# The Upper East Gulf Coastal Plain

## An Ecoregional Assessment

"**We never had a thought of exchanging our land for any others, as we think that we would not find a country that would suit us as well as this we now occupy, it being the land of our forefathers, if we should exchange our lands for any other, fearing the consequences may be similar to transplanting an old tree, which would wither and die away, and we are fearful we would come to the same."**

Levi Colbert (Itte-wamba Mingo), on behalf of the Chickasaw nation, October 24, 1826,
(these comments were submitted to the federal government during negotiations to move the Chickasaws out of the ecoregion into Oklahoma).

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**The Nature Conservancy** is a non-profit organization with the mission 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.


**NatureServe** is a non-profit organization dedicated to providing the scientific knowledge that forms the basis for effective conservation action. NatureServe represents a network of 75 member programs – local natural heritage programs and conservation data centers across the United States, Canada, Latin America, and the Caribbean.

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# Executive Summary

This document describes the process and results of an ecoregional assessment for the Upper East Gulf Coastal Plain. The goal of this assessment was to implement the first step in The Nature Conservancy's conservation approach by identifying areas of biodiversity significance in the ecoregion and thereby setting the stage for their conservation. This document provides a brief background on TNC's approach to conservation planning, and provides an ecological and human context for the Upper East Gulf Coastal Plain ecoregion.

The document also outlines the specific steps followed in developing this assessment. A suite of conservation targets representative of the ecoregion's biodiversity were selected that, when assembled together, represent a first iteration "portfolio" of places where conservation efforts are needed in the ecoregion. This document identifies these conservation targets and outlines numeric goals established for each. It documents the resulting portfolio map, for aquatic and terrestrial conservation efforts. In addition, it discusses efforts to prioritize TNC conservation actions within the portfolio. Finally, data gaps identified during the evaluation process are discussed.

## Document Organization

The chapters in this document reflect different components of this assessment. The following gives an overview of each chapter:

*Chapter 1, "Conservation Planning Background",* provides an overview of ecoregions, and TNC's conservation approach, as well as the project goals for this assessment.

*Chapter 2, Understanding the Ecoregion",* provides ecological and human context and background for the Upper East Gulf Coastal Plain Ecoregion.

*Chapter 3, "Stratifying the ecoregion",* describes the need for doing so, and summarizes the units used for terrestrial and aquatic stratification.

*Chapter 4, "Conservation Targets",* provides background on biological scales and patterns and discusses the specific targets selected for use in this assessment.

*Chapter 5, "Conservation Goals",* outlines the steps teams followed to establish numeric goals for each target, and how these goals were allocated across the ecoregion.

*Chapter 6, "Mapping The Conservation Portfolio",* describes the methods for representing areas of biodiversity significance and assembling them into a comprehensive conservation portfolio.

*Chapter 7, "Meeting Conservation Goals",* summarizes the portfolio sites, progress toward established conservation goals, and general data gaps.

*Chapter 8, "Taking Conservation Action",* describes two of the more pervasive threats to biodiversity in this ecoregion, and discusses the process used to select TNC's first priority sites for conservation action.

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CHAPTER 1:

# Conservation Planning Background

## What Are Ecoregions?

Ecoregions have been variously defined and mapped (see Box 1). They are commonly considered to be large areas distinguished from surrounding regions by different biotic and environmental factors and/or ecological processes. Factors that have been generally used to distinguish these large regions from one another include differences in climate, physical geography, soils, species or communities (see Wright et al. 1998, Bailey 1996, Groves 2003). Using similar criteria, The Nature Conservancy (TNC) has delineated ecoregions across the United States (see Figure 1). While other organizations and agencies have mapped ecoregions, and touted one of their primary benefits as being ecologically rather than geopolitically defined, TNC is the first to use ecoregions as a basis for comprehensive conservation planning at such a grand scale.

**Box 1: Selected Ecoregion Definitions**

**The Nature Conservancy** -- "relatively large units of land and water delineated by large-scale abiotic and biotic factors that broadly shape the structure and function of biological communities within them" (TNC 1997).

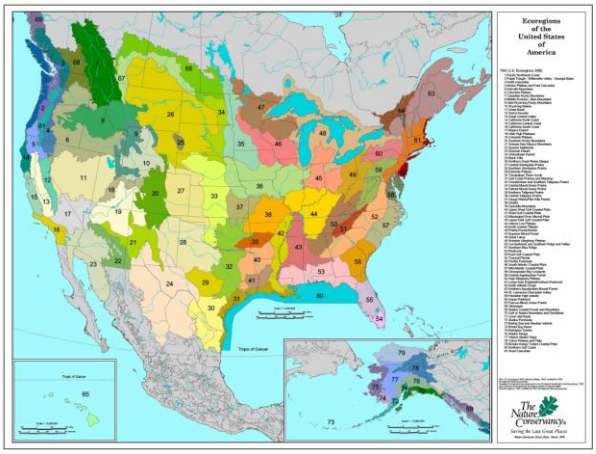
**Environmental Protection Agency** -- "geographic regions that generally exhibit similarities in the mosaic of environmental resources, ecosystems, and affects of humans" (Omernick 1995).

**United States Forest Service** -- "geographic zones that represent ecological groups or associations of similarly functioning ecosystems" (Bailey 1983).

## TNC Conservation Planning

Although TNC's traditional conservation practice involved acquiring, protecting, and managing discrete sites containing rare species or communities, recent advances in conservation science have led to an evolution of planning methods and approaches. The organizational goal of the Nature Conservancy, "the long-term survival of all viable native species and community types through the design and conservation of portfolios of sites within ecoregions" (TNC 2001), reflects a shift in emphasis towards conservation planning at a landscape scale (Noss 1987; TNC 1997).

**Figure 1: TNC Ecoregions of the United States**




Previous ecoregionally-based planning efforts, such as those of the World Wildlife Fund, focused on identifying broad priorities but lacked comprehensive assessments needed to identify the complete suite of areas necessary to conserve biological diversity (Smith et al. 2002). Identifying a suite of conservation areas with the potential to sustain the long-term viability of all native species and communities, and assembling them into a comprehensive portfolio is the key challenge of ecoregional planning. The common denominator of these conservation areas is their importance for biodiversity regardless of ownership or location. Although there have been some improvements and increased standardization of planning methodologies since the completion of first iteration TNC ecoregional plans, the basic product of the plans continues to grow in importance, and serves as a baseline for measuring progress toward mission success (Groves et al. 2000).

## TNC's Conservation Approach

To achieve its long-term goal of biodiversity conservation, The Nature Conservancy employs an integrated, four-part conservation approach (see Figure 2):

- Setting priorities through ecoregional planning;
- Developing strategies to conserve both single and multiple conservation areas;
- Taking direct conservation action; and
- Measuring conservation success.

The results of the first step in the conservation approach include a portfolio of areas that collectively represent a "blueprint" for biodiversity conservation. This blueprint provides a means to engage different organizations, state and federal agencies, academic institutions, and other partners. Increasingly, detailed information is also being collected to help conservation practitioners develop the most effective, highest leverage approaches to facilitate conservation.

**Figure 2: The Nature Conservancy's Conservation Approach**


## Upper East Gulf Coastal Plain Approach

The Upper East Gulf Coastal Plain (TNC ecoregion # 43) assessment effort began with a meeting held on March 16, 2000 in Southaven, MS. Participants discussed planning methodologies and assembled a working team of experts from across the region. The goal of this team was to rapidly and credibly evaluate areas of biodiversity significance in the ecoregion for possible inclusion in the final portfolio.

To provide a legitimate basis for protecting the region's biota, it was necessary to specifically identify and map these areas using a repeatable framework that considered the full spectrum of diversity in the region, both terrestrial and aquatic, common as well as rare species, and ecological systems. Team members focused a great deal of energy toward refining and synthesizing biological and ecological data, following general principles and specific methods outlined in The Nature Conservancy's *Designing a Geography of Hope* (Groves et al. 2000). The key components of this general process were as follows:

- Stratify the ecoregion
- Select conservation targets
- Identify target locations
- Set numeric goals
- Assess viability
- Delineate conservation areas
- Identify Data Gaps (throughout)

**Box 2: Key Terminology**

*Biodiversity* or Biological diversity refers to the full array of living organisms at all levels of biological organization, and includes the range of natural communities, habitats, ecosystems, and natural processes.

*Portfolio* map that identifies a suite of conservation areas that includes enough viable locations of targets to meet numeric goals established for these targets

*Viable* or *Viability* refers to the ability of a conservation target to persist over many generations or for a specified time period; the concept may be applied to an individual population, or occurrence, or the target as a whole.

*Occurrence* is the specific location of an individual conservation target; often called an "Element Occurrence Record" (EOR).

*Conservation Targets* are the focal elements of conservation planning; assumed to represent biodiversity

Separate terrestrial and aquatic teams, engaging in parallel planning efforts, addressed each of these components. The timing and specific approaches of these teams was somewhat different. The bulk of the aquatic assessment was completed under the auspices of a previous project to identify freshwater conservation priority areas in four freshwater ecoregions in the southeastern United States

(Smith et al. 2002). The terrestrial components of this assessment were addressed entirely during this process.

For consistency, these separate analyses were synthesized and integrated during this project as outlined into this report. General steps, methods, and assumptions inherent in the separate analyses are outlined below.

## Project Goals and Objectives

The goal of this assessment was to implement the first step in TNC's conservation approach. Specifically, our goal was to identify areas of biodiversity significance in the Upper East Gulf Coastal Plain to set the stage for their conservation.

To provide consistency, objectivity, and repeatability, there were 5 primary objectives:

1. Select conservation targets believed to represent "…all viable native species and community types ..".

2. Conduct a preliminary viability assessment of conservation target locations.

3. Assemble a portfolio map of sites supporting the best known examples of these conservation targets.

4. Evaluate threat status at each site

5. Prioritize the portfolio sites as basis for immediate TNC conservation action

This assessment was based on the best data available to our team members as of 2003. As more information becomes available or planning methods advance this assessment will need to be updated.

# CHAPTER 2:

# Understanding the Ecoregion

The Upper East Gulf Coastal Plain ecoregion encompasses 33,861,051 acres or 52,908 square miles. The region ranges from southern Illinois, western Kentucky and Tennessee, throughout much of Mississippi, east to Alabama and a limited area of Georgia, and southeastern Louisiana (see Figure 3).

**Figure 3: The Upper East Gulf Coastal Plain Ecoregion**


The region is bounded on the west by the Mississippi River Alluvial Plain and on the north by the Ohio River, and Tennessee River (now Kentucky Lake). The eastern margin occurs at the contact point with older rocks of the Piedmont and Southern Ridge and Valley. The southern margin of the region is perhaps the least obvious on the ground, but represents the boundary between the middle and outer coastal plain of Keys et al. (1995). In contrast to the outer coastal plain, this region has more rugged terrain and hilly topography (McWilliams 1992, Keys et al. 1995). In addition, the southern boundary approximates the range limits of major potential natural vegetation types of Küchler (1964), oak-hickory-pine to the north, and southern mixed hardwood forests to the south.

## Ecological Context

### *Geology*

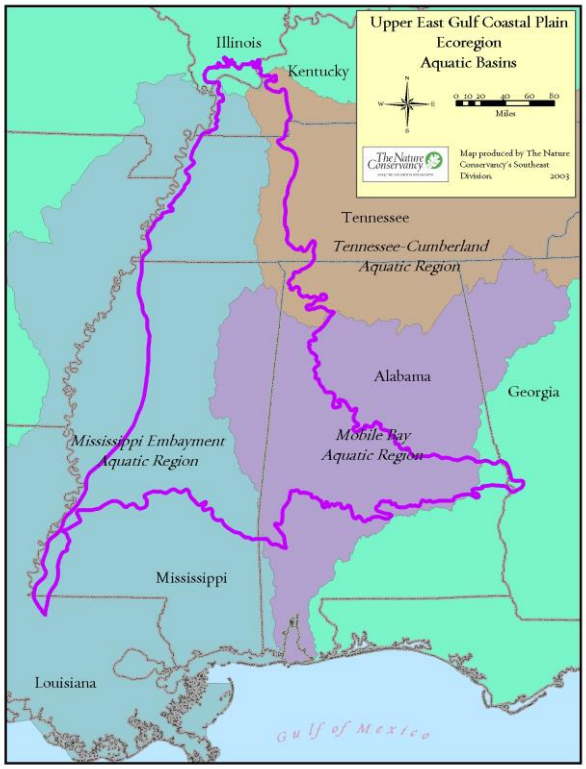
Coastal and fluvial processes have considerably reworked the land surface of the region. Approximately 70 million years ago, the area would have been around 4000 ft elevation. However, the earth's crust sagged forming a trough called the Mississippi Embayment. During the Tertiary and Cretaceous periods the Embayment trough was repeatedly invaded by shallow seas leaving behind 100's of meters of sediments that occupy broad bands approximately paralleling the Gulf of Mexico. The result is a region of belted character, in the form of inner lowlands and cuestas and other low-ridge landforms (Bowman 1911, Fenneman 1938).

The upper Mississippi Embayment is underlain by an ancient, buried rift zone (Braile et al. 1997). This buried rift has acted as a "zone of weakness" in the continental crust and serves to localize earthquake activity in the central United States (Johnston 1982). There have been many large magnitude earthquakes and abundant seismic activity in the region. The New Madrid earthquake (1811-1812) was among the strongest earthquakes in recorded United States history, resulting in 9 feet of land subsidence in the region around Reelfoot Lake (Johnston and Schweig 1996). Further south, the geologic structure of the region has been affected by the presence of underground salt in the form of salt plugs, domes, and basins. The Mississippi Interior Salt Basin, which extends into this region, has extensive hydrocarbon reserves that are still largely undeveloped (Mancini 2000).

## *Soils*

Throughout the region, soils are generally acidic with appreciable amounts of clay present. Ultisols, deeply leached and low in nutrients, are the dominant soil order (Martin and Boyce 1993). Alfisols, less weathered and greater in fertility, are present in more limited areas, especially associated with loess deposits (a unique type of windblown silt). Large quantities of loess were probably carried by wind from exposed sediments of the Mississippi River floodplain and deposited on adjacent uplands during the late Pleistocene and early Holocene. Loess eventually covered much of the underlying topography under a thick blanket thickest along the western edge and thinning abruptly eastward (Krinitzsky and Turnbull 1967). Vertisols (soils with shrink-swell properties due, in part, to especially high clay content) are a soil order not often found in the southeastern Coastal Plain (Martin and Boyce 1993). However, they are present in limited areas of the Black Belt where they were derived from marl and chalk residues.

**Figure 4: Aquatic Ecoregions overlapping the Upper East Gulf Coastal Plain**




## *Aquatic Overview*

The Upper East Gulf Coastal Plain overlaps several distinctive aquatic ecoregions as defined by World Wildlife Fund (Abell et al. 2000) and adopted by TNC (Smith et al. 2002) (See Figure 4). The most significant aquatic region, in terms of area occupied, is the Mississippi Embayment, although substantial area also overlaps the Mobile Bay, and to a lesser extent both the Tennessee-Cumberland and Apalachicola aquatic ecoregions.

The vast majority of this region has been considered a “Priority Class 1” for freshwater species conservation due to the richness of the fauna present (Abell et al. 2000). For example, rivers in this region provide habitat for over 206 native fish species (Smith et al. 2002); the total species richness of this region is among the top 3 in the southeastern United States (Warren et al. 1997). This species richness may be due, in part, to the fact that the Mississippi Embayment region was an important refugium for fish diversity during Pleistocene glaciation (Abell et al. 2000).

The region also supports relatively large numbers of crayfish and mussel species (Smith et al. 2002) despite heavily disturbed conditions in large parts of the region that have likely reduced faunal diversity (Parmalee and Bogan 1998). The bulk of the regions’ rivers, especially the Mississippi tributaries, have been channelized and/or subjected to heavy sedimentation (Parmalee and Bogan 1998).

The region supports a diverse assemblage of rivers and creeks that vary in size, origin, and geology (see Appendix 5).

**Figure 5: Lower Cahaba River (Barton’s River Beach TNC Preserve)**

Particularly noteworthy rivers of this region include the Hatchie, the longest free flowing tributary in the lower Mississippi River valley (Wyss personal communication) and tributaries of the Pascagoula, America's longest unencumbered river.

## *Vegetation Overview*

The potential natural vegetation of the Upper East Gulf may be characterized as broad bands of different composition that roughly parallel the coast. From south to north these include southern mixed forests, oak-hickory-pine forests, and oak-hickory forests, interrupted by occasional southern floodplain forests and black belt prairies (Küchler 1964).

Southern mixed forests and oak-hickory-pine forests, the two predominant types in terms of area occupied, are recognized by the presence of longleaf pine (*Pinus palustris*) and shortleaf pine (*Pinus echinata*) respectively. Although longleaf forests and woodlands (Figure 6) were the dominant vegetation type of the southeastern United States coastal plain, they occur in only limited areas of this region, extending landward into the Upper East Gulf Coastal Plain by only about 50 miles.

**Figure 6: Longleaf Pine Woodland, Russell County, Alabama**

Northward, longleaf pine is replaced by shortleaf pine, where it attains far more ecological and commercial importance than along the Atlantic Coastal Plain (White and Lloyd 1998).

Bluffs along the eastern edge of the Mississippi River, such as those around Vicksburg, are covered with up to 200 feet of loess. A number of factors account for the development and maintenance of precipitous cliffs and ravines where loess is deepest (Krinitzsky and Turnbull 1967, Delcourt and Delcourt 1975). The vegetation of these loess bluffs is often richer than surrounding areas due to the fertile topsoil and abundant moisture (Miller and Neiswender 1987). In many cases, the bluffs provide habitat for plant species that are rare or absent from other parts of the Coastal Plain (Chester et al. 1997). In addition, the bluffs constituted a major refugium for mesophytic plant species, now generally more common to the north, during the last glaciation (Delcourt and Delcourt 1975).

Blackland Prairies occur in two discrete areas of the ecoregion: the Jackson Prairie and the Black Belt. These areas are among the distinct topographic regions in the state of Mississippi (Lowe 1921). At their closest point, 65 miles separate the formations supporting the two prairie types. The Black Belt is the larger of the two regions, stretching approximately 300 miles (480 km) across Mississippi and into adjacent parts of central Alabama. This region, generally 25-30 miles (40-50 km) wide, derives its name from the nearly black, rich topsoil that developed over Selma Chalk. Both areas have typically calcareous soils and were formerly occupied by natural grasslands and associated vegetation (Figure 7).

**Figure 7: Black Belt Prairie at Old Bluffport, Sumter County, Alabama**

As both areas had agriculturally productive soils, they were among the South's most important agricultural areas before the American Civil War (Smith 1911). A long history of cultivation and disturbance has left few large, intact prairies in either region (Harper 1965, Wieland 1995). For example, of the approximately 100,000 acres of Blackland Prairies mapped during the general land surveys of the early and mid 1800's in Mississippi, probably less than 500 acres of intact prairie vegetation exists today (Wieland pers. comm.). There are only 65 individual Jackson Prairie remnants documented, of which 80% are less than 5 hectares in size and less than half are in good condition (Wieland 1995).

A number of early reports mentioned extensive prairies in other parts of the region, especially western Kentucky, in an area called the Barrens (Davis 1923, Bryant and Martin 1988). Annual fires may have been important in maintaining these grasslands [see references in Bryant and Martin

(1988)] that were likely interspersed among scattered groves of oaks.

Local differences in parent material and topography, coupled with varied soil characteristics, create strong environmental gradients that translate to more localized vegetation diversity. Consequently, a number of more localized ecological systems have also been recognized in the region (NatureServe 2003).

## Human Context

### *Cultural History*

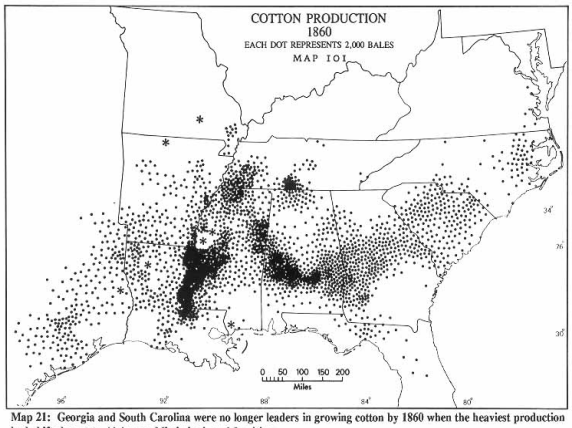
Human habitation of the region began at least 12,000 years ago (Christensen 2000). Archaic (hunting and gathering) cultures intensively managed the landscape with fire (Pyne 1982), and may have been responsible for creating the open structure associated with many of the upland terrestrial ecological systems in the region.

Basic subsistence economies evolved from seasonal exploitation of wild plants and animals to intensive collecting of plants with starchy seeds and tubers, such as sunflower, may grass, sump weed, giant ragweed, and knotweed. This early form of horticulture eventually led to agricultural-based economies associated with the Mississippian cultures centered in and around the region. These cultures developed a sophisticated social order and constructed large ceremonial mounds and residential complexes.

A number of different peoples occupied the region; possibly the most dominant were the Chickasaws. By the mid-1500s, they were an organized nation centered in northeastern Mississippi that also controlled adjacent western Tennessee and Kentucky. They were the most formidable warriors in the American southeast with an impressive history that included battles against other tribes, helping to drive the French out of North America, and frustrating the ambitions of DeSoto and the Spanish (Soltzman 1993) However, their numbers were likely heavily reduced after contact with European diseases and nearly constant warfare. Most remaining individuals were removed from the region during the early nineteenth century. A key event in this history included Andrew Jackson's 1818 purchase of western Kentucky from the Chickasaws. After the 1830 Congressional enactment of Jackson's Indian Removal Act and passage of Mississippi state statutes abolishing Chickasaw tribal government and tribal laws, the tribe eventually ceded away rights to their remaining lands in the east and relocated to Oklahoma (Soltzman 1993). Essentially the only remaining evidence of the Chickasaw, and other original tribes that once inhabited the region, are the rivers and natural landmarks that still bear original Indian names.

During this period, many of the fertile lands formerly controlled by Native Americans were opened to vastly expanded migration of American settlers. With few factors holding back growth, a cotton boom resulted in the 1830's and by the mid-19th century, cotton was king in large parts of the region. The Black Belt and the rich, loess soils adjacent to the Mississippi River became the most important centers of cotton production in the country (see Figure 8).

**Figure 8: Cotton Production in 1860.**




Map 21: Georgia and South Carolina were no longer leaders in growing cotton by 1860 when the heaviest production had shifted west to Alabama, Mississippi, and Louisiana.

Soil depletion, erosion, the boll weevil, and economic conditions eventually combined to nearly eliminate cotton from the region but not before surface erosion rates and high-frequency flood discharges had increased dramatically over pre-settlement conditions (Knox 2001).

Large plantations dominated the economy and political life of many communities in the region. In many areas, African Americans constituted over three-quarters of the population. Historic land-use and resulting patterns of settlement and slavery are part of the region's lasting legacy, including the many major and decisive battles of the Civil War fought here, including the siege of Vicksburg, Mississippi in 1863.

### *Key stakeholders*.

The vast majority of land in the Upper East Gulf region is privately owned and less than 6 % is in public ownership (Conservation Biology Institute 1995). Over 95% of the forested lands in Alabama are privately held (McWilliams 1992), with similar

patterns of ownership in other parts of the region (Rosson 2001). A relatively small percentage of these lands are owned and managed by the Forest Products Industry (approximately 20% of the forested area in Alabama and Mississippi) with the result that non-industrial private owners hold over 70 percent of timberlands in the region.

Although public lands comprise only a minor fraction of total land in the region, these areas are often disproportionately valuable for conservation due to previous and ongoing management efforts, legislative requirements, and their availability for inventory. Key public lands in the region include over 1.5 million acres within National Forest proclamation boundaries. These areas, managed by the United States Forest Service, include Holly Springs, Tombigbee, Tuskegee, and portions of the Bienville, Homochitto, Bankhead, Land Between the Lakes, Shawnee, and Talladega units. The United States Fish and Wildlife Service maintains the second largest public land base in the region with several small refuges totaling approximately 108,000 acres, possibly the most notable of which is the Noxubee National Wildlife Refuge in Mississippi. In addition, there are approximately 61,000 acres are under Department of Defense jurisdiction, mostly at Ft. Benning, Georgia. The remaining areas of public land are mostly small, scattered individual tracts such as State Parks.

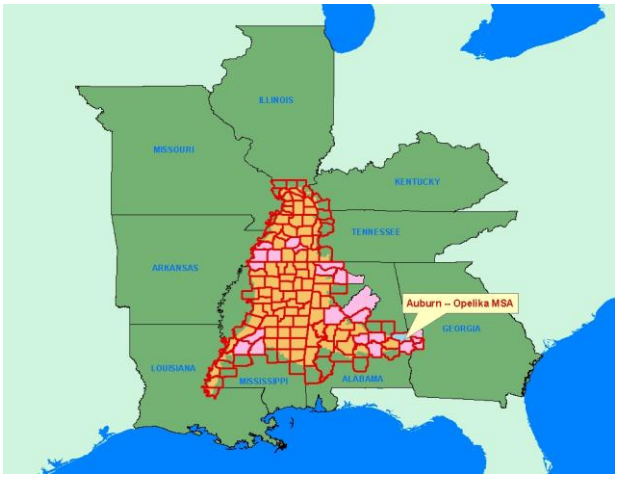
## *Human Population and Development*

Mankoff (2003) assembled population data for the 880 counties intersecting the ecoregion (see Figure 9). There are a number of different parameters that can be used to assess population patterns and trends for the region. Not surprisingly, these specific data for all available parameters reflect an overall pattern of population growth.

For example, between 1990 and 1999, the number of metropolitan areas (as defined by US Census Bureau "Metropolitan Statistical Areas") present in the region grew from 10 to 11 (see pink shaded areas on Figure 9).

Outside the metropolitan areas, Mankoff's (2003) data set shows that most of the counties (n = 738) are increasing in population and projected to continue doing so. However, not all counties are growing, and not all growing counties are doing so at the same rate. In fact, 384 of the counties are growing fairly slowly with projected population increases of less than 5% (through 2007) while 108 counties are projected to increase by greater than 10%. Interestingly, the population of 142 counties has recently declined (2000 – 2002) and further declines are projected at least in the short term. The population of a few of these counties is projected to decline by 5% or greater by 2007.

**Figure 9: Counties used in the Mankoff Population dataset.**




## *Land Use Patterns*

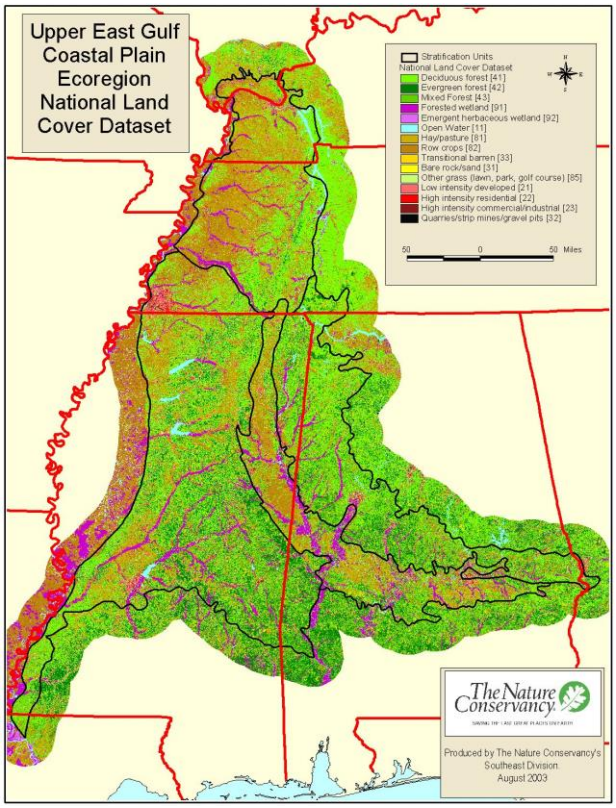
According to fthe latest comprehensive land cover data available for the region (USGS 1992), forests occupy just over 61% of the total area in the ecoregion (see Table 1). Deciduous forests comprise most of this forested area, followed by mixed forests, and evergreen (approximately 25, 16, and 13% of the region respectively). Overall, approximately 33% of the region is occupied by a combination of open fields and agriculture; and less than 2% is occupied by combined residential and commercial development.

**Table 1: Major Land Cover Classes in the Upper East Gulf Coastal Plain, summarized from USGS 1992.**

| Land Cover Class | USGS Class | % of ecoregion |
|---|---|---|
| **Miscellaneous** | 11, 31,32,33 | 3.63% |
| **Residential & Commercial** | 21,22,23 | 1.54% |
| **Upland Forest** | 41,42,43 | 54.11% |
| **Grasslands & Pastures** | 71, 81 | 17.89% |
| **Agriculture** | 82,83 | 15.02% |
| **Forested Wetlands** | 91 | 7.37% |
| **Herbaceous Wetlands** | 92 | 0.27% |
| | | |
| **Total** | | 99.83% |

General land-use patterns differ considerably between parts of the ecoregion (Figure 10). In many instances, these differences are related to inherent ecological differences that are reflected within stratification unit delineations (See Chapter 3). For example, both the Black Belt and the “North Unit” (north of the Mississippi/Tennessee state line) have considerably more relative acreages in agriculture and “grasslands” (over 20% in both categories), and consequently much less area in forest, than do the other parts of the region (Table 2). In contrast, the areas of the region east and west of the Black Belt have much lower relative acreage of agriculture and grasslands and correspondingly greater amounts of forested area (see Table 2).

**Figure 10: Land Cover Map for the Upper East Gulf Coastal Plain**




The broad forest cover composition also differs between parts of the region. While the percentage of total area occupied by deciduous forests is relatively evenly distributed across the region, mixed and evergreen forests (each generally including a component of pine species, are much less common overall in both the Black Belt and the North Unit. The reasons for this pattern are most obvious in the case of the North Unit, most of which lies outside the natural range of the southern pine species (loblolly, shortleaf, longleaf) commonly encountered this ecoregion. The lack of evergreen forests in the Black Belt is more complex, but is likely due to the poor suitability of the predominantly calcareous soils for pine growth.

Although specific data are not available for the Black Belt, it is clear that the disparity in broad land cover patterns between the North Unit and the rest of the region is growing. For example, overall timberland area appears to be increasing across Mississippi and Alabama (McWilliams 1992, Rosson 2001) while western Tennessee continues to lose forested area to agriculture (May 1991).

The composition of the ecoregion’s forests is also changing. Vast acreages of the region are being converted to pine plantations, in many cases at the expense of either existing deciduous or mixed forests (See Chapter 5), constituting one of the most consequential forestry developments in the region in the last 35 years (McWilliams 1992).

The agricultural crops grown in the region include corn, soybeans, sorghum, and wheat. As expected, current production of these crops is concentrated in the North Unit and the Black Belt and some crops, such as Sorghum, are essentially confined to these areas (NASA 2001).

