	100	29	97	105	64	256	185
Little Blue Heron											
Cattle Egret											
Green Heron											
Black-crowned Night-Heron											
White Ibis											
Black Vulture	27	7	12		3	14	3	44	3	24	35
Turkey Vulture	40	44	31	2	18	53	25	97	2	96	94
Greater White-fronted Goose		1									
Snow Goose								22			
Snow Goose (blue form)											
Snow Goose (white form)		2				4					
Canada Goose											
goose sp.											
swan sp.							1				
Wood Duck	6	41	164	266	73	43	77	228	496	32	21
Gadwall	47	9	15	18	5	12	17		13		8
American Wigeon		7		17	11	9		5			1
Mallard	26	38	29	32	193	80	792	58	36	30	70
Blue-winged Teal											
Northern Shoveler	1					12	7				
Northern Pintail				2						3	1
Am. Green-winged Teal	18					7	607	5			15
Canvasback	272	650	100	1200	330	1400	852	859	9	471	450
Redhead											
Ring-necked Duck	5	3	1	30	23	131	665	2	52	77	460
Greater Scaup											2

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Species	18-Dec 1983	29-Dec 1984	28-Dec 1985	3-Jan 1987	26-Dec 1987	26-Dec 1988	23-Dec 1989	15-Dec 1990	21-Dec 1991	26-Dec 1992	26-Dec 1993
Lesser Scaup		20	1	1	2	34	216	35	23	105	48
White-winged Scoter							1				
Oldsquaw											
Bufflehead		28	cw	12	34	22	47	61	116	96	67
Common Goldeneye						2					
Hooded Merganser	2	1		6	19		36	4	14	23	38
Common Merganser			1								
Red-breasted Merganser				1			2				
merganser sp.											
Ruddy Duck	1769	1400	112	4811	2092	5586	1268	2094	726	5188	3713
duck sp.	26										
Osprey										1	
Bald Eagle	6	8	8	6		8	7	6	5	3	6
Northern Harrier	4	1	5		1	1	2	1	1	6	2
Sharp-shinned Hawk			1	3	2		3	1		1	3
Cooper's Hawk		1		1		1		1		3	
Accipiter sp.			1			1					
Red-shouldered Hawk	8	12	11	11	12	11	14	13	16	14	13
Red-tailed Hawk	34	33	25	25	7	15	16	10	13	21	12
Red-tailed "Harlan's" Hawk							1				
Red-tailed "Krider's" Hawk											
Rough-legged Hawk											
Buteo sp.	2										
American Kestrel	10	13	11	10	17	16	17	12	10	34	8
Merlin										1	
hawk sp.											
Northern Bobwhite		6	15		4						
Virginia Rail											
Sora		1									
Common Moorhen											
American Coot	382	61	31	266	218	2791	750	371	71	261	212
Killdeer	43	88	120	34	35	439	52	74	48	67	56
Greater Yellowlegs		5									
Spotted Sandpiper	1			1	1		1			1	2
Western Sandpiper											
Least Sandpiper											
peep sp.											
Common Snipe	7	5	1	11	13	16	5	32		8	35

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Species	18-Dec 1983	29-Dec 1984	28-Dec 1985	3-Jan 1987	26-Dec 1987	26-Dec 1988	23-Dec 1989	15-Dec 1990	21-Dec 1991	26-Dec 1992	26-Dec 1993
American Woodcock		1	2	3	5	7		4		5	
Laughing Gull											
Franklin's Gull											
Bonaparte's Gull	276	43	68	26	70	123	8	51	120	67	154
Ring-billed Gull	1350	101	445	232	33	558	756	165	428	436	763
Herring Gull	1	14	2		1	11		2	38	3	2
Glaucous Gull											
Forster's Tern	6	cw				18	2	13		15	24
tern sp					1						
Rock Dove	41	120	38	414	106	388	136	61	73	263	175
Eurasian Collared-Dove											
Mourning Dove	401	75	17	38	221	53	125	104	31	60	53
Inca Dove											
Greater Roadrunner							1				
Barn Owl	2	1	1		1	1					1
Eastern Screech-Owl	1	7	2	2	1	5	6	10	28	3	8
Great Horned Owl	2	2	2			2		1	4	1	
Snowy Owl											
Barred Owl	3	12	3	1	1	6	7	2	7	6	6
Long-eared Owl											
Short-eared Owl	1										
owl sp.											
Belted Kingfisher	11	7	11	8	12	11	11	22	17	14	10
Red-headed Woodpecker	11	4	13	12	3		5	7	21	13	4
Red-bellied Woodpecker	39	20	33	43	34	47	37	44	45	34	34
Yellow-bellied Sapsucker	34	21	36	18	27	27	25	40		36	34
Downy Woodpecker	19	41	21	31	23	23	20	28	19	22	16
Hairy Woodpecker	6	9	5	1	2	5	3		1	6	2
Red-cockaded Woodpecker											
Northern (Yel.-sh.) Flicker	61	114	64	77	79	55	56	67	65	128	51
Northern (Red-sh.) Flicker											
Pileated Woodpecker	11	15	12	9	4	11	5	15	7	8	4
Eastern Phoebe	12	15	9	9	4	16	15	27	18	10	16
Vermilion Flycatcher											
Scissor-tailed Flycatcher											
Loggerhead Shrike	26	18	28	29	17	24	6	24	14	25	16
White-eyed Vireo	1										

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Species	18-Dec 1983	29-Dec 1984	28-Dec 1985	3-Jan 1987	26-Dec 1987	26-Dec 1988	23-Dec 1989	15-Dec 1990	21-Dec 1991	26-Dec 1992	26-Dec 1993
Blue-headed Vireo	6		1	1		7	2	3	3	2	5
Blue Jay	336	63	112	153	167	75	106	109	232	138	108
American Crow	172	541	263	175	154	227	273	242	201	512	238
Fish Crow		8	6	3	2	5	100	227	21	142	15
crow, species	35										
Horned Lark							5				
Tree Swallow						4					
Carolina Chickadee	266	218	167	157	123	211	104	136	112	137	122
Tufted Titmouse	104	91	71	115	100	90	47	70	70	56	50
Red-breasted Nuthatch			11				1		1		1
White-breasted Buthatch	8	8	13	4	4	8	7	11	11	6	9
Brown-headed Nuthatch	4	8	9	6	8	14	2	5	5	5	6
Brown Creeper	23	11	3	3	2	8	4	10	7	6	24
Carolina Wren	63	106	53	70	17	55	37	66	52	68	57
Bewick's Wren	2	1					1		1	1	1
House Wren		2	7	3		1		1	4	1	5
Winter Wren	14	14	13	4	8	13	11	19	11	12	21
Sedge Wren			1	1		2			4	3	4
Marsh Wren											
Golden-crowned Kinglet	139	24	11	83	16	60	65	48	33	25	38
Ruby-crowned Kinglet	228	93	73	105	64	119	151	108	104	128	110
Blue-gray Gnatcatcher						1	1			1	
Eastern Bluebird	51	159	139	163	116	129	144	137	200	165	118
Hermit Thrush	30	23	25	47	13	17	55	15	18	24	14
American Robin	5	304	292	1282	164	187	234	102	147	217	51
Gray Catbird									2	1	
Northern Mockingbird	111	57	61	119	61	33	81	93	84	75	68
Brown Thrasher	57	25	32	65	36	14	46	70	46	39	35
European Starling	40790	160	210	569	322	160	209	784	448	351	472
American Pipit	4		8		1	4					1
Sprague's Pipit		2	1				1				
Cedar Waxwing	250	201	313	1055	288	309	248	877	804	354	95
Orange-crowned Warbler	10	6	5	5	2	6	4	8	10	8	5
Nashville Warbler											
Tropical Parula											
Yellow-rumped Warbler	126	31	117	128	85	125	107	249	179	180	133
Pine Warbler	64	20		66	51	49	21	50	145	65	83

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Species	18-Dec 1983	29-Dec 1984	28-Dec 1985	3-Jan 1987	26-Dec 1987	26-Dec 1988	23-Dec 1989	15-Dec 1990	21-Dec 1991	26-Dec 1992	26-Dec 1993
Common Yellowthroat		1									
Wilson's Warbler											
Summer Tanager											
Western Tanager											
Spotted Towhee		1		1							
Eastern (Rufous-sided) Towhee	24	29	23	15	30	2	16	16	33	14	16
Bachman's Sparrow											
Chipping Sparrow	106	17	60	341	427	71	370	257	229	157	177
Field Sparrow	52	93	25	61	102	19	18	26	40	43	61
Vesper Sparrow		2	7		9		24	8	2	2	8
Lark Sparrow											
Savannah Sparrow	59	60	80	15	62	39	75	30	32	44	23
Grasshopper Sparrow											
Henslow's Sparrow											
LeConte's Sparrow	18	1		8		4	1	10	28	12	11
Fox Sparrow	10	cw	12	21	2	4	17	3	6	16	9
Song Sparrow	31	105	74	77	63	37	40	44	101	75	97
Lincoln's Sparrow	3	1	6	7			7	2	2	2	2
Swamp Sparrow	16	8	24	2	11	6	30	22	38	31	72
White-throated Sparrow	305	285	322	343		194	400	317	401	269	183
Harris' Sparrow											
White-crowned Sparrow	1	21	11	29		8	29	3	57	16	5
Dark-eyed Junco	578	484	191	323	910	229	592	400	476	298	215
Dark-eyed (Oregon) Junco		1					1			1	
Lapland Longspur	5	14					1				
Smith's Longspur						4	8	3			
Chestnut-collared Longspur											
longspur sp.			1								
Northern Cardinal	187	181	139	238	278	135	268	178	241	245	135
Pheucticus sp.											1
Red-winged Blackbird	15413	161	195	1363	396	153	1687	834	523	1392	396
Eastern Meadowlark	204	181	142	133	125	47	180	135		121	86
Western Meadowlark											
meadowlark sp.											
Rusty Blackbird		cw		3	5				38	6	2
Brewer's Blackbird				5	1			200		4	29
Euphagus sp.											

Shreveport C.B.C.

Species	18-Dec 1983	29-Dec 1984	28-Dec 1985	3-Jan 1987	26-Dec 1987	26-Dec 1988	23-Dec 1989	15-Dec 1990	21-Dec 1991	26-Dec 1992	26-Dec 1993
Common Grackle	350594	806	1874	14486	7916	2026	912	5010	5670	15628	10357
Brown-headed Cowbird	5070	140		274	788	19	35	22	2	292	19
blackbird sp.											
Baltimore Oriole											
Purple Finch	28	2	7	11	9		20	8	20	4	17
House Finch								5		9	33
Pine Siskin		4	1	3	77		42			31	
American Goldfinch	125	113	97	279	188	150	150	228	35	228	135
House Sparrow	58	58	54	53	79	71	115	40	17	18	34
TOTAL SPECIES	91	99	96	94	92	96	102	97	87	104	102
TOTAL INDIVIDUALS	421863	9037	7963	31330	18851	24769	22264	21827	19404	31805	24170
OBSERVERS	18	17	19	22	26	17	18	15	13	17	17
PARTIES	6	7	7	8	9	7	8	9	8	8	7
PARTY-HOURS:											
FOOT	26	33	34	25	20	29	26.25	26.5	17.5	22.75	28.5
CAR	28	33	34	33.5	45.5	28.25	29	34.75	59.75	39.5	33
BOAT		2		2.5	1.5	3	3	5.75	4.5	3	
PARTY-MILES:											
FOOT	25	25	26	21	13	27.5	20	32	12	24	25
CAR	239	361	393	298	373	288.75	211	370	209	349	305
BOAT		12		5	5	10	11	12	30	12	
OWLING: HRS.	6	6.5	5	7.5	7.5	5.5	3.5	3.75	17.75	4.25	3.75
MILES	93	47	41	104	61	59.5	21	33	75.5	54	56
FEEDER: #	1	1	1	2	1		1				
HRS.	8	9	9	8	7		9.75				
TEMP. (F)	34-43	66-80	32-57	42-49	46-55	53-73	5-23	51-71	55-58	39-45	29-68
WIND: (mph)	NE-NW	S	NE	N	NW	SE	N	NW	SE-NE	N	S
DIRECTION	10-15	5-23	3-19	10-15	10.7(?)	10-20	8	10-15	8	5-10	15-25

Shreveport C.B.C.

Species	26-Dec 1994	16-Dec 1995	21-Dec 1996	20-Dec 1997	19-Dec 1998	18-Dec 1999	23-Dec 2000	15-Dec 2001
Common Loon	1	1		2			2	1
Pied-billed Grebe	44	53	73	129	58	119	33	43
Horned Grebe	14	1	13	12	3	1	2	1
Eared Grebe			1	2	1			
Eared/Horned Grebe								
American White Pelican	31	13	30	2	7	262	227	354
Dbl.-crest. Cormorant	1918	9264	4250	18773	3822	5206	13412	30354
Anhinga								
American Bittern								
Great Blue Heron	74	59	48	46	50	114	51	60
Great Egret	116	308	93	182	88	482	228	212
Little Blue Heron								
Cattle Egret						11		
Green Heron								
Black-crowned Night-Heron						1		
White Ibis						77		
Black Vulture	64	17	77	153	10	59	89	124
Turkey Vulture	81	34	95	131	30	105	132	12
Greater White-fronted Goose								6
Snow Goose							7	55
Snow Goose (blue form)								
Snow Goose (white form)								
Canada Goose							125	
goose sp.								
swan sp.								
Wood Duck	20	47	24	35	85	82	669	58
Gadwall	64	223	568	200	56	255	342	227
American Wigeon	1	18	19	4	4	26	3	26
Mallard	100	177	173	123	82	321	230	93
Blue-winged Teal			4		13		3	2
Northern Shoveler	9	96	21	87	23	198	22	
Northern Pintail							10	
Am. Green-winged Teal	14	16		19	4	149		2
Canvasback	164	198	117	438	637	221	64	96
Redhead		4	2	93		8	1	1
Ring-necked Duck	395	40	19	53	478	518	46	81
Greater Scaup			2	2	2	1		

Shreveport C.B.C.

Species	26-Dec 1994	16-Dec 1995	21-Dec 1996	20-Dec 1997	19-Dec 1998	18-Dec 1999	23-Dec 2000	15-Dec 2001
Lesser Scaup	75	160	134	214	559	88	108	130
White-winged Scoter								
Oldsquaw								
Bufflehead	148	217	243	499	356	175	350	88
Common Goldeneye	4	3		1			4	
Hooded Merganser	7	17	14	2	40	49	12	11
Common Merganser								
Red-breasted Merganser	2	2		2				
merganser sp.								
Ruddy Duck	1817	2158	4374	3722	3088	7764	4488	3932
duck sp.								63
Osprey							1	
Bald Eagle	3	3	1	2	2	1	3	1
Northern Harrier	2	5	2	2	2	5	2	3
Sharp-shinned Hawk	2	2	3	3	1	4	2	1
Cooper's Hawk				2	1	5	3	2
Accipiter sp.								1
Red-shouldered Hawk	17	15	11	18	23	4	13	24
Red-tailed Hawk	21	15	21	10	16	30	19	40
Red-tailed "Harlan's" Hawk								
Red-tailed "Krider's" Hawk								
Rough-legged Hawk								
Buteo sp.								
American Kestrel	5	3	5	6	10	9	17	5
Merlin						1		
hawk sp.								
Northern Bobwhite								
Virginia Rail						2		1
Sora								
Common Moorhen	1							
American Coot	500	1186	5516	3960	5469	9176	623	1390
Killdeer	29	70	61	36	30	106	43	74
Greater Yellowlegs								
Spotted Sandpiper	1	1	1		1	5	1	1
Western Sandpiper								
Least Sandpiper						105		
peep sp.								
Common Snipe	34	4	16	77	32	28	9	5

Shreveport C.B.C.

Species	26-Dec 1994	16-Dec 1995	21-Dec 1996	20-Dec 1997	19-Dec 1998	18-Dec 1999	23-Dec 2000	15-Dec 2001
American Woodcock	1	2			1			
Laughing Gull							20	
Franklin's Gull					2			
Bonaparte's Gull	68	398	179	758	202	313	284	92
Ring-billed Gull	376	354	381	238	436	1466	414	2734
Herring Gull		2	2	1	1	2	4	5
Glaucous Gull								
Forster's Tern	52	28	46	101	91	116	152	75
tern sp								
Rock Dove	181	157	120	180	187	196	361	483
Eurasian Collared-Dove								2
Mourning Dove	59	264	111	50	295	131	36	208
Inca Dove					5	8	8	4
Greater Roadrunner								
Barn Owl							1	
Eastern Screech-Owl	9	7	3	15	15	13	8	13
Great Horned Owl	1		1	2	4	4	2	6
Snowy Owl								
Barred Owl	3	4	3	4	9	7	8	6
Long-eared Owl								
Short-eared Owl								
owl sp.								
Belted Kingfisher	11	13	14	8	17	33	13	13
Red-headed Woodpecker	3	4	7	4	2			4
Red-bellied Woodpecker	32	52	46	51	79	81	39	88
Yellow-bellied Sapsucker	36	35	23	21	33	43	16	18
Downy Woodpecker	17	25	17	8	39	34	22	32
Hairy Woodpecker		5	3	5	4	4	4	2
Red-cockaded Woodpecker								
Northern (Yel.-sh.) Flicker	51	55	28	32	74	64	37	42
Northern (Red-sh.) Flicker								
Pileated Woodpecker	13	10	7	11	16	7	5	22
Eastern Phoebe	22	26	10	30	61	52	27	30
Vermilion Flycatcher								
Scissor-tailed Flycatcher					1			
Loggerhead Shrike	21	15	11	15	24	24	26	20
White-eyed Vireo				1				2

Shreveport C.B.C.

Species	26-Dec 1994	16-Dec 1995	21-Dec 1996	20-Dec 1997	19-Dec 1998	18-Dec 1999	23-Dec 2000	15-Dec 2001
Blue-headed Vireo	2	8	1	6	9	4	1	2
Blue Jay	70	133	82	99	221	227	48	283
American Crow	146	145	183	227	417	224	529	292
Fish Crow	25	12	6	65	8	290	6	2
crow, species								
Horned Lark		30						
Tree Swallow								
Carolina Chickadee	119	148	99	136	195	270	82	279
Tufted Titmouse	52	95	31	63	56	139	38	107
Red-breasted Nuthatch		13		11	1	3		1
White-breasted Buthatch	8	8	8	10	15	22	10	7
Brown-headed Nuthatch	14	19	12	15	24	18	11	3
Brown Creeper	5	4	5	4	13	10	16	6
Carolina Wren	49	85	49	79	145	139	54	130
Bewick's Wren				2		1		
House Wren	3	4	1	7	8	15	2	7
Winter Wren	4	9	2	4	24	30	12	3
Sedge Wren		3	2	10	38	6	1	
Marsh Wren	1			2	8	7	4	1
Golden-crowned Kinglet	13	29	3	13	73	97	32	17
Ruby-crowned Kinglet	145	164	109	119	193	271	87	209
Blue-gray Gnatcatcher			2			3		3
Eastern Bluebird	127	134	135	127	142	139	111	153
Hermit Thrush	18	33	7	14	31	35	4	17
American Robin	294	285	361	131	280	1246	150	10826
Gray Catbird								
Northern Mockingbird	59	65	58	66	137	93	58	81
Brown Thrasher	15	26	5	14	45	42	6	34
European Starling	167	549	381	510	304	208	697	819
American Pipit		250	391	76	25	431	15	111
Sprague's Pipit						1		1
Cedar Waxwing	281	1315	885	128	343	198	104	1154
Orange-crowned Warbler	7	23	5	9	40	45	10	4
Nashville Warbler								
Tropical Parula						1		
Yellow-rumped Warbler	113	200	185	231	361	740	165	275
Pine Warbler	108	77	36	89	125	135	57	150

Shreveport C.B.C.

Species	26-Dec 1994	16-Dec 1995	21-Dec 1996	20-Dec 1997	19-Dec 1998	18-Dec 1999	23-Dec 2000	15-Dec 2001
Common Yellowthroat						2	1	
Wilson's Warbler								
Summer Tanager							cw	
Western Tanager								
Spotted Towhee								
Eastern (Rufous-sided) Towhee	10	21	6	3	13	28	5	17
Bachman's Sparrow								
Chipping Sparrow	311	218	79	102	100	452	105	230
Field Sparrow		74	8	6	35	211	35	30
Vesper Sparrow		7	28	50	3	1	4	1
Lark Sparrow								
Savannah Sparrow	9	248	38	271	64	176	49	47
Grasshopper Sparrow								
Henslow's Sparrow								
LeConte's Sparrow	2	7	1	5	27	4		
Fox Sparrow	8	19	2	21	13	27	6	50
Song Sparrow	39	111	14	66	121	391	33	120
Lincoln's Sparrow		4		7	2	10	2	6
Swamp Sparrow	32	49	8	51	74	103	9	24
White-throated Sparrow	179	418	156	259	415	748	111	642
Harris' Sparrow								
White-crowned Sparrow		33		53	4	43	3	9
Dark-eyed Junco	268	187	79	217	379	292	171	198
Dark-eyed (Oregon) Junco								
Lapland Longspur						1		
Smith's Longspur				3		2		
Chestnut-collared Longspur								
longspur sp.								
Northern Cardinal	139	174	85	150	210	320	141	336
Pheucticus sp.								
Red-winged Blackbird	379	3886	1587	1668	1767	3830	5898	8977
Eastern Meadowlark	107	97	68	197	120	214	109	29
Western Meadowlark		1		4				
meadowlark sp.								
Rusty Blackbird	45	150	17	1		56	3	
Brewer's Blackbird			1			175	25	21
Euphagus sp.								

Shreveport C.B.C.

Species	26-Dec 1994	16-Dec 1995	21-Dec 1996	20-Dec 1997	19-Dec 1998	18-Dec 1999	23-Dec 2000	15-Dec 2001
Common Grackle	1492	3535	8303	2001	462	7712	8303	1302
Brown-headed Cowbird	172	82	622	17	153	1	15	619
blackbird sp.			160					60000
Baltimore Oriole								
Purple Finch		4	46				1	
House Finch	10	131	15	11	36	58	15	50
Pine Siskin					1		2	
American Goldfinch	103	384	170	149	312	447	262	504
House Sparrow	49	34	20	30	31	68	32	60
TOTAL SPECIES	95	105	101	109	107	116	111	108
TOTAL INDIVIDUALS	11933	29626	31600	38186	24304	48833	40533	129730
OBSERVERS	22	18	16	16	17	22	20	19
PARTIES	8	7	7	7	7	9	7	
PARTY-HOURS:								
FOOT	24	19	16	23.5	16.5	35	27.5	
CAR	30.75	33.25	39.75	31.5	40	40.25	32.5	
BOAT	6	4	4	3.5	3.25	6.5	4	
PARTY-MILES:								
FOOT	22.5	15.25	10.75	16	14	16.5	18	
CAR	270	255.75	190.5	284	353	410.5	361	
BOAT	12	15	20	15	20	36	24	
OWLING: HRS.	3	5.5	2.75	3	0	7.5	4.5	
MILES	42	54.5	27	18.5	0	50	60.5	
FEEDER: #					1		1	
HRS.					3		1	
TEMP. (F)	40-64	61-64	38-60	51-73	49-60	41-59	36-55	39-55
WIND: (mph)	E	NE	S	E	NE	NE	NW	
DIRECTION	3-6	9	5	10-23	5-11	5-10	10-35	

FIELD CHECKLIST of the
BIRDS of the BAYOU PIERRE COOPERATIVE RIVER BASIN

Compiled by James L. Ingold, Ph.D.
Based on records in the observation database complied by the Bird Study Group
Shreveport Society for Nature Study, Inc.
Website: http://www.softdisk.com/comp/birds/index.html

GREBES
_____Pied–billed Grebe
_____Horned Grebe
_____Eared Grebe
PELICANS
_____American White Pelican
CORMORANTS, DARTERS
_____Neotropic Cormorant
_____Double-crested Cormorant
_____Anhinga
BITTERNS, HERONS, etc.
_____American Bittern
_____Least Bittern
_____Great Blue Heron
_____Great Egret
_____Snowy Egret
_____Little Blue Heron
_____Tricolored Heron
_____Cattle Egret
_____Green Heron
_____Black-crowned Night-Heron
_____Yellow-crowned Night-Heron
IBISES, SPOONBILLS
_____White Ibis
_____White-faced Ibis
_____Roseate Spoonbill
STORKS
_____Wood Stork
NEW WORLD VULTURES
_____Black Vulture
_____Turkey Vulture
GEESE, DUCKS
_____Black-bellied Whistling-Duck
_____Fulvous Whistling-Duck
_____Gr. White-fronted Goose
_____Snow Goose
_____Ross' Goose
_____Tundra Swan
_____Wood Duck
_____Gadwall
_____American Wigeon
_____Mallard
_____Blue-winged Teal
_____Cinnamon Teal
_____Northern Shoveler
_____Northern Pintail
_____Green-winged Teal
_____Canvasback
_____Redhead
_____Ring-necked Duck
_____Greater Scaup
_____Lesser Scaup
_____Surf Scoter
_____Black Scoter
_____Bufflehead
_____Hooded Merganser
_____Common Merganser
_____Red-breasted Merganser
_____Ruddy Duck

KITES, EAGLES
_____Osprey
_____Swallow-tailed Kite
_____White-tailed Kite
_____Mississippi Kite
_____Bald Eagle
HAWKS
_____Northern Harrier
_____Sharp-shinned Hawk
_____Cooper's Hawk
_____Red-shouldered Hawk
_____Broad-winged Hawk
_____Swainson's Hawk
_____Red-tailed Hawk
_____Rough-legged Hawk
_____Golden Eagle
FALCONS
_____American Kestrel
_____Merlin
_____Peregrine Falcon
TURKEYS, QUAIL
_____Wild Turkey
_____Northern Bobwhite
RAILS, COOTS
_____Yellow Rail
_____Black Rail
_____King Rail
_____Virginia Rail
_____Sora
_____Purple Gallinule
_____Common Moorhen
_____American Coot
CRANES
_____Sandhill Crane
PLOVERS
_____Black-bellied Plover
_____American Golden-Plover
_____Snowy Pover
_____Semipalmated Plover
_____Piping Plover
_____Killdeer
STILTS, AVOCETS
_____Black-necked Stilt
_____American Avocet
SANDPIPERS
_____Greater Yellowlegs
_____Lesser Yellowlegs
_____Solitary Sandpiper
_____Willet
_____Spotted Sandpiper
_____Upland Sandpiper
_____Long-billed Curlew
_____Hudsonian Godwit
_____Ruddy Turnstone
_____Red Knot
_____Sanderling
_____Semipalmated Sandpiper
_____Western Sandpiper
_____Least Sandpiper

_____White-rumped Sandpiper
_____Baird's Sandpiper
_____Pectoral Sandpiper
_____Dunlin
_____Stilt Sandpiper
_____Buff-breasted Sandpiper
_____Short-billed Dowitcher
_____Long-billed Dowitcher
_____Common Snipe
_____American Woodcock
_____Wilson's Phalarope
GULLS, TERNS
_____Laughing Gull
_____Franklin's Gull
_____Bonaparte's Gull
_____Ring-billed Gull
_____Herring Gull
_____Sabine's Gull
_____Caspian Tern
_____Common Tern
_____Forster's Tern
_____Least Tern
_____Sooty Tern
_____Black Tern
PIGEONS, DOVES
_____Rock Dove
_____Band-tailed Pigeon
_____Eurasian Collared-Dove
_____White-winged Dove
_____Mourning Dove
_____Inca Dove
_____Common Ground-Dove
CUCKOOS
_____Black-billed Cuckoo
_____Yellow-billed Cuckoo
_____Greater Roadrunner
OWLS
_____Barn Owl
_____Eastern Screech-Owl
_____Great Horned Owl
_____Barred Owl
_____Long-eared Owl
_____Short-Eared Owl
GOATSUCKERS
_____Common Nighthawk
_____Chuck-will's widow
_____Whip-poor-will
SWIFTS
_____Chimney Swift
HUMMINGBIRDS
_____Ruby-throated Hummingbird
_____Rufous Hummingbird
KINGFISHERS
_____Ringed Kingfisher
_____Belted Kingfisher

