THE WEST GULF COASTAL PLAIN ECOREGIONAL CONSERVATION PLAN

PREPARED BY

**West Gulf Coastal Plain
Ecoregional Planning Team**

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July 2003

To build a city, one must have three things—the knowledge, the means, and the will. If one has all three, the grandest of cathedrals can arise. In the absence of any one, the meanest of huts will fail. To rebuild the land requires the same three things—the knowledge, the means, and the will.

--Joe Truett and Daniel Lay, *Land of Bears and Honey*

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EXECUTIVE SUMMARY

The West Gulf Coastal Plain ecoregion encompasses approximately 17,469 square miles (11,180,160 acres) in eastern Texas and western Louisiana, extending from the western edge of the Mississippi River floodplain in Louisiana to the Trinity River in Texas, and from the prairies and marshes of the Gulf Coast north to the mixed pine-hardwood dominated rolling hills of northeast Texas and northern Louisiana (Figure 2). It is broadly defined as the area encompassing the natural range of longleaf pine (*Pinus palustris*) – dominated uplands on the coastal plain west of the Mississippi River.

The pre-settlement landscape of the West Gulf Coastal Plain was a mosaic of ecosystems, each responding to environmental gradients at various scales, such as regional climate and local patterns of soils, landform, and disturbance regimes. Dominating the uplands were longleaf pine woodlands, representing the western limit of a once primeval forest that extended across 92 million acres of the southeastern United States from Texas to Virginia. The ground cover of the longleaf pine woodlands harbored some of the most species-rich plant communities in North America. Likewise, river bottoms were highly diverse, with a mix of species and communities resulting from relatively minor changes in elevation. Although much of the modern landscape on the West Gulf Coastal Plain remains forested, the pattern of vegetation differs greatly from that of the pre-settlement landscape. For example, less than 4 percent of the longleaf pine communities which once dominated the uplands of the West Gulf Coastal Plain remain in the ecoregion.

In its 1996 publication, *Conservation by Design*, The Nature Conservancy outlined a bold vision for success in accomplishing its mission by adopting a landscape-scale perspective to protect biological diversity within ecoregions. Ecoregions are relatively large areas of land and water that contain geographically distinct assemblages of natural communities. The goal of ecoregion-based conservation is the design and conservation of portfolios of conservation areas that will collectively ensure the long-term survival of the ecoregion's biodiversity. Protection of conservation areas that simultaneously conserve multiple, unprotected targets are preferred strategies. Restoration and maintenance of ecosystem patterns and processes will also be required if species and communities are to remain viable.

Designing ecoregion-based portfolios of conservation areas is a science-based, iterative process built around four steps:

- Identifying the species, communities, and ecological systems that will serve as conservation targets within the ecoregion;

- Setting specific goals for the number and distribution of these conservation targets to be captured in the portfolio;

- Assembling information and relevant data on the location and quality of conservation targets; and

- Designing a network of conservation areas that most effectively meets conservation target goals.

Conservation targets were selected by teams of zoologists, botanists, and community ecologists. By analyzing Natural Heritage databases, searching primary literature and museum collections, and holding experts workshops, the teams developed lists of natural communities and plant and animal species occurring within the West Gulf Coastal Plain ecoregion that are of conservation concern. In all, 202 conservation targets were identified, including 39 animal species, 53 plant species, and 110 natural terrestrial communities (Appendix C, *West Gulf Coastal Plain Conservation Targets*). Conservation goals were established for each target by defining the number and spatial distribution of viable occurrences of species and communities that are needed to adequately conserve the targets in the ecoregion within a specified planning horizon of 100 years.

The process for designing a portfolio of conservation areas for the West Gulf Coastal Plain was based on lists of species and community conservation targets, conservation goals for those targets, and viability criteria for target occurrences. During the design process, the planning team attempted to achieve the numerical and distribution goals for each conservation target. Special emphasis was placed on identifying functional landscapes of a sufficient size to capture a large number of viable ecological systems, communities, and species. Large functional landscapes have a much higher potential than smaller sites to maintain ecosystem processes within their natural ranges of variability. Occurrences of terrestrial community targets were used as the basis for designing conservation areas. Additional areas were identified to capture species and community targets that were not sufficiently represented within these preliminary sites. Aquatic conservation areas were selected through a combination of landscape analysis and expert opinion.

Eighty-one conservation areas were identified in the West Gulf Coastal Plain ecoregion, encompassing 3,310,080 acres, or 30 percent of the ecoregion (Figure 10). Seventeen conservation areas met the criteria for functional landscapes that have the potential to protect or restore many conservation targets at multiple geographic scales and which contain both terrestrial and aquatic conservation targets (Table 10). Portfolio conservation areas range in size from 70 acres for the Bird Nest Cemetery Low Woods in Louisiana to 329,341 acres for the Davy Crockett National Forest in Texas. The average size for a conservation area in the ecoregion is 43,948 acres. This figure is, however, skewed by a large number of landscape-scale conservation areas in the portfolio; the median size of a conservation area within the portfolio is 13,901 acres. Terrestrial and upland conservation areas comprise nearly 60 percent of the portfolio of conservation areas, whereas aquatic and floodplain conservation areas comprise approximately 40 percent.

Publicly-owned lands are heavily represented in the portfolio. For example, 54 percent of the land encompassed by conservation areas and 76 percent of the land contained within priority conservation areas are currently in public ownership. The majority (about 65 percent) of viable target occurrences in the portfolio are found on federally owned land, and an additional 2 percent are on state-owned land. Conservancy preserves protect 3 percent of the viable target

occurrences in the portfolio, leaving approximately 30 percent of the viable target occurrences in portfolio conservation areas on privately owned land in the ecoregion. The biodiversity potential of privately owned land may be underrepresented in the portfolio, since large, relatively unfragmented lands still exist under the ownership of several forest products companies and have not been surveyed. The conservation areas identified in the portfolio have a skewed distribution in terms of their relative biological richness. Ten conservation areas in the portfolio contain over 70 percent of the viable target occurrences in the ecoregion.

Of the 202 conservation targets, 21 percent met their established goals. An additional 45 percent made some progress toward meeting their goals, with at least one viable occurrence captured in the portfolio. The remaining 34 percent of the targets, however, were not represented in the portfolio. Terrestrial communities represent 54 percent of all conservation targets in the West Gulf Coastal Plain. Terrestrial communities also represent half of the targets not represented in the portfolio. Of the 39 animal targets, 41 percent met their conservation goals, 33 percent were represented in the portfolio but did not meet their goals, and 26 percent were not represented in the portfolio. Of the 53 plant targets, 23 percent met their conservation goals, 28 percent were represented in the portfolio but did not meet their goals, and 49 percent were not represented in the portfolio. The inability to meet conservation goals for a majority of the conservation targets can be attributed to a general lack of data on viable target occurrences in the ecoregion.

The completion of an ecoregional plan for the West Gulf Coastal Plain is only the first step in a series of actions designed to achieve success in insuring the long-term viability of conservation targets in the ecoregion. The specific actions necessary to implement the ecoregional plan remain to be addressed. An ecoregional plan is only the first step in an integrated conservation process; the next steps in the process will be to design strategies to conserve both single and multiple conservation areas, implement those strategies by direct conservation action, and measure our success at conserving species and community targets in the conservation areas. Since ecoregional planning is a dynamic process, information gained from these subsequent steps will feed back into the next iteration of the ecoregional plan.

An ecoregional plan remains only a plan until it motivates its users to positive action. Although current opportunities for conservation action are excellent, opportunities to protect biodiversity in the future will become more limited with the passage of time. It is The Nature Conservancy's hope that this plan will serve as a foundation for success in preserving the rich biological heritage of the West Gulf Coastal Plain ecoregion.

Chapter 1

Ecoregional Planning and the West Gulf Coastal Plain

1.1 INTRODUCTION

The Nature Conservancy's dedication to protecting and restoring biological diversity is reflected in its simple but clear mission statement:

> *The mission of The Nature Conservancy is to preserve the plants, animals,*
> *and natural communities that represent the diversity of life on Earth by*
> *protecting the lands and waters they need to survive.*

For the last fifty years, the Conservancy has worked to fulfill this mission through land acquisition and management, public and private partnerships, and community-based conservation. Despite the best of intentions, however, our efforts have often been insufficient to stem the tide of biodiversity loss. In response to this circumstance, the Conservancy has redefined methods of successful conservation, drawing on evolving opinion in the scientific community which suggests that significant advances in biodiversity conservation must be comprehensive and large-scale. In its 1996 publication, *Conservation by Design*, The Nature Conservancy outlined a bold vision for success in accomplishing its stated mission. This vision, combined with advances in technology that allow us to examine patterns of biodiversity at the landscape level, has led the Conservancy to develop an approach to conservation based on ecoregions. The goal of ecoregion-based conservation is the design and conservation of portfolios of conservation areas within ecoregions that will ensure the long-term survival of all viable native species, communities and ecological systems. Portfolios of conservation areas are intended to be blueprints to which the Conservancy can refer when making decisions regarding conservation actions to be taken at the local level.

1.1.1 Protecting Biodiversity within Ecoregions

From a conservation planning perspective, ecoregions are defined as "relatively large areas of land and water that contain geographically distinct assemblages of natural communities. These communities (1) share a large majority of their species, dynamics, and environmental conditions, and (2) function together effectively as a conservation unit at global and continental scales (Ricketts et al. 1999)." The Conservancy has chosen the section level of the U.S. Forest

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Service's National Hierarchical Framework of Ecological Units as the base map of ecoregional planning units in the United States (ECOMAP 1993, Bailey et al. 1994).

Within ecoregions, portfolio conservation areas are designed to conserve conservation targets, defined as all viable native community types and ecological systems, as well as all viable rare and vulnerable native species. Protecting one population of each target is seldom adequate for the long-term survival of most species, so the goal in ecoregional conservation plans is to design sites that will conserve multiple viable or recoverable occurrences of targets. Protection of high-quality sites that simultaneously conserve multiple, unprotected targets are preferred conservation strategies. To fulfill our conservation goals, we will also need to restore and maintain the ecosystem patterns and processes that species and communities need to survive.

Although ecoregional, landscape-scale conservation is the approach the Conservancy has chosen to address biodiversity conservation, it may not encompass all that could be done to protect biodiversity. Conservation approaches by other management and conservation agencies/organizations, as well as private landowners, will undoubtedly enhance biodiversity conservation beyond what is laid out in this report. Moreover, it is impossible for the Conservancy alone to accomplish all that is called for in this ecoregional conservation plan. It is imperative, then, for the Conservancy and all stakeholders to work cooperatively to protect the biodiversity of this ecoregion. Fulfillment of this lofty goal, however, will require a great amount of understanding, cooperation, resources, and time. This ecoregional plan should serve as an important resource to guide those cooperative ventures.

1.1.2   The Ecoregional Planning Process

To fulfill its long-term vision and achieve its goals, The Nature Conservancy employs an integrated conservation process comprised of four fundamental components:

- Setting priorities through ecoregional planning,

- Designing strategies to conserve both single and multiple conservation areas,

- Taking direct conservation action, and

- Measuring conservation success.

The conservation process is dynamic, with each step feeding information into the steps ahead of it (Figure 1).
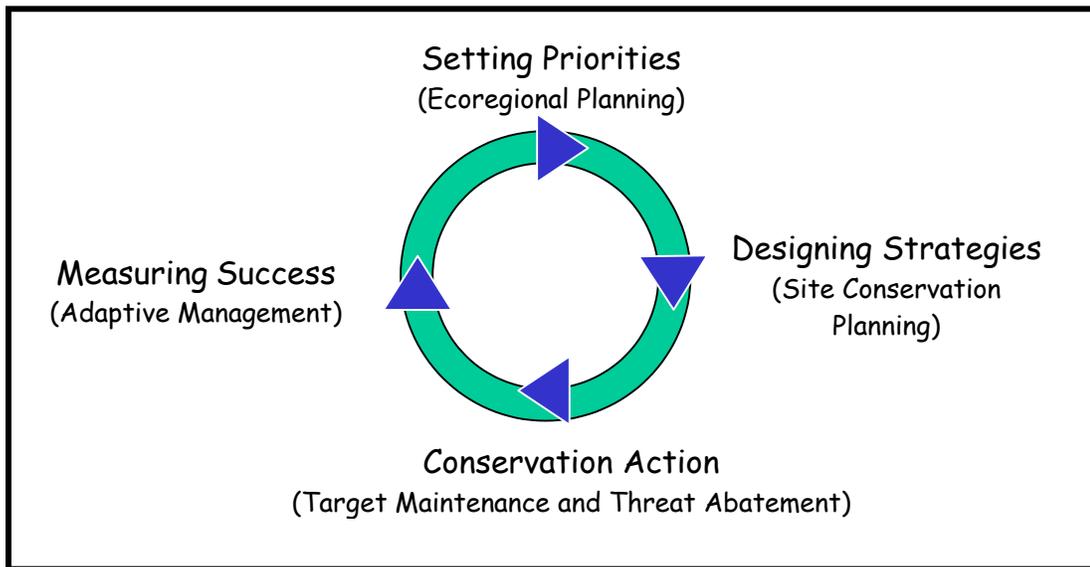
Figure 1. The Nature Conservancy's conservation process.

As a fundamental step in the conservation process, ecoregional planning influences subsequent steps in the conservation process by setting conservation priorities–those areas of land and water that represent the full distribution and diversity of native species, natural communities, and ecological systems within the ecoregion. The outcome of ecoregional planning is a portfolio of conservation areas within an ecoregion.

Designing ecoregion-based portfolios of conservation areas is a science-based, iterative process built around four steps:

- Identifying the species, communities, and ecological systems within the ecoregion;

- Setting specific goals for the number and distribution of these conservation targets to be captured in the portfolio;

- Assembling information and relevant data on the location and quality of conservation target occurrences; and

- Designing a network of conservation areas that most effectively meets conservation target goals.

This document describes the process and products of the first iteration of an ecoregional plan for

the West Gulf Coastal Plain. Subsequent steps in the Conservancy's conservation process

(designing strategies, taking conservation action, and measuring success) will follow the completion of the ecoregional plan.

1.2 THE WEST GULF COASTAL PLAIN

The West Gulf Coastal Plain ecoregion encompasses approximately 17,469 square miles (11,180,160 acres) in eastern Texas and western Louisiana, extending from the western edge of the Mississippi River floodplain in Louisiana to the Trinity River in Texas, and from the prairies and marshes of the Gulf Coast north to the mixed pine-hardwood dominated rolling hills of northeast Texas and northern Louisiana (Figure 2). It is broadly defined as the area encompassing the historic range of longleaf pine (*Pinus palustris*) - dominated uplands on the coastal plain west of the Mississippi River.

1.2.1 An Ecological Description of the Ecoregion

The geomorphology of the West Gulf Coastal Plain is largely a result of deposition and subsequent uplift of continental and marine sediments from the end of the Cretaceous period to the Pleistocene (Bernard and LeBlanc 1965, Groat and Roland 1984, Bureau of Economic Geology 1992, 1993). The dominant landforms consist of nearly level to moderately rolling irregular plains, with elevations ranging from 80 to 660 ft (25 to 200 m). Surface geologic formations in the ecoregion generally occur in a series of belts that roughly parallel the present shoreline of the Gulf of Mexico. Continental and marine deposits often alternate sequentially, reflecting the periodic advance and recession of seas during the Cenozoic era (Sellards et al. 1932). The age, elevation, and topographic relief of these formations generally increase with distance inland from the Gulf.

Due to its southerly latitude and proximity to the Gulf of Mexico, the climate of the West Gulf Coastal Plain is humid subtropical, characterized by hot, humid summers and mild winters with occasional periods of frost and negligible snowfall (Larkin and Bomar 1983). Average annual temperature is usually between 61 and 68^0F (16 to 20^0C), and average annual rainfall is between 40 and 54 inches (1,020 to 1,350 mm). Precipitation is relatively well-distributed throughout the year, but periods of drought can occur during the growing season. Mean annual water deficit ranges from zero in the southeastern part of the ecoregion to 7 inches (180 mm) in the northwest. Spring and summer rainfall usually takes the form of convective thunderstorms, which generate lightning strikes that often ignite surface fires. In areas with few natural fire breaks, lightning-ignited, low-intensity fires burned frequently across large portions of the pre-settlement landscape (Komarek 1968, 1974, Frost et al. 1986, Frost 1993, Ware et al. 1993). Frost (1998) estimates an average pre-settlement fire frequency for the area occupied by the West Gulf Coastal Plain to be 1 to 3 years for flat to rolling plains and 4 to 6 years for irregular plains with slightly greater topographic relief.

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Fig. 2 West Gulf Coastal Plain Ecoregion

N

Monroe #
Russell Sage WMA
Jackson-Bienville WMA
Ouachita River
Boeuf WMA
Red River
Winn District
Sicily Island Hills WMA
Sabine National Forest
Sabine WMA
Catahoula District
Natchitoches
Nacogdoches
Kisatchie National Forest
Kisatchie District
Angelina River
Dewey W. Wills WMA
Angelina National Forest
Toledo Bend Reservoir
Lufkin
Davy Crockett National Forest
Sam Rayburn Reservoir
Alexandria #
Calcasieu/ Evangeline District
Alexander State Forest
Neches River
Sabine River
Boise-Vernon WMA
Fort Polk
Little Rocky Preserve
Fort Polk South
Calcasieu\ Vernon District
B.A. Steinhagen Lake
Jasper
West Bay WMA
Lake Livingston
E.O.Siecke State Forest
Livingston
Sam Houston National Forest
Big Thicket National Preserve
Trinity River
Roy E. Larsen Sandyland Preserve
Lumberton
Sabine Island WMA
Lake # Charles
Beaumont
Liberty
Sabine National Wildlife Refuge

Legend:
Ecoregion Boundary
Lake or Reservoir
County/Parish Boundary
Managed Areas
State land
Private land
Federal land

0 10 20 30 Miles

The ecoregion is subject to periodic disturbances by hurricanes (roughly once per decade), which occur mainly in the late summer and fall. The frequency and intensity of disturbance is greatest in the southern portion of the ecoregion near the Gulf of Mexico. Hurricane-force winds can damage large areas of forest cover, setting succession back to an earlier stage and creating even-aged forest canopies. Storm fronts can also create brief periods of powerful straight-line winds, resulting in similar damage on a more local scale. Tornadoes occur periodically throughout the West Gulf Coastal Plain and are most frequent from spring through early summer. Tornado damage can be quite severe but is usually limited to the direct ground path of the tornado.

The predominant natural vegetation in the West Gulf Coastal Plain ecoregion is longleaf pine (*Pinus palustris*) woodland on the uplands and broad flats and mixed-hardwood forest along major river floodplains (Braun 1950). Longleaf pine woodlands occur in a variety of habitats, including dry uplands, mesic uplands, and wet flatwoods (Bridges and Orzell 1989, Harcombe et al. 1993, Turner 1999, Turner et al. 1999).

Dry uplands usually occur in deep, well-drained sandy soils on ridgetops, broad uplands, and some stream terraces. Longleaf pine may dominate natural stands, but it often occurs in mixed stands with sand post oak (*Quercus margarettiae*), bluejack oak (*Quercus incana*), black hickory (*Carya texana*), and shortleaf pine (*Pinus echinata*). Some steep, isolated ridgetops may be dominated by oaks and hickories with little or no longleaf pine. Ground cover plant species are tolerant of periodic drought during the growing season, and they also exhibit adaptations to a frequent fire regime. Characteristic species include bullnettle (*Cnidoscolus texana*), noseburn (*Tragia urens*), longleaf buckwheat (*Eriogonum longifolium*), hairy bush clover (*Lespedeza hirta*), soft greeneyes (*Berlandiera pumila*), spiderwort (*Tradescantia reverchonii*), queensdelight (*Stillingia sylvatica*), Louisiana yucca (*Yucca louisianensis*), and pricklypear cactus (*Opuntia* spp.).

Mesic uplands occur on finer textured, moderately well-drained, loamy soils on broad uplands and gentle slopes. Longleaf pine is almost always dominant in the overstory, sometimes forming pure, dense stands. Hardwoods that may be present include post oak (*Quercus stellata*), southern red oak (*Quercus falcata*), black gum (*Nyssa sylvatica*), and flowering dogwood (*Cornus florida*). Due to favorable growing conditions, ground cover growth is often luxuriant, supporting a highly diverse assortment of species. Little bluestem (*Schizachyrium scoparium*), the typical grass species of most longleaf pine communities of the West Gulf Coastal Plain, is often found in greatest abundance on mesic upland sites. Other characteristic species of mesic uplands include pencil flower (*Stylosanthes biflora*), silkgrass (*Pityopsis graminifolia*), Virginia hoarypea (*Tephrosia virginiana*), New Jersey tea (*Ceanothus americanus*), and purple coneflower (*Echinacea pallida*).

Wet flatwoods are found on nearly level plains with poorly drained, nutrient-poor soils and a seasonally high water table. The overstory is often sparse and is usually dominated by longleaf pine, sometimes with a sparse midstory of swamp blackgum (*Nyssa biflora*), sweetbay magnolia (*Magnolia virginiana*), and other woody species tolerant of saturated soils. The species-rich ground cover is usually dominated by native grasses and sedges, especially beakrushes (*Rhynchospora* spp.). Other indicator species include tenangle pipewort (*Eriocaulon decangulare*), blueflower eryngo (*Eryngium integrifolium*), swamp sunflower (*Helianthus*

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angustifolius), and pinewoods rosegentian (*Sabatia gentianoides*).

Within the three broad longleaf pine community types are imbedded distinctive plant communities that are associated with particular environmental conditions. Some examples of deep, sandy ridgetops may be composed entirely of hardwoods, with a sparse herbaceous layer. Hillside seepage bogs occur on frequently burned upland slopes where groundwater seeps to the surface, creating locally wet, acidic, nutrient poor soils. Species composition is similar to that of the wet flatwoods, except that the ground cover may be dominated by insectivorous plant species such as yellow pitcher plants (*Sarracenia alata*) and annual sundew (*Drosera brevifolia*). Baygalls and bayheads occur in shallow, constantly saturated drainages associated with small streams. They support an abundant growth of woody vegetation, including sweetbay magnolia, possumhaw (*Viburnum nudum*), redbay (*Persea borbonia*), and gallberry holly (*Ilex coriacea*). The ground cover is often dominated by various fern species such as cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and netted chain fern (*Woodwardia areolata*). Depression marshes are low flooded areas within flatwoods and are typically dominated by floating and rooted herbaceous aquatic vegetation, including yellow lotus (*Nelumbo lutea*), white pond lily (*Nymphea odorata*), and smartweed (*Polygonum* spp.). Glades and barrens are prairie-like openings in the forest that occur on rocky outcrops, high shrink-swell clays, and calcareous or saline soils. Species composition varies by site conditions and may include several tallgrass prairie species such as eastern gammagrass (*Tripsacum dactyloides*), dropseed (*Sporobolis* spp.), yellow puff (*Neptunia lutea*), Nuttall's rayless goldenrod (*Bigelowia nuttallii*), and woodland poppymallow (*Callirhoe papaver*).

Stream bottoms, terraces, and mesic slopes are hardwood-dominated, closed-canopied forests with sparse groundcover, located along the lower slopes or floodplains of small streams. Fire occurs infrequently in these communities due to topography and moist soil conditions. Typical tree species include American beech (*Fagus grandifolia*), white oak (*Quercus alba*), loblolly pine (*Pinus taeda*), and Florida maple (*Acer barbatum*). Ground cover species include pawpaw (*Asimina triloba*), Christmas fern (*Polystichum acrostichoides*), and may apple (*Podophyllum peltatum*).

Large river floodplains such as the Neches, Sabine, and Red Rivers are dominated by facultative and obligate wetland plant species. Floodplains are subject to seasonal, often prolonged flooding in the winter and spring. Hydrology and plant community composition can vary dramatically along relatively minor elevation gradients within a floodplain. Typical tree species of river floodplains include willow oak (*Quercus phellos*), water oak (*Quercus nigra*), overcup oak (*Quercus lyrata*), green ash (*Fraxinus pennslvanica*), and sugarberry (*Celtis laevigata*). Associated with large floodplains are semi-permanently flooded swamps which may be dominated by baldcypress (*Taxodium distichum*), water elm (*Planera aquatica*), or water tupelo (*Nyssa aquatica*). Ground cover is often sparse in river floodplains. Herbaceous species include looseflower waterwillow (*Justicia ovata*), Louisiana sedge (*Carex louisianica*), and Indian woodoats (*Chasmanthium latifolium*).

Due to a general lack of pronounced topographic relief, river systems in the West Gulf Coastal Plain may drain watersheds of several hundred square miles. Soils in these watersheds are generally composed of fine, sandy surface soil, clayey and loamy sand subsoil, and gravel-

producing rocks of the Quaternary and Tertiary geologic formations. Some of the larger rivers, such as the Sabine and Red Rivers, have sources outside the West Gulf Coastal Plain and may drain areas with limestone or shale, deposits of which buffer the normally acidic runoff from the pine-dominated landscapes of the ecoregion.

The rivers of the West Gulf Coastal Plain tend to be slow-moving with wide, nearly level floodplains. During flood-pulse events, soil and parent material can be carried in the swift-flowing water and deposited in river channels and on floodplains far downstream from their sources. Heavier gravels and coarse sands are deposited close to the river channels, forming sand and gravel bars. Rivers with swifter flows and longer sections generally contain more gravel and rubble deposits, which are important for the lifecycles of certain native species, such as spawning paddlefish (Pitman 1991). As water flow velocity decreases, finer sediments drop out of suspension and are deposited on the adjacent floodplains.

True natural lakes are a relatively rare feature on the West Gulf Coastal Plain landscape, but some rivers, such as the Neches in east Texas, are highly meandering and have formed many oxbow lakes and sloughs. Biological surveys of these lakes have shown a higher fish diversity than in the adjacent parent rivers (McCullough 1995). Similarly, national crayfish authorities have found unexpected diversity in the Neches River (Hobbs 1990).

Smaller streams in the ecoregion vary in their characteristics depending on watershed size, topographic relief, substrate, flood frequency and duration, and groundwater flow. Some streams are slow-moving with relatively wide floodplains and have characteristics that are similar to larger river systems. Other streams are small, swift-flowing, and may have springs and seeps as their primary sources of water, providing thermal refugia for warm water fishes, particularly in the winter (Peterson and Rabeni 1996).

1.2.2 West Gulf Coastal Plain Subregions

Early in the planning process, the ecoregional team recognized the need to divide the West Gulf Coastal Plain ecoregion into smaller units in order to capture the geographic and environmental variability contained within the ecoregion (Figure 3). These subregions provide a stratification framework to ensure that conservation targets captured in the portfolio of conservation areas represent the geographic and environmental gradients across which each species or community is known to occur. The subregions identified for the West Gulf Coastal Plain are based primarily on the subsection-level descriptions of the U.S. Forest Service's National Hierarchical Framework of Ecological Units (ECOMAP 1993, Keys et al. 1995). The subsections located in the West Gulf Coastal Plain ecoregion are the Pineywoods Transition (232Fe), Southern Loam Hills (232Fa), Southwest Flatwoods (232Fb), Neches Alluvial Valley (232Fd), Sabine Alluvial Valley (232Fc), and Red River Alluvial Plain (234Ai).

Fig. 3   West Gulf Coastal Plain Ecoregion
Subregion Identification

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Monroe #

CENTRAL LOUISIANA
SOUTHERN LOAM HILLS

Red River

Ouachita River

Sabine River

Natchitoches

LOUISIANA
PINEY WOODS
TRANSITION

Nacogdoches

Angelina River

Lufkin

TEXAS
PINEY WOODS
TRANSITION

Alexandria #

WEST LOUISIANA
SOUTHERN LOAM HILLS

Fort
Polk
South #

Neches River

Jasper

TEXAS SOUTHERN LOAM HILLS

Livingston

LOUISIANA
SOUTHWEST
FLATWOODS

TEXAS
SOUTHWEST
FLATWOODS

Trinity River

Lumberton

Lake
Charles #

Liberty

Beaumont

Subregion boundary
Managed Areas
State land
Private land
Federal land

0   10   20   30 Miles

The Piney Woods Transition subsection represents the transition zone where longleaf pine-dominated uplands are gradually replaced by shortleaf pine-mixed hardwood forests from south to north. The Southern Loam Hills subsection contains the heart of the upland longleaf pine belt of the Western Gulf Coastal Plain. The Southwest Flatwoods Subsection is characterized by nearly level, poorly drained flats that were historically dominated by open-canopied wet longleaf pine savannas. The Neches Alluvial Valley, Sabine Alluvial Valley, and Red River Alluvial Plain subsections occupy the flat floodplains and terraces of their respective river systems and are dominated by seasonally flooded bottomland hardwood forests.

The planning team modified these subsections to facilitate goal setting and conservation area design. The three main upland subsections (Pineywoods Transition, Southern Loam Hills, and Southwest Flatwoods) provided latitudinal stratification to represent variability in geologic substrate and regional temperature gradients. Longitudinal variation based on regional precipitation/aridity gradients was captured by subdividing the three upland subsections by the three major rivers in the ecoregion (Neches, Sabine, and Red), and then merging their respective riverine subsections into adjacent upland subsections. This formed seven subregions that the team believed were both efficient at capturing the geographic and environmental variability of most conservation targets and practical from a data management standpoint. Conservation goals for target species and communities were based in part on their expected natural distribution among these subregions.

1.2.3 The Human Context

While the foundation for ecoregional planning is based on biological diversity data, the potential for human population trends to affect the viability of species and ecosystems is so great that the human context must be considered in any conservation plan. The following information on population characteristics and trends is based upon data from the U.S. Bureau of the Census. Counties and parishes with at least 20 percent of their land area within the West Gulf Coastal Plain ecoregion were included in the analysis.

General Characterisitics

The economy of the West Gulf Coastal Plain is based largely on agriculture, especially timber and timber products, poultry, and cattle, with additional contributions by oil and gas production, manufacturing, military, and tourism. In 1998, average per capita personal income in the state of Louisiana was $22,206, a 9.6 percent increase over 1996 income. Texas saw an increase of 12.4 percent to $25,369 during the same period. In general, people living within the ecoregion are less likely to have a bachelor's degree and less likely to have a high school diploma than the overall averages for Texas, Louisiana, and the United States.

Population Trends

The total 1997 estimated population of the 11 Texas counties and 15 Louisiana parishes was 1,158,967. This represents a 5.4 percent increase over the 1990 census for the area, or an average of 0.78 percent per year. Calcasieu Parish in Louisiana had the largest population at 180,320, and San Augustine County in Texas had the lowest at 8,069. The counties with the largest populations are those that contain small to intermediate-size urban areas, including the cities of Lake Charles, Leesville/Ft. Polk, Alexandria/Pineville, and Monroe in Louisiana and Lufkin, Nacogdoches, and Orange in Texas (Figure 4). Likewise, population density is highest in these same urban areas (Figure 5).
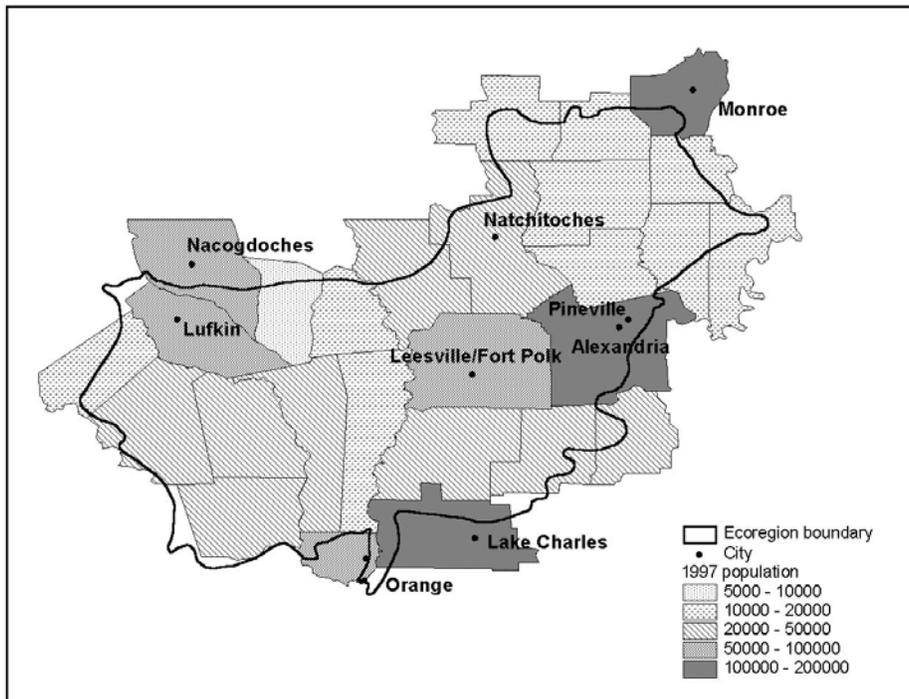
Figure 4. 1997 population by county/parish in the West Gulf Coastal Plain ecoregion.