**Table 2: Major Land Cover Classes in the Upper East Gulf Coastal Plain, summarized by Stratification Unit**

| | North Unit | West Unit | East Unit | Black Belt |
|---|---|---|---|---|
| **Miscellaneous** | 2.8% | 3.5% | 4.7% | 3.6% |
| **Residential & Commercial** | 2.1% | 1.1% | 1.5% | 1.5% |
| **Deciduous Forest** | 25.7% | 25.5% | 31.1% | 16.8% |
| **Evergreen Forest** | 3.0% | 17.2% | 16.7% | 8.4% |
| **Mixed Forest** | 5.2% | 16.3% | 25.9% | 13.2% |
| **All Forests** | 33.8% | 59.0% | 73.6% | 38.5% |
| **Grasslands & Pastures** | 27.7% | 16.7% | 7.7% | 21.6% |
| **Agriculture** | 27.0% | 11.9% | 6.7% | 20.4% |
| **Forested wetlands** | 6.6% | 6.5% | 5.7% | 13.5% |
| **Herbaceous Wetlands** | 0.3% | 0.1% | 0.2% | 0.6% |

# CHAPTER 3:

# Stratifying the Ecoregion

## Stratification Units

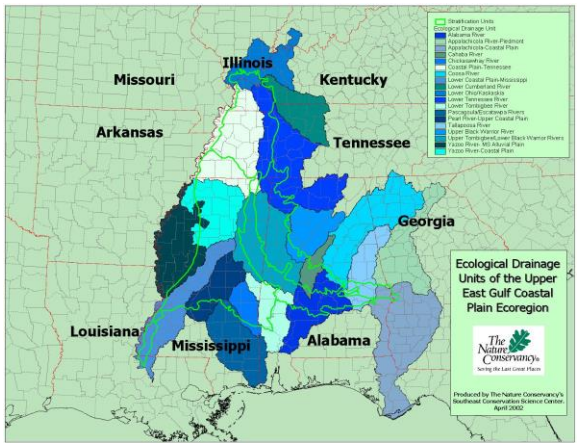
The underlying concept behind delineating stratification units is to divide the landscape into a manageable set of smaller units that are more homogenous ecologically than the region as a whole. Delineating stratification units requires a degree of subjective decision making to strike the balance between optimal ecological units and a reasonable number of sub-planning units. Possibly the most critical component is a familiarity with the biophysical features of the regional landscape. The resulting units provide a means to apportion conservation goals more finely across the ecoregion, and to evaluate conservation targets within sub-regionally important ecological and evolutionary settings. Further, they provide a means to recognize the importance of elements at the edge of their natural range

### *Aquatic stratification*

Ecological Drainage Units (EDUs) are groups of watersheds (8-digit U.S. Geological Survey Hydrologic Units) with similar patterns of zoogeography, physiography, drainage density, hydrologic characteristics and connectivity (Groves et al. 2000, Smith et al. 2002). EDU's have been adopted as the standard for stratifying aquatic goals (Groves et al. 2000) and have been consistently delineated across the US.

Nineteen Ecological Drainage Units overlap with the boundaries of the Upper East Gulf Coastal Plain Ecoregion (see Figure 11). These are the fundamental sub-regional units that encapsulate the variation in the aquatic environment, as well as zoogeographic, genetic, and evolutionary processes affecting aquatic species and communities (Smith et al. 2002).

**Figure 11: Ecological Drainage Units of the Upper East Gulf Coastal Plain**

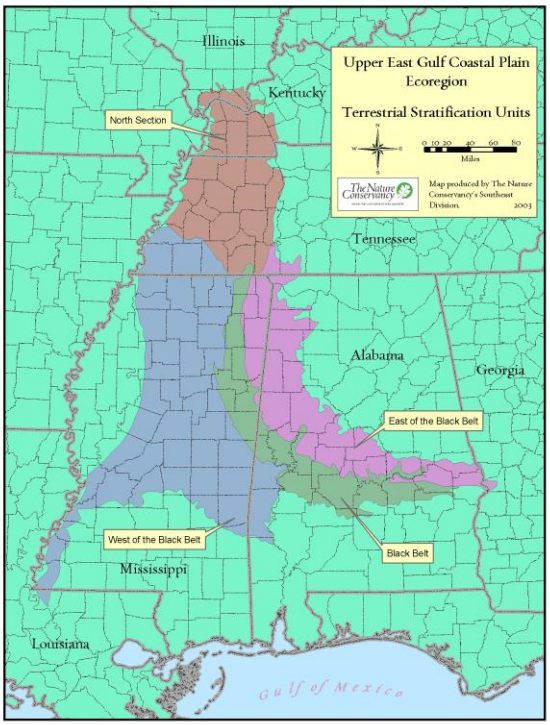



### *Terrestrial stratification*

It has been proposed that ecoregional sections or subsections should be used as terrestrial stratification units (Groves et al. 2000). However, such stratification units have not been specifically delineated or adopted by TNC, although a related concept has been proposed (Campbell personal communication). Upper East Gulf team members reviewed existing delineations by the EPA (Omernick 1995) and USFS (Keys et al. 1995) for use in this effort. While both sources were informative, neither source was deemed appropriate for our purposes in its entirety. In general, both sources divided the region more finely than our team thought was significant for apportioning conservation goals across the ecoregion.

Four terrestrial stratification units were eventually selected. (see Figure 12) These units include a "Northern Unit", the "Black Belt", and two others, representing the remaining area of the region east and west of the Black Belt.

**Figure 12: Terrestrial Stratification Units of the Upper East Gulf Coastal Plain**




(1) Northern Unit: This stratification area separates the "Upper Gulf Section" from the "Middle Coastal Plain Section" of Keys et al. (1995). The southern boundary of the unit also approximates the natural range of shortleaf pine, several terrestrial ecological systems, and marks a dramatic change in land cover from forested to predominately agricultural (USGS 1992).

(2) Black Belt Unit: This stratification area differs dramatically from the surrounding landscape in geological, ecological, and cultural history. The area is recognized in almost all previous natural regions and ecoregional mapping efforts including those of Keys et al. (1995) and Omernick (1995).

(3) Eastern Unit: This stratification area encompasses the area south of the northern stratification unit and east of the Black Belt. This unit generally includes the "Fall Line Hills" of Omernick (1995) and the "Upper Loam Hills" and "Upper Clay Hills" of Keys et al. (1995).

(4) Western Unit: This stratification area encompasses the area south of the northern stratification unit and west of the Black Belt. It includes most of the "Southern Hilly Coastal Plain" of Omernick (1995) and the "North Loess Hills" and "Deep Loess Hills" Sections of Keys et al. (1995).

# CHAPTER 4:

# Conservation Targets

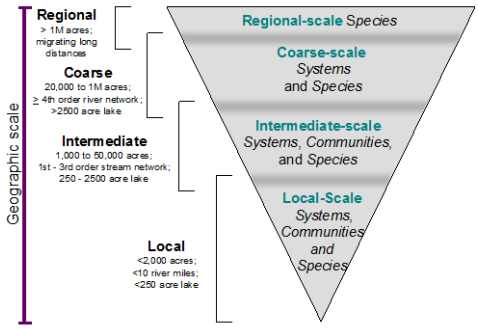
A key aspect of ecoregional planning is the selection of conservation targets that focus the planning effort and form the basis for identifying areas of biodiversity importance. Although the goal is to conserve all elements of biodiversity, it is clearly not possible to specifically evaluate every possible element. Therefore, a subset of these elements must be selected that are believed to be representative of the full biodiversity present in the ecoregion. To maximize the likelihood of success, it is useful to consider targets at a variety of spatial scales.

## Biological Scales and Patterns

Elements of biodiversity occur at many different scales. These scales can be broadly conceived as local, intermediate, coarse, and regional (see Figure 13). Conservation of targets occurring at one spatial scale may sometimes "capture" targets occurring at other spatial scales. Using specific targets as surrogates for other elements has been considered a "coarse-filter" conservation approach. The coarse filter was originally envisioned as an efficient means to protect 85-90% of all species (TNC 1982), while the complementary fine filter approach focused on conserving individual rare or specialized species that slip through the coarse filter (Noss 1987, Hunter 1991).

While the practicality of a coarse filter approach has been considered irrefutable (Anderson et al. 1999), the approach must be applied cautiously considering its limitations (Noss 1987, Hunter et al. (1988). It has been suggested that the coarse filter approach be expanded to include landscape level ecological phenomena such as disturbance regimes (Noss 1987) and a diverse representation of physical environments (Hunter et al. 1988).

**Figure 13: Conservation Targets at Multiple Spatial Scales (after Poiani et al. 2000)**




## Terrestrial Targets

Botany, ecology, zoology, and wide-ranging species technical teams were established. These teams selected a suite of over 100 terrestrial conservation targets including all terrestrial ecological systems as well as selected imperiled, declining, or endemic species that may not be well represented by the coarser-level systems. The resulting assemblage of conservation targets occur across multiple biological scales; most of the globally rare species are local, ecological systems occur at multiple scales, and wide-ranging species are of regional scale.

### *Terrestrial Ecological Systems*

Terrestrial ecological systems are groups of plant community types (associations) that tend to co-occur within landscapes with similar ecological processes, substrates, and/or environmental gradients (Comer et al. 2003). For reasons outlined in "Designing a Geography of Hope" (Groves et al. 2000), our team selected

ecological systems as targets rather than component plant communities. However, ecological systems had not been comprehensively defined for the region prior to our planning effort. Instead the team started using “ecological groups”. The utility of these groups was somewhat limited as they were not part of a national standard and were not specifically designed for use as conservation targets. However, terrestrial ecological system units were eventually defined for the region as part of an effort to systematically classify and describe such units across the coterminous United States and southern Alaska, and adjacent portions of Mexico and Canada (Comer et al. 2003). We believe the resulting systems provide a set of practical conservation targets that fully represent the ecological diversity present in the region.

The team targeted each of the 30 terrestrial ecological systems currently known to occur in the region (NatureServe 2003). 15 of these systems are considered endemic to (found nowhere else) the Upper East Gulf Coastal Plain, with the remainder having somewhat broader distributions. The described systems range in size and pattern of occurrence across the landscape, as well as in terms of vegetation composition and ecological processes. For a complete listing of the terrestrial ecological systems targeted in this ecoregion see Appendix 1. For more background on ecological systems go to: http://natureserve.org/library/usEcologicalsystems.pdf).

## *Terrestrial Species*

We assumed that most globally rare species were not likely to be well-represented by systems-level targets. A case in point is Whorled Sunflower (*Helianthus verticillatus*) (Figure 14) a globally rare plant found only in a small area of western Tennessee (Matthews et al. 2002). The original or natural habitat requirements for this species in this region remain poorly understood. In the Upper East Gulf, the sunflower is only known from areas that, due to previous disturbance, would not be identified as quality occurrences of terrestrial ecological systems. Thus, a systems-level approach to capturing this species would be unsuccessful. Long-term protection and recovery of species like Whorled Sunflower, especially those that are so narrowly distributed, requires an explicit consideration of these locations.

**Figure 14: Whorled Sunflower (*Helianthus verticillatus*)**

Consequently, teams selected most globally rare species as targets. Unfortunately, there is no comprehensive list of globally rare species known to occur in this (or any other) ecoregion. Thus, teams developed preliminary species target lists by reviewing all species reported in the ecoregion via Element Occurrence Records. Generally, only species with Natural Heritage Program ranks of G1 and G2 (see Box 3) were retained as targets. Additional species ranked G3 and occasionally G4 were added on a case-by-case basis upon expert nomination. Species not tracked by all state Natural Heritage Programs in the region were generally excluded from target status; these species constitute data gaps.

Taken together, 70 plants, 8 amphibians, 8 reptiles, 5 bats, 3 other mammals, 6 birds, and 8 insects were selected as targets. For a full listing of terrestrial zoological species targets see Appendix 2. For a complete listing of plant species targets see Appendix 3.

## *Wide-ranging Species*

An additional evaluation of coarse or regional scale species targets (see Figure 13) was also conducted. A “wide-ranging” technical team was established that convened expert workshops. During these workshops, team members discussed a variety of species and methods for including them in the portfolio. The team

incorporated additional bird targets with high conservation concern scores based on a previous evaluation by Partners in Flight (American Bird Conservancy 2003). Lists of priority bird populations and habitats were reviewed for their applicability to this region (as the planning boundaries used by Partners in Flight and TNC are different). Several individual species were added as targets along with a number of species guilds affiliated with specific habitats (See Appendix 4).

In addition, the "wide-ranging" technical team also selected the Louisiana Black Bear, one of sixteen recognized subspecies of the American black bear, as a target. Now restricted primarily to the Tensas and Atchafalaya River Basins in Louisiana, these bears also occur not uncommonly in adjacent Mississippi. (Davidson and Pashley 1992). Because they range widely across a variety of habitats including fields and disturbed areas, adequately addressing this target required some special considerations.

## Aquatic Targets

### *Aquatic Ecological Systems*

Aquatic ecological systems are water bodies with similar patterns of geomorphology and ecological processes (e.g., hydrologic and nutrient regimes, access to floodplains) or environmental gradients (e.g., temperature, chemical and habitat volume), which form distinguishable units on hydrography maps.

Aquatic systems were identified using an approach developed by the Freshwater Initiative of The Nature Conservancy (Higgins et al. 1998). This methodology involves defining the environmental patterns of freshwater ecosystems using a physical classification mapped in a Geographic Information System (GIS).

The team targeted each of the thirty-nine aquatic ecological systems known to occur in the ecoregion based on the analysis of Smith et al. (2002). The systems range in size and pattern of occurrence across the region, in close correlation to the Ecological Drainage Units. For a complete listing of the aquatic ecological systems targeted in this ecoregion see Appendix 3.

### *Aquatic Species*

The freshwater species targeted in this assessment were largely based on those of Smith et al. (2002). For the most part these targets were derived from lists of elements tracked by Natural Heritage Programs, but published lists of imperiled aquatic species (Williams et al. 1989, Williams et al. 1993, Taylor et al. 1996) were also reviewed. Regional experts reviewed the combined lists and added other targets as deemed appropriate, such as newly described taxa or declining species. Other targets included species in decline, widely disjunct from other portions of their ranges, or endemic to the ecoregion. More common species or species with little information (e.g., the majority of invertebrates) were not selected as targets with the assumption that they could be conserved via sites for other species or ecological systems.

Twenty-seven fish, 16 crayfish, and 44 freshwater mussels, were selected as targets. For a full listing of aquatic species targets, see Appendix 4.

**Box 3**: **Natural Heritage Program Data**

This plan relied heavily on data from Natural Heritage Programs (NHP's). Individual NHP's in each state in this region, track the status of conservation elements within their jurisdictional boundaries, as well as locality data for many of these elements (such as individual species and plant communities). Individual populations or locations of these elements are called Element Occurrence Records (EOR's).

Conservation elements are ranked in the following categories:

G1 = globally imperiled; 5 or fewer populations globally
G2 = globally threatened; 5-10 populations globally
G3 = see NatureServe.org
G4 = see NatureServe.org
G5 = stable species, community, or system

EOR's are evaluated using size, condition, and landscape context, and given and overall viability rank using the following categories:

A = excellent predicted viability
B = good predicted viability
C = fair predicted viability
D = poor predicted viability (not viable)
E = extant but viability undetermined

# CHAPTER 5:

# Conservation Goals

Setting goals is necessary to provide an estimate of the level of conservation effort needed to sustain targets at viable numbers (Groves et al. 2000). While numeric goals provide a benchmark to evaluate the success of a given portfolio at representing the targets, setting meaningful goals is both challenging and inexact. Even the most knowledgeable conservation scientists often lack information on historic population sizes, and accurate distributions; scientific consensus on what constitutes long-term viability remains elusive. Goals in this assessment have two numeric components: an overall goal across the ecoregion, and a distributional goal subdivided into the appropriate stratification units.

## Terrestrial Goals

In establishing overall numeric goals across the ecoregion, teams considered the range-wide distribution of the target and the geographic scale at which the target occurs.

### *Range-wide distribution*

Range-wide distribution provides a simple evaluation of the importance of a single ecoregion toward the conservation of a given target. For example, we assumed a greater conservation effort, and thus a higher overall goal, was needed for targets wholly or mostly confined to this ecoregion. Likewise we used several other broad distribution patterns relative to the ecoregion for establishment of overall goals (see Table 3). Each terrestrial target was assigned a distribution pattern relative to the ecoregion.

### *Spatial Scale*

Goals also incorporated the spatial scale at which the target occurs in the ecoregion. As previously noted these scales can be broadly conceived as local, intermediate, coarse, and regional (Poiani et al. 2000). Each species target was assigned to one of these spatial scales. For terrestrial ecological systems, a parallel set of scale categories were used based on Anderson et al. (1999): matrix, large patch, and small patch.

**Table 3: Global range and Distribution Pattern (after Anderson et al. 1999)**

| |
|---|
| **endemic** (found only in the ecoregion),<br>**limited** (found primarily in the ecoregion)<br>**disjunct** (found primarily in another widely separated ecoregion)<br>**peripheral** (more common in adjacent ecoregions,<br>**widespread** (common across this and other ecoregions). |

"Matrix" refers to systems that form extensive and often contiguous cover over large areas of the ecoregion. They are often influenced by large-scale ecological processes, and are often habitat for wide-ranging or large area-dependent fauna, such as large herbivores or birds (e.g., black bears and red-cockaded woodpeckers)

"Large Patch" refers to systems that form large areas of interrupted cover. They are associated with environmental conditions that are more specific than those of matrix communities, and that are less common or less extensive in the landscape.

"Small patch" refers to systems that occupy small, discrete areas often only a few acres or less. They occur in very specific ecological settings, such as on specialized landform types or in unusual microhabitats, and are often characterized by localized, ecological processes that can be quite different from those operating at the landscape scale.

### *Default goals*

For consistency, species teams established preliminary or "default" goals based on range wide distribution and spatial scale at which the target occurs. Terrestrial teams generally applied "default" values based on guidance in Anderson et al. (1999) (Table 4). These default goals were modified on a case-by-case basis when expert opinion suggested it was necessary. Thus, higher default goals were set for endemic and limited distribution targets and for targets occurring at more local scales. Conversely, targets with broader distributions that would rely proportionately less on conservation activity in this region, and targets occurring at larger spatial scales received lower numeric goals.

**Table 4: Default Terrestrial Conservation Goals based on size and distribution (after Anderson et al. 1999**

| | Matrix | Large | Local/ Small |
|---|---|---|---|
| **Endemic** | 10 | 18 | 25 |
| **Limited** | 5 | 9 | 13 |
| **Widespread** | 3 | 5 | 6 |
| **Peripheral** | 1 | 2 | 3 |
| **Disjunct** | CBC | CBC | CBC |

In addition to setting a total ecoregional goal, goals were also divided into the appropriate stratification units where the target currently and/or historically occurred. These subdivided or stratified goals provide an additional measure of representation and ensure that goals reflect the actual distribution of targets across the ecoregion. However, because targets are not distributed equally across the region, stratification goals were not always equal and sometimes were zero in specific stratification units. For a listing of botany and zoology goals see Appendix 7 and 8.

## Freshwater Goals

A somewhat different approach to setting goals was followed by the aquatic team. Their methodology was largely based on Smith et al. (2001) with some modifications during this assessment. In general, they assumed goals were based on the need to conserve targets for at least 100 years or 10 generations, whichever is longer.

### *Species Goals*

The primary factors upon which aquatic species goals were set included; global rarity, species range relative to aquatic basin, and life history. The aquatic team generally applied "default" values based on these factors (Table 5).

**Table 5: Default Terrestrial Conservation Goals based on size and distribution**

| Target Status | Spatial scale | Goal |
|---|---|---|
| **G1 and G2** (Not dependent on species distribution) | Regional | 2 per EDU |
| | Coarse | 2 per EDU |
| | Intermediate/Local | 3 per EDU |
| **G3-G5 Endemic/Limited** (70-100% of species range in ecoregion) . | Regional | 1 per EDU |
| | Coarse | 2 per EDU |
| | Intermediate/Local | 3 per EDU |
| **G3-G5 Widespread** (20-70% of species range in ecoregion) | Regional | 1 per EDU |
| | Coarse | 1 per EDU |
| | Intermediate/Local | 2 per EDU |
| **G3-G5 Peripheral/Disjunct** (20% or less of species range in ecoregion) ) | Regional | 1 per EDU |
| | Coarse | 1 per EDU |
| | Intermediate/Local | 1 per EDU |

### *System goals*

The general goal for aquatic systems was to protect examples that demonstrate a high level of integrity and appear to be functioning within an historic range of variation. To qualify, systems had to meet minimum length requirements as surrogate for viability (Smith et al. 2002).

Specific numeric goals were based on EDU's, and were generally higher for smaller system types than larger ones. For a complete listing of aquatic systems and goals see Appendix 5.

CHAPTER 6:

# Mapping the Conservation Portfolio

The product of this phase of the assessment is a map of areas of biodiversity significance. The map portrays the combined locations of the representative suite of conservation targets and a preliminary representation of the area needed to conserve these targets. Although these areas are often referred to as sites, they were not defined in the same fine-scale manner as TNC eventually defines boundaries during site conservation planning (Groves et al. 2000). Site conservation planning affords an opportunity to conduct more detailed assessments of conservation areas to determine the exact boundaries needed to support ecological processes that maintain the conservation targets; such evaluations were beyond the scope of this project.

## Target Locations

The primary sources of location data for conservation targets were Element Occurrence Records (EOR's) in the Natural Heritage Program databases. These databases record over 12,000 individual EOR' s for elements located within this ecoregion. Teams selectively removed EOR' s for elements not selected as ecoregional conservation targets during this assessment. The result was approximately 1,300 locations of conservation targets for evaluation and possible inclusion in this portfolio. With lists of conservation targets and database locations in hand, teams met with experts, and used their own knowledge to generate new or "proto" occurrences for targets. At least 164 additional terrestrial occurrences were added to the ecoregional dataset and included in the portfolio.

## Viability Assessment

Within the context of this assessment, viability is a subjective evaluation of the integrity of an EOR based on the anticipated ability of that element to persist over time. Our team members evaluated locations of conservation targets with this definition in mind. Most element occurrence records derived from Natural Heritage Program databases had preliminary viability ranks already assigned (see Box 3). Whenever possible, these ranks were re-evaluated and updated based on size, condition, and landscape context parameters (Groves et al. 2000) as were expert nominated locations not derived from NHP databases.

Each occurrence was assigned a viability code based on estimations of the likelihood of the target persisting at the given location. In some cases, experts had no information on the location and thus we coded the occurrence with "unknown" viability. In other cases, occurrences were deemed to be either viable or non-viable. We derived these ranks from NHP databases if they had been recently assigned, or from updated expert opinion and testimony. The general source for updated viability information for individual occurrences was tracked using different coding conventions. Of the 1,439 total terrestrial target occurrences considered for inclusion in the portfolio, over 700 were either assigned updated ranks, or otherwise updated.

The viability of at least 341 locations of conservation targets remained unknown during this process. These locations were not used to generate areas of biodiversity importance. Although some of these locations may co-occur with other targets that are known to be viable, these locations did not count toward goals. In addition, locations of targets deemed to be marginally viable were screened from the portfolio, even if this location was needed to meet conservation goals..

## Representing Target Locations

Locations of viable conservation targets are the building blocks of the conservation blueprint. Each location of a viable conservation target

was mapped with a Geographic Information System (GIS). Although many of the original locations were reported as point observations, for purposes of the final portfolio map, it was necessary to represent these as polygons. We worked with the experts knowledgeable about these locations to map an area believed to be sufficient to support the targets as well as the ecological processes necessary to support them.

For many aquatic targets, ecological processes operating within or across the entire watershed are important. In the case of some populations of a single terrestrial species, polygons simply represented circular buffers around known locations while terrestrial targets that occupy larger areas were drawn with correspondingly larger polygons based on the extent of surrounding natural features, land ownership patterns, etc.

Rather than points or polygons, aquatic target occurrences (of species and systems not already represented by species targets) were originally delineated as specific reaches of streams or rivers supporting those targets. Generally, each delineated river or stream segment was buffered using GIS primarily for the purpose of making the areas appear visible on portfolio maps (Smith et al. 2002).

For this ecoregional portfolio each area is shown as a polygon that represents a sufficiently large area (usually the entire watershed) that encapsulates both the extent of the target and the necessary ecological processes to support it. It is important to emphasize again, that the **resulting portfolio polygons only constitute a representation of conservation area boundaries. These polygons do not necessarily indicate the actual boundaries of a conservation area, nor do they indicate the actual amount of land or water area that should be fully allocated to conservation.**

## Assembly Process

The largest polygons, such as those for wide-ranging species or matrix-forming vegetation, acted as “seed” or “anchor” sites. Locations of smaller scale targets were overlaid on these anchor sites. In some cases the larger polygons effectively captured other finer scaled target occurrences and populations. In cases where preliminary polygons occurred in close proximity, but did not directly overlap, team members decided on a case-by-case basis whether or not to keep polygons separate or lump them. Decisions were based on the presence or absence of intervening barriers, land ownership, the targets involved, and other factors.

Given the eventual need to customize conservation action to the type of conservation target, areas delineated for aquatic and terrestrial targets were mapped separately (see Figure 17 and 18)

CHAPTER 7:

# Meeting Conservation Goals

## Portfolio Summary

The resulting ecoregional portfolio includes 91 aquatic areas of biodiversity importance (Figure 17) and 126 terrestrial areas of biodiversity importance (Figure 18). Although there are more individual terrestrial polygons, they are generally smaller than the aquatic polygons and collectively comprise over 7,000,000 acres less area (Table 6). Terrestrial areas range in size from 65 acres (Pinson Helianthus Site, TN) to over 1,285,000 acres (Northern Hills and Headwaters, TN). In contrast, aquatic areas range in size from 872 acres (Flat Creek, MS) to almost 2,000,000 acres (Big Black River, MS) in size.

**Table 6: Portfolio Summary Statistics**

| | TERRESTRIAL PORTFOLIO | AQUATIC PORTFOLIO |
|---|---|---|
| **# AREAS** | 126 | 91 |
| **MIN SIZE** | 65 | 872 |
| **MAX SIZE** | 1,285,022 | 1,983,554 |
| **MEAN SIZE** | 85,206 | 183,933 |
| **TOTAL AREA** | 10,735,951 | 17,289,700 |
| **TOTAL AREA IN ECOREG** | 7,796,799 | 13,424,194 |
| **% OF ECOREGION OCCUPIED** | 32 | 40 |

Because individual polygons were delineated to capture the extent of known target locations and the processes believed to support them, many sites cross ecoregion boundaries. Nearly 3,000,000 acres in terrestrial polygons and 4,000,000 acres in aquatic polygons extend into nearby ecoregions. Considering only the polygon areas falling completely inside the Upper East Gulf Coastal Plain boundaries the terrestrial areas occupy almost 32% of the ecoregion and the aquatic areas almost 40% of the ecoregion.

However, terrestrial and aquatic polygons sometimes overlap one another where viable targets of both types are known to occur. For example, the Lower Cahaba River (Alabama) supports important examples of terrestrial targets such as East Gulf Coastal Plain Large River Floodplain Forest, Narrow-leaved Trillium, Florida Bellwort, and the Cobblestone Tiger Beetle (Figure 15) as well as aquatic targets such as the Black-knobbed Map Turtle (Figure 16).

**Figure 15: Cobblestone Tiger Beetle, Cahaba River, AL; photo courtesy of Barry Hart**

**Figure 16: Black-knobbed Map Turtle, Cahaba River, photo courtesy of Malcolm Pierson.**

**Figure 17: Upper East Gulf Aquatic Areas of Biodiversity Importance**

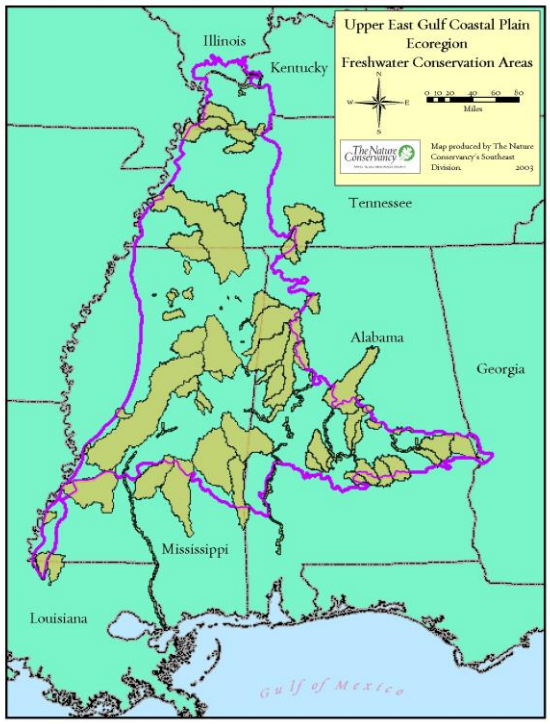
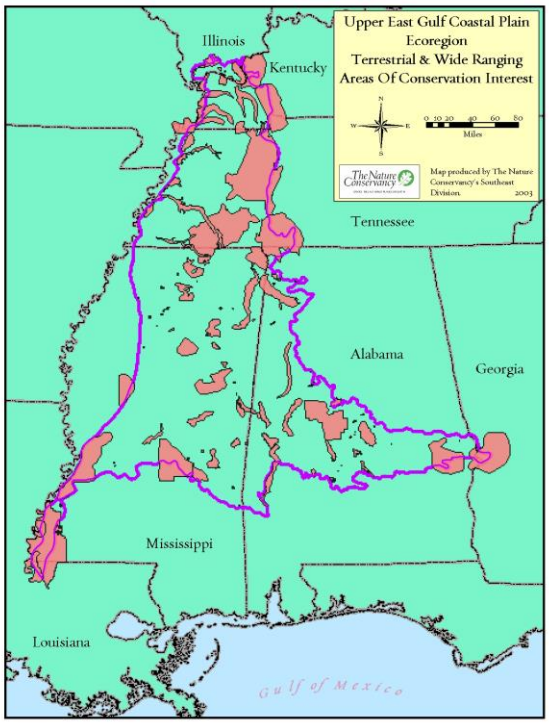



**Figure 18: Upper East Gulf Terrestrial Areas of Biodiversity Importance**




Considering only the area of the largest polygon where such overlaps occur, the combined portfolio occupies 18,186,811 acres within the ecoregional boundary, which amounts to almost 54% of the total ecoregion area.

A number of the areas of biodiversity importance have some conservation activity already ongoing. One partial measure of this fact is the co-occurrence of "managed areas" with the portfolio polygons. TNC Southeast Division personnel are actively updating the status and location of managed areas in the region. These managed areas include public lands, which as previously mentioned are often important for conservation. The preliminary data show that thirty terrestrial polygons and twenty-eight aquatic polygons overlap with an existing managed area. As updated information becomes available, these numbers are expected to change.

For a complete listing of all conservation areas see Appendix 9.

## Progress toward Goals

For each of the conservation targets selected for use in this ecoregional assessment, the technical teams set a numeric goal that represents an ideal level of "capture" designed to ensure the long-term sustainability of each target through this portfolio. As previously noted, goals for terrestrial targets were established specifically for this ecoregion while taking into account factors such as range-wide distribution of the target. In contrast, aquatic targets were established for individual ecological drainage units (EDU's) extending beyond the boundaries of the Upper East Gulf Coastal Plain ecoregion.

Thus, measuring the success of the ecoregional portfolio sites at capturing targets and meeting goals is not possible for aquatic targets. However, comparing the numeric goals for terrestrial conservation targets with the actual "capture" results of target locations is possible.

Summary statistics on goals met or not met for various target groups

## Data Gaps

Throughout this planning process, teams encountered a variety of instances in which more information was needed; these are referred to here as data gaps, whether they are general, programmatic or site specific. It is not our intention to outline each in this document, but rather to address them more broadly. While the gaps are many and varied, most are related to an incomplete knowledge of state of biodiversity in the region. Ultimately, such knowledge has to be built on inventory and survey work. However, several of the Heritage programs in the region (with primary responsibility for collecting such information) have been historically and notoriously understaffed and under funded. Strengthening these programs is likely to be one of the primary means to address many of these gaps in the future.