WOODPECKERS
_____Red-headed Woodpecker
_____Red-bellied Woodpecker
_____Yellow-bellied Sapsucker
_____Downy Woodpecker
_____Hairy Woodpecker
_____Northern Flicker
_____Pileated Woodpecker
TYRANT FLYCATCHERS
_____Olive-sided Flycatcher
_____Eastern Wood-Pewee
_____Yellow-bellied Flycatcher
_____Acadian Flycatcher
_____Alder Flycatcher
_____Willow Flycatcher
_____Least Flycatcher
_____Eastern Phoebe
_____Vermilion Flycatcher
_____Great Crested Flycatcher
_____Western Kingbird
_____Eastern Kingbird
_____Scissor-tailed Flycatcher
SHRIKES
_____Loggerhead Shrike
VIREOS
_____White-eyed Vireo
_____Bell's Vireo
_____Yellow-throated Vireo
_____Blue-headed Vireo
_____Warbling Vireo
_____Philadelphia Vireo
_____Red-eyed Vireo
JAYS, CROWS
_____Blue Jay
_____American Crow
_____Fish Crow
LARKS
_____Horned Lark
SWALLOWS
_____Purple Martin
_____Tree Swallow
_____No. Rough-winged Swallow
_____Bank Swallow
_____Cliff Swallow
_____Barn Swallow
CHICKADEES, TITMICE
_____Carolina Chickadee
_____Tufted Titmouse
NUTHATCHES
_____Red-breasted Nuthatch
_____White-breasted Nuthatch
_____Brown-headed Nuthatch
CREEPERS
_____Brown Creeper
WRENS
_____Carolina Wren
_____Bewick's Wren
_____House Wren
_____Winter Wren
_____Sedge Wren
_____Marsh Wren
MUSCICAPIDS
_____Golden-crowned Kinglet
_____Ruby-crowned Kinglet
_____Blue-gray Gnatcatcher
_____Northern Wheatear
_____Eastern Bluebird
_____Veery
_____Gray-cheeked Thrush
_____Swainson's Thrush
_____Hermit Thrush
_____Wood Thrush
_____American Robin
MOCKINGBIRDS
_____Gray Catbird
_____Northern Mockingbird
_____Brown Thrasher
STARLINGS
_____European Starling
PIPITS
_____American Pipit
_____Sprague's Pipit
WAXWINGS
_____Cedar Waxwing
WARBLERS
_____Blue-winged Warbler
_____Golden-winged Warbler
_____Tennessee Warbler
_____Orange-crowned Warbler
_____Nashville Warbler
_____Northern Parula
_____Tropical Parula
_____Yellow Warbler
_____Chestnut-sided Warbler
_____Magnolia Warbler
_____Black-throated Blue Warbler
_____Yellow-rumped Warbler
_____Black-th. Green Warbler
_____Blackburnian Warbler
_____Yellow-throated Warbler
_____Pine Warbler
_____Prairie Warbler
_____Palm Warbler
_____Bay-breasted Warbler
_____Blackpoll Warbler
_____Cerulean Warbler
_____Black-and-white Warbler
_____American Redstart
_____Prothonotary Warbler
_____Worm-eating Warbler
_____Swainson's Warbler
_____Ovenbird
_____Northern Waterthrush
_____Louisiana Waterthrush
_____Kentucky Warbler
_____Connecticut Warbler
_____Mourning Warbler
_____Common Yellowthroat
_____Hooded Warbler
_____Wilson's Warbler
_____Canada Warbler
_____Yellow-breasted Chat
TANAGERS
_____Summer Tanager
_____Scarlet Tanager
SPARROWS
_____Spotted Towhee
_____Eastern Towhee
_____Chipping Sparrow
_____Clay-colored Sparrow
_____Field Sparrow
_____Vesper Sparrow
_____Lark Sparrow
_____Savannah Sparrow
_____Grasshopper Sparrow
_____Henslow's Sparrow
_____LeConte's Sparrow
_____Nelson's Sharp-tailed Sparrow
_____Fox Sparrow
_____Song Sparrow
_____Lincoln's Sparrow
_____Swamp Sparrow
_____White-throated Sparrow
_____Harris' Sparrow
_____White-crowned Sparrow
_____Dark-eyed Junco
_____Lapland Longspur
CARDINALS, etc.
_____Northern Cardinal
_____Rose-breasted Grosbeak
_____Blue Grosbeak
_____Indigo Bunting
_____Painted Bunting
_____Dickcissel
ICTERIDS
_____Bobolink
_____Red-winged Blackbird
_____Eastern Meadowlark
_____Western Meadowlark
_____Yellow-headed Blackbird
_____Rusty Blackbird
_____Brewer's Blackbird
_____Common Grackle
_____Great-tailed Grackle
_____Brown-headed Cowbird
_____Orchard Oriole
_____Baltimore Oriole
FINCHES
_____Purple Finch
_____House Finch
_____Pine Siskin
_____Lesser Goldfinch
_____American Goldfinch
_____Evening Grosbeak
WEAVER FINCHES
_____House Sparrow

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Equisetales
Family Equisetaceae – Horsetail family

Symbol	Scientific Name	Common Name
EQHYA	Equisetum hyemale L. var. affine (Engelm.) A.A. Eat.	scouringrush horsetail

Order Isotales
Family Isoetaceae – Quillwort family

Symbol	Scientific Name	Common Name
ISME	Isoetes melanopoda Gay & Durieu ex Durieu	blackfoot quillwort

Order Lycopodiales
Family Lycopodiaceae – Clubmoss family

Symbol	Scientific Name	Common Name
LYAL5	Lycopodiella alopecuroides (L.) Cranfill	foxtail clubmoss
LYAP4	Lycopodiella appressa (Chapman) Cranfill	southern bog clubmoss
LYCA5	Lycopodiella caroliniana (L.) Pichi Sermolli	slender clubmoss
LYCE2	Lycopodiella cernua (L.) Pichi Sermolli	staghorn clubmoss
LYPR3	Lycopodiella prostrata (Harper) Cranfill	featherstem clubmoss

Order Selaginellales
Family Selaginellaceae – Spikemoss family

Symbol	Scientific Name	Common Name
SEAP	Selaginella apoda (L.) Spring	meadow spikemoss
SEAR	Selaginella arenicola Underwood	sand spikemoss

Order Hydropteridales
Family Azollaceae – Azolla family

Symbol	Scientific Name	Common Name
AZCA	Azolla caroliniana Willd.	Carolina mosquitofern

Order Ophioglossales
Family Ophioglossaceae – Adderstongue family

Symbol	Scientific Name	Common Name
BOBI	Botrychium biternatum (Sav.) Underwood	sparselobe grapefern
BODI2	Botrychium dissectum Spreng.	cutleaf grapefern
BOLU2	Botrychium lunarioides (Michx.) Sw.	winter grapefern
BOVI	Botrychium virginianum (L.) Sw.	rattlesnake fern
OPCR	Ophioglossum crotalophoroides Walt.	bulbous adderstongue
OPEN	Ophioglossum engelmannii Prantl	limestone adderstongue
OPNU	Ophioglossum nudicaule L. f.	least adderstongue
OPPE2	Ophioglossum petiolatum Hook.	longstem adderstongue
OPVU	Ophioglossum vulgatum L.	southern adderstongue

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Polypodiales

Family Aspleniaceae – Spleenwort family

Symbol	Scientific Name	Common Name
ASPL	Asplenium platyneuron (L.) B.S.P.	ebony spleenwort

Family Blechnaceae – Chainfern family

Symbol	Scientific Name	Common Name
WOAR	Woodwardia areolata (L.) T. Moore	netted chainfern
WOVI	Woodwardia virginica (L.) Sm.	Virginia chainfern

Family Dennstaedtiaceae – Brackenfern family

Symbol	Scientific Name	Common Name
PTAQ	Pteridium aquilinum (L.) Kuhn	western brackenfern
PTAQP	Pteridium aquilinum (L.) Kuhn var. pseudocaudatum (Clute) Heller	western brackenfern

Family Dryopteridaceae – Woodfern family

Symbol	Scientific Name	Common Name
ATFIA2	Athyrium filix-femina (L.) Roth ssp. Asplenioides (Michx.) Hultén	asplenium ladyfern
CYFA2	Cyrtomium falcatum (L. f.) K. Presl	Japanese netvein hollyfern
ONSE	Onoclea sensibilis L.	sensitive fern
POAC4	Polystichum acrostichoides (Michx.) Schott	Christmas fern
WOOB2	Woodsia obtusa (Spreng.) Torr.	bluntlobe cliff fern

Family Lygodiaceae – Climbingfern family

Symbol	Scientific Name	Common Name
LYJA	Lygodium japonicum (Thunb. ex Murr.) Sw.	Japanese climbing fern

Family Osmundaceae – Royalfern family

Symbol	Scientific Name	Common Name
OSCI	Osmunda cinnamomea L.	cinnamon fern
OSRE	Osmunda regalis L.	royal fern

Family Polypodiaceae – Polypody family

Symbol	Scientific Name	Common Name
PLPOM	Pleopeltis polypodioides (L.) Andrews & Windham ssp. michauxiana (Weatherby) Andrews & Windham	resurrection fern

Family Pteridaceae – Maidenhairfern family

Symbol	Scientific Name	Common Name
ADCA	Adiantum capillus-veneris L.	common maidenhair
CHLA2	Cheilanthes lanosa (Michx.) D.C. Eat.	hairy lipfern

Family Thelypteridaceae – Marshfern family

Symbol	Scientific Name	Common Name
MATO3	Macrothelypteris torresiana (Gaud.) Ching	swordfern
PHHE11	Phegopteris hexagonoptera (Michx.) Fée	broad beechfern
THHIV	Thelypteris hispidula (Dcne.) C.F. Reed var. versicolor (R. St. John) Lellinger	roughhairy maiden fern
THKU	Thelypteris kunthii (Desv.) Morton	Kunth's maiden fern

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Pinales
Family Cupressaceae – Cypress family

Symbol	Scientific Name	Common Name
JUVI	Juniperus virginiana L.	eastern redcedar
JUVIS	Juniperus virginiana L. var. silicicola (Small) J. Silba	southern redcedar
JUVIV	Juniperus virginiana L. var. virginiana	eastern redcedar

Family Pinaceae – Pine family

Symbol	Scientific Name	Common Name
PIEC2	Pinus echinata P. Mill.	shortleaf pine
PIEL	Pinus elliottii Engelm.	slash pine
PIGL2	Pinus glabra Walt.	spruce pine
PIPA2	Pinus palustris P. Mill.	longleaf pine
PITA	Pinus taeda L.	loblolly pine

Family Taxodiaceae – Redwood family

Symbol	Scientific Name	Common Name
CULA	Cunninghamia lanceolata (Lamb.) Hook.	Chinese fir
TADI2	Taxodium distichum (L.) L.C. Rich.	bald cypress

Order Alismatales
Family Alismataceae – Waterplantain family

Symbol	Scientific Name	Common Name
ECCO3	Echinodorus cordifolius (L.) Griseb.	creeping burrhead
SACA21	Sagittaria calycina Engelm.	hooded arrowhead
SAGR	Sagittaria graminea Michx.	grassy arrowhead
SALA2	Sagittaria latifolia Willd.	broadleaf arrowhead
SAPA2	Sagittaria papillosa Buch.	nipplebract arrowhead
SAPL	Sagittaria platyphylla (Engelm.) J.G. Sm.	delta arrowhead

Order Hydrocharitales
Family Hydrocharitaceae – Tapegrass family

Symbol	Scientific Name	Common Name
EGDE	Egeria densa Planch.	Brazilian waterweed
HYVE3	Hydrilla verticillata (L. f.) Royle	waterthyme
LISP2	Limnobium spongia (Bosc) L.C. Rich. ex Steud.	American spongeplant
VAAM3	Vallisneria americana Michx.	American eelgrass

Order Najadales
Family Najadaceae – Waternymph family

Symbol	Scientific Name	Common Name
NAGU	Najas guadalupensis (Spreng.) Magnus	southern waternymph

Family Potamogetonaceae – Pondweed family

Symbol	Scientific Name	Common Name
PODI	Potamogeton diversifolius Raf.	waterthread pondweed
PONO2	Potamogeton nodosus Poir.	longleaf pondweed
POPU7	Potamogeton pusillus L.	small pondweed

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Zannichelliaceae – Horned Pondweed family

Symbol	Scientific Name	Common Name
ZAPA	Zannichellia palustris L.	horned pondweed

Order Arales
Family Acoraceae – Calamus family

Symbol	Scientific Name	Common Name
ACCA4	Acorus calamus L.	calamus

Family Araceae – Arum family

Symbol	Scientific Name	Common Name
ARDR3	Arisaema dracontium (L.) Schott	green dragon
ARTR	Arisaema triphyllum (L.) Schott	Jack in the pulpit
ARTRP	Arisaema triphyllum (L.) Schott ssp. pusillum (Peck) Huttleston	Jack in the pulpit
ARTRQ	Arisaema triphyllum (L.) Schott ssp. quinatum (Buckl.) Huttleston	Jack in the pulpit
ARTRT3	Arisaema triphyllum (L.) Schott ssp. triphyllum	Jack in the pulpit
COES	Colocasia esculenta (L.) Schott	coco yam
PEVI	Peltandra virginica (L.) Schott	green arrow arum

Family Lemnaceae – Duckweed family

Symbol	Scientific Name	Common Name
LEAE2	Lemna aequinoctialis Welw.	lesser duckweed
LEMI3	Lemna minor L.	common duckweed
LEOB2	Lemna obscura (Austin) Daubs	little duckweed
LEVA	Lemna valdiviana Phil.	valdivia duckweed
SPPO	Spirodela polyrrhiza (L.) Schleid.	common duckmeat
SPPU4	Spirodela punctata (G.F.W. Mey.) C.H. Thompson	dotted duckmeat
WOBR	Wolffia brasiliensis Weddell	Brazilian watermeal
WOCO	Wolffia columbiana Karst.	Columbian watermeal
WOGL2	Wolffiella gladiata (Hegelm.) Hegelm.	Florida mudmidget

Order Arecales
Family Arecaceae – Palm family

Symbol	Scientific Name	Common Name
SAMI8	Sabal minor (Jacq.) Pers.	dwarf palmetto

Order Commelinales
Family Commelinaceae – Spiderwort family

Symbol	Scientific Name	Common Name
COCA17	Commelina caroliniana Walt.	Carolina dayflower
COCO3	Commelina communis L.	Asiatic dayflower
CODI5	Commelina diffusa Burm. f.	climbing dayflower
COER	Commelina erecta L.	whitemouth dayflower
COVI3	Commelina virginica L.	Virginia dayflower
TRFL	Tradescantia fluminensis Vell.	small-leaf spiderwort
TRHI	Tradescantia hirsutiflora Bush	hairyflower spiderwort
TROC	Tradescantia occidentalis (Britt.) Smyth	prairie spiderwort
TROH	Tradescantia ohiensis Raf.	bluejacket
TRRE	Tradescantia reverchonii Bush	Reverchon's spiderwort

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Xyridaceae – Yelloweyed Grass family

Symbol	Scientific Name	Common Name
XYAM	Xyris ambigua Bey. ex Kunth	coastalplain yelloweyed grass
XYBA	Xyris baldwiniana J.A. Schultes	Baldwin's yelloweyed grass
XYCA	Xyris caroliniana Walt.	Carolina yelloweyed grass
XYDIC	Xyris difformis Chapman var. curtissii (Malme) Kral	Curtiss' yelloweyed grass
XYDID	Xyris difformis Chapman var. difformis	bog yelloweyed grass
XYDR	Xyris drummondii Malme	Drummond's yelloweyed grass
XYJU	Xyris jupicai L.C. Rich.	Richard's yelloweyed grass
XYLA	Xyris laxifolia Mart.	laxleaf yelloweyed grass
XYSC	Xyris scabrifolia Harper	Harper's yelloweyed grass
XYTO	Xyris torta Sm.	slender yelloweyed grass

Order Cyperales

Family Cyperaceae – Sedge family

Symbol	Scientific Name	Common Name
BUBA	Bulbostylis barbata (Rottb.) C.B. Clarke	watergrass
BUCA2	Bulbostylis capillaris (L.) Kunth ex C.B. Clarke	densetuft hairsedge
BUCI	Bulbostylis ciliatifolia (Ell.) Fern.	capillary hairsedge
CAAB5	Carex abscondita Mackenzie	thicket sedge
CAALA2	Carex albicans Willd. ex Spreng. var. australis (Bailey) J. Rettig	stellate sedge
CAAM8	Carex amphibola Steud.	eastern narrowleaf sedge
CAAN6	Carex annectens (Bickn.) Bickn.	yellowfruit sedge
CAAR5	Carex arkansana (Bailey) Bailey	Arkansas sedge
CAATA2	Carex atlantica Bailey ssp. atlantica	prickly bog sedge
CAATC	Carex atlantica Bailey ssp. capillacea (Bailey) Reznicek	prickly bog sedge
CABL	Carex blanda Dewey	eastern woodland sedge
CABR14	Carex bromoides Schkuhr ex Willd.	bromelike sedge
CABU5	Carex bushii Mackensie	sedge
CACA15	Carex caroliniana Schwein.	Carolina sedge
CACE	Carex cephalophora Muhl. ex Willd.	oval-leaf sedge
CACH3	Carex cherokeensis Schwein.	Cherokee sedge
CACO9	Carex complanata Torr. & Hook.	hirsute sedge
CACR5	Carex crebriflora Wieg.	coastalplain sedge
CACRB	Carex crinita Lam. var. brevicrinis Fern.	fringed sedge
CACR8	Carex crus-corvi Shuttlw. ex Kunze	ravenfoot sedge
CADED	Carex debilis Michx. var. debilis	white edge sedge
CADI5	Carex digitalis Willd.	slender woodland sedge
CAFE3	Carex festucacea Schkuhr ex Willd.	fescue sedge
CAFL3	Carex flaccosperma Dewey	thinfruit sedge
CAFR3	Carex frankii Kunth	Frank's sedge
CAGL5	Carex glaucescens Ell.	southern waxy sedge
CAGL6	Carex glaucodea Tuckerman ex Olney	blue sedge
CAGRG	Carex granularis Muhl. ex Willd. var. granularis	limestone meadow sedge
CAHY2	Carex hyalina Boott	tissue sedge
CAHY3	Carex hyalinolepis Steud.	shoreline sedge
CAIN12	Carex intumescens Rudge	greater bladder sedge

CAJO2	Carex joorii Bailey	cypress swamp sedge
CALE6	Carex leavenworthii Dewey	Leavenworth's sedge
CALE10	Carex leptalea Wahlenb.	bristlystalked sedge
CALEH	Carex leptalea Wahlenb. ssp. harperi (Fern.) W. Stone	Harper's sedge
CALO6	Carex louisianica Bailey	Louisiana sedge
CALU4	Carex lupulina Muhl. ex Willd.	hop sedge
CALU5	Carex lurida Wahlenb.	shallow sedge
CAME2	Carex meadii Dewey	Mead's sedge
CAMU4	Carex muehlenbergii Schkuhr ex Willd.	Muhlenberg's sedge
CAMUM	Carex muehlenbergii Schkuhr ex Willd. var. muehlenbergii	Muhlenberg's sedge
CANI3	Carex nigromarginata Schwein.	black edge sedge
CAOX	Carex oxylepis Torr. & Hook.	sharpscale sedge
CAOXO	Carex oxylepis Torr. & Hook. var. oxylepis	sharpscale sedge
	Carex planispicata Naczi	sedge
CARE17	Carex reniformis (Bailey) Small	kidneyshape sedge
CARE9	Carex retroflexa Muhl. ex Willd.	reflexed sedge
CARO22	Carex rosera Willd..	sedge
CASQ2	Carex squarrosa L.	squarrose sedge
CASTM	Carex stipata Muhl. Ex Willd. var. maxima Chapman	stalkgrain sedge
CAST17	Carex striatula Michx.	lined sedge
CATE12	Carex tenax Chapman	wire sedge
CATE7	Carex texensis (Torr.) Bailey	Texas sedge
CATR6	Carex triangularis Boeckl.	eastern fox sedge
CATR7	Carex tribuloides Wahlenb.	blunt broom sedge
CATY	Carex typhina Michx.	cattail sedge
CAVE7	Carex venusta Dewey	darkgreen sedge
CAVE8	Carex verrucosa Muhl.	warty sedge
CAVU2	Carex vulpinoidea Michx.	fox sedge
CYAC2	Cyperus acuminatus Torr. & Hook. ex Torr.	tapertip flatsedge
CYAR4	Cyperus articulatus L.	jointed flatsedge
CYCO	Cyperus compressus L.	poorland flatsedge
CYCR6	Cyperus croceus Vahl	Baldwin's flatsedge
CYEC2	Cyperus echinatus (L.) Wood	globe flatsedge
CYFL	Cyperus flavescens L.	yellow flatsedge
CYFL5	Cyperus flavicomus Michx.	whiteedge flatsedge
CYGR11	Cyperus grayoides Mohlenbrock	Illinois flatsedge
CYHA	Cyperus haspan L.	haspan flatsedge
CYHY	Cyperus hystricinus Fern.	bristly flatsedge
CYIR	Cyperus iria L.	ricefield flatsedge
CYLUL	Cyperus lupulinus (Spreng.) Marcks ssp. lupulinus	Great Plains flatsedge
CYOD	Cyperus odoratus L.	fragrant flatsedge
CYOX	Cyperus oxylepis Nees ex Steud.	sharpscale flatsedge
CYPL3	Cyperus plukenetii Fern.	Plukenet's flatsedge
CYPO	Cyperus polystachyos Rottb.	manyspike flatsedge
CYPOT	Cyperus polystachyos Rottb. var. texensis (Torr.) Fern.	Texan flatsedge
CYPS	Cyperus pseudovegetus Steud.	marsh flatsedge
CYRE3	Cyperus refractus Engelm. ex Boeckl.	reflexed flatsedge
CYRE14	Cyperus retroflexus Buckl.	oneflower flatsedge
CYRE4	Cyperus retrofractus (L.) Torr.	rough flatsedge
CYRER2	Cyperus retrorsus Chapman var. retrorsus	pine barren flatsedge
CYRO	Cyperus rotundus L.	nutgrass
CYST	Cyperus strigosus L.	strawcolored flatsedge
CYVI2	Cyperus virens Michx.	green flatsedge
ELBA2	Eleocharis baldwinii (Torr.) Chapman	Baldwin's spikerush
ELEQ	Eleocharis equisetoides (Ell.) Torr.	jointed spikesedge
ELFL	Eleocharis flavescens (Poir.) Urban	yellow spikerush

ELGE	Eleocharis geniculata (L.) Roemer & J.A. Schultes	Canada spikesedge
ELMI2	Eleocharis microcarpa Torr.	smallfruit spikerush
ELOB2	Eleocharis obtusa (Willd.) J.A. Schultes	blunt spikerush
ELPA5	Eleocharis parvula (Roemer & J.A. Schultes) Link ex Bluff, Nees & Schauer	dwarf spikerush
ELQU	Eleocharis quadrangulata (Michx.) Roemer & J.A. Schultes	squarestem spikerush
ELTO	Eleocharis tortilis (Link) J.A. Schultes	twisted spikerush
ELTU	Eleocharis tuberculosa (Michx.) Roemer & J.A. Schultes	cone-cup spikerush
ELWO	Eleocharis wolfii (Gray) Gray ex Britt.	Wolf's spikerush
FIAU2	Fimbristylis autumnalis (L.) Roemer & J.A. Schultes	slender fimbry
FICA4	Fimbristylis castanea (Michx.) Vahl	marsh fimbry
FIMI	Fimbristylis miliacea (L.) Vahl	grasslike fimbry
FIPU	Fimbristylis puberula (Michx.) Vahl	hairy fimbry
FITO	Fimbristylis tomentosa Vahl	woolly fimbry
FIVA	Fimbristylis vahlii (Lam.) Link	Vahl's fimbry
FUBU	Fuirena bushii Kral	Bush's umbrella-sedge
FUSIA	Fuirena simplex Vahl var. aristulata (Torr.) Kral	western umbrella-sedge
FUSIS	Fuirena simplex Vahl var. simplex	western umbrella-sedge
FUSQ	Fuirena squarrosa Michx.	hairy umbrella-sedge
ISCA6	Isolepis carinata Hook. & Arn. ex Torr.	keeled bulrush
KYBR	Kyllinga brevifolia Rottb.	shortleaf spikesedge
KYOD	Kyllinga odorata Vahl	fragrant spikesedge
KYPU	Kyllinga pumila Michx.	low spikesedge
LIMI12	Lipocarpha micrantha (Vahl) G. Tucker	smallflower halfchaff sedge
RHCA9	Rhynchospora caduca Ell.	anglestem beaksedge
RHCH2	Rhynchospora chalarocephala Fern. & Gale	loosehead beaksedge
RHCO7	Rhynchospora colorata (L.) H. Pfeiffer	starrush whitetop
RHCO2	Rhynchospora corniculata (Lam.) Gray	shortbristle horned beaksedge
RHEL	Rhynchospora elliottii A. Dietr.	Elliott's beaksedge
RHGLG	Rhynchospora globularis (Chapman) Small var. globularis	globe beaksedge
RHGL3	Rhynchospora glomerata (L.) Vahl	clustered beaksedge
RHGR	Rhynchospora gracilenta Gray	slender beaksedge
RHHA	Rhynchospora harveyi W. Boott	Harvey's beaksedge
RHIN4	Rhynchospora inexpansa (Michx.) Vahl	nodding beaksedge
RHLA7	Rhynchospora latifolia (Baldw. ex Ell.) Thomas	sandswamp whitetop
RHMA5	Rhynchospora macra (C.B. Clarke ex Britt.) Small	large beaksedge
RHOL	Rhynchospora oligantha Gray	featherbristle beaksedge
RHPL3	Rhynchospora plumosa Ell.	plumed beaksedge
RHPU3	Rhynchospora pusilla Chapman ex M.A. Curtis	fairy beaksedge
RHRA2	Rhynchospora rariflora (Michx.) Ell.	fewflower beaksedge
SCAT2	Scirpus atrovirens Willd.	green bulrush
SCCY	Scirpus cyperinus (L.) Kunth	woolgrass
SCLI5	Scirpus lineatus Michx.	drooping bulrush
SCPE4	Scirpus pendulus Muhl.	bulrush
SCCI	Scleria ciliata Michx.	fringed nutrush
SCOL2	Scleria oligantha Michx.	littlehead nutrush
SCPA5	Scleria pauciflora Muhl. ex Willd.	fewflower nutrush
SCRE	Scleria reticularis Michx.	netted nutrush
SCTR	Scleria triglomerata Michx.	whip nutrush