Although the population in the ecoregion has increased overall, growth has not been distributed evenly. Some counties and parishes have experienced almost explosive growth, but some have experienced significant decreases in population (Figure 6). For example, the population of Vernon Parish in Louisiana decreased by over 13 percent from 1990 to 1997, while Trinity County in Texas experienced a 52 percent increase in population. The differences in population trends among the counties and parishes are probably due to multiple factors. The population decline in Vernon Parish is most likely related to reductions in military spending at Fort Polk, the largest employer in the parish. Trinity County's increase may be the result of movement of residents out of Houston into this nearby but relatively rural county. Population growth in nearby metropolitan areas such as Houston, Beaumont, and Lake Charles will most likely exert a large influence on population trends in the West Gulf Coastal Plain ecoregion in the next decade.
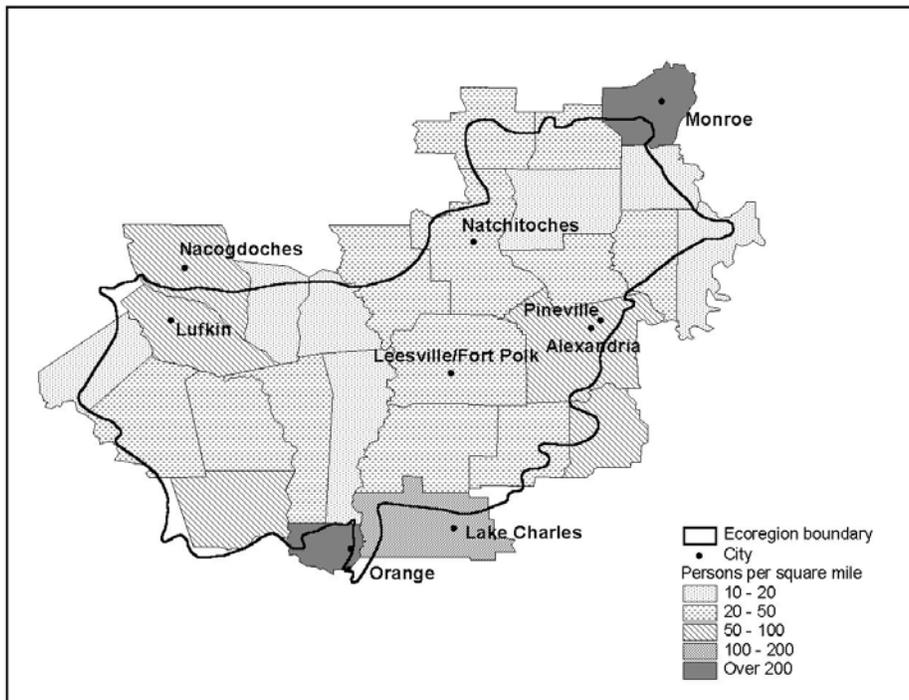
Figure 5. 1997 population density for counties/parishes in the West Gulf Coastal Plain ecoregion.
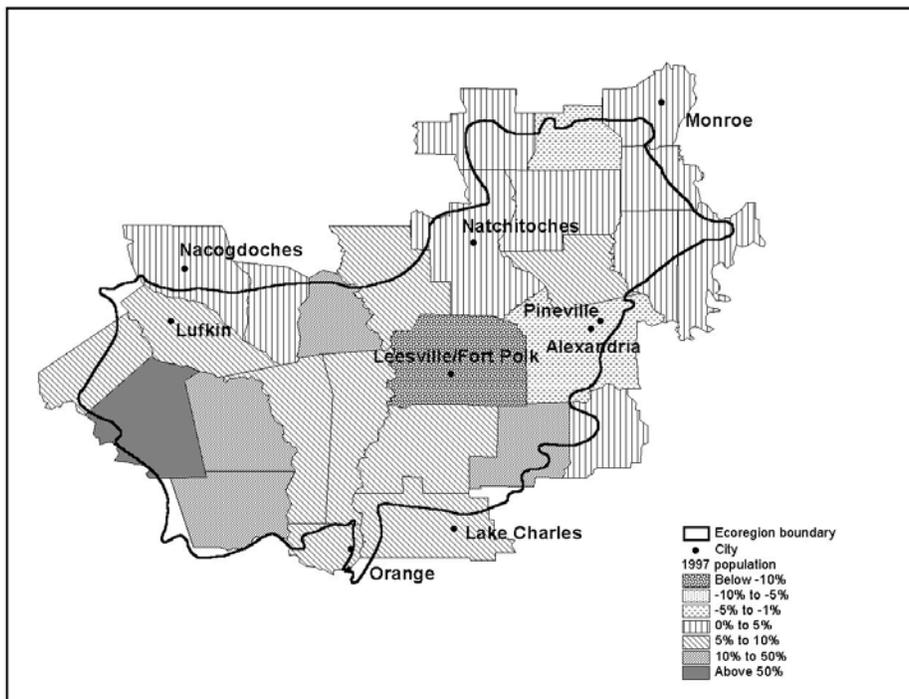
Figure 6. Percent change in population from 1990 to 1997 for counties/parishes in the West Gulf Coastal Plain ecoregion.

1.3   HISTORICAL IMPACTS ON THE ECOREGION

The West Gulf Coastal Plain has been occupied by humans for at least 12,000 years. During most of that period, human impact on the landscape was relatively minor, with most significant impacts occurring near scattered villages and agricultural centers. However, since Euro-American settlement and especially within the last century, most of the ecoregion has been subject to increasing and widespread alteration of the landscape by people. Today, only about 3 percent of the coastal plain upland landscape remains in entirely natural vegetation (Frost 1993). A review of historical changes on the landscape is critical to understanding the current distribution of ecosystems in the ecoregion, as well as determining ecosystem management and restoration strategies. What follows is a general discussion of the current status of biodiversity in the ecoregion within a historical context.

1.3.1   Terrestrial Systems

The prehistoric landscape of the West Gulf Coastal Plain was a mosaic of ecosystems, each responding to environmental gradients at various scales, such as regional precipitation and thermal gradients and local patterns of soils, landform, and disturbance regimes. It is estimated that humans first appeared on the West Gulf Coastal Plain approximately 12,000 years ago, during the last ice age (Burns 1994). These were small bands of hunter-gatherers who followed the migrations of large mammals such as woolly mammoths, ground sloths, and longhorned bison. Some archaeologists believe that hunting pressure from humans contributed to the extinction of these large Pleistocene mammals. The largest indigenous group in the region just prior to European settlement were the Caddo Indians. The Caddo Indians had a village-based, agricultural society. They cleared forests for crops and villages, and set fires on the landscape to improve travel and to drive game (Truett and Lay 1984). Although accurate accounts of the landscape setting during this time are few, the impact of native Americans on the landscape was probably minimal by modern standards (Martin and Smith 1993).

Much of what is known about the historical landscape of the West Gulf Coastal Plain has been interpreted from early narrative descriptions, witness tree data, and timber company records from the mid 1800s onward (Frost 1993, Ware et al. 1993, Turner et al. 1999). The West Gulf Coastal Plain landscape was primarily forests and woodlands, with longleaf pine woodlands dominating the frequently burned uplands and bottomland mixed-hardwood forests occupying the floodplains. Within these landscape-scale, "matrix" ecosystems were imbedded several smaller ecosystems that responded to local environmental influences. Such "patch" ecosystems included herb-dominated glades, barrens, and groundwater seeps, xeric and mesic hardwood forests, baldcypress swamps, and marshes. The widespread occurrence of open prairies in the ecoregion is evident by the use of "prairie" in many local place names.

Although much of the modern landscape on the West Gulf Coastal Plain remains forested, the pattern of vegetation differs greatly from that of the pre-settlement landscape. The longleaf pine-dominated uplands of the West Gulf Coastal Plain represented the western limit of a once primeval forest that extended across 92 million acres of the southeastern United States from Texas to Virginia (Mohr 1896, Bray 1906, Frost 1993, Landers et al. 1995). The vast pine forests

of the West Gulf Coastal Plain were some of the last to be logged. Logging in this area began in earnest around the mid 1800s. In the early years logging was limited primarily to areas along the navigable streams needed to transport the logs to sawmills. In the late 1800s, the introduction of railroads as a cheap and efficient way to transport logs to the mills provided the basis for a logging bonanza that lasted until about 1930. This logging boom resulted in the removal of virtually all of the virgin sawtimber in the West Gulf Coastal Plain. In eastern Texas alone, about 18 million acres of pine timber were harvested between 1880 and 1930, producing more than 59 billion board feet of lumber (Maxwell and Baker 1983). Logging for hardwoods altered bottomland forest composition, and most of the major cypress swamps were logged by 1915 (U.S. Fish and Wildlife Service 1985).

After logging, longleaf pine forests failed to recover through regeneration due to competition from invading mesophytic pines and hardwoods, the fondness of livestock and feral hogs for longleaf pine seedlings, and the introduction of wildfire suppression and prevention programs (Frost 1993). Of the estimated 7,183,000 acres of longleaf pine forests prior to logging, only 1,642,400 acres remained in 1935 (Outcalt 1997). The decline of longleaf pine forests continued in the following decades, mainly through harvest and conversion of former longleaf pine sites to plantations of loblolly pine (*Pinus taeda*) or non-native slash pine (*Pinus elliottii*). In 1995, only 253,000 acres of longleaf pine forest remained in the West Gulf Coastal Plain, about 3.5 percent of its pre-settlement extent (Outcalt 1997).

Agriculture also greatly influenced landscape patterns and processes. The first areas to be settled were on fertile soils, such as floodplain terraces and the Redlands area of central east Texas. Much of these fertile lands were plowed and planted to crops such as corn or cotton. Before the advent of mechanized farming, individual farms were seldom over 50 acres in size, and most were much smaller. The sandy, less fertile soils of former longleaf pine forests were used as open range for grazing livestock. Stockmen continued the Native American practice of setting fires in winter to encourage growth of nutritious herbs and grasses for their cattle and also to attract game animals such as deer. The hot fires often killed young longleaf pine seedlings and along with damage by cattle and hogs prevented the regeneration of the forest overstory (Maxwell and Baker 1983). Plant species palatable to cattle, such as switch cane (*Arundinaria gigantea*), basswood (*Tilia americana*), mulberry (*Morus rubra*), and sweetleaf (*Symplocos tinctoria*), became scarce (D.W. Lay, personal communication).

During the Depression of the 1930s, many lumber companies, farmers, and homesteaders were unable to pay property taxes, and their lands were abandoned. In the mid 1930s, the U.S. Department of Agriculture purchased over 1.2 million acres of land from willing sellers, and from this land was formed the Angelina, Davy Crockett and Sabine National Forests in Texas and the Kisatchie National Forest in Louisiana. Several thousand acres of cutover land were reforested by the Civilian Conservation Corps. At the same time, public works projects encouraged the construction of roads and residences in remote rural areas.

After World War II, modern forestry practices were broadly applied to both public and private forest lands, including removal of non-timber tree species and fire suppression. In the 1960s, selective silviculture was generally abandoned in favor of short-rotation, even-aged forest management. Clearcutting, root plowing, improved nursery seedlings, and herbicide use became

common silvicultural practices. In recent years federal laws, such as the Clean Water Act and the Endangered Species Act, and increasing concern over the loss of biodiversity have brought attention to the need for conservation of species and ecosystems. Fire, once suppressed as a danger to forests, is now advocated by ecologists as a necessary process for the healthy functioning of many ecosystems. Endangered species such as the red-cockaded woodpecker (*Picoides borealis*) have become the focus of much controversy about how land should be managed. Habitat fragmentation has become a major concern as a growing human population places greater demands on economic uses of the land.

1.3.2   Aquatic Systems

Aquatic systems of the West Gulf Coastal Plain, like terrestrial systems, have been structured in response to ecological forces at various scales. Current riverine ecosystems most likely formed about 18,000 years ago, in the late Pleistocene epoch (Martin 1980). Pre-settlement records of aquatic systems are lacking, but significant alteration of ecosystem processes began soon after settlement, and have continued through the present day. In the 1800s, rivers and streams began to be cleared of debris and channelized for ship traffic. In 1835 Captain Henry Shreve opened the Red River for navigation by clearing it of a centuries-old, 160-mile jam of natural debris called the Great Raft. Floodplain forests were cleared and swamps drained to make way for agricultural fields.

Beginning in the 1950s, large reservoirs were constructed on some of the major river systems, inundating several hundred thousand acres of bottomland forests. These reservoirs modified river flows and flood cycles and divided the river systems into isolated segments, limiting the movement of mobile aquatic species such as the paddlefish (*Polyodon spathula*). Reservoirs are known to elevate the temperature of receiving streams (England and Fatora 1977) and alter their natural functions and even the species composition and spawning regimes of native fishes.

Agricultural runoff and wastes from industries such as paper mills and oilfields have reduced water quality of streams and impacted aquatic communities. Erosion from road construction and forestry operations have caused downcutting of stream banks, increased siltation rates, and blockage of fish movement. Gravel dredging in river channels is generally considered to be one of the major impacts to paddlefish, which use gravel and rubble deposits for spawning habitat (Pitman 1991). There are many impacts to biodiversity related to degradation of water quality, but the disappearance of numerous native freshwater mussel species from polluted streams in this ecoregion is of particular concern.

Several non-native aquatic plant and animal species have been either intentionally or accidentally introduced into the aquatic systems of the ecoregion. Water hyacinth (*Eichornia crassipes*) and hydrilla (*Hydrilla verticellata*) have become widespread nuisances in sloughs, swamps, and reservoirs. Invertebrate animals such as the Asiatic clam (*Corbicula flumenia*) and vertebrates such as the grass carp (*Ctenopharyngodon idella*) have altered community diversity and habitat quality.

Problems of degraded water quality have led to federal laws such as the Clean Water Act and to

voluntary forestry programs such as Best Management Practices, which have had varying levels of success. Increasing urbanization within the ecoregion will most likely place further demands on water resources, and large cities in more arid regions may look to the West Gulf Coastal Plain as a source of water for their growing populations.

Chapter 2:

Elements of Conservation Design

2.1 BACKGROUND INFORMATION

The Nature Conservancy has established guidelines for ecoregional planning in the *Geography of Hope* (Groves et al. 2000). The West Gulf Coastal Plain ecoregional planning team endeavored to follow these guidelines as closely as possible. However, ecoregional planning is an evolving science, and adjustments were often required to reflect the constraints of available data, resources, and time. New tools and techniques were incorporated into the planning process whenever possible. The following is a description of the planning process, planning guidelines, and key conservation design issues for the West Gulf Coastal Plain ecoregional plan.

2.1.1 Planning Team Structure

The West Gulf Coastal Plain ecoregional planning process was directed by an interdisciplinary group known as the Core Team and supported by five specialized technical teams. The Botany, Ecology, Zoology, Data Management, and Implementation/Communications technical teams consisted of a team leader and experts in each discipline. The Core Team consisted of a team leader, representatives from the Louisiana and Texas TNC chapter offices, and the leaders of the five technical teams. The responsibilities of the ecoregional team are described below.

Core Team. Accountable for the completion of the ecoregional planning project. Directs project scope funding, schedules, products, and staffing.

Botany. Responsible for developing a list of native plant species conservation targets, assessing viability of known species occurrences, and establishing conservation goals for each target.

Ecology. Responsible for developing a list of terrestrial plant community and ecological systems conservation targets, cross-walking state vegetation classifications to the community target list, assessing viability of known species occurrences, and establishing conservation goals for each target.

Zoology. Responsible for developing a list of native animal species conservation targets, assessing viability of known species occurrences, and establishing conservation goals for each target. Develops procedures for identifying and assessing aquatic systems.

Data Management. Responsible for creating and maintaining an ecoregional database of

conservation target occurrences. Acquires, manages, and analyzes geographic data and develops map products.

Implementation/Communications. Responsible for prioritizing conservation areas based on biological value, severity of threats, and feasibility, and developing multi-area conservation strategies. Develops communication strategies for involving conservation partners and stakeholders in the ecoregional planning process.

2.1.2 Project Timeline

The first draft of the West Gulf Coastal Plain required 35 months to complete, including one year of pre-project planning. Table 1 shows the major phases of the project, a general timeline of activities, and the teams responsible for task completion related to development of the ecoregional plan.

Table 1. West Gulf Coastal Plain ecoregional planning timeline.

Project Phase	Dates	Activities	Teams Involved
Pre-Project Planning	February 1998 – June 1999	- Organize teams. - Develop timeline and work plan.	Core Team
Data Assembly and Assessment	June 1999 – April 2000	- Identify species, communities, and ecological systems targets *(Section 2.2.1)*. - Set target conservation goals *(Section 2.2.3)*. - Assess viability of conservation target occurrences *(Section 2.2.2)*.	Core Team Botany Team Ecology Team Zoology Team Data Management Team
Conservation Plan Design	April 2000 – Dec 2000	- Design a network of conservation areas to meet conservation target goals *(Section 3.2)*. - Assess threats and feasibility of conservation areas *(Section 4.1, 4.2)*	Core Team Implementation / Communications Team

2.2   PLANNING DATA AND GUIDELINES

Three primary products are critical for assembly of the ecoregional portfolio, each of which is discussed in detail below. These primary products include:

- Lists of ecoregional conservation targets and a database of target occurrences.
- Viability guidelines for target occurrences.
- Ecoregional conservation goals for each target.

2.2.1   Conservation Targets

The first critical step in ecoregional conservation planning was to identify conservation targets–the elements of biological diversity or surrogates that will be the focus of conservation planning efforts. These conservation targets were used to identify conservation areas across the ecoregion. Although the goal of ecoregional planning is the long term survival of *all* viable native species, community types, and ecological systems through the design and conservation of portfolios of conservation areas within ecoregions, it is impractical to plan for all of the elements of biodiversity. Therefore, the planning team selected a subset of targets at different spatial scales and levels of biological organization that would best represent all biological diversity in the ecoregion.

The hypothesis that a subset of targets can represent all viable native species and community types has been referred to as the "coarse filter-fine filter" approach. Fine filters are species, particularly those that are rare, endemic, or in decline, and certain very rare community types, particularly those that occur in relatively small patches. Coarse filters are all the natural communities and ecological systems characteristic of an ecoregion. By targeting viable examples of communities, the planning team hoped to capture not only the terrestrial or aquatic community itself, but also the suite of biodiversity that resides within that community, including those species that were not included as conservation targets.

Both fine and coarse filter targets are considered conservation targets in an ecoregion. In cases where there was not sufficient information to define a target, a surrogate was designated to substitute for a target. For example, to compensate for the lack of information on aquatic and floodplain communities, we interpreted remote imagery to identify stream corridors with intact riparian vegetation, which served as aquatic and floodplain coarse-filter targets.

Conservation targets were selected by analyzing Natural Heritage databases, searching primary literature and museum collections, and holding expert workshops. The botany, zoology, and ecology teams developed lists of natural communities and plant and animal species occurring within the West Gulf Coastal Plain ecoregion that are of conservation concern. In all, 39 animal targets, 53 plant targets, and 110 natural terrestrial community targets were identified. In addition, 28 stream or river segments with relatively intact riparian corridors were identified as surrogate aquatic and floodplain community targets. Appendix C lists the species and community conservation targets for the ecoregion.

Terrestrial Communities

One of the goals of ecoregional planning is to design a portfolio of conservation areas that captures viable occurrences of *all* native community types. This is based on the assumption that common and lesser known species would be captured by protecting natural communities of the appropriate size, condition, and landscape context. Natural terrestrial communities are plant assemblages that repeat across the landscape and are described by a combination of diagnostic plant species and significant environmental conditions. The identification of communities is less straightforward than for species targets, since it requires a community classification that can be applied across the political boundaries in the ecoregion.

The classification that the planning team applied on the West Gulf Coastal Plain was based on The Nature Conservancy's National Vegetation Classification system (Grossman et al. 1998, Anderson et al. in press). The National Vegetation Classification has a hierarchical structure which allows the classification to be applied at the appropriate level for the amount of information available. Plant associations are at the finest level of the classification hierarchy. The classification, however, was incomplete at the time the team undertook its application, so a significant amount of work went into its development throughout the planning process, including refining community descriptions, assigning global ranks (see Appendix B, *Rarity Category Definitions*), and cross-walking state community classifications to the National Vegetation Classification.

All 110 terrestrial community types identified as occurring in the ecoregion were selected as conservation targets (Table 2). Most of the terrestrial community targets in the West Gulf Coastal Plain are identified at the plant association level. However, a few of the community targets were identified by ecological groups or ecological systems, which were developed during the planning process (see Appendix H, *Terrestrial Ecological Systems of the West Gulf Coastal Plain*). Plant associations with similar structural and environmental characteristics were assigned to coarser-scale ecological groups and ecological systems for use as surrogates when association-level information was not available for particular community occurrence records.

Aquatic Communities

During this first iteration of the ecoregional plan, an aquatic community classification had not been developed for the ecoregion, and as a result, aquatic communities were not included on the conservation target list. Alternate methods used for including aquatic systems in the ecoregional portfolio are described in Section 3.1.1.

Species

The Botany and Zoology teams reviewed information on all species occurring in the ecoregion and identified appropriate conservation targets. All species ranked as G1-G2 or T1-T2 by Natural Heritage Programs, or listed or proposed for listing as threatened or endangered by the U.S. Fish and Wildlife Service under the Endangered Species Act were identified as

conservation targets (see Appendix B, *Rarity Category Definitions*, for definitions of these categories). Species added to the list include more common species (G3 and higher) that are declining through all or part of their range, endemic to the ecoregion, disjunct from other ecoregions, or considered by the teams to be of significant conservation concern. During development of target lists, some species were removed, including extinct species and wide-ranging species that have been extirpated from the ecoregion (see Appendix D, *Species Removed from Target Lists*).

The Zoology Team identified 39 animal species as conservation targets in the West Gulf Coastal Plain (Appendix C). The list includes four amphibians, four birds, five fishes, one mammal, two reptiles, eleven crustaceans, five insects, and seven mollusks. The global ranks of the animal targets are listed in Table 2. One target, the yellow brachycercus mayfly (*Brachycercus flavus*), is presumed to be eliminated throughout its range but was included on the target list to focus inventory effort on locating possible extant populations.

Table 2. Rarity categories of conservation targets in the West Gulf Coastal Plain*.

Target Type	G1	G2	G3	G4	G5	G?	GH	Total
Animals	10	5	12	4	6	1	1	39
Plants	4	10	36	1	2	0	0	53
Terrestrial Communities	26	27	23	19	4	11	0	110

* Global ranks with modifiers, such as G3G4 or G5T1, were rounded to the highest rarity category (e.g., G3G4 = G3, G5T1 = G1).

The Botany Team identified 53 plant species as conservation targets. Over half of them are endemic or have a limited range outside of the ecoregion, which makes them excellent indicators of the unique environments found in the West Gulf Coastal Plain. A summary of the global ranks of the plant targets is in Table 2.

Geographic Distribution of Targets

Each of the 202 terrestrial community, animal, and plant conservation targets was attributed to one of five categories according to its spatial distribution: endemic, limited, peripheral, widespread, or disjunct. These categories are described below:

Endemic   Restricted to an ecoregion, depend entirely on a single area for survival, and are therefore often more vulnerable to decline.

Limited   Occurs predominantly in one or two ecoregions, but may also be found in a few

adjacent ecoregions.

Disjunct   Occurrences are geographically isolated from the main body of occurrences located in other ecoregions.

Peripheral   More commonly found in adjacent ecoregions, with generally less than 10 percent of the target's total distribution in the ecoregion of interest.

Widespread   Found in many ecoregions, with a relatively equal distribution.

Assigning appropriate geographical distributions to the conservation targets aided the planning teams in target selection and goal setting. A large number of endemic species and communities were selected as targets, since their conservation is entirely dependent on efforts in the single ecoregion in which they are found (Table 3). The geographic distribution of targets also provides a standard by which to measure the success of conservation in the ecoregion. The relationship between geographical distribution and goal setting is explained in Section 2.2.3, *Ecoregion Conservation Goals*.

Table 3. Geographical distribution of conservation targets in the West Gulf Coastal Plain.

Geographic Distribution	Terrestrial communities	Animals	Plants	Total	Percentage of all targets
Endemic	72	16	11	99	49
Limited	16	8	21	45	22
Peripheral	11	2	2	15	7
Widespread	11	12	19	42	21
Disjunct	0	1	0	1	1
Total	110	39	53	202	100

Spatial Scales of Targets

Because it is impractical to plan for all elements of biodiversity, even those that are known, we must select a subset of targets at different spatial scales that will best represent all biological diversity. To help select a portfolio of conservation areas that achieves this aim, targets were assigned a spatial scale. Scale refers to the characteristic size range of a viable species or natural community occurrence. The planning team used four spatial scales, with different terms used for species and terrestrial communities (Table 4). Most of the ecoregional conservation targets are defined as local or small patch (Figure 7).

Table 4. Spatial scales criteria for West Gulf Coastal Plain ecoregional conservation targets.

Species	Natural Communities	Definitions
Local	**Small patch**	*Species*: Limited movement and dispersal, restricted to a single habitat. Many invertebrates and plants are local scale targets. *Communities*: Small, discrete and occur as a result of specific environmental factors and ecosystem processes. Usually less than 200 acres.
Intermediate	**Large patch**	*Species:* Depend on several kinds of habitat. For example, floodplain spawning fish use a river's main channel, flooded backwater areas, and wetlands. *Communities:* Discrete, defined by distinct physical factors and environmental regimes, and significantly larger than small patch. Typically 1,000 to 50,000 acres.
Coarse	**Matrix**	*Species:* Require large areas and have very generalized habitat requirements. For example, prairie chickens of the Great Plains utilize large areas of grasslands, small patches of wetlands and shrublands, and even various agricultural land uses. *Communities:* The dominant or historically dominant habitat between patches. Defined by widespread physical gradients, such as elevation, precipitation, and temperature, across broad areas. Area required usually ranges from 20,000 to 1,000,000 acres.
Regional	**n/a**	*Species:* Require vast areas of habitat that may encompass several ecoregions. Includes migratory animals and top-level predators. To sustain a single population, areas often over 1,000,000 acres are necessary, including natural or semi-natural matrix communities, associated patches, and connecting corridors.

Spatial Scale of Conservation Targets
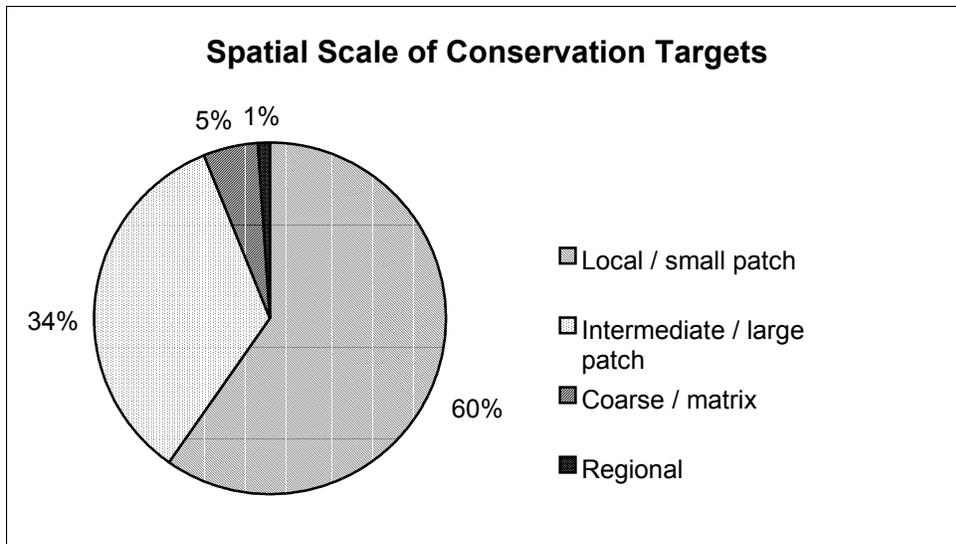
Figure 7. Distribution of conservation targets among the four spatial scales.

2.2.2 Viability Guidelines

The goal of ecoregion-based conservation is the long-term survival of all *viable* native species and community types within an ecoregion. Viability refers to the ability of a species to persist for many generations or a community/ecological system to persist over some specified time period. Within a planning context, viability may refer to either the viability of a population or the viability of the species as a whole, or similarly to the viability of an entire community or ecological system versus an individual example of it. Viability assessment is an fundamental component of ecoregional planning. Experience has shown that defining conservation areas based on non-viable or marginally viable occurrences of targets can result in a significant investment of limited resources with a high risk that conservation actions will ultimately fail.

The Nature Conservancy and the Natural Heritage Programs have traditionally judged viability of element occurrences with a state-by-state approach, relative to the other occurrences of the same element in each state. In the ecoregional planning approach, however, the intent is to ignore such political boundaries, assess viability of all occurrences across the ecoregion, and select the most viable occurrences for inclusion in the portfolio of conservation areas. Therefore, the team endeavored to employ ecoregion-based viability ranking specifications as a means of assessing the viability of target occurrences. These ranks provide an assessment of a target occurrence's predicted viability based on three factors: size, condition, and landscape context (Groves et al. 2000). This ranking system enables a meaningful comparison of all occurrences for a given target across the ecoregion.

Size is a measure of the area or abundance of a conservation target occurrence. For ecological systems and communities, size is simply a measure of the occurrence's size or geographic coverage. For animal and plant species, size takes into account the area of occupancy and number of individuals in a population. Minimum dynamic area, or the area needed to ensure

survival or re-establishment of a target after natural disturbance, is another aspect of size.

Condition is an integrated measure of quality of biotic and abiotic factors, structures and processes that characterize targets. This includes factors such as reproduction, competition, predation, anthropogenic impacts, and biological legacies.

Landscape context for populations, is an integrated measure of two criteria: connectivity to other populations, and intactness of surrounding ecological processes and environmental regimes. Many animal and plant species require corridors of habitat between populations to overcome problems resulting from habitat fragmentation. Terrestrial and aquatic communities that depend on ecological processes occurring at a scale larger than the individual community are highly affected by what happens in the surrounding landscape.

Where possible, the planning team applied the factors of size, condition, and landscape context to element occurrences to judge their viability. Unfortunately, the standards for what constitutes the best size, condition, or landscape context for a conservation target have not been fully documented in most cases. Thus, many viability rankings were based on the opinions of experts. Experts assigned one of six viability ranks to each occurrence of each conservation target:

I = Irreplaceable
> *Conservation target occurrences that must be captured in the portfolio for the target to remain viable.*
> - Includes viable (element occurrence (EO) quality ranks of A, B, or C) examples of G1-G2 targets that are necessary to meet the target's conservation goals. Also includes viable occurrences of G3-G5 targets to meet conservation goals for elements that are endemic to the ecoregion or have fewer viable occurrences than the conservation goal.

R = Recommended
> *More common target element occurrences that also need to be captured in the portfolio.*
> - Viable (EO rank of A, B, or C) occurrences of G3 targets where there are fewer occurrences than the goal number; thus, all known occurrences need to be captured at portfolio sites to work toward meeting goals.
> - Highly viable (EO rank of A or B, or recommended by experts) occurrences of G4-G5 targets where there are fewer occurrences than the goal number.