Among the gaps that need to be filled are:

1) a comprehensive listing of globally rare elements known to occur in this ecoregion.
2) More thorough documentation of the general distribution patterns of rare species within and across ecoregions.
3) More comprehensive occurrence data for birds, aquatics, and ecological systems
4) Basic inventory of large remaining blocks of forested land
5) Updated viability assessments (EO ranks) for many known locations of conservation targets
6) More precise locations for targets submitted as “proto-occurrences”; most were added to a polygon using a centroid.
7) Others?

With such gaps in mind, it is important to consider that the existing portfolio polygons do not represent a final statement on the status of biodiversity in the region. With more complete inventory it is expected that additional areas may be located which also merit inclusion in the portfolio, especially in cases where goals for conservation targets have not been met.

# CHAPTER 8:

# Taking Conservation Action

In order to affect conservation across the portfolio, it is imperative to consider the stresses and sources of stresses (collectively referred to as threats) that impact the long-term integrity of the conservation target(s) at these portfolio sites. There are a number of broad issues affecting conservation efforts in the region (see American Bird Conservancy 2003).

### General Threats to Biodiversity

These threats include, but are not limited to, suppression of fire, and inadequate fire regimes, flood control/stream alteration, and the introduction and expansion of exotic species. Because of their widespread and pervasive impacts, three broad threats will be discussed in more detail: intensive forest management, habitat fragmentation, and climate change.

## *Intensive Forestry: Short Rotation Management/Conversion*:

For our purposes, "intensive forestry" is a management program designed to maximize the production of fiber in the shortest possible time. As such, strict economic constraints favor pure stands of one species and one age class. In this region, most intensive forestry is aimed at management of pine-plantations. Standard pulpwood rotations are 20 to 25 years, but these may be further reduced to 12 to 15 years or less, while producing the same fiber volumes (Moorhead et al. 1998). Stands resulting from such management, often involving artificial regeneration and tree improvement programs (Farnum et al. 1983), have impoverished species diversity and structure (Hunter 1990). These areas are "plantations" in the strictest sense, areas managed under a regime in which most of the characteristics and attributes of a natural forest are absent.

Although the establishment of pine plantations was not a widespread phenomenon in the region until the 1950's, it has since impacted large areas and has become one of the most consequential forestry developments in the region in the last 35 years (McWilliams 1992). In Alabama, pine plantations are being established by both industrial and non-industrial owners alike with a resulting increase of 81 percent since 1982 (McWilliams 1992). Likewise in Mississippi, plantation area increased by over 1 million acres from 1987-1994 (Rosson 2001).

Establishment of pine plantations often involves conversion from other existing forest types. For example, in Mississippi, upland hardwoods are "decreasing at an alarming rate" mostly due to conversion to Loblolly pine (Seay 2001). Establishment of loblolly plantations may also explain the loss of oak-pine forests, one of the most consistently diminishing forest types across the state of Mississippi (Rosson 2001).

## *Habitat Fragmentation:*

The total extent of natural habitat has been greatly reduced while remaining patches of habitat have become smaller and more isolated from one another and subjected to increase in edge effects. The results of fragmentation are generally well documented, although the negative effects of this phenomenon may be most often associated with population declines in bird species (Faaborg et al. 1993). Collective changes in forest extent and fragmentation may affect habitat quality for 80 – 90% of all mammal, bird, reptile, and amphibian species associated with forests (USDA 1997). Localized effects of fragmentation are strongly influenced by characteristics of the associated landscape and component habitats as well as the species and communities involved. The value of an individual patch of habitat may depend on proximity and connectedness to other patches. An analysis by Riitters et al. (2002) documents heavy fragmentation and an almost complete lack of "interior" forests in the northern parts of the Upper East Gulf region. Existing interior

forests are generally lacking in areas that are suitable for agriculture or urban development, and along many large rivers (Riitters et al. 2002). A unique exception to this general rule is the Hatchie River, in western Tennessee, which may support the region's only population of Cerulean Warblers (American Bird Conservancy 2003), a species closely associated with interior or unbroken forests

### *Climate Change:*

Although predicting the pace and severity of climate change at a given location cannot be done with certainty (Saxon 2003), nearly all climate models predict changes in minimum temperature, rainfall, and $CO_2$ that will likely alter ecosystem structure (Burkett et al. 2001). Although interactions are difficult to model or predict it is distinctly possible that dramatic impacts on the distribution of plants, animals, and infectious diseases could occur throughout the southeastern United States (Environmental Defense Fund 2003). For example, some projections predict dramatic productivity effects in forestry and agriculture, leading to land allocation changes and net losses in forest area (Burkett et al. 2001). Using abiotic factors Saxon (1993) showed that the areas most likely to be impacted in the Upper East Gulf are in the most northern region.

## Prioritizing Conservation Areas

Implementing conservation action across the portfolio, given the sheer number and extent of areas identified in this and adjacent portfolios, presents a huge challenge. The fact that each area selected for the portfolio is important and worthy of management attention is inherent in the assembly selection process, however, not all conservation areas are in need of attention with same degree of urgency (Groves 2003). Therefore, reality dictates that TNC must prioritize its conservation action, which likely translates to working at a subset of the portfolio areas. Establishing these priorities however, is a complex and inexact process that must be overlaid on the already complex portfolio assembly process.

A large number of criteria can be used to establish conservation priorities (Groves 2003). One approach to doing so involves ranking conservation areas into three "Sequencing Categories". These categories are:

•Now: Conservation Areas to be addressed in the immediate future (next 5 years)
•Soon: Conservation Areas that can be addressed in 5 to 10 years
•Later: Conservation Areas that will be addressed in later years

Placing a conservation area into one of these categories should be based on site specific evaluations of the threats, leverage opportunities, and contribution to ecoregional goals each area provides (Sutter personal communication). In addition to these characteristics, priorities are also influenced by the feasibility of taking action arising from the availability of scarce resources, especially staff and funding, and other factors.

Using expert opinion and personal knowledge, core team members began quantifying these parameters relative to each site at a meeting in Memphis. These data were entered into a relational database that links the conservation areas with their component conservation targets. Team members considered the applicability of 26 different, standardized threats (or sources of stress) to conservation areas and "scored" the severity and extent of a given threat to each. Due to time constraints and lack of available expertise, this evaluation process was not fully completed for all terrestrial sites in Mississippi.

## TNC Action Sites

Action sites are those sites in the portfolio where the Conservancy is committed to working over the next 10 years. Implied in an action site designation is TNC's commitment to conduct more detailed planning as a basis for conservation action. Each site will undergo "site conservation planning" to determine data gaps and specific conservation strategies.

Recognizing that designating an action site constitutes institutional commitment of resources, core team members and state directors were tasked with difficult, strategic decisions. They considered the entire portfolio with the best available information, including that from the preceding evaluation and critically evaluated factors such as conservation value,

complementarity, threat, feasibility, and leverage (see Groves et al. 2002) to select action sites.

The final list of 26 action sites (see Table 7) includes areas selected for the presence of both aquatic and terrestrial targets. As previously noted, aquatic and terrestrial areas were delineated independently and have been maintained as separate polygon layers (see Figures 17 and 18). However, many of these areas actually overlap wholly or partially on the ground. Reality dictates that conservation actions are not as independent as implied in this mapping and record keeping process. Therefore, when overlapping aquatic and terrestrial sites exist (and one or more were selected for TNC Action) it may actually be best to consider them together. Thus, the resulting list of TNC action sites specifies in the name whether the site is based on terrestrial target, aquatic targets, or both.

It is important to reiterate that these "action sites" represent TNC priorities. They are not intended to diminish the need for conservation activity at all sites. In fact, the audience for the portfolio is the entire conservation community and all areas are ultimately important (Groves 2003). Other conservation groups, organizations, agencies, and individuals will need to initiate or continue conservation activity at other sites in the portfolio. Ultimate success will require collective and collaborative efforts to reach the overall conservation goal.

**Table 7: TNC Action Sites in the Upper East Gulf Coastal Plain ecoregion.**

| Site Type | State | Site Name |
|---|---|---|
| Aquatic | AL | Lower Cahaba River and Talladega NF (Oakmulgee District) Aquatic & Terrestrial Site |
| Aquatic | AL | Sipsey River and Swamps Aquatic & Terrestrial Site |
| Aquatic | AL | Uchee Creek Aquatic Site |
| Terrestrial | AL | Autauga Sandhills Terrestrial Site |
| Terrestrial | AL | Upper Cahaba River and Bibb County Glades Aquatic & Terrestrial Site |
| Terrestrial | AL | Old Bluffport Terrestrial Site |
| Terrestrial | AL | Chunnennugee Hills Terrestrial Site |
| Terrestrial | AL | East Alabama Fall Line Hills Terrestrial Site |
| Aquatic | AL, MS | Buttahatchee River Aquatic Site |
| Aquatic | AL, MS | Luxapallila Creek/Yellow Creek Aquatic Site |
| Terrestrial | GA, AL | Fort Benning Terrestrial Site |
| Terrestrial | IL | Cache River Complex Terrestrial Site |
| Terrestrial | KY | Blood River and Blood River Seeps Aquatic & Terrestrial Site |
| Terrestrial | KY | Land Between the Lakes Area Terrestrial Site |
| Terrestrial | KY | Grand Rivers Corridor (Lower Cumberland/Lower Tennessee Rivers, and Cypress Creek Swamp) Aquatic & Terrestrial Site |
| Aquatic | KY | Bayou de Chien Aquatic & Terrestrial Site |
| Terrestrial | LA | Tunica Hills Terrestrial Site |
| Terrestrial | TN, MS | Hatchie River and River Bottoms Aquatic & Terrestrial Site |
| Aquatic | MS | Bayou Pierre Aquatic Site |
| Aquatic | MS | Upper Chickasawhay and Upper Leaf Rivers Aquatic Site |
| Terrestrial | MS | Connewah Creek Chalk Bluffs Terrestrial Site |
| Aquatic | TN | Reelfoot Lake Area Aquatic Site |
| Terrestrial | TN, MS | Upper Wolf River Aquatic & Terrestrial Site |
| Aquatic | TN, KY | Upper Middle Fork Obion River and Terrapin Creek Aquatic & Terrestrial Site |
| Aquatic | KY | Obion Creek Aquatic & Terrestrial Site |
| Terrestrial | KY | Bayou de Chien Aquatic & Terrestrial Site |

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# Appendices

## APPENDIX 1: Terrestrial Ecological Systems Targets and Goals

| Database Code | Ecological System | Size type | Distribution | Overall Goal | Black Belt | North Unit | East Unit | West Unit |
|---|---|---|---|---|---|---|---|---|
| CES202.338 | ALABAMA KETONA GLADE AND WOODLAND | small patch | peripheral | 5 | 0 | 0 | 5 | 0 |
| CES202.349 | ALLEGHENY - CUMBERLAND SANDSTONE BOX CANYON AND ROCKHOUSE | large patch | peripheral | 5 | 0 | 0 | 5 | 0 |
| CES202.691 | CENTRAL INTERIOR HIGHLANDS CALCAREOUS GLADE AND BARRENS | small patch | peripheral | 5 | 0 | 5 | 0 | 0 |
| CES202.692 | CENTRAL INTERIOR HIGHLANDS DRY ACIDIC GLADE AND BARRENS | small patch | peripheral | 5 | 0 | 5 | 0 | 0 |
| CES202.706 | SOUTH-CENTRAL INTERIOR RIPARIAN | linear | widespread | 5 | 0 | 2 | 3 | 0 |
| CES203.078 | EAST GULF COASTAL PLAIN HERBACEOUS SEEPAGE BOG | small patch | limited | 13 | 0 | 0 | 13 | 0 |
| CES203.353 | EAST GULF COASTAL PLAIN JACKSON PLAIN PRAIRIE AND BARRENS | large patch | endemic | 18 | 0 | 18 | 0 | 0 |
| CES203.385 | EAST GULF COASTAL PLAIN INTERIOR SHRUB BOG | small patch | limited | 13 | ? | ? | ? | ? |
| CES203.476 | EAST GULF COASTAL PLAIN SOUTHERN MESIC SLOPE FOREST | large patch | limited | 9 | 0 | 0 | 5 | 5 |
| CES203.477 | EAST GULF COASTAL PLAIN NORTHERN MESIC HARDWOOD FOREST | large patch | endemic | 18 | 0 | 6 | 6 | 6 |
| CES203.478 | EAST GULF COASTAL PLAIN BLACK BELT CALCAREOUS PRAIRIE AND WOODLAND | large patch | endemic | 18 | 18 | 0 | 0 | 0 |
| CES203.479 | EAST GULF COASTAL PLAIN JACKSON PURCHASE POST OAK FLATWOODS | large patch | endemic | 18 | 0 | 18 | 0 | 0 |
| CES203.480 | EAST GULF COASTAL PLAIN JACKSON PURCHASE WET FLATWOODS | large patch | endemic | 18 | 0 | 18 | 0 | 0 |
| CES203.481 | EAST GULF COASTAL PLAIN NORTHERN LOESS BLUFF FOREST | large patch | endemic | 18 | 0 | 9 | 0 | 9 |
| CES203.482 | EAST GULF COASTAL PLAIN NORTHERN LOESS PLAIN OAK-HICKORY UPLAND | large patch | endemic | 18 | 0 | 18 | 0 | 0 |
| CES203.483 | EAST GULF COASTAL PLAIN N. PONTOTOC RIDGE, UPPER LOAM HILLS DRY HARDWOOD UPLAND | large patch | endemic | 18 | 0 | 12 | 6 | 0 |
| CES203.489 | EAST GULF COASTAL PLAIN LARGE RIVER FLOODPLAIN FOREST | large patch | endemic | 18 | 5 | 5 | 5 | 5 |
| CES203.490 | LOWER MISSISSIPPI RIVER BOTTOMLAND DEPRESSIONS | linear | peripheral | 5 | 0 | 3 | 0 | 3 |
| CES203.492 | EAST GULF COASTAL PLAIN DRY CHALK BLUFF | small patch | endemic | 25 | 25 | 0 | 0 | 0 |
| CES203.496 | EAST GULF COASTAL PLAIN INTERIOR UPLAND LONGLEAF PINE WOODLAND | large patch | endemic | 18 | 2 | 0 | 8 | 8 |
| CES203.502 | EAST GULF COASTAL PLAIN LIMESTONE FOREST | large patch | limited | 9 | 9 | 0 | 0 | 0 |
| CES203.505 | EAST GULF COASTAL PLAIN SOUTHERN SEEPAGE SWAMP | large patch | limited | 9 | 0 | 0 | 5 | 5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CES203.506 | EAST GULF COASTAL PLAIN INTERIOR SHORTLEAF PINE-OAK FOREST | matrix | limited | 9 | 0 | 0 | 5 | 5 |
| CES203.512 | LOWER MISSISSIPPI RIVER BOTTOMLAND AND FLOODPLAIN FOREST | linear | peripheral | 5 | 0 | 3 | 0 | 3 |
| CES203.554 | EAST GULF COASTAL PLAIN NORTHERN SEEPAGE SWAMP | large patch | endemic | 18 | 0 | 10 | 4 | 4 |
| CES203.555 | EAST GULF COASTAL PLAIN JACKSON PRAIRIE AND WOODLAND | large patch | endemic | 18 | 18 | 0 | 0 | 0 |
| CES203.556 | EAST GULF COASTAL PLAIN SOUTHERN LOESS BLUFF FOREST | large patch | endemic | 18 | 0 | 0 | 0 | 18 |
| CES203.557 | EAST GULF COASTAL PLAIN WET LOBLOLLY-HARDWOOD FLATWOODS | large patch | endemic | 18 | 0 | 0 | 9 | 9 |
| CES203.558 | EAST GULF COASTAL PLAIN NORTHERN DEPRESSION PONDSHORE | large patch | endemic | 18 | 0 | 18 | 0 | 0 |
| CES203.559 | EAST GULF COASTAL PLAIN SMALL STREAM AND RIVER FLOODPLAIN FOREST | large patch | limited | 9 | 2 | 2 | 2 | 2 |
| CES203.560 | EAST GULF COASTAL PLAIN DRY UPLAND HARDWOOD FOREST | small patch | limited | 13 | 0 | 0 | 6 | 6 |

## APPENDIX 2: Terrestrial Zoology Targets

| Database Code | Type | Scientific Name | Common Name | Global Rank |
|---|---|---|---|---|
| CTCA00000B | aggregation | None | TERRESTRIAL CAVE COMMUNITY | Not Ranked |
| NOT AVAILABLE | aggregation | None | HERON ROOKERY | Not Ranked |
| AAAAA01140 | amphibian | *Ambystoma tigrinum* | TIGER SALAMANDER | G5 |
| AAAAD01010 | amphibian | *Aneides aeneus* | GREEN SALAMANDER | G3G4 |
| AAAAD03010 | amphibian | *Desmognathus aeneus* | SEEPAGE SALAMANDER | G3G4 |
| AAAAD06020 | amphibian | *Gyrinophilus porphyriticus* | SPRING SALAMANDER | G5 |
| AAAAD08010 | amphibian | *Hemidactylium scutatum* | FOUR-TOED SALAMANDER | G5 |
| AAAAD12210 | amphibian | *Plethodon websteri* | WEBSTER'S SALAMANDER | G3 |
| AAABC05061 | amphibian | *Pseudacris streckeri illinoensis* | ILLINOIS CHORUS FROG | G5T3 |
| AAABH01014 | amphibian | *Rana areolata circulosa* | NORTHERN CRAWFISH FROG | G4T4 |
| ABNGF02010 | bird | *Mycteria americana* | WOOD STORK | G4 |
| ABNYF07060 | bird | *Picoides borealis* | RED-COCKADED WOODPECKER | G3 |
| ABPBX03240 | bird | *Dendroica cerulea* | CERULEAN WARBLER | G4 |
| ABPBX09010 | bird | *Limnothlypis swainsonii* | SWAINSON'S WARBLER | G4 |
| ABPBX91050 | bird | *Aimophila aestivalis* | BACHMAN'S SPARROW | G3 |
| ABPBXA0030 | bird | *Ammodramus henslowii* | HENSLOW'S SPARROW | G4 |
| NOT AVAILABLE | insect | *Cyclotrachelus hypherpiformis* | NOT AVAILABLE | NA |
| NOT AVAILABLE | insect | *Mecas rotundicollis* | NOT AVAILABLE | NA |
| NOT AVAILABLE | insect | *Ataxia brunnea* | NOT AVAILABLE | NA |
| IICOL02060 | insect | *Cicindela marginipennis* | COBBLESTONE TIGER BEETLE | NA |
| NOT AVAILABLE | insect | *Tetraloniella albata* | NOT AVAILABLE | NA |
| IILEP77050 | insect | *Euphyes dukesi* | DUKES' SKIPPER | NA |
| IILEPN3020 | insect | *Neonympha mitchelli sp* | MITCHELL'S SATYR | NA |
| NOT AVAILABLE | insect | *Crambus sp* | NOT AVAILABLE | NA |
| NOT AVAILABLE | insect | *Strangalia cambrei* | NOT AVAILABLE | NA |
| AMACC01030 | mammal | *Myotis austroriparius* | SOUTHEASTERN MYOTIS | G3G4 |
| AMACC01040 | mammal | *Myotis grisescens* | GRAY MYOTIS | G3 |
| AMACC01100 | mammal | *Myotis sodalis* | INDIANA BAT | G2 |
| AMACC01150 | mammal | *Myotis septentrionalis* | NORTHERN MYOTIS | G4 |
| AMACC08020 | mammal | *Corynorhinus rafinesquii* | RAFINESQUE'S BIG-EARED BAT | G3G4 |
| AMAFC02040 | mammal | *Geomys pinetis* | SOUTHEASTERN POCKET GOPHER | G5 |
| AMAFF03060 | mammal | *Peromyscus polionotus* | OLDFIELD MOUSE | G5 |
| AMAJB01012 | mammal | *Ursus americanus luteolus* | LOUISIANA BLACK BEAR | G5T2 |
| ARAAF01030 | reptile | *Gopherus polyphemus* | GOPHER TORTOISE | G3 |
| ARACB0212 | reptile | *Ophisaurus attennatus longicaudus* | EASTERN SLENDER GLASS LIZARD | G5T5 |
| ARADB06010 | reptile | *Clonophis kirtlandii* | KIRTLAND'S SNAKE | G2 |
| ARADB19012 | reptile | *Lampropeltis calligaster rhombomaculata* | MOLE KINGSNAKE | G5T5 |
| ARADB21022 | reptile | *Masticophis flagellum flagellum* | COACHWHIP | G5T5 |
| ARADB22010 | reptile | *Nerodia cyclopion* | GREEN WATER SNAKE | G5 |
| ARADB26012 | reptile | *Pituophis melanoleucus melanoleucus* | NORTHERN PINE SNAKE | G5T4 |
| ARADE02040 | reptile | *Crotalus horridus* | TIMBER RATTLESNAKE | G4 |

## APPENDIX 3: Botany Targets

| Database Code | Scientific Name | Common Name | Global Rank |
|---|---|---|---|
| PDSCR01130 | *Agalinis auriculata* | EARLEAF FOXGLOVE | G3 |
| PDSCR010M0 | *Agalinis oligophylla* | RIDGE-STEM FALSE-FOXGLOVE | G3G4 |
| PDSCR010T0 | *Agalinis skinneriana* | PALE FALSE FOXGLOVE | G3 |
| PDFAB0D020 | *Apios priceana* | PRICE'S POTATO-BEAN | G2 |
| PDBRA060N0 | *Arabis georgiana* | GEORGIA ROCK-CRESS | G1 |
| PDAST0T180 | *Aster georgianus (Symphyotrichum georgianum)* | GEORGIA ASTER | G2G3 |
| PDFAB0F580 | *Astragalus michauxii* | SANDHILLS MILKVETCH | G3 |
| PDFAB0G0F0 | *Baptisia megacarpa* | APALACHICOLA WILD INDIGO | G2 |
| PDAST1H0B0 | *Brickellia cordifolia* | FLYR'S BRICKELL-BUSH | G2G3 |
| PDMAL0A080 | *Callirhoe triangulata* | CLUSTERED POPPY-MALLOW | G3? |
| PMCYP033K0 | *Carex decomposita* | CYPRESS-KNEE SEDGE | G3 |
| PMCYP03FB0 | *Carex impressinervia* | IMPRESSED-NERVED SEDGE | G1G2 |
| PMCYP039W2 | *Carex oxylepis var pubescens* | A SEDGE | G5?T3 |
| PDSCR0F043 | *Chelone obliqua var speciosa* | ROSE TURTLEHEAD | G4T3 |
| PDRAN07060 | *Cimicifuga rubifolia (Actaea rubifolia)* | APPALACHIAN BUGBANE | G3 |
| PDRAN080D0 | *Clematis glaucophylla* | WHITE-LEAVED LEATHER-FLOWER | G4? |
| PDROS0H7X0 | *Crataegus ashei* | A HAWTHORN | G1 |
| PDROS0H240 | *Crataegus harbisonii* | HARBISON HAWTHORN | G1 |
| PDROS0H3C0 | *Crataegus meridionalis* | A HAWTHORN | G3G5Q |
| PDROS0H540 | *Crataegus triflora* | THREE-FLOWERED HAWTHORN | G2 |
| PMSTE01010 | *Croomia pauciflora* | CROOMIA | G3 |
| PDCUS010U0 | *Cuscuta harperi* | HARPER'S DODDER | G2 |
| PMORC0Q050 | *Cypripedium candidum* | SMALL WHITE LADY'S-SLIPPER | G4 |
| PMORC0Q0F0 | *Cypripedium kentuckiense* | SOUTHERN LADY'S-SLIPPER | G3 |
| PDFAB1A0K0 | *Dalea foliosa* | LEAFY PRAIRIE-CLOVER | G2G3 |
| PDRAN0B010 | *Delphinium alabamicum* | ALABAMA LARKSPUR | G2 |
| PDFAB1D100 | *Desmodium ochroleucum* | CREAMFLOWER TICK-TREFOIL | G2G3 |
| PDHAM01020 | *Fothergillia major* | NONE | G3 |
| PDAST4N240 | *Helianthus verticillatus* | WHORLED SUNFLOWER | G1 |
| PDARI03071 | *Hexastylis shuttleworthii var harperi* | HARPER'S HEARTLEAF | G4T3 |
| PDARI03080 | *Hexastylis speciosa* | HARPER'S HEARTLEAF | G2 |
| PDJUG02030 | *Juglans cinerea* | BUTTERNUT | G3G4 |
| PDLAU07020 | *Lindera melissifolia* | PONDBERRY | G2 |
| PDPRI07070 | *Lysimachia fraseri* | FRASER LOOSESTRIFE | G2 |
| PDCAR0G0D0 | *Minuartia godfreyi* | GODFREY'S STITCHWORT | G1 |
| PDROS14010 | *Neviusia alabamensis* | ALABAMA SNOW-WREATH | G2 |
| PDCAR0L0D0 | *Paronychia herniarioides* | COASTAL-PLAIN NAILWORT | G3G4 |
| PDHYD0C420 | *Phacelia ranunculacea* | BLUE SCORPION-WEED | G3G4 |
| NLLEC6A020 | *Phaeophyscia leana* | A LICHEN | G2 |
| PDPLM0D1K0 | *Phlox pulchra* | WHERRY'S PHLOX | G2G3 |
| PDSOL0S060 | *Physalis carpenteri* | CARPENTER'S GROUND-CHERRY | G3 |
| PDPLN02090 | *Plantago cordata* | HEART-LEAVED PLANTAIN | G4 |
| PMORC1Y0D0 | *Platanthera integrilabia* | WHITE FRINGELESS ORCHID | G2G3 |
| PDAST7G020 | *Polymnia laevigata* | TENNESSEE LEAFCUP | G3 |
| PMORC27010 | *Pteroglossaspis ecristata* | CRESTED FRINGED ORCHID | G2 |

| | | | |
|---|---|---|---|
| PDAPI1Y040 | *Ptilimnium nodosum* | HARPERELLA | G2 |
| PDLAM1N0G0 | *Pycnanthemum torrei* | TORREY'S MOUNTAIN MINT | G2 |
| PDFAG05040 | *Quercus arkansana* | ARKANSAS OAK | G3 |
| PDFAG051M0 | *Quercus oglethorpensis* | OGLETHORPE'S OAK | G3 |
| PDMLS0H020 | *Rhexia aristosa* | AWNED MEADOWBEAUTY | G3 |
| PMCYP0N0H0 | *Rhynchospora crinipes* | HAIRY-PEDUNCLED BEAK-RUSH | G1 |
| PMCYP0N2B0 | *Rhynchospora thornei* | THORNE'S BEAKRUSH | G2 |
| PDAST85070 | *Rudbeckia heliopsidis* | SUN-FACING CONEFLOWER | G2 |
| PDSAR02081 | *Sarracenia rubra ssp alabamensis* | ALABAMA CANEBRAKE PITCHER-PLANT | G3T1T2 |
| PDSCH01020 | *Schisandra glabra* | BAY STARVINE | G3 |
| PDCAR0U0B3 | *Silene caroliniana ssp wherryi* | WHERRY'S CATCHFLY | G5TU |
| PDCAR0U180 | *Silene ovata* | OVATE CATCHFLY | G2G3 |
| PDAST8L0R0 | *Silphium perplexum* | UNNAMED | G1G2 |
| PDCON0H052 | *Stylisma pickeringii var pickeringii* | PICKERING'S MORNING-GLORY | G4T2T3 |
| PDPOR08050 | *Talinum calcaricum* | LIMESTONE FAME-FLOWER | G3 |
| PDPOR080C0 | *Talinum mengesii* | MENGE'S FAME-FLOWER | G3 |
| PMMAR03010 | *Thalia dealbata* | POWDERY THALIA | G4 |
| PDRAN0M070 | *Thalictrum debile* | SOUTHERN MEADOW-RUE | G2 |
| PDRAN0M0D0 | *Thalictrum mirabile* | LITTLE MOUNTAIN MEADOW-RUE | G2G3Q |
| PDAPI28020 | *Thaspium pinnatifidum* | CUTLEAF MEADOW-PARSNIP | G3? |
| PMLIL200C0 | *Trillium foetidissimum* | FETID TRILLIUM | G3 |
| PMLIL200G0 | *Trillium lancifolium* | NARROW-LEAVED TRILLIUM | G3 |
| PMLIL24010 | *Uvularia floridana* | FLORIDA BELLWORT | G3 |
| PMXYR010M0 | *Xyris tennesseensis* | TENNESSEE YELLOW-EYED GRASS | G1 |

## APPENDIX 4. Bird Guilds and Component Species

| Target | Component Species | GLOBAL RANK | GLOBAL PIF SCORE | EGCP PIF SCORE | WatchList STATUS | PIF-EGCP | Recommended Patch Size (ha) |
|---|---|---|---|---|---|---|---|
| **FORESTED WETLAND GUILD** | PROTHONOTARY WARBLER | G5 | 21 | 24 | X | X | 2,700 |
| | KENTUCKY WARBLER | G5 | 19 | 26 | X | | 8,000 |
| | EASTERN WOOD-PEWEE | G5 | 17 | 22 | | | 5,400 |
| | LOUISIANA WATERTHRUSH | G5 | 19 | 22 | | | 7,100 |
| | ACADIAN FLYCATCHER | G5 | 18 | 21 | | | 2,800 |
| | HOODED WARBLER | G5 | 18 | 24 | | | 2,500 |
| | SUMMER TANAGER | G5 | 15 | 19 | | | 6,600 |
| | CHIMNEY SWIFT | G5 | 17 | 20 | | | unknown |
| | YELLOW-THROATED VIREO | G5 | 15 | 20 | | | 7,800 |
| | WOOD THRUSH | G5 | 20 | 21 | X | X | 2,800 |
| | BROWN CREEPER | G5 | 13 | | | | 7,400 |
| | RUSTY BLACKBIRD | G5 | 16 | 21 | | | unknown |
| **LONGLEAF PINE WOODLAND GUILD** | BROWN-HEADED NUTHATCH | G5 | 21 | 24 | X | X | 8,900 |
| | PRAIRIE WARBLER | G5 | 20 | 23 | X | X | 2,700 |
| | SEDGE WREN | G5 | 18 | 22 | | | unknown |
| | NORTHERN BOBWHITE | G5 | 17 | 22 | | | 6,700 |
| | EASTERN WOOD-PEWEE | G5 | 17 | 22 | | | 5,400 |
| | EASTERN KINGBIRD | G5 | 12 | 19 | | | 10,500 |
| | SUMMER TANAGER | G5 | 15 | 19 | | | 6,600 |
| **LOBLOLLY PINE-SHORTLEAF PINE GUILD** | BROWN-HEADED NUTHATCH | G5 | 21 | 24 | X | X | 8,900 |
| | CHUCK-WILL'S-WIDOW | G5 | 19 | 24 | X | X | 50,000 |
| | NORTHERN BOBWHITE | G5 | 17 | 22 | | | 6,700 |
| | EASTERN WOOD-PEWEE | G5 | 17 | 22 | | | 5,400 |
| | EASTERN KINGBIRD | G5 | 12 | 19 | | | 10,500 |
| | SUMMER TANAGER | G5 | 15 | 19 | | | 6,600 |
| **EARLY SUCCESSION (SCRUB-SHRUB/OLD FIELD) GUILD** | PRAIRIE WARBLER | G5 | 20 | 23 | X | X | 2,700 |
| | LE CONTE'S SPARROW | G4 | 19 | 23 | | X | unknown |
| | AMERICAN WOODCOCK | G5 | 18 | 22 | X | | 4,500 |
| | LOGGERHEAD SHRIKE | G5 | 17 | 20 | | | 57,100 |
| | RUSTY BLACKBIRD | G5 | 16 | 21 | | | unknown |
| | PAINTED BUNTING | G5 | 21 | 21 | X | X | 12,100 |
| | FIELD SPARROW | G5 | 17 | 20 | | | 2,300 |
| | YELLOW-BREASTED CHAT | G5 | 14 | 17 | | | 2,400 |
| **EARLY SUCCESSION (SHORT-ROTATION PINE)** | PRAIRIE WARBLER | G5 | 20 | 23 | X | X | 2,700 |
| | NORTHERN BOBWHITE | G5 | 17 | 22 | | | 6,700 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | FIELD SPARROW | G5 | 17 | 20 | | | 2,300 |
| | YELLOW-BREASTED CHAT | G5 | 14 | 17 | | | 2,400 |
| **GRASSLANDS AND PASTURES GUILD** | NORTHERN BOBWHITE | G5 | 17 | 22 | | | 6,700 |
| | LOGGERHEAD SHRIKE | G5 | 17 | 20 | | | 57,100 |
| | FIELD SPARROW | G5 | 17 | 20 | | | 2,300 |
| | EASTERN KINGBIRD | G5 | 12 | 19 | | | 10,500 |
| | LARK SPARROW | G5 | 16 | | | | unknown |
| **UPLAND HARDWOOD GUILD** | BROAD-WINGED HAWK | G5 | 12 | | | | unknown |
| | CHUCK-WILL'S-WIDOW | G5 | 19 | | X | X | unknown |
| | WORM-EATING WARBLER | G5 | 21 | | X | | unknown |
| | SUMMER TANAGER | G5 | 15 | 19 | | | 6,600 |
| | GREAT CRESTED FLYCATCHER | G5 | 14 | | | | unknown |
| | SEDGE WREN | G5 | 18 | | | | unknown |
| | WOOD THRUSH | G5 | 20 | | X | X | unknown |
| | BLUE-WINGED WARBLER | G5 | 19 | | X | | unknown |
| | PRAIRIE WARBLER | G5 | 20 | | X | X | unknown |
| | LE CONTE'S SPARROW | G4 | 19 | | | X | unknown |