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Poaceae – Grass family

Symbol	Scientific Name	Common Name
AECY	Aegilops cylindrica Host	jointed goatgrass
AGEL4	Agrostis elliottiana J.A. Schultes	Elliott's bentgrass
AGGI2	Agrostis gigantea Roth	redtop
AGHY	Agrostis hyemalis (Walt.) B.S.P.	winter bentgrass
AGPE	Agrostis perennans (Walt.) Tuckerman	upland bentgrass
AGST2	Agrostis stolonifera L.	creeping bentgrass
AICA	Aira caryophyllea L.	silver hairgrass
AIEL4	Aira elegans Willd. ex Kunth	annual silver hairgrass
ALCA4	Alopecurus carolinianus Walt.	Carolina foxtail
ANGE	Andropogon gerardii Vitman	big bluestem
ANGL2	Andropogon glomeratus (Walt.) B.S.P.	bushy bluestem
ANGY2	Andropogon gyrans Ashe	Elliott's bluestem
ANGYG	Andropogon gyrans Ashe var. gyrans	Elliott's bluestem
ANTE2	Andropogon ternarius Michx.	splitbeard bluestem
ANVI2	Andropogon virginicus L.	broomsedge bluestem
ANRU	Anthaenantia rufa (Nutt.) J.A. Schultes	purple silkyscale
ANVI4	Anthaenantia villosa (Michx.) Beauv.	green silkyscale
ARDE3	Aristida desmantha Trin. & Rupr.	curly threeawn
ARDI4	Aristida dichotoma Michx.	churchmouse threeawn
ARDID	Aristida dichotoma Michx. var. dichotoma	churchmouse threeawn
ARLA6	Aristida lanosa Muhl. ex Ell.	woollysheath threeawn
ARLOG	Aristida longispica Poir. var. geniculata (Raf.) Fern.	slimspike threeawn
ARLOL2	Aristida longispica Poir. var. longispica	slimspike threeawn
AROL	Aristida oligantha Michx.	prairie threeawn
ARPUP4	Aristida purpurascens Poir. var. purpurascens	arrowfeather threeawn
ARPUV	Aristida purpurascens Poir. var. virgata (Trin.) Allred	arrowfeather threeawn
ARGIG	Arundinaria gigantea (Walt.) Muhl. ssp. gigantea	giant cane
ARDO4	Arundo donax L.	giant reed
AVFA	Avena fatua L.	wild oat
AVSA	Avena sativa L.	common oat
AXFI	Axonopus fissifolius (Raddi) Kuhlm.	common carpetgrass
AXFU	Axonopus furcatus (Flueggé) A.S. Hitchc.	big carpetgrass
BOISS	Bothriochloa ischaemum (L.) Keng var. songarica (Rupr. ex Fisch. & C.A. Mey.) Celarier & Harlan	yellow bluestem
BOLA2	Bothriochloa laguroides (DC.) Herter	silver beardgrass
BOLAT	Bothriochloa laguroides (DC.) Herter ssp. torreyana (Steud.) Allred & Gould	silver beardgrass
BOLO	Bothriochloa longipaniculata (Gould) Allred & Gould	longspike beardgrass
BOSP3	Bothriochloa springfieldii (Gould) Parodi	Springfield's beardgrass
BOCU	Bouteloua curtipendula (Michx.) Torr.	sideoats grama
BRER2	Brachyelytrum erectum (Schreb. ex Spreng.) Beauv.	bearded shorthusk
BRMI2	Briza minor L.	little quakinggrass
BRCA6	Bromus catharticus Vahl	rescuegrass
BRDI3	Bromus diandrus Roth	ripgut brome
BRHO2	Bromus hordeaceus L.	soft brome
BRHOH	Bromus hordeaceus L. ssp. hordeaceus	soft brome
BRHOM	Bromus hordeaceus L. ssp. molliformis (Lloyd) Maire & Weiller	soft brome
BRIN2	Bromus inermis Leyss.	smooth brome
BRINI	Bromus inermis Leyss. ssp. inermis	smooth brome
BRINI2	Bromus inermis Leyss. ssp. inermis var. inermis	smooth brome

BRJA	Bromus japonicus Thunb. ex Murr.	Japanese brome
BRLA7	Bromus lanceolatus Roth	Mediterranean brome
BRPU6	Bromus pubescens Muhl. ex Willd.	hairy woodland brome
BRRA2	Bromus racemosus L.	bald brome
BRSE	Bromus secalinus L.	rye brome
BRTE	Bromus tectorum L.	cheatgrass
BUDA	Buchloe dactyloides (Nutt.) Engelm.	buffalograss
CEEC	Cenchrus echinatus L.	southern sandbur
CESP4	Cenchrus spinifex Cav.	coastal sandbur
CHLA5	Chasmanthium latifolium (Michx.) Yates	Indian woodoats
CHLA6	Chasmanthium laxum (L.) Yates	slender woodoats
CHSE2	Chasmanthium sessiliflorum (Poir.) Yates	longleaf woodoats
CHVI4	Chloris virgata Sw.	feather fingergrass
COCY	Coelorachis cylindrica (Michx.) Nash	cylinder jointtail grass
COSE4	Cortaderia selloana (J.A. & J.H. Schultes) Aschers. & Graebn.	Uruguayan pampas grass
CYDA	Cynodon dactylon (L.) Pers.	Bermudagrass
CYEC	Cynosurus echinatus L.	bristly dogstail grass
DAGL	Dactylis glomerata L.	orchardgrass
DAAE	Dactyloctenium aegyptium (L.) Willd.	Egyptian grass
DASP2	Danthonia spicata (L.) Beauv. ex Roemer & J.A. Schultes	poverty oatgrass
DIAC	Dichanthelium aciculare (Desv. ex Poir.) Gould & C.A. Clark	needleleaf rosette grass
DIACA	Dichanthelium acuminatum (Sw.) Gould & C.A. Clark var. acuminatum	tapered rosette grass
DIACL	Dichanthelium acuminatum (Sw.) Gould & C.A. Clark var. lindheimeri (Nash) Gould & C.A. Clark	Lindheimer panicgrass
DIBO2	Dichanthelium boscii (Poir.) Gould & C.A. Clark	Bosc's panicgrass
DICO2	Dichanthelium commutatum (J.A. Schultes) Gould	variable panicgrass
DICO4	Dichanthelium consanguineum (Kunth) Gould & C.A. Clark	blood panicgrass
DIDE4	Dichanthelium depauperatum (Muhl.) Gould	starved panicgrass
DIDI6	Dichanthelium dichotomum (L.) Gould	cypress panicgrass
DIDIE	Dichanthelium dichotomum (L.) Gould var. ensifolium (Baldw. ex Ell.) Gould & C.A. Clark	cypress panicgrass
DIDIT	Dichanthelium dichotomum (L.) Gould var. tenue (Muhl.) Gould & C.A. Clark	cypress panicgrass
DILA9	Dichanthelium laxiflorum (Lam.) Gould	openflower rosette grass
DILE4	Dichanthelium leucothrix (Nash) Freckmann	rough panicgrass
DILI2	Dichanthelium linearifoliu m (Scribn. ex Nash) Gould	slimleaf panicgrass
DIOLO	Dichanthelium oligosanthes (J.A. Schultes) Gould var. oligosanthes	Heller's rosette grass
DIOLS	Dichanthelium oligosanthes (J.A. Schultes) Gould var. scribnerianum (Nash) Gould	Scribner's rosette grass
DIOV	Dichanthelium ovale (Ell.) Gould & C.A. Clark	eggleaf rosette grass
DIRA	Dichanthelium ravenelii (Scribn. & Merr.) Gould	Ravenel's rosette grass
DISC2	Dichanthelium scabriusculum (Ell.) Gould & C.A. Clark	woolly rosette grass
DISC3	Dichanthelium scoparium (Lam.) Gould	velvet panicum
DISPI	Dichanthelium sphaerocarpon (Ell.) Gould var. isophyllum (Scribn.) Gould & C.A. Clark	roundseed panicgrass
DISPS3	Dichanthelium sphaerocarpon (Ell.) Gould var. sphaerocarpon	roundseed panicgrass
DISTS	Dichanthelium strigosum (Muhl. ex Ell.) Freckmann var. strigosum	roughhair rosette grass
DICI	Digitaria ciliaris (Retz.) Koel.	southern crabgrass
DICO6	Digitaria cognata (J.A. Schultes) Pilger	Carolina crabgrass
DICOC	Digitaria cognata (J.A. Schultes) Pilger var. cognata	Carolina crabgrass
DIFI	Digitaria filiformis (L.) Koel.	slender crabgrass
DIIS	Digitaria ischaemum (Schreb.) Schreb. ex Muhl.	smooth crabgrass
DIVI	Digitaria villosa (Walt.) Pers.	shaggy crabgrass
DIVI2	Digitaria violascens Link	violet crabgrass
DISP	Distichlis spicata (L.) Greene	inland saltgrass
ECCO2	Echinochloa colona (L.) Link	jungle rice

ECCR	Echinochloa crus-galli (L.) Beauv.	barnyardgrass
ECCRM	Echinochloa crus-pavonis (Kunth) J.A. Schultes var. macera (Wieg.) Gould	gulf cockspur grass
ECMU2	Echinochloa muricata (Beauv.) Fern.	rough barnyardgrass
ECWA	Echinochloa walteri (Pursh) Heller	coast cockspur grass
ELIN3	Eleusine indica (L.) Gaertn.	Indian goosegrass
ELVI3	Elymus virginicus L.	Virginia wildrye
ERCA	Eragrostis capillaris (L.) Nees	lace grass
ERCI	Eragrostis cilianensis (All.) Vign. ex Janchen	stinkgrass
ERCI2	Eragrostis ciliaris (L.) R. Br.	gophertail lovegrass
ERCU	Eragrostis curtipedicellata Buckl.	gummy lovegrass
ERCU2	Eragrostis curvula (Schrad.) Nees	weeping lovegrass
EREL	Eragrostis elliottii S. Wats.	field lovegrass
ERHI	Eragrostis hirsuta (Michx.) Nees	bigtop lovegrass
ERHY	Eragrostis hypnoides (Lam.) B.S.P.	teal lovegrass
ERJA4	Eragrostis japonica (Thunb.) Trin.	pond lovegrass
ERLU	Eragrostis lugens Nees	mourning lovegrass
ERMI5	Eragrostis minor Host	little lovegrass
ERPE	Eragrostis pectinacea (Michx.) Nees ex Steud.	tufted lovegrass
ERPI2	Eragrostis pilosa (L.) Beauv.	Indian lovegrass
ERRE	Eragrostis refracta (Muhl.) Scribn.	coastal lovegrass
ERSE	Eragrostis secundiflora J. Presl	red lovegrass
ERSP	Eragrostis spectabilis (Pursh) Steud.	purple lovegrass
EROP	Eremochloa ophiuroides (Munro) Hack.	centipede grass
ERAC4	Eriochloa acuminata (J. Presl) Kunth	tapertip cupgrass
ERCO8	Eriochloa contracta A.S. Hitchc.	prairie cupgrass
FEPA2	Festuca paradoxa Desv.	clustered fescue
FESU3	Festuca subverticillata (Pers.) Alexeev	nodding fescue
GLAR	Glyceria arkansana Fern.	Arkansas mannagrass
GYAM	Gymnopogon ambiguus (Michx.) B.S.P.	bearded skeletongrass
GYBR	Gymnopogon brevifolius Trin.	shortleaf skeletongrass
HOLA	Holcus lanatus L.	common velvetgrass
HOPU	Hordeum pusillum Nutt.	little barley
HOVU	Hordeum vulgare L.	common barley
LELE2	Leersia lenticularis Michx.	catchfly grass
LEOR	Leersia oryzoides (L.) Sw.	rice cutgrass
LEVI2	Leersia virginica Willd.	whitegrass
LEFU21	Leptochloa fusca (L.) Kunth	Malabar sprangletop
LEFUF	Leptochloa fusca (L.) Kunth ssp. fascicularis (Lam.) N. Snow	bearded sprangletop
LEFUU	Leptochloa fusca (L.) Kunth ssp. uninervia (J. Presl) N. Snow	Mexican sprangletop
LEPAM	Leptochloa panicea (Retz.) Ohwi ssp. mucronata (Michx.) Nowack	mucronate sprangletop
LEPA3	Leptochloa panicoides (J. Presl) A.S. Hitchc.	Amazon sprangletop
LIAR	Limnodea arkansana (Nutt.) L.H. Dewey	Ozark grass
LOAR10	Lolium arundinaceum (Schreb.) S.J. Darbyshire	tall fescue
LOPE	Lolium perenne L.	perennial ryegrass
LOPR7	Lolium pratense (Huds.) S.J. Darbyshire	meadow ryegrass
LOTE2	Lolium temulentum L.	Darnel ryegrass
LUFL2	Luziola fluitans (Michx.) Terrell & H. Robins.	southern watergrass
MEMU	Melica mutica Walt.	twoflower melicgrass
MUCA2	Muhlenbergia capillaris (Lam.) Trin.	hairawn muhly
MUSC	Muhlenbergia schreberi J.F. Gmel.	nimblewill
NERE3	Neeragrostis reptans (Michx.) Nicora	creeping lovegrass
OPHI	Oplismenus hirtellus (L.) Beauv.	bristle basketgrass
PAAN	Panicum anceps Michx.	beaked panicgrass
PABR2	Panicum brachyanthum Steud.	prairie panicgrass
PACA6	Panicum capillare L.	witchgrass

PADI	Panicum dichotomiflorum Michx.	fall panicgrass
PAFL2	Panicum flexile (Gattinger) Scribn.	wiry panicgrass
PAHAF	Panicum hallii Vasey var. filipes (Scribn.) Waller	Hall's panicgrass
PAHE2	Panicum hemitomon J.A. Schultes	maidencane
PARIC	Panicum rigidulum Bosc ex Nees var. combsii (Scribn. & Ball) Lelong	Combs' panicgrass
PARIP	Panicum rigidulum Bosc ex Nees var. pubescens (Vasey) Lelong	redtop panicgrass
PARIR	Panicum rigidulum Bosc ex Nees var. rigidulum	redtop panicgrass
PATE3	Panicum tenerum Bey. ex Trin.	bluejoint panicgrass
PAVE2	Panicum verrucosum Muhl.	warty panicgrass
PAVI2	Panicum virgatum L.	switchgrass
PABO3	Paspalum boscianum Flueggé	bull crowngrass
PADI3	Paspalum dilatatum Poir.	dallisgrass
PADI5	Paspalum dissectum (L.) L.	mudbank crowngrass
PADI6	Paspalum distichum L.	knotgrass
PAFL4	Paspalum floridanum Michx.	Florida paspalum
PAFL5	Paspalum fluitans (Ell.) Kunth	horsetail paspalum
PALA10	Paspalum laeve Michx.	field paspalum
PALA11	Paspalum langei (Fourn.) Nash	rustyseed paspalum
PANOS	Paspalum notatum Flueggé var. saurae Parodi	bahiagrass
PAPL3	Paspalum plicatulum Michx.	brownseed paspalum
PAPR4	Paspalum praecox Walt.	early paspalum
PAPU5	Paspalum pubiflorum Rupr. ex Fourn.	hairyseed paspalum
PASE5	Paspalum setaceum Michx.	thin paspalum
PAUR2	Paspalum urvillei Steud.	Vasey's grass
PECIC	Pennisetum ciliare (L.) Link var. ciliare	buffelgrass
PEGL2	Pennisetum glaucum (L.) R. Br.	pearl millet
PHCA6	Phalaris caroliniana Walt.	Carolina canarygrass
PHGY2	Phanopyrum gymnocarpon (Ell.) Nash	savannah-panicgrass
PHPR3	Phleum pratense L.	timothy
PHAU7	Phragmites australis (Cav.) Trin. ex Steud.	common reed
PHAU8	Phyllostachys aurea Carr. ex A.& C. Rivière	golden bamboo
PIAV	Piptochaetium avenaceum (L.) Parodi	blackseed speargrass
POAN	Poa annua L.	annual bluegrass
POAR	Poa arachnifera Torr.	Texas bluegrass
POAU	Poa autumnalis Muhl. ex Ell.	autumn bluegrass
POCH2	Poa chapmaniana Scribn.	Chapman's bluegrass
POPR	Poa pratensis L.	Kentucky bluegrass
POMO5	Polypogon monspeliensis (L.) Desf.	annual rabbitsfoot grass
SABA10	Saccharum baldwinii Spreng.	narrow plumegrass
SABRC3	Saccharum brevibarbe (Michx.) Pers. var. contortum (Ell.) R. Webster	sortbeard plumegrass
SAGI	Saccharum giganteum (Walt.) Pers.	sugarcane plumegrass
SAIN	Sacciolepis indica (L.) Chase	glenwoodgrass
SAST	Sacciolepis striata (L.) Nash	American cupscale
SCPA	Schedonnardus paniculatus (Nutt.) Trel.	tumblegrass
SCSCD	Schizachyrium scoparium (Michx.) Nash var. divergens (Hack.) Gould	little bluestem
SCSCS	Schizachyrium scoparium (Michx.) Nash var. scoparium	little bluestem
SCTE5	Schizachyrium tenerum Nees	slender little bluestem
SECE	Secale cereale L.	cereal rye
SEFA	Setaria faberi Herrm.	Japanese bristlegrass
SEIT	Setaria italica (L.) Beauv.	foxtail bristlegrass
SEPA10	Setaria parviflora (Poir.) Kerguélen	marsh bristlegrass
SEPU8	Setaria pumila (Poir.) Roemer & J.A. Schultes	yellow bristlegrass
SEPUP	Setaria pumila (Poir.) Roemer & J.A. Schultes ssp. pallidifusca (Schumacher) B.K. Simon	yellow bristlegrass
SEVI4	Setaria viridis (L.) Beauv.	green bristlegrass
SOEL3	Sorghastrum elliottii (C. Mohr) Nash	slender Indiangrass

SONU2	Sorghastrum nutans (L.) Nash	Indiangrass
SOAL	Sorghum almum Parodi	Columbus grass
SOBI2	Sorghum bicolor (L.) Moench	sorghum
SOHA	Sorghum halepense (L.) Pers.	Johnsongrass
SPFI	Sphenopholis filiformis (Chapman) Scribn.	longleaf wedgescale
SPIN3	Sphenopholis intermedia (Rydb.) Rydb.	slender wedgescale
SPLO	Sphenopholis longiflora (Vasey) A.S. Hitchc.	Texas wedgescale
SPNI	Sphenopholis nitida (Biehler) Scribn.	shiny wedgescale
SPOB	Sphenopholis obtusata (Michx.) Scribn.	prairie wedgescale
SPCL	Sporobolus clandestinus (Biehler) A.S. Hitchc.	rough dropseed
SPCOD3	Sporobolus compositus (Poir.) Merr. var. drummondii (Trin.) Kartesz & Gandhi	Drummond's dropseed
SPCOM	Sporobolus compositus (Poir.) Merr. var. macer (Trin.) Kartesz & Gandhi	composite dropseed
SPCO17	Sporobolus coromandelianus (Retz.) Kunth	Madagascar dropseed
SPCR	Sporobolus cryptandrus (Torr.) Gray	sand dropseed
SPIN4	Sporobolus indicus (L.) R. Br.	smut grass
SPJU	Sporobolus junceus (Beauv.) Kunth	pineywoods dropseed
SPVAV2	Sporobolus vaginiflorus (Torr. ex Gray) Wood var. vaginiflorus	poverty dropseed
STHI3	Steinchisma hians (Ell.) Nash	gaping grass
STSE	Stenotaphrum secundatum (Walt.) Kuntze	St. Augustine grass
TRAM	Tridens ambiguus (Ell.) J.A. Schultes	pine barren fluffgrass
TRFLC	Tridens flavus (L.) A.S. Hitchc. var. chapmanii (Small) Shinners	Chapman's tridens
TRFLF	Tridens flavus (L.) A.S. Hitchc. var. flavus	purpletop tridens
TRST2	Tridens strictus (Nutt.) Nash	longspike tridens
TRPU4	Triplasis purpurea (Walt.) Chapman	purple sandgrass
TRDA3	Tripsacum dactyloides (L.) L.	eastern gamagrass
TRIN5	Trisetum interruptum Buckl.	prairie false oat
TRAE	Triticum aestivum L.	common wheat
URFA	Urochloa fasciculata (Sw.) R. Webster	browntop signalgrass
URPL2	Urochloa platyphylla (Munro ex Wright) R. Webster	broadleaf signalgrass
URRA	Urochloa ramosa (L.) Nguyen	dixie signalgrass
URTE2	Urochloa texana (Buckl.) R. Webster	Texas signalgrass
VUBR	Vulpia bromoides (L.) S.F. Gray	brome fescue
VUMY	Vulpia myuros (L.) K.C. Gmel.	rat-tail fescue
VUOC	Vulpia octoflora (Walt.) Rydb.	sixweeks fescue
VUSC	Vulpia sciurea (Nutt.) Henr.	squirreltail fescue
ZEMA	Zea mays L.	corn
ZEMAM2	Zea mays L. ssp. mays	corn
ZIMI	Zizaniopsis miliacea (Michx.) Doell & Aschers.	giant cutgrass
ZOTE	Zoysia tenuifolia Willd. ex Thiele	Mascarene grass

Order Eriocaulales

Family Eriocaulaceae – Pipewort family

Symbol	Scientific Name	Common Name
ERCI4	Eriocaulon cinereum R. Br.	ashy pipewort
ERCO7	Eriocaulon compressum Lam.	flattened pipewort
ERDED2	Eriocaulon decangulare L. var. decangulare	tenangle pipewort
LAAN	Lachnocaulon anceps (Walt.) Morong	whitehead bogbutton
LADI5	Lachnocaulon digynum Koern.	pineland bogbutton

Order Juncales
Family Juncaceae – Rush family

Symbol	Scientific Name	Common Name
JUAC	Juncus acuminatus Michx.	tapertip rush
JUBR	Juncus brachycarpus Engelm.	whiteroot rush
JUBU	Juncus bufonius L.	toad rush
JUCA5	Juncus capitatus Weigel	leafybract dwarf rush
JUCO4	Juncus coriaceus Mackenzie	leathery rush
JUDI	Juncus dichotomus Ell.	forked rush
JUDI2	Juncus diffusissimus Buckl.	slimpod rush
JUDU2	Juncus dudleyi Wieg.	Dudley's rush
JUEF	Juncus effusus L.	common rush
JUIN2	Juncus interior Wieg.	inland rush
JUMA4	Juncus marginatus Rostk.	grassleaf rush
JUNO	Juncus nodatus Coville	stout rush
JUPO	Juncus polycephalus Michx.	manyhead rush
JURE2	Juncus repens Michx.	lesser creeping rush
JUSC	Juncus scirpoides Lam.	needlepod rush
JUTE	Juncus tenuis Willd.	poverty rush
JUTO	Juncus torreyi Coville	Torrey's rush
JUTR5	Juncus trigonocarpus Steud.	redpod rush
JUVA2	Juncus validus Coville	roundhead rush
LUBU	Luzula bulbosa (Wood) Smyth & Smyth	bulbous woodrush
LUEC	Luzula echinata (Small) F.J. Herm.	hedgehog woodrush

Order Typhales
Family Sparganiaceae – Bur-reed family

Symbol	Scientific Name	Common Name
SPAM	Sparganium americanum Nutt.	American bur-reed

Family Typhaceae – Cattail family

Symbol	Scientific Name	Common Name
TYDO	Typha domingensis Pers.	southern cattail
TYLA	Typha latifolia L.	broadleaf cattail

Order Liliales
Family Agavaceae – Centuryplant family

Symbol	Scientific Name	Common Name
MAVI5	Manfreda virginica (L.) Salisb. ex Rose	false aloe
YUAL	Yucca aloifolia L.	aloe yucca
YUFI	Yucca filamentosa L.	Adam's needle
YULO	Yucca louisianensis Trel.	Gulf Coast yucca

Family Dioscoreaceae – Yam family

Symbol	Scientific Name	Common Name
DIVI4	Dioscorea villosa L.	wild yam

Family Iridaceae – Iris family

Symbol	Scientific Name	Common Name
ALDR2	Alophia drummondii (Graham) R.C. Foster	propeller flower
GLGA2	Gladiolus ×gandavensis hort. [dalenii × oppositiflorus]	
IRBR2	Iris brevicaulis Raf.	zigzag iris
IRFU	Iris fulva Ker-Gawl.	copper iris

IRGE	Iris germanica L.	German iris
IRGI	Iris giganticaerulea Small	giant blue iris
IRHE2	Iris hexagona Walt.	Dixie iris
IRPA2	Iris pallida Lam.	sweet iris
IRPS	Iris pseudacorus L.	paleyellow iris
IRVI	Iris virginica L.	Virginia iris
IRXI	Iris xiphium L.	Spanish iris
NEGE	Nemastylis geminiflora Nutt.	prairie pleatleaf
SIAL3	Sisyrinchium albidum Raf.	white blue-eyed grass
SIAN3	Sisyrinchium angustifolium P. Mill.	narrowleaf blue-eyed grass
SIAT	Sisyrinchium atlanticum Bickn.	eastern blue-eyed grass
SICA9	Sisyrinchium campestre Bickn.	prairie blue-eyed grass
SILA5	Sisyrinchium langloisii Greene	roadside blue-eyed grass
SIMI2	Sisyrinchium minus Engelm. & Gray	dwarf blue-eyed grass
SIMU3	Sisyrinchium mucronatum Michx.	needletip blue-eyed grass
SIRO5	Sisyrinchium rosulatum Bickn.	annual blue-eyed grass
SISA3	Sisyrinchium sagittiferum Bickn.	spearbract blue-eyed grass

Family Liliaceae – Lily family

Symbol	Scientific Name	Common Name
ALAU	Aletris aurea Walt.	golden colicroot
ALFA2	Aletris farinosa L.	white colicroot
ALAM	Allium ampeloprasum L.	broadleaf wild leek
ALCAC	Allium canadense L. var. canadense	meadow garlic
ALCAM	Allium canadense L. var. mobilense (Regel) Ownbey	meadow garlic
ALNE3	Allium neapolitanum Cirillo	white garlic
ALVI	Allium vineale L.	wild garlic
ASOF	Asparagus officinalis L.	garden asparagus
CAAN2	Camassia angusta (Engelm. & Gray) Bank.	camas
CASC5	Camassia scilloides (Raf.) Cory	Atlantic camas
CODR2	Cooperia drummondii Herbert	evening rainlily
ERAL9	Erythronium albidum Nutt.	white fawnlily
ERRO5	Erythronium rostratum W. Wolf	yellow troutlily
HATU	Habranthus tubispathus (L'Hér.) Traub	Rio Grande copperlily
HEFU	Hemerocallis fulva (L.) L.	orange daylily
HYCA9	Hymenocallis caroliniana (L.) Herbert	Carolina spiderlily
HYLI	Hymenocallis liriosme (Raf.) Shinners	spring spiderlily
HYHI2	Hypoxis hirsuta (L.) Coville	
HYSE2	Hypoxis sessilis L.	
HYWR3	Hypoxis wrightii (Baker) Brackett	
LEAE	Leucojum aestivum L.	summer snowflake
LIFO2	Lilium formosanum A. Wallace	Formosa lily
LIMI	Lilium michauxii Poir.	Carolina lily
LIMU6	Liriope muscari (Dcne.) Bailey	big blue lilyturf
LYRA	Lycoris radiata (L'Hér.) Herbert	red spider lily
MEVI2	Melanthium virginicum L.	Virginia bunchflower
NAJO	Narcissus jonquilla L.	jonquil
NAPS	Narcissus pseudonarcissus L.	daffodil
NATA2	Narcissus tazetta L.	cream narcissus
NOBI2	Nothoscordum bivalve (L.) Britt.	crowpoison
ORUM	Ornithogalum umbellatum L.	sleepydick
SCCR	Schoenolirion croceum (Michx.) Wood	yellow sunnybell
SCWR3	Schoenolirion wrightii Sherman	Texas sunnybell

STGR2	Stenanthium gramineum (Ker-Gawl.) Morong	eastern featherbells
TRGR6	Trillium gracile J.D. Freeman	Sabine River wakerobin
TRLU2	Trillium ludovicianum Harbison	Louisiana wakerobin
TRRE5	Trillium recurvatum Beck	bloody butcher
TRTE3	Trillium texanum Buckl.	Texas wakerobin
TRUN6	Tristagma uniflorum (Lindl.) Traub	springstar
UVPE	Uvularia perfoliata L.	perfoliate bellwort
ZEATA	Zephyranthes atamasca (L.) Herbert var. atamasca	Atamasco lily
ZECA	Zephyranthes candida (Lindl.) Herbert	autumn zephyrlily
ZINU	Zigadenus nuttallii (Gray) S. Wats.	Nuttall's deathcamas

Family Pontederiaceae – Water Hyacinth family

Symbol	Scientific Name	Common Name
EICR	Eichhornia crassipes (Mart.) Solms	common water hyacinth
POCO14	Pontederia cordata L.	pickerelweed

Family Smilacaceae – Catbrier family

Symbol	Scientific Name	Common Name
SMBO2	Smilax bona-nox L.	saw greenbrier
SMGL	Smilax glauca Walt.	cat greenbrier
SMHE	Smilax herbacea L.	smooth carrionflower
SMLA	Smilax laurifolia L.	laurel greenbrier
SMPU	Smilax pumila Walt.	sarsparilla vine
SMRO	Smilax rotundifolia L.	roundleaf greenbrier
SMSM	Smilax smallii Morong	lanceleaf greenbrier
SMTA2	Smilax tamnoides L.	bristly greenbrier
SMWA	Smilax walteri Pursh	coral greenbrier

Order Orchidales

Family Burmanniaceae – Burmannia family

Symbol	Scientific Name	Common Name
BUBI	Burmannia biflora L.	northern bluethread
BUCA3	Burmannia capitata (J.F. Gmel.) Mart.	southern bluethread