V = Viable
> *Target occurrences important to the portfolio but where there may be more occurrences than the goal number (i.e., there may be a choice between which occurrences are the best ones for the portfolio).*
> - Other viable occurrences of G3-G5 targets where the number of occurrences is greater than the conservation goal number. In such cases, occurrences are reviewed by quality rank, stratification, etc., during portfolio assembly.
> - Other occurrences not reviewed by the teams but with EO quality ranks of A, B, or C.

U = Unknown

> *Old occurrences not confirmed since 1980, or recent (1980 or later) occurrences without quality ranks.*

- U-ranked occurrences were included in the ecoregional database but were not included in the portfolio assembly analysis.
- Some U-ranked occurrences may potentially be viable and should be re-evaluated in future biological surveys.

O = Outside the Ecoregion

> *Element occurrences located just outside the ecoregion boundary that are tracked so as to ensure that they are not overlooked.*

- These are occurrences that fall within a ten mile buffer around the ecoregion.

N = Not Viable

> *Occurrences that are not viable (EO rank of "D") or that are confirmed to have been extirpated.*

- Occurrence records ranked as not viable were removed from the ecoregional database and were not included in the portfolio assembly analysis.

Target occurrences ranked Irreplaceable (I), Recommended (R), or Viable (V) were considered viable for purposes of meeting the conservation goal for each target. Priority was given to designing conservation areas to capture the I and R-ranked target occurrences. V-ranked occurrences are considered to be minimally viable, so the team generally targeted them for conservation when too few high-quality occurrences were available to meet a goal. Additionally, the team selected V-ranked occurrences of large-patch terrestrial communities when I or R-ranked communities were imbedded within them, or if the V-ranked community was imbedded within an I or R-ranked community. Such nesting of patch communities within matrix communities likely increases the biodiversity value and long-term viability of a conservation area.

A large number of target occurrences were ranked as Unknown (U) viability. This was the case for occurrences that had not been visited since 1980. U-ranked occurrences were not selected unless recent and reliable information regarding viability could be obtained. These occurrences should be the focus of future inventory efforts. If the occurrences are found to be viable, they may warrant changes in the portfolio of sites, especially if the goal for a target has not already been met.

Occurrences were labeled Not Viable (N) if the occurrence was determined to be not viable or it no longer existed. N-ranked occurrences were not selected at any point in the portfolio selection process.

2.2.3 Conservation Goals

The primary purpose of setting goals is to estimate the level of conservation effort necessary to maintain a conservation target's viability over a specified planning horizon, which in the case of this ecoregional plan, is 100 years. Conservation goals define the number and spatial distribution of on-the-ground occurrences of targeted species and communities that are needed to adequately conserve the target in the ecoregion.

A conservation goal in ecoregional planning has two components: the **number** of occurrences of a community or species populations needed to conserve a target in an ecoregion, and the **distribution** of target occurrences across an ecoregion. Conservation of multiple, viable examples of each target, distributed across its geographic and ecological range, is necessary to capture the genetic variability of the target and to provide sufficient replication to ensure persistence in the face of climatic or other environmental changes.

Admittedly, the science of population viability analysis is still in its infancy; little information is available to guide scientists to the appropriate numbers and distribution of populations or community occurrences needed to ensure long-term sustainability. For this reason, the planning team generally defaulted to a pre-set goal number for most target elements based on rarity and range distribution. All draft goals were reviewed by experts prior to adoption into the ecoregional plan. It is expected that conservation goals developed for these targets will be adjusted in future iterations of the plan as additional viability guidelines become available and conservation theory is improved.

Despite the uncertainty regarding conservation target goals, they do provide an additional function in ecoregional conservation planning. Goals provide a way to measure progress in achieving conservation of biological diversity in the ecoregion. Conservation goals for individual targets can be found in Appendix C.

Species

Conservation goals for plant and animal species were based on the number of populations needed to conserve the target across its natural range of distribution within the ecoregion. Initial conservation goals followed the default goals developed by the Southern Resource Office of The Nature Conservancy. Default conservation goals were assigned based on the global ranking of the target and whether or not it is endemic to the ecoregion (Table 5). In some cases, goals were adjusted based on expert knowledge of the species or community. If federal recovery plans were available for a listed endangered species, guidelines suggested therein were taken into account.

Table 5. Conservation goal guidelines for species targets in the West Gulf Coastal Plain.

Global Rank	Distribution	
	Endemic	Not Endemic
G1	12	12
G2	10	8
G3	8	5
G4	5	5
G5	5	5

Terrestrial Communities

Like species, conservation goals for natural communities were derived based on the number of occurrences needed for long-term viability as well as their distribution in the ecoregion. In addition, the spatial scale, or landscape pattern, of communities was used in setting goals for terrestrial communities (Table 6). Each community type was assigned a spatial scale of matrix, large-patch, or small-patch, based its average size of functional occurrences on the landscape (Table 4). The recommended preliminary terrestrial community goals of The Nature Conservancy (1999) were used as a basis for establishing conservation goals. These goals are based on the assumption that patch communities are more ecologically variable than matrix communities, and that because of their smaller size they are more subject to higher probabilities of attrition over time. Consequently, the conservation goals for these patch communities were set higher than for matrix communities.

Table 6. Conservation goal guidelines for terrestrial community targets in the West Gulf Coastal Plain.

Ecoregional Distribution	Community Spatial Scale		
	Matrix	Large Patch	Small Patch
Endemic	10	18	25
Limited	5	9	13
Widespread	2	4	5
Disjunct	1	2	3
Peripheral	1	2	3

The distribution of communities relative to the ecoregion was also considered in setting conservation goals. The five categories were used to describe these geographic distributions included endemic, limited, widespread, disjunct, and peripheral (See Section 2.2.2). Distribution patterns have an obvious effect on conservation goals. If a community type is endemic to a particular ecoregion, all occurrences judged necessary to represent that type must come from that ecoregion. A community that is widespread could be protected in many different ecoregions, so any one ecoregion may need to protect only a portion of the occurrences required to represent the type. Consequently, the number of occurrences needed to protect each community in an ecoregion was scaled based on the distribution pattern of the community across ecoregions, with highest numbers needed for endemic community types and the lowest for peripheral types.

Chapter 3:

The Ecoregional Portfolio Design

3.1   DESIGNING THE PORTFOLIO

3.1.1   Method of Assembly

The process for designing a portfolio of conservation areas for the West Gulf Coastal Plain was based on the products developed during data assessment, including lists of species and community conservation targets, conservation goals, and viability criteria. During the design process, the planning team attempted to meet the population and distribution goals for each conservation target. Special emphasis was placed on identifying functional landscapes of a sufficient size to capture a large number of viable ecological systems, communities, and species. Large landscapes have a much higher potential than smaller sites to maintain ecosystem processes within their natural ranges of variability.

Phase One – Terrestrial Systems

In the first phase of portfolio design, intact examples of terrestrial natural communities were selected as the core areas upon which to build preliminary conservation areas. Using communities as a basis for designing conservation areas provided for efficiency of design, since, as coarse filter targets, high-quality terrestrial communities likely contain viable occurrences of smaller scale conservation targets and are supported by intact ecological processes. Selection of terrestrial community occurrences for the portfolio proceeded according to spatial scale in the following sequence: (1) matrix communities, (2) large patch communities, and (3) small patch communities (i.e., selections were made for all matrix community targets before any selections were made for large patch, small patch or species targets). Except for some areas on public lands, most historically dominant matrix communities, particularly upland longleaf pine forests, have all but disappeared from the West Gulf Coastal Plain. However, small but high-quality examples of matrix communities still remain in the ecoregion. Therefore, it was necessary to evaluate not only the viability of matrix community occurrences, but also the potential for restoration of the surrounding landscape.

Most mapped community occurrences were represented in the database by points, with a few occurrences represented by small polygons. Each point or polygon was buffered to give the occurrence a spatial area, based on the appropriate spatial scale (i.e., matrix, large patch, or small patch). The buffers represent an average viable acreage for each spatial scale; estimated sizes for some individual occurrences were adjusted depending on their landscape context and the ecological requirements of the target community. Viable examples of matrix communities were

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buffered to approximately 5000 acres, with the occurrence location as the center point of a 5000 acre circular polygon. Large patch communities were buffered in a 200-acre polygon, and small patch communities in a 10-acre polygon. The rationale behind the buffers was to help guide the team in drawing sites that are appropriately sized to meet the criteria of a functional landscape.

During the portfolio design meeting, boundaries were adjusted using digital topographic maps, Landsat satellite imagery, and expert opinion to reflect the landscape context of the community occurrence. Areas that were inappropriate for restoration due to landscape fragmentation or other problems were removed from consideration.

The team considered all viable occurrences of each community target and decided whether to include it in the portfolio, keeping in mind its global rank, viability, conservation goal, and its distribution among subregions in which the target could be expected to occur. The primary objective was to meet the conservation goal for each target with the most viable occurrences and distribute these occurrences across subregions in which the target could be expected to occur.

Once community occurrences were selected, occurrences with overlapping buffers were consolidated into one site. Special attention was given to maximizing the number of functional landscapes, particularly those on relatively intact areas of public lands (Figure 8a). Groups of non-overlapping occurrences were also consolidated if the team concluded the occurrences were reasonably connected due to landscape context or common ecosystem processes. The resulting preliminary map formed the basis for selection of conservation areas for species by the Botany and Zoology Teams.

Phase Two - Species

Conservation area polygons developed using natural community-defined sites were used as a coarse filter for capturing plant and animal species target occurrences. First, the Botany Team selected plant occurrences that best represent viable examples of each plant target in the ecoregion. Plant target occurrence data came primarily from existing records from the Biological and Conservation Database of each state's respective Natural Heritage Program, and also from experts consulted during the planning process. As with the community selection, the primary objective was to meet the conservation goals for each target and distribute selected occurrences among subregions in which the target could be expected to occur. The group of occurrences for each plant target was represented in a separate map layer, allowing the team to see all viable occurrences of a particular plant species in the ecoregion. Occurrences of each plant target were chosen to represent the target across the subregions in which the species is known to occur.

Each plant target occurrence was buffered by a 50-acre circular polygon. The buffer was used as a starting point for representing the area occupied by a plant population. Estimated habitat area for individual occurrences varied depending on landscape context and ecological requirements of the target species, as determined from digital topographic maps, Landsat imagery, and expert opinion. Appropriate areas for restoration were identified if an existing occurrence was not large
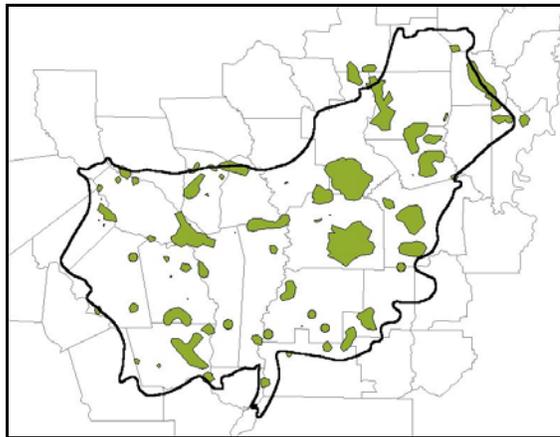
a. Phase One: preliminary community conservation areas.
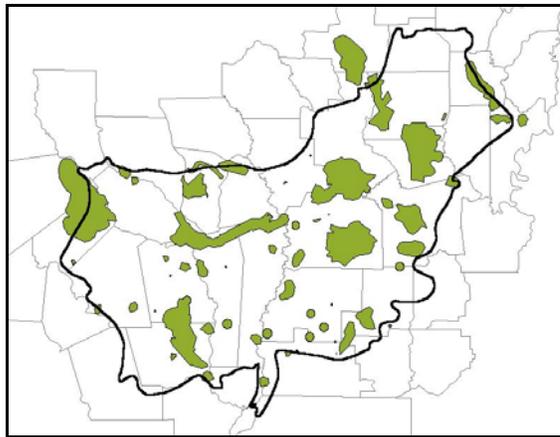
b. Phase Two: plant and animal species targets added.
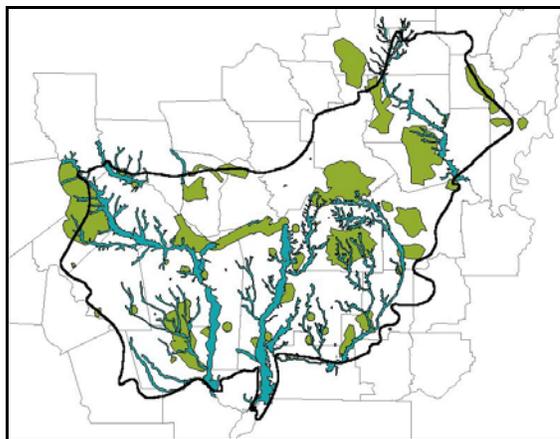
c. Phase Three: aquatic systems added.

Figure 8. Development of the preliminary conservation area map for the West Gulf Coastal Plain.

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enough to be functional. All selected plant target occurrences were added to the preliminary portfolio. Occurrences that did not fall within or near a site previously defined in Phase One were evaluated for inclusion as separate conservation areas (Figure 8b).

Selection of conservation areas for animal species targets followed the same process as that for plant targets. Additionally, animal target occurrences were evaluated to determine whether they represented a complete population, a sub-population, or one to a few individuals. If landscape context or species' life histories suggested that it might be appropriate, groups of occurrences were aggregated into one population. For example, over 500 occurrences of red-cockaded woodpecker breeding groups were aggregated into five viable populations, in recognition of this species' habitat requirements and demographic characteristics. Where feasible, boundaries of neighboring sites were connected with corridors to provide interaction between populations of conservation targets (Figure 8b).

Phase Three - Aquatic Systems

Aquatic communities were analyzed differently from terrestrial community or species targets. A comprehensive aquatic community classification is yet to be developed for the West Gulf Coastal Plain, making delineation of aquatic conservation areas problematic. Additionally, few viable occurrences exist for most aquatic species conservation targets. Therefore, the planning team decided to concentrate on identifying high-quality aquatic systems across a range of watershed sizes and types using readily available digital information, previous stream studies, and expert opinion. The team also decided to include the active floodplains of rivers and streams since they often contain aquatic systems such as oxbow lakes and wetlands.

The first step in identifying aquatic conservation areas was to perform a landscape analysis of the ecoregion using geographic information systems and remotely sensed data. Soil polygons in a general soils (STATSGO) database designated as either frequently or occasionally flooded were selected, and these were overlaid onto Landsat/SPOT imagery and digital stream and reservoir GIS layers. For each stream or river segment, the percentage area of natural vegetation within each riparian corridor was estimated. Streams with less than 50 percent total natural vegetation were eliminated from consideration. Areas of stream segments identified by state and federal agencies as ecologically significant (U.S. Fish and Wildlife Service 1985) were added if not identified in the landscape analysis. The Zoology Team then reviewed the resulting aquatic system map, and based on expert opinion, added or removed streams from the database. Efforts were made to include at least one large river system and two small or intermediate perennial streams from each subregion, and to include aquatic systems that captured viable occurrences of conservation targets (Figure 8c).

3.2 THE RESULTING PORTFOLIO DESIGN

Eighty-one conservation areas were identified in the West Gulf Coastal Plain ecoregion in an attempt to capture 1,010 viable occurrences of 202 conservation targets (Figure 10). The progress that was made, as well as the degree to which the portfolio falls short of its conservation goals, are outlined in the next sections.

3.2.1   Success in Meeting Conservation Target Goals

Planning teams identified 202 conservation targets around which the West Gulf Coastal Plain portfolio was designed. The majority of targets (80 percent) did not meet the conservation goals set out in Chapter 2.2.3, *Ecoregion Conservation Goals*. Twenty percent of the 202 targets met their established goals (Figure 9). An additional 45 percent made some progress toward meeting their goals; in other words, at least one viable example of the target was captured in the portfolio. The remaining 35 percent of the targets, however, were not represented in the portfolio. Fifty percent of the unrepresented conservation targets were terrestrial communities (Figure 11).

Terrestrial Communities

Terrestrial communities represent 54 percent of all conservation targets in the West Gulf Coastal Plain. In addition to making up over half of the conservation targets, terrestrial communities also represent half of the targets not represented in the portfolio (Figure 11). That terrestrial communities account for half of the unrepresented targets in the portfolio is not surprising, since until recently the focus of community inventory has been on rare communities rather than the full range of community types characteristic of an ecoregion. Thus, little information exists on the location and viability of the more common community types. Furthermore, the National Vegetation Classification which was used to classify terrestrial communities in the ecoregion is still evolving, and has only been recently applied in the field.

Despite a general lack of terrestrial community occurrence data, the planning team was able to meet the conservation goals for 14 of the 110 terrestrial community targets (Figure 12). Although constituting only 13 percent of community targets, these 14 communities are components of all eight ecological systems identified in the West Gulf Coastal Plain (See Appendix H, *Terrestrial Ecological Systems of the West Gulf Coastal Plain*). Therefore, at least a portion of each ecological system in the ecoregion is well-represented.

Fig. 9 West Gulf Coastal Plain Ecoregion
Conservation Areas Portfolio

The Nature Conservancy of Texas

Aquatic Conservation Areas
Terrestrial Conservation Areas
Reservoirs
Ecoregion Boundary
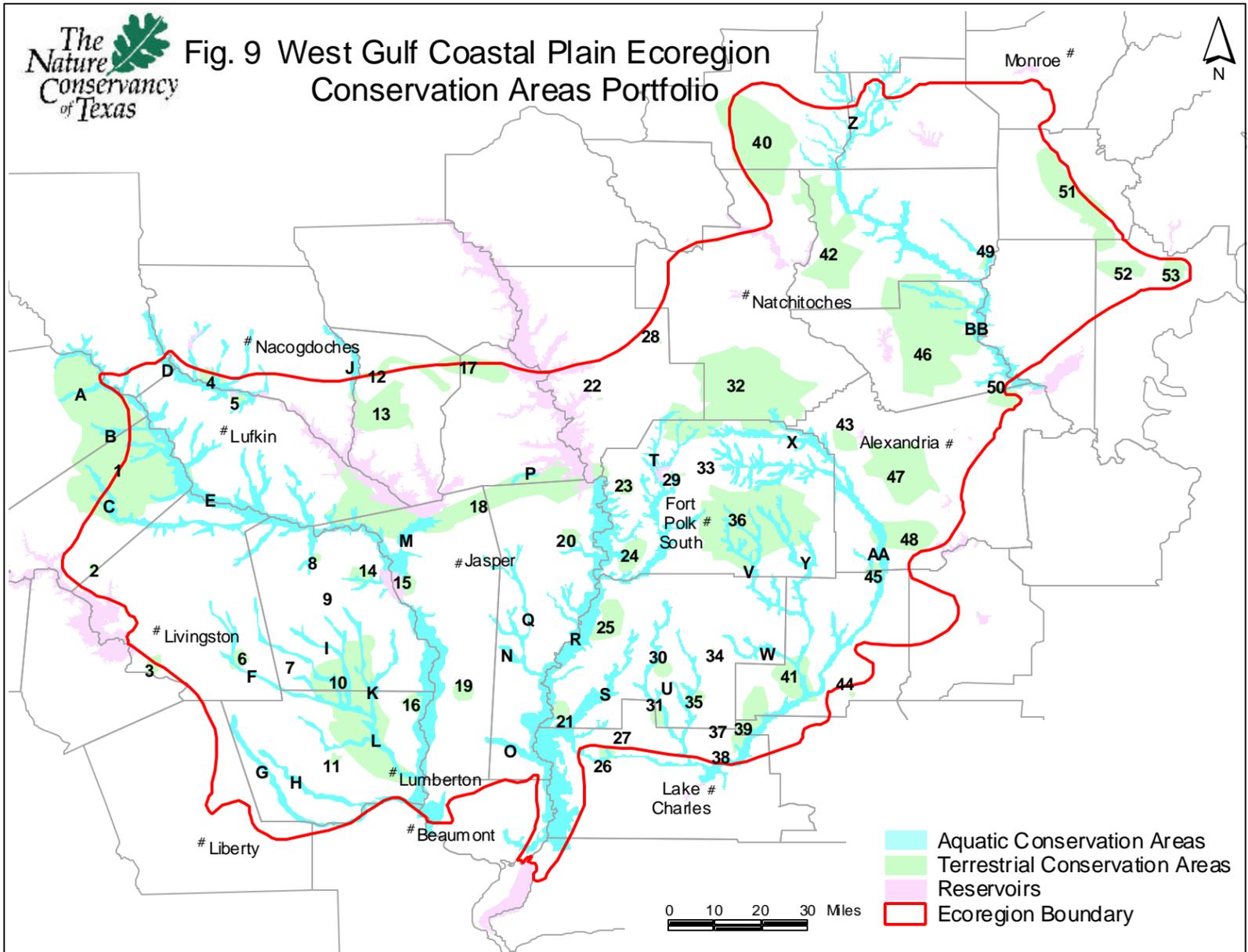
1	Davy Crockett National Forest	41	Leblanc Savannas
2	Brushy Creek	42	Kisatchie National Forest - Winn District
3	Long King Creek	43	Kisatchie National Forest - Evangeline District - North
4	Angelina River Bottom West	44	Coushatta Pond
5	Angelina River Bottom East	45	Cherrywinche Savanna
6	Big Thicket National Preserve - Big Sandy Unit	46	Kisatchie National Forest - Catahoula/Southern Winn District
7	Jacks Creek		
8	Colmesneil Woods	47	Kisatchie National Forest - Evangeline District - Central
9	Tyler County Baygall	48	Kisatchie National Forest - Evangeline District - South
10	Big Thicket - Sandylands Complex	49	Saline Creek Prairie
11	Big Thicket National Preserve - Lance Rosier Unit	50	Camp Beauregard
12	Weches Glades	51	Ouachita Hills
13	North Angelina National Forest	52	Catahoula Hills
14	Clear Creek Bog	53	Sicily Island Hills
15	Martin Dies Jr. State Park	A	Hickory Creek
16	Jack Gore Baygall	B	Cochino Bayou
17	Central Sabine National Forest	C	Piney Creek
18	Longleaf Ridge	D	Upper Angelina River
19	Sally Withers Lake Savanna	E	Neches River
20	Burkeville Barrens	F	Big Sandy Creek
21	Shoat's Creek Savanna	G	Pine Island Bayou
22	South Sabine Prairies	H	Little Pine Island Bayou
23	Brushy Heads	I	Turkey Creek
24	Boise-Vernon Wildlife Management Area	J	Attoyac River
25	Merryville Savannas	K	Beech Creek
26	Persimmon Gully	L	Village Creek
27	Buxton Creek Saline Prairie	M	Lower Angelina River
28	Stoker Hills	N	Trout Creek
29	Anacoco Prairies	O	Cypress Creek
30	Bull Bayou Savanna	P	Sandy Creek
31	Dequincy East Savannas	Q	White Oak Creek
32	Kisatchie National Forest - Peason Ridge	R	Sabine River
33	Self Cemetary Prairie	S	Houston River
34	Little Caney Creek Bog	T	Anacoco Bayou
35	Kernan Savanna	U	Calcasieu River, West Branch
36	Kisatchie National Forest - Vernon District/Fort Polk	V	Whisky Chitto Creek
37	Marsh Bayou	W	Bundick Creek
38	Bird Nest Cemetary Low Woods	X	Cypress Bayou
39	CC Road Savannas	Y	Six Mile Creek
40	Kisatchie National Forest Winn District North/Lucky Sandylands	Z	Dugdemona River
		AA	Calcasieu River
		BB	Little River

Percentage of All Conservation Targets

20%

45%

☐ Targets that met
conservation goal

■ Targets unrepresented

☐ Targets represented,
but did not meet goal

35 %
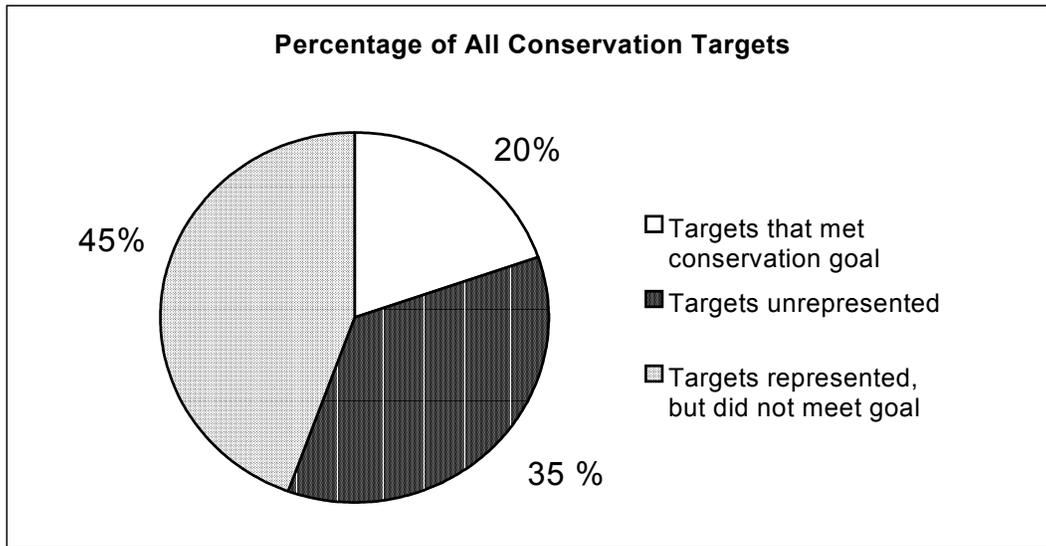
Figure 10. Success of the conservation area portfolio in meeting ecoregional conservation goals.

Percentage of Unrepresented Conservation Targets

14%

☐ Communities
☐ Animals
■ Plants

36%

50%
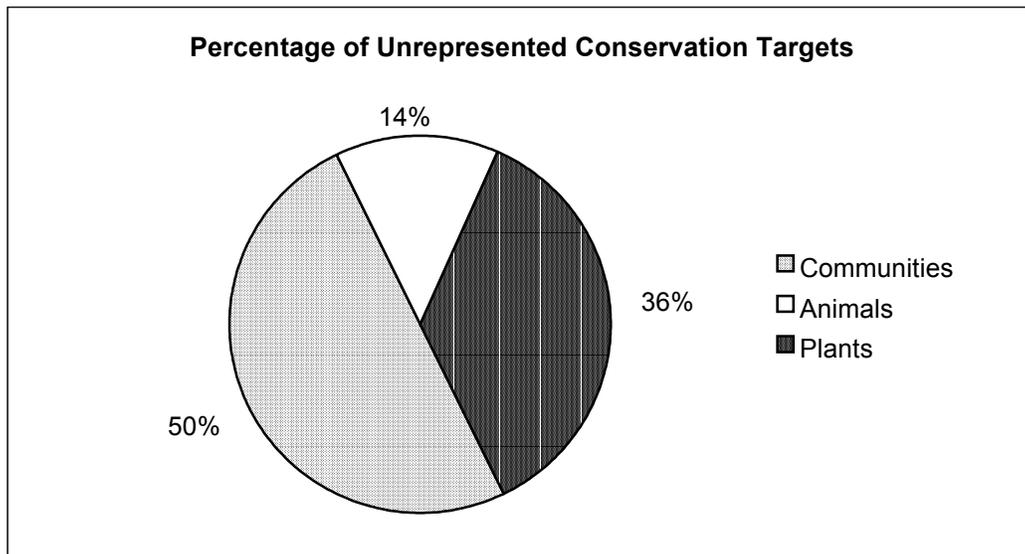
Figure 11. Conservation targets not represented in the ecoregional portfolio, by target type.
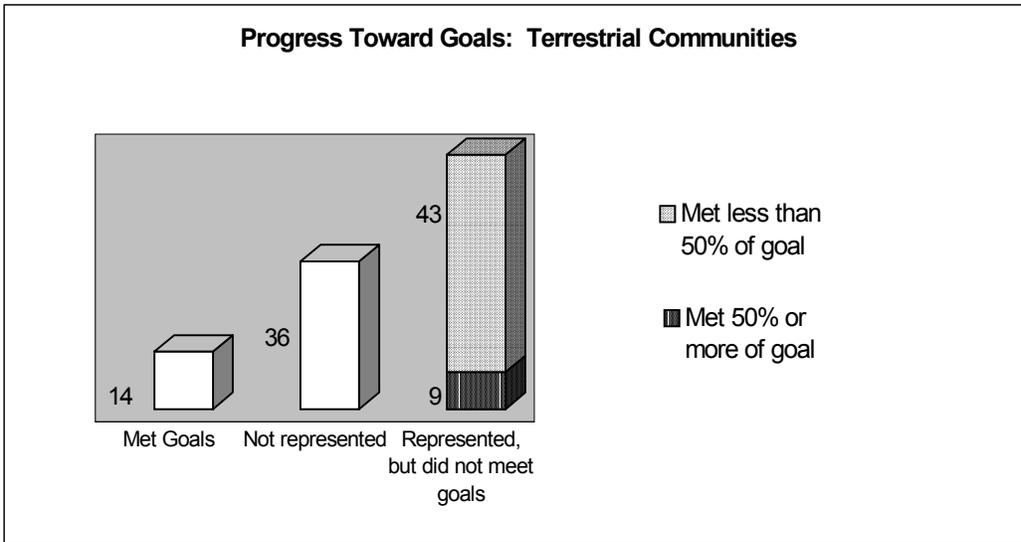
Figure 12. Summary of progress toward achieving terrestrial community target conservation goals. (Graph shows actual number of communities, not percentages.)

Over half (55 percent) of the terrestrial community targets were represented in the portfolio, but did not meet their goals. Most of these community targets are represented by few occurrences, and much work remains to identify viable occurrences of these targets. Numerical goals were not set for ecological groups or ecological systems for this iteration of the plan.

As targets, terrestrial communities were attributed to one of three geographic patterns: matrix, large patch, or small patch. Matrix communities comprise the dominant ecological backdrop that characterizes an ecoregion, and they often cover a vast area. In the West Gulf Coastal Plain, matrix communities include woodlands dominated by longleaf pine or shortleaf pine. Large patch communities are more limited by environmental factors than are matrix communities, which can occur across large environmental gradients. Small patch communities, such as hillside seepage bogs, are small and discrete, and they are dependent on highly localized environmental factors (See Section 2.2.1, *Conservation Targets*, for a more thorough description of community scale). The majority of the terrestrial community types in the ecoregion are large patch and small patch (Table 7).

Table 7. Progress toward meeting goals for terrestrial communities by spatial scale.

Spatial Scale	Met Goal	Did Not Meet Goal	Total Targets
Small patch	1	46	47
Large patch	8	50	58
Matrix	3	2	5
TOTAL	12	98	110

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Another way to assess the portfolio's progress toward meeting terrestrial community goals is by geographic distribution category: endemic, limited, peripheral, widespread, or disjunct. Endemic communities are restricted to the ecoregion and are found nowhere else. Limited communities occur predominantly in one or two ecoregions, but may also be found in a few adjacent ecoregions. Peripheral communities are more commonly found in other ecoregions, and generally less than 10 percent of the community's total distribution is in the ecoregion of interest. Widespread communities are found in many ecoregions, with a relatively equal distribution. Disjunct communities are separated from the core of their distribution. The majority of terrestrial community targets in the ecoregion are classified as endemic (Table 8).

Table 8. Progress toward meeting goals for terrestrial communities by geographic distribution

Geographic Distribution	Met Goal	Did Not Meet Goal	Total Targets
Endemic	8	64	72
Limited	4	12	16
Peripheral	0	11	11
Widespread	0	11	11
Disjunct	n/a	n/a	0
Total	12	98	110

Animals

Animal targets represent 19 percent of the 202 conservation targets for the ecoregion. Of the 39 animal species, 16 met their conservation goals (Figure 13). Ten animal species are not represented in the portfolio. Thirteen targets were represented in the portfolio, but did not meet their goals. Most animal targets attained less than 50 percent of their numerical goal of viable populations. Birds were the only major taxonomic group in which all species met their conservation goals. None of the species within the mammal and amphibian groups met their goals (Table 9).