## APPENDIX 5. Aquatic Ecological Systems Targets and Goals

| AS Code | Description | Size Class | Goal | EDU Code | EDU Name |
|---|---|---|---|---|---|
| A003 | large Nashville Basin and Highland Rim rivers, origin in Blue Ridge and Ridge and Valley | large river | 1 | 1.05 | Lower Tennessee River |
| A003 | large Nashville Basin and Highland Rim rivers, origin in Blue Ridge and Ridge and Valley | large river | 1 | 1.09 | Lower Cumberland River |
| A007 | large East Gulf Coastal Plain rivers, origin on the Cumberland Plateau | large river | 1 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| A007 | large East Gulf Coastal Plain rivers, origin on the Cumberland Plateau | large river | 1 | 4.07 | Lower Tombigbee River |
| A008 | large Coastal Plain rivers, origin on the Piedmont/Blue Ridge | large river | 1 | 4.02 | Coosa River |
| A008 | large Coastal Plain rivers, origin on the Piedmont/Blue Ridge | large river | 1 | 4.04 | Alabama River |
| A008 | large Coastal Plain rivers, origin on the Piedmont/Blue Ridge | large river | 1 | 4.08 | Mobile Delta |
| A009 | large Coastal Plain rivers, origin on the Coastal Plain | large river | 1 | 2.02 | Pascagoula/Escatawpa |
| A009 | large Coastal Plain rivers, origin on the Coastal Plain | large river | 1 | 2.03 | Pearl-Upper Coastal Plain |
| A009 | large Coastal Plain rivers, origin on the Coastal Plain | large river | 1 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| B004 | medium Cumberland Plateau rivers, origin in the Cumberland Plateau | medium river | 1 | 4.05 | Upper Black Warrior River |
| B011 | medium East Gulf Coastal Plain rivers, origin in Ridge and Valley | medium river | 1 | 4.03 | Cahaba River |
| B012 | medium Coastal Plain rivers, origin in the Piedmont and Blue Ridge | medium river | 1 | 4.01 | Tallapoosa River |
| B013 | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | medium river | 1 | 2.01 | Chickasawhay |
| B013 | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | medium river | 1 | 2.02 | Pascagoula/Escatawpa |
| B013 | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | medium river | 1 | 2.03 | Pearl-Upper Coastal Plain |
| B013 | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | medium river | 1 | 2.06 | Coastal Plain-Tennessee |
| B013 | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | medium river | 1 | 2.07 | Yazoo-Coastal Plain |
| B013 | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | medium river | 1 | 2.09 | Big Black/Mississippi Lower Coastal Plain |
| B013 | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | medium river | 1 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| C004 | small Ridge and Valley rivers in sandstones, origin in Ridge and Valley limestones | small river | 2 | 4.03 | Cahaba River |
| C010 | small Highland Rim rivers, origin in Highland Rim | small river | 2 | 1.05 | Lower Tennessee River |
| C010 | small Highland Rim rivers, origin in Highland Rim | small river | 2 | 1.09 | Lower Cumberland River |
| C016 | small Coastal Plain rivers, origin in the Cumberland Plateau | small river | 2 | 4.03 | Cahaba River |
| C016 | small Coastal Plain rivers, origin in the Cumberland Plateau | small river | 2 | 4.05 | Upper Black Warrior River |
| C016 | small Coastal Plain rivers, origin in the Cumberland Plateau | small river | 2 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 1.05 | Lower Tennessee River |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 2.01 | Chickasawhay |

| | | | | | |
|---|---|---|---|---|---|
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 2.02 | Pascagoula/Escatawpa |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 2.03 | Pearl-Upper Coastal Plain |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 2.06 | Coastal Plain-Tennessee |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 2.07 | Yazoo-Coastal Plain |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 2.09 | Big Black/Mississippi Lower Coastal Plain |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 4.01 | Tallapoosa River |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 4.03 | Cahaba River |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 4.04 | Alabama River |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| C018 | small Coastal Plain rivers, origin in Coastal Plain | small river | 2 | 4.07 | Lower Tombigbee River |
| C019 | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | small river | 2 | 4.01 | Tallapoosa River |
| C019 | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | small river | 2 | 4.04 | Alabama River |
| C019 | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | small river | 2 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| C021 | small Coastal Plain rivers in acidic clays, origin in Coastal Plain | small river | 2 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| C031 | small alluvial plain rivers, in Holocene alluvium, origin in the coastal plain, East | small river | 2 | 2.06 | Coastal Plain-Tennessee |
| C031 | small alluvial plain rivers, in Holocene alluvium, origin in the coastal plain, East | small river | 2 | 2.07 | Yazoo-Coastal Plain |
| C031 | small alluvial plain rivers, in Holocene alluvium, origin in the coastal plain, East | small river | 2 | 2.09 | Big Black/Mississippi Lower Coastal Plain |
| D003 | ridge and valley streams | headwater, creek | 3 | 4.02 | Coosa River |
| D003 | ridge and valley streams | headwater, creek | 3 | 4.03 | Cahaba River |
| D012 | ridge and valley streams, limestone to sandstone | headwater, creek | 3 | 4.03 | Cahaba River |
| D012 | ridge and valley streams, limestone to sandstone | headwater, creek | 3 | 4.05 | Upper Black Warrior River |
| D014 | ridge and valley streams, in sandstones | headwater, creek | 3 | 4.03 | Cahaba River |
| D024 | Cumberland mountain, plateau streams | headwater, creek | 3 | 1.05 | Lower Tennessee River |
| D024 | Cumberland mountain, plateau streams | headwater, creek | 3 | 4.02 | Coosa River |
| D024 | Cumberland mountain, plateau streams | headwater, creek | 3 | 4.02 | Coosa River |
| D024 | Cumberland mountain, plateau streams | headwater, creek | 3 | 4.05 | Upper Black Warrior River |
| D030 | Highland Rim streams | headwater, creek | 3 | 1.05 | Lower Tennessee River |
| D030 | Highland Rim streams | headwater, creek | 3 | 1.09 | Lower Cumberland River |
| D032 | Highland Rim streams | headwater, creek | 3 | 1.05 | Lower Tennessee River |
| D032 | Highland Rim streams | headwater, creek | 3 | 1.09 | Lower Cumberland River |
| D043 | Piedmont streams, headwaters in limestones | headwater, creek | 3 | 4.02 | Coosa River |
| D057 | Piedmont streams | headwater, creek | 3 | 4.01 | Tallapoosa River |
| D057 | Piedmont streams | headwater, creek | 3 | 4.02 | Coosa River |
| D069 | transitional streams, coastal plain to ridge and valley | headwater, creek | 3 | 4.03 | Cahaba River |

| | | | | | |
|---|---|---|---|---|---|
| D070 | transitional streams, Cumberland plateau to coastal plain | headwater, creek | 3 | 4.05 | Upper Black Warrior River |
| D070 | transitional streams, Cumberland plateau to coastal plain | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D072 | transitional streams, coastal plain to Highland Rim | headwater, creek | 3 | 1.05 | Lower Tennessee River |
| D073 | transitional streams, Piedmont to coastal plain, "fall zone" | headwater, creek | 3 | 4.01 | Tallapoosa River |
| D073 | transitional streams, Piedmont to coastal plain, "fall zone" | headwater, creek | 3 | 4.02 | Coosa River |
| D075 | transitional streams, coastal plain to Piedmont | headwater, creek | 3 | 4.02 | Coosa River |
| D076 | coastal plain streams | headwater, creek | 3 | 4.02 | Coosa River |
| D076 | coastal plain streams | headwater, creek | 3 | 4.03 | Cahaba River |
| D076 | coastal plain streams | headwater, creek | 3 | 4.04 | Alabama River |
| D076 | coastal plain streams | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D076 | coastal plain streams | headwater, creek | 3 | 4.07 | Lower Tombigbee River |
| D077 | coastal plain streams | headwater, creek | 3 | 1.05 | Lower Tennessee River |
| D077 | coastal plain streams | headwater, creek | 3 | 2.01 | Chickasawhay |
| D077 | coastal plain streams | headwater, creek | 3 | 2.02 | Pascagoula/Escatawpa |
| D077 | coastal plain streams | headwater, creek | 3 | 2.03 | Pearl-Upper Coastal Plain |
| D077 | coastal plain streams | headwater, creek | 3 | 2.06 | Coastal Plain-Tennessee |
| D077 | coastal plain streams | headwater, creek | 3 | 2.07 | Yazoo-Coastal Plain |
| D077 | coastal plain streams | headwater, creek | 3 | 2.09 | Big Black/Mississippi Lower Coastal Plain |
| D077 | coastal plain streams | headwater, creek | 3 | 4.01 | Tallapoosa River |
| D077 | coastal plain streams | headwater, creek | 3 | 4.03 | Cahaba River |
| D077 | coastal plain streams | headwater, creek | 3 | 4.04 | Alabama River |
| D077 | coastal plain streams | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D077 | coastal plain streams | headwater, creek | 3 | 4.07 | Lower Tombigbee River |
| D080 | coastal plain streams, in gravels and sands | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D081 | coastal plain streams, transitional, sands to clays | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D081 | coastal plain streams, transitional, sands to clays | headwater, creek | 3 | 4.07 | Lower Tombigbee River |
| D082 | coastal plain streams, acidic clays | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D082 | coastal plain streams, acidic clays | headwater, creek | 3 | 4.07 | Lower Tombigbee River |
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 2.01 | Chickasawhay |
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 2.02 | Pascagoula/Escatawpa |

| | | | | | |
|---|---|---|---|---|---|
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 2.03 | Pearl-Upper Coastal Plain |
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 2.06 | Coastal Plain-Tennessee |
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 2.07 | Yazoo-Coastal Plain |
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 2.08 | Yazoo- MS Alluvial Plain |
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 2.09 | Big Black/Mississippi Lower Coastal Plain |
| D083 | coastal plain streams, acidic clays | headwater, creek | 3 | 4.04 | Alabama River |
| D084 | coastal plain streams, calcareous clays | headwater, creek | 3 | 2.06 | Coastal Plain-Tennessee |
| D084 | coastal plain streams, calcareous clays | headwater, creek | 3 | 4.01 | Tallapoosa River |
| D084 | coastal plain streams, calcareous clays | headwater, creek | 3 | 4.04 | Alabama River |
| D084 | coastal plain streams, calcareous clays | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D084 | coastal plain streams, calcareous clays | headwater, creek | 3 | 4.07 | Lower Tombigbee River |
| D085 | coastal plain streams, calcareous clays, sands | headwater, creek | 3 | 2.06 | Coastal Plain-Tennessee |
| D085 | coastal plain streams, calcareous clays, sands | headwater, creek | 3 | 4.04 | Alabama River |
| D085 | coastal plain streams, calcareous clays, sands | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D085 | coastal plain streams, calcareous clays, sands | headwater, creek | 3 | 4.07 | Lower Tombigbee River |
| D087 | coastal plain streams, alluvium | headwater, creek | 3 | 4.03 | Cahaba River |
| D087 | coastal plain streams, alluvium | headwater, creek | 3 | 4.04 | Alabama River |
| D087 | coastal plain streams, alluvium | headwater, creek | 3 | 4.06 | Upper Tombigbee/Lower Black Warrior |
| D087 | coastal plain streams, alluvium | headwater, creek | 3 | 4.07 | Lower Tombigbee River |
| D087 | coastal plain streams, alluvium | headwater, creek | 3 | 4.08 | Mobile Delta |
| D098 | coastal plain streams, loess veneer over sands | headwater, creek | 3 | 2.06 | Coastal Plain-Tennessee |
| D098 | coastal plain streams, loess veneer over sands | headwater, creek | 3 | 2.07 | Yazoo-Coastal Plain |
| D098 | coastal plain streams, loess veneer over sands | headwater, creek | 3 | 2.08 | Yazoo- MS Alluvial Plain |
| D100 | coastal plain streams, connect to large rivers | headwater, creek | 3 | 2.02 | Pascagoula/Escatawpa |
| D100 | coastal plain streams, connect to large rivers | headwater, creek | 3 | 2.09 | Big Black/Mississippi Lower Coastal Plain |
| D101 | coastal plain streams, loess veneer over sands | headwater, creek | 3 | 2.09 | Big Black/Mississippi Lower Coastal Plain |
| D103 | coastal plain streams, acidic clays, connect to large rivers | headwater, creek | 3 | 2.08 | Yazoo- MS Alluvial Plain |
| D114 | alluvial plain streams, in Holocene alluvium, primarily backswamps | headwater, creek | 3 | 2.06 | Coastal Plain-Tennessee |
| D114 | alluvial plain streams, in Holocene alluvium, primarily backswamps | headwater, creek | 3 | 2.08 | Yazoo- MS Alluvial Plain |

## APPENDIX 6: Aquatic Species Targets

| Database Code | Type | Scientific Name | Common Name | Global Rank |
|---|---|---|---|---|
| AFCAA01041 | FISH | *Acipenser oxyrinchus desotoi* | GULF STURGEON | G3T2 |
| AFCAA02030 | FISH | *Scaphirhynchus suttkusi* | ALABAMA STURGEON | G1 |
| AFCAB01010 | FISH | *Polyodon spathulata* | PADDLEFISH | G4 |
| AFCFA01020 | FISH | *Alosa alabamae* | ALABAMA SHAD | G3 |
| AFCJB28440 | FISH | *Notropis euryzonus* | BROADSTRIPE SHINER | G3 |
| AFCJB28990 | FISH | *Notropis uranoscopus* | SKYGAZER SHINER | G3 |
| AFCJB28A20 | FISH | *Notropis welaka* | BLUENOSE SHINER | G3G4 |
| AFCJB49050 | FISH | *Cyprinella callitaenia* | BLUESTRIPE SHINER | G2G3 |
| AFCJB53??2 | FISH | *Macrhybopsis sp. cf. aestivalis sp. 2* | A CHUB | NA |
| AFCJC04020 | FISH | *Cycleptus meridionalis* | SOUTHEASTERN BLUE SUCKER | G3G4 |
| AFCJC10X10 | FISH | *Moxostoma sp. 1* | APALACHICOLA REDHORSE | G3 |
| AFCKA02170 | FISH | *Noturus munitus* | FRECKLEBELLY MADTOM | G3 |
| AFCKA02220 | FISH | *Noturus stigmosus* | NORTHERN MADTOM | G3 |
| AFCKA02260 | FISH | *Noturus sp 3* | A MADTOM | G1Q |
| AFCQB12X10 | FISH | *Micropterus cataractae* | SHOAL BASS | G3 |
| AFCQC01010 | FISH | *Crystallaria asprella #1* | CRYSTAL DARTER (EASTERN POPULATION) | G3 |
| AFCQC01010 | FISH | *Crystallaria asprella #2* | CRYSTAL DARTER (WESTERN POPULATION) | G3 |
| AFCQC01040 | FISH | *Ammocrypta clara* | WESTERN SAND DARTER | G3 |
| AFCQC02080 | FISH | *Etheostoma boschungi* | SLACKWATER DARTER | G1 |
| AFCQC02A50 | FISH | *Etheostoma corona* | CROWN DARTER | G3 |
| AFCQC02630 | FISH | *Etheostoma rubrum* | BAYOU DARTER | G1 |
| AFCQC02990 | FISH | *Etheostoma pyrrhogaster* | FIREBELLY DARTER | G2 |
| AFCQC02B00 | FISH | *Etheostoma chienense* | RELICT DARTER | G1 |
| AFCQC02X10 | FISH | *Etheostoma raneyi* | YAZOO DARTER | G2 |
| AFCQC04110 | FISH | *Percina lenticula* | FRECKLED DARTER | G2 |
| AFCQC04360 | FISH | *Percina aurora* | PEARL DARTER | G1 |
| AFCQC05030 | FISH | *Stizostedion sp. 1* | SOUTHERN WALLEYE | G3 |
| AAAAC01010 | AMPHIBIAN | *Cryptobranchus alleganiensis* | HELLBENDER | G3G4 |
| ARAAB02010 | REPTILE | *Macrochelys temminckii* | ALLIGATOR SNAPPING TURTLE | G3G4 |
| ARAAD05062 | REPTILE | *Graptemys nigrinoda nigrinoda* | BLACK-KNOBBED MAP TURTLE | G3T3 |
| ARAAD05070 | REPTILE | *Graptemys oculifera* | RINGED MAP TURTLE | G2 |
| ICMAL11430 | CRAYFISH | *Orconectes holti* | A CRAYFISH | G3 |
| ICMAL11550 | CRAYFISH | *Orconectes wrighti* | UNKNOWN | G1 |
| ICMAL11560 | CRAYFISH | *Orconectes mississippiensis* | UNKNOWN | G2G3 |
| ICMAL11750 | CRAYFISH | *Orconetes hartfieldi* | UNKNOWN | NA |
| ICMAL13010 | CRAYFISH | *Hobbseus attenuatus* | PEARL RIVER CRAYFISH | G2 |
| ICMAL13020 | CRAYFISH | *Hobbseus petilus* | UNKNOWN | G2 |
| ICMAL13030 | CRAYFISH | *Hobbseus orconectioides* | OKTIBBEHA RIVERLET CRAYFISH | G3 |
| ICMAL13040 | CRAYFISH | *Hobbseus valleculus* | CHOCTAW RIVERLET CRAYFISH | G1 |
| ICMAL13070 | CRAYFISH | *Hobbseus yalobushensis* | A CRAYFISH | G3 |
| ICMAL14020 | CRAYFISH | *Procambarus barbiger* | JACKSON PRAIRIE CRAYFISH | G2 |
| ICMAL14030 | CRAYFISH | *Procambarus cometes* | MISSISSIPPI FLATWOODS CRAYFISH | G1 |
| ICMAL14080 | CRAYFISH | *Procambarus lagniappe* | LAGNIAPPE CRAYFISH | G2 |
| ICMAL14090 | CRAYFISH | *Procambarus lylei* | SHUTISPEAR CRAYFISH | G2 |
| ICMAL14100 | CRAYFISH | *Procambarus pogum* | BEARDED RED CRAYFISH | G1 |
| ICMAL14760 | CRAYFISH | *Procambarus marthae* | A CRAYFISH | G3 |
| ICMAL15140 | CRAYFISH | *Fallicambarus hortoni* | HATCHIE BURROWING CRAYFISH | G1 |
| IMBIV02040 | MUSSEL | *Alasmidonta marginata* | ELKTOE | G3G4? |
| | MUSSEL | *Alamidonta triangulata* | UNKNOWN | NA |
| | MUSSEL | *Anodonta heardi* | UNKNOWN | NA |
| IMBIV05020 | MUSSEL | *Anodontoides radiatus* | RAYED CREEK SHELL | G3 |
| IMBIV06010 | MUSSEL | *Arcidens confragosus* | ROCK POCKETBOOK | NA |
| IMBIV08010 | MUSSEL | *Cumberlandia monodonta* | SPECTACLECASE | G2G3 |

| | | | | |
|---|---|---|---|---|
| IMBIV10020 | MUSSEL | *Cyprogenia stegaria* | FANSHELL | G1 |
| IMBIV14030 | MUSSEL | *Elliptio arca* | UNKNOWN | G3 |
| IMBIV14040 | MUSSEL | *Elliptio arctata* | DELICATE SPIKE | G3G4 |
| IMBIV15010 | MUSSEL | *Elliptoideus sloatianus* | UNKNOWN | NA |
| IMBIV16030 | MUSSEL | *Epioblasma brevidens* | CUMBERLANDIAN COMBSHELL | G1 |
| IMBIV16130 | MUSSEL | *Epioblasma penita* | UNKNOWN | G1 |
| IMBIV21010 | MUSSEL | *Lampsilis altilis* | UNKNOWN | G2 |
| IMBIV21110 | MUSSEL | *Lampsilis abrupta* | PINK MUCKET | G2 |
| IMBIV21140 | MUSSEL | *Lampsilis perovalis* | ORANGENACRE MUCKET | G2 |
| IMBIV21230 | MUSSEL | *Lampsilis subangulata* | UNKNOWN | NA |
| IMBIV22011 | MUSSEL | *Lasmigona complanata alabamensis* | ALABAMA HEELSPLITTER | G5T2T3 |
| IMBIV25010 | MUSSEL | *Lexingtonia dolabelloides* | SLABSIDE PEARLYMUSSEL | G2 |
| IMBIV26020 | MUSSEL | *Ligumia recta* | BLACK SANDSHELL | G5 |
| IMBIV28010 | MUSSEL | *Medionidus acutissimus* | ALABAMA MOCCASINSHELL | G1 |
| IMBIV31010 | MUSSEL | *Obovaria jacksoniana* | SOUTHERN HICKORYNUT | G1G2 |
| IMBIV31030 | MUSSEL | *Obovaria retusa* | UNKNOWN | G1 |
| IMBIV31060 | MUSSEL | *Obovaria unicolor* | ALABAMA HICKORYNUT | G3 |
| IMBIV34020 | MUSSEL | *Plethobasus cooperianus* | ORANGEFOOT PIMPLEBACK | G1 |
| IMBIV34030 | MUSSEL | *Plethobasus cyphyus* | SHEEPNOSE | G3 |
| IMBIV35030 | MUSSEL | *Pleurobema beadleianum* | MISSISSIPPI PIGTOE | G2G3 |
| IMBIV35060 | MUSSEL | *Pleurobema clava* | UNKNOWN | G1 |
| IMBIV35090 | MUSSEL | *Pleurobema cordatum* | OHIO PIGTOE | G3 |
| IMBIV35100 | MUSSEL | *Pleurobema curtum* | UNKNOWN | G1 |
| IMBIV35110 | MUSSEL | *Pleurobema decisum* | SOUTHERN CLUBSHELL | G1G2 |
| IMBIV35130 | MUSSEL | *Pleurobema furvum* | UNKNOWN | G1 |
| IMBIV35230 | MUSSEL | *Pleurobema perovatum* | UNKNOWN | G1 |
| IMBIV35240 | MUSSEL | *Pleurobema plenum* | ROUGH PIGTOE | G1 |
| IMBIV35250 | MUSSEL | *Pleurobema rubrum* | PYRAMID PIGTOE | G2 |
| IMBIV35300 | MUSSEL | *Pleurobema taitianum* | UNKNOWN | G1 |
| IMBIV37030 | MUSSEL | *Potamilus capax* | FAT POCKETBOOK | G1 |
| IMBIV37040 | MUSSEL | *Potamilus inflatus* | ALABAMA HEELSPLITTER | G1 |
| IMBIV39041 | MUSSEL | *Quadrula cylindrica cylindrica* | RABBITSFOOT | G3T3 |
| IMBIV39080 | MUSSEL | *Quadrula metanevra* | MONKEYFACE | G4 |
| IMBIV39140 | MUSSEL | *Quadrula rumphiana* | RIDGED MAPLELEAF | G3 |
| IMBIV41010 | MUSSEL | *Simpsonaias ambigua* | UNKNOWN | G3 |
| IMBIV42020 | MUSSEL | *Strophitus subvexus* | SOUTHERN CREEKMUSSEL | G3 |
| IMGASK2310 | SNAIL | *Elimia cylindracea* | CYLINDER ELIMIA | G1 |
| IMGASK5080 | SNAIL | *Leptoxis picta* | SPOTTED ROCKSNAIL | G1 |
| IMGASK7030 | SNAIL | *Pleurocera annulifera* | RINGED HORNSNAIL | G1 |

## APPENDIX 7: Botany Numeric Goals

| Scientific Name | Common Name | Overall Goal | Black Belt Goal | North Unit Goal | East Unit Goal | West Unit Goal |
|---|---|---|---|---|---|---|
| *Agalinis auriculata* | EARLEAF FOXGLOVE | 6 | 3 | 2 | NA | 1 |
| *Agalinis oligophylla* | RIDGE-STEM FALSE-FOXGLOVE | 13 | 8 | NA | NA | 4 |
| *Agalinis skinneriana* | PALE FALSE FOXGLOVE | 5 | NA | 2 | NA | 3 |
| *Apios priceana* | PRICE'S POTATO-BEAN | 13 | 7 | 6 | NA | NA |
| *Arabis georgiana* | GEORGIA ROCK-CRESS | 13 | 6 | NA | 7 | NA |
| *Aster georgianus (Symphyotrichum georgianum)* | GEORGIA ASTER | 5 | NA | NA | 5 | NA |
| *Astragalus michauxii* | SANDHILLS MILKVETCH | 3 | NA | NA | 3 | NA |
| *Baptisia megacarpa* | APALACHICOLA WILD INDIGO | 13 | NA | NA | 13 | NA |
| *Brickellia cordifolia* | FLYR'S BRICKELL-BUSH | 13 | NA | NA | 13 | NA |
| *Callirhoe triangulata* | CLUSTERED POPPY-MALLOW | 5 | 1 | NA | 2 | 2 |
| *Carex decomposita* | CYPRESS-KNEE SEDGE | 5 | NA | 4 | NA | 1 |
| *Carex impressinervia* | IMPRESSED-NERVED SEDGE | 6 | 2 | NA | 3 | 1 |
| *Carex oxylepis var pubescens* | A SEDGE | 13 | NA | NA | NA | 13 |
| *Chelone obliqua var speciosa* | ROSE TURTLEHEAD | 5 | NA | 5 | NA | NA |
| *Cimicifuga rubifolia (actaea rubifolia)* | APPALACHIAN BUGBANE | 3 | data gap | data gap | data gap | data gap |
| *Clematis glaucophylla* | WHITE-LEAVED LEATHER-FLOWER | 6 | data gap | data gap | data gap | data gap |
| *Crataegus ashei* | A HAWTHORN | 25 | 13 | NA | NA | 13 |
| *Crataegus harbisonii* | HARBISON HAWTHORN | 13 | 5 | 2 | NA | 6 |
| *Crataegus meridionalis* | A HAWTHORN | 25 | 13 | NA | NA | 13 |
| *Crataegus triflora* | THREE-FLOWERED HAWTHORN | 13 | 3 | NA | 1 | 9 |
| *Croomia pauciflora* | CROOMIA | 13 | 3 | NA | 10 | NA |
| *Cuscuta harperi* | HARPER'S DODDER | 13 | NA | NA | 13 | NA |
| *Cypripedium candidum* | SMALL WHITE LADY'S-SLIPPER | 3 | NA | NA | 3 | NA |
| *Cypripedium kentuckiense* | SOUTHERN LADY'S-SLIPPER | 5 | 3 | NA | 1 | 1 |
| *Dalea foliosa* | LEAFY PRAIRIE-CLOVER | 13 | NA | NA | 13 | NA |
| *Delphinium alabamicum* | ALABAMA LARKSPUR | 13 | 10 | NA | 3 | NA |
| *Desmodium ochroleucum* | CREAMFLOWER TICK-TREFOIL | 5 | 3 | NA |  | 2 |
| *Fothergillia major* | NONE | 3 | NA | NA | 3 | NA |
| *Helianthus verticillatus* | WHORLED SUNFLOWER | 13 | NA | 13 | NA | NA |
| *Hexastylis shuttleworthii var harperi* | HARPER'S HEARTLEAF | 13 | NA | NA | 13 | NA |
| *Hexastylis speciosa* | HARPER'S HEARTLEAF | 25 | 10 | NA | 15 | NA |
| *Juglans cinerea* | BUTTERNUT | 5 | 1 | 1 | 1 | 2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Lindera melissifolia* | PONDBERRY | 6 | | | | |
| *Lysimachia fraseri* | FRASER LOOSESTRIFE | 5 | NA | 2 | 3 | NA |
| *Minuartia godfreyi* | GODFREY'S STITCHWORT | 5 | NA | NA | 5 | NA |
| *Neviusia alabamensis* | ALABAMA SNOW-WREATH | 13 | NA | NA | 13 | NA |
| *Paronychia herniarioides* | COASTAL-PLAIN NAILWORT | 3 | NA | NA | 3 | NA |
| *Phacelia ranunculacea* | BLUE SCORPION-WEED | 6 | NA | 4 | NA | 2 |
| *Phaeophyscia leana* | A LICHEN | 5 | NA | 5 | NA | NA |
| *Phlox pulchra* | WHERRY'S PHLOX | 13 | 13 | NA | NA | NA |
| *Physalis carpenteri* | CARPENTER'S GROUND-CHERRY | 13 | NA | NA | NA | 13 |
| *Plantago cordata* | HEART-LEAVED PLANTAIN | 6 | 3 | NA | 3 | NA |
| *Platanthera integrilabia* | WHITE FRINGELESS ORCHID | 5 | NA | NA | 5 | NA |
| *Polymnia laevigata* | TENNESSEE LEAFCUP | 5 | NA | NA | 5 | NA |
| *Pteroglossaspis ecristata* | CRESTED FRINGED ORCHID | 13 | NA | NA | ? | 13 |
| *Ptilimnium nodosum* | HARPERELLA | 3 | NA | NA | 3 | NA |
| *Pycnanthemum torrei* | TORREY'S MOUNTAIN MINT | 5 | NA | 5 | data gap | NA |
| *Quercus arkansana* | ARKANSAS OAK | 13 | NA | NA | 10 | 3 |
| *Quercus oglethorpensis* | OGLETHORPE'S OAK | 13 | NA | NA | NA | 13 |
| *Rhexia aristosa* | AWNED MEADOWBEAUTY | 13 | 13 | NA | NA | 13 |
| *Rhynchospora crinipes* | HAIRY-PEDUNCLED BEAK-RUSH | 3 | ? | NA | ? | ? |
| *Rhynchospora thornei* | THORNE'S BEAKRUSH | 6 | 4 | NA | 2 | NA |
| *Rudbeckia heliopsidis* | SUN-FACING CONEFLOWER | 13 | NA | NA | 13 | NA |
| *Sarracenia rubra ssp alabamensis* | ALABAMA CANEBRAKE PITCHER-PLANT | 25 | NA | NA | 25 | NA |
| *Schisandra glabra* | BAY STARVINE | 6 | NA | 2 | 2 | 2 |
| *Silene caroliniana ssp wherryi* | WHERRY'S CATCHFLY | 3 | NA | NA | 3 | NA |
| *Silene ovata* | OVATE CATCHFLY | 6 | 2 | 1 | 1 | 2 |
| *Silphium perplexum* | UNNAMED | 3 | 3 | NA | NA | NA |
| *Stylisma pickeringii var pickeringii* | PICKERING'S MORNING-GLORY | 13 | 6 | NA | 7 | NA |
| *Talinum calcaricum* | LIMESTONE FAME-FLOWER | 3 | NA | NA | 3 | NA |
| *Talinum mengesii* | MENGE'S FAME-FLOWER | 6 | NA | NA | 6 | NA |
| *Thalia dealbata* | POWDERY THALIA | 3 | data gap | data gap | 1 | data gap |
| *Thalictrum debile* | SOUTHERN MEADOW-RUE | 13 | 13 | NA | NA | NA |
| *Thalictrum mirabile* | LITTLE MOUNTAIN MEADOW-RUE | 13 | | | | |
| *Thaspium pinnatifidum* | CUTLEAF MEADOW-PARSNIP | 13 | NA | NA | 13 | NA |
| *Trillium foetidissimum* | FETID TRILLIUM | 13 | NA | NA | NA | 13 |
| *Trillium lancifolium* | NARROW-LEAVED TRILLIUM | 13 | 7 | NA | 6 | NA |
| *Uvularia floridana* | FLORIDA BELLWORT | 6 | 3 | NA | 3 | NA |
| *Xyris tennesseensis* | TENNESSEE YELLOW-EYED GRASS | 13 | NA | NA | 13 | NA |