Family Orchidaceae – Orchid family

Symbol	Scientific Name	Common Name
CABA	Calopogon barbatus (Walt.) Ames	bearded grasspink
CATU5	Calopogon tuberosus (L.) B.S.P.	tuberous grasspink
COWI2	Corallorrhiza wisteriana Conrad	spring coralroot
CYKE2	Cypripedium kentuckiense C.F. Reed	Kentucky lady's slipper
HARE	Habenaria repens Nutt.	waterspider bog orchid
HESP3	Hexalectris spicata (Walt.) Barnh.	spiked crested coralroot
ISVE	Isotria verticillata Raf.	purple fiveleaf orchid
LIAU3	Listera australis Lindl.	southern twayblade
MAUN	Malaxis unifolia Michx.	green adder's-mouth orchid
PLCI2	Platanthera ciliaris (L.) Lindl.	yellow fringed orchid
PLCL	Platanthera clavellata (Michx.) Luer	small green wood orchid
PLCR	Platanthera cristata (Michx.) Lindl.	crested yellow orchid
PLFL	Platanthera flava (L.) Lindl.	palegreen orchid
PLIN5	Platanthera integra (Nutt.) Gray ex Beck	yellow fringeless orchid
PLNI	Platanthera nivea (Nutt.) Luer	snowy orchid
PORA4	Ponthieva racemosa (Walt.) C. Mohr	hairy shadow witch
PTEC2	Pteroglossaspis ecristata (Fern.) Rolfe	giant orchid
SPCE	Spiranthes cernua (L.) L.C. Rich.	nodding ladies'-tresses

SPLA4	Spiranthes lacera (Raf.) Raf.	northern slender ladies'-tresses
SPLA3	Spiranthes laciniata (Small) Ames	lacelip ladies'-tresses
SPOD	Spiranthes odorata (Nutt.) Lindl.	marsh ladies'-tresses
SPOV	Spiranthes ovalis Lindl.	October ladies'-tresses
SPOVE	Spiranthes ovalis Lindl. var. erostellata Catling	October ladies'-tresses
SPOVO	Spiranthes ovalis Lindl. var. ovalis	October ladies'-tresses
SPPR2	Spiranthes praecox (Walt.) S. Wats.	greenvein ladies'-tresses
SPTO5	Spiranthes torta (Thunb.) Garay & Sweet	southern ladies'-tresses
SPTU	Spiranthes tuberosa Raf.	little ladies'-tresses
SPVE	Spiranthes vernalis Engelm. & Gray	ladies'-tresses
TIDI	Tipularia discolor (Pursh) Nutt.	crippled cranefly
TRTR3	Triphora trianthophora (Sw.) Rydb.	threebirds
ZEST	Zeuxine strateumatica (L.) Schlechter	soldier's orchid

Order Bromeliales
Family Bromeliaceae – Bromeliad family

Symbol	Scientific Name	Common Name
TIUS	Tillandsia usneoides (L.) L.	Spanish moss

Order Zingiberales
Family Cannaceae – Canna family

Symbol	Scientific Name	Common Name
CAFL11	Canna flaccida Salisb.	bandanna of the Everglades
CAIN19	Canna indica L.	Indian shot

Order Asterales
Family Asteraceae – Aster family

Symbol	Scientific Name	Common Name
ACMI2	Achillea millefolium L.	common yarrow
ACOP	Acmella oppositifolia (Lam.) R.K. Jansen	oppositeleaf spotflower
ACOPR	Acmella oppositifolia (Lam.) R.K. Jansen var. repens (Walt.) R.K. Jansen	oppositeleaf spotflower
AGAL5	Ageratina altissima (L.) King & H.E. Robins.	white snakeroot
AGALA	Ageratina altissima (L.) King & H.E. Robins. var. altissima	white snakeroot
AMAR2	Ambrosia artemisiifolia L.	annual ragweed
AMBI2	Ambrosia bidentata Michx.	lanceleaf ragweed
AMPS	Ambrosia psilostachya DC.	Cuman ragweed
AMTR	Ambrosia trifida L.	great ragweed
ANPA9	Antennaria parlinii Fern.	Parlin's pussytoes
ANCO2	Anthemis cotula L.	stinking chamomile
AROV	Arnoglossum ovatum (Walt.) H.E. Robins.	ovateleaf cacalia
ARPL4	Arnoglossum plantagineum Raf.	groovestem Indian plaintain
ARLU	Artemisia ludoviciana Nutt.	white sagebrush
BAHA	Baccharis halimifolia L.	eastern baccharis
BEBE	Berlandiera ×betonicifolia (Hook.) Small (pro sp.) [pumila × texana]	
BEPU2	Berlandiera pumila (Michx.) Nutt.	soft greeneyes
BETE2	Berlandiera texana DC.	Texas greeneyes
BIAR	Bidens aristosa (Michx.) Britt.	bearded beggarticks
BIBI7	Bidens bipinnata L.	Spanish needles
BICE	Bidens cernua L.	nodding beggartick
BIDI	Bidens discoidea (Torr. & Gray) Britt.	small beggarticks
BIFR	Bidens frondosa L.	devil's beggartick

BILA	Bidens laevis (L.) B.S.P.	smooth beggartick
BIMI	Bidens mitis (Michx.) Sherff	smallfruit beggarticks
BIPI	Bidens pilosa L.	hairy beggarticks
BINU	Bigelowia nudata (Michx.) DC.	pineland rayless goldenrod
BINU2	Bigelowia nuttallii L.C. Anders.	Nuttall's rayless goldenrod
BOAS	Boltonia asteroides (L.) L'Hér.	white doll's daisy
BODI	Boltonia diffusa Ell.	smallhead doll's daisy
BREU	Brickellia eupatorioides (L.) Shinners	false boneset
CAVI2	Calyptocarpus vialis Less.	straggler daisy
CANU4	Carduus nutans L.	nodding plumeless thistle
CECY2	Centaurea cyanus L.	garden cornflower
CHTO	Chaptalia tomentosa Vent.	woolly sunbonnets
CHIV	Chromolaena ivifolia (L.) King & H.E. Robins.	ivyleaf thoroughwort
CHMA14	Chrysopsis mariana (L.) Ell.	Maryland goldenaster
CHPI8	Chrysopsis pilosa Nutt.	soft goldenaster
CIIN	Cichorium intybus L.	chicory
CIAL2	Cirsium altissimum (L.) Hill	tall thistle
CICA7	Cirsium carolinianum (Walt.) Fern. & Schub.	soft thistle
CIDI	Cirsium discolor (Muhl. ex Willd.) Spreng.	field thistle
CIEN2	Cirsium engelmannii Rydb.	Engelmann's thistle
CIHO2	Cirsium horridulum Michx.	yellow thistle
CIMU	Cirsium muticum Michx.	swamp thistle
COCO13	Conoclinium coelestinum (L.) DC.	blue mistflower
COBO	Conyza bonariensis (L.) Cronq.	asthmaweed
COCA5	Conyza canadensis (L.) Cronq.	Canadian horseweed
COCAP3	Conyza canadensis (L.) Cronq. var. pusilla (Nutt.) Cronq.	Canadian horseweed
COGL2	Coreopsis gladiata Walt.	coastalplain tickseed
COGRG	Coreopsis grandiflora Hogg ex Sweet var. grandiflora	largeflower tickseed
COGRH	Coreopsis grandiflora Hogg ex Sweet var. harveyana (Gray) Sherff	largeflower tickseed
COIN2	Coreopsis intermedia Sherff	goldenwave tickseed
COLA5	Coreopsis lanceolata L.	lanceleaf tickseed
COLI5	Coreopsis linifolia Nutt.	Texas tickseed
COMA6	Coreopsis major Walt.	greater tickseed
COPU2	Coreopsis pubescens Ell.	star tickseed
COTI3	Coreopsis tinctoria Nutt.	golden tickseed
COTR4	Coreopsis tripteris L.	tall tickseed
CRDI17	Croptilon divaricatum (Nutt.) Raf.	slender scratchdaisy
DOSE	Doellingeria sericocarpoides Small	southern whitetop
DRAM	Dracopis amplexicaulis (Vahl) Cass.	clasping coneflower
ECAN2	Echinacea angustifolia DC.	blacksamson echinacea
ECPA	Echinacea pallida (Nutt.) Nutt.	pale purple coneflower
ECPU	Echinacea purpurea (L.) Moench	eastern purple coneflower
ECSA	Echinacea sanguinea Nutt.	sanguin purple coneflower
ECPR	Eclipta prostrata (L.) L.	false daisy
ELCA3	Elephantopus carolinianus Raeusch.	Carolina elephantsfoot
ELNU	Elephantopus nudatus Gray	smooth elephantsfoot
ELTO2	Elephantopus tomentosus L.	devil's grandmother
ERHI2	Erechtites hieraciifolia (L.) Raf. ex DC.	American burnweed
ERAN	Erigeron annuus (L.) Pers.	eastern daisy fleabane
ERPH	Erigeron philadelphicus L.	Philadelphia fleabane
ERPU	Erigeron pulchellus Michx.	robin's plantain
ERST3	Erigeron strigosus Muhl. ex Willd.	prairie fleabane
ERTE7	Erigeron tenuis Torr. & Gray	slenderleaf fleabane
EUAL2	Eupatorium album L.	white thoroughwort
EUAL3	Eupatorium altissimum L.	tall thoroughwort
EUCA5	Eupatorium capillifolium (Lam.) Small	dogfennel

EUCO7	Eupatorium compositifolium Walt.	yankeeweed
EUFI	Eupatorium fistulosum Barratt	trumpetweed
EUGL7	Eupatorium glaucescens Ell.	waxy thoroughwort
EUHY	Eupatorium hyssopifolium L.	hyssopleaf thoroughwort
EULE	Eupatorium leucolepis (DC.) Torr. & Gray	justiceweed
EUPE3	Eupatorium perfoliatum L.	common boneset
EUPI2	Eupatorium pilosum Walt.	rough boneset
EUROO	Eupatorium rotundifolium L. var. ovatum (Bigelow) Torr.	roundleaf thoroughwort
EUROR	Eupatorium rotundifolium L. var. rotundifolium	roundleaf thoroughwort
EUROS	Eupatorium rotundifolium L. var. scabridum (Ell.) Gray	roundleaf thoroughwort
EUSE	Eupatorium semiserratum DC.	smallflower thoroughwort
EUSE2	Eupatorium serotinum Michx.	lateflowering thoroughwort
EUHE10	Eurybia hemispherica (Alexander) Nesom	southern prairie aster
EULE4	Euthamia leptocephala (Torr. & Gray) Greene	bushy goldentop
EVCA	Evax candida (Torr. & Gray) Gray	silver pygmycudweed
FARE	Facelis retusa (Lam.) Schultz-Bip.	annual trampweed
FLIN2	Fleischmannia incarnata (Walt.) King & H.E. Robins.	pink thoroughwort
GAAEA	Gaillardia aestivalis (Walt.) H. Rock var. aestivalis	lanceleaf blanketflower
GAAEF	Gaillardia aestivalis (Walt.) H. Rock var. flavovirens (C. Mohr) Cronq.	lanceleaf blanketflower
GAPU	Gaillardia pulchella Foug.	firewheel
GAFA3	Gamochaeta falcata (Lam.) Cabrera	narrowleaf purple everlasting
GAPE2	Gamochaeta pensylvanica (Willd.) Cabrera	Pennsylvania everlasting
GAPU3	Gamochaeta purpurea (L.) Cabrera	spoonleaf purple everlasting
GRPA8	Grindelia papposa Nesom & Suh	Spanish gold
HEAM	Helenium amarum (Raf.) H. Rock	yellowdicks
HEFL	Helenium flexuosum Raf.	purplehead sneezeweed
HEAN2	Helianthus angustifolius L.	swamp sunflower
HEAN3	Helianthus annuus L.	common sunflower
HEAT	Helianthus atrorubens L.	purpledisk sunflower
HEDI2	Helianthus divaricatus L.	woodland sunflower
HEGR4	Helianthus grosseserratus Martens	sawtooth sunflower
HEHI2	Helianthus hirsutus Raf.	hairy sunflower
HEMO2	Helianthus mollis Lam.	ashy sunflower
HEOCP	Helianthus occidentalis Riddell ssp. plantagineus (Torr. & Gray) Shinners	fewleaf sunflower
HEPE	Helianthus petiolaris Nutt.	prairie sunflower
HEST	Helianthus strumosus L.	paleleaf woodland sunflower
HETU	Helianthus tuberosus L.	Jerusalem artichoke
HEHEG	Heliopsis helianthoides (L.) Sweet var. gracilis (Nutt.) Gandhi & Thomas	smooth oxeye
HEHEH	Heliopsis helianthoides (L.) Sweet var. helianthoides	smooth oxeye
HESU3	Heterotheca subaxillaris (Lam.) Britt. & Rusby	camphorweed
HIGR3	Hieracium gronovii L.	queendevil
HYAR3	Hymenopappus artemisiifolius DC.	oldplainsman
HYSC	Hymenopappus scabiosaeus L'Hér.	Carolina woollywhite
HYGL2	Hypochaeris glabra L	smooth catsear
IVAN	Iva angustifolia Nutt. ex DC.	narrowleaf marshelder
IVAN2	Iva annua L.	annual marshelder
KRCA	Krigia caespitosa (Raf.) Chambers	weedy dwarfdandelion
KRDA	Krigia dandelion (L.) Nutt.	potato dwarfdandelion
KROC	Krigia occidentalis Nutt.	western dwarfdandelion
KRVI	Krigia virginica (L.) Willd.	Virginia dwarfdandelion
LACA	Lactuca canadensis L.	Canada lettuce
LAHI	Lactuca hirsuta Muhl. ex Nutt.	hairy lettuce
LALU	Lactuca ludoviciana (Nutt.) Riddell	biannual lettuce
LASE	Lactuca serriola L.	prickly lettuce
LEVU	Leucanthemum vulgare Lam.	oxeye daisy

LIAC	Liatris acidota Engelm. & Gray	sharp blazing star
LIAS	Liatris aspera Michx.	tall blazing star
LIELE	Liatris elegans (Walt.) Michx. var. elegans	pinkscale blazing star
LIPY	Liatris pycnostachya Michx.	prairie blazing star
LISP	Liatris spicata (L.) Willd.	dense blazing star
LISQ	Liatris squarrosa (L.) Michx.	scaly blazing star
LISQS	Liatris squarrosa (L.) Michx. var. squarrosa	scaly blazing star
LISQ2	Liatris squarrulosa Michx.	Appalachian blazing star
LITE	Liatris tenuis Shinners	Gulf blazing star
MACAC2	Marshallia caespitosa Nutt. ex DC. var. caespitosa	puffballs
MACAS	Marshallia caespitosa Nutt. ex DC. var. signata Beadle & F.E. Boynt.	puffballs
MAGRC2	Marshallia graminifolia (Walt.) Small var. cynanthera (Ell.) Beadle & F.E. Boynt.	grassleaf Barbara's buttons
MICO9	Mikania cordifolia (L. f.) Willd.	Florida Keys hempvine
MISC	Mikania scandens (L.) Willd.	climbing hempvine
OLNI	Oligoneuron nitidum (Torr. & Gray) Small	shiny goldenrod
OLRIG	Oligoneuron rigidum (L.) Small var. glabratum (E.L. Braun) Nesom	stiff goldenrod
PAOB6	Packera obovata (Muhl. ex Willd.) W.A. Weber & A. Löve	roundleaf ragwort
PAPL12	Packera plattensis (Nutt.) W.A. Weber & A. Löve	prairie groundsel
PATA5	Packera tampicana (DC.) C. Jeffrey	Great Plains ragwort
PATO4	Packera tomentosa (Michx.) C. Jeffrey	woolly ragwort
PAHY	Parthenium hysterophorus L.	Santa Maria feverfew
PAINH2	Parthenium integrifolium L. var. hispidum (Raf.) Mears	wild quinine
PIGR4	Pityopsis graminifolia (Michx.) Nutt.	narrowleaf silkgrass
PLCA7	Pluchea camphorata (L.) DC.	camphor pluchea
PLFO	Pluchea foetida (L.) DC.	stinking camphorweed
PLOD	Pluchea odorata (L.) Cass.	sweetscent
PLRO	Pluchea rosea Godfrey	rosy camphorweed
PRBA	Prenanthes barbata (Torr. & Gray) Milstead	barbed rattlesnakeroot
PSHEH7	Pseudognaphalium helleri (Britt.) A. Anderb. ssp. helleri	Heller's cudweed
PSOBO	Pseudognaphalium obtusifolium (L.) Hilliard & Burtt ssp. obtusifolium	rabbittobacco
PYCA2	Pyrrhopappus carolinianus (Walt.) DC.	Carolina desert-chicory
RACO3	Ratibida columnifera (Nutt.) Woot. & Standl.	upright prairie coneflower
RAPE3	Ratibida peduncularis (Torr. & Gray) Barnh.	naked Mexicanhat
RAPI	Ratibida pinnata (Vent.) Barnh.	pinnate prairie coneflower
RUGRA	Rudbeckia grandiflora (D. Don) J.F. Gmel. ex DC. var. alismifolia (Torr. & Gray) Cronq.	rough coneflower
RUHI2	Rudbeckia hirta L.	blackeyed Susan
RUMA3	Rudbeckia maxima Nutt.	great coneflower
RUMI	Rudbeckia missouriensis Engelm. ex C.L. Boynt. & Beadle	Missouri orange coneflower
RUSU	Rudbeckia subtomentosa Pursh	sweet coneflower
RUTE4	Rudbeckia texana (Perdue) P. Cox & Urbatsch	Texas coneflower
RUTR2	Rudbeckia triloba L.	browneyed Susan
SEVU	Senecio vulgaris L.	old-man-in-the-Spring
SETO7	Sericocarpus tortifolius (Michx.) Nees	Dixie whitetop aster
SIAS2	Silphium asteriscus L.	starry rosinweed
SIGR4	Silphium gracile Gray	slender rosinweed
SIINI	Silphium integrifolium Michx. var. integrifolium	wholeleaf rosinweed
SILA3	Silphium laciniatum L.	compassplant
SIRA2	Silphium radula Nutt.	roughstem rosinweed
SIMA3	Silybum marianum (L.) Gaertn.	blessed milkthistle
SMUV	Smallanthus uvedalius (L.) Mackenzie ex Small	hairy leafcup
SOARB	Solidago arguta Ait. var. boottii (Hook.) Palmer & Steyermark	Boott's goldenrod
SOAU2	Solidago auriculata Shuttlw. ex Blake	eared goldenrod
SOCA4	Solidago caesia L.	wreath goldenrod
SOCAS5	Solidago canadensis L. var. scabra Torr. & Gray	Canada goldenrod

SODI3	Solidago discoidea Ell.	rayless mock goldenrod
SOLU	Solidago ludoviciana (Gray) Small	Louisiana goldenrod
SONE	Solidago nemoralis Ait.	gray goldenrod
SOOD	Solidago odora Ait.	anisescented goldenrod
SOPAS	Solidago patula Muhl. ex Willd. var. strictula Torr. & Gray	roundleaf goldenrod
SOPE	Solidago petiolaris Ait.	downy ragged goldenrod
SORA	Solidago radula Nutt.	western rough goldenrod
SORUA	Solidago rugosa P. Mill. Ssp. aspera (Ait.) Cronq.	wrinkleleaf goldenrod
SORUR2	Solidago rugosa P. Mill. Ssp. rugosa var. rugosa	wrinkleleaf goldenrod
SOSP2	Solidago speciosa Nutt.	showy goldenrod
SOUL2	Solidago ulmifolia Muhl. Ex Willd.	elmleaf goldenrod
SOSE2	Soliva sessilis Ruiz & Pavón	field burrweed
SOAS	Sonchus asper (L.) Hill	spiny sowthistle
SOOL	Sonchus oleraceus L.	common sowthistle
SYCO3	Symphyotrichum concolor (L.) Nesom	eastern silver aster
SYDI2	Symphyotrichum divaricatum (Nutt.) Nesom	southern annual saltmarsh aster
SYDRD	Symphyotrichum drummondii (Lindl.) Nesom var. drummondii	Drummond's aster
SYDRT	Symphyotrichum drummondii (Lindl.) Nesom var. texanum (Burgess) Nesom	Drummond's aster
SYDU2	Symphyotrichum dumosum (L.) Nesom	rice button aster
SYLA3	Symphyotrichum laeve (L.) A.& D. Löve	smooth blue aster
SYLA6	Symphyotrichum lanceolatum (Willd.) Nesom	white panicle aster
SYLA4	Symphyotrichum lateriflorum (L.) A.& D. Löve	calico aster
SYON	Symphyotrichum ontarione (Wieg.) Nesom	bottomland aster
SYOO	Symphyotrichum oolentangiense (Riddell) Nesom	skyblue aster
SYPAG	Symphyotrichum patens (Ait.) Nesom var. gracile (Hook.) Nesom	late purple aster
SYPAP2	Symphyotrichum patens (Ait.) Nesom var. patens	late purple aster
SYPIP3	Symphyotrichum pilosum (Willd.) Nesom var. pilosum	hairy white oldfield aster
SYPRP	Symphyotrichum praealtum (Poir.) Nesom var. praealtum	willowleaf aster
SYPR7	Symphyotrichum pratense (Raf.) Nesom	barrens silky aster
SYPU	Symphyotrichum puniceum (L.) A.& D. Löve	purplestem aster
SYRA5	Symphyotrichum racemosum (Ell.) Nesom	smooth white oldfield aster
TAOF	Taraxacum officinale G.H. Weber ex Wiggers	common dandelion
TELU	Tetragonotheca ludoviciana (Torr. & Gray) Gray ex Hall	Louisiana nerveray
THFI	Thelesperma filifolium (Hook.) Gray	stiff greenthread
VEHE	Verbesina helianthoides Michx.	gravelweed
VEVI3	Verbesina virginica L.	white crownbeard
VEWA	Verbesina walteri Shinners	Carolina crownbeard
VEBAB	Vernonia baldwinii Torr. Ssp. baldwinii	Baldwin's ironweed
VEBAI2	Vernonia baldwinii Torr. Ssp. interior (Small) Faust	interior ironweed
VEGI	Vernonia gigantea (Walt.) Trel.	giant ironweed
VEMI2	Vernonia missurica Raf.	Missouri ironweed
VETE3	Vernonia texana (Gray) Small	Texas ironweed
XAST	Xanthium strumarium L.	rough cockleburr
YOJA	Youngia japonica (L.) DC.	oriental false hawksbeard

Order Callitrichales
Family Callitrichaceae – Water-starwort family

Symbol	Scientific Name	Common Name
CAHE3	Callitriche heterophylla Pursh	twoheaded water-starwort
CAPE44	Callitriche pedunculosa Nutt.	Nuttall's water-starwort
CAPE16	Callitriche peploides Nutt.	matted water-starwort
CATE19	Callitriche terrestris Raf.	terrestrial water-starwort

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Campanulales
Family Campanulaceae – Bellflower family

Symbol	Scientific Name	Common Name
LOAP	Lobelia appendiculata A. DC.	pale lobelia
LOCA2	Lobelia cardinalis L.	cardinalflower
LOPUP	Lobelia puberula Michx. Var. pauciflora Bush	downy lobelia
LOPUP2	Lobelia puberula Michx. var. puberula	downy lobelia
TRPEB	Triodanis perfoliata (L.) Nieuwl. Var. biflora (Ruiz & Pavón) Bradley	clasping Venus' looking-glass
TRPEP	Triodanis perfoliata (L.) Nieuwl. Var. perfoliata	clasping Venus' looking-glass
WAMA	Wahlenbergia marginata (Thunb.) A. DC.	southern rockbell

Family Sphenocleaceae – Spenoclea family

Symbol	Scientific Name	Common Name
SPZE	Sphenoclea zeylanica Gaertn.	chickenspike

Order Dipsacales
Family Caprifoliaceae – Honeysuckle family

Symbol	Scientific Name	Common Name
LOSE	Lonicera sempervirens L.	trumpet honeysuckle
SANIC4	Sambucus nigra L. ssp. canadensis (L.) R. Bolli	common elderberry
SYOR	Symphoricarpos orbiculatus Moench	coralberry
TRAN3	Triosteum angustifolium L.	yellowfruit horse-gentian
TRPE5	Triosteum perfoliatum L.	feverwort
VIAC	Viburnum acerifolium L.	mapleleaf viburnum
VIDED4	Viburnum dentatum L. var. dentatum	southern arrowwood
VIDES	Viburnum dentatum L. var. scabrellum Torr. & Gray	southern arrowwood
VINUN	Viburnum nudum L. var. nudum	possumhaw
VIPR	Viburnum prunifolium L.	blackhaw
VIRU	Viburnum rufidulum Raf.	rusty blackhaw

Family Valerianaceae – Valerian family

Symbol	Scientific Name	Common Name
VARA	Valerianella radiata (L.) Dufr.	beaked cornsalad

Order Gentianales
Family Apocynaceae – Dogbane family

Symbol	Scientific Name	Common Name
AMLU2	Amsonia ludoviciana Vail	Louisiana bluestar
AMRE3	Amsonia repens Shinners	creeping bluestar
AMTA2	Amsonia tabernaemontana Walt.	eastern bluestar
APCA	Apocynum cannabinum L.	Indianhemp
TRDI	Trachelospermum difforme (Walt.) Gray	climbing dogbane
VIMA	Vinca major L.	bigleaf periwinkle
VIMI2	Vinca minor L.	common periwinkle

Family Asclepiadaceae – Milkweed family

Symbol	Scientific Name	Common Name
ASAM	Asclepias amplexicaulis Sm.	clasping milkweed
ASLA2	Asclepias lanceolata Walt.	fewflower milkweed
ASLO	Asclepias longifolia Michx.	longleaf milkweed

ASOB	Asclepias obovata Ell.	pineland milkweed
ASPE	Asclepias perennis Walt.	aquatic milkweed
ASRU	Asclepias rubra L.	red milkweed
ASTU	Asclepias tuberosa L.	butterfly milkweed
ASVA	Asclepias variegata L.	redring milkweed
ASVE	Asclepias verticillata L.	whorled milkweed
ASVI	Asclepias viridiflora Raf.	green comet milkweed
ASVI2	Asclepias viridis Walt.	green antelopehorn
CYLA	Cynanchum laeve (Michx.) Pers.	honeyvine
MACA9	Matelea carolinensis (Jacq.) Woods.	maroon Carolina milkvine
MACY3	Matelea cynanchoides (Engelm.) Woods.	prairie milkvine
MADE3	Matelea decipiens (Alexander) Woods.	oldfield milkvine
MAGO	Matelea gonocarpos (Walt.) Shinners	Angularfruit milkvine

Family Gentianaceae – Gentian family

Symbol	Scientific Name	Common Name
BAVI3	Bartonia virginica (L.) B.S.P.	yellow screwstem
CEMU2	Centaurium muehlenbergii (Griseb.) W. Wight ex Piper	Muhlenberg's centaury
CEPU3	Centaurium pulchellum (Sw.) Druce	branched centaury
GESA	Gentiana saponaria L.	harvestbells
GEVI5	Gentiana villosa L.	striped gentian
OBVI	Obolaria virginica L.	Virginia pennywort
SAAN	Sabatia angularis (L.) Pursh	rosepink
SABR9	Sabatia brachiata Ell.	narrowleaf rose gentian
SACA3	Sabatia campestris Nutt.	Texas star
SAGE	Sabatia gentianoides Ell.	pinewoods rose gentian

Family Loganiaceae – Logania family

Symbol	Scientific Name	Common Name
GESE	Gelsemium sempervirens (L.) St. Hil.	evening trumpetflower
MIPE3	Mitreola petiolata (J.F. Gmel.) Torr. & Gray	lax hornpod
MISE3	Mitreola sessilifolia (J.F. Gmel.) G. Don	swamp hornpod
SPMA3	Spigelia marilandica (L.) L.	woodland pinkroot