Progress Toward Goals: Animal Targets

16 — Met Goals

10 — Not represented

8 / 5 — Represented, but did not meet goals

☐ Met less than 50% of goal

■ Met 50% or more of goal
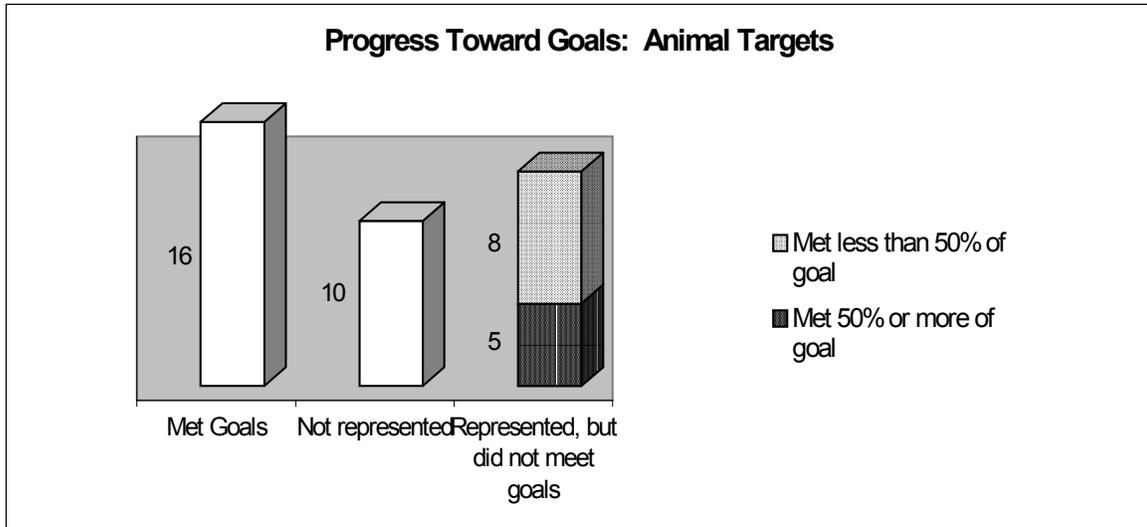
Figure 13. Summary of progress toward achieving animal conservation target goals. (Graph shows actual number of species, not percentages).

Plants

Plant species represent 26 percent of the 202 conservation targets. Of the 53 plant targets, twelve met their conservation goals (Figure 14). Twenty-six plant targets are not represented in the portfolio, which is almost half of all plant targets. This gap may be attributed to the extremely limited inventories available for G3-ranked plant species in Texas and Louisiana. Fifteen targets were represented in the portfolio, but did not meet their goals. Most plant species targets attained
less than 50 percent of their numerical goal of viable populations.

Table 9. Success in achieving animal target conservation goals by taxonomic group.

Taxonomic Group	Goals met / Total targets	Percent of targets meeting goals
Amphibians	0 / 4	0
Birds	4 / 4	100
Fishes	3 / 5	60
Mammals	0 / 1	0
Reptiles	1 / 2	50
Crustaceans	2 / 11	18
Insects	1 / 5	20
Mollusks	5 / 7	71
Total	16/39	41

Progress Toward Goals: Plant Targets
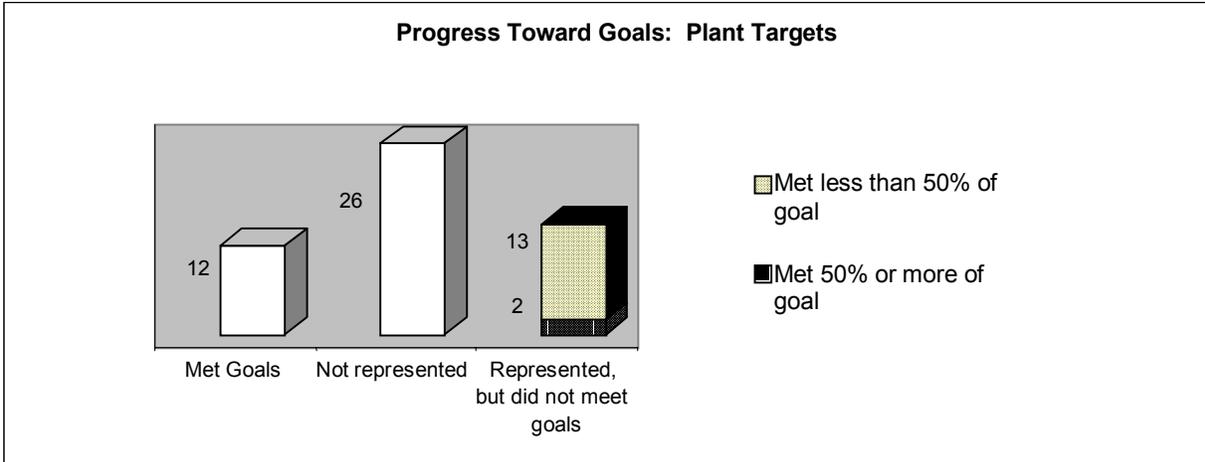
Figure 14. Summary of progress toward meeting plant conservation target goals. (Graph shows actual number of plant targets, not percentages).

Aquatic Community Target Goals

Due to the lack of an aquatic community classification and paucity of occurrence data, numerical goals were not determined for aquatic communities. Instead, aquatic systems were selected based on landscape analysis and expert opinion. See Section 3.1.1 for more information concerning analysis of aquatic communities.

3.2.2 Conservation Area Analysis

Conservation Area Size

Portfolio conservation areas range in size from seventy acres for the Bird Nest Cemetery Low Woods in Lousiana to 329,341 acres for the Davy Crockett National Forest in Texas. The average size for a conservation area in the ecoregion is 43,948 acres. This figure is, however, skewed by a number of large landscape-scale conservation areas in the portfolio; the median size of a conservation area within the portfolio is 13,901 acres.

Terrestrial and Aquatic Conservation Areas

In total, the 81 conservation areas of the West Gulf Coastal Plain ecoregion encompass 3,310,080 acres, or 30 percent of the ecoregion. The portfolio includes more upland terrestrial conservation areas than aquatic and floodplain conservation areas (Figure 15).

Percentage of Conservation Area Portfolio

Aquatic
40%
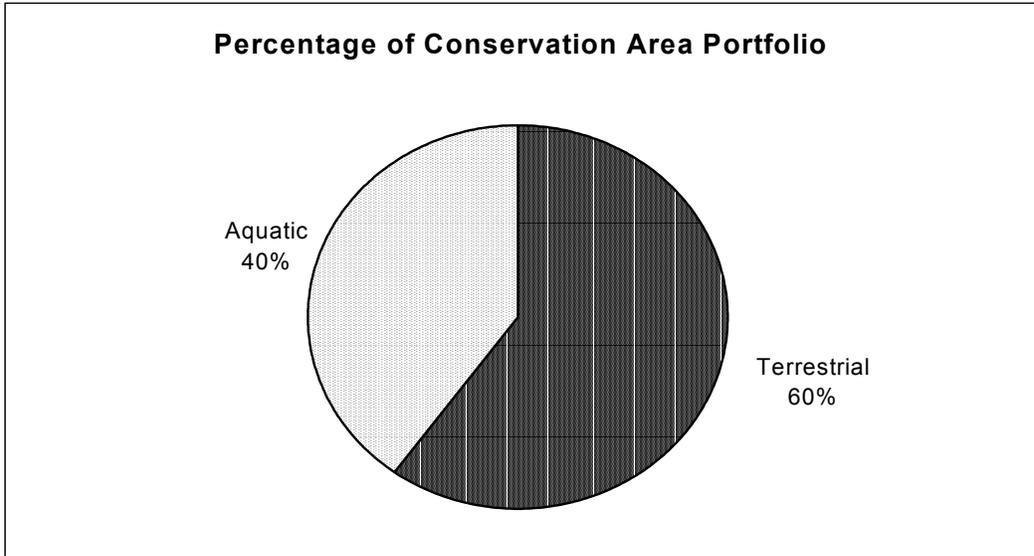
Terrestrial
60%

Figure 15. Proportion of terrestrial- and aquatic-dominated conservation areas.

Land Ownership Patterns

Publicly-owned lands are heavily represented in the portfolio, with 54 percent of the land encompassed by conservation areas. The majority (about 65 percent) of viable conservation target occurrences in the portfolio are found on federally owned land, and an additional 2 percent are on state-owned land. Conservancy preserves account for 3 percent of the viable target occurrences in the portfolio, which leaves approximately 30 percent of the viable target occurrences in portfolio conservation areas on privately-owned land in the ecoregion. However, the biodiversity potential of privately-owned land may be underrepresented in the portfolio; large, relatively unfragmented land ownerships do still exist in the ecoregion, but very little inventory work has been conducted on private lands relative to public lands.

3.2.3 Designing Functional Conservation Areas

Ecoregional planning represents a shift away from conservation based primarily on rarity to conservation based primarily on conserving *functional landscapes*. Functional landscapes conserve not only multiple species and communities of conservation concern but also the ecological processes that those species and communities require. Because they include matrix communities and coarse-scale species, functional landscapes typically cover large areas.

The emphasis on functional landscapes is intended to improve the efficiency and effectiveness of conservation work. Although all portfolio conservation areas should be functional, not all conservation areas will be functional landscapes. Compared to smaller sites, functional landscapes typically provide more habitat, greater habitat diversity, and larger populations of known and unknown species. Because of their complex and variable environmental gradients,

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they also offer greater protection against future environmental uncertainty, such as global climate change. However, since functional landscapes are also substantially more complex, understanding and measuring them requires more resources.

Of the 81 conservation areas in the West Gulf Coastal Plain, 17 (21%) meet the definition of a functional landscape (Table 10). Each of the functional landscapes contains viable occurrences of targets at all three scales below regional (i.e., at coarse, intermediate and local scales).

Table 10. Functional landscapes in the West Gulf Coastal Plain ecoregion.

Map ID	Site Name	Acres
1	Davy Crockett National Forest	329,341
E	Neches River	320,061
S	Sabine River	221,370
36	Peason Ridge	217,968
19	Longleaf Ridge	205,274
50	Kisatchie NF - Catahoula/Southern Winn District	201,616
40	Kisatchie NF - Vernon District/Fort Polk	187,910
10	Big Thicket - Sandylands Complex	176,780
44	Kisatchie NF Winn District North/Lucky Sandylands	122,420
46	Kisatchie NF - Winn District	95,219
51	Kisatchie NF - Evangeline District - Central	74,187
D	Upper Angelina River	58,725
13	North Angelina National Forest	51,842
29	Merryville Savannas	24,071
28	Boise-Vernon Wildlife Management Area*	17,496
54	Camp Beauregard*	12,675
4	Angelina River Bottom West*	12,322

* Does not fall into typical functional landscape size range of 20,000 to 1,000,000 acres.

Biological Richness

The conservation areas identified in the portfolio have a skewed distribution in terms of their relative biological richness. The top 10 occurrence-rich sites contain over 70 percent of the viable conservation target occurrences in the ecoregion (Table 11). Most of the portfolio conservation areas with a high number of target occurrences are also rich in target diversity.

Table 11. Characteristics of the top ten biologically rich conservation areas.

Conservation Area	Number of Viable Occurrences	Percent of Total Viable Occurrences	Number of Conservation Targets	Percent of Total Conservation Targets
Longleaf Ridge	226	22	38	19
Kisatchie NF – Kisatchie District / Peason Ridge	119	12	35	17
Kisatchie NF - Vernon District / Fort Polk	146	14	25	12
Kisatchie NF – Cathoula / Southern Winn Districts	41	4	20	10
Kisatchie NF – Winn District	47	5	19	9
Big Thicket – Sandylands Complex	40	4	16	7
North Angelina NF	33	3	15	7
Kisatchie NF – Central Evangeline District	40	4	14	7
Sabine River	16	2	12	6
Neches River	19	2	11	5

Chapter 4:

Conclusion

4.1 IMPLEMENTING THE ECOREGIONAL PLAN

The completion of an ecoregional conservation plan for the West Gulf Coastal Plain is only the first step in a series of actions designed to achieve success in insuring the long-term viability of conservation targets in the ecoregion. The specific actions necessary to implement the ecoregional plan remain to be addressed. An ecoregional plan is only the first step in an integrated conservation process; the next steps in the process will involve designing strategies to conserve both single and multiple conservation areas, implementing those strategies by direct conservation action, and measuring our success at conserving species and community targets in the conservation areas.

Ecoregional planning is a dynamic, iterative process. As new information about species, communities, and conservation science and planning becomes available, it will be necessary to periodically update the ecoregional plan to integrate this new information, and ensure that the West Gulf Coastal Plain plan remains a useful, working document.

Involvement of non-Conservancy partners in the planning process contributed greatly to its effectiveness and in many cases was essential to the completion of parts of the plan. Their involvement also helped to make the plan more than just an internal Conservancy document. The Nature Conservancy recognizes that the monumental task outlined in this plan cannot be accomplished in isolation, but instead it must involve all those who have a stake in protecting biodiversity in the ecoregion.

An ecoregional plan remains only a plan until it motivates its users to positive action. Although current opportunities for conservation action to protect biodiversity are excellent, these opportunities will probably become more limited with the passage of time. It is The Nature Conservancy's hope that this plan will serve as a foundation for success in preserving the rich biological heritage of the West Gulf Coastal Plain ecoregion.

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APPENDIX A. GLOSSARY OF TERMS

Biological diversity. The variety of living organisms considered at all levels of organization including the genetic, species, and higher taxonomic levels. Biological diversity also includes the variety of habitats, ecosystems, and natural processes occurring therein.

Coarse filter – fine filter. A working hypothesis that assumes that conservation of multiple, viable examples of all coarse-filter targets (communities and ecological systems) will also conserve the majority of species (fine filter targets). The term coarse filter refers to targets at the community or system level of biological organization whereas coarse-scale refers to spatial scale of, for example, terrestrial targets that roughly cover 20,000 to 1,000,000 acres.

Coarse scale. Ecological systems or matrix communities are spatially large terrestrial targets referred to as coarse-scale. The coarse-scale approach is the first step in the portfolio assembly process where all coarse-scale targets are represented or "captured" in the ecoregion (including those that are feasibly restorable).

Community (aquatic). Recognizable, co-occurring assemblages of animals, both vertebrate and invertebrate, inhabiting freshwater environments.

Community (terrestrial). Plant assemblages of distinct floristic composition, uniform physiognomy, and uniform habitat conditions. Terrestrial communities are usually defined by the plant association level of the National Vegetation Classification, but are viewed as inclusive conservation units that include all component species (plant and animal) and the ecological processes that support them.

Conservation goal. In ecoregional planning, the number and spatial distribution of on-the-ground occurrences of targeted species, communities, and ecological systems that are needed to adequately conserve the target in an ecoregion.

Conservation Target. An element of an ecoregion's biodiversity selected as a focus for conservation planning or action. The three basic types of targets in ecoregional planning projects are species, ecological communities, and ecological systems.

Disjunct. Species populations or community occurrences that are geographically isolated from their primary natural range.

Ecoregion. A relatively large area of land and water that contains geographically distinct assemblages of natural communities. These communities (1) share a large majority of their species, dynamics, and environmental conditions, and (2) function together effectively as a conservation unit at global and continental scales.

Ecological system. A group of interconnected natural communities on land or in water that are linked together by important ecological processes.

Element. Natural Heritage database term that refers to species, communities, and other entities (e.g., migratory bird stopovers) of biodiversity that serve as both conservation targets and as units for organizing and tracking information.

Element occurrence. Natural Heritage database term that refers to a unit of land or water on which a population of a species or example of an ecological community occurs. For communities, these element occurrences represent a defined area that contains a characteristic species composition and structure.

Endemic. Species or communities that are restricted to one ecoregion (or a small geographic area within an ecoregion), and are therefore often more vulnerable to extinction.

Functional landscape. A large, ecologically intact area designed to conserve a large number of ecological systems, communities, and species at multiple geographic scales, and maintain the important ecological processes upon which they depend.

Geographic scale. A classification into groups of the typical (current or historical) size of species or community occurrences on the landscape. For communities the scale includes small patch, large patch, and matrix; species scales include local, intermediate, coarse, and regional.

Landscape. A heterogeneous land area composed of a cluster of interacting ecosystems that are repeated in similar spatial patterns.

Large patch. Plant communities that typically range in size from 20 to 1,000 acres and that are influenced by large-scale ecological processes modified by local-scale environmental factors.

Limited. Species or communities that occur predominantly in one or two ecoregions, but may also be found in a few adjacent ecoregions.

Matrix communities. Communities that form extensive and contiguous cover and that typically occur over a wide range ecological gradients. Individual occurrences of matrix communities typically range in size from 200 to 1,000,000 acres. Matrix community types are often influenced by large-scale processes (e.g., climate patterns, fire) and are important habitat for wide-ranging or large area-dependent fauna, such as large herbivores or birds.

Peripheral. Species or communities more commonly found in adjacent ecoregions, with generally less than 10 percent of the target's total distribution in the ecoregion of interest.

Plant Association. The finest level of the terrestrial community classification hierarchy, and the basic unit for vegetation classification in North America. It is defined as "a plant community type of definite floristic composition, uniform habitat conditions, and uniform physiognomy."

Portfolio. The total aggregate of conservation areas identified within an ecoregion that would, if conserved, collectively maintain the long-term viability of all native species and communities of the ecoregion.

Small patch. Communities that form small, discrete areas of vegetation which typically range in size from 1 to 50 acres. Small patch communities occur in very specific ecological settings, such as on specialized landform types or in unusual microhabitats In many ecoregions, small patch communities contain a disproportionately large percentage of the total flora and fauna.

Spatial distribution. The overall pattern of occurrence for a particular conservation target. It is often referred to as the relative proportion of the target's natural range occurring within a given ecoregion (i.e., endemic, widespread, limited, disjunct, peripheral).

Viability. The ability of a species or community to persist for a given time period. An assessment of viability will often focus on the size, condition, and landscape context of species or community occurrences.

Widespread. Species or communities whose natural range of occurrence crosses several ecoregions with a relatively equal distribution.

APPENDIX B. RARITY CATEGORY DEFINITIONS

Natural Heritage Element Ranking Definitions

Global Ranks (G-Ranks)

Global conservation status ranks are based on a one to five scale, ranging from critically imperiled to demonstrably widespread, abundant, and secure (Figure 1). Species and communities known to be extinct (GX), or missing and possibly extinct (GH) are also recorded. A numeric range rank is used to denote the range of uncertainty about the exact status of a species or community (e.g., G2G3); range ranks may be assigned in situations where an element has a relatively equal probability of being either, or any, of the ranks included in the range specified. In addition, element rank qualifiers may be used to provide information on uncertainty of a numeric rank ("?"), questionable taxonomy ("Q"), or the captive/cultivated status of an element ("C").

G1 **CRITICALLY IMPERILED**. Generally 5 or fewer occurrences and/or very few remaining acres or very vulnerable to elimination throughout its range due to other factors.

G2 **IMPERILED**. Generally 6-20 occurrences and/or few remaining acres or very vulnerable to elimination throughout its range due to other factors.

G3 **VULNERABLE**. Generally 21-100 occurrences. Either very rare and local throughout its range or found locally, even abundantly, within a restricted range or vulnerable to elimination throughout its range due to specific factors.

G4 **APPARENTLY SECURE**. Uncommon, but not rare (although it may be quire rare in parts of its range, especially at the periphery). Apparently not vulnerable in most of its range.

G5 **SECURE**. Common, widespread, and abundant (though it may be quite rare in parts of its range, especially at the periphery). Not vulnerable in most of its range.

GX **PRESUMED EXTINCT**. Not located despite intensive searches.

GH **PRESUMED ELIMINATED (HISTORIC)**. Presumed eliminated throughout its range, with no or virtually no likelihood that it will be rediscovered, but with the potential for restoration.

Figure 1. Natural Heritage Network global rarity ranks for species and natural communities.

Subspecies Ranks (T-Ranks)

The global conservation status of subspecies or varieties is indicated by using a "T" subrank as part of the global rank. Rules for assigning "T" subranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A "T" subrank cannot imply that the subspecies or variety is more abundant than the species' basic rank (e.g., a G1T2 subrank should not occur).

Appendix C1. Animal Conservation Targets

Scientific Name	Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Amphibians				
Ambystoma tigrinum tigrinum	Eastern tiger salamander	G5	5	1
Plethodon kisatchie	Louisiana slimy salamander	G3Q	10	5
Plethodon serratus	Southern red-backed salamander	G5	5	2
Rana areolata	Crawfish frog	G4	5	1
Birds				
Aimophila aestivalis	Bachman's sparrow	G3	5	6
Ammodramus henslowii	Henslow's sparrow	G3G4	5	5
Elanoides forficatus	American swallow-tailed kite	G5	1	2
Picoides borealis	Red-cockaded woodpecker	G3	5	6
Crustaceans				
Fallicambarus devastator	Texas prairie crawfish	G3	10	0
Fallicambarus dissitus	Pine hills crawfish	G3	5	0
Faxonella beyeri	Sabine fencing crawfish	G2	8	0
Faxonella creaseri	Ouachita fencing crawfish	G2	8	0
Faxonella sp. nov.	New species, description pending	G1Q	10	5
Macrobrachium spp.	Freshwater shrimp	NA	NA	0
Orconectes blacki	Calcasieu painted crawfish	G2	7	3
Orconectes hathawayi	Teche painted crawfish	G3	5	6
Orconectes maletae	Kisatchie painted crawfish	G2	1	2
Procambarus nechesae	A crawfish	G1G2	5	0
Procambarus nigrocinctus	A crawfish	G1	5	0
Fish				
Cycleptus elongatus	Blue sucker	G3	1	1
Etheostoma clarum	Western sand darter	G3G4	3	0

Scientific Name	Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Etheostoma histrio	Harlequin darter	G4	3	3
Notropis sabinae	Sabine shiner	G4	5	9
Phenacobius mirabilis	Suckermouth minnow	G5	5	3

Insects

Achurum hilliardi	Hilliard's toothpick grasshopper	G1 (?)	12	0
Atrytonopsis hianna	Dusted skipper	G4?	5	2
Brachycercus flavus	Yellow brachycercus mayfly	GH	4	0
Leuctra szczytkoi	Schoolhouse springs leuctran stonefly	G1G3	5	3
Somatochlora margarita	Big thicket emerald dragonfly	G2	7	7

Mammal

Corynorhinus (plecotus) rafinesquii	Rafinesque's big-eared bat	G3G4	5	1

Mollusks

Fusconaia askewi	Texas pigtoe	G3	5	8
Fusconaia lananensis	Triangle pigtoe	G1Q	5	1
Lampsilis satura	Sandbank pocketbook	G3	5	2
Margaritifera hembeli	Louisiana pearlshell	G1	7	23
Obovaria jacksoniana	Southern hickorynut	G1G2	5	7
Pleurobema riddelli	Louisiana pigtoe	G1G2	4	5
Potamilus amphichaenus	Texas heelsplitter	G1	3	5

Reptiles

Crotalus horridus (atricaudatus)	Timber rattlesnake	G5(G4)	5	5
Pituophis ruthveni	Louisiana pine snake	G5T3	12	6

Appendix C2. Plant Conservation Targets

Scientific Name	Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Agalinis filicaulis	Jackson false-foxglove	G3G4	5	0
Agalinis pinetorum	Coastal plain purple false-foxglove	G3G4	5	0
Agalinis skinneriana	Pale false-foxglove	G3	5	0
Agrimonia incisa	Incised groovebur	G3	10	2
Amorpha paniculata	Panicled indigo-bush	G3	5	1
Amsonia ludoviciana	Louisiana bluestar	G3	5	12
Astragalus soxmaniorum	Soxmans' milkvetch	G3	5	0
Bartonia texana	Texas screwstem	G2	8	1
Carex decomposita	Cypress-knee sedge	G3	5	0
Crataegus stenosepala	Narrow-sepal hawthorn	G3Q	5	0
Crataegus triflora	Threeflower hawthorn	G2Q	8	0
Cucurbita texana	Texas gourd	G3	5	0
Cyperus grayioides	Mohlenbrock's sedge	G3	5	14
Cypripedium kentuckiense	Southern lady's-slipper	G3	5	7
Desmodium tenuifolium	Slimleaf ticktrefoil	G3G4?	5	0
Gaillardia aestIvalis var. winkleri	White firewheel	G5T1	12	5
Geocarpon minimum	Earthfruit, geocarpon	G2	8	2
Helenium drummondii	Fringed sneezeweed	G3	5	1
Helianthus floridanus	Florida sunflower	G3G4	5	0
Helianthus occidentalis subsp. Plantagineus	Shinners' sunflower	G5T3	5	0
Helianthus silphoides	Silphium sunflower	G3G4	5	0
Hibiscus dasycalyx	Neches river rose-mallow	G1	8	1

Scientific Name	Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Lachnocaulon digynum	Tiny bog buttons	G3	5	19
Leavenworthia texana	Texas golden gladecress	G1	12	2
Leitneria floridana	Corkwood	G3	5	0
Lesquerella pallida	White bladderpod	G1	12	4
Liatris tenuis	Slender gayfeather	G3	5	13
Marshallia trinervia	Three-nerve barbara's-buttons	G3	5	0
Oxypolis ternata	Savanna cowbane	G3	5	0
Phlox nivalis subsp. Texensis	Texas trailing phlox	G4T2	12	7
Physostegia correllii	Correll's false dragonhead	G2	8	0
Physostegia longisepala	Longsepal false dragonhead	G3	5	6
Platanthera integra	Yellow fringeless orchid	G3G4	5	5
Prenanthes barbata	Barbed rattlesnake-root	G2G3	5	3
Pteroglossapsis ecristata	Giant orchid	G2	8	0
Quercus arkansana	Arkansas oak	G3	5	0
Quercus boyntonii	Boynton's oak	G1Q	8	0
Quercus oglethorpensis	Oglethorpe oak	G2G3	5	1
Rhynchospora macra	Large beakrush	G3	5	16
Rudbeckia scabrifolia	Bog coneflower	G2	12	53
Schoenolirion wrightii	Texas sunnybell	G3	5	0
Schwalbea americana	American chaffseed	G2	5	1
Scirpus etuberculatus	Canby bulrush	G3G4	5	0
Silene subciliata	Scarlet catchfly	G3	10	20
Spigelia texana	Texas pinkroot	G3	5	0

Scientific Name	Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Spiranthes parksii	Navasota ladies'-tresses	G3	5	1
Streptanthus maculatus	Clasping twistflower	G3	5	1
Tridens carolinianus	Carolina purpletop	G3?	5	0
Trillium ludovicianum	Louisiana Trillium	G2G3	5	0
Trillium pusillum var. texanum	Texas Trillium	G3T2	8	0
Valerianella florifera	Largeflower cornsalad	G3	5	0
Xyris drummondii	Drummond's yellow-eyed grass	G3	5	40
Xyris scabrifolia	Roughleaf yellow-eyed grass	G3	5	36

Appendix C3. Terrestrial Community Conservation Targets

Ecological Group Name *Scientific Name* Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Bald Cypress Pond-cypress - Black Gum Dome Swamps and Savannas			
Nyssa biflora - Crataegus opaca - (Fraxinus caroliniana) / Rhynchospora mixta Woodland	G2?	25	3
Swamp Blackgum - Western Mayhaw - (Water Ash) / Mingled Beaksedge Woodland			
Nyssa biflora - Quercus laurifolia / Sphagnum spp. Depression Forest	G2G3	25	2
Swamp Blackgum - Diamondleaf Oak / Sphagnum species Depression Forest			
Nyssa biflora / Itea virginica - Cephalanthus occidentalis Depression Forest	G3G4	3	1
Swamp Blackgum / Virginia-willow - Buttonbush Depression Forest			
Nyssa biflora / Panicum Hemitomon - Woodwardia virginica Woodland	G3?	25	1
Swamp Blackgum / Maidencane - Virginia Chainfern Woodland			
Taxodium distichum - Nyssa biflora - Magnolia virginiana - Acer rubrum Forest	G2?	25	0
Bald-cypress - Swamp Blackgum - Sweetbay - Red Maple Forest			
Baygalls and Bayheads			
(Magnolia virginiana) / Ilex coriacea - Myrica heterophylla Shrubland	G3?	25	2
(Sweetbay) / Big Gallberry - Wax-myrtle Shrubland			
Magnolia virginiana - Nyssa biflora - Acer rubrum - Liquidambar styraciflua / Myrica heterophylla Forest (northern subtype)	G?	18	7
Sweetbay - Swamp Blackgum - Red Maple - Sweetgum / Evergreen Bayberry Forest			
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	G3?	18	19
Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest			
Calcareous Mixed Hardwood Small Stream Forests			
Celtis laevigata - Gleditsia triacanthos - Sapindus saponaria var. drummondii / Lithospermum tuberosum - Carex willdenowii Forest	G1	25	0
Sugarberry - Honey-locust - Western Soapberry / Southern Stoneseed - Willdenow's Sedge Forest			

Ecological Group Name *Scientific Name* Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Quercus shumardii - Quercus pagoda - Fraxinus americana / Ostrya virginiana - Cornus florida / Trillium ludovicianum Forest Shumard Oak - Cherrybark Oak - White Ash / Eastern Hop-hornbeam - Flowering Dogwood / Louisiana Trillium Forest	G1	18	1

Calcareous Pine/Hardwood Forests and Woodlands

	Global Rank	Goal	# of Viable Occurrences in Portfolio
Juniperus virginiana var. virginiana - Pinus taeda - Quercus sinuata var. sinuata Woodland Eastern Red-cedar - Loblolly Pine - Durand Oak Woodland	G1	18	1
Pinus echinata - Pinus taeda - Quercus stellata / Juniperus virginiana var. virginiana / Cornus drummondii Forest Shortleaf Pine - Loblolly Pine - Post Oak / Eastern Red-cedar / Roughleaf Dogwood Forest	G2G3	18	0

Coastal Plain Carbonate Glades and Barrens

	Global Rank	Goal	# of Viable Occurrences in Portfolio
Sedum pulchellum - Calamintha arkansana - Sporobolus vaginiflorus Herbaceous Vegetation Widow's-cross - Limestone Calamint - Poverty Dropseed Herbaceous Vegetation	G1	25	11

Coastal Plain Depression Marshes

	Global Rank	Goal	# of Viable Occurrences in Portfolio
Aristida palustris - Panicum virgatum - Eriocaulon compressum - Eleocharis equisetoides Herbaceous Vegetation Longleaf Three-awn - Switchgrass - Soft-head Pipewort - Horsetail Spikerush Herbaceous Vegetation	G2G3	25	5
Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation Longleaf Three-awn - Switchgrass - Ten-angle Pipewort - Elliott's Beaksedge Herbaceous Vegetation	G2G3	25	6
Brasenia schreberi Herbaceous Vegetation Watershield Herbaceous Vegetation	G3G4	3	0
Nymphoides aquatica - Nymphaea odorata - Gratiola brevifolia Herbaceous Vegetation Big Floatingheart - White Waterlily - Shortleaf Hedge-hyssop Herbaceous Vegetation	G3?	25	0
Panicum hemitomon - Gratiola brevifolia Herbaceous Vegetation Maidencane - Shortleaf Hedge-hyssop Herbaceous Vegetation	G2G3	13	1

Coastal Plain Dry-mesic Oak Forests

	Global Rank	Goal	# of Viable Occurrences in Portfolio
Quercus stellata - Quercus marilandica - Pinus taeda Jackson Acidic Clay Forest Post Oak - Blackjack Oak - Loblolly Pine Jackson Acidic Clay Forest	G2?Q	18	0

Ecological Group Name			
Scientific Name	**Global Rank**	**Goal**	**# of Viable Occurrences in Portfolio**
Common Name			