## APPENDIX 8: Zoology Numeric Goals

| Scientific Name | Common Name | Overall Goal | Black Belt Goal | North Unit Goal | East Unit Goal | West Unit Goal |
|---|---|---|---|---|---|---|
| *Cyclotrechelus hyperiformis* | NOT AVAILABLE | 25 | 25 | NA | NA | NA |
| *Mecas robtundicollis* | NOT AVAILABLE | 6 | 6 | NA | NA | NA |
| *Ataxia brunnea* | NOT AVAILABLE | 3 | 3 | NA | NA | NA |
| *Ambystoma tigrinum* | TIGER SALAMANDER | 8 | 2 | 2 | 2 | 2 |
| *Aneides aeneus* | GREEN SALAMANDER | 4 | NA | NA | 4 | NA |
| *Desmognathus aeneus* | SEEPAGE SALAMANDER | 3 | NA | NA | 3 | NA |
| *Gyrinophilus porphyriticus* | SPRING SALAMANDER | 4 | NA | NA | 4 | NA |
| *Hemidactylium scutatum* | FOUR-TOED SALAMANDER | 6 | NA | NA | 4 | 2 |
| *Plethodon websteri* | WEBSTER'S SALAMANDER | 8 | NA | NA | 2 | 6 |
| *Pseudacris streckeri illionoisensis* | ILLINOIS CHORUS FROG | 2 | NA | 2 | NA | NA |
| *Rana areolata circulosa* | NORTHERN CRAWFISH FROG | 13 | NA | 13 | 0 | NA |
| *Mycteria americana* | WOOD STORK | 6 | 2 | NA | 2 | 2 |
| *Picoides borealis* | RED-COCKADED WOODPECKER | 6 | NA | NA | 3 | 3 |
| *Dendroica cerulea* | CERULEAN WARBLER | 3 | NA | 3 | NA | NA |
| *Limnothlypis swainsonii* | SWAINSON'S WARBLER | 4 | 1 | 1 | 1 | 1 |
| *Aimophila aestivalis* | BACHMAN'S SPARROW | 5 | data gap | data gap | 2 | 3 |
| *Ammodramus henslowii* | HENSLOW'S SPARROW | 6 | NA | 2 | 2 | 2 |
| *Myotis austroriparius* | SOUTHEASTERN MYOTIS | 8 | NA | 6 | NA | 2 |
| *Myotis grisescens* | GRAY MYOTIS | 4 | NA | 3 | 1 | NA |
| *Myotis sodalis* | INDIANA BAT | 5 | NA | 4 | NA | 1 |
| *Myotis septentrionalis* | NORTHERN MYOTIS | 2 | NA | NA | 2 | NA |
| *Corynorhinus rafinesquii* | RAFINESQUE'S BIG-EARED BAT | 6 | NA | 2 | 2 | 2 |
| *Geomys pinetis* | SOUTHEASTERN POCKET GOPHER | 4 | 2 | NA | 2 | NA |
| *Peromyscus polionotus* | OLDFIELD MOUSE | 13 | 3 | NA | 5 | 5 |
| *Ursus americanus luteolus* | LOUISIANA BLACK BEAR | 2 | NA | NA | NA | 2 |
| *Gopherus polyphemus* | GOPHER TORTOISE | 4 | NA | NA | 2 | 2 |
| *Ophysaurus attennatus longicaudus* | EASTERN SLENDER GLASS LIZARD | 6 | 1 | 2 | 2 | 2 |
| *Clonophis kirtlandii* | KIRTLAND'S SNAKE | 2 | NA | 2 | NA | NA |
| *Lampropeltis calligaster rhobomaculata* | MOLE KINGSNAKE | 6 | 2 | NA | 2 | 2 |
| *Masticophis flagellum flagellum* | COACHWHIP | 5 | 1 | 1 | 1 | 2 |
| *Nerodia cyclopion* | GREEN WATER SNAKE | 13 | NA | data gap | NA | 13 |
| *Pituophis melanoleucus melanoleucus* | NORTHERN PINE SNAKE | 6 | NA | 3 | 3 | NA |
| *Crotalus horridus* | TIMBER RATTLESNAKE | 12 | 2 | 6 | 2 | 2 |
| None | TERRESTRIAL CAVE COMMUNITY | 3 | NA | 3 | NA | NA |
| *Cicindela marginipennis* | COBBLESTONE TIGER BEETLE | 3 | NA | NA | 3 | NA |
| *Tetragoniella albata* | NOT AVAILABLE | 4 | 4 | NA | NA | NA |
| *Euphyes dukesi* | DUKES' SKIPPER | 2 | NA | 2 | NA | NA |
| *Neonympha mitchelli sp.* | MITCHELL'S SATYR | 3 | NA | NA | 3 | NA |
| *Crambus sp.* | NOT AVAILABLE | 25 | 25 | NA | NA | NA |
| None | HERON ROOKERY | 8 | 2 | 2 | 2 | 2 |
| *Strangalia cambrei* | NOT AVAILABLE | 25 | 25 | NA | NA | NA |

## APPENDIX 9: Terrestrial Conservation Sites

| SITE ID | SITE NAME | STATE | SIZE (ACRES) |
|---|---|---|---|
| 1 | Autauga Sandhills | AL | 120647.543 |
| 6 | Bibb County Glades | AL | 26662.336 |
| 8 | Big Swamp Creek | AL | 22002.793 |
| 9 | Black Warrior River Slopes | AL | 4927.085 |
| 12 | Buck Creek | AL | 193.088 |
| 37 | Dillard | AL | 193.088 |
| 45 | Ft. Tombecbee - Jones Bluff | AL | 193.088 |
| 46 | Ft. Toulouse - Jackson Park | AL | 193.088 |
| 50 | Green's Pitcher Plant Bog-Yellow Leaf Creek | AL | 193.088 |
| 54 | Jock Creek | AL | 193.088 |
| 17 | Buffered Point at Quercus arkansana (AL006) | AL | 193.088 |
| 18 | Buffered Point at Quercus arkansana (AL007) | AL | 193.088 |
| 19 | Buffered Point at Quercus arkansana (AL008) | AL | 193.088 |
| 15 | Buffered Point at Crataegus ashei (AL001) | AL | 193.088 |
| 22 | Buffered Point at Trillium lancifolium (AL016) | AL | 193.088 |
| 23 | Buttahatchee River Slopes | AL | 2458.819 |
| 26 | Cedar Creek - Highway 41 | AL | 193.088 |
| 39 | East Alabama Fall Line Hills | AL | 394513.087 |
| 43 | Foxtrap Creek | AL | 1547.011 |
| 44 | Freedom Hills and Adjacent Lands | AL | 9249.143 |
| 55 | Jones Bluff | AL | 14245.052 |
| 59 | Little Uchee Creek Ravines | AL | 193.088 |
| 60 | Lower Alabama River | AL | 135462.833 |
| 62 | Lower Black Warrior | AL | 102230.454 |
| 63 | Lower Cahaba | AL | 34784.049 |
| 65 | Lower Tombigbee River | AL | 50598.835 |
| 73 | Mulberry Creek | AL | 1534.126 |
| 75 | North Fork Creek Glade | AL | 5017.226 |
| 79 | Noxubee River | AL | 17613.241 |
| 82 | Oakmulgee District, Talladega N.F. | AL | 458804.837 |
| 84 | Old Bluffport | AL | 53427.669 |
| 85 | Old Cahaba Prairies | AL | 2608.756 |
| 88 | Osborne Hill Barrens | AL | 727.650 |
| 91 | Prairie Bluff - Millers Ferry Prairie | AL | 8866.934 |
| 95 | Rock Creek Barrens | AL | 1258.852 |
| 97 | Sandy Creek | AL | 920.045 |
| 104 | Sipsee River | AL | 90500.149 |
| 107 | Srygley Barrens | AL | 1938.384 |
| 113 | Thorne Glade | AL | 1284.224 |
| 114 | Tilden Carlbill Prairie Complex | AL | 6890.032 |
| 20 | Buffered Point at Quercus arkansana (AL014) | AL | 199.715 |
| 4 | Bear Creek System | AL-MS | 192252.847 |
| 41 | Fort Benning | GA-AL | 572832.911 |
| 24 | Cache River Complex | IL | 83196.692 |
| 27 | Chestnut Hills | IL | 1308.853 |

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|---|---|---|---|
| 36 | Cretaceous Hills/Blackbottom Complex | IL | 76645.953 |
| 42 | Fort Massac | IL | 4364.687 |
| 51 | Halesia | IL | 3038.133 |
| 69 | Mermet Lake Site | IL | 4019.948 |
| 103 | Sielbeck | IL | 615.314 |
| 2 | Barlow Bottoms | KY | 34822.551 |
| 3 | Bayou DeChien | KY | 57274.358 |
| 32 | Clark's River Corridor | KY | 121345.605 |
| 49 | Grand Rivers Corridor | KY | 294004.390 |
| 58 | Laketon Bottoms | KY | 47847.547 |
| 67 | Mayfield Creek Area | KY | 60301.004 |
| 83 | Obion Creek Corridor | KY | 117924.782 |
| 124 | Western KY WMA Area | KY | 26857.978 |
| 10 | Blood River Seeps | KY-TN | 13584.154 |
| 57 | LBL Area | KY-TN | 432424.831 |
| 94 | Reelfoot Lake-New Madrid Area | KY-TN | 118144.920 |
| 112 | Terrapin Creek Vicinity | KY-TN | 46532.172 |
| 119 | Tunica Hills | LA-MS | 104327.966 |
| 5 | Bearded Red Crawfish Site | MS | 3862.639 |
| 7 | Bienville N.F. | MS | 466326.315 |
| 11 | Bouteloua Prairie | MS | 74967.302 |
| 13 | Buckatunna Creek - Hwy 84 | MS | 193.088 |
| 25 | Cane Creek Bluffs - east | MS | 193.088 |
| 29 | Chitlin Corners | MS | 193.088 |
| 48 | Glasgow Property | MS | 193.088 |
| 53 | Holly Springs Dist. | MS | 193.088 |
| 16 | Buffered Point at Crataegus meridionalis (MS002) | MS | 193.088 |
| 14 | Buffered Point at Agalinis pseudaphylla (MS002) | MS | 193.088 |
| 21 | Buffered Point at Ross Barnett Res. | MS | 193.088 |
| 30 | Chunky Bottom and Sandhill | MS | 59651.381 |
| 31 | Church Hill Webster | MS | 2061.950 |
| 33 | Clarke County Gopher Tortoise | MS | 2039.476 |
| 34 | Coonewah Creek Chalk Bluffs | MS | 1951.731 |
| 35 | Crawford Prairie | MS | 1853.160 |
| 40 | Fly Mountain | MS | 813.815 |
| 47 | George Payne Cossar State Park | MS | 1420.802 |
| 56 | Killgore Hills | MS | 14026.160 |
| 61 | Lower Big Black Bluffs | MS | 551767.155 |
| 64 | Lower Holly Springs - Upper Sardis | MS | 79591.843 |
| 66 | Majure Property | MS | 1984.434 |
| 68 | Meridian Naval Air Station | MS | 23560.586 |
| 70 | Middle Holly Springs | MS | 95350.317 |
| 71 | Middle Pearl and Yackanookany River | MS | 37955.410 |
| 72 | Morgan Brake and Bluffs | MS | 165796.235 |
| 74 | New Auqa Site Shutispaer | MS | 120162.811 |
| 76 | North Sardis | MS | 2201.544 |
| 78 | Noxubee Prairie and Bluff | MS | 32954.256 |
| 80 | Noxubee-Tombigbee | MS | 224892.356 |
| 81 | OSM PA 4 | MS | 796.774 |
| 86 | Old Capitol Webster's Salamander | MS | 398.758 |
| 87 | Osborn Prairie | MS | 9116.684 |
| 89 | Osm_laf4 site | MS | 2805.750 |
| 92 | Puckett Crawfish | MS | 2449.704 |

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|---|---|---|---|
| 98 | Sandy Creek WMA | MS | 19650.686 |
| 99 | Sassafras Springs Natural Area | MS | 1992.298 |
| 100 | Seven Springs Road Webster's Salamander | MS | 309.236 |
| 101 | Shuqualak Black Prairie | MS | 29023.321 |
| 102 | Shutaspear Crawfish 2 | MS | 4241.600 |
| 109 | Tamola Mouse Site | MS | 2076.350 |
| 110 | Ten-Tom River and Wrenwoode Forest | MS | 186854.646 |
| 117 | Tombigbee State Park | MS | 529.017 |
| 120 | Upper Holly Springs | MS | 35446.555 |
| 121 | Upper Pearl Headwaters and Tribs. | MS | 65509.095 |
| 122 | Upper Tombigbee | MS | 80804.743 |
| 123 | Wall Doxey State Park | MS | 843.288 |
| 126 | Yalobusha Unit | MS | 200.126 |
| 116 | Tombigbee River Levee Old Field Mouse Site | MS-AL | 207.259 |
| 96 | SW Mississippi/LA Bear Habitat | MS-LA | 829264.575 |
| 108 | St. Catherine Creek - Laurel Hill | MS-LA | 65379.882 |
| 111 | Tennessee River Bluffs | MS-TN-AL | 150564.668 |
| 28 | Chickasaw Bluffs | TN | 35959.338 |
| 38 | Dyersburg Bluffs | TN | 70876.645 |
| 77 | Northern Hills & Headwaters | TN | 1285022.343 |
| 90 | Pinson Helianthus Site | TN | 65.452 |
| 93 | Reelfoot Bluffs | TN | 55357.987 |
| 115 | Tipton County Bluffs | TN | 29056.415 |
| 118 | Transition Hills | TN-AL | 698545.573 |
| 52 | Hatchie River | TN-MS | 172808.847 |
| 105 | Southern Hills & Headwaters-east | TN-MS | 521437.707 |
| 106 | Southern Hills & Headwaters-west | TN-MS | 352417.314 |
| 125 | Wolf River | TN-MS | 72110.684 |

## APPENDIX 11: Zoology Targets Look-Up Table

| TARGET NAME | VIABLE? | SITE NAME |
|---|---|---|
| *Ambystoma tigrinum* | no - confirmed | Noxubee-Tombigbee |
| *Ambystoma tigrinum* | unknown - confirmed | East Alabama Fall Line Hills |
| *Aneides aeneus* | yes - confirmed | Bear Creek System |
| *Desmognathus aeneus* | yes - confirmed | Oakmulgee District, Talladega N.F. |
| *Gyrinophilus porphyriticus* | yes - confirmed | Bear Creek System |
| *Hemidactylium scutatum* | yes - confirmed | Bear Creek System |
| *Hemidactylium scutatum* | yes - confirmed | Majure Property |
| *Plethodon websteri* | yes - confirmed | Noxubee-Tombigbee |
| *Plethodon websteri* | no - confirmed | East Alabama Fall Line Hills |
| *Plethodon websteri* | yes - confirmed | Seven Springs Road Webster's Salamander |
| *Plethodon websteri* | yes - confirmed | Church Hill Webster |
| *Plethodon websteri* | yes - confirmed | Old Capitol Webster's Salamander |
| *Plethodon websteri* | yes - confirmed | Lower Big Black Bluffs |
| *Rana areolata circulosa* | yes - assumed | Western KY WMA Area |
| *Rana areolata circulosa* | yes - assumed | Grand Rivers Corridor |
| *Rana areolata circulosa* | yes - assumed | Mayfield Creek Area |
| *Rana areolata circulosa* | unknown - assumed | Terrapin Creek Vicinity |
| *Rana areolata circulosa* | unknown - assumed | Obion Creek Corridor |
| *Mycteria americana* | yes - confirmed | Lower Big Black Bluffs |
| *Mycteria americana* | yes - confirmed (proto) | Fort Benning |
| *Sterna antillarum athalassos* | yes - confirmed (proto) | Laketon Bottoms |
| *Picoides borealis* | yes - assumed | Oakmulgee District, Talladega N.F. |
| *Picoides borealis* | no - confirmed | Bear Creek System |
| *Picoides borealis* | yes - assumed | Bienville N.F. |
| *Picoides borealis* | unknown | SW Mississippi/LA Bear Habitat |
| *Picoides borealis* | yes - confirmed (proto) | Fort Benning |
| *Picoides borealis* | yes - assumed | Bienville N.F. |
| *Picoides borealis* | yes - assumed | Noxubee-Tombigbee |
| *Dendroica cerulea* | unknown - assumed | Northern Hills & Headwaters |
| *Dendroica cerulea* | yes - confirmed (proto) | Cache River Complex |
| *Limnothlypis swainsonii* | unknown - assumed | Cache River Complex |
| *Limnothlypis swainsonii* | unknown - assumed | Dyersburg Bluffs |
| *Limnothlypis swainsonii* | yes - confirmed (proto) | Fort Massac |
| *Limnothlypis swainsonii* | unknown - assumed | Hatchie River |
| *Limnothlypis swainsonii* | no - assumed | Northern Hills & Headwaters |
| *Limnothlypis swainsonii* | no - assumed | Reelfoot Lake-New Madrid Area |
| *Limnothlypis swainsonii* | unknown - assumed | Southern Hills & Headwaters-east |
| *Limnothlypis swainsonii* | no - assumed | Southern Hills & Headwaters-west |
| *Aimophila aestivalis* | unknown | Bayou DeChien |
| *Aimophila aestivalis* | yes - assumed | Bienville N.F. |
| *Aimophila aestivalis* | yes - confirmed (proto) | Fort Benning |
| *Aimophila aestivalis* | yes - assumed | Holly Springs Dist. |
| *Aimophila aestivalis* | unknown | LBL Area |
| *Aimophila aestivalis* | no - assumed | Middle Holly Springs |
| *Aimophila aestivalis* | no - assumed | Northern Hills & Headwaters |
| *Aimophila aestivalis* | yes - assumed | Noxubee-Tombigbee |
| *Aimophila aestivalis* | no - assumed | Obion Creek Corridor |

| | | |
|---|---|---|
| *Aimophila aestivalis* | unknown | Osborn Prairie |
| *Aimophila aestivalis* | unknown | Reelfoot Lake-New Madrid Area |
| *Aimophila aestivalis* | unknown | Southern Hills & Headwaters-east |
| *Aimophila aestivalis* | no - assumed | Southern Hills & Headwaters-west |
| *Aimophila aestivalis* | yes - assumed | Transition Hills |
| *Aimophila aestivalis* | no - assumed | Upper Pearl Headwaters and Tribs. |
| *Ammodramus henslowii* | no - assumed | Grand Rivers Corridor |
| *Ammodramus henslowii* | yes - assumed | Bienville N.F. |
| *Ammodramus henslowii* | yes - assumed | Noxubee-Tombigbee |
| *Myotis austroriparius* | unknown - assumed | Barlow Bottoms |
| *Myotis austroriparius* | unknown - assumed | Bayou DeChien |
| *Myotis austroriparius* | unknown - assumed | Cache River Complex |
| *Myotis austroriparius* | unknown - assumed | Clark's River Corridor |
| *Myotis austroriparius* | unknown - assumed | Cretaceous Hills/Blackbottom Complex |
| *Myotis austroriparius* | no - assumed | Grand Rivers Corridor |
| *Myotis austroriparius* | yes - assumed | Grand Rivers Corridor |
| *Myotis austroriparius* | unknown - assumed | Mayfield Creek Area |
| *Myotis grisescens* | unknown - assumed | Bear Creek System |
| *Myotis grisescens* | unknown - assumed | Blood River Seeps |
| *Myotis grisescens* | unknown - assumed | Cache River Complex |
| *Myotis grisescens* | no - assumed | Grand Rivers Corridor |
| *Myotis grisescens* | unknown - assumed | LBL Area |
| *Myotis grisescens* | no - assumed | Northern Hills & Headwaters |
| *Myotis grisescens* | no - assumed | Southern Hills & Headwaters-west |
| *Myotis grisescens* | no - confirmed | Tennessee River Bluffs |
| *Myotis sodalis* | unknown - assumed | Bayou DeChien |
| *Myotis sodalis* | unknown - assumed | Cache River Complex |
| *Myotis sodalis* | unknown - assumed | Cretaceous Hills/Blackbottom Complex |
| *Myotis sodalis* | yes - assumed | Grand Rivers Corridor |
| *Myotis sodalis* | unknown - assumed | Mayfield Creek Area |
| *Myotis sodalis* | no - confirmed | Tennessee River Bluffs |
| *Myotis sodalis* | unknown - assumed | Western KY WMA Area |
| *Myotis septentrionalis* | yes - assumed | Bear Creek System |
| *Myotis septentrionalis* | no - confirmed | Tennessee River Bluffs |
| *Corynorhinus rafinesquii* | unknown - assumed | Barlow Bottoms |
| *Corynorhinus rafinesquii* | unknown - assumed | Cache River Complex |
| *Corynorhinus rafinesquii* | unknown - assumed | Dyersburg Bluffs |
| *Corynorhinus rafinesquii* | unknown - assumed | Hatchie River |
| *Corynorhinus rafinesquii* | unknown - assumed | Mayfield Creek Area |
| *Corynorhinus rafinesquii* | no - assumed | Reelfoot Bluffs |
| *Corynorhinus rafinesquii* | unknown - assumed | Reelfoot Lake-New Madrid Area |
| *Corynorhinus rafinesquii* | no - confirmed | Tunica Hills |
| *Geomys pinetis* | unknown - confirmed | East Alabama Fall Line Hills |
| *Geomys pinetis* | unknown - confirmed (proto) | Fort Benning |
| *Peromyscus polionotus* | yes - confirmed | Bouteloua Prairie |
| *Peromyscus polionotus* | yes - confirmed | Chunky Bottom and Sandhill |
| *Peromyscus polionotus* | unknown - confirmed (proto) | Fort Benning |
| *Peromyscus polionotus* | yes - confirmed | Tamola Mouse Site |
| *Peromyscus polionotus* | no - confirmed | Tennessee River Bluffs |
| *Peromyscus polionotus* | no - confirmed | Tombigbee River Levee Old Field Mouse Site |

| | | |
|---|---|---|
| *Ursus americanus luteolus* | unknown | Lower Big Black Bluffs |
| *Ursus americanus luteolus* | yes - assumed | SW Mississippi/LA Bear Habitat |
| *Ursus americanus luteolus* | unknown | Tunica Hills |
| *Ursus americanus luteolus* | yes - assumed | SW Mississippi/LA Bear Habitat |
| *Gopherus polyphemus* | yes - confirmed | Clarke County Gopher Tortoise |
| *Gopherus polyphemus* | unknown - assumed | East Alabama Fall Line Hills |
| *Gopherus polyphemus* | no - confirmed | Chunky Bottom and Sandhill |
| *Gopherus polyphemus* | yes - confirmed (proto) | Fort Benning |
| *Clonophis kirtlandii* | yes - assumed | Terrapin Creek Vicinity |
| *Lampropeltis calligaster rhobomaculata* | yes - confirmed | Tennessee River Bluffs |
| *Pituophis melanoleucus melanoleucus* | no - assumed | Autauga Sandhills |
| *Pituophis melanoleucus melanoleucus* | no - assumed | Transition Hills |
| *Pituophis melanoleucus melanoleucus* | unknown - old (<1991) | Blood River Seeps |
| *Pituophis melanoleucus melanoleucus* | unknown - assumed | Northern Hills & Headwaters |
| *Pituophis melanoleucus melanoleucus* | yes - assumed | LBL Area |
| *Crotalus horridus* | unknown - assumed | Cretaceous Hills/Blackbottom Complex |
| *Crotalus horridus* | unknown - assumed | Cache River Complex |
| *Crotalus horridus* | unknown - confirmed (proto) | Fort Benning |
| Early Succession Scrub-shrub Bird Guild | yes - assumed | Southern Hills & Headwaters-west |
| Early Succession Scrub-shrub Bird Guild | yes - assumed | Northern Hills & Headwaters |
| Forested Wetland Bird Guild | yes - assumed | SW Mississippi/LA Bear Habitat |
| Forested Wetland Bird Guild | yes - assumed | Lower Alabama River |
| Forested Wetland Bird Guild | yes - assumed | Lower Big Black Bluffs |
| Forested Wetland Bird Guild | yes - assumed | Oakmulgee District, Talladega N.F. |
| Forested Wetland Bird Guild | yes - assumed | Sipsee River |
| Forested Wetland Bird Guild | yes - assumed | Ten-Tom River and Wrenwoode Forest |
| Forested Wetland Bird Guild | yes - assumed | Freedom Hills and Adjacent Lands |
| Forested Wetland Bird Guild | yes - assumed | Wolf River |
| Forested Wetland Bird Guild | yes - assumed | Hatchie River |
| Forested Wetland Bird Guild | yes - assumed | Dyersburg Bluffs |
| Upland Hardwood Bird Guild | yes - assumed | Freedom Hills and Adjacent Lands |
| Upland Hardwood Bird Guild | yes - assumed | Southern Hills & Headwaters-east |
| Upland Hardwood Bird Guild | yes - assumed | Northern Hills & Headwaters |
| Upland Hardwood Bird Guild | yes - assumed | LBL Area |
| Upland Pine Bird Guild | yes - assumed | Oakmulgee District, Talladega N.F. |
| Terrestrial cave community | unknown - old (<1991) | Cache River Complex |
| Terrestrial cave community | unknown - old (<1991) | Cretaceous Hills/Blackbottom Complex |
| Terrestrial cave community | unknown - old (<1991) | Cache River Complex |
| *Cicindela marginipennis* | yes - assumed | Oakmulgee District, Talladega N.F. |
| *Neonympha mitchellii* | unknown - assumed | Oakmulgee District, Talladega N.F. |
| Rookery | unknown - assumed | Cretaceous Hills/Blackbottom Complex |
| Rookery | yes - assumed | Lower Alabama River |