Order Lamiales

Family Boraginaceae – Borage family

Symbol	Scientific Name	Common Name
BUAR3	Buglossoides arvensis (L.) I.M. Johnston	corn gromwell
CYVI	Cynoglossum virginianum L.	wild comfrey
HECU3	Heliotropium curassavicum L.	salt heliotrope
HEIN	Heliotropium indicum L.	Indian heliotrope
HEPR3	Heliotropium procumbens P. Mill.	fourspike heliotrope
LICA13	Lithospermum caroliniense (Walt. ex J.F. Gmel.) MacM.	Carolina puccoon
LIIN2	Lithospermum incisum Lehm.	narrowleaf stoneseed
LITU2	Lithospermum tuberosum Rugel ex DC.	tuberous stoneseed
MYVE	Myosotis verna Nutt.	spring forget-me-not
ONMOH2	Onosmodium molle Michx. ssp. Hispidissimum (Mackenzie) Boivin	softhair marbleseed
ONVI2	Onosmodium virginianum (L.) A. DC.	wild Job's tears

Family Lamiaceae – Mint family

Symbol	Scientific Name	Common Name
AJRE	Ajuga reptans L.	common bugle
CLGR4	Clinopodium gracile (Benth.) Kuntze	slender wild basil
GLHE2	Glechoma hederacea L.	ground ivy
HEHI	Hedeoma hispida Pursh	rough false pennyroyal

LAAM	Lamium amplexicaule L.	henbit deadnettle
LAPUP	Lamium purpureum L. var. purpureum	purple deadnettle
LYAM	Lycopus americanus Muhl. ex W. Bart.	American water horehound
LYRU	Lycopus rubellus Moench	taperleaf water horehound
LYVI4	Lycopus virginicus L.	Virginia water horehound
MEPI	Mentha ×piperita L. (pro sp.) [aquatica × spicata]	peppermint
MESP3	Mentha spicata L.	spearmint
MOCI	Monarda citriodora Cerv. Ex Lag.	lemon beebalm
MOFIF	Monarda fistulosa L. ssp. Fistulosa	wild bergamot
MOFIF2	Monarda fistulosa L. ssp. Fistulosa var. fistulosa	wild bergamot
MOFIM3	Monarda fistulosa L. ssp. Fistulosa var. mollis (L.) Benth.	wild bergamot
MOPU	Monarda punctata L.	spotted beebalm
PEFR4	Perilla frutescens (L.) Britt.	beefsteakplant
PHAN6	Physostegia angustifolia Fern.	narrowleaf false dragonhead
PHDI7	Physostegia digitalis Small	finger false dragonhead
PHIN8	Physostegia intermedia (Nutt.) Engelm. & Gray	slender false dragonhead
PHVIP2	Physostegia virginiana (L.) Benth. ssp. praemorsa (Shinners) Cantino	obedient plant
PRVU	Prunella vulgaris L.	common selfheal
PYAL	Pycnanthemum albescens Torr. & Gray	whiteleaf mountainmint
PYMU	Pycnanthemum muticum (Michx.) Pers.	clustered mountainmint
PYTE	Pycnanthemum tenuifolium Schrad.	narrowleaf mountainmint
SAAZG	Salvia azurea Michx. ex Lam. var. grandiflora Benth.	pitcher sage
SACO5	Salvia coccinea P.J. Buchoz ex Etlinger	blood sage
SALY2	Salvia lyrata L.	lyreleaf sage
SCCA4	Scutellaria cardiophylla Engelm. & Gray	gulf skullcap
SCDR2	Scutellaria drummondii Benth.	Drummond's skullcap
SCEL	Scutellaria elliptica Muhl. Ex Spreng.	hairy skullcap
SCIN2	Scutellaria integrifolia L.	helmet flower
SCOV	Scutellaria ovata Hill	heartleaf skullcap
SCPAA2	Scutellaria parvula Michx. Var. australis Fassett	small skullcap
SCPAM	Scutellaria parvula Michx. Var. missouriensis (Torr.) Goodman & Lawson	Leonard's skullcap
SCPAP3	Scutellaria parvula Michx. Var. parvula	small skullcap
STCR7	Stachys crenata Raf.	mousesear
STFL4	Stachys floridana Shuttlw. Ex Benth.	Florida hedgenettle
STTE	Stachys tenuifolia Willd.	smooth hedgenettle
TECA3	Teucrium canadense L.	Canada germander
TRDI2	Trichostema dichotomum L.	forked bluecurls
TRSE5	Trichostema setaceum Houtt.	narrowleaf bluecurls

Family Verbenaceae – Verbena family

Symbol	Scientific Name	Common Name
CAAM2	Callicarpa americana L.	American beautyberry
CLBU	Clerodendrum bungei Steud.	rose glorybower
GLBI2	Glandularia bipinnatifida (Nutt.) Nutt.	Dakota mock vervain
GLCA2	Glandularia canadensis (L.) Nutt.	rose mock vervain
GLPU3	Glandularia pulchella (Sweet) Troncoso	South American mock vervain
LACA2	Lantana camara L.	lantana
PHLE5	Phryma leptostachya L.	American lopseed
PHLA3	Phyla lanceolata (Michx.) Greene	lanceleaf fogfruit
PHNO2	Phyla nodiflora (L.) Greene	turkey tangle fogfruit
PHSTS5	Phyla strigulosa (Mart. & Gal.) Moldenke var. strigulosa	diamondleaf fogfruit
STCA6	Stylodon carneus (Medik.) Moldenke	Carolina false vervain

VEBO	Verbena bonariensis L.	purpletop vervain
VEBR	Verbena bracteata Lag. & Rodr.	bigbract verbena
VEBR2	Verbena brasiliensis Vell.	Brazilian vervain
VEHA	Verbena halei Small	Texas vervain
VELI	Verbena litoralis Kunth	seashore vervain
VERI2	Verbena rigida Spreng.	tuberous vervain
VEUR	Verbena urticifolia L.	white vervain
VEXU	Verbena xutha Lehm.	Gulf vervain
VIAG	Vitex agnus-castus L.	lilac chastetree

Order Plantaginales
Family Plantaginaceae – Plantain family

Symbol	Scientific Name	Common Name
PLAR3	Plantago aristata Michx.	largebracted plantain
PLHE2	Plantago heterophylla Nutt.	slender plantain
PLHO	Plantago hookeriana Fisch. & C.A. Mey.	California plantain
PLLA	Plantago lanceolata L.	narrowleaf plantain
PLPA2	Plantago patagonica Jacq.	woolly plantain
PLPU	Plantago pusilla Nutt.	dwarf plantain
PLRH	Plantago rhodosperma Dcne.	redseed plantain
PLVI	Plantago virginica L.	Virginia plantain
PLWR	Plantago wrightiana Dcne.	Wright's plantain

Order Rubiales
Family Rubiaceae – Madder family

Symbol	Scientific Name	Common Name
CEOC2	Cephalanthus occidentalis L.	common buttonbush
DITE2	Diodia teres Walt.	poorjoe
DIVIV2	Diodia virginiana L. var. virginiana	Virginia buttonweed
GAAP2	Galium aparine L.	stickywilly
GACI2	Galium circaezans Michx.	licorice bedstraw
GAHI	Galium hispidulum Michx.	coastal bedstraw
GAOB	Galium obtusum Bigelow	bluntleaf bedstraw
GAPA5	Galium parisiense L.	wall bedstraw
GAPI2	Galium pilosum Ait.	hairy bedstraw
GATI	Galium tinctorium L.	stiff marsh bedstraw
GATR3	Galium triflorum Michx.	fragrant bedstraw
GAUN2	Galium uniflorum Michx.	oneflower bedstraw
GAVI	Galium virgatum Nutt.	southwestern bedstraw
HENI4	Hedyotis nigricans (Lam.) Fosberg	diamondflowers
HOMI4	Houstonia micrantha (Shinners) Terrell	southern bluet
HOPU3	Houstonia pusilla Schoepf	tiny bluet
HORO	Houstonia rosea (Raf.) Terrell	rose bluet
MIRE	Mitchella repens L.	partridgeberry
OLBO	Oldenlandia boscii (DC.) Chapman	Bosc's mille graines
OLUN	Oldenlandia uniflora L.	clustered mille graines
PEPE14	Pentodon pentandrus (K. Schum.) Vatke	Hale's pentodon
RISC	Richardia scabra L.	rough Mexican clover
SHAR2	Sherardia arvensis L.	blue fieldmadder
SPGL2	Spermacoce glabra Michx.	smooth false buttonweed

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Scrophulariales

Family Acanthaceae – Acanthus family

Symbol	Scientific Name	Common Name
DIBR2	Dicliptera brachiata (Pursh) Spreng.	branched foldwing
HYLA	Hygrophila lacustris (Schlecht. & Cham.) Nees	gulf swampweed
JUOV	Justicia ovata (Walt.) Lindau	looseflower water-willow
RUBR	Ruellia brittoniana Leonard	Britton's wild petunia
RUCA4	Ruellia caroliniensis (J.F. Gmel.) Steud.	Carolina wild petunia
RUCAC2	Ruellia caroliniensis (J.F. Gmel.) Steud. ssp. caroliniensis	Carolina wild petunia
RUHU	Ruellia humilis Nutt.	fringeleaf wild petunia
RUNU	Ruellia nudiflora (Engelm. & Gray) Urban	violet wild petunia
RUPE4	Ruellia pedunculata Torr. ex Gray	stalked wild petunia
RUPEP2	Ruellia pedunculata Torr. ex Gray ssp. pedunculata	stalked wild petunia

Family Bignoniaceae – Trumpet Creeper family

Symbol	Scientific Name	Common Name
BICA	Bignonia capreolata L.	crossvine
CARA2	Campsis radicans (L.) Seem. ex Bureau	trumpet creeper
CABI8	Catalpa bignonioides Walt.	southern catalpa

Family Buddlejaceae – Butterfly-bush family

Symbol	Scientific Name	Common Name
POPR4	Polypremum procumbens L.	juniper leaf

Family Lentibularaceae – Bladderwort family

Symbol	Scientific Name	Common Name
PIPU4	Pinguicula pumila Michx.	small butterwort
UTCO	Utricularia cornuta Michx.	horned bladderwort
UTGI	Utricularia gibba L.	humped bladderwort
UTIN	Utricularia inflata Walt.	swollen bladderwort
UTJU	Utricularia juncea Vahl	southern bladderwort
UTMA	Utricularia macrorhiza Le Conte	common bladderwort
UTRA	Utricularia radiata Small	little floating bladderwort
UTST	Utricularia striata Le Conte ex Torrey	striped bladderwort
UTSU	Utricularia subulata L.	zigzag bladderwort

Family Oleaceae – Olive family

Symbol	Scientific Name	Common Name
CHVI3	Chionanthus virginicus L.	White fringetree
FOAC	Forestiera acuminata (Michx.) Poir.	Eastern swampprivet
FOLI	Forestiera ligustrina (Michx.) Poir.	Upland swampprivet
FOSU	Forsythia suspensa (Thunb.) Vahl	Weeping forsythia
FRAM2	Fraxinus americana L.	White ash
FRCA3	Fraxinus caroliniana P. Mill.	Carolina ash
FRPE	Fraxinus pennsylvanica Marsh.	green ash
JAME	Jasminum mesnyi Hance	Japanese jasmine
LIJA	Ligustrum japonicum Thunb.	Japanese privet
LILU2	Ligustrum lucidum Ait. f.	glossy privet
LISI	Ligustrum sinense Lour.	Chinese privet

Family Orobanchaceae – Broomrape family

Symbol	Scientific Name	Common Name
EPVI2	Epifagus virginiana (L.) W. Bart.	beechdrops

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Scrophulariaceae – Figwort family

Symbol	Scientific Name	Common Name
AGCA8	Agalinis caddoensis Pennell	foxglove
AGFA2	Agalinis fasciculata (Ell.) Raf.	beach false foxglove
AGGA	Agalinis gattingeri (Small) Small	roundstem false foxglove
AGHE4	Agalinis heterophylla (Nutt.) Small ex Britt.	prairie false foxglove
AGHO4	Agalinis homalantha Pennell	San Antonio false foxglove
AGOL	Agalinis oligophylla Pennell	ridgestem false foxglove
AGPI3	Agalinis pinetorum Pennell	coastalplain false foxglove
AGPL	Agalinis plukenetii (Ell.) Raf.	Chattahoochee false foxglove
AGPU4	Agalinis pulchella Pennell	St. Mark's false foxglove
AGPU5	Agalinis purpurea (L.) Pennell	purple false foxglove
AGSK	Agalinis skinneriana (Wood) Britt.	Skinner's false foxglove
AGTEL	Agalinis tenuifolia (Vahl) Raf. var. leucanthera (Raf.) Pennell	slenderleaf false foxglove
AGTEM	Agalinis tenuifolia (Vahl) Raf. var. macrophylla (Benth.) Blake	slenderleaf false foxglove
AGTET	Agalinis tenuifolia (Vahl) Raf. var. tenuifolia	slenderleaf false foxglove
AGVI5	Agalinis viridis (Small) Pennell	green false foxglove
AUGRS	Aureolaria grandiflora (Benth.) Pennell var. serrata (Torr. ex Benth.) Pennell	largeflower yellow false foxglove
AUPE	Aureolaria pectinata (Nutt.) Pennell	combleaf yellow false foxglove
AUVI	Aureolaria virginica (L.) Pennell	downy yellow false foxglove
BAMO	Bacopa monnieri (L.) Pennell	herb of grace
BARO	Bacopa rotundifolia (Michx.) Wettst.	disk waterhyssop
BUAM	Buchnera americana L.	American bluehearts
CAIN13	Castilleja indivisa Engelm.	entireleaf Indian paintbrush
CHMI	Chaenorhinum minus (L.) Lange	dwarf snapdragon
COVI2	Collinsia violacea Nutt.	violet blue eyed Mary
DAMA	Dasistoma macrophylla (Nutt.) Raf.	mullein foxglove
GRNE	Gratiola neglecta Torr.	clammy hedgehyssop
GRPI	Gratiola pilosa Michx.	shaggy hedgehyssop
GRVI	Gratiola virginiana L.	roundfruit hedgehyssop
LEMU	Leucospora multifida (Michx.) Nutt.	narrowleaf paleseed
LICR	Lindernia crustacea (L.) F. Muell.	Malaysian false pimpernel
LIDUA	Lindernia dubia (L.) Pennell var. anagallidea (Michx.) Cooperrider	yellowseed false pimpernel
LIDUD	Lindernia dubia (L.) Pennell var. dubia	yellowseed false pimpernel
MAMI4	Mazus miguelii Makino	mazus
MAPU7	Mazus pumilus (Burm. f.) Steenis	Japanese mazus
MEAC	Mecardonia acuminata (Walt.) Small	axilflower
MIUM	Micranthemum umbrosum (J.F. Gmel.) Blake	shade mudflower
MIAL2	Mimulus alatus Ait.	sharpwing monkeyflower
NUCA	Nuttallanthus canadensis (L.) D.A. Sutton	Canada toadflax
NUTE	Nuttallanthus texanus (Scheele) D.A. Sutton	Texas toadflax
PAVI3	Parentucellia viscosa (L.) Caruel	yellow glandweed
PECA	Pedicularis canadensis L.	Canadian lousewort

PECAC3	Pedicularis canadensis L. ssp. canadensis	Canadian lousewort
PEDI	Penstemon digitalis Nutt. ex Sims	talus slope penstemon
PELA10	Penstemon laxiflorus Pennell	nodding beardtongue
PEMU2	Penstemon murrayanus Hook.	scarlet beardtongue
PETE3	Penstemon tenuis Small	sharpsepal beardtongue
PETU	Penstemon tubiflorus Nutt.	white wand beardtongue
PETUT	Penstemon tubiflorus Nutt. var. tubiflorus	white wand beardtongue
SCMA2	Scrophularia marilandica L.	carpenter's square
SECA4	Seymeria cassioides (J.F. Gmel.) Blake	yaupon blacksenna
SEPE2	Seymeria pectinata Pursh	piedmont blacksenna
VEBL	Verbascum blattaria L.	moth mullein
VETH	Verbascum thapsus L.	common mullein
VEAR	Veronica arvensis L.	corn speedwell
VEHE2	Veronica hederifolia L.	ivyleaf speedwell
VEPE2	Veronica peregrina L.	neckweed
VEPE3	Veronica persica Poir.	birdeye speedwell
VEPO	Veronica polita Fries	gray field speedwell
VEVI4	Veronicastrum virginicum (L.) Farw.	Culver's root

Order Solanales

Family Convolvulaceae – Morning-glory family

Symbol	Scientific Name	Common Name
COAR4	Convolvulus arvensis L.	field bindweed
DICA3	Dichondra carolinensis Michx.	Carolina ponysfoot
IPBA2	Ipomoea batatas (L.) Lam.	sweetpotato
IPCO8	Ipomoea cordatotriloba Dennst.	tievine
IPHE	Ipomoea hederacea Jacq.	ivyleaf morning-glory
IPIN	Ipomoea indica (Burm. f.) Merr.	oceanblue morning-glory
IPLA	Ipomoea lacunosa L.	whitestar
IPPA	Ipomoea pandurata (L.) G.F.W. Mey.	man of the earth
IPPU2	Ipomoea purpurea (L.) Roth	tall morning-glory
IPWR	Ipomoea wrightii Gray	Wright's morning-glory
JATA	Jacquemontia tamnifolia (L.) Griseb.	hairy clustervine
STHU2	Stylisma humistrata (Walt.) Chapman	southern dawnflower
STPI3	Stylisma pickeringii (Torr. ex M.A. Curtis) Gray	Pickering's dawnflower

Family Cuscutaceae – Dodder family

Symbol	Scientific Name	Common Name
CUCO2	Cuscuta compacta Juss. ex Choisy	compact dodder
CUCU2	Cuscuta cuspidata Engelm.	cusp dodder
CUGR	Cuscuta gronovii Willd. ex J.A. Schultes	scaldweed
CUIN	Cuscuta indecora Choisy	bigseed alfalfa dodder
CUPEG	Cuscuta pentagona Engelm. var. glabrior (Engelm.) Gandhi, Thomas & Hatch	bushclover dodder
CUPEP2	Cuscuta pentagona Engelm. var. pentagona	fiveangled dodder

Family Hydrophyllaceae – Waterleaf family

Symbol	Scientific Name	Common Name
HYOV	Hydrolea ovata Nutt. ex Choisy	ovate false fiddleleaf
HYUN	Hydrolea uniflora Raf.	oneflower false fiddleleaf
NEAP	Nemophila aphylla (L.) Brummitt	smallflower baby blue eyes
PHGL	Phacelia glabra Nutt.	smooth phacelia
PHHI	Phacelia hirsuta Nutt.	fuzzy phacelia
PHSTR	Phacelia strictiflora (Engelm. & Gray) Gray var. robbinsii Constance	Robbins' phacelia

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Polemoniaceae – Phlox family

Symbol	Scientific Name	Common Name
IPRU2	Ipomopsis rubra (L.) Wherry	standing-cypress
PHDIL6	Phlox divaricata L. ssp. laphamii (Wood) Wherry	Lapham's phlox
PHDR	Phlox drummondii Hook.	annual phlox
PHPIO2	Phlox pilosa L. ssp. ozarkana (Wherry) Wherry	Ozark phlox
PHPIP2	Phlox pilosa L. ssp. Pilosa	downy phlox
PHPIP	Phlox pilosa L. ssp. pulcherrima Lundell	downy phlox

Family Solanaceae – Potato family

Symbol	Scientific Name	Common Name
DAST	Datura stramonium L.	Jimsonweed
PEAX	Petunia axillaris (Lam.) B.S.P.	large white petunia
PHAN5	Physalis angulata L.	cutleaf groundcherry
PHCIC3	Physalis cinerascens (Dunal) A.S. Hitchc. var. cinerascens	smallflower groundcherry
PHCO22	Physalis cordata P. Mill.	heartleaf groundcherry
PHHE4	Physalis hederifolia Gray	ivyleaf groundcherry
PHHE5	Physalis heterophylla Nees	clammy groundcherry
PHHEH3	Physalis heterophylla Nees var. heterophylla	clammy groundcherry
PHLOS	Physalis longifolia Nutt. var. subglabrata (Mackenzie & Bush) Cronq.	longleaf groundcherry
PHMO9	Physalis mollis Nutt.	field groundcherry
PHPU7	Physalis pubescens L.	husk tomato
PHPU8	Physalis pumila Nutt.	Dwarf groundcherry
SOCA2	Solanum capsicastrum Link ex Schauer	false Jerusalem cherry
SOCA3	Solanum carolinense L.	Carolina horsenettle
SODI	Solanum dimidiatum Raf.	western horsenettle
SOEL	Solanum elaeagnifolium Cav.	silverleaf nightshade
SOLY2	Solanum lycopersicum L.	garden tomato
SOPT3	Solanum ptychanthum Dunal	West Indian nightshade
SORO	Solanum rostratum Dunal	buffalobur nightshade

Order Caryophyllales

Family Aizoaceae – Fig-marigold family

Symbol	Scientific Name	Common Name
CYHU3	Cypselea humifusa Turp.	panal
SEMA3	Sesuvium maritimum (Walt.) B.S.P.	slender seapurslane
TRPO2	Trianthema portulacastrum L.	desert horsepurslane

Family Amaranthaceae – Amaranth family

Symbol	Scientific Name	Common Name
ALPA17	Alternanthera paronichyoides St.-Hil.	smooth joyweed
ALPAA2	Alternanthera paronichyoides St.-Hil. Var. amazonica Huber	smooth joyweed
ALPH	Alternanthera philoxeroides (Mart.) Griseb.	alligatorweed
AMAL	Amaranthus albus L.	prostrate pigweed
AMAR	Amaranthus arenicola I.M. Johnston	sandhill amaranth
AMAU	Amaranthus australis (Gray) Sauer	southern amaranth
AMBL	Amaranthus blitoides S. Wats.	mat amaranth
AMHY	Amaranthus hybridus L.	slim amaranth
AMPA	Amaranthus palmeri S. Wats.	carelessweed
AMRE	Amaranthus retroflexus L.	Redroot amaranth
AMRU	Amaranthus rudis Sauer	tall amaranth

AMSP	Amaranthus spinosus L.	spiny amaranth
AMTR2	Amaranthus tricolor L.	Joseph's-coat
AMTU	Amaranthus tuberculatus (Moq.) Sauer	Roughfruit amaranth
AMVI	Amaranthus viridis L.	Slender amaranth
FRFL	Froelichia floridana (Nutt.) Moq.	Plains snakecotton
FRGR3	Froelichia gracilis (Hook.) Moq.	Slender snakecotton

Family Basellaceae – Basella family

Symbol	Scientific Name	Common Name
ANCO6	Anredera cordifolia (Ten.) Steenis	heartleaf madeiravine

Family Cactaceae – Cactus family

Symbol	Scientific Name	Common Name
OPHU	Opuntia humifusa (Raf.) Raf.	devil's-tongue
OPMA2	Opuntia macrorhiza Engelm.	twistspine pricklypear

Family Caryophyllaceae – Pink family

Symbol	Scientific Name	Common Name
AGGI	Agrostemma githago L.	common corncockle
ARBE	Arenaria benthamii Fenzl ex Torr. & Gray	hilly sandwort
ARLA4	Arenaria lanuginosa (Michx.) Rohrb.	spreading sandwort
ARSE2	Arenaria serpyllifolia L.	thymeleaf sandwort
CEBR3	Cerastium brachypodum (Engelm. ex Gray) B.L. Robins.	shortstalk chickweed
CEFOV2	Cerastium fontanum Baumg. ssp. Vulgare (Hartman) Greuter & Burdet	big chickweed
CEGL2	Cerastium glomeratum Thuill.	sticky chickweed
CESE4	Cerastium semidecandrum L.	fivestamen chickweed
MIPA6	Minuartia patula (Michx.) Mattf.	pitcher's stitchwort
PADR	Paronychia drummondii Torr. & Gray	Drummond's nailwort
PAFA3	Paronychia fastigiata (Raf.) Fern.	hairy forked nailwort
SADE	Sagina decumbens (Ell.) Torr. & Gray	trailing pearlwort
SAOF4	Saponaria officinalis L.	bouncingbet
SCAN2	Scleranthus annuus L.	German knotgrass
SIAN2	Silene antirrhina L.	sleepy silene
SIGA	Silene gallica L.	common catchfly
SINO	Silene noctiflora L.	nightflowering silene
SIST	Silene stellata (L.) Ait. f.	widowsfrill
SISU3	Silene subciliata B.L. Robins.	Louisiana catchfly
SIVI4	Silene virginica L.	fire pink
STME2	Stellaria media (L.) Vill.	common chickweed
VAHI2	Vaccaria hispanica (P. Mill.) Rauschert	cow soapwort

Family Chenopodiaceae – Goosefoot family

Symbol	Scientific Name	Common Name
CHAL7	Chenopodium album L.	lambsquarters
CHALM2	Chenopodium album L. var. missouriense (Aellen) I.J. Bassett & C.W. Crompton	Missouri lambsquarters
CHAM	Chenopodium ambrosioides L.	Mexican tea
CHBEB	Chenopodium berlandieri Moq. var. boscianum (Moq.) H.A. Wahl	pitseed goosefoot
CHBEZ	Chenopodium berlandieri Moq. var. zschackii (J. Murr) J. Murr ex Aschers.	Zschack's goosefoot
CHMU2	Chenopodium murale L.	nettleleaf goosefoot
CHPR5	Chenopodium pratericola Rydb.	desert goosefoot
CHPU	Chenopodium pumilio R. Br.	clammy goosefoot
CHSI2	Chenopodium simplex (Torr.) Raf.	mapleleaf goosefoot
CHST2	Chenopodium standleyanum Aellen	Standley's goosefoot
CYAT	Cycloloma atriplicifolium (Spreng.) Coult.	winged pigweed

KOSC	Kochia scoparia (L.) Schrad.	Mexican-fireweed
MONU	Monolepis nuttalliana (J.A. Schultes) Greene	Nuttall's povertyweed
SAKA	Salsola kali L.	Russian thistle

Family Nyctaginaceae – Four O'clock family

Symbol	Scientific Name	Common Name
BODI3	Boerhavia diffusa L.	red spiderling
BOER	Boerhavia erecta L.	erect spiderling
MIAL4	Mirabilis albida (Walt.) Heimerl	white four o'clock
MIJA	Mirabilis jalapa L.	marvel of Peru
MINY	Mirabilis nyctaginea (Michx.) MacM.	heartleaf four o'clock

Family Phytolaccaceae – Pokeweed family

Symbol	Scientific Name	Common Name
PHAM4	Phytolacca americana L.	American pokeweed
RIHU2	Rivina humilis L.	rougeplant

Family Portulaceae – Purslane family

Symbol	Scientific Name	Common Name
CLVI3	Claytonia virginica L.	Virginia springbeauty
POGR7	Portulaca grandiflora Hook.	rose moss
POOL	Portulaca oleracea L.	little hogweed
TACA	Talinum calycinum Engelm.	largeflower fameflower
TAPA3	Talinum parviflorum Nutt.	sunbright

Order Polygonales

Family Polygonaceae – Buckwheat family

Symbol	Scientific Name	Common Name
BROV4	Brunnichia ovata (Walt.) Shinners	American buckwheat vine
ERLO5	Eriogonum longifolium Nutt.	longleaf buckwheat
ERMU4	Eriogonum multiflorum Benth.	heartsepal buckwheat
POAM3	Polygonella americana (Fisch. & C.A. Mey.) Small	southern jointweed
POPO2	Polygonella polygama (Vent.) Engelm. & Gray	October flower
POAV	Polygonum aviculare L.	Prostrate knotweed
POCO10	Polygonum convolvulus L.	black bindweed
POER2	Polygonum erectum L.	erect knotweed
POHY2	Polygonum hydropiperoides Michx.	swamp smartweed
POLA4	Polygonum lapathifolium L.	Curlytop knotweed
POPE2	Polygonum pensylvanicum L.	Pennsylvania smartweed
POPE3	Polygonum persicaria L.	Spotted ladysthumb
POPU5	Polygonum punctatum Ell.	Dotted smartweed
PORAR	Polygonum ramosissimum Michx. Var. ramosissimu m	bushy knotweed
POSCC	Polygonum scandens L. var. cristatum (Engelm. & Gray) Gleason	climbing false buckwheat
POSE6	Polygonum setaceum Baldw.	bog smartweed
POVI2	Polygonum virginianum L.	jumpseed
RUAL4	Rumex altissimus Wood	pale dock
RUCR	Rumex crispus L.	curly dock
RUHA2	Rumex hastatulus Baldw.	heartwing sorrel
RUPU3	Rumex pulcher L.	fiddle dock
RUVE3	Rumex verticillatus L.	swamp dock