Coastal Plain Riverbed and Streambed Vegetation

Pallavicinia lyellii - Sphagnum sp. Nonvascular Vegetation	G3?	13	0
Pallavicinia - Peatmoss species Nonvascular Vegetation			
Zizaniopsis miliacea Coastal Plain Slough Herbaceous Vegetation	G4?	3	0
Southern Wild-rice Coastal Plain Slough Herbaceous Vegetation			

Coastal Plain Salt Glades and Barrens

Baccharis halimifolia - Crataegus berberifolia / Eleocharis sp. - Tridens strictus - Euthamia leptocephala Shrubland	G1	25	1
Groundsel-tree - Barberry-leaf Haw / Spikerush species - Spike Triodia - Bushy Fragrant-goldenrod Shrubland			
Bigelowia nuttallii - Aristida dichotoma - Houstonia rosea / Cladonia spp. Herbaceous Vegetation	G1	25	3
Nuttall's Rayless-goldenrod - Forktip Three-awn - Rose Bluet / Reindeer Lichen species Herbaceous Vegetation			
Coastal plain salt glades & barrens (undescribed plant association(s))	G1	25	2
Coastal Plain Salt Glades & Barrens			
Eleocharis sp. - Iva angustifolia - Distichlis spicata Herbaceous Vegetation	G1	25	1
Spikerush species - Narrowleaf Marsh-elder - Saltgrass Herbaceous Vegetation			
Eleocharis spp. - Scirpus spp. - Fimbristylis spp. - Juncus spp. southeastern coastal plain inland salt flat sparse Vegetation	G1?	25	2
Spikerush species - Bulrush species - Fimbry species - Rush species Southeastern Coastal Plain Inland Salt Flat Sparse Vegetation			

Coastal Plain Sandstone Glades and Barrens

(Pinus palustris) / Quercus stellata - Carya texana / Chasmanthium sessiliflorum - Ranunculus fascicularis Woodland	G1	18	0
(Longleaf Pine) / Post Oak - Black Hickory / Longleaf Spanglegrass - Thickroot Buttercup Woodland			
(Pinus palustris) / Schizachyrium scoparium - Bigelowia nuttallii / Cladonia spp. Herbaceous Vegetation	G1G2	25	17
(Longleaf Pine) / Little Bluestem - Nuttall's Rayless-goldenrod / Reindeer Lichen species Herbaceous Vegetation			
Bigelowia nuttallii - Krameria lanceolata - Aristida dichotoma - Sporobolus silveanus Herbaceous Vegetation	G1	25	4
Nuttall's Rayless-goldenrod - Trailing Ratany - Forktip Three-awn - Silveus Dropseed Herbaceous Vegetation			

Ecological Group Name *Scientific Name* **Common Name**	**Global Rank**	**Goal**	**# of Viable Occurrences in Portfolio**
Pinus palustris / Quercus marilandica / Schizachyrium tenerum - Muhlenbergia expansa - Bigelowia nuttallii - Senecio obovatus Woodland Longleaf Pine / Blackjack Oak / Slender Bluestem - Savanna Hairgrass - Nuttall's Rayless-goldenrod - Round-leaf Groundsel Woodland	G1	18	4

Coastal Plain Xeric Oak Woodlands and Hammocks

(Pinus palustris) - Quercus stellata - Quercus marilandica - Carya texana / Tragia urens Woodland (Longleaf Pine) - Post Oak - Blackjack Oak - Black Hickory / Wavyleaf Noseburn Woodland	G2	25	5
(Pinus palustris) / Quercus stellata - Quercus marilandica - Quercus falcata Woodland (Longleaf Pine) - Post Oak - Blackjack Oak - Southern Red Oak Woodland	G?	18	3

Depressional Buttonbush Ponds

Cephalanthus occidentalis / Carex spp. - Lemna spp. Southern Shrubland Buttonbush / Sedge species - Duckweed species Southern Shrubland	G4	3	2

Dry and Mesic Longleaf Pine Clayhill, Flat, and Swale Pinelands

Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G3	10	15
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G3	10	61

Dry-mesic Loblolly Pine / Hardwood Forests

Pinus taeda - (Pinus echinata) - Quercus alba - Carya alba / Acer leucoderme Forest Loblolly Pine - (Shortleaf Pine) - White Oak - Mockernut Hickory / Chalk Maple Forest	G3G4	18	2
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	9	19
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	9	29

Dry-mesic Shortleaf Pine / Hardwood Forests and Woodlands

Ecological Group Name *Scientific Name* Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Pinus echinata - Pinus taeda - Quercus (alba, falcata, stellata) Forest Shortleaf Pine - Loblolly Pine - (White Oak, Southern Red Oak, Post Oak) Forest	G?	9	4
Pinus echinata - Quercus falcata - Quercus stellata - Carya texana Woodland Shortleaf Pine - Southern Red Oak - Post Oak - Black Hickory Woodland	G1	18	0
Loblolly Pine - Hardwood Small Stream Forests			
Pinus taeda - Quercus phellos - Quercus nigra Forest Loblolly Pine - Willow Oak - Water Oak Forest	G4	9	0
Mayhaw Ponds			
Crataegus opaca - Crataegus viridis Forest Western Mayhaw - Green Haw Forest	G1	25	4
Miscellaneous Aquatics			
ludwigia peploides Herbaceous Vegetation Floating Water-primrose Herbaceous Vegetation	G4G5	3	0
Nelumbo lutea Herbaceous Vegetation American Lotus Herbaceous Vegetation	G3G4	6	0
Nuphar lutea ssp. advena - Nymphaea odorata Herbaceous Vegetation Yellow Pondlily - White Waterlily Herbaceous Vegetation	G4G5	6	0
Typha latifolia Southern Herbaceous Vegetation Common Cattail Southern Herbaceous Vegetation	G5	6	0
Mixed Hardwood Small Stream Forests			
Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest	G3	18	21
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G4	18	23

Ecological Group Name *Scientific Name* Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Oak Ponds			
Quercus phellos - Quercus similis / Crataegus marshallii - Crataegus spathulata / Chasmanthium laxum Forest Willow Oak - Swamp Post Oak / Parsley-leaf Haw - Littlehip Haw / Slender Spikegrass Forest	G2G3	25	1
Patch Prairies			
Crataegus spathulata - Cornus drummondii - Berchemia scandens Shrubland Littlehip Haw - Roughleaf Dogwood - Supplejack Shrubland	G2Q	25	0
Schizachyrium scoparium - Marshallia caespitosa - Nemastylis geminiflora Herbaceous Vegetation Little Bluestem - Puffballs - Celestial Lily Herbaceous Vegetation	G1G2	13	0
Schizachyrium scoparium - Panicum flexile - Carex cherokeensis Herbaceous Vegetation Little Bluestem - Wiry Panicgrass - Cherokee Sedge Herbaceous Vegetation	G1	25	12
Schizachyrium scoparium - Rudbeckia missouriensis - Grindelia lanceolata - (Liatris mucronata) Herbaceous Vegetation Little Bluestem - Missouri Coneflower - Narrow-leaf Gumweed - (Cusp Gayfeather) Herbaceous Vegetation	G1	25	1
Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation Little Bluestem - Missouri Coneflower Herbaceous Vegetation	G1	25	10
Schizachyrium scoparium - Sorghastrum nutans Jackson Prairie Herbaceous Vegetation Little Bluestem - Yellow Indiangrass Jackson Prairie Herbaceous Vegetation	G1Q	25	3
Riverbank Shrublands			
Salix nigra Temporarily Flooded Shrubland Black Willow Temporarily Flooded Shrubland	G?	6	0
Southeastern Coastal Plain Seepage Bogs			
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G3	25	78
Southeastern Coastal Plain Upland Acidic Mixed Hardwood Forests and Hammocks			

Ecological Group Name

Scientific Name Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	18	9
Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest American Beech - White Oak / (Southern Sugar Maple, Chalk Maple) / Eared Goldenrod Forest	G3	18	11
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	18	21

Southeastern Coastal Plain Upland Calcareous Mixed Hardwood Forests

Scientific Name Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Fraxinus americana - Celtis laevigata - Nyssa sylvatica - Quercus shumardii - Ulmus americana Forest White Ash - Sugarberry - Blackgum - Shumard Oak - American Elm Forest	G2G3	18	1
Quercus shumardii - Fraxinus americana - Carya myristiciformis / Viburnum dentatum / Carex cherokeensis Forest Shumard Oak - White Ash - Nutmeg Hickory / Southern Arrow-wood / Cherokee Sedge Forest	G2?	18	1
Quercus sinuata var. sinuata - Fraxinus americana - Quercus muehlenbergii / Rhus aromatica - Cornus drummondii Forest Durand Oak - White Ash - Chinquapin Oak / Fragrant Sumac - Roughleaf Dogwood Forest	G1	18	1

Southeastern Floodplain Forests -- Cypress-Gum Floodplain Forests

Scientific Name Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Nyssa aquatica - Nyssa biflora Forest Water Tupelo - Swamp Blackgum Forest	G4G5	2	0
Nyssa aquatica Forest Water Tupelo Forest	G5?	5	1
Planera aquatica Forest Planertree Forest	G4?	6	2
Quercus laurifolia - Liquidambar styraciflua - Nyssa biflora - Acer rubrum Forest Diamondleaf Oak - Sweetgum - Swamp Blackgum - Red Maple Forest	G3	18	0
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G?	9	9

Ecological Group Name *Scientific Name* Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest Bald-cypress - Water Tupelo - Swamp Red Maple / Virginia-willow Forest	G4?	9	6
Taxodium distichum / Lemna minor Forest Bald-cypress / Lesser Duckweed Forest	G5	5	0

Southeastern Floodplain Forests -- Mixed Hardwood Bottomland Forests

Acer negundo Forest Box Elder Forest	G4G5	3	0
Betula nigra - Liquidambar styraciflua - Platanus occidentalis - Quercus nigra Forest River Birch - Sweetgum - Sycamore - Water Oak Forest	G4Q	18	2
Betula nigra - Platanus occidentalis / Alnus serrulata / Boehmeria cylindrica Forest River Birch - Sycamore / Smooth Alder / False-nettle Forest	G5	6	0
Fraxinus caroliniana Semipermanently Flooded Forest [provisional] Water Ash Semipermanently Flooded Forest	G?	25	0
Fraxinus pennsylvanica - Ulmus americana - Celtis laevigata / Ilex decidua Forest Green Ash - American Elm - Sugarberry / Possum-haw Forest	G4G5	5	2
Gleditsia aquatica - Carya aquatica Forest Water-locust - Water Hickory Forest	G3?	9	0
Platanus occidentalis - Liquidambar styraciflua - Ulmus americana / Crataegus viridis Forest Sycamore - Sweetgum - American Elm / Green Hawthorn Forest	G3G5	9	1
Populus deltoides - Salix nigra / Mikania scandens Forest Eastern Cottonwood - Black Willow / Climbing Hempvine Forest	G4G5	3	0
Salix nigra / Cephalanthus occidentalis Forest Black Willow / Buttonbush Forest	G4	13	0
Salix nigra Seasonally Flooded Forest Black Willow Seasonally Flooded Forest	G3G5	13	0

Ecological Group Name *Scientific Name* Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Salix nigra Successional Forest Black Willow Forest	G?	5	0

Southeastern Floodplain Forests -- Oak Bottomland Forests

Scientific Name Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Pinus taeda Temporarily Flooded Forest Loblolly Pine Temporarily Flooded Forest	G4G5	2	0
Quercus laurifolia - (Quercus nigra, Nyssa biflora) / Diospyros virginiana Forest Diamondleaf Oak - (Water Oak, Swamp Blackgum) / Common Persimmon Forest	G?	18	1
Quercus laurifolia - Quercus nigra - Quercus lyrata / Sabal minor Forest Diamondleaf Oak - Water Oak - Overcup Oak / Dwarf Palmetto Forest	G2G4	18	2
Quercus laurifolia - Quercus nigra Mississippi River alluvial plain Forest Diamondleaf Oak - Water Oak Mississippi River Alluvial Plain Forest	G?	9	0
Quercus lyrata - (Carya aquatica, Liquidambar styraciflua, Quercus texana) / Forestiera acuminata Forest Overcup Oak - (Water Hickory, Sweetgum, Nuttall Oak) / Swamp-privet Forest	G4G5	2	2
Quercus michauxii - Liquidambar styraciflua - Quercus texana - Quercus lyrata Forest Swamp Chestnut Oak - Sweetgum - Nuttall Oak - Overcup Oak Forest	G?	18	0
Quercus michauxii - Quercus nigra - Pinus taeda / Carpinus caroliniana Forest Swamp Chestnut Oak - Water Oak - Loblolly Pine / Ironwood Forest	G3?	18	3
Quercus nigra - Liquidambar styraciflua / Sebastiania fruticosa - Toxicodendron radicans Forest Water Oak - Sweetgum / Sebastian-bush - Poison-ivy Forest	G4?	9	4
Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest Cherrybark Oak - Sweetgum - Loblolly Pine Forest	G3?	18	9
Quercus pagoda - Quercus similis - Carya glabra - Quercus sinuata var. sinuata / Crataegus triflora Forest Cherrybark Oak - Swamp Post Oak - Pignut Hickory - Durand Oak / Three-flowered Haw Forest	G1	18	1
Quercus phellos - Liquidambar styraciflua / Ilex decidua - Carpinus caroliniana / Lysimachia radicans Forest Willow Oak - Sweetgum / Possum-haw - Ironwood / Trailing Loosestrife Forest	G3?	18	1

| Ecological Group Name
Scientific Name
Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest	G2G3	18	12
Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest			
Quercus phellos / Vaccinium virgatum / Chasmanthium laxum - Carex flaccosperma Forest	G3G4	18	0
Willow Oak / Swamp Blueberry / Slender Spikegrass - Thin-fruit Sedge Forest			
Quercus similis - Quercus pagoda - Carya (glabra, myristiciformis, ovata) Temporarily Flooded Forest	G1	18	1
Delta Post Oak - Cherrybark Oak - (Pignut Hickory, Nutmeg Hickory, Shagbark Hickory) Temporarily Flooded Forest			
Quercus texana - Celtis laevigata - Ulmus (americana, crassifolia) - (Gleditsia triacanthos) Forest	G4G5	2	0
Nuttall Oak - Sugarberry - (American Elm, Cedar Elm) - (Honey-locust) Forest			
Quercus texana - Quercus lyrata Forest	G3G4	18	2
Nuttall Oak - Overcup Oak Forest			

Unforested Floodplain Canebrake

	Global Rank	Goal	# of Viable Occurrences in Portfolio
Arundinaria gigantea ssp. gigantea Shrubland	G2?	6	0
Giant Cane Shrubland			

Wet Longleaf or Savanna and Flatwood Pinelands

	Global Rank	Goal	# of Viable Occurrences in Portfolio
Pinus palustris / Eryngium integrifolium - Rhynchospora spp. - (Ctenium aromaticum) Woodland	G2G3	18	0
Longleaf Pine / Savanna Eryngo - Beaksedge species - (Toothache Grass) Woodland			
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	G2G3	10	19
Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland			
Pinus palustris / Sporobolus silveanus - Muhlenbergia capillaris - Chaetopappa asteroides Woodland	G1	18	2
Longleaf Pine / Silveus Dropseed - Common Hairgrass - Common Leastdaisy Woodland			
Western wet longleaf pine savanna (aggregation of 3 named plant associations)		18	5
Western Wet Longleaf Pine Savanna			

Xeric Longleaf Pine Sandhill Pinelands

	Global Rank	Goal	# of Viable Occurrences in Portfolio
Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland	G2?Q	18	6
Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland			

Ecological Group Name

Scientific Name Common Name	Global Rank	Goal	# of Viable Occurrences in Portfolio
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland	G2G3	18	38
Pinus palustris / Quercus incana / Schizachyrium scoparium - Liatris elegans - Opuntia humifusa var. humifusa Woodland Longleaf Pine / Bluejack Oak / Little Bluestem - Elegant Blazing-star - Eastern Prickly-pear Woodland	G1?Q	18	4
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland	G2	25	8
Pinus palustris / Quercus marilandica - (Quercus incana) / Ilex vomitoria / Schizachyrium scoparium Woodland Longleaf Pine / Blackjack Oak - (Bluejack Oak) / Yaupon / Little Bluestem Woodland	G2	18	5
Pinus palustris / Quercus marilandica / Schizachyrium scoparium - Silphium laciniatum - Ruellia humilis Woodland Longleaf Pine / Blackjack Oak / Little Bluestem - Compass-plant - Low Wild-petunia Woodland	G1	18	1

Xeric Shortleaf Pine / Hardwood Forests and Woodlands

Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	9	18
Pinus echinata / Quercus incana / Selaginella arenicola ssp. riddellii Woodland Shortleaf Pine / Bluejack Oak / Riddell's Spikemoss Woodland	G2?	18	3

APPENDIX D. SPECIES REMOVED FROM CONSERVATION TARGET LISTS

The following is a list of animal and plant species removed from consideration during development of target lists. As new information becomes available, it may be necessary to reconsider some of these species as conservation targets for future iterations of the ecoregional plan.

ANIMALS

Common Name	Scientific Name	G-Rank	Reason For Exclusion
Alligator snapping turtle	*Macroclemys temmenkii*	G3G4	Widespread and relatively common.
American (Southeastern) kestrel	*Falco sparverius paulus*	G5T4	Widespread but relatively rare; nest in open forest lands including seed-tree cuts.
American alligator	*Alligator mississippiensis*	G5	Widespread
American redstart	*Setophaga ruticilla*	G5	Widespread throughout range although relatively rare; found in most major river bottoms.
Bald eagle	*Haliaeetus leucocephalis*	G4	Now found primarily in man-made habitats; historically relatively uncommon in this ecoregion.
Big Thicket hog-nosed skunk	*Conepatus leuconotus telmalestes*	G4TX	Extinct
Big-brown bat	*Eptesius fuscus*	G5	Although considered rare in ecoregion, common elsewhere; roosts in buildings.
Bigscale logperch	*Percina macrolepida*	G5	Secure in Texas.
Bison	*Bos bison*	G4	Extirpated from ecoregion.
Bluehead shiner	*Pteronotropis hubbsi*	G3	Peripheral in ecoregion; only a few know locations.
Carolina parakeet	*Conuropsis carolinensis*	GX	Extinct
Cooper's hawk	*Accipiter cooperii*	G5	Widespread throughout range although rare in ecoregion.
Crayfish	*Procambarus geminus*	G3G4	Not in ecoregion.
Crayfish	*Procambarus kensleyi*	G3	Range and distribution uncertain; Warrants further consideration in next plan iteration.
Crayfish	*Procambarus nueces*	G1	Not in ecoregion.
Crayfish	*Procambarus steigmani*	G1?	Not in ecoregion (?)
Cypress darter	*Etheostoma proeliare*	G5	Locally abundant but rarely sampled.
Eastern harvest mouse	*Reithrodontomys humulis*	G5	Widespread although relatively rare; peripheral in ecoregion.

Common Name	Scientific Name	G-Rank	Reason for Exclusion
Eastern spotted skunk	*Spilogale putorius*	G5	Actual range and distribution unknown, although virtually no recent records in most ecoregions in which it historically occurred. Warrants further consideration in next plan iteration.
Ground dove	*Columbina passerina*	G5	not of conservation concern; nests/winters in agricultural settings etc.
Hispid pocket mouse	*Chaetopidus hispidus*	G5	Peripheral to ecoregion; narrow habitat affinity (sandy uplands) although apparently accepting of some disturbance.
Houston toad	*Bufo houstonensis*	G1	Not in ecoregion.
Jaguar	*Panthera onca*	G3	Extirpated from ecoregion.
Javelin crayfish	*Procambarus jaculus*	G4	Not in ecoregion.
Lark sparrow	*Chondestes grammacus*	G5	Edge of range in ecoregion; nests in disturbed sites such as hedgerows, forest edge, etc.
Loggerhead shrike	*Lanius ludovicianus*	G5	Not of conservation concern in ecoregion; nest in many altered habitats including rural/urban settings; problematic identification.
Long-tailed weasel	*Mustela frenata*	G5	Although few records in ecoregion, hard to detect and likely widespread and relatively common.
Louisiana black bear	*Ursus americanus luteolus*	G5T2	Extirpated from this ecoregion.
Louisiana waterthrush	*Seiurus motacilla*	G5	Widespread; found in most small stream forests region-wide.
Mole salamander	*Ambystoma talpoidium*	G5	Widespread and relatively common.
Mountain lion	*Puma concolor*	G5	Extirpated from ecoregion.
Northern scarlet snake	*Cemophora coccinea copei*	G5T5	Secretive snake but probably relatively common; found in better longleaf sites in areas that also support Louisiana pine snake.
Ocelot	*Leopardus pardalis*	G4	Extirpated from ecoregion.
Osprey	*Pandion haliaetus*	G5	Now found primarily in man-made habitats; historically relatively uncommon in this ecoregion.
Paddlefish	*Polydon spathula*	G4	Widespread in ecoregion; as long as state agencies continue conservation programs and regulate harvest, species likely to be conserved.
Passenger pigeon	*Ectopistes migratorius*	GX	Extinct
Pickerel frog	*Rana palustris*	G5	Although difficult to detect individuals, considered relatively secure in the ecoregion.

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Common Name	Scientific Name	G-Rank	Reason for Exclusion
Pig frog	*Rana grylio*	G5	Peripheral, relatively common throughout range.
Red wolf	*Canus rufus*	G1	Extirpated from ecoregion.
Schoolhouse Springs assemblage of aquatic insects			Conservation efforts aimed at Schoolhouse Springs Stonefly will likely account for these species as well.
Sharp-shinned hawk	*Accipiter striatus*	G5	Widespread throughout range although rare in ecoregion.
Short-eared owl	*Asio flammeus*	G5	Peripheral in ecoregion as wintering bird
Silver-haired bat	*Lasionycteris noctivagans*	G5	Peripheral to ecoregion; found only as scattered individuals.
Southeastern myotis	*Myotis austroriparius*	G3G4	Widespread in ecoregion.
Southern creekmussel	*Strophitus* spp.	G?	No recent Texas records; occurs in limited numbers on Forest Service lands in Louisiana. Originally considered sp. subvexis, but may be distinct taxa.
Spike	*Elliptio dilatata*	G5	Peripheral to ecoregion; no A-ranked eo's.
Tan racer	*Coluber constrictor ethredgei*	G5T3	Ecoregion endemic but tolerant of moderate levels of disturbance.
Waterbird nesting colonies			Colonies tend to be small in this ecoregion and dominated by Cattle Egrets; turnover rates apparently relatively high, thus conservation efforts likely limited.
White-breasted nuthatch	*Sitta carolinensis*	G5	Widespread throughout range although relatively rare; found in most major river bottoms.
Worm-eating warbler	*Helmitheros vermivorus*	G5	Widespread throughout range; nests in pine plantations.

PLANTS

Common Name	Scientific Name	G-Rank	Reason For Exclusion
Goldenwave tickseed	*Coreopsis intermedia*	G3	Not in ecoregion (?)
Grand Prairie evening primrose	*Oenothera pilosella* ssp. *sessilis*	G5T2Q	Taxonomy is uncertain, thus status is unknown, and 5 of the 6 Louisiana records are from another ecoregion. The only Texas record dates from 1850.
Kral's yellow-eyed grass	*Xyris louisianica*	G3	Co-occurs with *Xyris drummondii*; much more common than G3. It's a flatwoods species and will be captured under other targets; shouldn't be a driver.
Smallhead pipewort	*Eriocaulon koernickianum*	G2	Not in ecoregion (?)

Appendix E. Conservation Target Portfolio Occurrences

Scientific Name		Common Name
Map ID	**Conservation Area**	

Animals

Aimophila aestivalis   **Bachman's sparrow**

24	BOISE-VERNON WILDLIFE MANAGEMENT AREA	
25	MERRYVILLE SAVANNAS	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
40	KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS	
T	ANACOCO BAYOU	

Ambystoma tigrinum tigrinum   **Eastern tiger salamander**

24	BOISE-VERNON WILDLIFE MANAGEMENT AREA	

Ammodramus henslowii   **Henslow's sparrow**

32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	

Atrytonopsis hianna   **Dusted skipper**

18	LONGLEAF RIDGE	

Corynorhinus (plecotus) rafinesquii   **Rafinesque's big-eared bat**

M	LOWER ANGELINA RIVER	

Crotalus horridus (atricaudatus)   **Timber rattlesnake**

23	BRUSHY HEADS	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
4	ANGELINA RIVER BOTTOM - WEST	
D	UPPER ANGELINA RIVER	

Cycleptus elongatus   **Blue sucker**

R	SABINE RIVER	

Elanoides forficatus   **American swallow-tailed kite**

Scientific Name		Common Name
Map ID	**Conservation Area**	
E	NECHES RIVER	
R	SABINE RIVER	

Etheostoma histrio — **Harlequin darter**

18	LONGLEAF RIDGE	
23	BRUSHY HEADS	
R	SABINE RIVER	

Faxonella sp. nov. — **New species, description pending**

24	BOISE-VERNON WILDLIFE MANAGEMENT AREA	
P	SANDY CREEK	
R	SABINE RIVER	

Fusconaia askewi — **Texas pigtoe**

AA	CALCASIEU RIVER	
R	SABINE RIVER	
V	WHISKY CHITTO CREEK	
Y	SIX MILE CREEK	

Fusconaia lananensis — **Triangle pigtoe**

J	ATTOYAC RIVER	

Lampsilis satura — **Sandbank pocketbook**

E	NECHES RIVER	
R	SABINE RIVER	

Leuctra szczytkoi — **Schoolhouse springs leuctran stonefly**

46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	

Margaritifera hembeli — **Louisiana pearlshell**

46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	

Notropis sabinae — **Sabine shiner**

Scientific Name		Common Name
Map ID	Conservation Area	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
B	COCHINO BAYOU	
L	VILLAGE CREEK	
R	SABINE RIVER	
T	ANACOCO BAYOU	

Obovaria jacksoniana — **Southern hickorynut**

Map ID	Conservation Area
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE
AA	CALCASIEU RIVER
R	SABINE RIVER
V	WHISKY CHITTO CREEK
X	CYPRESS BAYOU

Orconectes blacki — **Calcasieu painted crawfish**

Map ID	Conservation Area
39	CC ROAD SAVANNAS
S	HOUSTON RIVER
U	CALCASIEU RIVER, WEST BRANCH

Orconectes hathawayi — **Teche painted crawfish**

Map ID	Conservation Area
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT

Orconectes maletae — **Kisatchie painted crawfish**

Map ID	Conservation Area
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE

Phenacobius mirabilis — **Suckermouth minnow**

Map ID	Conservation Area
18	LONGLEAF RIDGE
A	HICKORY CREEK
E	NECHES RIVER

Picoides borealis — **Red-cockaded woodpecker**

Map ID	Conservation Area
1	DAVY CROCKETT NATIONAL FOREST
18	LONGLEAF RIDGE
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE

Scientific Name		Common Name
Map ID	**Conservation Area**	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
Pituophis ruthveni		**Louisiana pine snake**
18	LONGLEAF RIDGE	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
Plethodon kisatchie		**Louisiana slimy salamander**
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
50	CAMP BEAUREGARD	
52	CATAHOULA HILLS	
53	SICILY ISLAND HILLS	
Plethodon serratus		**Southern red-backed salamander**
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
53	SICILY ISLAND HILLS	
Pleurobema riddelli		**Louisiana pigtoe**
AA	CALCASIEU RIVER	
E	NECHES RIVER	
Potamilus amphichaenus		**Texas heelsplitter**
15	MARTIN DIES JR. STATE PARK	
Rana areolata		**Crawfish frog**
24	BOISE-VERNON WILDLIFE MANAGEMENT AREA	
Somatochlora margarita		**Big thicket emerald dragonfly**
1	DAVY CROCKETT NATIONAL FOREST	
13	NORTH ANGELINA NATIONAL FOREST	
18	LONGLEAF RIDGE	

Plants

Scientific Name		Common Name
Map ID	**Conservation Area**	
Agrimonia incisa		**Incised groovebur**
18	LONGLEAF RIDGE	
Amorpha paniculata		**Panicled indigo-bush**
18	LONGLEAF RIDGE	
Amsonia ludoviciana		**Louisiana bluestar**
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
39	CC ROAD SAVANNAS	
41	LEBLANC SAVANNAS	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
X	CYPRESS BAYOU	
Bartonia texana		**Texas screwstem**
7	JACKS CREEK	
Cyperus grayioides		**Mohlenbrock's sedge**
10	BIG THICKET - SANDYLANDS COMPLEX	
18	LONGLEAF RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
40	KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
Q	WHITE OAK CREEK	
Cypripedium kentuckiense		**Southern lady's-slipper**
13	NORTH ANGELINA NATIONAL FOREST	
17	CENTRAL SABINE NATIONAL FOREST	
28	STOKER HILLS	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
Gaillardia aestIvalis var. winkleri		**White firewheel**
10	BIG THICKET - SANDYLANDS COMPLEX	

Scientific Name		Common Name
Map ID	**Conservation Area**	
Geocarpon minimum		**Earthfruit, geocarpon**
49	SALINE CREEK PRAIRIE	
Helenium drummondii		**Fringed sneezeweed**
11	BIG THICKET NATIONAL PRESERVE - LANCE ROSIER UNIT	
Hibiscus dasycalyx		**Neches river rose-mallow**
E	NECHES RIVER	
Lachnocaulon digynum		**Tiny bog buttons**
18	LONGLEAF RIDGE	
25	MERRYVILLE SAVANNAS	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
34	LITTLE CANEY CREEK BOG	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
Leavenworthia texana		**Texas golden gladecress**
12	WECHES GLADES	
Lesquerella pallida		**White bladderpod**
12	WECHES GLADES	
Liatris tenuis		**Slender gayfeather**
18	LONGLEAF RIDGE	
Phlox nivalis subsp. Texensis		**Texas trailing phlox**
10	BIG THICKET - SANDYLANDS COMPLEX	
Physostegia longisepala		**Longsepal false dragonhead**
27	BUXTON CREEK SALINE PRAIRIE	
37	MARSH BAYOU	
38	BIRD NEST CEMETARY LOW WOODS	
R	SABINE RIVER	
S	HOUSTON RIVER	

Scientific Name		Common Name
Map ID	**Conservation Area**	
Platanthera integra		**Yellow fringeless orchid**
18	LONGLEAF RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
W	BUNDICK CREEK	
Prenanthes barbata		**Barbed rattlesnake-root**
3	LONG KING CREEK	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
D	UPPER ANGELINA RIVER	
Quercus oglethorpensis		**Oglethorpe oak**
51	OUACHITA HILLS	
Rhynchospora macra		**Large beakrush**
18	LONGLEAF RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
Rudbeckia scabrifolia		**Bog coneflower**
18	LONGLEAF RIDGE	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
Schwalbea americana		**American chaffseed**
39	CC ROAD SAVANNAS	
Silene subciliata		**Scarlet catchfly**
10	BIG THICKET - SANDYLANDS COMPLEX	
18	LONGLEAF RIDGE	
41	LEBLANC SAVANNAS	
L	VILLAGE CREEK	
Q	WHITE OAK CREEK	
Spiranthes parksii		**Navasota ladies'-tresses**
18	LONGLEAF RIDGE	

Scientific Name	Common Name
Map ID	**Conservation Area**	

Streptanthus maculatus | **Clasping twistflower**

12	WECHES GLADES

Xyris drummondii | **Drummond's yellow-eyed grass**

18	LONGLEAF RIDGE
25	MERRYVILLE SAVANNAS
34	LITTLE CANEY CREEK BOG
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK

Xyris scabrifolia | **Roughleaf yellow-eyed grass**

18	LONGLEAF RIDGE
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK

Terrestrial Communities

(Magnolia virginiana) / Ilex coriacea - Myrica heterophylla Shrubland | **(Sweetbay) / Big Gallberry - Wax-myrtle Shrubland**

16	JACK GORE BAYGALL
9	TYLER COUNTY BAYGALL

(Pinus palustris) - Quercus stellata - Quercus marilandica - Carya texana / Tragia urens Woodland | **(Longleaf Pine) - Post Oak - Blackjack Oak - Black Hickory / Wavyleaf Noseburn Woodland**