## APPENDIX 12: Botany Target Look-Up Table

| TARGET NAME | VIABLE? | SITE NAME |
|---|---|---|
| *Agalinis auriculata* | no - confirmed | Killgore Hills |
| *Agalinis auriculata* | yes - confirmed | Osborn Prairie |
| *Agalinis auriculata* | no - confirmed | Killgore Hills |
| *Agalinis auriculata* | yes - assumed | Hatchie River |
| *Agalinis auriculata* | no - confirmed | Northern Hills & Headwaters |
| *Agalinis oligophylla* | yes - confirmed | Tilden Carlbill Prairie Complex |
| *Agalinis pseudaphylla* | yes - confirmed | Buffered Point at Agalinis pseudaphylla (MS002) |
| *Agalinis pseudaphylla* | yes - confirmed | Noxubee-Tombigbee |
| *Agalinis skinneriana* | no - confirmed | Bienville N.F. |
| *Apios priceana* | no - assumed | Blood River Seeps |
| *Apios priceana* | yes - confirmed | Cedar Creek - Highway 41 |
| *Apios priceana* | yes - confirmed | Coonewah Creek Chalk Bluffs |
| *Apios priceana* | no - assumed | Grand Rivers Corridor |
| *Apios priceana* | yes - confirmed | Jones Bluff |
| *Apios priceana* | no - confirmed | Killgore Hills |
| *Apios priceana* | no - assumed | LBL Area |
| *Apios priceana* | no - confirmed | Noxubee-Tombigbee |
| *Apios priceana* | unknown - confirmed | Osborn Prairie |
| *Apios priceana* | yes - confirmed | Shuqualak Black Prairie |
| *Arabis georgiana* | yes - confirmed | Prairie Bluff - Millers Ferry Prairie |
| *Arabis georgiana* | unknown - assumed | Fort Benning |
| *Arabis georgiana* | no - confirmed | Oakmulgee District, Talladega N.F. |
| *Arabis georgiana* | yes - confirmed | Ft. Toulouse - Jackson Park |
| *Aster georgianus* | yes - assumed | Bibb County Glades |
| *Astragalus michauxii* | unknown - assumed | East Alabama Fall Line Hills |
| *Baptisia megacarpa* | no - confirmed | East Alabama Fall Line Hills |
| *Brickellia cordifolia* | unknown - assumed | Fort Benning |
| *Callirhoe triangulata* | no - confirmed | Bear Creek System |
| *Callirhoe triangulata* | yes - confirmed | Chitlin Corners |
| *Carex decomposita* | unknown - assumed | Obion Creek Corridor |
| *Carex decomposita* | yes - confirmed | Buffered Point at Ross Barnett Res. |
| *Carex impressinervia* | no - confirmed | Oakmulgee District, Talladega N.F. |
| *Carex impressinervia* | yes - confirmed | Noxubee-Tombigbee |
| *Carex impressinervia* | yes - confirmed | Jones Bluff |
| *Carex oxylepis var pubescens* | no - assumed | Tipton County Bluffs |
| *Chelone obliqua var speciosa* | unknown - old (<1991) | Obion Creek Corridor |
| *Chelone obliqua var speciosa* | yes - assumed | Terrapin Creek Vicinity |
| *Crataegus ashei* | yes - confirmed | Bienville N.F. |
| *Crataegus ashei* | no - confirmed | Bouteloua Prairie |
| *Crataegus ashei* | yes - confirmed | Buffered Point at Crataegus ashei (AL001) |
| *Crataegus ashei* | yes - confirmed | Jones Bluff |
| *Crataegus ashei* | yes - confirmed | Killgore Hills |
| *Crataegus ashei* | yes - confirmed | Old Cahaba Prairies |
| *Crataegus harbisonii* | no - confirmed | Reelfoot Bluffs |
| *Crataegus meridionalis* | yes - confirmed | Bienville N.F. |
| *Crataegus meridionalis* | yes - confirmed | Buffered Point at Crataegus meridionalis (MS002) |
| *Crataegus triflora* | yes - confirmed | Bienville N.F. |
| *Crataegus triflora* | yes - confirmed | Jones Bluff |
| *Crataegus triflora* | yes - confirmed | Killgore Hills |
| *Crataegus triflora* | yes - confirmed | Old Bluffport |

| | | |
|---|---|---|
| *Crataegus triflora* | yes - confirmed | Bienville N.F. |
| *Crataegus triflora* | yes - confirmed | Ft. Tombecbee - Jones Bluff |
| *Crataegus triflora* | no - confirmed | Shuqualak Black Prairie |
| *Crataegus triflora* | no - confirmed | Bear Creek System |
| *Crataegus triflora* | yes - confirmed | Bienville N.F. |
| *Croomia pauciflora* | yes - confirmed | Black Warrior River Slopes |
| *Croomia pauciflora* | yes - confirmed | Little Uchee Creek Ravines |
| *Croomia pauciflora* | yes - confirmed | Jones Bluff |
| *Cuscuta harperi* | yes - confirmed | North Fork Creek Glade |
| *Cuscuta harperi* | yes - confirmed | Bear Creek System |
| *Cypripedium candidum* | no - confirmed | Foxtrap Creek |
| *Cypripedium kentuckiense* | unknown - confirmed | Killgore Hills |
| *Cypripedium kentuckiense* | yes - confirmed | Oakmulgee District, Talladega N.F. |
| *Cypripedium kentuckiense* | yes - confirmed | Tombigbee State Park |
| *Dalea foliosa* | yes - confirmed | Osborne Hill Barrens |
| *Delphinium alabamicum* | yes - confirmed | Jones Bluff |
| *Desmodium ochroleucum* | yes - confirmed | Old Bluffport |
| *Desmodium ochroleucum* | no - confirmed | Upper Tombigbee |
| *Desmodium ochroleucum* | yes - confirmed | Prairie Bluff - Millers Ferry Prairie |
| *Desmodium ochroleucum* | yes - confirmed | Shuqualak Black Prairie |
| *Desmodium ochroleucum* | yes - confirmed | Jones Bluff |
| *Fothergillia major* | yes - confirmed | Bear Creek System |
| *Helianthus verticillatus* | yes - confirmed | Pinson Helianthus Site |
| *Hexastylis shuttleworthii var harperi* | yes - confirmed | Autauga Sandhills |
| *Hexastylis shuttleworthii var harperi* | yes - confirmed | Oakmulgee District, Talladega N.F. |
| *Hexastylis shuttleworthii var harperi* | yes - confirmed (proto) | Fort Benning |
| *Hexastylis speciosa* | yes - confirmed | Buck Creek |
| *Hexastylis speciosa* | yes - assumed | Oakmulgee District, Talladega N.F. |
| *Hexastylis speciosa* | yes - confirmed | Mulberry Creek |
| *Juglans cinerea* | yes - confirmed | Cane Creek Bluffs - east |
| *Juglans cinerea* | yes - confirmed | Lower Big Black Bluffs |
| *Juglans cinerea* | unknown - assumed | Northern Hills & Headwaters |
| *Juglans cinerea* | yes - confirmed | Osborn Prairie |
| *Juglans cinerea* | yes - confirmed | Upper Tombigbee |
| *Juglans cinerea* | yes - confirmed | Upper Tombigbee |
| *Juglans cinerea* | yes - confirmed | Wall Doxey State Park |
| *Juglans cinerea* | no - assumed | LBL Area |
| *Lysimachia fraseri* | unknown - assumed | Transition Hills |
| *Neviusia alabamensis* | yes - confirmed | Tennessee River Bluffs |
| *Neviusia alabamensis* | yes - assumed | Black Warrior River Slopes |
| *Neviusia alabamensis* | yes - assumed | Bibb County Glades |
| *Paronychia herniarioides* | yes - confirmed | Autauga Sandhills |
| *Phacelia ranunculacea* | yes - assumed | Barlow Bottoms |
| *Phacelia ranunculacea* | unknown - assumed | Tipton County Bluffs |
| *Phacelia ranunculacea* | unknown - assumed | Reelfoot Bluffs |
| *Phacelia ranunculacea* | yes - assumed | Reelfoot Lake-New Madrid Area |
| *Phaeophyscia leana* | unknown - assumed | Fort Massac |
| *Physalis carpenteri* | unknown - confirmed | Lower Big Black Bluffs |
| *Physalis carpenteri* | unknown - confirmed | SW Mississippi/LA Bear Habitat |
| *Physalis carpenteri* | yes - confirmed | Prairie Bluff - Millers Ferry Prairie |
| *Physalis carpenteri* | yes - confirmed | Jones Bluff |
| *Plantago cordata* | yes - confirmed | Foxtrap Creek |
| *Plantago cordata* | yes - confirmed | Ten-Tom River and Wrenwoode Forest |
| *Platanthera integrilabia* | yes - confirmed | North Fork Creek Glade |

| | | |
|---|---|---|
| *Platanthera integrilabia* | yes - confirmed | Jock Creek |
| *Platanthera integrilabia* | yes - confirmed | Glasgow Property |
| *Polymnia laevigata* | yes - assumed | Black Warrior River Slopes |
| *Prenanthes barbata* | unknown - confirmed | Noxubee-Tombigbee |
| *Pteroglossaspis ecristata* | no - confirmed | Upper Tombigbee |
| *Pycnanthemum torreyi* | unknown - assumed | Cretaceous Hills/Blackbottom Complex |
| *Quercus arkansana* | yes - confirmed | Autauga Sandhills |
| *Quercus arkansana* | yes - confirmed | Buffered Point at Quercus arkansana (AL006) |
| *Quercus arkansana* | yes - confirmed | Buffered Point at Quercus arkansana (AL007) |
| *Quercus arkansana* | yes - confirmed | Buffered Point at Quercus arkansana (AL008) |
| *Quercus arkansana* | yes - confirmed | Buffered Point at Quercus arkansana (AL014) |
| *Quercus arkansana* | yes - confirmed (proto) | Fort Benning |
| *Quercus arkansana* | yes - confirmed | Oakmulgee District, Talladega N.F. |
| *Quercus arkansana* | yes - confirmed | Old Bluffport |
| *Quercus oglethorpensis* | unknown - assumed | Bienville N.F. |
| *Rudbeckia heliopsidis* | yes - confirmed | East Alabama Fall Line Hills |
| *Sarracenia rubra ssp alabamensis* | yes - confirmed | Green's Pitcher Plant Bog-Yellow Leaf Creek |
| *Sarracenia rubra ssp alabamensis* | yes - confirmed | Dillard |
| *Sarracenia rubra ssp alabamensis* | yes - confirmed | Autauga Sandhills |
| *Schisandra glabra* | yes - assumed | Bibb County Glades |
| *Schisandra glabra* | yes - confirmed | Buckatunna Creek - Hwy 84 |
| *Schisandra glabra* | yes - assumed | Hatchie River |
| *Schisandra glabra* | yes - confirmed | Lower Big Black Bluffs |
| *Schisandra glabra* | yes - confirmed | Morgan Brake and Bluffs |
| *Schisandra glabra* | yes - confirmed | Noxubee-Tombigbee |
| *Schisandra glabra* | yes - confirmed | Sandy Creek WMA |
| *Schisandra glabra* | unknown - assumed | Southern Hills & Headwaters-east |
| *Schisandra glabra* | unknown - assumed | SW Mississippi/LA Bear Habitat |
| *Schisandra glabra* | unknown - assumed | Tipton County Bluffs |
| *Schisandra glabra* | yes - confirmed | Tunica Hills |
| *Silene caroliniana ssp wherryi* | no - assumed | Bibb County Glades |
| *Silene caroliniana ssp wherryi* | yes - assumed | Oakmulgee District, Talladega N.F. |
| *Silene ovata* | yes - confirmed | Chunky Bottom and Sandhill |
| *Silene ovata* | no - confirmed | Transition Hills |
| *Silene ovata* | unknown - confirmed | Killgore Hills |
| *Silene ovata* | no - confirmed | Southern Hills & Headwaters-east |
| *Silphium perplexum* | yes - confirmed (proto) | Old Cahaba Prairies |
| *Stylisma pickeringii var pickeringii* | yes - confirmed | Autauga Sandhills |
| *Stylisma pickeringii var pickeringii* | yes - confirmed (proto) | Fort Benning |
| *Talinum mengesii* | yes - confirmed | North Fork Creek Glade |
| *Talinum mengesii* | yes - confirmed | Bear Creek System |
| *Thalictrum debile* | yes - confirmed | Noxubee-Tombigbee |
| *Thalictrum mirabile* | yes - confirmed | Bear Creek System |
| *Thaspium pinnatifidum* | yes - confirmed | Tennessee River Bluffs |
| *Trifolium reflexum* | no - assumed | Southern Hills & Headwaters-east |
| *Trillium foetidissimum* | no - confirmed | SW Mississippi/LA Bear Habitat |
| *Trillium foetidissimum* | yes - confirmed | Tunica Hills |
| *Trillium foetidissimum* | no - confirmed | SW Mississippi/LA Bear Habitat |
| *Trillium foetidissimum* | yes - confirmed | Lower Big Black Bluffs |
| *Trillium foetidissimum* | yes - confirmed | Sandy Creek WMA |
| *Trillium lancifolium* | yes - confirmed | Oakmulgee District, Talladega N.F. |

| | | |
|---|---|---|
| *Trillium lancifolium* | yes - confirmed | Prairie Bluff - Millers Ferry Prairie |
| *Trillium lancifolium* | yes - confirmed | Buffered Point at Trillium lancifolium (AL016) |
| *Trillium lancifolium* | yes - confirmed | Old Cahaba Prairies |
| *Trillium underwoodii* | yes - confirmed (proto) | Little Uchee Creek Ravines |
| *Uvularia floridana* | yes - confirmed | Oakmulgee District, Talladega N.F. |
| *Verbesina aristata* | no - not ERP43 target | Fort Benning |
| *Xyris tennesseensis* | yes - confirmed | Thorne Glade |

## APPENDIX 13: Terrestrial Conservation Areas with Botany & Zoology Targets

| SITE NAME | TARGET NAME | VIABLE? |
|---|---|---|
| Autauga Sandhills | *Pituophis melanoleucus melanoleucus* | no - assumed |
| Autauga Sandhills | *Hexastylis shuttleworthii var harperi* | yes - confirmed |
| Autauga Sandhills | *Paronychia herniarioides* | yes - confirmed |
| Autauga Sandhills | *Quercus arkansana* | yes - confirmed |
| Autauga Sandhills | *Sarracenia rubra ssp alabamensis* | yes - confirmed |
| Autauga Sandhills | *Stylisma pickeringii var pickeringii* | yes - confirmed |
| Barlow Bottoms | *Ixobrychus exilis* | no - not ERP43 target |
| Barlow Bottoms | *Myotis austroriparius* | unknown - assumed |
| Barlow Bottoms | *Corynorhinus rafinesquii* | unknown - assumed |
| Barlow Bottoms | *Phacelia ranunculacea* | yes - assumed |
| Bayou DeChien | *Aimophila aestivalis* | unknown |
| Bayou DeChien | *Myotis austroriparius* | unknown - assumed |
| Bayou DeChien | *Myotis sodalis* | unknown - assumed |
| Bear Creek System | *Aneides aeneus* | yes - confirmed |
| Bear Creek System | *Gyrinophilus porphyriticus* | yes - confirmed |
| Bear Creek System | *Hemidactylium scutatum* | yes - confirmed |
| Bear Creek System | *Picoides borealis* | no - confirmed |
| Bear Creek System | *Myotis grisescens* | unknown - assumed |
| Bear Creek System | *Myotis septentrionalis* | yes - assumed |
| Bear Creek System | *Callirhoe triangulata* | no - confirmed |
| Bear Creek System | *Crataegus triflora* | no - confirmed |
| Bear Creek System | *Cuscuta harperi* | yes - confirmed |
| Bear Creek System | *Fothergillia major* | yes - confirmed |
| Bear Creek System | *Talinum mengesii* | yes - confirmed |
| Bear Creek System | *Thalictrum mirabile* | yes - confirmed |
| Bibb County Glades | *Aster georgianus* | yes - assumed |
| Bibb County Glades | *Neviusia alabamensis* | yes - assumed |
| Bibb County Glades | *Schisandra glabra* | yes - assumed |
| Bibb County Glades | *Silene caroliniana ssp wherryi* | no - assumed |
| Bienville N.F. | *Picoides borealis* | yes - assumed |
| Bienville N.F. | *Picoides borealis* | yes - assumed |
| Bienville N.F. | *Aimophila aestivalis* | yes - assumed |
| Bienville N.F. | *Ammodramus henslowii* | yes - assumed |
| Bienville N.F. | *Agalinis skinneriana* | no - confirmed |
| Bienville N.F. | *Crataegus ashei* | yes - confirmed |
| Bienville N.F. | *Crataegus meridionalis* | yes - confirmed |
| Bienville N.F. | *Crataegus triflora* | yes - confirmed |

| | | |
|---|---|---|
| Bienville N.F. | *Crataegus triflora* | yes - confirmed |
| Bienville N.F. | *Crataegus triflora* | yes - confirmed |
| Bienville N.F. | *Quercus oglethorpensis* | unknown - assumed |
| Black Warrior River Slopes | *Croomia pauciflora* | yes - confirmed |
| Black Warrior River Slopes | *Neviusia alabamensis* | yes - assumed |
| Black Warrior River Slopes | *Polymnia laevigata* | yes - assumed |
| Blood River Seeps | *Myotis grisescens* | unknown - assumed |
| Blood River Seeps | *Pituophis melanoleucus melanoleucus* | unknown - old (<1991) |
| Blood River Seeps | *Apios priceana* | no - assumed |
| Bouteloua Prairie | *Peromyscus polionotus* | yes - confirmed |
| Bouteloua Prairie | *Crataegus ashei* | no - confirmed |
| Buck Creek | *Hexastylis speciosa* | yes - confirmed |
| Buckatunna Creek - Hwy 84 | *Schisandra glabra* | yes - confirmed |
| Buffered Point at Agalinis pseudaphylla (MS002) | *Agalinis pseudaphylla* | yes - confirmed |
| Buffered Point at Crataegus ashei (AL001) | *Crataegus ashei* | yes - confirmed |
| Buffered Point at Crataegus meridionalis (MS002) | *Crataegus meridionalis* | yes - confirmed |
| Buffered Point at Quercus arkansana (AL006) | *Quercus arkansana* | yes - confirmed |
| Buffered Point at Quercus arkansana (AL007) | *Quercus arkansana* | yes - confirmed |
| Buffered Point at Quercus arkansana (AL008) | *Quercus arkansana* | yes - confirmed |
| Buffered Point at Quercus arkansana (AL014) | *Quercus arkansana* | yes - confirmed |
| Buffered Point at Ross Barnett Res. | *Carex decomposita* | yes - confirmed |
| Buffered Point at Trillium lancifolium (AL016) | *Trillium lancifolium* | yes - confirmed |
| Cache River Complex | *Ixobrychus exilis* | no - not ERP43 target |
| Cache River Complex | *Dendroica cerulea* | yes - confirmed (proto) |
| Cache River Complex | *Limnothlypis swainsonii* | unknown - assumed |
| Cache River Complex | *Myotis austroriparius* | unknown - assumed |
| Cache River Complex | *Myotis grisescens* | unknown - assumed |
| Cache River Complex | *Myotis sodalis* | unknown - assumed |
| Cache River Complex | *Corynorhinus rafinesquii* | unknown - assumed |
| Cache River Complex | *Crotalus horridus* | unknown - assumed |
| Cache River Complex | Terrestrial cave community | unknown - old (<1991) |
| Cache River Complex | Terrestrial cave community | unknown - old (<1991) |
| Cane Creek Bluffs - east | *Juglans cinerea* | yes - confirmed |
| Cedar Creek - Highway 41 | *Aapios priceana* | yes - confirmed |
| Chitlin Corners | *Callirhoe triangulata* | yes - confirmed |
| Chunky Bottom and Sandhill | *Peromyscus polionotus* | yes - confirmed |
| Chunky Bottom and Sandhill | *Gopherus polyphemus* | no - confirmed |
| Chunky Bottom and Sandhill | *Silene ovata* | yes - confirmed |

| | | |
|---|---|---|
| Church Hill Webster | *Plethodon websteri* | yes - confirmed |
| Clarke County Gopher Tortoise | *Gopherus polyphemus* | yes - confirmed |
| Clark's River Corridor | *Myotis austroriparius* | unknown - assumed |
| Coonewah Creek Chalk Bluffs | *Apios priceana* | yes - confirmed |
| Cretaceous Hills/Blackbottom Complex | *Myotis austroriparius* | unknown - assumed |
| Cretaceous Hills/Blackbottom Complex | *Myotis sodalis* | unknown - assumed |
| Cretaceous Hills/Blackbottom Complex | *Crotalus horridus* | unknown - assumed |
| Cretaceous Hills/Blackbottom Complex | Terrestrial cave community | unknown - old (<1991) |
| Cretaceous Hills/Blackbottom Complex | Rookery | unknown - assumed |
| Cretaceous Hills/Blackbottom Complex | *pycnanthemum torreyi* | unknown - assumed |
| Dillard | *Sarracenia rubra ssp alabamensis* | yes - confirmed |
| Dyersburg Bluffs | *Limnothlypis swainsonii* | unknown - assumed |
| Dyersburg Bluffs | *Corynorhinus rafinesquii* | unknown - assumed |
| Dyersburg Bluffs | Forested wetland bird guild | yes - assumed |
| East Alabama Fall Line Hills | *Ambystoma tigrinum* | unknown - confirmed |
| East Alabama Fall Line Hills | *Plethodon websteri* | no - confirmed |
| East Alabama Fall Line Hills | *Geomys pinetis* | unknown - confirmed |
| East Alabama Fall Line Hills | *Gopherus polyphemus* | unknown - assumed |
| East Alabama Fall Line Hills | *Astragalus michauxii* | unknown - assumed |
| East Alabama Fall Line Hills | *Baptisia megacarpa* | no - confirmed |
| East Alabama Fall Line Hills | *Rudbeckia heliopsidis* | yes - confirmed |
| Fort Benning | *Mycteria americana* | yes - confirmed (proto) |
| Fort Benning | *Picoides borealis* | yes - confirmed (proto) |
| Fort Benning | *Aimophila aestivalis* | yes - confirmed (proto) |
| Fort Benning | *Geomys pinetis* | unknown - confirmed (proto) |
| Fort Benning | *Peromyscus polionotus* | unknown - confirmed (proto) |
| Fort Benning | *Gopherus polyphemus* | yes - confirmed (proto) |
| Fort Benning | *Crotalus horridus* | unknown - confirmed (proto) |
| Fort Benning | *Arabis georgiana* | unknown - assumed |
| Fort Benning | *Brickellia cordifolia* | unknown - assumed |
| Fort Benning | *Hexastylis shuttleworthii var harperi* | yes - confirmed (proto) |
| Fort Benning | *Quercus arkansana* | yes - confirmed (proto) |
| Fort Benning | *Stylisma pickeringii var pickeringii* | yes - confirmed (proto) |
| Fort Benning | *Verbesina aristata* | no - not ERP43 target |
| Fort Massac | *Limnothlypis swainsonii* | yes - confirmed (proto) |
| Fort Massac | *Phaeophyscia leana* | unknown - assumed |
| Foxtrap Creek | *Cypripedium candidum* | no - confirmed |
| Foxtrap Creek | *Plantago cordata* | yes - confirmed |
| Freedom Hills and Adjacent Lands | Forested Wetland Bird Guild | yes - assumed |

| | | |
|---|---|---|
| Freedom Hills and Adjacent Lands | Upland Hardwood Bird Guild | yes - assumed |
| Ft. Tombecbee - Jones Bluff | *Crataegus triflora* | yes - confirmed |
| Ft. Toulouse - Jackson Park | *Arabis georgiana* | yes - confirmed |
| Glasgow Property | *Platanthera integrilabia* | yes - confirmed |
| Grand Rivers Corridor | *Rana areolata circulosa* | yes - assumed |
| Grand Rivers Corridor | *Ammodramus henslowii* | no - assumed |
| Grand Rivers Corridor | *Myotis austroriparius* | no - assumed |
| Grand Rivers Corridor | *Myotis austroriparius* | yes - assumed |
| Grand Rivers Corridor | *Myotis grisescens* | no - assumed |
| Grand Rivers Corridor | *Myotis sodalis* | yes - assumed |
| Grand Rivers Corridor | *Apios priceana* | no - assumed |
| Green's Pitcher Plant Bog-Yellow Leaf Creek | *Sarracenia rubra ssp alabamensis* | yes - confirmed |
| Hatchie River | *Limnothlypis swainsonii* | unknown - assumed |
| Hatchie River | *Corynorhinus rafinesquii* | unknown - assumed |
| Hatchie River | Forested Wetland Bird Guild | yes - assumed |
| Hatchie River | *Agalinis auriculata* | yes - assumed |
| Hatchie River | *Schisandra glabra* | yes - assumed |
| Holly Springs Dist. | *Aimophila aestivalis* | yes - assumed |
| Jock Creek | *Platanthera integrilabia* | yes - confirmed |
| Jones Bluff | *Apios priceana* | yes - confirmed |
| Jones Bluff | *Carex impressinervia* | yes - confirmed |
| Jones Bluff | *Crataegus ashei* | yes - confirmed |
| Jones Bluff | *Crataegus triflora* | yes - confirmed |
| Jones Bluff | *Croomia pauciflora* | yes - confirmed |
| Jones Bluff | *Delphinium alabamicum* | yes - confirmed |
| Jones Bluff | *Desmodium ochroleucum* | yes - confirmed |
| Jones Bluff | *Physalis carpenteri* | yes - confirmed |
| Killgore Hills | *Agalinis auriculata* | no - confirmed |
| Killgore Hills | *Agalinis auriculata* | no - confirmed |
| Killgore Hills | *Apios priceana* | no - confirmed |
| Killgore Hills | *Crataegus ashei* | yes - confirmed |
| Killgore Hills | *Crataegus triflora* | yes - confirmed |
| Killgore Hills | *Cypripedium kentuckiense* | unknown - confirmed |
| Killgore Hills | *Silene ovata* | unknown - confirmed |
| Laketon Bottoms | *Sterna antillarum athalassos* | yes - confirmed (proto) |
| LBL Area | *Aimophila aestivalis* | unknown |
| LBL Area | *Myotis grisescens* | unknown - assumed |
| LBL Area | *Pituophis melanoleucus melanoleucus* | yes - assumed |
| LBL Area | Upland Hardwood Bird Guild | yes - assumed |

| | | |
|---|---|---|
| LBL Area | *Apios priceana* | no - assumed |
| LBL Area | *Juglans cinerea* | no - assumed |
| Little Uchee Creek Ravines | *Croomia pauciflora* | yes - confirmed |
| Little Uchee Creek Ravines | *Trillium underwoodii* | yes - confirmed (proto) |
| Lower Alabama River | Forested Wetland Bird Guild | yes - assumed |
| Lower Alabama River | Rookery | yes - assumed |
| Lower Big Black Bluffs | *Plethodon websteri* | yes - confirmed |
| Lower Big Black Bluffs | *Mycteria Americana* | yes - confirmed |
| Lower Big Black Bluffs | *Ursus americanus luteolus* | unknown |
| Lower Big Black Bluffs | Forested wetland bird guild | yes - assumed |
| Lower Big Black Bluffs | *Juglans cinerea* | yes - confirmed |
| Lower Big Black Bluffs | *Physalis carpenteri* | unknown - confirmed |
| Lower Big Black Bluffs | *Schisandra glabra* | yes - confirmed |
| Lower Big Black Bluffs | *Trillium foetidissimum* | yes - confirmed |
| Majure Property | *Hemidactylium scutatum* | yes - confirmed |
| Mayfield Creek Area | *Rana areolata circulosa* | yes - assumed |
| Mayfield Creek Area | *Myotis austroriparius* | unknown - assumed |
| Mayfield Creek Area | *Myotis sodalist* | unknown - assumed |
| Mayfield Creek Area | *Corynorhinus rafinesquii* | unknown - assumed |
| Mermet Lake Site | *Ixobrychus exilis* | no - not ERP43 target |
| Middle Holly Springs | *Aimophila aestivalis* | no - assumed |
| Morgan Brake and Bluffs | *Schisandra glabra* | yes - confirmed |
| Mulberry Creek | *Hexastylis speciosa* | yes - confirmed |
| North Fork Creek Glade | *Cuscuta harperi* | yes - confirmed |
| North Fork Creek Glade | *Platanthera integrilabia* | yes - confirmed |
| North Fork Creek Glade | *Talinum mengesii* | yes - confirmed |
| Northern Hills & Headwaters | *Dendroica cerulean* | unknown - assumed |
| Northern Hills & Headwaters | *Limnothlypis swainsonii* | no - assumed |
| Northern Hills & Headwaters | *Aimophila aestivalis* | no - assumed |
| Northern Hills & Headwaters | *Myotis grisescens* | no - assumed |
| Northern Hills & Headwaters | *Pituophis melanoleucus melanoleucus* | unknown - assumed |
| Northern Hills & Headwaters | Early Succession Scrub-shrub Bird Guild | yes - assumed |
| Northern Hills & Headwaters | Upland Hardwood Bird Guild | yes - assumed |
| Northern Hills & Headwaters | *Agalinis auriculata* | no - confirmed |
| Northern Hills & Headwaters | *Juglans cinerea* | unknown - assumed |
| Noxubee-Tombigbee | *Ambystoma tigrinum* | no - confirmed |
| Noxubee-Tombigbee | *Plethodon websteri* | yes - confirmed |
| Noxubee-Tombigbee | *Picoides borealis* | yes - assumed |
| Noxubee-Tombigbee | *Aimophila aestivalis* | yes - assumed |

| | | |
|---|---|---|
| Noxubee-Tombigbee | *Ammodramus henslowii* | yes - assumed |
| Noxubee-Tombigbee | *Agalinis pseudaphylla* | yes - confirmed |
| Noxubee-Tombigbee | *Apios priceana* | no - confirmed |
| Noxubee-Tombigbee | *Carex impressinervia* | yes - confirmed |
| Noxubee-Tombigbee | *Prenanthes barbata* | unknown - confirmed |
| Noxubee-Tombigbee | *Schisandra glabra* | yes - confirmed |
| Noxubee-Tombigbee | *Thalictrum debile* | yes - confirmed |
| Oakmulgee District, Talladega N.F. | *Desmognathus aeneus* | yes - confirmed |
| Oakmulgee District, Talladega N.F. | *Picoides borealis* | yes - assumed |
| Oakmulgee District, Talladega N.F. | Forested Wetland Bird Guild | yes - assumed |
| Oakmulgee District, Talladega N.F. | Upland Pine Bird Guild | yes - assumed |
| Oakmulgee District, Talladega N.F. | *Cicindela marginipennis* | yes - assumed |
| Oakmulgee District, Talladega N.F. | *Neonympha mitchellii* | unknown - assumed |
| Oakmulgee District, Talladega N.F. | *Arabis georgiana* | no - confirmed |
| Oakmulgee District, Talladega N.F. | *Carex impressinervia* | no - confirmed |
| Oakmulgee District, Talladega N.F. | *Cypripedium kentuckiense* | yes - confirmed |
| Oakmulgee District, Talladega N.F. | *Hexastylis shuttleworthii var harperi* | yes - confirmed |
| Oakmulgee District, Talladega N.F. | *Hexastylis speciosa* | yes - assumed |
| Oakmulgee District, Talladega N.F. | *Quercus arkansana* | yes - confirmed |
| Oakmulgee District, Talladega N.F. | *Silene caroliniana ssp wherryi* | yes - assumed |
| Oakmulgee District, Talladega N.F. | *Trillium lancifolium* | yes - confirmed |
| Oakmulgee District, Talladega N.F. | *Uvularia floridana* | yes - confirmed |
| Obion Creek Corridor | *Rana areolata circulosa* | unknown - assumed |
| Obion Creek Corridor | *Aimophila aestivalis* | no - assumed |
| Obion Creek Corridor | *Carex decomposita* | unknown - assumed |
| Obion Creek Corridor | *Chelone obliqua var speciosa* | unknown - old (<1991) |
| Old Bluffport | *Crataegus triflora* | yes - confirmed |
| Old Bluffport | *Desmodium ochroleucum* | yes - confirmed |
| Old Bluffport | *Quercus arkansana* | yes - confirmed |
| Old Cahaba Prairies | *Crataegus ashei* | yes - confirmed |
| Old Cahaba Prairies | *Silphium perplexum* | yes - confirmed (proto) |
| Old Cahaba Prairies | *Trillium lancifolium* | yes - confirmed |
| Old Capitol Webster's Salamander | *Plethodon websteri* | yes - confirmed |
| Osborn Prairie | *Aimophila aestivalis* | unknown |
| Osborn Prairie | *Agalinis auriculata* | yes - confirmed |
| Osborn Prairie | *Apios priceana* | unknown - confirmed |
| Osborn Prairie | *Juglans cinerea* | yes - confirmed |
| Osborne Hill Barrens | *Dalea foliosa* | yes - confirmed |
| Pinson Helianthus Site | *Helianthus verticillatus* | yes - confirmed |

| | | |
|---|---|---|
| Prairie Bluff - Millers Ferry Prairie | *Arabis georgiana* | yes - confirmed |
| Prairie Bluff - Millers Ferry Prairie | *Desmodium ochroleucum* | yes - confirmed |
| Prairie Bluff - Millers Ferry Prairie | *Physalis carpenteri* | yes - confirmed |
| Prairie Bluff - Millers Ferry Prairie | *Trillium lancifolium* | yes - confirmed |
| Reelfoot Bluffs | *Corynorhinus rafinesquii* | no - assumed |
| Reelfoot Bluffs | *Crataegus harbisonii* | no - confirmed |
| Reelfoot Bluffs | *Phacelia ranunculacea* | unknown - assumed |
| Reelfoot Lake-New Madrid Area | *Limnothlypis swainsonii* | no - assumed |
| Reelfoot Lake-New Madrid Area | *Aimophila aestivalis* | unknown |
| Reelfoot Lake-New Madrid Area | *Corynorhinus rafinesquii* | unknown - assumed |
| Reelfoot Lake-New Madrid Area | *Phacelia ranunculacea* | yes - assumed |
| Sandy Creek WMA | *Schisandra glabra* | yes - confirmed |
| Sandy Creek WMA | *Trillium foetidissimum* | yes - confirmed |
| Seven Springs Road Webster's Salamander | *Plethodon websteri* | yes - confirmed |
| Shuqualak Black Prairie | *Apios priceana* | yes - confirmed |
| Shuqualak Black Prairie | *Crataegus triflora* | no - confirmed |
| Shuqualak Black Prairie | *Desmodium ochroleucum* | yes - confirmed |
| Sipsee River | Forested Wetland Bird Guild | yes - assumed |
| Southern Hills & Headwaters-east | *Limnothlypis swainsonii* | unknown - assumed |
| Southern Hills & Headwaters-east | *Aimophila aestivalis* | unknown |
| Southern Hills & Headwaters-east | Upland Hardwood Bird Guild | yes - assumed |
| Southern Hills & Headwaters-east | *Schisandra glabra* | unknown - assumed |
| Southern Hills & Headwaters-east | *Silene ovata* | no - confirmed |
| Southern Hills & Headwaters-east | *Trifolium reflexum* | no - assumed |
| Southern Hills & Headwaters-west | *Limnothlypis swainsonii* | no - assumed |
| Southern Hills & Headwaters-west | *Aimophila aestivalis* | no - assumed |
| Southern Hills & Headwaters-west | *Myotis grisescens* | no - assumed |
| Southern Hills & Headwaters-west | Early Succession Scrub-shrub Bird Guild | yes - assumed |
| SW Mississippi/LA Bear Habitat | *Picoides borealis* | unknown |
| SW Mississippi/LA Bear Habitat | *Ursus americanus luteolus* | yes - assumed |
| SW Mississippi/LA Bear Habitat | *Ursus americanus luteolus* | yes - assumed |
| SW Mississippi/LA Bear Habitat | Forested Wetland Bird Guild | yes - assumed |
| SW Mississippi/LA Bear Habitat | *Physalis carpenteri* | unknown - confirmed |
| SW Mississippi/LA Bear Habitat | *Sschisandra glabra* | unknown - assumed |
| SW Mississippi/LA Bear Habitat | *Trillium foetidissimum* | no - confirmed |
| SW Mississippi/LA Bear Habitat | *Trillium foetidissimum* | no - confirmed |
| Tamola Mouse Site | *Peromyscus polionotus* | yes - confirmed |
| Tennessee River Bluffs | *Myotis grisescens* | no - confirmed |
| Tennessee River Bluffs | *Myotis sodalis* | no - confirmed |

| | | |
|---|---|---|
| Tennessee River Bluffs | *Myotis septentrionalis* | no - confirmed |
| Tennessee River Bluffs | *Peromyscus polionotus* | no - confirmed |
| Tennessee River Bluffs | *Lampropeltis calligaster rhobomaculata* | yes - confirmed |
| Tennessee River Bluffs | *Neviusia alabamensis* | yes - confirmed |
| Tennessee River Bluffs | *Thaspium pinnatifidum* | yes - confirmed |
| Ten-Tom River and Wrenwoode Forest | Forested Wetland Bird Guild | yes - assumed |
| Ten-Tom River and Wrenwoode Forest | *Plantago cordata* | yes - confirmed |
| Terrapin Creek Vicinity | *Rana areolata circulosa* | unknown - assumed |
| Terrapin Creek Vicinity | *Clonophis kirtlandii* | yes - assumed |
| Terrapin Creek Vicinity | *Chelone obliqua var speciosa* | yes - assumed |
| Thorne Glade | *Xyris tennesseensis* | yes - confirmed |
| Tilden Carlbill Prairie Complex | *Agalinis oligophylla* | yes - confirmed |
| Tipton County Bluffs | *Carex oxylepis var pubescens* | no - assumed |
| Tipton County Bluffs | *Phacelia ranunculacea* | unknown - assumed |
| Tipton County Bluffs | *Schisandra glabra* | unknown - assumed |
| Tombigbee River Levee Old Field Mouse Site | *Peromyscus polionotus* | no - confirmed |
| Tombigbee State Park | *Cypripedium kentuckiense* | yes - confirmed |
| Transition Hills | *Aimophila aestivalis* | yes - assumed |
| Transition Hills | *Pituophis melanoleucus melanoleucus* | no - assumed |
| Transition Hills | *Lysimachia fraseri* | unknown - assumed |
| Transition Hills | *Silene ovata* | no - confirmed |
| Tunica Hills | *Corynorhinus rafinesquii* | no - confirmed |
| Tunica Hills | *Ursus americanus luteolus* | unknown |
| Tunica Hills | *Schisandra glabra* | yes - confirmed |
| Tunica Hills | *Trillium foetidissimum* | yes - confirmed |
| Upper Pearl Headwaters and Tribs. | *Aimophila aestivalis* | no - assumed |
| Upper Tombigbee | *Desmodium ochroleucum* | no - confirmed |
| Upper Tombigbee | *Juglans cinerea* | yes - confirmed |
| Upper Tombigbee | *Juglans cinerea* | yes - confirmed |
| Upper Tombigbee | *Pteroglossaspis ecristata* | no - confirmed |
| Wall Doxey State Park | *Juglans cinerea* | yes - confirmed |
| Western KY WMA Area | *Rana areolata circulosa* | yes - assumed |
| Western KY WMA Area | *Myotis sodalis* | unknown - assumed |
| Wolf River | Forested Wetland Bird Guild | yes - assumed |