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Capparales
Family Brassicaceae – Mustard family

Symbol	Scientific Name	Common Name
ALAL3	Alyssum alyssoides (L.) L.	pale madwort
ARTH	Arabidopsis thaliana (L.) Heynh.	mouseear cress
BRJU	Brassica juncea (L.) Czern.	India mustard
BRNA	Brassica napus L.	rape
BRNI	Brassica nigra (L.) W.D.J. Koch	black mustard
BROL	Brassica oleracea L.	cabbage
BRRAR	Brassica rapa L. var. rapa	field mustard
CAMI2	Camelina microcarpa DC.	littlepod false flax
CACO26	Cardamine concatenata (Michx.) Sw.	cutleaf toothwort
CAHI3	Cardamine hirsuta L.	hairy bittercress
CAPAA2	Cardamine parviflora L. var. arenicola (Britt.) O.E. Schulz	sand bittercress
CHTE2	Chorispora tenella (Pallas) DC.	crossflower
CODI6	Coronopus didymus (L.) Sm.	lesser swinecress
DESO2	Descurainia sophia (L.) Webb ex Prantl	herb sophia
DRBR	Draba brachycarpa Nutt. ex Torr. & Gray	shortpod draba
DRCU	Draba cuneifolia Nutt. ex Torr. & Gray	wedgeleaf draba
ERRE4	Erysimum repandum L.	spreading wallflower
LEDE	Lepidium densiflorum Schrad.	common pepperweed
LERU	Lepidium ruderale L.	roadside pepperweed
LEVI3	Lepidium virginicum L.	Virginia pepperweed
RARA2	Raphanus raphanistrum L.	wild radish
RASA2	Raphanus sativus L.	cultivated radish
RARU	Rapistrum rugosum (L.) All.	annual bastardcabbage
RONA2	Rorippa nasturtium-aquaticum (L.) Hayek	watercress
ROPA2	Rorippa palustris (L.) Bess.	bog yellowcress
ROSE	Rorippa sessiliflora (Nutt.) A.S. Hitchc.	stalkless yellowcress
ROSY	Rorippa sylvestris (L.) Bess.	creeping yellowcress
SIVI2	Sibara virginica (L.) Rollins	Virginia winged rockcress
SIAR4	Sinapis arvensis L.	charlock mustard
SIAL2	Sisymbrium altissimum L.	tall tumblemustard
SIOF	Sisymbrium officinale (L.) Scop.	hedgemustard
STHY	Streptanthus hyacinthoides Hook.	smooth jewelflower
THAR5	Thlaspi arvense L.	field pennycress

Family Capparaceae – Caper family

Symbol	Scientific Name	Common Name
CLHA	Cleome hassleriana Chod.	pink queen
PODOD	Polanisia dodecandra (L.) DC. Ssp. dodecandra	redwhisker clammyweed
POER	Polanisia erosa (Nutt.) Iltis	large clammyweed

Order Ebenales
Family Ebenaceae – Ebony family

Symbol	Scientific Name	Common Name
DIVI5	Diospyros virginiana L.	common persimmon

Family Sapotaceae – Sapodilla family

Symbol	Scientific Name	Common Name
SILA20	Sideroxylon lanuginosum Michx.	gum bully
SILY	Sideroxylon lycioides L.	buckthorn bully

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Styracaceae – Storax family

Symbol	Scientific Name	Common Name
HADI3	Halesia diptera Ellis	two-wing silverbell
STAM4	Styrax americanus Lam.	American snowbell
STGR4	Styrax grandifolius Ait.	bigleaf snowbell

Family Symplocaceae – Sweetleaf family

Symbol	Scientific Name	Common Name
SYTI	Symplocos tinctoria (L.) L'Hér.	common sweetleaf

Order Ericales

Family Clethraceae – Clethra family

Symbol	Scientific Name	Common Name
CLAL3	Clethra alnifolia L.	coastal sweetpepperbush

Family Ericaceae – Heath family

Symbol	Scientific Name	Common Name
KALA	Kalmia latifolia L.	mountain laurel
LEAX	Leucothoe axillaris (Lam.) D. Don	coastal doghobble
LERA4	Leucothoe racemosa (L.) Gray	swamp doghobble
LYLI	Lyonia ligustrina (L.) DC.	maleberry
LYLU3	Lyonia lucida (Lam.) K. Koch	fetterbush lyonia
LYMA2	Lyonia mariana (L.) D. Don	piedmont staggerbush
RHCA7	Rhododendron canescens (Michx.) Sweet	mountain azalea
RHOB	Rhododendron oblongifolium (Small) Millais	Texas azalea
RHVI2	Rhododendron viscosum (L.) Torr.	swamp azalea
VAAR	Vaccinium arboreum Marsh.	farkleberry
VACO	Vaccinium corymbosum L.	highbush blueberry
VAEL	Vaccinium elliottii Chapman	Elliott's blueberry
VAFU	Vaccinium fuscatum Ait.	black highbush blueberry
VAST	Vaccinium stamineum L.	deerberry
VAVI2	Vaccinium virgatum Ait.	smallflower blueberry

Family Monotropaceae – Indianpipe family

Symbol	Scientific Name	Common Name
MOHY3	Monotropa hypopithys L.	pinesap
MOUN3	Monotropa uniflora L.	Indianpipe

Order Malvales

Family Malvaceae – Mallow family

Symbol	Scientific Name	Common Name
ABES	Abelmoschus esculentus (L.) Moench	okra
ABTH	Abutilon theophrasti Medik.	velvetleaf
CAAL	Callirhoe alcaeoides (Michx.) Gray	light poppymallow
CADI2	Callirhoe digitata Nutt.	winecup
CAIN2	Callirhoe involucrata (Torr. & Gray) Gray	poppymallow
CAPA2	Callirhoe papaver (Cav.) Gray	woodland poppymallow
HILA2	Hibiscus laevis All.	halberdleaf rosemallow
HIMOL	Hibiscus moscheutos L. ssp. Lasiocarpos (Cav.) O.J. Blanchard	crimsoneyed rosemallow
HISY	Hibiscus syriacus L.	rose of Sharon
MACA5	Malachra capitata (L.) L.	malva de caballo

MOCA	Modiola caroliniana (L.) G. Don	Carolina bristlemallow
SIRH	Sida rhombifolia L.	cuban jute
SISP	Sida spinosa L.	prickly fanpetals

Family Sterculiaceae – Cacao family

Symbol	Scientific Name	Common Name
FISI2	Firmiana simplex (L.) W. Wight	Chinese parasoltree
MECO4	Melochia corchorifolia L.	chocolateweed

Family Tiliaceae – Linden family

Symbol	Scientific Name	Common Name
TIAM	Tilia americana L.	American basswood

Order Nepenthales

Family Droseraceae – Sundew family

Symbol	Scientific Name	Common Name
DRBR3	Drosera brevifolia Pursh	sundew
DRCA2	Drosera capillaris Poir.	pink sundew

Family Sarraceniaceae – Pitcherplant family

Symbol	Scientific Name	Common Name
SAAL4	Sarracenia alata Wood	yellow trumpets
SAPS2	Sarracenia psittacina Michx.	parrot pitcherplant

Order Primulales

Family Primulaceae – Primrose family

Symbol	Scientific Name	Common Name
ANAR	Anagallis arvensis L.	scarlet pimpernel
ANMI4	Anagallis minima (L.) Krause	chaffweed
DOME	Dodecatheon meadia L.	pride of Ohio
HOIN	Hottonia inflata Ell.	American featherfoil
LYLA	Lysimachia lanceolata Walt.	lanceleaf loosestrife
LYRA3	Lysimachia radicans Hook.	trailing yellow loosestrife
SAVA3	Samolus valerandi L.	seaside brookweed

Order Salicales

Family Salicaceae – Willow family

Symbol	Scientific Name	Common Name
POAL7	Populus alba L.	white poplar
PODE3	Populus deltoides Bartr. ex Marsh.	eastern cottonwood
SAHU2	Salix humilis Marsh.	prairie willow
SANI	Salix nigra Marsh.	black willow
SASE10	Salix ×sepulcralis Simonkai [alba × babylonica]	weeping willow

Order Theales

Family Cluisiaceae – Mangosteen family

Symbol	Scientific Name	Common Name
HYCR3	Hypericum crux-andreae (L.) Crantz	St. Peterswort
HYDE	Hypericum densiflorum Pursh	bushy St. Johnswort
HYDR	Hypericum drummondii (Grev. & Hook.) Torr. & Gray	nits and lice
HYFA	Hypericum fasciculatum Lam.	peelbark St. Johnswort

HYFR	Hypericum frondosum Michx.	cedarglade St. Johnswort
HYGA	Hypericum galioides Lam.	bedstraw St. Johnswort
HYGE	Hypericum gentianoides (L.) B.S.P.	orangegrass
HYGY	Hypericum gymnanthum Engelm. & Gray	claspingleaf St. Johnswort
HYHYH	Hypericum hypericoides (L.) Crantz ssp. hypericoides	St. Andrew's cross
HYHYM	Hypericum hypericoides (L.) Crantz ssp. multicaule (Michx. ex Willd.) Robson	St. Andrew's cross
HYMU	Hypericum mutilum L.	dwarf St. Johnswort
HYNU	Hypericum nudiflorum Michx. ex Willd.	early St. Johnswort
HYPR	Hypericum prolificum L.	shrubby St. Johnswort
HYPS	Hypericum pseudomaculatum Bush	false spotted St. Johnswort
HYPU	Hypericum punctatum Lam.	spotted St. Johnswort
HYSE	Hypericum setosum L.	hairy St. Johnswort
TRTU	Triadenum tubulosum (Walt.) Gleason	lesser marsh St. Johnswort
TRWA	Triadenum walteri (J.G. Gmel.) Gleason	greater marsh St. Johnswort

Family Elatinaceae – Waterwort family

Symbol	Scientific Name	Common Name
BETE	Bergia texana (Hook.) Seub. ex Walp.	Texas bergia

Order Violales

Family Cistaceae – Rockrose family

Symbol	Scientific Name	Common Name
HECA4	Helianthemum carolinianum (Walt.) Michx.	Carolina frostweed
HEGE	Helianthemum georgianum Chapman	Georgia frostweed
HERO2	Helianthemum rosmarinifolium Pursh	rosemary frostweed
LEMU3	Lechea mucronata Raf.	hairy pinweed
LETE	Lechea tenuifolia Michx.	narrowleaf pinweed

Family Cucurbitaceae – Cucumber family

Symbol	Scientific Name	Common Name
CAQU3	Cayaponia quinqueloba (Raf.) Shinners	fivelobe cucumber
CILA3	Citrullus lanatus (Thunb.) Matsumura & Nakai	watermelon
CUME	Cucumis melo L.	cantaloupe
CUSA4	Cucumis sativus L.	garden cucumber
CUPEO	Cucurbita pepo L. var. ovifera (L.) Alef.	field pumpkin
LASI	Lagenaria siceraria (Molina) Standl.	bottle gourd
MEPE3	Melothria pendula L.	Guadeloupe cucumber

Family Passifloraceae – Passionflower family

Symbol	Scientific Name	Common Name
PACA22	Passiflora caerulea L.	bluecrown passionflower
PAIN6	Passiflora incarnata L.	purple passionflower
PALU2	Passiflora lutea L.	yellow passionflower

Family Tamaricaceae – Tamarix family

Symbol	Scientific Name	Common Name
TAGA	Tamarix gallica L.	French tamarisk
TARA	Tamarix ramosissima Ledeb.	saltcedar

Family Violaceae – Violet family

Symbol	Scientific Name	Common Name
VIAF2	Viola affinis Le Conte	sand violet
VIAR	Viola arvensis Murr.	European field pansy

VIBI	Viola bicolor Pursh	field pansy
VILA4	Viola lanceolata L.	bog white violet
VILO3	Viola lovelliana Brainerd	Lovell's violet
VIPA3	Viola palmata L.	early blue violet
VIPE	Viola pedata L.	birdfoot violet
VIPR4	Viola ×primulifolia L. (pro sp.) [lanceolata × macloskeyi]	
VIPU3	Viola pubescens Ait.	downy yellow violet
VISA2	Viola sagittata Ait.	arrowleaf violet
VISO	Viola sororia Willd.	common blue violet
VITR	Viola tricolor L.	johnny jumpup
VIVI2	Viola viarum Pollard	twoflower violet
VIVI3	Viola villosa Walt.	Carolina violet
VIWA	Viola walteri House	prostrate blue violet

Order Fagales
Family Betulaceae – Birch family

Symbol	Scientific Name	Common Name
OSVI	Ostrya virginiana (P. Mill.) K. Koch	hophornbeam

Family Fagaceae – Beech family

Symbol	Scientific Name	Common Name
CAPU9	Castanea pumila (L.) P. Mill.	chinkapin
FAGR	Fagus grandifolia Ehrh.	American beech
QUAC80	Quercus acutissima Carruthers	sawtooth oak
QUAL	Quercus alba L.	white oak
QUAR2	Quercus arkansana Sarg.	Arkansas oak
QUCO3	Quercus ×comptoniae Sarg. [lyrata × virginiana]	
QUCR	Quercus ×cravenensis Little [incana × marilandica]	
QUHEH	Quercus hemisphaerica Bartr. ex Willd. var. hemisphaerica	Darlington oak
QUIN	Quercus incana Bartr.	bluejack oak
QULA3	Quercus laurifolia Michx.	laurel oak
QULY	Quercus lyrata Walt.	overcup oak
QUMA2	Quercus macrocarpa Michx.	bur oak
QUMA6	Quercus margarettiae Ashe ex Small	runner oak
QUMA3	Quercus marilandica Muenchh.	blackjack oak
QUMU	Quercus muehlenbergii Engelm.	chinkapin oak
QUNI	Quercus nigra L.	water oak
QUPA5	Quercus pagoda Raf.	cherrybark oak
QUPH	Quercus phellos L.	willow oak
QUPR	Quercus prinoides Willd.	dwarf chinkapin oak
QURU	Quercus rubra L.	northern red oak
QUSHS2	Quercus shumardii Buckl. Var. shumardii	Shumard oak
QUSI2	Quercus similis Ashe	bottomland post oak
QUST	Quercus stellata Wangenh.	post oak
QUSU5	Quercus suber L.	cork oak
QUTE	Quercus texana Buckl.	Texas red oak
QUVE	Quercus velutina Lam.	black oak
QUVI	Quercus virginiana P. Mill.	live oak
QUWI	Quercus ×willdenowiana (Dippel) Beissner, Schelle & Zabel (pro sp.) [falcata × velutina]	

Order Hamamelidales
Family Hamamelidaceae – Witchhazel family

Symbol	Scientific Name	Common Name

HAVI4	Hamamelis virginiana L.	American witchhazel
LIST2	Liquidambar styraciflua L.	sweetgum

Family Platanaceae – Planetree family

Symbol	Scientific Name	Common Name
PLOC	Platanus occidentalis L.	American sycamore

Order Juglandales

Family Juglandaceae – Walnut family

Symbol	Scientific Name	Common Name
CAAL27	Carya alba (L.) Nutt. ex Ell.	mockernut hickory
CAAQ2	Carya aquatica (Michx. f.) Nutt.	water hickory
CACO15	Carya cordiformis (Wangenh.) K. Koch	bitternut hickory
CAGLG2	Carya glabra (P. Mill.) Sweet var. glabra	pignut hickory
CAGLH	Carya glabra (P. Mill.) Sweet var. hirsuta (Ashe) Ashe	pignut hickory
CAIL2	Carya illinoinensis (Wangenh.) K. Koch	pecan
CAMY	Carya myristiciformis (Michx. f.) Nutt.	nutmeg hickory
CAOV2	Carya ovata (P. Mill.) K. Koch	shagbark hickory
CATE9	Carya texana Buckl.	black hickory
JUNI	Juglans nigra L.	black walnut

Order Myricales

Family Myricaceae – Bayberry family

Symbol	Scientific Name	Common Name
MOCA7	Morella caroliniensis (P. Mill.) Small	southern bayberry
MOCE2	Morella cerifera (L.) Small	wax myrtle

Order Urticales

Family Cannabaceae – Hemp family

Symbol	Scientific Name	Common Name
CASA3	Cannabis sativa L.	marijuana

Family Moraceae – Mulberry family

Symbol	Scientific Name	Common Name
BRPA4	Broussonetia papyrifera (L.) L'Hér. ex Vent.	paper mulberry
FAVI	Fatoua villosa (Thunb.) Nakai	hairy crabweed
FICA	Ficus carica L.	edible fig
MAPO	Maclura pomifera (Raf.) Schneid.	osage orange
MOAL	Morus alba L.	white mulberry
MORU2	Morus rubra L.	red mulberry

Family Ulmaceae – Elm family

Symbol	Scientific Name	Common Name
CELAL	Celtis laevigata Willd. var. laevigata	sugarberry
CELAR	Celtis laevigata Willd. var. reticulata (Torr.) L. Benson	netleaf hackberry
CETE	Celtis tenuifolia Nutt.	dwarf hackberry
PLAQ	Planera aquatica J.F. Gmel.	planertree
ULAL	Ulmus alata Michx.	winged elm
ULAM	Ulmus americana L.	American elm
ULCR	Ulmus crassifolia Nutt.	cedar elm
ULRU	Ulmus rubra Muhl.	slippery elm

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Urticaceae – Nettle family

Symbol	Scientific Name	Common Name
BOCY	Boehmeria cylindrica (L.) Sw.	smallspike false nettle
PAPE5	Parietaria pensylvanica Muhl. ex Willd.	Pennsylvania pellitory
PIMI2	Pilea microphylla (L.) Liebm.	rockweed
PIPU2	Pilea pumila (L.) Gray	Canadian clearweed
URCH3	Urtica chamaedryoides Pursh	heartleaf nettle

Order Aristolochiales
Family Aristolochiaceae – Birthwort family

Symbol	Scientific Name	Common Name
ARRE3	Aristolochia reticulata Jacq.	Texas dutchman's pipe
ARSE3	Aristolochia serpentaria L.	Virginia snakeroot
ARTO3	Aristolochia tomentosa Sims	woolly dutchman's pipe

Order Illiales
Family Schisandraceae – Star-anise family

Symbol	Scientific Name	Common Name
SCGL7	Schisandra glabra (Bickn.) Rehd.	bay starvine

Order Laurales
Family Lauraceae – Laurel family

Symbol	Scientific Name	Common Name
LIBE3	Lindera benzoin (L.) Blume	northern spicebush
PEPA37	Persea palustris (Raf.) Sarg.	swamp bay
SAAL5	Sassafras albidum (Nutt.) Nees	sassafras

Order Magnoliales
Family Annonaceae – Magnolia family

Symbol	Scientific Name	Common Name
ASPA18	Asimina parviflora (Michx.) Dunal	smallflower pawpaw
ASTR	Asimina triloba (L.) Dunal	pawpaw

Family Magnoliaceae

Symbol	Scientific Name	Common Name
LITU	Liriodendron tulipifera L.	tuliptree
MAAC	Magnolia acuminata (L.) L.	cucumber-tree
MAGR4	Magnolia grandiflora L.	southern magnolia
MAVI2	Magnolia virginiana L.	sweetbay

Order Nymphaeales
Family Cabombaceae – Watershield family

Symbol	Scientific Name	Common Name
CACA	Cabomba caroliniana Gray	Carolina fanwort

Family Nelumbonaceae – Lotus-lily family

Symbol	Scientific Name	Common Name
NELU	Nelumbo lutea Willd.	American lotus

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Nymphaeaceae – Waterlily family

Symbol	Scientific Name	Common Name
NULU	Nuphar lutea (L.) Sm.	yellow pond-lily
NYEL	Nymphaea elegans Hook.	tropical royalblue waterlily
NYOD	Nymphaea odorata Ait.	American white waterlily

Order Papaverales

Family Fumariaceae – Fumitory family

Symbol	Scientific Name	Common Name
COFL3	Corydalis flavula (Raf.) DC.	yellow fumewort
COMIA2	Corydalis micrantha (Engelm. ex Gray) Gray ssp. australis (Chapman) G.B. Ownbey	smallflower fumewort
COMIM2	Corydalis micrantha (Engelm. ex Gray) Gray ssp. micrantha	smallflower fumewort

Family Papaveraceae – Poppy family

Symbol	Scientific Name	Common Name
ARAL3	Argemone albiflora Hornem.	bluestem pricklypoppy
ARME4	Argemone mexicana L.	Mexican pricklypoppy
PARH2	Papaver rhoeas L.	corn poppy
PASO2	Papaver somniferum L.	opium poppy

Order Piperales

Family Saururaceae – Lizard's-tail family

Symbol	Scientific Name	Common Name
SACE	Saururus cernuus L.	lizard's tail

Order Ranunculales

Family Berberidaceae – Barberry family

Symbol	Scientific Name	Common Name
NADO	Nandina domestica Thunb.	sacred bamboo
POPE	Podophyllum peltatum L.	mayapple

Family Menispermaceae – Moonseed family

Symbol	Scientific Name	Common Name
COCA	Cocculus carolinus (L.) DC.	Carolina coralbead

Family Ranunculaceae – Buttercup family

Symbol	Scientific Name	Common Name
ADAN	Adonis annua L.	blooddrops
ANBE	Anemone berlandieri Pritz.	tenpetal thimbleweed
ANCA9	Anemone caroliniana Walt.	Carolina anemone
CLCR	Clematis crispa L.	swamp leather flower
CLRE	Clematis reticulata Walt.	netleaf leather flower
CLTE4	Clematis terniflora DC.	sweet autumn virginsbower
CLVI5	Clematis virginiana L.	devil's darning needles
COAJ	Consolida ajacis (L.) Schur	doubtful knight's-spur
DECAC3	Delphinium carolinianum Walt. ssp. Carolinianum	Carolina larkspur
DECAV	Delphinium carolinianum Walt. ssp. Vimineum (D. Don) Warnock	Carolina larkspur

MYMI2	Myosurus minimus L.	tiny mousetail
RAAB	Ranunculus abortivus L.	littleleaf buttercup
RAAM	Ranunculus ambigens S. Wats.	waterplantain spearwort
RAAR3	Ranunculus arvensis L.	corn buttercup
RAFA	Ranunculus fascicularis Muhl. ex Bigelow	early buttercup
RAHIN	Ranunculus hispidus Michx. var. nitidus (Chapman) T. Duncan	bristly buttercup
RALA2	Ranunculus laxicaulis (Torr. & Gray) Darby	Mississippi buttercup
RAMAT	Ranunculus marginatus d'Urv. var. trachycarpus (Fisch. & C.A. Mey.) Arn.	margined buttercup
RAMU2	Ranunculus muricatus L.	spinyfruit buttercup
RAPA3	Ranunculus parviflorus L.	smallflower buttercup
RAPU	Ranunculus pusillus Poir.	low spearwort
RAPUA	Ranunculus pusillus Poir. var. angustifolius (Engelm.) L. Benson	low spearwort
RARE2	Ranunculus recurvatus Poir.	blisterwort
RASA	Ranunculus sardous Crantz	hairy buttercup
RASC3	Ranunculus sceleratus L.	cursed buttercup
RATR2	Ranunculus trilobus Desf.	threelobe buttercup
THDA	Thalictrum dasycarpum Fisch. & Avé-Lall.	purple meadow-rue
THRE	Thalictrum revolutum DC.	waxyleaf meadow-rue

Order Apiales
Family Apiaceae – Carrot family

Symbol	Scientific Name	Common Name
AMBU	Ammoselinum butleri (Engelm. ex S. Wats.) Coult. & Rose	Butler's sandparsley
BOIN3	Bowlesia incana Ruiz & Pavón	hoary bowlesia
BURO	Bupleurum rotundifolium L.	hare's ear
CEER2	Centella erecta (L. f.) Fern.	erect centella
CHTA	Chaerophyllum tainturieri Hook.	hairyfruit chervil
CIMA2	Cicuta maculata L.	spotted water hemlock
COMA2	Conium maculatum L.	poison hemlock
CRCA9	Cryptotaenia canadensis (L.) DC.	Canadian honewort
CYLE7	Cyclospermum leptophyllum (Pers.) Sprague ex Britt. & Wilson	marsh parsley
CYDI2	Cynosciadium digitatum DC.	finger dogshade
DACA6	Daucus carota L.	Queen Anne's lace
DAPU3	Daucus pusillus Michx.	American wild carrot
ERHO9	Eryngium hookeri Walp.	Hooker's eryngo
ERIN6	Eryngium integrifolium Walt.	blueflower eryngo
ERPR5	Eryngium prostratum Nutt. Ex DC.	creeping eryngo
ERYU	Eryngium yuccifolium Michx.	button eryngo
ERYUY	Eryngium yuccifolium Michx. var. yuccifolium	button eryngo
EUTE5	Eurytaenia texana Torr. & Gray	Texas spreadwing
FAVU	Falcaria vulgaris Bernh.	sickleweed
HYRA	Hydrocotyle ranunculoides L. f.	floating marshpennywort
HYUM	Hydrocotyle umbellata L.	manyflower marshpennywort
HYVE2	Hydrocotyle verticillata Thunb.	whorled marshpennywort
LIPI2	Limnosciadium pinnatum (DC.) Mathias & Constance	tansy dogshade
OXRI	Oxypolis rigidior (L.) Raf.	stiff cowbane
PONU4	Polytaenia nuttallii DC.	Nuttall's prairie parsley
PTCA	Ptilimnium capillaceum (Michx.) Raf.	herbwilliam
PTCO	Ptilimnium costatum (Ell.) Raf.	ribbed mock bishopweed
PTNU	Ptilimnium nuttallii (DC.) Britt.	laceflower
SACA15	Sanicula canadensis L.	Canadian blacksnakeroot
SAOD	Sanicula odorata (Raf.) K.M. Pryer & L.R. Phillippe	clustered blacksnakeroot
SASM	Sanicula smallii Bickn.	Small's blacksnakeroot

SPDI2	Spermolepis divaricata (Walt.) Raf. ex Ser.	roughfruit scaleseed
SPEC2	Spermolepis echinata (Nutt. ex DC.) Heller	bristly scaleseed
SPIN	Spermolepis inermis (Nutt. Ex DC.) Mathias & Constance	Red River scaleseed
TAIN	Taenidia integerrima (L.) Drude	yellow pimpernel
THTRA	Thaspium trifoliatum (L.) Gray var. aureum Britt.	purple meadowparsnip
THTRT	Thaspium trifoliatum (L.) Gray var. trifoliatum	purple meadowparsnip
TOAR	Torilis arvensis (Huds.) Link	spreading hedgeparsley
TONO	Torilis nodosa (L.) Gaertn.	knotted hedgeparsley
TRAE2	Trepocarpus aethusae Nutt. Ex DC.	whitenymph
ZIAU	Zizia aurea (L.) W.D.J. Koch	golden zizia

Family Araliaceae – Ginseng family

Symbol	Scientific Name	Common Name
ARSP2	Aralia spinosa L.	devil's walkingstick
HEHE	Hedera helix L.	English ivy

Order Celastrales

Family Aquifoliaceae – Holly family

Symbol	Scientific Name	Common Name
ILAM	Ilex ambigua (Michx.) Torr.	Carolina holly
ILCO	Ilex coriacea (Pursh) Chapman	large gallberry
ILDE	Ilex decidua Walt.	possumhaw
ILLO	Ilex longipes Chapman ex Trel.	Georgia holly
ILOP	Ilex opaca Ait.	American holly
ILVE	Ilex verticillata (L.) Gray	common winterberry
ILVO	Ilex vomitoria Ait.	yaupon

Family Celastraceae – Bittersweet family

Symbol	Scientific Name	Common Name
CESC	Celastrus scandens L.	American bittersweet
EUAM7	Euonymus americana L.	strawberry bush
EUAT3	Euonymus atropurpurea Jacq.	eastern wahoo
EUATA	Euonymus atropurpurea Jacq. var. atropurpurea	eastern wahoo
EUJA2	Euonymus japonica Thunb.	Japanese spindletree