13	NORTH ANGELINA NATIONAL FOREST
18	LONGLEAF RIDGE
8	COLMESNEIL WOODS

(Pinus palustris) / Quercus stellata - Quercus marilandica - Quercus falcata Woodland | **(Longleaf Pine) - Post Oak - Blackjack Oak - Southern Red Oak Woodland**

32	KISATCHIE NATIONAL FOREST - PEASON RIDGE
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK

Scientific Name	Common Name
Map ID **Conservation Area**	

Scientific Name	Common Name
(Pinus palustris) / Schizachyrium scoparium - Bigelowia nuttallii / Cladonia spp. Herbaceous Vegetation	**(Longleaf Pine) / Little Bluestem - Nuttall's Rayless-goldenrod / Reindeer Lichen species Herbaceous Vegetation**

Map ID	Conservation Area
18	LONGLEAF RIDGE
20	BURKEVILLE BARRENS
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE

Scientific Name	Common Name
Aristida palustris - Panicum virgatum - Eriocaulon compressum - Eleocharis equisetoides Herbaceous Vegetation	**Longleaf Three-awn - Switchgrass - Soft-head Pipewort - Horsetail Spikerush Herbaceous Vegetation**

Map ID	Conservation Area
26	PERSIMMON GULLY
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE
39	CC ROAD SAVANNAS
41	LEBLANC SAVANNAS

Scientific Name	Common Name
Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation	**Longleaf Three-awn - Switchgrass - Ten-angle Pipewort - Elliott's Beaksedge Herbaceous Vegetation**

Map ID	Conservation Area
30	BULL BAYOU SAVANNA
35	KERNAN SAVANNA
39	CC ROAD SAVANNAS
41	LEBLANC SAVANNAS
45	CHERRYWINCHE SAVANNA

Scientific Name	Common Name
Baccharis halimifolia - Crataegus berberifolia / Eleocharis sp. - Tridens strictus - Euthamia leptocephala Shrubland	**Groundsel-tree - Barberry-leaf Haw / Spikerush species - Spike Triodia - Bushy Fragrant-goldenrod Shrubland**

Map ID	Conservation Area
49	SALINE CREEK PRAIRIE

Scientific Name	Common Name
Betula nigra - Liquidambar styraciflua - Platanus occidentalis - Quercus nigra Forest	**River Birch - Sweetgum - Sycamore - Water Oak Forest**

Map ID	Conservation Area
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT

Scientific Name	Common Name
Map ID **Conservation Area**	

Bigelowia nuttallii - Aristida dichotoma - Houstonia rosea / Cladonia spp. Herbaceous Vegetation

Nuttall's Rayless-goldenrod - Forktip Three-awn - Rose Bluet / Reindeer Lichen species Herbaceous Vegetation

42	KISATCHIE NATIONAL FOREST - WINN DISTRICT
49	SALINE CREEK PRAIRIE

Bigelowia nuttallii - Krameria lanceolata - Aristida dichotoma - Sporobolus silveanus Herbaceous Vegetation

Nuttall's Rayless-goldenrod - Trailing Ratany - Forktip Three-awn - Silveus Dropseed Herbaceous Vegetation

18	LONGLEAF RIDGE

Cephalanthus occidentalis / Carex spp. - Lemna spp. Southern Shrubland

Buttonbush / Sedge species - Duckweed species Southern Shrubland

1	DAVY CROCKETT NATIONAL FOREST
18	LONGLEAF RIDGE

Coastal plain salt glades & barrens (undescribed plant association(s))

Coastal Plain Salt Glades & Barrens

1	DAVY CROCKETT NATIONAL FOREST

Crataegus opaca - Crataegus viridis Forest

Western Mayhaw - Green Haw Forest

1	DAVY CROCKETT NATIONAL FOREST
10	BIG THICKET - SANDYLANDS COMPLEX
4	ANGELINA RIVER BOTTOM - WEST

Eleocharis sp. - Iva angustifolia - Distichlis spicata Herbaceous Vegetation

Spikerush species - Narrowleaf Marsh-elder - Saltgrass Herbaceous Vegetation

49	SALINE CREEK PRAIRIE

Eleocharis spp. - Scirpus spp. - Fimbristylis spp. - Juncus spp. southeastern coastal plain inland salt flat sparse Vegetation

Spikerush species - Bulrush species - Fimbry species - Rush species Southeastern Coastal Plain Inland Salt Flat Sparse Vegetation

42	KISATCHIE NATIONAL FOREST - WINN DISTRICT

Scientific Name		Common Name
Map ID	**Conservation Area**	

Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest

American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest

10	BIG THICKET - SANDYLANDS COMPLEX	
15	MARTIN DIES JR. STATE PARK	
18	LONGLEAF RIDGE	
24	BOISE-VERNON WILDLIFE MANAGEMENT AREA	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	
53	SICILY ISLAND HILLS	

Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest

American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest

13	NORTH ANGELINA NATIONAL FOREST	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
E	NECHES RIVER	
X	CYPRESS BAYOU	

Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest

American Beech - White Oak / (Southern Sugar Maple, Chalk Maple) / Eared Goldenrod Forest

13	NORTH ANGELINA NATIONAL FOREST	
17	CENTRAL SABINE NATIONAL FOREST	
18	LONGLEAF RIDGE	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	

Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest

American Beech - White Oak / American Holly / Southern Lady Fern Forest

Scientific Name		Common Name
Map ID	**Conservation Area**	
13	NORTH ANGELINA NATIONAL FOREST	
15	MARTIN DIES JR. STATE PARK	
17	CENTRAL SABINE NATIONAL FOREST	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	
51	OUACHITA HILLS	
52	CATAHOULA HILLS	
Z	DUGDEMONA RIVER	

Fraxinus americana - Celtis laevigata - Nyssa sylvatica - Quercus shumardii - Ulmus americana Forest

White Ash - Sugarberry - Blackgum - Shumard Oak - American Elm Forest

32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	

Fraxinus pennsylvanica - Ulmus americana - Celtis laevigata / Ilex decidua Forest

Green Ash - American Elm - Sugarberry / Possum-haw Forest

46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	

Juniperus virginiana var. virginiana - Pinus taeda - Quercus sinuata var. sinuata Woodland

Eastern Red-cedar - Loblolly Pine - Durand Oak Woodland

51	OUACHITA HILLS	

Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest

Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest

32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	
48	KISATCHIE NATIONAL FOREST - SOUTH EVANGELINE DISTRICT	
6	BIG THICKET NATIONAL PRESERVE - BIG SANDY UNIT	

Scientific Name		Common Name
Map ID	**Conservation Area**	
V	WHISKY CHITTO CREEK	

Magnolia virginiana - Nyssa biflora - Acer rubrum - Liquidambar styraciflua / Myrica heterophylla Forest (northern subtype)

Sweetbay - Swamp Blackgum - Red Maple - Sweetgum / Evergreen Bayberry Forest

10	BIG THICKET - SANDYLANDS COMPLEX	
18	LONGLEAF RIDGE	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	

Nyssa aquatica Forest

Water Tupelo Forest

18	LONGLEAF RIDGE	

Nyssa biflora - Crataegus opaca - (Fraxinus caroliniana) / Rhynchospora mixta Woodland

Swamp Blackgum - Western Mayhaw - (Water Ash) / Mingled Beaksedge Woodland

24	BOISE-VERNON WILDLIFE MANAGEMENT AREA	
BB	LITTLE RIVER	
R	SABINE RIVER	

Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)

Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest

13	NORTH ANGELINA NATIONAL FOREST	
17	CENTRAL SABINE NATIONAL FOREST	
18	LONGLEAF RIDGE	
25	MERRYVILLE SAVANNAS	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	

Nyssa biflora - Quercus laurifolia / Sphagnum spp. Depression Forest

Swamp Blackgum - Diamondleaf Oak / Sphagnum species Depression Forest

36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
L	VILLAGE CREEK	

Scientific Name		Common Name
Map ID	**Conservation Area**	

Nyssa biflora / Itea virginica - Cephalanthus occidentalis Depression Forest

Swamp Blackgum / Virginia-willow - Buttonbush Depression Forest

I	TURKEY CREEK	

Nyssa biflora / Panicum Hemitomon - Woodwardia virginica Woodland

Swamp Blackgum / Maidencane - Virginia Chainfern Woodland

L	VILLAGE CREEK	

Panicum hemitomon - Gratiola brevifolia Herbaceous Vegetation

Maidencane - Shortleaf Hedge-hyssop Herbaceous Vegetation

44	COUSHATTA POND	

Pinus echinata - Pinus taeda - Quercus (alba, falcata, stellata) Forest

Shortleaf Pine - Loblolly Pine - (White Oak, Southern Red Oak, Post Oak) Forest

32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	

Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest

Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest

1	DAVY CROCKETT NATIONAL FOREST	
13	NORTH ANGELINA NATIONAL FOREST	
18	LONGLEAF RIDGE	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
40	KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
6	BIG THICKET NATIONAL PRESERVE - BIG SANDY UNIT	

Pinus echinata / Quercus incana / Selaginella arenicola ssp. riddellii Woodland

Shortleaf Pine / Bluejack Oak / Riddell's Spikemoss Woodland

42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	

Scientific Name		Common Name
Map ID	**Conservation Area**	
Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland		**Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland**
1	DAVY CROCKETT NATIONAL FOREST	
13	NORTH ANGELINA NATIONAL FOREST	
18	LONGLEAF RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
40	KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland		**Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland**
17	CENTRAL SABINE NATIONAL FOREST	
18	LONGLEAF RIDGE	
25	MERRYVILLE SAVANNAS	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
40	KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS	
Pinus palustris / Quercus incana / Schizachyrium scoparium - Liatris elegans - Opuntia humifusa var. humifusa Woodland		**Longleaf Pine / Bluejack Oak / Little Bluestem - Elegant Blazing-star - Eastern Prickly-pear Woodland**
10	BIG THICKET - SANDYLANDS COMPLEX	
13	NORTH ANGELINA NATIONAL FOREST	
18	LONGLEAF RIDGE	
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland		**Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland**
26	PERSIMMON GULLY	
30	BULL BAYOU SAVANNA	

Scientific Name		Common Name
Map ID	**Conservation Area**	
35	KERNAN SAVANNA	
39	CC ROAD SAVANNAS	
41	LEBLANC SAVANNAS	
45	CHERRYWINCHE SAVANNA	

Pinus palustris / Quercus marilandica - (Quercus incana) / Ilex vomitoria / Schizachyrium scoparium Woodland		**Longleaf Pine / Blackjack Oak - (Bluejack Oak) / Yaupon / Little Bluestem Woodland**
18	LONGLEAF RIDGE	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	

Pinus palustris / Quercus marilandica / Schizachyrium scoparium - Silphium laciniatum - Ruellia humilis Woodland		**Longleaf Pine / Blackjack Oak / Little Bluestem - Compass-plant - Low Wild-petunia Woodland**
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	

Pinus palustris / Quercus marilandica / Schizachyrium tenerum - Muhlenbergia expansa - Bigelowia nuttallii - Senecio obovatus Woodland		**Longleaf Pine / Blackjack Oak / Slender Bluestem - Savanna Hairgrass - Nuttall's Rayless-goldenrod - Round-leaf Groundsel Woodland**
43	KISATCHIE NATIONAL FOREST - NORTH EVANGELINE DISTRICT	
50	CAMP BEAUREGARD	

Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland		**Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland**
10	BIG THICKET - SANDYLANDS COMPLEX	
19	SALLY WITHERS LAKE SAVANNA	
21	SHOAT'S CREEK SAVANNA	
30	BULL BAYOU SAVANNA	
31	DEQUINCY EAST SAVANNAS	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
35	KERNAN SAVANNA	
39	CC ROAD SAVANNAS	

41	LEBLANC SAVANNAS
45	CHERRYWINCHE SAVANNA

Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland   **Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland**

10	BIG THICKET - SANDYLANDS COMPLEX
18	LONGLEAF RIDGE
2	BRUSHY CREEK
21	SHOAT'S CREEK SAVANNA
35	KERNAN SAVANNA
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK
39	CC ROAD SAVANNAS
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS
48	KISATCHIE NATIONAL FOREST - SOUTH EVANGELINE DISTRICT

Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland   **Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland**

10	BIG THICKET - SANDYLANDS COMPLEX
18	LONGLEAF RIDGE
25	MERRYVILLE SAVANNAS
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT
43	KISATCHIE NATIONAL FOREST - NORTH EVANGELINE DISTRICT
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT
48	KISATCHIE NATIONAL FOREST - SOUTH EVANGELINE DISTRICT
50	CAMP BEAUREGARD

Pinus palustris / Sporobolus silveanus - Muhlenbergia capillaris - Chaetopappa asteroides Woodland   **Longleaf Pine / Silveus Dropseed - Common Hairgrass - Common Leastdaisy Woodland**

Map ID	Conservation Area	
26	PERSIMMON GULLY	

Pinus taeda - (Pinus echinata) - Quercus alba - Carya alba / Acer leucoderme Forest — **Loblolly Pine - (Shortleaf Pine) - White Oak - Mockernut Hickory / Chalk Maple Forest**

Map ID	Conservation Area
17	CENTRAL SABINE NATIONAL FOREST

Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest — **Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest**

Map ID	Conservation Area
1	DAVY CROCKETT NATIONAL FOREST
13	NORTH ANGELINA NATIONAL FOREST
18	LONGLEAF RIDGE
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS
48	KISATCHIE NATIONAL FOREST - SOUTH EVANGELINE DISTRICT
52	CATAHOULA HILLS
53	SICILY ISLAND HILLS

Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest — **Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest**

Map ID	Conservation Area
1	DAVY CROCKETT NATIONAL FOREST
10	BIG THICKET - SANDYLANDS COMPLEX
13	NORTH ANGELINA NATIONAL FOREST
18	LONGLEAF RIDGE
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT

48	KISATCHIE NATIONAL FOREST - SOUTH EVANGELINE DISTRICT	
50	CAMP BEAUREGARD	
51	OUACHITA HILLS	
6	BIG THICKET NATIONAL PRESERVE - BIG SANDY UNIT	

Planera aquatica Forest **Planertree Forest**

D	UPPER ANGELINA RIVER
E	NECHES RIVER

Platanus occidentalis - Liquidambar styraciflua - Ulmus americana / Crataegus viridis Forest **Sycamore - Sweetgum - American Elm / Green Hawthorn Forest**

46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS

Quercus laurifolia - (Quercus nigra, Nyssa biflora) / Diospyros virginiana Forest **Diamondleaf Oak - (Water Oak, Swamp Blackgum) / Common Persimmon Forest**

10	BIG THICKET - SANDYLANDS COMPLEX

Quercus laurifolia - Quercus nigra - Quercus lyrata / Sabal minor Forest **Diamondleaf Oak - Water Oak - Overcup Oak / Dwarf Palmetto Forest**

13	NORTH ANGELINA NATIONAL FOREST
H	LITTLE PINE ISLAND BAYOU

Quercus lyrata - (Carya aquatica, Liquidambar styraciflua, Quercus texana) / Forestiera acuminata Forest **Overcup Oak - (Water Hickory, Sweetgum, Nuttall Oak) / Swamp-privet Forest**

M	LOWER ANGELINA RIVER
Z	DUGDEMONA RIVER

Quercus michauxii - Quercus nigra - Pinus taeda / Carpinus caroliniana Forest **Swamp Chestnut Oak - Water Oak - Loblolly Pine / Ironwood Forest**

50	CAMP BEAUREGARD
J	ATTOYAC RIVER
V	WHISKY CHITTO CREEK

Quercus nigra - Liquidambar styraciflua / Sebastiania fruticosa - Toxicodendron radicans Forest **Water Oak - Sweetgum / Sebastian-bush - Poison-ivy Forest**

18	LONGLEAF RIDGE	
50	CAMP BEAUREGARD	
D	UPPER ANGELINA RIVER	
E	NECHES RIVER	

Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest   **Cherrybark Oak - Sweetgum - Loblolly Pine Forest**

13	NORTH ANGELINA NATIONAL FOREST	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
40	KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	

Quercus pagoda - Quercus similis - Carya glabra - Quercus sinuata var. sinuata / Crataegus triflora Forest   **Cherrybark Oak - Swamp Post Oak - Pignut Hickory - Durand Oak / Three-flowered Haw Forest**

E	NECHES RIVER	

Quercus phellos - Liquidambar styraciflua / Ilex decidua - Carpinus caroliniana / Lysimachia radicans Forest   **Willow Oak - Sweetgum / Possum-haw - Ironwood / Trailing Loosestrife Forest**

13	NORTH ANGELINA NATIONAL FOREST	

Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest   **Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest**

10	BIG THICKET - SANDYLANDS COMPLEX	
15	MARTIN DIES JR. STATE PARK	
4	ANGELINA RIVER BOTTOM - WEST	
E	NECHES RIVER	
M	LOWER ANGELINA RIVER	
R	SABINE RIVER	

Quercus phellos - Quercus similis / Crataegus marshallii - Crataegus spathulata / Chasmanthium laxum Forest   **Willow Oak - Swamp Post Oak / Parsley-leaf Haw - Littlehip Haw / Slender Spikegrass Forest**

Scientific Name		Common Name
Map ID	**Conservation Area**	
1	DAVY CROCKETT NATIONAL FOREST	

Quercus shumardii - Fraxinus americana - Carya myristiciformis / Viburnum dentatum / Carex cherokeensis Forest

Shumard Oak - White Ash - Nutmeg Hickory / Southern Arrow-wood / Cherokee Sedge Forest

42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	

Quercus shumardii - Quercus pagoda - Fraxinus americana / Ostrya virginiana - Cornus florida / Trillium ludovicianum Forest

Shumard Oak - Cherrybark Oak - White Ash / Eastern Hop-hornbeam - Flowering Dogwood / Louisiana Trillium Forest

51	OUACHITA HILLS	

Quercus similis - Quercus pagoda - Carya (glabra, myristiciformis, ovata) Temporarily Flooded Forest

Delta Post Oak - Cherrybark Oak - (Pignut Hickory, Nutmeg Hickory, Shagbark Hickory) Temporarily Flooded Forest

51	OUACHITA HILLS	

Quercus sinuata var. sinuata - Fraxinus americana - Quercus muehlenbergii / Rhus aromatica - Cornus drummondii Forest

Durand Oak - White Ash - Chinquapin Oak / Fragrant Sumac - Roughleaf Dogwood Forest

51	OUACHITA HILLS	

Quercus texana - Quercus lyrata Forest

Nuttall Oak - Overcup Oak Forest

32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
BB	LITTLE RIVER	

Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation

Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation

18	LONGLEAF RIDGE	
25	MERRYVILLE SAVANNAS	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
34	LITTLE CANEY CREEK BOG	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	

Scientific Name		Common Name
Map ID	**Conservation Area**	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	

Schizachyrium scoparium - Panicum flexile - Carex cherokeensis Herbaceous Vegetation
Little Bluestem - Wiry Panicgrass - Cherokee Sedge Herbaceous Vegetation

22	SOUTH SABINE PRAIRIES	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	

Schizachyrium scoparium - Rudbeckia missouriensis - Grindelia lanceolata - (Liatris mucronata) Herbaceous Vegetation
Little Bluestem - Missouri Coneflower - Narrow-leaf Gumweed - (Cusp Gayfeather) Herbaceous Vegetation

3	LONG KING CREEK	

Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation
Little Bluestem - Missouri Coneflower Herbaceous Vegetation

29	ANACOCO PRAIRIES	
32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
33	SELF CEMETERY PRAIRIE	
36	KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK	
43	KISATCHIE NATIONAL FOREST - NORTH EVANGELINE DISTRICT	

Schizachyrium scoparium - Sorghastrum nutans Jackson Prairie Herbaceous Vegetation
Little Bluestem - Yellow Indiangrass Jackson Prairie Herbaceous Vegetation

46	KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS	
51	OUACHITA HILLS	

Sedum pulchellum - Calamintha arkansana - Sporobolus vaginiflorus Herbaceous Vegetation
Widow's-cross - Limestone Calamint - Poverty Dropseed Herbaceous Vegetation

12	WECHES GLADES	

Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest
Bald-cypress - (Water Tupelo) / Swamp Privet Forest

14	CLEAR CREEK BOG	
15	MARTIN DIES JR. STATE PARK	
16	JACK GORE BAYGALL	

Scientific Name		Common Name
Map ID	**Conservation Area**	
3	LONG KING CREEK	
E	NECHES RIVER	
L	VILLAGE CREEK	
R	SABINE RIVER	

Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest **Bald-cypress - Water Tupelo - Swamp Red Maple / Virginia-willow Forest**

32	KISATCHIE NATIONAL FOREST - PEASON RIDGE	
40	KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS	
42	KISATCHIE NATIONAL FOREST - WINN DISTRICT	
47	KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT	
M	LOWER ANGELINA RIVER	

Western wet longleaf pine savanna (aggregation of 3 named plant associations) **Western Wet Longleaf Pine Savanna**

10	BIG THICKET - SANDYLANDS COMPLEX	
11	BIG THICKET NATIONAL PRESERVE - LANCE ROSIER UNIT	

Appendix F. Viable Target Occurrences Captured by Conservation Areas

1   DAVY CROCKETT NATIONAL FOREST

Scientific Name	Common Name	Global Rank	Number of Occurrences
Coastal plain salt glades & barrens (undescribed plant association(s))	Coastal Plain Salt Glades & Barrens	G1	2
Crataegus opaca - Crataegus viridis Forest	Western Mayhaw - Green Haw Forest	G1	2
Somatochlora margarita	Big thicket emerald dragonfly	G2	2
Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland	Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland	G2?	1
Quercus phellos - Quercus similis / Crataegus marshallii - Crataegus spathulata / Chasmanthium laxum Forest	Willow Oak - Swamp Post Oak / Parsley-leaf Haw - Littlehip Haw / Slender Spikegrass Forest	G2G	1
Picoides borealis	Red-cockaded woodpecker	G3	1
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	3
Cephalanthus occidentalis / Carex spp. - Lemna spp. Southern Shrubland	Buttonbush / Sedge species - Duckweed species Southern Shrubland	G4	1
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	2
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	2

2   BRUSHY CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	1

3   LONG KING CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Prenanthes barbata	Barbed rattlesnake-root	G3	1
Schizachyrium scoparium - Rudbeckia missouriensis - Grindelia lanceolata - (Liatris mucronata) Herbaceous Vegetation	Little Bluestem - Missouri Coneflower - Narrow-leaf Gumweed - (Cusp Gayfeather) Herbaceous Vegetation	G4	1
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest	Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G5?	1

4   **ANGELINA RIVER BOTTOM - WEST**

Scientific Name	Common Name	Global Rank	Number of Occurrences
Crataegus opaca - Crataegus viridis Forest	Western Mayhaw - Green Haw Forest	G1	1
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest	Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest	G2G	1
Crotalus horridus (atricaudatus)	Timber rattlesnake	G4	1

6   **BIG THICKET NATIONAL PRESERVE - BIG SANDY UNIT**

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	1
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest	Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G	1
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	1

7   **JACKS CREEK**

Scientific Name	Common Name	Global Rank	Number of Occurrences
Bartonia texana	Texas screwstem	G2	1

8   **COLMESNEIL WOODS**

Scientific Name	Common Name	Global Rank	Number of Occurrences
(Pinus palustris) - Quercus stellata - Quercus marilandica - Carya texana / Tragia urens Woodland	(Longleaf Pine) - Post Oak - Blackjack Oak - Black Hickory / Wavyleaf Noseburn Woodland	G2	1

9   **TYLER COUNTY BAYGALL**

Scientific Name	Common Name	Global Rank	Number of Occurrences
(Magnolia virginiana) / Ilex coriacea - Myrica heterophylla Shrubland	(Sweetbay) / Big Gallberry - Wax-myrtle Shrubland	G3?	1

10   **BIG THICKET - SANDYLANDS COMPLEX**

Scientific Name	Common Name	Global Rank	Number of Occurrences
Magnolia virginiana - Nyssa biflora - Acer rubrum - Liquidambar styraciflua / Myrica heterophylla Forest (northern subtype)	Sweetbay - Swamp Blackgum - Red Maple - Sweetgum / Evergreen Bayberry Forest	G?	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Quercus laurifolia - (Quercus nigra, Nyssa biflora) / Diospyros virginiana Forest	Diamondleaf Oak - (Water Oak, Swamp Blackgum) / Common Persimmon Forest	G?	1
Crataegus opaca - Crataegus viridis Forest	Western Mayhaw - Green Haw Forest	G1	1
Western wet longleaf pine savanna (aggregation of 3 named plant associations)	Western Wet Longleaf Pine Savanna	G1	1
Pinus palustris / Quercus incana / Schizachyrium scoparium - Liatris elegans - Opuntia humifusa var. humifusa Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Elegant Blazing-star - Eastern Prickly-pear Woodland	G1?	2
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest	American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	1
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	2
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	3
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	1
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest	Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest	G2G	1
Cyperus grayioides	Mohlenbrock's sedge	G3	4
Silene subciliata	Scarlet catchfly	G3	9
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	1
Phlox nivalis subsp. Texensis	Texas trailing phlox	G4T	7
Gaillardia aestIvalis var. winkleri	White firewheel	G5T	5

11   BIG THICKET NATIONAL PRESERVE - LANCE ROSIER UNIT

Scientific Name	Common Name	Global Rank	Number of Occurrences
Western wet longleaf pine savanna (aggregation of 3 named plant associations)	Western Wet Longleaf Pine Savanna	G1	4
Helenium drummondii	Fringed sneezeweed	G3	1

12   WECHES GLADES

Scientific Name	Common Name	Global Rank	Number of Occurrences

Scientific Name	Common Name	Global Rank	Number of Occurrences
Leavenworthia texana	Texas golden gladecress	G1	2
Lesquerella pallida	White bladderpod	G1	4
Sedum pulchellum - Calamintha arkansana - Sporobolus vaginiflorus Herbaceous Vegetation	Widow's-cross - Limestone Calamint - Poverty Dropseed Herbaceous Vegetation	G1	11
Streptanthus maculatus	Clasping twistflower	G3	1

13   NORTH ANGELINA NATIONAL FOREST

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Quercus incana / Schizachyrium scoparium - Liatris elegans - Opuntia humifusa var. humifusa Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Elegant Blazing-star - Eastern Prickly-pear Woodland	G1?	1
(Pinus palustris) - Quercus stellata - Quercus marilandica - Carya texana / Tragia urens Woodland	(Longleaf Pine) - Post Oak - Blackjack Oak - Black Hickory / Wavyleaf Noseburn Woodland	G2	1
Somatochlora margarita	Big thicket emerald dragonfly	G2	4
Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland	Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland	G2?	1
Quercus laurifolia - Quercus nigra - Quercus lyrata / Sabal minor Forest	Diamondleaf Oak - Water Oak - Overcup Oak / Dwarf Palmetto Forest	G2G	1
Cypripedium kentuckiense	Southern lady's-slipper	G3	1
Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest	American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest	G3	2
Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest	American Beech - White Oak / (Southern Sugar Maple, Chalk Maple) / Eared Goldenrod Forest	G3	2
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	1
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	3
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	4
Quercus phellos - Liquidambar styraciflua / Ilex decidua - Carpinus caroliniana / Lysimachia radicans Forest	Willow Oak - Sweetgum / Possum-haw - Ironwood / Trailing Loosestrife Forest	G3?	1
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	6

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	4
Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest	Cherrybark Oak - Sweetgum - Loblolly Pine Forest	G4Q	1

14   CLEAR CREEK BOG

Scientific Name	Common Name	Global Rank	Number of Occurrences
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest	Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G5?	1

15   MARTIN DIES JR. STATE PARK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Potamilus amphichaenus	Texas heelsplitter	G1	5
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest	American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	2
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest	Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest	G2G	1
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	1
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest	Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G5?	1

16   JACK GORE BAYGALL

Scientific Name	Common Name	Global Rank	Number of Occurrences
(Magnolia virginiana) / Ilex coriacea - Myrica heterophylla Shrubland	(Sweetbay) / Big Gallberry - Wax-myrtle Shrubland	G3?	1
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest	Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G5?	1

17   CENTRAL SABINE NATIONAL FOREST

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland	Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland	G2G	1
Cypripedium kentuckiense	Southern lady's-slipper	G3	2
Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest	American Beech - White Oak / (Southern Sugar Maple, Chalk Maple) / Eared Goldenrod Forest	G3	5

Scientific Name	Common Name	Global Rank	Number of Occurrences
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	1
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	2
Pinus taeda - (Pinus echinata) - Quercus alba - Carya alba / Acer leucoderme Forest	Loblolly Pine - (Shortleaf Pine) - White Oak - Mockernut Hickory / Chalk Maple Forest	G3G	2

18 LONGLEAF RIDGE

Scientific Name	Common Name	Global Rank	Number of Occurrences
Magnolia virginiana - Nyssa biflora - Acer rubrum - Liquidambar styraciflua / Myrica heterophylla Forest (northern subtype)	Sweetbay - Swamp Blackgum - Red Maple - Sweetgum / Evergreen Bayberry Forest	G?	5
Bigelowia nuttallii - Krameria lanceolata - Aristida dichotoma - Sporobolus silveanus Herbaceous Vegetation	Nuttall's Rayless-goldenrod - Trailing Ratany - Forktip Three-awn - Silveus Dropseed Herbaceous Vegetation	G1	4
Pinus palustris / Quercus incana / Schizachyrium scoparium - Liatris elegans - Opuntia humifusa var. humifusa Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Elegant Blazing-star - Eastern Prickly-pear Woodland	G1?	1
(Pinus palustris) / Schizachyrium scoparium - Bigelowia nuttallii / Cladonia spp. Herbaceous Vegetation	(Longleaf Pine) / Little Bluestem - Nuttall's Rayless-goldenrod / Reindeer Lichen species Herbaceous Vegetation	G1G	4
(Pinus palustris) - Quercus stellata - Quercus marilandica - Carya texana / Tragia urens Woodland	(Longleaf Pine) - Post Oak - Blackjack Oak - Black Hickory / Wavyleaf Noseburn Woodland	G2	3
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest	American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	1
Pinus palustris / Quercus marilandica - (Quercus incana) / Ilex vomitoria / Schizachyrium scoparium Woodland	Longleaf Pine / Blackjack Oak - (Bluejack Oak) / Yaupon / Little Bluestem Woodland	G2	1
Rudbeckia scabrifolia	Bog coneflower	G2	26
Somatochlora margarita	Big thicket emerald dragonfly	G2	1
Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland	Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland	G2?	1
Agrimonia incisa	Incised groovebur	G2G	2
Liatris tenuis	Slender gayfeather	G2G	13

Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland	Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland	G2G	12
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	5
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	6
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation	Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G	42
Nyssa aquatica Forest	Water Tupelo Forest	G2Q	1
Amorpha paniculata	Panicled indigo-bush	G3	1
Cyperus grayioides	Mohlenbrock's sedge	G3	2
Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest	American Beech - White Oak / (Southern Sugar Maple, Chalk Maple) / Eared Goldenrod Forest	G3	1
Lachnocaulon digynum	Tiny bog buttons	G3	3
Picoides borealis	Red-cockaded woodpecker	G3	2
Rhynchospora macra	Large beakrush	G3	8
Silene subciliata	Scarlet catchfly	G3	8
Spiranthes parksii	Navasota ladies'-tresses	G3	1
Xyris drummondii	Drummond's yellow-eyed grass	G3	13
Xyris scabrifolia	Roughleaf yellow-eyed grass	G3	33
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	9
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	1
Platanthera integra	Yellow fringeless orchid	G3G	2
Cephalanthus occidentalis / Carex spp. - Lemna spp. Southern Shrubland	Buttonbush / Sedge species - Duckweed species Southern Shrubland	G4	1
Etheostoma histrio	Harlequin darter	G4	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	2
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	3
Quercus nigra - Liquidambar styraciflua / Sebastiania fruticosa - Toxicodendron radicans Forest	Water Oak - Sweetgum / Sebastian-bush - Poison-ivy Forest	G4?	1
Atrytonopsis hianna	Dusted skipper	G4G	2
Phenacobius mirabilis	Suckermouth minnow	G5	1
Pituophis ruthveni	Louisiana pine snake	G5T	3