## APPENDIX 14: Aquatic Conservation Areas with Targets Present

| Conservation Area Name | Location | Targets Present |
|---|---|---|
| Alabama River | AL | *Arcidens confragosus* |
| Alabama River | AL | *Ellipsaria lineolata* |
| Alabama River | AL | *Quadrula metanerva* |
| Alabama River | AL | *Truncilla donaciformes* |
| Alabama River | AL | *Leptoxis picta* |
| Alabama River | AL | large Coastal Plain rivers, origin on the Piedmont/Blue Ridge |
| Alabama River | AL | *Graptemys nigrinoda nigrinoda* |
| Alabama River | AL | *Pleurobema decisum* |
| Alabama River | AL | *Pleurobema taitianum* |
| Bayou de Chien | KY/TN | *Etheostoma chienense* |
| Bayou de Chien | KY/TN | small Coastal Plain rivers, origin in Coastal Plain |
| Bayou de Chien | KY/TN | coastal plain streams, loess veneer over sands |
| Bayou de Chien | KY/TN | coastal plain streams, loess veneer over sands |
| Bayou de Chien | KY/TN | coastal plain streams, loess veneer over sands |
| Bayou Pierre | MS | *Etheostoma rubrum* |
| Bayou Pierre | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Bayou Pierre | MS | coastal plain streams |
| Bayou Pierre | MS | coastal plain streams |
| Bayou Pierre | MS | coastal plain streams |
| Bayou Pierre | MS | coastal plain streams |
| Bayou Pierre | MS | coastal plain streams |
| Bayou Pierre | MS | coastal plain streams |
| Bayou Pierre | MS | *Ichthyomyzon castaneus* |
| Bayou Pierre | MS | *Lampsilis siliquoidea* |
| Bayou Pierre | MS | *Obovaria subrotunda* |
| Bayou Pierre | MS | *Crystallaria asprella* |
| Bayou Sara | LA/MS | *Etheostoma caeruleum* |
| Bayou Sara | LA/MS | coastal plain streams, loess veneer over sands |
| Big Black River | MS | *Megalonaias nervosa* |
| Big Black River | MS | *Arcidens confragosus* |
| Big Black River | MS | *Lampsilis siliquoidea* |
| Big Black River | MS | *Noturus stigmosus* |
| Big Black River | MS | *Lampsilis cardium* |
| Big Black River | MS | *Ellipsaria lineolata* |
| Big Black River | MS | *Pleurobema rubrum* |
| Big Black River | MS | *Quadrula cylindrica cylindrica* |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams, acidic clays |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | *Obovaria unicolor* |
| Big Black River | MS | *Truncilla donaciformes* |
| Big Black River | MS | *Lithasia hubrichti* |
| Big Black River | MS | *Obovaria subrotunda* |
| Big Black River | MS | *Ichthyomyzon castaneus* |
| Big Black River | MS | *Polyodon spathula* |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams, acidic clays |
| Big Black River | MS | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain |
| Big Black River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Big Black River | MS | coastal plain streams, acidic clays |
| Big Black River | MS | coastal plain streams, acidic clays |
| Big Black River | MS | coastal plain streams, acidic clays |
| Big Black River | MS | coastal plain streams |

| | | |
|---|---|---|
| Big Black River | MS | coastal plain streams, acidic clays |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Black River | MS | coastal plain streams |
| Big Swamp Creek | AL | coastal plain streams, calcareous clays |
| Big Swamp Creek | AL | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain |
| Big Swamp Creek | AL | coastal plain streams, calcareous clays, sands |
| Big Swamp Creek | AL | coastal plain streams, calcareous clays, sands |
| Big Swamp Creek | AL | coastal plain streams, calcareous clays |
| Big Swamp Creek | AL | coastal plain streams, alluvium |
| Big Swamp Creek | AL | *Pteronotropis welaka* |
| Black Warrior River | AL | *Potamilus inflatus* |
| Black Warrior River | AL | *Quadrula metanerva* |
| Black Warrior River | AL | *Arcidens confragosus* |
| Black Warrior River | AL | *Lasmigona complanata alabamensis* |
| Black Warrior River | AL | *Pleurocera annulifera* |
| Black Warrior River | AL | *Lampsilis ornata* |
| Black Warrior River | AL | medium Cumberland Plateau rivers, origin in the Cumberland Plateau |
| Black Warrior River | AL | *Stizostedion sp. cf. vitreum 1* |
| Blood River | TN/KY | small Coastal Plain rivers; origins in Coastal Plain |
| Bogue Chitto Creek | AL | coastal plain streams, calcareous clays |
| Bogue Chitto Creek | AL | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain |
| Bogue Chitto Creek | AL | coastal plain streams, calcareous clays |
| Bogue Chitto Creek | AL | coastal plain streams, calcareous clays |
| Bogue Chitto Creek | AL | coastal plain streams, calcareous clays |
| Bogue Chitto Creek | AL | *Orconectes holti* |
| Bogue Chitto Creek | AL | *Lampsilis ornata* |
| Bogue Chitto Creek | AL | *Lampsilis perovalis* |
| Bogue Chitto Creek | AL | *Lasmigona complanata alabamensis* |
| Bogue Chitto Creek | AL | *Pleurobema decisum* |
| Bogue Chitto Creek | AL | *Quadrula rumphiana* |
| Buckatonna River | AL/MS | small Coastal Plain rivers, origin in Coastal Plain |
| Buckatonna River | AL/MS | coastal plain streams |
| Buckatonna River | AL/MS | coastal plain streams, acidic clays |
| Buckatonna River | AL/MS | coastal plain streams, acidic clays |
| Buckatonna River | AL/MS | coastal plain streams |
| Buckatonna River | AL/MS | coastal plain streams |
| Buckatonna River | AL/MS | coastal plain streams |
| Buckatunna River | AL/MS | *Pleurobema beadleianum* |
| Buffalo River | TN | *Cyprinella monacha* |
| Buffalo River | TN | *Noturus sp 3* |
| Buffalo River | TN | *Etheostoma aquali* |
| Buffalo River | TN | *Etheostoma blennius* |
| Buffalo River | TN | *Etheostoma boschungi* |
| Buffalo River | TN | *Etheostoma cinereum* |
| Buffalo River | TN | *Etheostoma denoncourti* |
| Buffalo River | TN | *Percina burtoni* |
| Buffalo River | TN | *Percina macrocephala* |
| Buffalo River | TN | *Leptoxis praerosa* |
| Buffalo River | TN | *Lithasia geniculata fuliginosa* |

| | | |
|---|---|---|
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | small Highland Rim rivers; origins in Highland Rim |
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | Highland Rim streams |
| Buffalo River | TN | Highland Rim streams |
| Bull Mountain Creek | AL/MS | *Hobbseus petilus* |
| Bull Mountain Creek | AL/MS | small Coastal Plain rivers, origin in Coastal Plain |
| Bull Mountain Creek | AL/MS | transitional streams, Cumberland plateau to coastal plain |
| Bull Mountain Creek | AL/MS | coastal plain streams, in gravels and sands |
| Bull Mountain Creek | AL/MS | coastal plain streams, in gravels and sands |
| Bull Mountain Creek | AL/MS | *Lampsilis perovalis* |
| Bull Mountain Creek | AL/MS | *Medionidus acutissimus* |
| Bull Mountain Creek | AL/MS | *Pleurobema decisum* |
| Bull Mountain Creek | AL/MS | *Strophitus subvexus* |
| Bull Mountain Creek | AL/MS | *Elliptio arca* |
| Buttahatchee River | AL/MS | *Lampsilis ornata* |
| Buttahatchee River | AL/MS | *Quadrula rumphiana* |
| Buttahatchee River | AL/MS | *Arcidens confragosus* |
| Buttahatchee River | AL/MS | *Medionidus acutissimus* |
| Buttahatchee River | AL/MS | *Strophitus subvexus* |
| Buttahatchee River | AL/MS | *Truncilla donaciformes* |
| Buttahatchee River | AL/MS | coastal plain streams |
| Buttahatchee River | AL/MS | coastal plain streams |
| Buttahatchee River | AL/MS | small Coastal Plain rivers, origin in the Cumberland Plateau |
| Buttahatchee River | AL/MS | small Coastal Plain rivers, origin in Coastal Plain |
| Buttahatchee River | AL/MS | transitional streams, Cumberland plateau to coastal plain |
| Buttahatchee River | AL/MS | transitional streams, Cumberland plateau to coastal plain |
| Buttahatchee River | AL/MS | coastal plain streams |
| Buttahatchee River | AL/MS | coastal plain streams, in gravels and sands |
| Buttahatchee River | AL/MS | transitional streams, Cumberland plateau to coastal plain |
| Buttahatchee River | AL/MS | transitional streams, Cumberland plateau to coastal plain |
| Buttahatchee River | AL/MS | *Noturus munitus* |
| Buttahatchee River | AL/MS | *Lampsilis perovalis* |
| Buttahatchee River | AL/MS | *Lasmigona complanata alabamensis* |
| Buttahatchee River | AL/MS | *Ellipsaria lineolata* |
| Buttahatchee River | AL/MS | *Elliptio arctata* |
| Buttahatchee River | AL/MS | *Ligumia recta* |
| Buttahatchee River | AL/MS | *Stizostedion sp. cf. vitreum 1* |
| Buttahatchee River | AL/MS | *Elliptio arca* |
| Buttahatchee River | AL/MS | *Epioblasma penita* |
| Buttahatchee River | AL/MS | *Obovaria jacksoniana* |
| Buttahatchee River | AL/MS | *Obovaria unicolor* |
| Buttahatchee River | AL/MS | *Pleurobema decisum* |
| Buttahatchee River | AL/MS | *Pleurobema perovatum* |
| Calebee Creek | AL | coastal plain streams |
| Catherine Creek | MS | *Potamilus capax* |
| Catherine Creek | MS | coastal plain streams, connect to large rivers |
| Catoma Creek | AL | *Orconectes holti* |
| Catoma Creek | AL | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain |
| Catoma Creek | AL | coastal plain streams, calcareous clays |
| Catoma Creek | AL | coastal plain streams, calcareous clays |

| | | |
|---|---|---|
| Catoma Creek | AL | coastal plain streams, calcareous clays |
| Chestnut Creek | AL | *Elimia chiltonensis* |
| Chestnut Creek | AL | transitional streams, coastal plain to Piedmont |
| Chewalla Creek | MS | *Lampsilis cardium* |
| Chewalla Creek | MS | *Lampsilis siliquoidea* |
| Chewalla Creek | MS | coastal plain streams |
| Chilatchee Creek | AL | coastal plain streams, calcareous clays, sands |
| Chilatchee Creek | AL | *Orconectes holti* |
| Clark Creek | LA/MS | *Phoxinus erythrogaster* |
| Clark Creek | LA/MS | coastal plain streams, flow across Chickasaw Bluffs |
| Coal Fire Creek | AL | *Strophitus subvexus* |
| Coal Fire Creek | AL | *Pleurobema perovatum* |
| Coal Fire Creek | AL | coastal plain streams |
| Coal Fire Creek | AL | *Lampsilis perovalis* |
| Cypress Creek | TN/AL | *Etheostoma tuscumbia* |
| Cypress Creek | TN/AL | *Etheostoma boschungi* |
| Cypress Creek | TN/AL | small Highland Rim rivers; origins in Highland Rim |
| Cypress Creek | TN/AL | transitional streams, coastal plain to Highland Rim |
| Cypress Creek | TN/AL | transitional streams, coastal plain to Highland Rim |
| Dry Cedar Creek | AL | coastal plain streams, calcareous clays, sands |
| Dry Cedar Creek | AL | *Orconectes holti* |
| East and West Forks Clark's R | KY | small Coastal Plain rivers; origins in Coastal Plain |
| Flat Creek | MS | *Hobbseus petilus* |
| Gold Branch | AL | *Fundulus bifax* |
| Hatchie River | MS/TN | *Noturus stigmosus* |
| Hatchie River | MS/TN | *Noturus munitus* |
| Hatchie River | MS/TN | *Obovaria jacksoniana* |
| Hatchie River | MS/TN | *Plethobasus cyphyus* |
| Hatchie River | MS/TN | *Strophitus undulatus* |
| Hatchie River | MS/TN | *Ammocrytpa clara* |
| Hatchie River | MS/TN | *Fallicambarus hortoni* |
| Hatchie River | MS/TN | *Arcidens confragosus* |
| Hatchie River | MS/TN | *Lampsilis cardium* |
| Hatchie River | MS/TN | *Lasmigona complanata* |
| Hatchie River | MS/TN | *Megalonaias nervosa* |
| Hatchie River | MS/TN | *Villosa vibex* |
| Hatchie River | MS/TN | *Lampsilis siliquoidea* |
| Hatchie River | MS/TN | *Uniomerus declivis* |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain |
| Hatchie River | MS/TN | small Coastal Plain rivers, origin in Coastal Plain |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, acidic clays |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, acidic clays |

| | | |
|---|---|---|
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams, acidic clays |
| Hatchie River | MS/TN | coastal plain streams |
| Hatchie River | MS/TN | coastal plain streams, loess veneer over sands |
| Hatchie River | MS/TN | coastal plain streams, calcareous clays, sands |
| Hatchie River | MS/TN | coastal plain streams, acidic clays |
| Hatchie River | MS/TN | coastal plain streams |
| Hurricane Creek | MS | *Etheostoma raneyi* |
| Hurricane Creek | MS | coastal plain streams |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Tulotoma magnifica* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | Etheostoma sp. cf. ditrema 2 |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | ridge and valley streams |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | Piedmont streams, headwaters in limestones |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | ridge and valley streams |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Amblema elliottii* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Lampsilis altilis* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Pleurobema decisum* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Pleurobema georgianum* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Ptychobranchus greenii* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Strophitus conasaugensis* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Villosa nebulosa* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Elimia bellula* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Elimia chiltonensis* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Leptoxis taeniata* |
| Kelley/Yellowleaf/Waxahatchee Creeks | AL | *Pleurocera showalteri* |
| Little Mulberry Creek | AL | coastal plain streams |
| Little Tallahatchie River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Little Tallahatchie River | MS | *Arcidens confragosus* |
| Little Tallahatchie River | MS | *Megalonaias nervosa* |
| Lower Black Warrior River | AL | *Potamilus inflatus* |
| Lower Black Warrior River | AL | *Quadrula metanerva* |
| Lower Black Warrior River | AL | *Arcidens confragosus* |
| Lower Black Warrior River | AL | *Pleurocera annulifera* |
| Lower Black Warrior River | AL | *Lampsilis ornata* |
| Lower Black Warrior River | AL | large East Gulf Coastal Plain rivers, origin on the Cumberland Plateau |
| Lower Cahaba River | AL | *Cycleptus meridionalis* |
| Lower Cahaba River | AL | *Percina lenticula* |
| Lower Cahaba River | AL | *Ellipsaria lineolata* |
| Lower Cahaba River | AL | *Lasmigona complanata alabamensis* |

| | | |
|---|---|---|
| Lower Cahaba River | AL | *Quadrula metanerva* |
| Lower Cahaba River | AL | *Quadrula rumphiana* |
| Lower Cahaba River | AL | *Leptoxis ampla* |
| Lower Cahaba River | AL | *Noturus munitus* |
| Lower Cahaba River | AL | *Procambarus marthae* |
| Lower Cahaba River | AL | *Crystallaria sp. cf. asprella 1* |
| Lower Cahaba River | AL | *Macrhybopsis sp. cf. aestivalis 2* |
| Lower Cahaba River | AL | medium East Gulf Coastal Plain rivers, origin in Ridge and Valley |
| Lower Cahaba River | AL | small Coastal Plain rivers, origin in the Cumberland Plateau |
| Lower Cahaba River | AL | *Ligumia recta* |
| Lower Cahaba River | AL | *Obovaria jacksoniana* |
| Lower Cahaba River | AL | *Obovaria unicolor* |
| Lower Cahaba River | AL | *Epioblasma othcaloogensis* |
| Lower Cahaba River | AL | *Scaphirhynchus suttkusi* |
| Lower Cahaba River | AL | *Pteronotropis welaka* |
| Lower Cahaba River | AL | *Percina aurolineata* |
| Lower Cahaba River | AL | *Percina brevicauda* |
| Lower Cahaba River | AL | *Stizostedion sp. cf. vitreum 1* |
| Lower Coosa River mainstem | AL | large Coastal Plain rivers, origin on the Piedmont/Blue Ridge |
| Lower Coosa River mainstem | AL | Graptemys nigrinoda nigrinoda |
| Lower Coosa River mainstem | AL | Graptemys pulchra |
| Lower Coosa River mainstem | AL | Macrochelys temminckii |
| Lower Coosa River mainstem | AL | Cycleptus meridionalis |
| Lower Coosa River mainstem | AL | Tulotoma magnifica |
| Lower Coosa River mainstem | AL | Pyrgulopsis hershleri |
| Lower Coosa River mainstem | AL | Elimia haysiana |
| Lower Cumberland River | KY | Lithasia geniculata fuliginosa |
| Lower Cumberland River | KY | large Nashville Basin and Highland Rim rivers |
| Lower Cumberland River | KY | *Polyodon spathula* |
| Lower Nickols Creek | MS | *Hobbseus petilus* |
| Lower Noxubee River | AL/MS | *Elimia cylindracea* |
| Lower Noxubee River | AL/MS | small Coastal Plain rivers in acidic clays, origin in Coastal Plain |
| Lower Noxubee River | AL/MS | *Ellipsaria lineolata* |
| Lower Noxubee River | AL/MS | *Lampsilis ornata* |
| Lower Noxubee River | AL/MS | *Lasmigona complanata alabamensis* |
| Lower Noxubee River | AL/MS | *Obovaria unicolor* |
| Lower Noxubee River | AL/MS | *Quadrula rumphiana* |
| Lower Noxubee River | AL/MS | *Truncilla donaciformes* |
| Lower Noxubee River | AL/MS | *Obovaria jacksoniana* |
| Lower Tallapoosa River | AL | *Percina lenticula* |
| Lower Tallapoosa River | AL | *Stizostedion sp. cf. vitreum 1* |
| Lower Tallapoosa River | AL | *Elimia flava* |
| Lower Tallapoosa River | AL | *Cycleptus meridionalis* |
| Lower Tallapoosa River | AL | *Crystallaria sp. cf. asprella 1* |
| Lower Tallapoosa River | AL | medium Coastal Plain rivers, origin in the Piedmont and Blue Ridge |
| Lower Tombigbee River | AL | *Polyodon spathula* |
| Lower Tombigbee River | AL | *Arcidens confragosus* |
| Lower Tombigbee River | AL | *Ellipsaria lineolata* |
| Lower Tombigbee River | AL | *Elliptio arca* |
| Lower Tombigbee River | AL | *Lampsilis ornata* |
| Lower Tombigbee River | AL | *Lasmigona complanata alabamensis* |
| Lower Tombigbee River | AL | *Alosa alabamae* |
| Lower Tombigbee River | AL | *Potamilus inflatus* |
| Lower Tombigbee River | AL | *Elimia cylindracea* |
| Lower Tombigbee River | AL | *Pleurocera annulifera* |
| Lower Tombigbee River | AL | large East Gulf Coastal Plain rivers, origin on the Cumberland Plateau |
| Lower Yazoo River tributaries | MS | *Phoxinus erythrogaster* |

| | | |
|---|---|---|
| Lower Yazoo River tributaries | MS | coastal plain streams, flow across Chickasaw Bluffs |
| Lubbub Creek | AL | coastal plain streams |
| Lubbub Creek | AL | small Coastal Plain rivers, origin in Coastal Plain |
| Lubbub Creek | AL | coastal plain streams |
| Lubbub Creek | AL | *Obovaria unicolor* |
| Lubbub Creek | AL | *Pleurobema decisum* |
| Lubbub Creek | AL | *Medionidus acutissimus* |
| Lubbub Creek | AL | *Obovaria jacksoniana* |
| Luxapallila Creek | AL/MS | *Lampsilis perovalis* |
| Luxapallila Creek | AL/MS | *Medionidus acutissimus* |
| Luxapallila Creek | AL/MS | *Pleurobema perovatum* |
| Luxapallila Creek | AL/MS | *Quadrula rumphiana* |
| Luxapallila Creek | AL/MS | *Strophitus subvexus* |
| Luxapallila Creek | AL/MS | small Coastal Plain rivers, origin in Coastal Plain |
| Luxapallila Creek | AL/MS | coastal plain streams |
| Luxapallila Creek | AL/MS | coastal plain streams |
| Luxapallila Creek | AL/MS | coastal plain streams |
| Luxapallila Creek | AL/MS | coastal plain streams |
| Luxapallila Creek | AL/MS | coastal plain streams |
| Luxapallila Creek | AL/MS | *Obovaria jacksoniana* |
| Luxapallila Creek | AL/MS | *Obovaria unicolor* |
| Luxapallila Creek | AL/MS | *Elliptio arca* |
| Luxapallila Creek | AL/MS | *Strophitus conasaugensis* |
| Luxapallila Creek | AL/MS | *Pleurobema decisum* |
| Luxapallila Creek | AL/MS | *Lampsilis ornata* |
| Mulberry Creek | AL | coastal plain streams |
| Mulberry Creek | AL | coastal plain streams |
| Mulberry Creek | AL | small Coastal Plain rivers, origin in Coastal Plain |
| Mulberry Creek | AL | coastal plain streams |
| Mulberry Creek | AL | *Orconectes holti* |
| North River | AL | *Necturus alabamensis* |
| North River | AL | transitional streams, Cumberland plateau to coastal plain |
| North River | AL | transitional streams, Cumberland plateau to coastal plain |
| North River | AL | *Elliptio arca* |
| North River | AL | *Elliptio arctata* |
| North River | AL | *Lampsilis ornata* |
| North River | AL | *Lampsilis perovalis* |
| North River | AL | *Pleurobema furvum* |
| North River | AL | *Strophitus subvexus* |
| North River | AL | *Sternotherus depressus* |
| Noxubee River headwater tributary | MS | coastal plain streams, transitional, sands to clays |
| Noxubee River headwater tributary | MS | *Hobbseus prominens* |
| Obinion Creek | KY | *Lampsilis siliquoidea* |
| Obinion Creek | KY | *Lasmigona complanata* |
| Obinion Creek | KY | coastal plain streams, loess veneer over sands |
| Obinion Creek | KY | coastal plain streams, loess veneer over sands |
| Obinion Creek | KY | small Coastal Plain rivers, origin in Coastal Plain |
| Obinion Creek | KY | coastal plain streams, loess veneer over sands |
| Otoucalofa Creek | MS | *Anodontoides radiatus* |
| Otoucalofa Creek | MS | coastal plain streams |
| Patch Creek | MS | *Hobbseus petilus* |
| Pearl River | LA/MS | *Crystallaria asprella* |
| Pearl River | LA/MS | *Megalonaias nervosa* |
| Pearl River | LA/MS | *Polyodon spathula* |
| Pearl River | LA/MS | *Quadrula refulgens* |
| Pearl River | LA/MS | *Cycleptus meridionalis* |
| Pearl River | LA/MS | *Alosa alabamae* |

| | | |
|---|---|---|
| Pearl River | LA/MS | *Atractosteus spatula* |
| Pearl River | LA/MS | *Percina lenticula* |
| Pearl River | LA/MS | *Acipenser oxyrinchus desotoi* |
| Pearl River | LA/MS | *Arcidens confragosus* |
| Pearl River | LA/MS | *Notropis chalybaeus* |
| Pearl River | LA/MS | *Pleurobema beadleianum* |
| Pearl River | LA/MS | *Obovaria unicolor* |
| Pearl River | LA/MS | *Potamilus inflatus* |
| Pearl River | LA/MS | *Lasmigona complanata* |
| Pearl River | LA/MS | *Truncilla donaciformes* |
| Pearl River | LA/MS | large Coastal Plain rivers, origin on the Coastal Plain |
| Pearl River | LA/MS | medium East Gulf Coastal Plain rivers, origin in the Coastal Plain |
| Pearl River/Yockanookany River confluence | MS | *Pleurobema beadleianum* |
| Piney Creek | MS | *Phoxinus erythrogaster* |
| Piney Creek | MS | coastal plain streams, acidic clays, connect to large rivers |
| Pintalla Creek | AL | coastal plain streams, calcareous clays |
| Pintalla Creek | AL | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain |
| Pintalla Creek | AL | coastal plain streams, calcareous clays |
| Pintalla Creek | AL | coastal plain streams, calcareous clays |
| Puskus Creek | MS | *Lampsilis cardium* |
| Puskus Creek | MS | *Anodontoides radiatus* |
| Puskus Creek | MS | *Lampsilis siliquoidea* |
| Puskus Creek | MS | *coastal plain streams* |
| Reelfoot Lake and watershed | KY/TN | *Arcidens confragosus* |
| Reelfoot Lake and watershed | KY/TN | *Lampsilis cardium* |
| Reelfoot Lake and watershed | KY/TN | *Lampsilis siliquoidea* |
| Reelfoot Lake and watershed | KY/TN | *Megalonaias nervosa* |
| Reelfoot Lake and watershed | KY/TN | *Pleurobema rubrum* |
| Reelfoot Lake and watershed | KY/TN | *Truncilla donaciformes* |
| Reelfoot Lake and watershed | KY/TN | coastal plain streams, loess veneer over sands |
| Reelfoot Lake and watershed | KY/TN | small alluvial plain rivers, in Holocene alluvium, origin in the coastal plain, East |
| Reelfoot Lake and watershed | KY/TN | small alluvial plain rivers, in Holocene alluvium, origin in the coastal plain, East |
| Reelfoot Lake and watershed | KY/TN | alluvial plain streams, in Holocene alluvium, primarily backswamps |
| Shoal/Butler Creeks | TN/AL | *Toxolasma lividus lividus* |
| Shoal/Butler Creeks | TN/AL | *Ichthyomyzon greeleyi* |
| Shoal/Butler Creeks | TN/AL | *Etheostoma blennius* |
| Shoal/Butler Creeks | TN/AL | *Etheostoma neopterum* |
| Shoal/Butler Creeks | TN/AL | *Leptoxis praerosa* |
| Shoal/Butler Creeks | TN/AL | *Etheostoma boschungi* |
| Shoal/Butler Creeks | TN/AL | *Etheostoma corona* |
| Shoal/Butler Creeks | TN/AL | Highland Rim streams |
| Shoal/Butler Creeks | TN/AL | Highland Rim streams |
| Shoal/Butler Creeks | TN/AL | Highland Rim streams |
| Shoal/Butler Creeks | TN/AL | Highland Rim streams |
| Shoal/Butler Creeks | TN/AL | small Highland Rim rivers; origins in Highland Rim |
| Shoal/Butler Creeks | TN/AL | Highland Rim streams |
| Sipsey Fork Black Warrior | AL | *Elliptio arca* |
| Sipsey Fork Black Warrior | AL | *Elliptio arctata* |
| Sipsey Fork Black Warrior | AL | *Villosa nebulosa* |
| Sipsey Fork Black Warrior | AL | *Necturus alabamensis* |
| Sipsey Fork Black Warrior | AL | *Sternotherus depressus* |
| Sipsey Fork Black Warrior | AL | *Etheostoma sp. cf. bellator 1* |
| Sipsey Fork Black Warrior | AL | *Etheostoma phytophilum* |
| Sipsey Fork Black Warrior | AL | *Lythrurus bellus alegnotus* |
| Sipsey Fork Black Warrior | AL | *Etheostoma sp. cf. zonistium 1* |