Order Cornales

Family Cornaceae – Dogwood family

Symbol	**Scientific Name**	Common Name
CODR	Cornus drummondii C.A. Mey.	roughleaf dogwood
COFL2	Cornus florida L.	flowering dogwood
COFO	Cornus foemina P. Mill.	stiff dogwood

Family Nyssaceae – Sourgum family

Symbol	Scientific Name	Common Name
NYAQ2	Nyssa aquatica L.	water tupelo
NYBI	Nyssa biflora Walt.	swamp tupelo
NYSY	Nyssa sylvatica Marsh.	blackgum

Order Euphorbiales

Family Euphorbiaceae – Spurge family

Symbol	Scientific Name	Common Name
ACGR2	Acalypha gracilens Gray	slender threeseed mercury
ACOS	Acalypha ostryifolia Riddell	pineland threeseed

		mercury
ACRH	Acalypha rhomboidea Raf.	Virginia threeseed mercury
ACSE	Acalypha setosa A. Rich.	Cuban copperleaf
ACVI	Acalypha virginica L.	Virginia threeseed mercury
CHAL11	Chamaesyce albomarginata (Torr. & Gray) Small	whitemargin sandmat
CHCO11	Chamaesyce cordifolia (Ell.) Small	heartleaf sandmat
CHGE2	Chamaesyce geyeri (Engelm.) Small	Geyer's sandmat
CHHU3	Chamaesyce humistrata (Engelm.) Small	spreading sandmat
CHMA15	Chamaesyce maculata (L.) Small	spotted sandmat
CHNU9	Chamaesyce nutans (Lag.) Small	eyebane
CHPR6	Chamaesyce prostrata (Ait.) Small	prostrate sandmat
CHSE4	Chamaesyce serpens (Kunth) Small	matted sandmat
CNTE	Cnidoscolus texanus (Muell.-Arg.) Small	Texas bullnettle
CRAR2	Croton argyranthemus Michx.	healing croton
CRCA6	Croton capitatus Michx.	hogwort
CRGL2	Croton glandulosus L.	vente conmigo
CRMI8	Croton michauxii G.L. Webster	Michaux's croton
CRMO6	Croton monanthogynus Michx.	prairie tea
CRWI5	Croton willdenowii G.L. Webster	Willdenow's croton
EUCO10	Euphorbia corollata L.	flowering spurge
EUCY	Euphorbia cyathophora Murr.	fire on the mountain
EUDE4	Euphorbia dentata Michx.	toothed spurge
EUHE2	Euphorbia helioscopia L.	madwoman's milk
EUHE3	Euphorbia helleri Millsp.	Heller's spurge
EUHE4	Euphorbia heterophylla L.	Mexican fireplant
EUSP	Euphorbia spathulata Lam.	warty spurge
EUTE4	Euphorbia tetrapora Engelm.	weak spurge
MAGR8	Manihot grahamii Hook.	Graham's manihot
PHCA9	Phyllanthus caroliniensis Walt.	Carolina leaf-flower
PHUR	Phyllanthus urinaria L.	chamber bitter
RICO3	Ricinus communis L.	castorbean
SEFR	Sebastiania fruticosa (Bartr.) Fern.	Gulf Sebastian-bush
STSY	Stillingia sylvatica Garden ex L.	queen's-delight
TRBE4	Tragia betonicifolia Nutt.	betonyleaf noseburn
TRCO	Tragia cordata Michx.	heartleaf noseburn
TRSM	Tragia smallii Shinners	Small's noseburn
TRUR	Tragia urens L.	wavyleaf noseburn
TRUR2	Tragia urticifolia Michx.	nettleleaf noseburn
TRSE6	Triadica sebifera (L.) Small	tallowtree
VEFO	Vernicia fordii (Hemsl.) Airy-Shaw	tungoil tree

Order Fabales

Family Fabaceae – Pea family

Symbol	Scientific Name	Common Name
ACANH	Acacia angustissima (P. Mill.) Kuntze var. hirta (Nutt.) B.L. Robins.	prairie acacia
AEIN	Aeschynomene indica L.	Indian jointvetch
ALJU	Albizia julibrissin Durazz.	silktree
AMFR	Amorpha fruticosa L.	desert false indigo
AMPA4	Amorpha paniculata Torr. & Gray	panicled false indigo
AMBR2	Amphicarpaea bracteata (L.) Fern.	American hogpeanut
APAM	Apios americana Medik.	groundnut
ARHY	Arachis hypogaea L.	peanut
ASCA11	Astragalus canadensis L.	Canadian milkvetch

ASCR2	Astragalus crassicarpus Nutt.	groundplum milkvetch
ASDI4	Astragalus distortus Torr. & Gray	Ozark milkvetch
ASLE10	Astragalus leptocarpus Torr. & Gray	rare loco milkvetch
ASSO5	Astragalus soxmaniorum Lundell	Soxman's milkvetch
BAALM	Baptisia alba (L.) Vent. var. macrophylla (Larisey) Isely	largeleaf wild indigo
BABRL	Baptisia bracteata Muhl. ex Ell. var. laevicaulis (Gray ex Canby) Isely	longbract wild indigo
BABRL2	Baptisia bracteata Muhl. ex Ell. var. leucophaea (Nutt.) Kartesz & Gandhi	longbract wild indigo
BANU2	Baptisia nuttalliana Small	Nuttall's wild indigo
BASP	Baptisia sphaerocarpa Nutt.	yellow wild indigo
BASU	Baptisia ×sulphurea Engelm. (pro sp.) [alba × sphaerocarpa]	
CEVI2	Centrosema virginianum (L.) Benth.	spurred butterfly pea
CECA4	Cercis canadensis L.	eastern redbud
CHFA2	Chamaecrista fasciculata (Michx.) Greene	sleepingplant
CHNI2	Chamaecrista nictitans (L.) Moench	partridge pea
CHNIN	Chamaecrista nictitans (L.) Moench ssp. nictitans	partridge pea
CLMA4	Clitoria mariana L.	Atlantic pigeonwings
CRSA4	Crotalaria sagittalis L.	arrowhead rattlebox
CRSP2	Crotalaria spectabilis Roth	showy rattlebox
DACA7	Dalea candida Michx. ex Willd.	white prairie clover
DAPH2	Dalea phleoides (Torr. & Gray) Shinners	slimspike prairie clover
DAPU5	Dalea purpurea Vent.	violet prairie clover
DAVI	Dalea villosa (Nutt.) Spreng.	silky prairie clover
DEIL	Desmanthus illinoensis (Michx.) MacM. ex B.L. Robins. & Fern.	prairie bundleflower
DECA8	Desmodium canescens (L.) DC.	hoary ticktrefoil
DECI	Desmodium ciliare (Muhl. ex Willd.) DC.	hairy small-leaf ticktrefoil
DECIC	Desmodium ciliare (Muhl. ex Willd.) DC. var. ciliare	hairy small-leaf ticktrefoil
DECU	Desmodium cuspidatum (Muhl. ex Willd.) DC. ex Loud.	largebract ticktrefoil
DEGL4	Desmodium glabellum (Michx.) DC.	Dillenius' ticktrefoil
DEGL5	Desmodium glutinosum (Muhl. ex Willd.) Wood	pointedleaf ticktrefoil
DELA2	Desmodium laevigatum (Nutt.) DC.	smooth ticktrefoil
DEMA2	Desmodium marilandicum (L.) DC.	smooth small-leaf ticktrefoil
DENU4	Desmodium nudiflorum (L.) DC.	nakedflower ticktrefoil
DEOB5	Desmodium obtusum (Muhl. ex Willd.) DC.	stiff ticktrefoil
DEPA6	Desmodium paniculatum (L.) DC.	panicledleaf ticktrefoil
DEPA7	Desmodium pauciflorum (Nutt.) DC.	fewflower ticktrefoil
DERO3	Desmodium rotundifolium DC.	prostrate ticktrefoil
DESE	Desmodium sessilifolium (Torr.) Torr. & Gray	sessileleaf ticktrefoil
DEST2	Desmodium strictum (Pursh) DC.	pinebarren ticktrefoil
DETE3	Desmodium tenuifolium Torr. & Gray	slimleaf ticktrefoil
DETO	Desmodium tortuosum (Sw.) DC.	dixie ticktrefoil
DEVI4	Desmodium viridiflorum (L.) DC.	velvetleaf ticktrefoil
DIMU	Dioclea multiflora (Torr. & Gray) C. Mohr	Boykin's clusterpea
ERHE4	Erythrina herbacea L.	redcardinal
GAER	Galactia erecta (Walt.) Vail	erect milkpea
GARE2	Galactia regularis (L.) B.S.P.	eastern milkpea
GAVO	Galactia volubilis (L.) Britt.	downy milkpea
GLAQ	Gleditsia aquatica Marsh.	water locust
GLTR	Gleditsia triacanthos L.	honeylocust
GLVE	Glottidium vesicarium (Jacq.) Harper	bagpod
GLMA4	Glycine max (L.) Merr.	soybean
INSU	Indigofera suffruticosa P. Mill.	anil de pasto
KUST	Kummerowia stipulacea (Maxim.) Makino	Korean clover
KUST2	Kummerowia striata (Thunb.) Schindl.	Japanese clover
LAHI2	Lathyrus hirsutus L.	Caley pea

LAPU3	Lathyrus pusillus Ell.	tiny pea
LAVE	Lathyrus venosus Muhl. ex Willd.	veiny pea
LEBI2	Lespedeza bicolor Turcz.	shrubby lespedeza
LECA8	Lespedeza capitata Michx.	roundhead lespedeza
LECU	Lespedeza cuneata (Dum. -Cours.) G. Don	Chinese lespedeza
LEFR5	Lespedeza frutescens (L.) Hornem.	shrubby lespedeza
LEHI2	Lespedeza hirta (L.) Hornem.	hairy lespedeza
LEPR	Lespedeza procumbens Michx.	trailing lespedeza
LERE2	Lespedeza repens (L.) W. Bart.	creeping lespedeza
LEST5	Lespedeza stuevei Nutt.	tall lespedeza
LETH4	Lespedeza thunbergii (DC.) Nakai	Thunberg's lespedeza
LEVI6	Lespedeza violacea (L.) Pers.	violet lespedeza
LEVI7	Lespedeza virginica (L.) Britt.	slender lespedeza
LUPE3	Lupinus perennis L.	sundial lupine
LUTE	Lupinus texensis Hook.	Texas lupine
MEAR	Medicago arabica (L.) Huds.	spotted medick
MELU	Medicago lupulina L.	black medick
MEMI	Medicago minima (L.) L.	burr medick
MEPO3	Medicago polymorpha L.	burclover
MESA	Medicago sativa L.	alfalfa
MEIN2	Melilotus indicus (L.) All.	annual yellow sweetclover
MEOF	Melilotus officinalis (L.) Lam.	yellow sweetclover
MIHY2	Mimosa hystricina (Small ex Britt. & Rose) B.L. Turner	
MIMI22	Mimosa microphylla Dry.	littleleaf sensitive-briar
MINU6	Mimosa nuttallii (DC.) B.L. Turner	Nuttall's sensitive-briar
MIST2	Mimosa strigillosa Torr. & Gray	powderpuff
NELU2	Neptunia lutea (Leavenworth) Benth.	yellow puff
NEPU3	Neptunia pubescens Benth.	tropical puff
ORPE	Orbexilum pedunculatum (P. Mill.) Rydb.	Sampson's snakeroot
ORPEP2	Orbexilum pedunculatum (P. Mill.) Rydb. var. pedunculatum	Sampson's snakeroot
ORSI	Orbexilum simplex (Nutt. ex Torr. & Gray) Rydb.	singlestem leather-root
PAAC3	Parkinsonia aculeata L.	Jerusalem thorn
PEDI9	Pediomelum digitatum (Nutt. ex Torr. & Gray) Isely	palmleaf Indian breadroot
PEES	Pediomelum esculentum (Pursh) Rydb.	large Indian breadroot
PEHY4	Pediomelum hypogaeum (Nutt. ex Torr. & Gray) Rydb.	subterranean Indian breadroot
PHPO2	Phaseolus polystachios (L.) B.S.P.	thicket bean
PRGL2	Prosopis glandulosa Torr.	honey mesquite
PUMOL	Pueraria montana (Lour.) Merr. var. lobata (Willd.) Maesen & S. Almeida	kudzu
RHDI2	Rhynchosia difformis (Ell.) DC.	doubleform snoutbean
RHLA5	Rhynchosia latifolia Nutt. ex Torr. & Gray	prairie snoutbean
RHMI4	Rhynchosia minima (L.) DC.	least snoutbean
RHRE	Rhynchosia reniformis DC.	dollarleaf
RHTO3	Rhynchosia tomentosa (L.) Hook. & Arn.	twining snoutbean
ROHI	Robinia hispida L.	bristly locust
ROPS	Robinia pseudoacacia L.	black locust
SEMA11	Senna marilandica (L.) Link	Maryland senna
SEOB4	Senna obtusifolia (L.) Irwin & Barneby	Java-bean
SEOC2	Senna occidentalis (L.) Link	septicweed
SEDR	Sesbania drummondii (Rydb.) Cory	poisonbean
SEHE8	Sesbania herbacea (P. Mill.) McVaugh	bigpod sesbania
SEPU7	Sesbania punicea (Cav.) Benth.	rattlebox
SOAF	Sophora affinis Torr. & Gray	Eve's necklacepod
STHE4	Strophostyles helvula (L.) Ell.	trailing fuzzybean

STLE6	Strophostyles leiosperma (Torr. & Gray) Piper	slickseed fuzzybean
STUM2	Strophostyles umbellata (Muhl. ex Willd.) Britt.	pink fuzzybean
STBI2	Stylosanthes biflora (L.) B.S.P.	sidebeak pencilflower
TEON	Tephrosia onobrychoides Nutt.	multibloom hoarypea
TESP	Tephrosia spicata (Walt.) Torr. & Gray	spiked hoarypea
TEVI	Tephrosia virginiana (L.) Pers.	Virginia tephrosia
TRAR4	Trifolium arvense L.	rabbitfoot clover
TRCA5	Trifolium campestre Schreb.	field clover
TRCA6	Trifolium carolinianum Michx.	Carolina clover
TRDU2	Trifolium dubium Sibthorp	suckling clover
TRHY	Trifolium hybridum L.	alsike clover
TRIN3	Trifolium incarnatum L.	crimson clover
TRLA18	Trifolium lappaceum L.	burdock clover
TRNI3	Trifolium nigrescens Viviani	small white clover
TRPO6	Trifolium polymorphum Poir.	peanut clover
TRPR2	Trifolium pratense L.	red clover
TRRE2	Trifolium reflexum L.	buffalo clover
TRRE3	Trifolium repens L.	white clover
TRRE4	Trifolium resupinatum L.	reversed clover
TRSU3	Trifolium subterraneum L.	subterranean clover
TRVE	Trifolium vesiculosum Savi	arrowleaf clover
VICA2	Vicia caroliniana Walt.	Carolina vetch
VIGR	Vicia grandiflora Scop.	large yellow vetch
VILUL2	Vicia ludoviciana Nutt. ssp. ludoviciana	Louisiana vetch
VILU2	Vicia lutea L.	smooth yellow vetch
VIMI	Vicia minutiflora F.G. Dietr.	pygmyflower vetch
VISAN2	Vicia sativa L. ssp. nigra (L.) Ehrh.	garden vetch
VISAS2	Vicia sativa L. ssp. sativa	garden vetch
VITE	Vicia tetrasperma (L.) Schreb.	lentil vetch
VIVIV8	Vicia villosa Roth ssp. varia (Host) Corb.	winter vetch
VIVIV	Vicia villosa Roth ssp. villosa	winter vetch
VIUN	Vigna unguiculata (L.) Walp.	blackeyed pea
WIFR	Wisteria frutescens (L.) Poir.	American wisteria
WISI	Wisteria sinensis (Sims) DC.	Chinese wisteria
ZOBR	Zornia bracteata J.F. Gmel.	viperina

Order Geraniales

Family Balsaminaceae – Touch-me-not family

Symbol	Scientific Name	Common Name
IMCA	Impatiens capensis Meerb.	jewelweed

Family Geraniaceae – Geranium family

Symbol	Scientific Name	Common Name
ERCI6	Erodium cicutarium (L.) L'Hér. ex Ait.	redstem stork's bill
GECA5	Geranium carolinianum L.	Carolina geranium
GEDI	Geranium dissectum L.	cutleaf geranium

Family Oxalidaceae – Woodsorrel family

Symbol	Scientific Name	Common Name
OXCO	Oxalis corniculata L.	creeping woodsorrel
OXDEC	Oxalis debilis Kunth var. corymbosa (DC.) Lourteig	pink woodsorrel
OXRU	Oxalis rubra St.-Hil.	windowbox woodsorrel
OXST	Oxalis stricta L.	common yellow oxalis
OXVI	Oxalis violacea L.	violet woodsorrel

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Haloragales
Family Haloragaceae – Watermilfoil family

Symbol	Scientific Name	Common Name
MYAQ2	Myriophyllum aquaticum (Vell.) Verdc.	parrot feather watermilfoil
MYHE2	Myriophyllum heterophyllum Michx.	twoleaf watermilfoil
MYPI	Myriophyllum pinnatum (Walt.) B.S.P.	cutleaf watermilfoil
MYSP2	Myriophyllum spicatum L.	spike watermilfoil
PRPA3	Proserpinaca palustris L.	marsh mermaidweed
PRPAA	Proserpinaca palustris L. var. amblyogona Fern.	marsh mermaidweed

Order Linales
Family Linaceae – Flax family

Symbol	Scientific Name	Common Name
LIMET	Linum medium (Planch.) Britt. var. texanum (Planch.) Fern.	stiff yellow flax
LIST	Linum striatum Walt.	ridged yellow flax
LIUS	Linum usitatissimum L.	common flax

Order Myrtales
Family Lythraceae – Loosestrife family

Symbol	Scientific Name	Common Name
AMAU2	Ammannia auriculata Willd.	eared redstem
AMCO	Ammannia coccinea Rottb.	valley redstem
AMLA3	Ammannia latifolia L.	pink redstem
CUCA4	Cuphea carthagenensis (Jacq.) J.F. Macbr.	Colombian waxweed
DEVE	Decodon verticillatus (L.) Ell.	swamp loosestrife
LAIN	Lagerstroemia indica L.	crapemyrtle
LYALL	Lythrum alatum Pursh var. lanceolatum (Ell.) Torr. & Gray ex Rothrock	winged lythrum
RORA	Rotala ramosior (L.) Koehne	lowland rotala

Family Melastomataceae – Melastome family

Symbol	Scientific Name	Common Name
RHLU	Rhexia lutea Walt.	yellow meadowbeauty
RHMA	Rhexia mariana L.	Maryland meadowbeauty
RHPE	Rhexia petiolata Walt.	fringed meadowbeauty
RHVI	Rhexia virginica L.	handsome Harry

Family Onagraceae – Evening Primrose family

Symbol	Scientific Name	Common Name
GABR2	Gaura brachycarpa Small	plains beeblossom
GALI2	Gaura lindheimeri Engelm. & Gray	Lindheimer's beeblossom
GALO3	Gaura longiflora Spach	longflower beeblossom
GAMO5	Gaura mollis James	velvetweed
GASI	Gaura sinuata Nutt. ex Ser.	wavyleaf beeblossom
LUAL2	Ludwigia alternifolia L.	seedbox
LUDE4	Ludwigia decurrens Walt.	wingleaf primrose-willow
LUGL	Ludwigia glandulosa Walt.	cylindricfruit primrose-willow
LUHI	Ludwigia hirtella Raf.	spindleroot
LULE4	Ludwigia leptocarpa (Nutt.) Hara	anglestem primrose-willow
LULI	Ludwigia linearis Walt.	narrowleaf primrose-willow

LUPA	Ludwigia palustris (L.) Ell.	marsh seedbox
LUPEG2	Ludwigia peploides (Kunth) Raven ssp. Glabrescens (Kuntze) Raven	floating primrose-willow
LUPI	Ludwigia pilosa Walt.	hairy primrose-willow
OEBI	Oenothera biennis L.	common evening-primrose
OEGR2	Oenothera grandis (Britt.) Smyth	showy evening-primrose
OEHE3	Oenothera heterophylla Spach	variableleaf evening-primrose
OELA	Oenothera laciniata Hill	cutleaf evening-primrose
OELI	Oenothera linifolia Nutt.	threadleaf evening-primrose
OEPIP	Oenothera pilosella Raf. ssp. pilosella	meadow evening-primrose
OESP	Oenothera spachiana Torr. & Gray	Spach's evening-primrose
OESP2	Oenothera speciosa Nutt.	pinkladies

Order Polygales

Family Polygalaceae – Milkwort family

Symbol	Scientific Name	Common Name
POCR	Polygala cruciata L.	drumheads
POIN4	Polygala incarnata L.	procession flower
POMA8	Polygala mariana P. Mill.	Maryland milkwort
PONA2	Polygala nana (Michx.) DC.	candyroot
POPO	Polygala polygama Walt.	racemed milkwort
PORA2	Polygala ramosa Ell.	low pinebarren milkwort
POSA3	Polygala sanguinea L.	purple milkwort
POVEV	Polygala verticillata L. var. verticillata	whorled milkwort

Order Rhamnales

Family Elaeagnaceae – Oleaster family

Symbol	Scientific Name	Common Name
ELPU2	Elaeagnus pungens Thunb.	thorny olive
ELUM	Elaeagnus umbellata Thunb.	autumn olive

Family Rhamnaceae – Buckthorn family

Symbol	Scientific Name	Common Name
BESC	Berchemia scandens (Hill) K. Koch	Alabama supplejack
CEAM	Ceanothus americanus L.	New Jersey tea
CEHE	Ceanothus herbaceus Raf.	Jersey tea
FRCA13	Frangula caroliniana (Walt.) Gray	Carolina buckthorn
ZIZI	Ziziphus zizyphus (L.) Karst.	common jujube

Family Vitaceae – Grape family

Symbol	Scientific Name	Common Name
AMAR5	Ampelopsis arborea (L.) Koehne	peppervine
AMCO2	Ampelopsis cordata Michx.	heartleaf peppervine
CITR2	Cissus trifoliata (L.) L.	sorrelvine
PAQU2	Parthenocissus quinquefolia (L.) Planch.	Virginia creeper
VIAEA2	Vitis aestivalis Michx. var. aestivalis	summer grape
VIAEL	Vitis aestivalis Michx. var. lincecumii (Buckl.) Munson	long grape
VICI2	Vitis cinerea (Engelm.) Millard	graybark grape
VIPA7	Vitis palmata Vahl	catbird grape
VIRI	Vitis riparia Michx.	riverbank grape
VIRO3	Vitis rotundifolia Michx.	muscadine
VIVU	Vitis vulpina L.	frost grape

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Order Rosales

Family Crassulaceae – Stonecrop family

Symbol	Scientific Name	Common Name
CRAQ	Crassula aquatica (L.) Schoenl.	water pygmyweed
PESE6	Penthorum sedoides L.	ditch stonecrop
SENU	Sedum nuttallianum Raf.	yellow stonecrop

Family Grossulariaceae – Currant family

Symbol	Scientific Name	Common Name
ITVI	Itea virginica L.	Virginia sweetspire
RICU	Ribes curvatum Small	granite gooseberry

Family Hydrangeaceae – Hydrangea family

Symbol	Scientific Name	Common Name
HYQU3	Hydrangea quercifolia Bartr.	oakleaf hydrangea
PHIN5	Philadelphus inodorus L.	scentless mock orange
PHPU4	Philadelphus pubescens Loisel.	hoary mock orange

Family Rosaceae – Rose family

Symbol	Scientific Name	Common Name
AGMI2	Agrimonia microcarpa Wallr.	smallfruit agrimony
AGRO3	Agrimonia rostellata Wallr.	beaked agrimony
AMAR3	Amelanchier arborea (Michx. f.) Fern.	common serviceberry
APMI	Aphanes microcarpa (Boiss. & Reut.) Rothm.	slender parsley piert
CHSP12	Chaenomeles speciosa (Sweet) Nakai	flowering quince
CRBE2	Crataegus berberifolia Torr. & Gray	barberry hawthorn
CRBR	Crataegus brachyacantha Sarg. & Engelm.	blueberry hawthorn
CRCR2	Crataegus crus-galli L.	cockspur hawthorn
CRMA5	Crataegus marshallii Egglest.	parsley hawthorn
CROP	Crataegus opaca Hook. & Arn.	riverflat hawthorn
CRSP	Crataegus spathulata Michx.	littlehip hawthorn
CRUN	Crataegus uniflora Muenchh.	dwarf hawthorn
CRVI2	Crataegus viridis L.	green hawthorn
DUIN	Duchesnea indica (Andr.) Focke	Indian strawberry
ERJA3	Eriobotrya japonica (Thunb.) Lindl.	loquat
EXRA	Exochorda racemosa (Lindl.) Rehd.	common pearlbrush
FRVI	Fragaria virginiana Duchesne	Virginia strawberry
GECA7	Geum canadense Jacq.	white avens
MAAN3	Malus angustifolia (Ait.) Michx.	southern crabapple
MAIO	Malus ioensis (Wood) Britt.	prairie crabapple
MASY2	Malus sylvestris P. Mill..	crabapple
PHPY4	Photinia pyrifolia (Lam.) Robertson & Phipps	red chokeberry
POST5	Porteranthus stipulatus (Muhl. ex Willd.) Britt.	Indian physic
PORE5	Potentilla recta L.	sulphur cinquefoil
POSI2	Potentilla simplex Michx.	common cinquefoil
PRAM	Prunus americana Marsh.	American plum
PRAN3	Prunus angustifolia Marsh.	Chickasaw plum
PRANA	Prunus angustifolia Marsh. var. angustifolia	Chickasaw plum
PRCA	Prunus caroliniana (P. Mill.) Ait.	Carolina laurelcherry
PRGR	Prunus gracilis Engelm. & Gray	Oklahoma plum
PRME	Prunus mexicana S. Wats.	Mexican plum
PRMU	Prunus munsoniana W. Wight & Hedrick	wild goose plum
PRPE3	Prunus persica (L.) Batsch	peach

PRSE2	Prunus serotina Ehrh.	black cherry
PRSES	Prunus serotina Ehrh. var. serotina	black cherry
PRUM	Prunus umbellata Ell.	hog plum
PYCO2	Pyracantha coccinea M. Roemer	scarlet firethorn
PYCA80	Pyrus calleryana Dcne.	Callery pear
PYCO	Pyrus communis L.	common pear
ROBR	Rosa bracteata J.C. Wendl.	Macartney rose
ROCA4	Rosa carolina L.	Carolina rose
ROGA	Rosa gallica L.	French rose
ROLA	Rosa laevigata Michx.	Cherokee rose
ROMU	Rosa multiflora Thunb. ex Murr.	multiflora rose
ROPA	Rosa palustris Marsh.	rose
ROSE2	Rosa setigera Michx.	climbing rose
RUAB	Rubus aboriginum	blackberry
RUAR2	Rubus argutus Link	sawtooth blackberry
RUAR5	Rubus arvensis Bailey	blackberry
RUFL	Rubus flagellaris Willd.	northern dewberry
RUHI	Rubus hispidus L.	blackberry
RUTR	Rubus trivialis Michx.	southern dewberry
SPCA10	Spiraea cantoniensis Lour.	Reeves' meadowsweet
SPJA	Spiraea japonica L. f.	spirea
SPTH2	Spiraea thunbergii Sieb. ex Blume	Thunberg's meadowsweet

Family Saxifragaceae – Saxifrage family

Symbol	Scientific Name	Common Name
HEAM6	Heuchera americana L.	American alumroot
LESP	Lepuropetalon spathulatum Ell.	petiteplant

Order Santalales

Family Viscaceae – Christmas Mistletoe family

Symbol	Scientific Name	Common Name
PHLE14	Phoradendron leucarpum (Raf.) Reveal & M.C. Johnston	oak mistletoe

Order Sapindales

Family Aceraceae – Maple family

Symbol	Scientific Name	Common Name
ACBA3	Acer barbatum Michx.	southern sugar maple
ACLE	Acer leucoderme Small	chalk maple
ACNE2	Acer negundo L.	boxelder
ACRUD	Acer rubrum L. var. drummondii (Hook. & Arn. ex Nutt.) Sarg.	Drummond's maple
ACRUR	Acer rubrum L. var. rubrum	red maple
ACRUT	Acer rubrum L. var. trilobum Torr. & Gray ex K. Koch	red maple
ACSA2	Acer saccharinum L.	silver maple
ACSA3	Acer saccharum Marsh.	sugar maple

Family Anacardiaceae – Sumac family

Symbol	Scientific Name	Common Name
RHAR4	Rhus aromatica Ait.	fragrant sumac
RHCO	Rhus copallinum L.	flameleaf sumac
RHGL	Rhus glabra L.	smooth sumac
TOPU2	Toxicodendron pubescens P. Mill.	Atlantic poison oak
TORA2	Toxicodendron radicans (L.) Kuntze	eastern poison ivy
TOVE	Toxicodendron vernix (L.) Kuntze	poison sumac

BAYOU PIERRE PLANT LIST (ULM Herbarium)

Family Hippocastanaceae – Horse-chestnut family

Symbol	Scientific Name	Common Name
AEPA	Aesculus pavia L.	red buckeye

Family Meliaceae – Mahogany family

Symbol	Scientific Name	Common Name
MEAZ	Melia azedarach L.	Chinaberrytree

Family Rutaceae – Rue family

Symbol	Scientific Name	Common Name
POTR4	Poncirus trifoliata (L.) Raf.	hardy orange
PTTR	Ptelea trifoliata L.	common hoptree
ZACL	Zanthoxylum clava-herculis L.	Hercules' club

Family Sapindaceae – Soapberry family

Symbol	Scientific Name	Common Name
CAHA13	Cardiospermum halicacabum L.	love in a puff
SASA4	Sapindus saponaria L.	wingleaf soapberry

Family Simaroubaceae Quassia family

Symbol	Scientific Name	Common Name
AIAL	Ailanthus altissima (P. Mill.) Swingle	tree of heaven

Family Staphyleaceae – Bladdernut family

Symbol	Scientific Name	Common Name
STTR	Staphylea trifolia L.	American bladdernut

Family Zygophyllaceae – Creosote-bush family

Symbol	Scientific Name	Common Name
TRTE	Tribulus terrestris L.	puncturevine

APPENDIX C. Funding Sources.