19 SALLY WITHERS LAKE SAVANNA

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	1

20 BURKEVILLE BARRENS

Scientific Name	Common Name	Global Rank	Number of Occurrences
(Pinus palustris) / Schizachyrium scoparium - Bigelowia nuttallii / Cladonia spp. Herbaceous Vegetation	(Longleaf Pine) / Little Bluestem - Nuttall's Rayless-goldenrod / Reindeer Lichen species Herbaceous Vegetation	G1G	1

21 SHOAT'S CREEK SAVANNA

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	1
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	1

22 SOUTH SABINE PRAIRIES

Scientific Name	Common Name	Global Rank	Number of Occurrences
Schizachyrium scoparium - Panicum flexile - Carex cherokeensis Herbaceous Vegetation	Little Bluestem - Wiry Panicgrass - Cherokee Sedge Herbaceous Vegetation	G1	1

23   BRUSHY HEADS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Crotalus horridus (atricaudatus)	Timber rattlesnake	G4	1
Etheostoma histrio	Harlequin darter	G4	1

24   BOISE-VERNON WILDLIFE MANAGEMENT AREA

Scientific Name	Common Name	Global Rank	Number of Occurrences
Faxonella sp. nov.	New species, description pending	G1Q	1
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest	American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	1
Nyssa biflora - Crataegus opaca - (Fraxinus caroliniana) / Rhynchospora mixta Woodland	Swamp Blackgum - Western Mayhaw - (Water Ash) / Mingled Beaksedge Woodland	G2G	1
Aimophila aestivalis	Bachman's sparrow	G3	1
Rana areolata	Crawfish frog	G4	1
Ambystoma tigrinum tigrinum	Eastern tiger salamander	G5	1

25   MERRYVILLE SAVANNAS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland	Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland	G2G	2
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	1
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation	Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G	3
Aimophila aestivalis	Bachman's sparrow	G3	1
Lachnocaulon digynum	Tiny bog buttons	G3	1
Xyris drummondii	Drummond's yellow-eyed grass	G3	1
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	1

26 PERSIMMON GULLY

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Sporobolus silveanus - Muhlenbergia capillaris - Chaetopappa asteroides Woodland	Longleaf Pine / Silveus Dropseed - Common Hairgrass - Common Leastdaisy Woodland	G1	2
Aristida palustris - Panicum virgatum - Eriocaulon compressum - Eleocharis equisetoides Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Soft-head Pipewort - Horsetail Spikerush Herbaceous Vegetation	G2G	1
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland	G2G	1

27 BUXTON CREEK SALINE PRAIRIE

Scientific Name	Common Name	Global Rank	Number of Occurrences
Physostegia longisepala	Longsepal false dragonhead	G2G	1

28 STOKER HILLS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Cypripedium kentuckiense	Southern lady's-slipper	G3	1

29 ANACOCO PRAIRIES

Scientific Name	Common Name	Global Rank	Number of Occurrences
Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation	Little Bluestem - Missouri Coneflower Herbaceous Vegetation	G1	4

30 BULL BAYOU SAVANNA

Scientific Name	Common Name	Global Rank	Number of Occurrences
Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Ten-angle Pipewort - Elliott's Beaksedge Herbaceous Vegetation	G2G	1
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland	G2G	1
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	1

31 DEQUINCY EAST SAVANNAS

Scientific Name	Common Name	Global Rank	Number of Occurrences

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	2

32   KISATCHIE NATIONAL FOREST - PEASON RIDGE

Scientific Name	Common Name	Global Rank	Number of Occurrences
(Pinus palustris) / Quercus stellata - Quercus marilandica - Quercus falcata Woodland	(Longleaf Pine) - Post Oak - Blackjack Oak - Southern Red Oak Woodland	G?	2
Pinus echinata - Pinus taeda - Quercus (alba, falcata, stellata) Forest	Shortleaf Pine - Loblolly Pine - (White Oak, Southern Red Oak, Post Oak) Forest	G?	2
Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation	Little Bluestem - Missouri Coneflower Herbaceous Vegetation	G1	2
(Pinus palustris) / Schizachyrium scoparium - Bigelowia nuttallii / Cladonia spp. Herbaceous Vegetation	(Longleaf Pine) / Little Bluestem - Nuttall's Rayless-goldenrod / Reindeer Lichen species Herbaceous Vegetation	G1G	12
Obovaria jacksoniana	Southern hickorynut	G1G	1
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest	American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	1
Orconectes maletae	Kisatchie painted crawfish	G2	2
Pinus palustris / Quercus marilandica - (Quercus incana) / Ilex vomitoria / Schizachyrium scoparium Woodland	Longleaf Pine / Blackjack Oak - (Bluejack Oak) / Yaupon / Little Bluestem Woodland	G2	4
Rudbeckia scabrifolia	Bog coneflower	G2	5
Aristida palustris - Panicum virgatum - Eriocaulon compressum - Eleocharis equisetoides Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Soft-head Pipewort - Horsetail Spikerush Herbaceous Vegetation	G2G	1
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland	Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland	G2G	11
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	1
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	11
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation	Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G	12

Amsonia ludoviciana	Louisiana bluestar	G3	5
Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest	American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest	G3	8
Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest	American Beech - White Oak / (Southern Sugar Maple, Chalk Maple) / Eared Goldenrod Forest	G3	2
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	3
Lachnocaulon digynum	Tiny bog buttons	G3	2
Picoides borealis	Red-cockaded woodpecker	G3	1
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	1
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	1
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest	Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G	9
Quercus texana - Quercus lyrata Forest	Nuttall Oak - Overcup Oak Forest	G3G	1
Ammodramus henslowii	Henslow's sparrow	G4	2
Crotalus horridus (atricaudatus)	Timber rattlesnake	G4	2
Notropis sabinae	Sabine shiner	G4	2
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	1
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	2
Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest	Bald-cypress - Water Tupelo - Swamp Red Maple / Virginia-willow Forest	G4?	1
Betula nigra - Liquidambar styraciflua - Platanus occidentalis - Quercus nigra Forest	River Birch - Sweetgum - Sycamore - Water Oak Forest	G4Q	1
Fraxinus americana - Celtis laevigata - Nyssa sylvatica - Quercus shumardii - Ulmus americana Forest	White Ash - Sugarberry - Blackgum - Shumard Oak - American Elm Forest	G4Q	1
Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest	Cherrybark Oak - Sweetgum - Loblolly Pine Forest	G4Q	4
Plethodon serratus	Southern red-backed salamander	G5	1

Pituophis ruthveni	Louisiana pine snake	G5T	2

33   SELF CEMETERY PRAIRIE

Scientific Name	Common Name	Global Rank	Number of Occurrences
Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation	Little Bluestem - Missouri Coneflower Herbaceous Vegetation	G1	1

34   LITTLE CANEY CREEK BOG

Scientific Name	Common Name	Global Rank	Number of Occurrences
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation	Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G	1
Lachnocaulon digynum	Tiny bog buttons	G3	1
Xyris drummondii	Drummond's yellow-eyed grass	G3	1

35   KERNAN SAVANNA

Scientific Name	Common Name	Global Rank	Number of Occurrences
Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Ten-angle Pipewort - Elliott's Beaksedge Herbaceous Vegetation	G2G	1
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland	G2G	1
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	1
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	1

36   KISATCHIE NATIONAL FOREST - VERNON DISTRICT/FORT POLK

Scientific Name	Common Name	Global Rank	Number of Occurrences
(Pinus palustris) / Quercus stellata - Quercus marilandica - Quercus falcata Woodland	(Longleaf Pine) - Post Oak - Blackjack Oak - Southern Red Oak Woodland	G?	1
Pinus palustris / Quercus marilandica / Schizachyrium scoparium - Silphium laciniatum - Ruellia humilis Woodland	Longleaf Pine / Blackjack Oak / Little Bluestem - Compass-plant - Low Wild-petunia Woodland	G1	1
Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation	Little Bluestem - Missouri Coneflower Herbaceous Vegetation	G1	1
Rudbeckia scabrifolia	Bog coneflower	G2	22

Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland	Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland	G2?	1
Nyssa biflora - Quercus laurifolia / Sphagnum spp. Depression Forest	Swamp Blackgum - Diamondleaf Oak / Sphagnum species Depression Forest	G2G	1
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland	Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland	G2G	8
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	1
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	25
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation	Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G	16
Aimophila aestivalis	Bachman's sparrow	G3	2
Cyperus grayioides	Mohlenbrock's sedge	G3	4
Cypripedium kentuckiense	Southern lady's-slipper	G3	2
Lachnocaulon digynum	Tiny bog buttons	G3	11
Picoides borealis	Red-cockaded woodpecker	G3	1
Rhynchospora macra	Large beakrush	G3	8
Xyris drummondii	Drummond's yellow-eyed grass	G3	25
Xyris scabrifolia	Roughleaf yellow-eyed grass	G3	3
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	1
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	1
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest	Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G	2
Platanthera integra	Yellow fringeless orchid	G3G	2
Ammodramus henslowii	Henslow's sparrow	G4	3

Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	3
Pituophis ruthveni	Louisiana pine snake	G5T	1

37 MARSH BAYOU

Scientific Name	Common Name	Global Rank	Number of Occurrences
Physostegia longisepala	Longsepal false dragonhead	G2G	1

38 BIRD NEST CEMETARY LOW WOODS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Physostegia longisepala	Longsepal false dragonhead	G2G	2

39 CC ROAD SAVANNAS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Orconectes blacki	Calcasieu painted crawfish	G2	1
Schwalbea americana	American chaffseed	G2	1
Aristida palustris - Panicum virgatum - Eriocaulon compressum - Eleocharis equisetoides Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Soft-head Pipewort - Horsetail Spikerush Herbaceous Vegetation	G2G	2
Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Ten-angle Pipewort - Elliott's Beaksedge Herbaceous Vegetation	G2G	2
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland	G2G	3
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	5
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	1
Amsonia ludoviciana	Louisiana bluestar	G3	1

40 KISATCHIE NATIONAL FOREST WINN DISTRICT NORTH/LUCKY SANDYLANDS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland	Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland	G2?	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus texanus - Stylisma pickeringii var. pattersonii Woodland	Longleaf Pine / Bluejack Oak - Sand Post Oak / Farkleberry / Texas Tread-softly - Western Dawnflower Woodland	G2G	4
Aimophila aestivalis	Bachman's sparrow	G3	1
Cyperus grayioides	Mohlenbrock's sedge	G3	1
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	3
Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest	Bald-cypress - Water Tupelo - Swamp Red Maple / Virginia-willow Forest	G4?	1
Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest	Cherrybark Oak - Sweetgum - Loblolly Pine Forest	G4Q	1

41   LEBLANC SAVANNAS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Aristida palustris - Panicum virgatum - Eriocaulon compressum - Eleocharis equisetoides Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Soft-head Pipewort - Horsetail Spikerush Herbaceous Vegetation	G2G	1
Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Ten-angle Pipewort - Elliott's Beaksedge Herbaceous Vegetation	G2G	1
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland	G2G	1
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	4
Amsonia ludoviciana	Louisiana bluestar	G3	1
Silene subciliata	Scarlet catchfly	G3	1

42   KISATCHIE NATIONAL FOREST - WINN DISTRICT

Scientific Name	Common Name	Global Rank	Number of Occurrences
Bigelowia nuttallii - Aristida dichotoma - Houstonia rosea / Cladonia spp. Herbaceous Vegetation	Nuttall's Rayless-goldenrod - Forktip Three-awn - Rose Bluet / Reindeer Lichen species Herbaceous Vegetation	G1	1
Schizachyrium scoparium - Panicum flexile - Carex cherokeensis Herbaceous Vegetation	Little Bluestem - Wiry Panicgrass - Cherokee Sedge Herbaceous Vegetation	G1	11

Scientific Name	Common Name	Rank	Count
Eleocharis spp. - Scirpus spp. - Fimbristylis spp. - Juncus spp. southeastern coastal plain inland salt flat sparse Vegetation	Spikerush species - Bulrush species - Fimbry species - Rush species Southeastern Coastal Plain Inland Salt Flat Sparse Vegetation	G1?	2
Pinus echinata / Quercus incana / Selaginella arenicola ssp. riddellii Woodland	Shortleaf Pine / Bluejack Oak / Riddell's Spikemoss Woodland	G2?	3
Quercus shumardii - Fraxinus americana - Carya myristiciformis / Viburnum dentatum / Carex cherokeensis Forest	Shumard Oak - White Ash - Nutmeg Hickory / Southern Arrow-wood / Cherokee Sedge Forest	G2?	1
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	4
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation	Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G	3
Cyperus grayioides	Mohlenbrock's sedge	G3	1
Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest	American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest	G3	6
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	1
Lachnocaulon digynum	Tiny bog buttons	G3	1
Prenanthes barbata	Barbed rattlesnake-root	G3	1
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	1
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	3
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	2
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	3
Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest	Bald-cypress - Water Tupelo - Swamp Red Maple / Virginia-willow Forest	G4?	1
Betula nigra - Liquidambar styraciflua - Platanus occidentalis - Quercus nigra Forest	River Birch - Sweetgum - Sycamore - Water Oak Forest	G4Q	1
Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest	Cherrybark Oak - Sweetgum - Loblolly Pine Forest	G4Q	1

43   KISATCHIE NATIONAL FOREST - NORTH EVANGELINE DISTRICT

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Quercus marilandica / Schizachyrium tenerum - Muhlenbergia expansa - Bigelowia nuttallii - Senecio obovatus Woodland	Longleaf Pine / Blackjack Oak / Slender Bluestem - Savanna Hairgrass - Nuttall's Rayless-goldenrod - Round-leaf Groundsel Woodland	G1	3
Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation	Little Bluestem - Missouri Coneflower Herbaceous Vegetation	G1	2
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	1

44   COUSHATTA POND

Scientific Name	Common Name	Global Rank	Number of Occurrences
Panicum hemitomon - Gratiola brevifolia Herbaceous Vegetation	Maidencane - Shortleaf Hedge-hyssop Herbaceous Vegetation	G2G	1

45   CHERRYWINCHE SAVANNA

Scientific Name	Common Name	Global Rank	Number of Occurrences
Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation	Longleaf Three-awn - Switchgrass - Ten-angle Pipewort - Elliott's Beaksedge Herbaceous Vegetation	G2G	1
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium gracile Woodland	Longleaf Pine / Bluejack Oak / Little Bluestem - Slender Bluestem - Slender Rosinweed Woodland	G2G	1
Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland	Longleaf Pine / Elliott's Beaksedge - Coastal Plain Lobelia - Snowy Orchid - (Fringed Sneezeweed) Woodland	G2G	1

46   KISATCHIE NATIONAL FOREST - CATAHOULA/SOUTHERN WINN DISTRICTS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Magnolia virginiana - Nyssa biflora - Acer rubrum - Liquidambar styraciflua / Myrica heterophylla Forest (northern subtype)	Sweetbay - Swamp Blackgum - Red Maple - Sweetgum / Evergreen Bayberry Forest	G?	1
Margaritifera hembeli	Louisiana pearlshell	G1	10
Leuctra szczytkoi	Schoolhouse springs leuctran stonefly	G1G	2
Schizachyrium scoparium - Sorghastrum nutans Jackson Prairie Herbaceous Vegetation	Little Bluestem - Yellow Indiangrass Jackson Prairie Herbaceous Vegetation	G1Q	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium scoparium Woodland	Longleaf Pine - (Shortleaf Pine, Loblolly Pine) - (Bluejack Oak, Sand Post Oak) / Little Bluestem Woodland	G2?	1
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	1
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	4
Amsonia ludoviciana	Louisiana bluestar	G3	2
Cypripedium kentuckiense	Southern lady's-slipper	G3	1
Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest	American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest	G3	3
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	3
Picoides borealis	Red-cockaded woodpecker	G3	1
Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum Forest	Shortleaf Pine - Post Oak - (Blackjack Oak) - Black Hickory / Farkleberry Forest	G3?	1
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest	Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G	1
Platanus occidentalis - Liquidambar styraciflua - Ulmus americana / Crataegus viridis Forest	Sycamore - Sweetgum - American Elm / Green Hawthorn Forest	G3G	1
Plethodon kisatchie	Louisiana slimy salamander	G3Q	1
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	1
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	3
Fraxinus pennsylvanica - Ulmus americana - Celtis laevigata / Ilex decidua Forest	Green Ash - American Elm - Sugarberry / Possum-haw Forest	G4?	1
Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest	Cherrybark Oak - Sweetgum - Loblolly Pine Forest	G4Q	2

47 KISATCHIE NATIONAL FOREST - CENTRAL EVANGELINE DISTRICT

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus echinata - Pinus taeda - Quercus (alba, falcata, stellata) Forest	Shortleaf Pine - Loblolly Pine - (White Oak, Southern Red Oak, Post Oak) Forest	G?	2

Scientific Name	Common Name	Global Rank	Number of Occurrences
Margaritifera hembeli	Louisiana pearlshell	G1	13
Leuctra szczytkoi	Schoolhouse springs leuctran stonefly	G1G	1
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest	American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	1
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	4
Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum Herbaceous Vegetation	Yellow Pitcherplant - Slender Beaksedge - Bog Coneflower - Sunnybell Herbaceous Vegetation	G2G	1
Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest	American Beech - White Oak / (Southern Sugar Maple, Chalk Maple) / Eared Goldenrod Forest	G3	1
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	2
Orconectes hathawayi	Teche painted crawfish	G3	6
Nyssa biflora - Magnolia virginianum - Quercus laurifolia/ Cyrilla racemiflora - Ilex coriacea - (Rhododendron oblongifolium) Forest (southern subtype)	Swamp Blackgum - Sweetbay - Diamondleaf Oak / Titi - Big Gallberry - Wild Azalea Forest	G3?	1
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest	Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G	4
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	1
Fraxinus pennsylvanica - Ulmus americana - Celtis laevigata / Ilex decidua Forest	Green Ash - American Elm - Sugarberry / Possum-haw Forest	G4?	1
Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest	Bald-cypress - Water Tupelo - Swamp Red Maple / Virginia-willow Forest	G4?	2

48   KISATCHIE NATIONAL FOREST - SOUTH EVANGELINE DISTRICT

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland	Longleaf Pine / Little Bluestem - Cattail Gayfeather Woodland	G2G	1
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	2
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest	Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	1
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	1

49 SALINE CREEK PRAIRIE

Scientific Name	Common Name	Global Rank	Number of Occurrences
Baccharis halimifolia - Crataegus berberifolia / Eleocharis sp. - Tridens strictus - Euthamia leptocephala Shrubland	Groundsel-tree - Barberry-leaf Haw / Spikerush species - Spike Triodia - Bushy Fragrant-goldenrod Shrubland	G1	1
Bigelowia nuttallii - Aristida dichotoma - Houstonia rosea / Cladonia spp. Herbaceous Vegetation	Nuttall's Rayless-goldenrod - Forktip Three-awn - Rose Bluet / Reindeer Lichen species Herbaceous Vegetation	G1	2
Eleocharis sp. - Iva angustifolia - Distichlis spicata Herbaceous Vegetation	Spikerush species - Narrowleaf Marsh-elder - Saltgrass Herbaceous Vegetation	G1	1
Geocarpon minimum	Earthfruit, geocarpon	G2	2

50 CAMP BEAUREGARD

Scientific Name	Common Name	Global Rank	Number of Occurrences
Pinus palustris / Quercus marilandica / Schizachyrium tenerum - Muhlenbergia expansa - Bigelowia nuttallii - Senecio obovatus Woodland	Longleaf Pine / Blackjack Oak / Slender Bluestem - Savanna Hairgrass - Nuttall's Rayless-goldenrod - Round-leaf Groundsel Woodland	G1	1
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland	Longleaf Pine / Little Bluestem - Gulf Coast Brown-eyed Susan Woodland	G2G	2
Quercus michauxii - Quercus nigra - Pinus taeda / Carpinus caroliniana Forest	Swamp Chestnut Oak - Water Oak - Loblolly Pine / Ironwood Forest	G3?	1
Plethodon kisatchie	Louisiana slimy salamander	G3Q	2
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	3
Quercus nigra - Liquidambar styraciflua / Sebastiania fruticosa - Toxicodendron radicans Forest	Water Oak - Sweetgum / Sebastian-bush - Poison-ivy Forest	G4?	1

51 OUACHITA HILLS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Juniperus virginiana var. virginiana - Pinus taeda - Quercus sinuata var. sinuata Woodland	Eastern Red-cedar - Loblolly Pine - Durand Oak Woodland	G1	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Quercus shumardii - Quercus pagoda - Fraxinus americana / Ostrya virginiana - Cornus florida / Trillium ludovicianum Forest	Shumard Oak - Cherrybark Oak - White Ash / Eastern Hop-hornbeam - Flowering Dogwood / Louisiana Trillium Forest	G1	1
Quercus similis - Quercus pagoda - Carya (glabra, myristiciformis, ovata) Temporarily Flooded Forest	Delta Post Oak - Cherrybark Oak - (Pignut Hickory, Nutmeg Hickory, Shagbark Hickory) Temporarily Flooded Forest	G1	1
Quercus sinuata var. sinuata - Fraxinus americana - Quercus muehlenbergii / Rhus aromatica - Cornus drummondii Forest	Durand Oak - White Ash - Chinquapin Oak / Fragrant Sumac - Roughleaf Dogwood Forest	G1	1
Schizachyrium scoparium - Sorghastrum nutans Jackson Prairie Herbaceous Vegetation	Little Bluestem - Yellow Indiangrass Jackson Prairie Herbaceous Vegetation	G1Q	2
Quercus oglethorpensis	Oglethorpe oak	G2G	1
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	6
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest	Loblolly Pine - White Oak - Mockernut Hickory / American Holly / Beautyberry Forest	G4	2

52 CATAHOULA HILLS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	2
Plethodon kisatchie	Louisiana slimy salamander	G3Q	1
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	2

53 SICILY ISLAND HILLS

Scientific Name	Common Name	Global Rank	Number of Occurrences
Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest	American Beech - Southern Magnolia - White Oak / Ironwood / Eastern Hop-hornbeam - American Holly Forest	G2	2
Plethodon kisatchie	Louisiana slimy salamander	G3Q	1
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest	Loblolly Pine - (Shortleaf Pine) - Southern Red Oak - Black Hickory / Farkleberry Forest	G4	2
Plethodon serratus	Southern red-backed salamander	G5	1

A   HICKORY CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Phenacobius mirabilis	Suckermouth minnow	G5	1

B   COCHINO BAYOU

Scientific Name	Common Name	Global Rank	Number of Occurrences
Notropis sabinae	Sabine shiner	G4	1

D   UPPER ANGELINA RIVER

Scientific Name	Common Name	Global Rank	Number of Occurrences
Prenanthes barbata	Barbed rattlesnake-root	G3	1
Crotalus horridus (atricaudatus)	Timber rattlesnake	G4	1
Planera aquatica Forest	Planertree Forest	G4?	1
Quercus nigra - Liquidambar styraciflua / Sebastiania fruticosa - Toxicodendron radicans Forest	Water Oak - Sweetgum / Sebastian-bush - Poison-ivy Forest	G4?	1

E   NECHES RIVER

Scientific Name	Common Name	Global Rank	Number of Occurrences
Hibiscus dasycalyx	Neches river rose-mallow	G1	1
Quercus pagoda - Quercus similis - Carya glabra - Quercus sinuata var. sinuata / Crataegus triflora Forest	Cherrybark Oak - Swamp Post Oak - Pignut Hickory - Durand Oak / Three-flowered Haw Forest	G1	1
Pleurobema riddelli	Louisiana pigtoe	G1G	2
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest	Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest	G2G	7
Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest	American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest	G3	1
Lampsilis satura	Sandbank pocketbook	G3	1
Planera aquatica Forest	Planertree Forest	G4?	1
Quercus nigra - Liquidambar styraciflua / Sebastiania fruticosa - Toxicodendron radicans Forest	Water Oak - Sweetgum / Sebastian-bush - Poison-ivy Forest	G4?	1
Elanoides forficatus	American swallow-tailed kite	G5	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Phenacobius mirabilis	Suckermouth minnow	G5	1
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest	Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G5?	2

H LITTLE PINE ISLAND BAYOU

Scientific Name	Common Name	Global Rank	Number of Occurrences
Quercus laurifolia - Quercus nigra - Quercus lyrata / Sabal minor Forest	Diamondleaf Oak - Water Oak - Overcup Oak / Dwarf Palmetto Forest	G2G	1

I TURKEY CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Nyssa biflora / Itea virginica - Cephalanthus occidentalis Depression Forest	Swamp Blackgum / Virginia-willow - Buttonbush Depression Forest	G3G	1

J ATTOYAC RIVER

Scientific Name	Common Name	Global Rank	Number of Occurrences
Fusconaia lananensis	Triangle pigtoe	G1Q	1
Quercus michauxii - Quercus nigra - Pinus taeda / Carpinus caroliniana Forest	Swamp Chestnut Oak - Water Oak - Loblolly Pine / Ironwood Forest	G3?	1

L VILLAGE CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Nyssa biflora - Quercus laurifolia / Sphagnum spp. Depression Forest	Swamp Blackgum - Diamondleaf Oak / Sphagnum species Depression Forest	G2G	1
Silene subciliata	Scarlet catchfly	G3	1
Nyssa biflora / Panicum Hemitomon - Woodwardia virginica Woodland	Swamp Blackgum / Maidencane - Virginia Chainfern Woodland	G3?	1
Notropis sabinae	Sabine shiner	G4	2
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest	Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G5?	1

M LOWER ANGELINA RIVER

Scientific Name	Common Name	Global Rank	Number of Occurrences
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest	Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest	G2G	1

Scientific Name	Common Name	Global Rank	Number of Occurrences
Quercus lyrata - (Carya aquatica, Liquidambar styraciflua, Quercus texana) / Forestiera acuminata Forest	Overcup Oak - (Water Hickory, Sweetgum, Nuttall Oak) / Swamp-privet Forest	G2Q	1
Corynorhinus (plecotus) rafinesquii	Rafinesque's big-eared bat	G3G	1
Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest	Bald-cypress - Water Tupelo - Swamp Red Maple / Virginia-willow Forest	G4?	1

P SANDY CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Faxonella sp. nov.	New species, description pending	G1Q	1

Q WHITE OAK CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Cyperus grayioides	Mohlenbrock's sedge	G3	2
Silene subciliata	Scarlet catchfly	G3	1

R SABINE RIVER

Scientific Name	Common Name	Global Rank	Number of Occurrences
Obovaria jacksoniana	Southern hickorynut	G1G	1
Faxonella sp. nov.	New species, description pending	G1Q	3
Nyssa biflora - Crataegus opaca - (Fraxinus caroliniana) / Rhynchospora mixta Woodland	Swamp Blackgum - Western Mayhaw - (Water Ash) / Mingled Beaksedge Woodland	G2G	1
Physostegia longisepala	Longsepal false dragonhead	G2G	1
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest	Willow Oak - Water Oak / Dwarf Palmetto - Sebastian-bush Forest	G2G	1
Cycleptus elongatus	Blue sucker	G3	1
Fusconaia askewi	Texas pigtoe	G3	1
Lampsilis satura	Sandbank pocketbook	G3	1
Etheostoma histrio	Harlequin darter	G4	1
Notropis sabinae	Sabine shiner	G4	2
Elanoides forficatus	American swallow-tailed kite	G5	1
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest	Bald-cypress - (Water Tupelo) / Swamp Privet Forest	G5?	2

S · HOUSTON RIVER

Scientific Name	Common Name	Global Rank	Number of Occurrences
Orconectes blacki	Calcasieu painted crawfish	G2	1
Physostegia longisepala	Longsepal false dragonhead	G2G	1

T · ANACOCO BAYOU

Scientific Name	Common Name	Global Rank	Number of Occurrences
Aimophila aestivalis	Bachman's sparrow	G3	1
Notropis sabinae	Sabine shiner	G4	2

U · CALCASIEU RIVER, WEST BRANCH

Scientific Name	Common Name	Global Rank	Number of Occurrences
Orconectes blacki	Calcasieu painted crawfish	G2	1

V · WHISKY CHITTO CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Obovaria jacksoniana	Southern hickorynut	G1G	1
Fusconaia askewi	Texas pigtoe	G3	3
Quercus michauxii - Quercus nigra - Pinus taeda / Carpinus caroliniana Forest	Swamp Chestnut Oak - Water Oak - Loblolly Pine / Ironwood Forest	G3?	1
Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest	Southern Magnolia - American Beech - White Oak - Loblolly Pine Forest	G3G	5

W · BUNDICK CREEK

Scientific Name	Common Name	Global Rank	Number of Occurrences
Platanthera integra	Yellow fringeless orchid	G3G	1

X · CYPRESS BAYOU

Scientific Name	Common Name	Global Rank	Number of Occurrences
Obovaria jacksoniana	Southern hickorynut	G1G	1
Amsonia ludoviciana	Louisiana bluestar	G3	3

	Scientific Name	Common Name	Global Rank	Number of Occurrences
	Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest	American Beech - Loblolly Pine - (Sweetgum, Southern Magnolia, White Oak) Forest	G3	1

Y	**SIX MILE CREEK**			
	Scientific Name	**Common Name**	**Global Rank**	**Number of Occurrences**
	Fusconaia askewi	Texas pigtoe	G3	1

Z	**DUGDEMONA RIVER**			
	Scientific Name	**Common Name**	**Global Rank**	**Number of Occurrences**
	Quercus lyrata - (Carya aquatica, Liquidambar styraciflua, Quercus texana) / Forestiera acuminata Forest	Overcup Oak - (Water Hickory, Sweetgum, Nuttall Oak) / Swamp-privet Forest	G2Q	1
	Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest	American Beech - White Oak / American Holly / Southern Lady Fern Forest	G3	1

AA	**CALCASIEU RIVER**			
	Scientific Name	**Common Name**	**Global Rank**	**Number of Occurrences**
	Obovaria jacksoniana	Southern hickorynut	G1G	3
	Pleurobema riddelli	Louisiana pigtoe	G1G	3
	Fusconaia askewi	Texas pigtoe	G3	3

BB	**LITTLE RIVER**			
	Scientific Name	**Common Name**	**Global Rank**	**Number of Occurrences**
	Nyssa biflora - Crataegus opaca - (Fraxinus caroliniana) / Rhynchospora mixta Woodland	Swamp Blackgum - Western Mayhaw - (Water Ash) / Mingled Beaksedge Woodland	G2G	1
	Quercus texana - Quercus lyrata Forest	Nuttall Oak - Overcup Oak Forest	G3G	1

APPENDIX G. GEOGRAPHIC SCALES OF BIODIVERSITY

(Based upon "Functional Landscapes and the Conservation of Biodiversity" by Karen Poiani and Brian Richter, The Nature Conservancy, Working Papers in Conservation Science, June, 1999.)

Conserving Biodiversity: Getting the Scale Right

Scientists and practitioners have long recognized that biodiversity exists at many levels of biological organization (i.e., genes, species, communities, ecosystems, and landscapes). In addition, biodiversity occurs at a variety of spatial or geographic scales (e.g., square feet to millions of acres). The levels of biological organization on which the Conservancy now focuses its conservation efforts – ***species***, ***ecological communities***[1], and ***ecological systems***[2] – can be categorized based on their spatial scale and pattern. Understanding these relationships is key to effective conservation and management strategies. Figure 1 illustrates four geographic scales – ***local***, ***intermediate***, ***coarse***, and ***regional*** – at which species, communities, and systems occur, with each scale corresponding to a characteristic range in area[3].

1. _Small patch communities/systems, aquatic habitat units, and local-scale species_[4]. Local-scale species are those with limited movement and dispersal that are restricted to a single habitat. Many rare species belong in this category, particularly invertebrates and plants. Small patch communities and systems (e.g., fens, bogs, cliffs) are small and discrete and occur as a result of specific physical factors and environmental regimes (e.g., seepages, outcrops). Aquatic habitat units (e.g., pool-riffle runs) also occur at this scale. These local-scale aquatic features are often more dynamic in location and internal structure and composition than terrestrial small patch communities and systems. Local-scale species and small patch communities have been the Conservancy's primary focus at hundreds of sites. Local-scale biodiversity is usually found in areas of less than 2,000 acres.

2. _Large patch communities/systems, aquatic macrohabitats, and intermediate-scale species_. Intermediate-scale species are those that depend on several kinds of habitat. For example, floodplain spawning fish use a river's main channel, flooded backwater areas, and wetlands. Large patch communities and systems are discrete, defined by distinct physical factors and environmental regimes, and are significantly larger than small patches. Some large patch

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[1] Ecological communities most commonly include *associations*.

[2] Ecological systems can be defined as *dynamic assemblages or complexes of plant and/or animal communities* that (1) occur together on the landscape; (2) are tied together by similar ecological processes (e.g., fire, hydrology), underlying environmental features (e.g., soils, geology), or environmental gradients (e.g., elevation); and (3) form a robust, cohesive, and distinguishable unit on the ground. Systems can be terrestrial or aquatic.

[3] Acreages are preliminary estimates as we have not yet searched the literature to test these numbers.

[4] The matrix-patch framework for terrestrial communities/systems was developed by a team of TNC and Natural Heritage ecologists headed by Mark Anderson during conservation planning in the N. Appalachian ecoregion.

Regional
> 1,000,000 acres

Regional-Scale Species

Matrix Communities or Systems

Coarse
20,000 - 1,000,000 acres

Coarse-Scale Species

Geographic Scale

Large Patch Communities or Systems & Aquatic Macrohabitats

Intermediate
1,000 - 50,000 acres

Intermediate-Scale Species

Small Patch Communities or Systems & Aquatic Habitat Units

Local
< 2,000 acres

Local-Scale Species

Functional Network
Conserves regional species
+ or - biodiversity at lower scales

Functional Landscape
Conserves biodiversity at coarse, intermediate, and local scales

Functional Site
Conserves biodiversity at one or two scales below regional

Figure 1. Biodiversity and geographic scale.

communities or systems, such as coastal salt marshes, are relatively uniform in structure and composition and are defined by stable physical factors (e.g., low topographic position and predictable tides). Others, such as riparian mosaics, are defined by dynamic disturbance regimes (e.g., river flooding and sand/gravel transport). These latter types are more variable in their internal structure and composition, often comprised of different patch types that shift and rearrange over time and space. Aquatic macrohabitats (e.g., a stream reach, river segment, or lake type) are aquatic features at the intermediate scale. Intermediate-scale biodiversity typically occurs at 1,000 to 50,000 acres[5].

3. *Matrix communities/systems and coarse-scale species*. Matrix communities and systems are the dominant or historically dominant habitat between the patches. They are defined by widespread physical gradients, such as elevation, precipitation, and temperature, across broad areas. Individual examples are often hard to map given that they generally intergrade with adjacent types. Examples include spruce fir forests (Northeast), longleaf pine forests (Southeast), tallgrass prairie (Midwest), and sagebrush (West). Aquatic targets at the coarse scale are currently under development by the Freshwater Team. Coarse-scale species are

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[5] Acreages for the four geographic scales are defined broadly and with overlapping values to account for the variability found in different regions (e.g., prairies in the Midwest versus mountains in the West).

those that need large areas and have very generalized habitat requirements. For example, prairie chickens of the Great Plains utilize large areas of the historic grassland matrix, small patches of wetlands and shrublands, and even various agricultural land uses. Coarse-scale mammals include fox, badger, marten, and fisher. The area required for coarse-scale biodiversity typically ranges from 20,000 to 1,000,000 acres.

4. *Regional-scale species*. Regional-scale species are those that depend on vast areas, including migratory animals and top-level predators (e.g., caribou, wolves, grizzly bear), as well as migratory fishes in big rivers, and migratory birds, bats, and insects. To sustain a single population, areas often over 1,000,000 acres or hundreds of river miles are necessary, including natural or semi-natural matrix, associated patches, and connecting corridors.

Functional Conservation Areas

Because the scale of functional conservation areas has such a wide range, it is useful to refer to different categories of functional conservation areas. The Nature Conservancy currently recognizes three types of functional conservation areas: sites, landscapes, and networks (Table 1). The difference among them are the targets that they seek to conserve. The following are definitions of each conservation area type:

Functional Sites

A functional site aims to conserve a small number of targets–systems, communities, or species–at one or two scales below regional. Although they are not necessarily easy to conserve, targets are relatively few and often share similar sustaining ecological processes (e.g., fire-dependent prairie plants and butterflies; a wetland and its rare species; and assemblage of rare fish).

A functional landscape seeks to conserve a large number of targets *at all scales* below regional (i.e., coarse, intermediate, and local scales). Conservation targets at functional landscapes are often both terrestrial and aquatic and require a diversity of sustaining ecological processes. Typically, functional landscapes have a high degree of ecological intactness and retain most or all of their key components, processes, and patterns. The distinction between functional landscape sites and all other functional conservation sites is not always clear cut. The operational differences are the degree to which the conservation targets are intended to represent other biodiversity and that the targets occur at coarse, intermediate, and fine scales. Because they include coarse-scale targets, functional landscape sites are typically large.

Table 1. Composition of functional conservation areas by target spatial scale.

Conservation Area Type	Local scale species [small patch communities]	Intermediate scale species [large patch communities]	Coarse scale species [matrix communities]	Regional scale species [n/a to communities]
Functional Site	(One or two of these categories)			N/A
Functional Landscape	Yes	Yes	Yes	
Functional Network	Optional	Optional	Optional	Yes

Functional Networks

A functional network is an integrated set of sites and landscapes designed to conserve regional-scale species with or without finer-scale biodiversity. Site or landscapes within functional networks can be arranged contiguously over one or more regions to protect wide-ranging species. Conversely, sites or landscapes may form a series of stepping-stones spread over a large area to conserve migratory shorebirds or neotropical migrants. In additional to conserving biodiversity at local, intermediate, and coarse scales, a well designed ecoregional portfolio should serve as a functional network for regional-scale species within the ecoregion; collectively, ecoregional plans should provide functional networks for species that span multiple ecoregions.

APPENDIX H: TERRESTRIAL ECOLOGICAL SYSTEMS OF THE WEST GULF COASTAL PLAIN

The goal of ecoregional conservation planning is the design and conservation of portfolios of sites within ecoregions that will ensure the long-term survival of all viable native species and community types. The first critical step is to identify conservation targets—the species and communities that will be used to identify conservation sites across the ecoregion. Poiani and Richter (2000) described three levels of biological organization at which targets can occur. The three levels of biological organization are *species, communitie*s, and *ecological system*s (see Appendix G). Because ecoregional planning for West Gulf Coastal Plain was well underway before the development of this new model which includes ecological systems, conservation targets for the ecoregion consist only of species and communities. However, the West Gulf Coastal Plain planning team recognized the need for identifying and protecting ecological systems, since they provide a coarse-scale target for identifying functional landscapes where information on finer-scale targets is lacking.

In the West Gulf Coastal Plain ecoregional plan, terrestrial community conservation targets are represented by the plant association level of The Nature Conservancy's National Vegetation Classification (Grossman et al. 1998, Anderson et al. in press). During data assembly, it became obvious that large gaps existed in our knowledge of the location and viability of these associations in the ecoregion. Additionally, difficulties arose in reconciling earlier community descriptions with the new classification. Therefore, the planning team developed a draft hierarchical classification which consolidated plant associations into larger ecological groups, which were in turn consolidated into ecological systems. Ecological systems are dynamic spatial assemblages of communities that are linked by similar ecological processes (e.g., fire, seasonal flooding), underlying environmental features (e.g., soils, geology) or environmental gradients (e.g., elevation, hydrologically-related zones). Ecological groups are the middle level in the classification hierarchy and are sets of plant associations that share similar vegetative structure, species assemblages, and local environmental characteristics (e.g., hillside seepage bogs, calcareous small stream forests). Plant associations are based mainly on floristic composition, and they form, in most cases, the terrestrial community conservation targets for the ecoregion.

Ecological systems described for the West Gulf Coastal Plain are based largely on previous ecological studies in the ecoregion (Marks and Harcombe 1981, Harcombe et al. 1993, Turner 1999, Turner et al. 1999). The ecological system classification provides a landscape-level perspective on the spatial arrangement and distribution of plant communities and their associated environmental gradients. Ecological systems are described at a scale that should facilitate rapid identification and mapping of occurrences using coarse-scale data, such as remotely sensed imagery. It should also provide a useful framework for identifying habitat for plant and animal species conservation targets. This ecological system classification is a first draft and will need to be refined, including developing quantitative and spatial goals for each system as well as viability ranking criteria for occurrences. It is expected that these ecological systems will be integrated as conservation targets in future iterations of the ecoregional plan.

1. Dry Longleaf Pine Woodlands

This upland ecological system is located mainly in the Texas and Lousiana Southern Loam Hills subregions. It occurs on middle and upper slopes, broad uplands, and ridgetops. Soils consist of a deep, moderately drained to excessively drained loamy sand or sandy loam surface layer over a sandy, sandy loam, or sandy clay loam subsoil. Epipedon depth is generally over 100 cm, and nutrient availability is low. Extended drought periods occur during the growing season. Frequent, low-intensity surface fires burn through these uplands during the growing season, with the fire interval on a particular site influenced by topographic position and soil moisture. The frequent fire regime inhibits the establishment of woody understory species and maintains an open woodland structure dominated by longleaf pine. Imbedded within the longleaf pine woodland matrix are smaller communities such as hillside herbaceous seepage bogs, baygalls, patch prairies and barrens, and oak-hickory hammocks.

2. Dry Shortleaf Pine-Oak Woodands

This mixed pine-hardwood upland system is located mainly in the Texas and Louisiana Pineywoods Transition subregions. This area is at the transition zone between longleaf pine-dominated woodlands to the south and mixed pine-oak forests to the north in the Upper West Gulf Coastal Plain ecoregion. It occurs on ridgetops, middle and upper slopes, and broad upland flats. Slope gradients are gentle to moderate. Soils are variable and may consist mostly of well drained to excessively drained loamy sand surface soil over sandy loam, sandy clay loam, or coarse sand subsoil. Epipedon depth is generally over 100 cm, and nutrient availability is very low. Extended drought periods can occur during the growing season. Moderately frequent, low-intensity surface fires burn through these uplands during the growing season, with the fire interval on a particular site influenced by topographic factors. Intervals between fires are somewhat longer than in longleaf pine woodlands. The fire regime and droughty soils inhibit the establishment of woody understory species, maintaining an open woodland community structure. Shortleaf pine, post oak, and blackjack oak are characteristic overstory species. Shortleaf pine is less susceptible than longleaf pine to ice storms which occur more frequently in the northern part of the ecoregion. Imbedded within the the woodland matrix are smaller communities such as baygalls, patch prairies and barrens, carbonate glades, and oak-hickory hammocks.

3. Wet Longleaf Pine Woodlands

Wet longleaf pine woodlands are characterized by fine-textured soils, nearly featureless plain, and streams with broad, shallow valleys and poorly defined drainages. Much of the landscape exhibits undulating microtopography, including depressional ponds and pimple mounds. It was historically common in the Texas and Louisiana Southwest Flatwoods subregions, although only a few remnants remain. It occurs primarily on Pleistocene-aged formations of the southern part of the ecoregion and on poorly drained flats on older geologic formations. Soils consist of deep, poorly drained, moderately permeable sandy loam to sandy clay loam. Drainage mottles occur in the subsoil, with most exhibiting gray coloration that is characteristic of anoxic soil

conditions. The nearly level topography and lack of well-defined drainages, combined with an impermeable subsurface soil layer, result in soils that are seasonally saturated, especially in winter and spring. During the summer and fall, the moderately permeable surface soils tend to become droughty. Since natural fire breaks are few on this landscape, low-intensity surface fires burn very frequently through these uplands during the growing season. The frequent fire regime, seasonal wetness, and low nutrient availability inhibits the establishment of woody understory species and maintains a sparse overstory canopy of longleaf pine. Inclusional communities include saline prairies, baldcypress-gum swamps, and depression marshes.

4. Dry-Mesic Mixed Pine-Hardwood Forests

This ecosystem encompasses most of the loamy and clayey uplands of the Texas and Louisiana Pineywoods Transition subregions, although it can occur throughout the ecoregion. Although landform and soil combinations are highly variable, it generally occurs on middle and upper slopes and broad uplands. Slope gradient is gentle to moderately steep. Surface soil textures vary from loamy sand to high shrink-swell clays, and nutrient content is usually moderate to high. Soils are well drained to somewhat poorly drained. Fires are moderately frequent to infrequent, allowing the development of closed overstory canopies, and abundant understory trees and shrubs. The overstory consists of a heterogeneous mixture of pine and hardwood species. The most common pine species in the overstory are shortleaf pine and loblolly pine. Deciduous overstory species are diverse and include post oak, southern red oak, and white ash. Smaller imbedded communities include calcareous forests, patch prairies, and carbonate glades.

5. Mesic Slopes and Terraces

This ecological system is located on middle to lower slopes and Pleistocene-aged river terraces throughout the ecoregion. They also occur in steep, protected ravines found primarily in the Texas and Louisiana Pineywoods Transition subregions. They usually occur at the transition zone between dry upper slopes and wet stream bottoms. Slope gradients are gentle to moderate, except in ravines where slope gradients may be as steep as 50 percent. Due to the low topographic position, proximity to streams, and mesic microclimate, soils tend to have high moisture retention, which moderates the effects of seasonal drought. Numerous firebreaks allow only infrequent occurrences of low-intensity surface fires. The overstory contains a diverse mixture of hardwoods mixed with loblolly or shortleaf pine. Most sites with no recent large-scale disturbances are dominated by hardwoods. Important overstory trees include American beech, white oak, and southern magnolia. On sites with a mature, closed overstory canopy, understory shrubs and herbaceous ground cover may be sparse. Many understory species are characteristic of the central hardwoods and Appalachian Mountain regions of the U.S., reaching the southwestern limit of their range in the West Gulf Coastal Plain.

6. Minor Stream Bottoms

This ecological system consists of minor floodplains and valleys associated with small to intermediate sized perennial streams. Streams usually have a well-developed channel and a narrow floodplain. Flooding is infrequent and of shorter duration than larger rivers. Available soil moisture and nutrient availability is usually high. Some streams that drain watersheds with calcareous substrates often support assemblages of calcophilic species. Groundwater seeps containing mosses, liverworts, and obligate wetland plants may occur along some streams. Streams with relatively clear water may support an abundance of streambed vegetation. Vegetation structure may resemble that of the Mesic Slopes and Terraces ecological system. Characteristic trees include water oak, willow oak, loblolly pine, hackberry, American holly, river birch, hazel alder, and eastern hophornbeam. American beech and southern magnolia may be present on some sites.

7. Seasonally Flooded River Floodplains

This ecological system occurs on the active floodplains of large streams and rivers across the West Gulf Coastal Plain. Slope gradients are usually less than 1 percent. Microtopography on some sites consists of numerous small depressions, drainage channels, and mounds created as flood waters scour and deposit alluvial materials. Flooding occurs annually, mostly in the winter and spring, with flood duration influenced by the size of the watershed upstream. In depressions and old stream channels, soils may be constantly saturated. Drainage mottles can occur throughout the soil profile. Overstory species composition is quite variable, but deciduous hardwoods usually dominate. Willow oak, water oak, laurel oak, and overcup oak are common overstory trees of river floodplains. Ground cover vegetation is generally sparse. Imbedded communities include baldcypress-gum depressions, riverbank shrublands, riverbed aquatic vegetation, and canebreaks.

8. Semi-Permanently Flooded Swamps and Lakes

Swamps and natural lakes occur in depressions on the floodplains of most major rivers within the West Gulf Coastal Plain. These swamps are often the remains of abandoned stream channels, or oxbows. Soils consist of very poorly drained clay, sandy clay, and clay loam soils that are usually flooded for 3 to 8 months annually. Saturated soil conditions may occur year-round. Soil color is usually gray throughout as a result of continual anoxia. Due to standing water much of the year, terrestrial ground cover in some swamps may be very sparse or nonexistent. Characteristic overstory trees are those that are tolerant of semi-permanently to continuously inundated habitats, including water elm, baldcypress, water tupelo, and black willow. Patch communities include buttonbush and mayhaw ponds. Floating and submersed aquatic plant communities may occur in permanently flooded pools.

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APPENDIX H (CONTINUED):

Terrestrial Ecological Systems Hierarchy

Note: some plant associations and ecological groups occur in more than one ecological system. Plant associations with more than one occurrence are identified by the number of the alternate ecological system in parentheses.

Ecological System

    Ecological Group

        Plant Association

1. Dry Longleaf Pine Woodlands

    Baygalls and Bayheads

        (Magnolia virginiana) / Ilex coriacea - Myrica heterophylla Shrubland (2)
        Magnolia virginiana - Nyssa biflora - Acer rubrum - Liquidambar styraciflua / Myrica
            heterophylla Forest (Northern subtype) (2)
        Nyssa biflora - Magnolia virginiana - Quercus laurifolia / Cyrilla racemiflora - Ilex coriacea -
            (Rhododendron oblongifolium) Forest (Southern subtype) (2)

    Coastal Plain Dry-Mesic Oak Forests

        Quercus stellata - Quercus marilandica - Pinus taeda Jackson Acidic Clay Forest

    Coastal Plain Salt Glades and Barrens

        Baccharis halimifolia - Crataegus berberifolia / Eleocharis spp. - Tridens strictus - Euthamia
            leptocephala Shrubland
        Bigelowia nuttallii - Aristida dichotoma - Houstonia rosea / Cladonia spp. Herbaceous Vegetation
        Eleocharis spp. - Iva angustifolia - Distichlis spicata Herbaceous Vegetation
        Eleocharis spp. - Scirpus spp. - Fimbristylis spp. - Juncus spp. Southeastern Coastal Plain Inland
            Salt Flat Sparse Vegetation

    Coastal Plain Sandstone Glades and Barrens

        (Pinus palustris) / Quercus stellata - Carya texana / Chasmanthium sessiliflorum - Ranunculus
            fascicularis Woodland
        (Pinus palustris) / Schizachyrium scoparium - Bigelowia nuttallii / Cladonia spp. Herbaceous
            Vegetation
        Bigelowia nuttallii - Krameria lanceolata - Aristida dichotoma - Sporobolus silveanus Herbaceous
            Vegetation
        Pinus palustris / Quercus marilandica / Schizachyrium tenerum - Muhlenbergia expansa -
            Bigelowia nuttallii - Senecio obovatus Woodland

Coastal Plain Xeric Oak Woodlands and Hammocks

(Pinus palustris) - Quercus stellata - Quercus marilandica - Carya texana / Tragia urens Woodland
(2)
(Pinus palustris) / Quercus stellata - Quercus marilandica - Quercus falcata Woodland (2)

Dry and Mesic Longleaf Pine Clayhill, Flat, and Swale Pinelands

Pinus palustris / Schizachyrium scoparium - Liatris pycnostachya Woodland
Pinus palustris / Schizachyrium scoparium - Rudbeckia grandiflora var. alismifolia Woodland

Southeastern Coastal Plain Seepage Bogs

Sarracenia alata - Rhynchospora gracilenta - Rudbeckia scabrifolia - Schoenolirion croceum
Herbaceous Vegetation

Xeric Longleaf Pine Sandhill Pinelands

Pinus palustris - Pinus (echinata, taeda) - Quercus (incana, margarettiae) / Schizachyrium
scoparium Woodland
Pinus palustris / Quercus incana - Quercus margarettiae / Vaccinium arboreum / Cnidoscolus
texanus - Stylisma pickeringii var. pattersonii Woodland
Pinus palustris / Quercus incana / Schizachyrium scoparium - Liatris elegans - Opuntia humifusa
var. humifusa Woodland
Pinus palustris / Quercus incana / Schizachyrium scoparium - Schizachyrium tenerum - Silphium
gracile Woodland
Pinus palustris / Quercus marilandica - (Quercus incana) / Ilex vomitoria / Schizachyrium
scoparium Woodland
Pinus palustris / Quercus marilandica / Schizachyrium scoparium - Silphium laciniatum - Ruellia
humilis Woodland

2. Dry Shortleaf Pine Woodlands

Baygalls and Bayheads

(Magnolia virginiana) / Ilex coriacea - Myrica heterophylla Shrubland (1)
Magnolia virginiana - Nyssa biflora - Acer rubrum - Liquidambar styraciflua / Myrica
heterophylla Forest (Northern subtype) (1)
Nyssa biflora - Magnolia virginiana - Quercus laurifolia / Cyrilla racemiflora - Ilex coriacea -
(Rhododendron oblongifolium) Forest (Southern subtype) (1)

Coastal Plain Carbonate Glades and Barrens

Sedum pulchellum - Calamintha arkansana - Sporobolus vaginiflorus Herbaceous Vegetation (3)

Coastal Plain Xeric Oak Woodlands and Hammocks

(Pinus palustris) - Quercus stellata - Quercus marilandica - Carya texana / Tragia urens Woodland
(1)
(Pinus palustris) / Quercus stellata - Quercus marilandica - Quercus falcata Woodland (1)

Xeric Shortleaf Pine / Hardwood Forests and Woodlands

Pinus echinata - Quercus stellata - (Quercus marilandica) - Carya texana / Vaccinium arboreum
Forest
Pinus echinata / Quercus incana / Selaginella arenicola ssp. riddellii Woodland

3. Dry-Mesic Mixed Pine-Hardwood Forests

Calcareous Pine/Hardwood Forests and Woodlands

Juniperus virginiana var. virginiana - Pinus taeda - Quercus sinuata var. sinuata Woodland
Pinus echinata - Pinus taeda - Quercus stellata / Juniperus virginiana var. virginiana / Cornus
drummondii Forest

Coastal Plain Carbonate Glades and Barrens

Sedum pulchellum - Calamintha arkansana - Sporobolus vaginiflorus Herbaceous Vegetation (3)

Dry-mesic Loblolly Pine / Hardwood Forests

Pinus taeda - (Pinus echinata) - Quercus alba - Carya alba / Acer leucoderme Forest
Pinus taeda - (Pinus echinata) - Quercus falcata - Carya texana / Vaccinium arboreum Forest
Pinus taeda - Quercus alba - Carya alba / Ilex opaca var. opaca / Callicarpa americana Forest

Dry-mesic Shortleaf Pine / Hardwood Forests and Woodlands

Pinus echinata - Pinus taeda - Quercus (alba, falcata, stellata) Forest

Patch Prairies

Crataegus spathulata - Cornus drummondii - Berchemia scandens Shrubland
Schizachyrium scoparium - Marshallia caespitosa - Nemastylis geminiflora Herbaceous
Vegetation
Schizachyrium scoparium - Panicum flexile - Carex cherokeensis Herbaceous Vegetation
Schizachyrium scoparium - Rudbeckia missouriensis - Grindelia lanceolata - (Liatris mucronata)
Herbaceous Vegetation
Schizachyrium scoparium - Rudbeckia missouriensis Herbaceous Vegetation
Schizachyrium scoparium - Sorghastrum nutans Jackson Prairie Herbaceous Vegetation

4. Mesic Slopes and Terraces

Oak Ponds

> Quercus phellos - Quercus similis / Crataegus marshallii - Crataegus spathulata / Chasmanthium laxum Forest

Southeastern Coastal Plain Upland Acidic Mixed Hardwood Forests and Hammocks

> Fagus grandifolia - Magnolia grandiflora - Quercus alba / Carpinus caroliniana - Ostrya virginiana - Ilex opaca var. opaca Forest
> Fagus grandifolia - Quercus alba / Acer (barbatum, leucoderme) / Solidago auriculata Forest
> Fagus grandifolia - Quercus alba / Ilex opaca var. opaca / Athyrium filix-femina ssp. asplenioides Forest

Southeastern Coastal Plain Upland Calcareous Mixed Hardwood Forests

> Fraxinus americana - Celtis laevigata - Nyssa sylvatica - Quercus shumardii - Ulmus americana Forest
> Quercus shumardii - Fraxinus americana - Carya myristiciformis / Viburnum dentatum / Carex cherokeensis Forest
> Quercus sinuata var. sinuata - Fraxinus americana - Quercus muehlenbergii / Rhus aromatica - Cornus drummondii Forest

5. Wet Longleaf Pine Woodlands

Bald Cypress – Black Gum Swamps and Savannas

> Nyssa biflora - Crataegus opaca - (Fraxinus caroliniana) / Rhynchospora mixta Woodland
> Nyssa biflora - Quercus laurifolia / Sphagnum spp. Depression Forest
> Nyssa biflora / Itea virginica - Cephalanthus occidentalis Depression Forest
> Nyssa biflora / Panicum hemitomon - Woodwardia virginica Woodland
> Taxodium distichum - Nyssa biflora - Magnolia virginiana - Acer rubrum Forest

Coastal Plain Depression Marshes

> Aristida palustris - Panicum virgatum - Eriocaulon compressum - Eleocharis equisetoides Herbaceous Vegetation
> Aristida palustris - Panicum virgatum - Eriocaulon decangulare var. decangulare - Rhynchospora elliottii Herbaceous Vegetation
> Brasenia schreberi Herbaceous Vegetation
> Nymphoides aquatica - Nymphaea odorata - Gratiola brevifolia Herbaceous Vegetation
> Panicum hemitomon - Gratiola brevifolia Herbaceous Vegetation

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Wet Longleaf Savanna and Flatwood Pinelands

> Pinus palustris / Eryngium integrifolium - Rhynchospora spp. - (Ctenium aromaticum) Woodland
> Pinus palustris / Rhynchospora elliottii - Lobelia flaccidifolia - Platanthera nivea - (Helenium drummondii) Woodland
> Pinus palustris / Sporobolus silveanus - Muhlenbergia capillaris - Chaetopappa asteroides Woodland

Southeastern Floodplain Forests -- Cypress-Gum Floodplain Forests

> Quercus laurifolia - Liquidambar styraciflua - Nyssa biflora - Acer rubrum Forest (6)

Southeastern Floodplain Forests -- Oak Bottomland Forests

> Quercus laurifolia - (Quercus nigra, Nyssa biflora) / Diospyros virginiana Forest

6. Minor Stream Bottoms

Calcareous Mixed Hardwood Small Stream Forests

> Celtis laevigata - Gleditsia triacanthos - Sapindus saponaria var. drummondii / Lithospermum tuberosum - Carex willldenowii Forest
> Quercus shumardii - Quercus pagoda - Fraxinus americana / Ostrya virginiana - Cornus florida / Trillium ludovicianum Forest

Coastal Plain Riverbed and Streambed Vegetation

> Pallavicinia lyellii - Sphagnum spp. Nonvascular Vegetation

Loblolly Pine – Hardwood Small Stream Forests

> Pinus taeda - Quercus phellos - Quercus nigra Forest

Mixed Hardwood Small Stream Forests

> Fagus grandifolia - Pinus taeda - (Liquidambar styraciflua, Magnolia grandiflora, Quercus alba) Forest
> Magnolia grandiflora - Fagus grandifolia - Quercus alba - Pinus taeda Forest

Southeastern Floodplain Forests -- Cypress-Gum Floodplain Forests

> Quercus laurifolia - Liquidambar styraciflua - Nyssa biflora - Acer rubrum Forest (5)

Southeastern Floodplain Forests -- Mixed Hardwood Bottomland Forests

Betula nigra - Liquidambar styraciflua - Platanus occidentalis - Quercus nigra Forest (7)
Betula nigra - Platanus occidentalis / Alnus serrulata / Boehmeria cylindrica Forest (7)

Southeastern Floodplain Forests -- Oak Bottomland Forests

Quercus michauxii - Liquidambar styraciflua - Quercus texana - Quercus lyrata Forest (7)
Quercus michauxii - Quercus nigra - Pinus taeda / Carpinus caroliniana Forest (7)
Quercus pagoda - Quercus similis - Carya glabra - Quercus sinuata var. sinuata / Crataegus triflora
    Forest

7. Seasonally Flooded River Floodplains

Coastal Plain Riverbed and Streambed Vegetation

Zizaniopsis miliacea Coastal Plain Slough Herbaceous Vegetation

Riverbank Shrublands

Salix nigra Temporarily Flooded Shrubland

Southeastern Floodplain Forests -- Cypress-Gum Floodplain Forests

Nyssa aquatica - Nyssa biflora Forest (8)
Nyssa aquatica Forest (8)
Taxodium distichum / Lemna minor Forest (8)

Southeastern Floodplain Forests -- Mixed Hardwood Bottomland Forests

Acer negundo Forest
Betula nigra - Liquidambar styraciflua - Platanus occidentalis - Quercus nigra Forest (6)
Betula nigra - Platanus occidentalis / Alnus serrulata / Boehmeria cylindrica Forest (6)
Fraxinus caroliniana Semipermanently Flooded Forest
Fraxinus pennsylvanica - Ulmus americana - Celtis laevigata / Ilex decidua Forest
Gleditsia aquatica - Carya aquatica Forest
Platanus occidentalis - Liquidambar styraciflua - Ulmus americana / Crataegus viridis Forest
Populus deltoides - Salix nigra / Mikania scandens Forest
Salix nigra Seasonally Flooded Forest
Salix nigra Successional Forest

Southeastern Floodplain Forests -- Oak Bottomland Forests

Pinus taeda Temporarily Flooded Forest
Quercus laurifolia - Quercus nigra - Quercus lyrata / Sabal minor Forest
Quercus laurifolia - Quercus nigra Mississippi River Alluvial Plain Forest

Southeastern Floodplain Forests -- Oak Bottomland Forests (cont'd)

Quercus lyrata - (Carya aquatica, Liquidambar styraciflua, Quercus texana) / Forestiera acuminata Forest (8)
Quercus michauxii - Liquidambar styraciflua - Quercus texana - Quercus lyrata Forest (6)
Quercus michauxii - Quercus nigra - Pinus taeda / Carpinus caroliniana Forest (6)
Quercus nigra - Liquidambar styraciflua / Sebastiania fruticosa - Toxicodendron radicans Forest
Quercus pagoda - Liquidambar styraciflua - Pinus taeda Forest
Quercus phellos - Liquidambar styraciflua / Ilex decidua - Carpinus caroliniana / Lysimachia radicans Forest
Quercus phellos - Quercus nigra / Sabal minor - Sebastiana fruticosa Forest
Quercus phellos / Vaccinium virgatum / Chasmanthium laxum - Carex flaccosperma Forest
Quercus similis - Quercus pagoda - Carya (glabra, myristiciformis, ovata) Temporarily Flooded Forest
Quercus texana - Celtis laevigata - Ulmus (americana, crassifolia) - (Gleditsia triacanthos) Forest
Quercus texana - Quercus lyrata Forest

Unforested Floodplain Canebrake

Arundinaria gigantea ssp. gigantea Shrubland

8. Semi-Permanently Flooded Swamps and Lakes

Depressional Buttonbush Ponds

Cephalanthus occidentalis / Carex spp. - Lemna spp. Southern Shrubland

Mayhaw Ponds

Crataegus opaca - Crataegus viridis Forest

Miscellaneous Aquatics

Ludwigia peploides Herbaceous Vegetation
Nelumbo lutea Herbaceous Vegetation
Nuphar lutea ssp. advena - Nymphaea odorata Herbaceous Vegetation
Typha latifolia Southern Herbaceous Vegetation

Southeastern Floodplain Forests -- Cypress-Gum Floodplain Forests

Nyssa aquatica - Nyssa biflora Forest (7)
Nyssa aquatica Forest (7)
Taxodium distichum - (Nyssa aquatica) / Forestiera acuminata Forest
Taxodium distichum - Nyssa aquatica - Acer rubrum var. drummondii / Itea virginica Forest
Taxodium distichum / Lemna minor Forest (7)

Southeastern Floodplain Forests -- Mixed Hardwood Bottomland Forests

Planera aquatica Forest
Salix nigra / Cephalanthus occidentalis Forest

Southeastern Floodplain Forests -- Oak Bottomland Forests

Quercus lyrata - (Carya aquatica, Liquidambar styraciflua, Quercus texana) / Forestiera acuminata
Forest (7)