Funding Sources (organized according to topic)

Agriculture

U.S. Department of Agriculture
- Conservation Reserve Program (FSA)
- Environmental Quality Incentive Program (NRCS)

Disaster Prevention and Relief

Federal Emergency Management Agency
- Flood Mitigation Assistance Program
- Hazard Mitigation Grant Program
- Project Impact Grant Program

U.S. Department of Agriculture
- Emergency Conservation Program (FSA)

U.S. Environmental Protection Agency
- Superfund Technical Assistance Grants for Citizen Groups at Priority Site (OERR)

Economic Development

U.S. Department of Agriculture
- Water and Waste Disposal Systems for Rural Communities (RUS)

U.S. Department of Commerce
- Public Works and Development Facilities Program (EDA)

U.S. Department of Housing and Urban Development
- Community Development Block Grant Program (CPD)

U.S. Environmental Protection Agency
- Brownfields Assessment Demonstration Pilots (OSWER)
- Brownfields Cleanup Revolving Loan Fund Pilots (OSWER)
- Brownfields Job Training and Development Demonstration Pilots (OSWER)
- Sustainable Development Challenge Grants (OA)

Education and Research

Corporation for National Service
- Learn and Serve America Program

U.S. Department of Agriculture

Sustainable Agriculture Research and Education (CSREES)
Water Quality Special Research Grants Program (CSREES)

U.S. Environmental Protection Agency

Environmental Education Grants Program (OEE)
Science to Achieve Results (ORD)

Environmental Justice

U.S. Environmental Protection Agency

Environmental Justice Grants to Small Community Groups (OEJ)
Environmental Justice Through Pollution Prevention Grants Program (OEJ)

Forestry

U.S. Department of Agriculture

Cooperative Forestry Assistance Programs (FS)
Forestry Incentive Program (NRCS)

Indian Tribes

U.S. Department of Health and Human Services

Improving the Capability of Indian Tribal Governments to Regulate Environmental Quality (ANA)

U.S. Department of Housing and Urban Development

Indian Community Development Block Grant Program (PIH)

U.S. Department of the Interior

Environmental Management on Indian Lands (BIA)
Forestry on Indian Lands (BIA)
Water Resources on Indian Lands (BIA)

U.S. Environmental Protection Agency

Clean Water Act Indian Set-Aside Grant Program (OWM)
Drinking Water SRF Tribal Set-Aside Program (OGWDW)
Indian Environmental General Assistance Program
Tribal Drinking Water Capacity Building /Indian Grants (OGWDW)
Tribal Grants for Groundwater Protection Pesticide Management Planning (OPPTS)

Mining

U.S. Department of the Interior
Abandoned Mine Land Reclamation Program (OSM)

Monitoring

U.S. Environmental Protection Agency
Environmental Monitoring for Public Access and Community Tracking (OEI)

Pollution Prevention and Control

Small Business Administration
Pollution Control Loans

U.S. Department of the Interior
Clean Vessel Act Grant Program (FWS)

U.S. Environmental Protection Agency
Chemical Emergency Preparedness and Prevention Technical Assistance Grants (CEPPO)
Pesticide Environmental Stewardship Grants (OppTS)
Pollution Prevention Incentives for States (OPPTS)

Watershed and Drinking Water Source Protection

U.S. Department of Agriculture
Watershed Protection and Flood Prevention Program (NRCS)

U.S. Department of Transportation
Transportation Equity Act for the 21st Century Funding Programs (FHWA)

U.S. Department of the Interior
Land and Water Conservation Fund Grants to States (NPS)

U.S. Environmental Protection Agency
Capitalization Grants for Clean Water State Revolving Fund (OWM)
Capitalization Grants for Drinking Water State Revolving Fund (OGWDW)
Great Lakes Program (GLNPO)
Nonpoint Source Implementation Grants (319 Program) (OWOW)
Water Quality Cooperative Agreements (OWM)
Watershed Assistance Grants (OWOW)

Wetlands

U.S. Department of Agriculture
Wetlands Reserve Program (NRCS)

U.S. Department of the Interior
Coastal Wetlands Conservation Grant Program (FWS)
North American Wetlands Conservation Act Grants Program (FWS)
National Coastal Wetlands Conservation Grant Program (FWS)
North American Wetlands Conservation Act Grants Program (FWS)

U.S. Environmental Protection Agency
Five Star Restoration Program (OWOW)
Wetlands Program Development Grants (OWOW)

Wildlife

National Fish and Wildlife Foundation.
Bring Back the Natives Grant Program

U.S. Department of Agriculture
Wildlife Habitat Incentives Program (NRCS)

U.S. Department of Commerce
Community-Based Restoration Program (NOAA)
Fisheries Development and Utilization Research and Development Grants and Cooperative Agreements Program (NOAA)

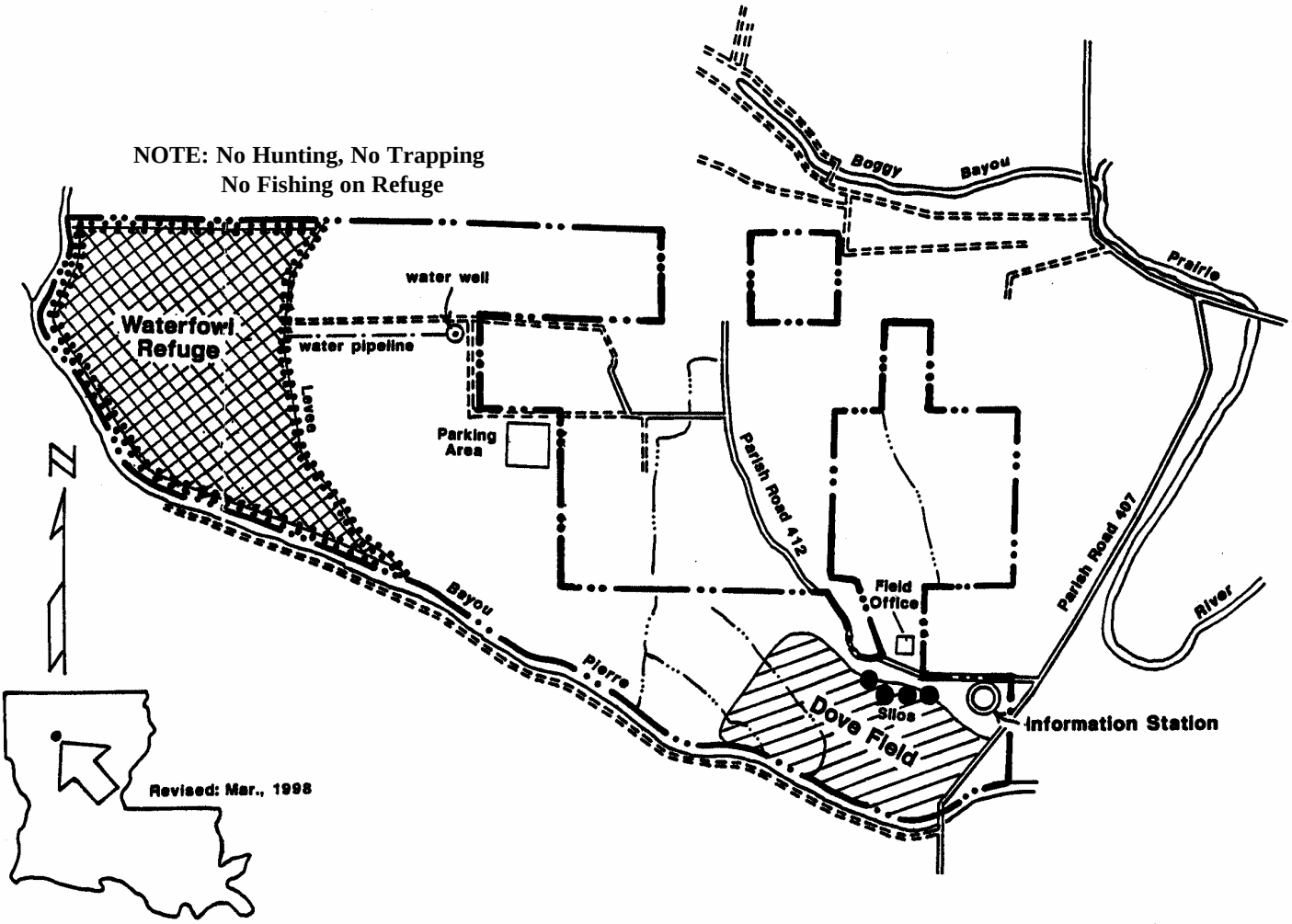
U.S. Department of the Interior
Partners for Fish and Wildlife Program (FWS)
Wildlife Conservation and Appreciation Program (FWS)

APPENDIX D. Resource Maps.

BAYOU PIERRE W.M.A.

OWNER: Louisiana Department of Wildlife and Fisheries

1,337 Acres



Directions to Bayou Pierre W.M.A.

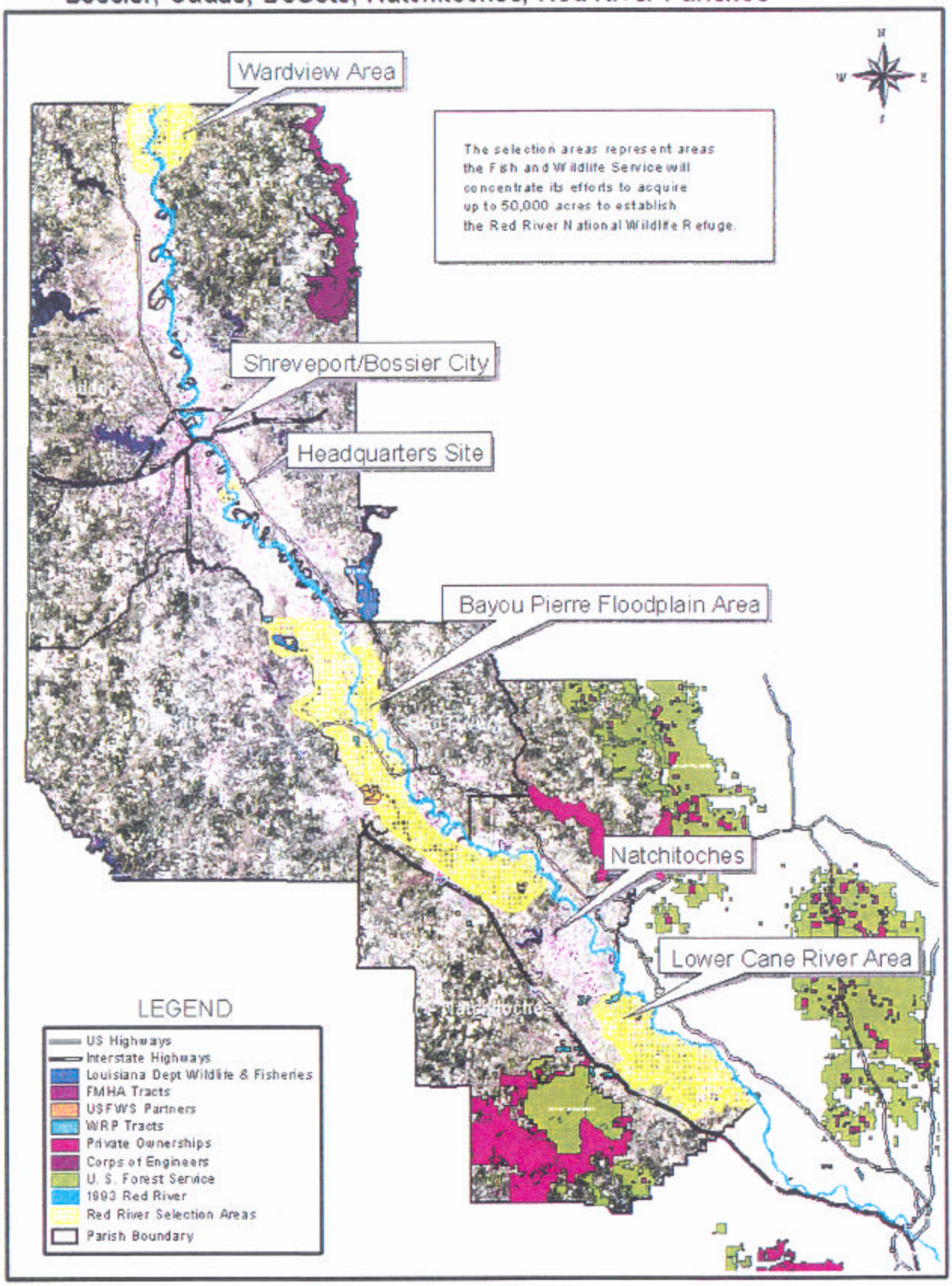
<u>From Shreveport</u>

LA Hwy 1 South from Shreveport 15.2 miles south of LSUS; turn right onto Yearwood Road; go 4.5 miles and turn right onto Red River Road 407; go 1.1 miles to area.

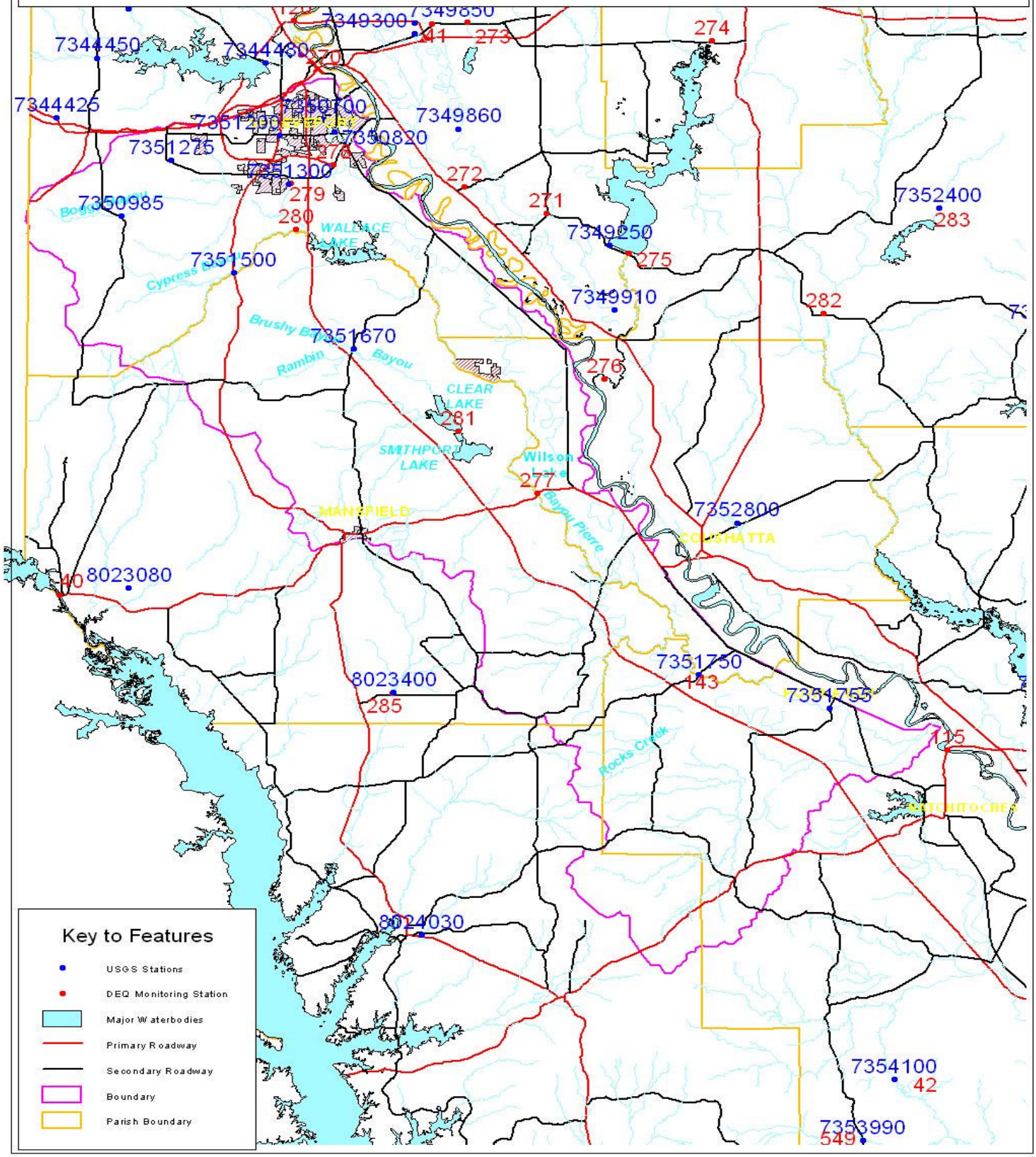
<u>From Armistead</u>

LA Hwy 1 North from Armistead 15.0 miles; turn left onto Red River Road 410; go 4.3 miles and turn left on Red River Parish Road 407; go 1.1 miles to area.

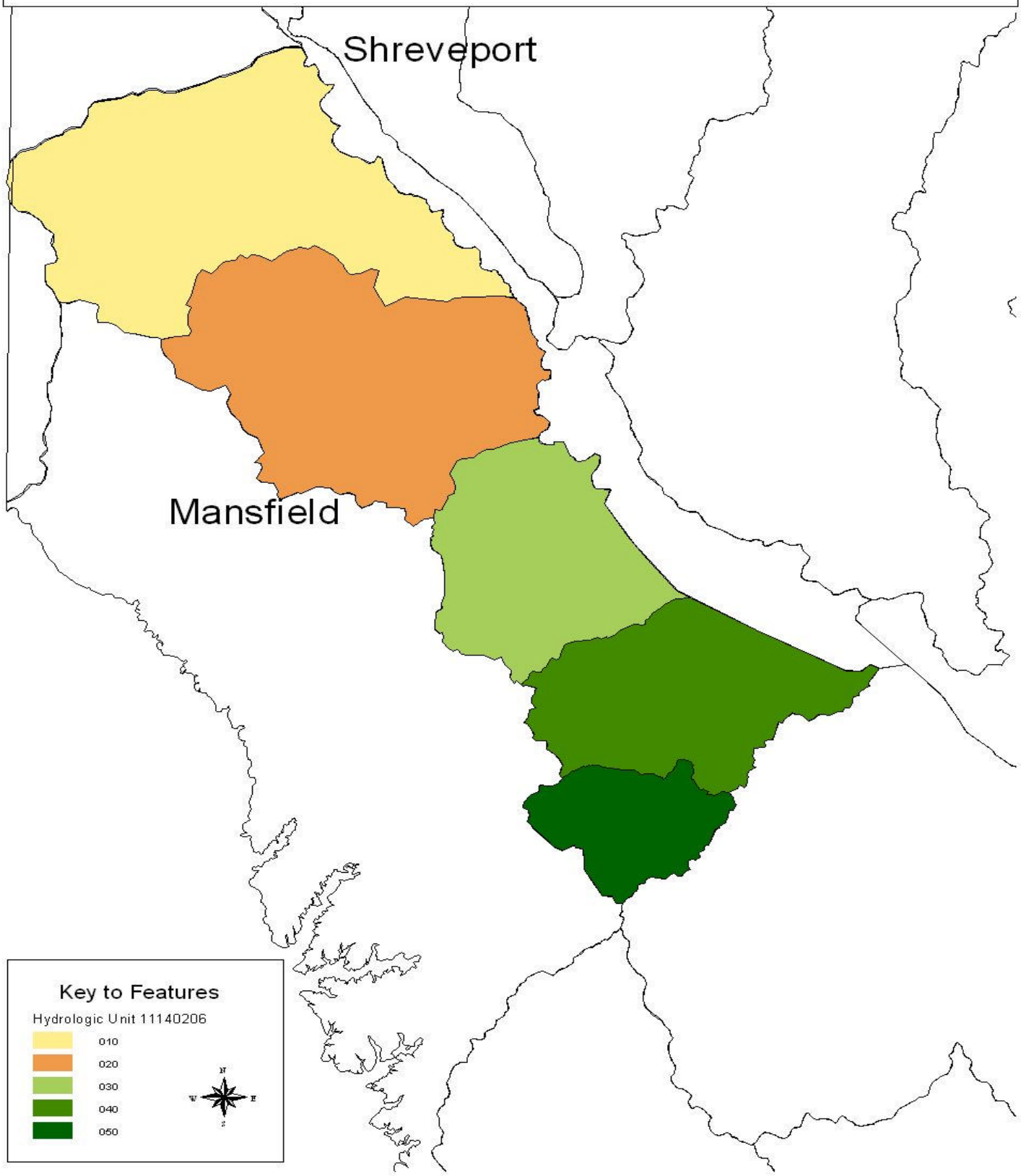
RED RIVER
NATIONAL WILDLIFE REFUGE
Bossier, Caddo, DeSoto, Natchitoches, Red River Parishes



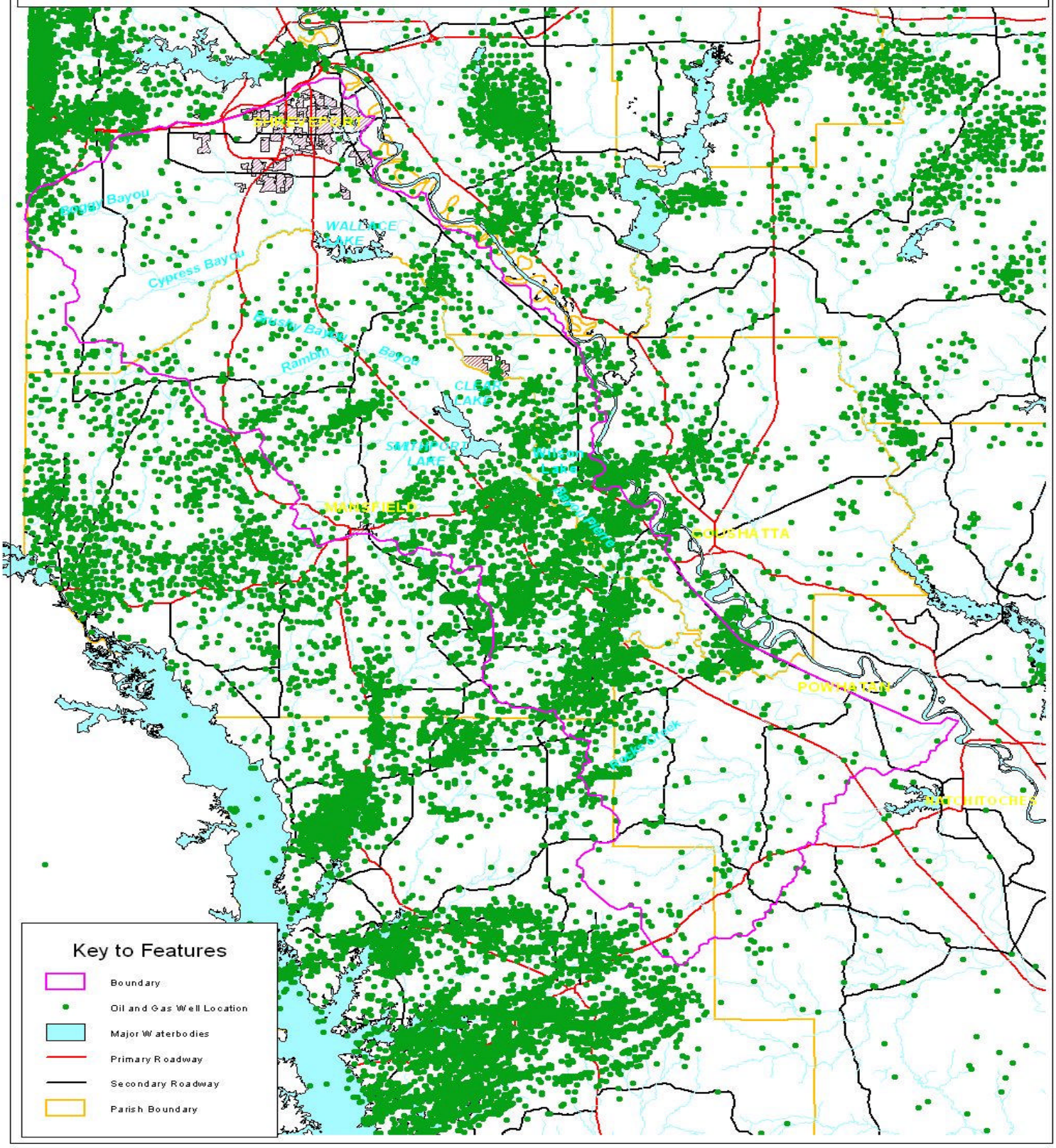
Bayou Pierre River Basin Study
Monitoring Station Locations



Watershed Units within Bayou Pierre River Basin Study Area



Bayou Pierre River Basin Study
Oil and Gas Well Locations



APPENDIX E. Prior Studies, Reports, and Existing Water Projects .

- Corps Report on Definite Project for Construction of a Dam at Wallace Lake, De Soto and Caddo Parishes, Louisiana, dated 21 December 1936.

- Corps Report on Definite Project for the Construction of a Dam at Wallace Lake, De Soto and Caddo Parishes, Louisiana (Revised), dated 15 June 1937.

- Corps Bases of Design for a Dam at Wallace Lake, De Soto and Caddo Parishes, Louisiana, dated 12 June 1939 and subsequent endorsements thereto.

- Corps Wallace Lake Dam, Cypress Bayou, Caddo and De Soto Parishes, Louisiana, Hydrology of the Basin as Related to Spillway Requirements, dated 21 June 1940 and revised 15 March 1941.

- Boggy Bayou – A Drainage Basin Study by B.C.M. Consultants for the Caddo Parish Police Jury, dated November 1979.

- Wallace Lake, Appendix II, Master Reservoir Regulation Manual, dated May 1975.

- Wallace Lake Area, Louisiana, Reconnaissance Report dated October 1989.

- Balar Associates, Inc., and Demopulos and Ferguson, Inc. Bayou Pierre Diversion Channel Feasibility Study Project No. 89-D009 prepared for Caddo Parish and the City of Shreveport, dated September 1994.

- Balar Associates, Inc., and Demopulos Supplement No. 1 to Bayou Pierre Diversion Channel Feasibility Study Project No. 89-D009 prepared for City of Shreveport, dated 1995.