| | | |
|---|---|---|
| Sipsey Fork Black Warrior | AL | *Etheostoma douglasi* |
| Sipsey Fork Black Warrior | AL | *Percina sp. cf. macrocephala 10* |
| Sipsey Fork Black Warrior | AL | Cumberland mountain, plateau streams |
| Sipsey Fork Black Warrior | AL | Cumberland mountain, plateau streams |
| Sipsey Fork Black Warrior | AL | Cumberland mountain, plateau streams |
| Sipsey Fork Black Warrior | AL | *Lampsilis perovalis* |
| Sipsey Fork Black Warrior | AL | *Medionidus acutissimus* |
| Sipsey Fork Black Warrior | AL | *Pleurobema furvum* |
| Sipsey Fork Black Warrior | AL | *Ptychobranchus greenii* |
| Sipsey River | AL | *Ligumia recta* |
| Sipsey River | AL | *Etheostoma sp. cf. lachneri 1* |
| Sipsey River | AL | *Strophitus subvexus* |
| Sipsey River | AL | *Noturus munitus* |
| Sipsey River | AL | *Elliptio arca* |
| Sipsey River | AL | *Lampsilis ornata* |
| Sipsey River | AL | *Lampsilis perovalis* |
| Sipsey River | AL | *Lasmigona complanata alabamensis* |
| Sipsey River | AL | *Medionidus acutissimus* |
| Sipsey River | AL | *Obovaria jacksoniana* |
| Sipsey River | AL | *Obovaria unicolor* |
| Sipsey River | AL | *Pleurobema decisum* |
| Sipsey River | AL | *Pleurobema perovatum* |
| Sipsey River | AL | *Quadrula rumphiana* |
| Sipsey River | AL | *Truncilla donaciformes* |
| Sipsey River | AL | *Stizostedion sp. cf. vitreum 1* |
| Sipsey River | AL | *Arcidens confragosus* |
| Sipsey River | AL | *Ellipsaria lineolata* |
| Sipsey River | AL | *Elliptio arctata* |
| Sipsey River | AL | *Potamilus inflatus* |
| Sipsey River | AL | transitional streams, Cumberland plateau to coastal plain |
| Sipsey River | AL | coastal plain streams |
| Sipsey River | AL | small Coastal Plain rivers, origin in the Cumberland Plateau |
| Sofkahatchee Creek | AL | Fundulus bifax |
| Sofkahatchee Creek | AL | transitional streams, Piedmont to coastal plain, "fall zone" |
| Strong River | MS | *Elliptio arctata* |
| Strong River | MS | *Ligumia recta* |
| Strong River | MS | *Lasmigona complanata* |
| Strong River | MS | *Obovaria jacksoniana* |
| Strong River | MS | *Pleurobema beadleianum* |
| Strong River | MS | *Noturus munitus* |
| Strong River | MS | *Procambarus barbiger* |
| Strong River | MS | coastal plain streams |
| Strong River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Strong River | MS | coastal plain streams, acidic clays |
| Strong River | MS | *Alloperla natchez* |
| Sucarnoochee River | AL/MS | *Procambarus lagniappe* |
| Sucarnoochee River | AL/MS | *Pleurobema perovatum* |
| Sucarnoochee River | AL/MS | *Elimia cylindracea* |
| Sucarnoochee River | AL/MS | coastal plain streams, calcareous clays, sands |
| Sucarnoochee River | AL/MS | coastal plain streams |
| Sucarnoochee River | AL/MS | coastal plain streams, transitional, sands to clays |
| Sucarnoochee River | AL/MS | coastal plain streams |
| Sucarnoochee River | AL/MS | small Coastal Plain rivers, origin in Coastal Plain |
| Tallahaga/Noxapater Creeks | MS | *Hobbseus attenuatus* |
| Tallahaga/Noxapater Creeks | MS | coastal plain streams |
| Taylor Creek | MS | *Etheostoma raneyi* |
| Taylor Creek | MS | coastal plain streams |

| | | |
|---|---|---|
| Thompson Creek | LA/MS | *Etheostoma caeruleum* |
| Thompson Creek | LA/MS | small Coastal Plain rivers, origin in Coastal Plain |
| Thompson Creek | LA/MS | coastal plain streams, loess veneer over sands |
| Tibbee Creek | MS | *Arcidens confragosus* |
| Tibbee Creek | MS | *Lampsilis ornata* |
| Tibbee Creek | MS | *Lasmigona complanata alabamensis* |
| Tibbee Creek | MS | *Obovaria jacksoniana* |
| Tibbee Creek | MS | *Obovaria unicolor* |
| Tibbee Creek | MS | *Quadrula rumphiana* |
| Tibbee Creek | MS | *Hobbseus petilus* |
| Tibbee Creek | MS | *Hobbseus orconectoides* |
| Tibbee Creek | MS | *Procambarus cometes* |
| Tibbee Creek | MS | *Procambarus pogum* |
| Tibbee Creek | MS | coastal plain streams, calcareous clays |
| Tibbee Creek | MS | coastal plain streams, acidic clays |
| Tibbee Creek | MS | small Coastal Plain rivers in acidic clays, origin in Coastal Plain |
| Tibbee Creek | MS | small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain |
| Toby Tubby Creek | MS | *Etheostoma raneyi* |
| Toby Tubby Creek | MS | coastal plain streams |
| Tombigbee River at Columbus | MS | *Elimia cylindracea* |
| Tombigbee River at Columbus | MS | large Coastal Plain rivers, origin on the Coastal Plain |
| Tombigbee River at Gainesville | AL | *Potamilus inflatus* |
| Tombigbee River at Gainesville | AL | *Truncilla donaciformes* |
| Tombigbee River at Gainesville | AL | *Ellipsaria lineolata* |
| Tombigbee River at Gainesville | AL | *Lasmigona complanata alabamensis* |
| Tombigbee River at Gainesville | AL | *Pleurobema marshalli* |
| Tombigbee River at Gainesville | AL | *Elimia cylindracea* |
| Tombigbee River at Gainesville | AL | *Arcidens confragosus* |
| Tombigbee River at Gainesville | AL | *Elliptio arca* |
| Tombigbee River at Gainesville | AL | *Ligumia recta* |
| Trussells Creek | AL | coastal plain streams, alluvium |
| Trussells Creek | AL | *Lampsilis perovalis* |
| Trussells Creek | AL | *Medionidus acutissimus* |
| Trussells Creek | AL | *Obovaria unicolor* |
| Trussells Creek | AL | *Pleurobema perovatum* |
| Trussells Creek | AL | *Strophitus subvexus* |
| Tunica Bayou | LA/MS | *Campostoma anomalum* |
| Tunica Bayou | LA/MS | coastal plain streams, flow across Chickasaw Bluffs |
| Uphapee/Chewala/Opintlocco Creeks | AL | *Percina lenticula* |
| Uphapee/Chewala/Opintlocco Creeks | AL | *Lampsilis altilis* |
| Uphapee/Chewala/Opintlocco Creeks | AL | *Lampsilis ornata* |
| Uphapee/Chewala/Opintlocco Creeks | AL | *Pleurobema decisum* |
| Uphapee/Chewala/Opintlocco Creeks | AL | *Pleurobema perovatum* |
| Uphapee/Chewala/Opintlocco Creeks | AL | transitional streams, Piedmont to coastal plain, "fall zone" |
| Uphapee/Chewala/Opintlocco Creeks | AL | coastal plain streams |
| Uphapee/Chewala/Opintlocco Creeks | AL | small Coastal Plain rivers, origin in Coastal Plain |
| Upper Cahaba River | AL | *Notropis cahabae* |
| Upper Cahaba River | AL | *Elliptio arctata* |

| | | |
|---|---|---|
| Upper Cahaba River | AL | *Leptoxis ampla* |
| Upper Cahaba River | AL | *Percina aurolineata* |
| Upper Cahaba River | AL | *Percina lenticula* |
| Upper Cahaba River | AL | *Lampsilis altilis* |
| Upper Cahaba River | AL | *Stizostedion sp. cf. vitreum 1* |
| Upper Cahaba River | AL | *Lyperium showalteri* |
| Upper Cahaba River | AL | *Lyperium showalteri* |
| Upper Cahaba River | AL | *Elimia cochliaris* |
| Upper Cahaba River | AL | *Lampsilis ornata* |
| Upper Cahaba River | AL | *Ptychobranchus greenii* |
| Upper Cahaba River | AL | *Lioplax cyclostomaformis* |
| Upper Cahaba River | AL | *Elimia ampla* |
| Upper Cahaba River | AL | *Elimia annettae* |
| Upper Cahaba River | AL | *Elimia bellacrenata* |
| Upper Cahaba River | AL | *Macrhybopsis sp. cf. aestivalis 2* |
| Upper Cahaba River | AL | *Etheostoma sp. cf. ramseyi 1* |
| Upper Cahaba River | AL | *Elimia clara* |
| Upper Cahaba River | AL | ridge and valley streams |
| Upper Cahaba River | AL | ridge and valley streams, in sandstones |
| Upper Cahaba River | AL | small Ridge and Valley rivers in sandstones, origin in Ridge and Valley limestones |
| Upper Cahaba River | AL | ridge and valley streams, limestone to sandstone |
| Upper Cahaba River | AL | transitional streams, coastal plain to ridge and valley |
| Upper Cahaba River | AL | *Elimia cochliaris* |
| Upper Cahaba River | AL | *Percina brevicauda* |
| Upper Cahaba River | AL | *Lampsilis perovalis* |
| Upper Chickasawhay River | MS | *Percina aurora* |
| Upper Chickasawhay River | MS | *Percina lenticula* |
| Upper Chickasawhay River | MS | *Procambarus barbiger* |
| Upper Chickasawhay River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Upper Chickasawhay River | MS | coastal plain streams, acidic clays |
| Upper Chickasawhay River | MS | coastal plain streams |
| Upper Leaf River | MS | Pleurobema beadleianum |
| Upper Leaf River | MS | *Quadrula refulgens* |
| Upper Leaf River | MS | *Percina lenticula* |
| Upper Leaf River | MS | coastal plain streams |
| Upper Leaf River | MS | coastal plain streams, acidic clays |
| Upper Leaf River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Upper Leaf River | MS | coastal plain streams |
| Upper Leaf River | MS | coastal plain streams, acidic clays |
| Upper Middle Fork Obion River | TN | *Etheostoma pyrrhogaster* |
| Upper Middle Fork Obion River | TN | coastal plain streams |
| Upper Middle Fork Obion River | TN | coastal plain streams, loess veneer over sands |
| Upper North Fork Obion River | KY/TN | small Coastal Plain rivers, origin in Coastal Plain |
| Upper North Fork Obion River | KY/TN | coastal plain streams |
| Upper North Fork Obion River | KY/TN | coastal plain streams, loess veneer over sands |
| Upper North Fork Obion River | KY/TN | *Etheostoma pyrrhogaster* |
| Upper Pearl River/Yockanookany River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Upper South Fork Forked Deer River | TN | *Etheostoma pyrrhogaster* |
| Upper South Fork Forked Deer River | TN | coastal plain streams |
| Upper South Fork Forked Deer River | TN | small Coastal Plain rivers, origin in Coastal Plain |
| Upper South Fork Forked Deer River | TN | coastal plain streams |

| | | |
|---|---|---|
| Upper South Fork Forked Deer River | TN | coastal plain streams, acidic clays |
| Upper Tombigbee River | MS | *Ligumia recta* |
| Upper Tombigbee River | MS | *Truncilla donaciformes* |
| Upper Tombigbee River | MS | *Ellipsaria lineolata* |
| Upper Tombigbee River | MS | *Elliptio arca* |
| Upper Tombigbee River | MS | *Arcidens confragosus* |
| Upper Tombigbee River | MS | *Lampsilis perovalis* |
| Upper Tombigbee River | MS | *Obovaria jacksoniana* |
| Upper Tombigbee River | MS | *Obovaria unicolor* |
| Upper Tombigbee River | MS | *Pleurobema curtum* |
| Upper Tombigbee River | MS | *Pleurobema decisum* |
| Upper Tombigbee River | MS | *Strophitus subvexus* |
| Upper Tombigbee River | MS | *Quadrula metanerva* |
| Upper Tombigbee River | MS | *Quadrula rumphiana* |
| Upper Tombigbee River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Upper Wolf River | MS/TN | *Noturus stigmosus* |
| Upper Wolf River | MS/TN | *Arcidens confragosus* |
| Upper Wolf River | MS/TN | *Lampsilis cardium* |
| Upper Wolf River | MS/TN | *Lampsilis siliquoidea* |
| Upper Wolf River | MS/TN | *Obovaria jacksoniana* |
| Upper Wolf River | MS/TN | *Strophitus undulatus* |
| Upper Wolf River | MS/TN | *Elliptio dilatata* |
| Upper Wolf River | MS/TN | *Villosa vibex* |
| Upper Wolf River | MS/TN | coastal plain streams, loess veneer over sands |
| Upper Wolf River | MS/TN | small Coastal Plain rivers, origin in Coastal Plain |
| Upper Wolf River | MS/TN | coastal plain streams, loess veneer over sands |
| Upper Wolf River | MS/TN | coastal plain streams |
| Upper Yalobusha River/Shutispear Creek | MS | coastal plain streams |
| Upper Yalobusha River/Shutispear Creek | MS | coastal plain streams, acidic clays |
| Upper Yalobusha River/Shutispear Creek | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Upper Yalobusha River/Shutispear Creek | MS | coastal plain streams, acidic clays |
| Upper Yalobusha River/Shutispear Creek | MS | *Hobbseus yallobushensis* |
| Upper Yalobusha River/Shutispear Creek | MS | *Procambarus lylei* |
| Upper Yockanookany River | MS | *Hobbseus valleculus* |
| Upper Yockanookany River | MS | coastal plain streams |
| Upper Yockanookany River | MS | coastal plain streams |
| Upper Yockanookany River | MS | small Coastal Plain rivers, origin in Coastal Plain |
| Yellow Creek | AL | *Necturus alabamensis* |
| Yellow Creek | AL | *Sternotherus depressus* |
| Yellowleaf Creek | AL | Piedmont streams |

## APPENDIX 13: Aquatic Conservation Targets Look-Up Table

| Targets Present | Conservation Area Name | Location |
|---|---|---|
| *Acipenser oxyrinchus desotoi* | Pearl River | LA/MS |
| *Alloperla natchez* | Strong River | MS |
| alluvial plain streams, in Holocene alluvium, primarily backswamps | Reelfoot Lake and watershed | KY/TN |
| *Alosa alabamae* | Lower Tombigbee River | AL |
| *Alosa alabamae* | Pearl River | LA/MS |
| *Amblema elliottii* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Ammocrytpa clara* | Hatchie River | MS/TN |
| *Anodontoides radiatus* | Otoucalofa Creek | MS |
| *Anodontoides radiatus* | Puskus Creek | MS |
| *Arcidens confragosus* | Alabama River | AL |
| *Arcidens confragosus* | Big Black River | MS |
| *Arcidens confragosus* | Black Warrior River | AL |
| *Arcidens confragosus* | Buttahatchee River | AL/MS |
| *Arcidens confragosus* | Hatchie River | MS/TN |
| *Arcidens confragosus* | Little Tallahatchie River | MS |
| *Arcidens confragosus* | Lower Black Warrior River | AL |
| *Arcidens confragosus* | Lower Tombigbee River | AL |
| *Arcidens confragosus* | Pearl River | LA/MS |
| *Arcidens confragosus* | Reelfoot Lake and watershed | KY/TN |
| *Arcidens confragosus* | Sipsey River | AL |
| *Arcidens confragosus* | Tibbee Creek | MS |
| *Arcidens confragosus* | Tombigbee River at Gainesville | AL |
| *Arcidens confragosus* | Upper Tombigbee River | MS |
| *Arcidens confragosus* | Upper Wolf River | MS/TN |
| *Atractosteus spatula* | Pearl River | LA/MS |
| *Campostoma anomalum* | Tunica Bayou | LA/MS |
| coastal plain streams | Bayou Pierre | MS |
| coastal plain streams | Big Black River | MS |
| coastal plain streams | Buckatonna River | AL/MS |
| coastal plain streams | Buttahatchee River | AL/MS |
| coastal plain streams | Calebee Creek | AL |
| coastal plain streams | Chewalla Creek | MS |
| coastal plain streams | Coal Fire Creek | AL |
| coastal plain streams | Hatchie River | MS/TN |
| coastal plain streams | Hurricane Creek | MS |
| coastal plain streams | Little Mulberry Creek | AL |
| coastal plain streams | Lubbub Creek | AL |
| coastal plain streams | Luxapallila Creek | AL/MS |
| coastal plain streams | Mulberry Creek | AL |
| coastal plain streams | Otoucalofa Creek | MS |
| coastal plain streams | Puskus Creek | MS |
| coastal plain streams | Sipsey River | AL |
| coastal plain streams | Strong River | MS |
| coastal plain streams | Sucarnoochee River | AL/MS |
| coastal plain streams | Tallahaga/Noxapater Creeks | MS |
| coastal plain streams | Taylor Creek | MS |
| coastal plain streams | Toby Tubby Creek | MS |
| coastal plain streams | Uphapee/Chewala/Opintlocco Creeks | AL |

| | | |
|---|---|---|
| coastal plain streams | Upper Chickasawhay River | MS |
| coastal plain streams | Upper Leaf River | MS |
| coastal plain streams | Upper Middle Fork Obion River | TN |
| coastal plain streams | Upper North Fork Obion River | KY/TN |
| coastal plain streams | Upper South Fork Forked Deer River | TN |
| coastal plain streams | Upper Wolf River | MS/TN |
| coastal plain streams | Upper Yalobusha River/Shutispear Creek | MS |
| coastal plain streams | Upper Yockanookany River | MS |
| coastal plain streams, acidic clays | Big Black River | MS |
| coastal plain streams, acidic clays | Buckatonna River | AL/MS |
| coastal plain streams, acidic clays | Hatchie River | MS/TN |
| coastal plain streams, acidic clays | Strong River | MS |
| coastal plain streams, acidic clays | Tibbee Creek | MS |
| coastal plain streams, acidic clays | Upper Chickasawhay River | MS |
| coastal plain streams, acidic clays | Upper Leaf River | MS |
| coastal plain streams, acidic clays | Upper South Fork Forked Deer River | TN |
| coastal plain streams, acidic clays | Upper Yalobusha River/Shutispear Creek | MS |
| coastal plain streams, acidic clays | Upper Yalobusha River/Shutispear Creek | MS |
| coastal plain streams, acidic clays, connect to large rivers | Piney Creek | MS |
| coastal plain streams, alluvium | Big Swamp Creek | AL |
| coastal plain streams, alluvium | Trussells Creek | AL |
| coastal plain streams, calcareous clays | Big Swamp Creek | AL |
| coastal plain streams, calcareous clays | Bogue Chitto Creek | AL |
| coastal plain streams, calcareous clays | Catoma Creek | AL |
| coastal plain streams, calcareous clays | Pintalla Creek | AL |
| coastal plain streams, calcareous clays | Tibbee Creek | MS |
| coastal plain streams, calcareous clays, sands | Big Swamp Creek | AL |
| coastal plain streams, calcareous clays, sands | Chilatchee Creek | AL |
| coastal plain streams, calcareous clays, sands | Dry Cedar Creek | AL |
| coastal plain streams, calcareous clays, sands | Hatchie River | MS/TN |
| coastal plain streams, calcareous clays, sands | Sucarnoochee River | AL/MS |
| coastal plain streams, connect to large rivers | Catherine Creek | MS |
| coastal plain streams, flow across Chickasaw Bluffs | Clark Creek | LA/MS |
| coastal plain streams, flow across Chickasaw Bluffs | Lower Yazoo River tributaries | MS |
| coastal plain streams, flow across Chickasaw Bluffs | Tunica Bayou | LA/MS |
| coastal plain streams, in gravels and sands | Bull Mountain Creek | AL/MS |
| coastal plain streams, in gravels and sands | Buttahatchee River | AL/MS |
| coastal plain streams, loess veneer over sands | Bayou de Chien | KY/TN |
| coastal plain streams, loess veneer over sands | Bayou Sara | LA/MS |
| coastal plain streams, loess veneer over sands | Hatchie River | MS/TN |
| coastal plain streams, loess veneer over sands | Obion Creek | KY |
| coastal plain streams, loess veneer over | Reelfoot Lake and watershed | KY/TN |

| | | |
|---|---|---|
| sands | | |
| coastal plain streams, loess veneer over sands | Thompson Creek | LA/MS |
| coastal plain streams, loess veneer over sands | Upper Middle Fork Obion River | TN |
| coastal plain streams, loess veneer over sands | Upper North Fork Obion River | KY/TN |
| coastal plain streams, loess veneer over sands | Upper Wolf River | MS/TN |
| coastal plain streams, transitional, sands to clays | Noxubee River headwater tributary | MS |
| coastal plain streams, transitional, sands to clays | Sucarnoochee River | AL/MS |
| *Crystallaria asprella* | Bayou Pierre | MS |
| *Crystallaria asprella* | Pearl River | LA/MS |
| *Crystallaria sp. cf. asprella 1* | Lower Cahaba River | AL |
| *Crystallaria sp. cf. asprella 1* | Lower Tallapoosa River | AL |
| Cumberland mountain, plateau streams | Sipsey Fork Black Warrior | AL |
| *Cycleptus meridionalis* | Lower Cahaba River | AL |
| *Cycleptus meridionalis* | Lower Coosa River mainstem | AL |
| *Cycleptus meridionalis* | Lower Tallapoosa River | AL |
| *Cycleptus meridionalis* | Pearl River | LA/MS |
| *Cyprinella monacha* | Buffalo River | TN |
| *Elimia ampla* | Upper Cahaba River | AL |
| *Elimia annettae* | Upper Cahaba River | AL |
| *Elimia bellacrenata* | Upper Cahaba River | AL |
| *Elimia bellula* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Elimia chiltonensis* | Chestnut Creek | AL |
| *Elimia chiltonensis* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Elimia clara* | Upper Cahaba River | AL |
| *Elimia cochliaris* | Upper Cahaba River | AL |
| *Elimia cochliaris* | Upper Cahaba River | AL |
| *Elimia cylindracea* | Lower Noxubee River | AL/MS |
| *Elimia cylindracea* | Lower Tombigbee River | AL |
| *Elimia cylindracea* | Sucarnoochee River | AL/MS |
| *Elimia cylindracea* | Tombigbee River at Columbus | MS |
| *Elimia cylindracea* | Tombigbee River at Gainesville | AL |
| *Elimia flava* | Lower Tallapoosa River | AL |
| *Elimia haysiana* | Lower Coosa River mainstem | AL |
| *Ellipsaria lineolata* | Alabama River | AL |
| *Ellipsaria lineolata* | Big Black River | MS |
| *Ellipsaria lineolata* | Buttahatchee River | AL/MS |
| *Ellipsaria lineolata* | Lower Cahaba River | AL |
| *Ellipsaria lineolata* | Lower Noxubee River | AL/MS |
| *Ellipsaria lineolata* | Lower Tombigbee River | AL |
| *Ellipsaria lineolata* | Sipsey River | AL |
| *Ellipsaria lineolata* | Tombigbee River at Gainesville | AL |
| *Ellipsaria lineolata* | Upper Tombigbee River | MS |
| *Elliptio arca* | Bull Mountain Creek | AL/MS |
| *Elliptio arca* | Buttahatchee River | AL/MS |
| *Elliptio arca* | Lower Tombigbee River | AL |
| *Elliptio arca* | Luxapallila Creek | AL/MS |
| *Elliptio arca* | North River | AL |
| *Elliptio arca* | Sipsey Fork Black Warrior | AL |
| *Elliptio arca* | Sipsey River | AL |

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| *Elliptio arca* | Tombigbee River at Gainesville | AL |
| *Elliptio arca* | Upper Tombigbee River | MS |
| *Elliptio arctata* | Buttahatchee River | AL/MS |
| *Elliptio arctata* | North River | AL |
| *Elliptio arctata* | Sipsey Fork Black Warrior | AL |
| *Elliptio arctata* | Sipsey River | AL |
| *Elliptio arctata* | Strong River | MS |
| *Elliptio arctata* | Upper Cahaba River | AL |
| *Elliptio dilatata* | Upper Wolf River | MS/TN |
| *Epioblasma othcaloogensis* | Lower Cahaba River | AL |
| *Epioblasma penita* | Buttahatchee River | AL/MS |
| *Etheostoma aquali* | Buffalo River | TN |
| *Etheostoma blennius* | Buffalo River | TN |
| *Etheostoma blennius* | Shoal/Butler Creeks | TN/AL |
| *Etheostoma boschungi* | Buffalo River | TN |
| *Etheostoma boschungi* | Cypress Creek | TN/AL |
| *Etheostoma boschungi* | Shoal/Butler Creeks | TN/AL |
| *Etheostoma caeruleum* | Bayou Sara | LA/MS |
| *Etheostoma caeruleum* | Thompson Creek | LA/MS |
| *Etheostoma chienense* | Bayou de Chien | KY/TN |
| *Etheostoma cinereum* | Buffalo River | TN |
| *Etheostoma corona* | Shoal/Butler Creeks | TN/AL |
| *Etheostoma denoncourti* | Buffalo River | TN |
| *Etheostoma douglasi* | Sipsey Fork Black Warrior | AL |
| *Etheostoma neopterum* | Shoal/Butler Creeks | TN/AL |
| *Etheostoma phytophilum* | Sipsey Fork Black Warrior | AL |
| *Etheostoma pyrrhogaster* | Upper Middle Fork Obion River | TN |
| *Etheostoma pyrrhogaster* | Upper North Fork Obion River | KY/TN |
| *Etheostoma pyrrhogaster* | Upper South Fork Forked Deer River | TN |
| *Etheostoma raneyi* | Hurricane Creek | MS |
| *Etheostoma raneyi* | Taylor Creek | MS |
| *Etheostoma raneyi* | Toby Tubby Creek | MS |
| *Etheostoma rubrum* | Bayou Pierre | MS |
| *Etheostoma sp. cf. bellator 1* | Sipsey Fork Black Warrior | AL |
| *Etheostoma sp. cf. ditrema 2* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Etheostoma sp. cf. lachneri 1* | Sipsey River | AL |
| *Etheostoma sp. cf. ramseyi 1* | Upper Cahaba River | AL |
| *Etheostoma sp. cf. zonistium 1* | Sipsey Fork Black Warrior | AL |
| *Etheostoma tuscumbia* | Cypress Creek | TN/AL |
| *Fallicambarus hortoni* | Hatchie River | MS/TN |
| *Fundulus bifax* | Gold Branch | AL |
| *Fundulus bifax* | Sofkahatchee Creek | AL |
| *Graptemys nigrinoda nigrinoda* | Alabama River | AL |
| *Graptemys nigrinoda nigrinoda* | Lower Coosa River mainstem | AL |
| *Graptemys pulchra* | Lower Coosa River mainstem | AL |
| Highland Rim streams | Buffalo River | TN |
| Highland Rim streams | Shoal/Butler Creeks | TN/AL |
| *Hobbseus attenuatus* | Tallahaga/Noxapater Creeks | MS |
| *Hobbseus orconectoides* | Tibbee Creek | MS |
| *Hobbseus petilus* | Bull Mountain Creek | AL/MS |
| *Hobbseus petilus* | Flat Creek | MS |
| *Hobbseus petilus* | Lower Nickols Creek | MS |
| *Hobbseus petilus* | Patch Creek | MS |

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| *Hobbseus petilus* | Tibbee Creek | MS |
| *Hobbseus prominens* | Noxubee River headwater tributary | MS |
| *Hobbseus valleculus* | Upper Yockanookany River | MS |
| *Hobbseus yallobushensis* | Upper Yalobusha River/Shutispear Creek | MS |
| *Ichthyomyzon castaneus* | Bayou Pierre | MS |
| *Ichthyomyzon castaneus* | Big Black River | MS |
| *Ichthyomyzon greeleyi* | Shoal/Butler Creeks | TN/AL |
| *Lampsilis altilis* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Lampsilis altilis* | Uphapee/Chewala/Opintlocco Creeks | AL |
| *Lampsilis altilis* | Upper Cahaba River | AL |
| *Lampsilis cardium* | Big Black River | MS |
| *Lampsilis cardium* | Chewalla Creek | MS |
| *Lampsilis cardium* | Hatchie River | MS/TN |
| *Lampsilis cardium* | Puskus Creek | MS |
| *Lampsilis cardium* | Reelfoot Lake and watershed | KY/TN |
| *Lampsilis cardium* | Upper Wolf River | MS/TN |
| *Lampsilis ornata* | Black Warrior River | AL |
| *Lampsilis ornata* | Bogue Chitto Creek | AL |
| *Lampsilis ornata* | Buttahatchee River | AL/MS |
| *Lampsilis ornata* | Lower Black Warrior River | AL |
| *Lampsilis ornata* | Lower Noxubee River | AL/MS |
| *Lampsilis ornata* | Lower Tombigbee River | AL |
| *Lampsilis ornata* | Luxapallila Creek | AL/MS |
| *Lampsilis ornata* | North River | AL |
| *Lampsilis ornata* | Sipsey River | AL |
| *Lampsilis ornata* | Tibbee Creek | MS |
| *Lampsilis ornata* | Uphapee/Chewala/Opintlocco Creeks | AL |
| *Lampsilis ornata* | Upper Cahaba River | AL |
| *Lampsilis perovalis* | Bogue Chitto Creek | AL |
| *Lampsilis perovalis* | Bull Mountain Creek | AL/MS |
| *Lampsilis perovalis* | Buttahatchee River | AL/MS |
| *Lampsilis perovalis* | Coal Fire Creek | AL |
| *Lampsilis perovalis* | Luxapallila Creek | AL/MS |
| *Lampsilis perovalis* | North River | AL |
| *Lampsilis perovalis* | Sipsey Fork Black Warrior | AL |
| *Lampsilis perovalis* | Sipsey River | AL |
| *Lampsilis perovalis* | Trussells Creek | AL |
| *Lampsilis perovalis* | Upper Cahaba River | AL |
| *Lampsilis perovalis* | Upper Tombigbee River | MS |
| *Lampsilis siliquoidea* | Bayou Pierre | MS |
| *Lampsilis siliquoidea* | Big Black River | MS |
| *Lampsilis siliquoidea* | Chewalla Creek | MS |
| *Lampsilis siliquoidea* | Hatchie River | MS/TN |
| *Lampsilis siliquoidea* | Obinion Creek | KY |
| *Lampsilis siliquoidea* | Puskus Creek | MS |
| *Lampsilis siliquoidea* | Reelfoot Lake and watershed | KY/TN |
| *Lampsilis siliquoidea* | Upper Wolf River | MS/TN |
| large Coastal Plain rivers, origin on the Coastal Plain | Pearl River | LA/MS |
| large Coastal Plain rivers, origin on the Coastal Plain | Tombigbee River at Columbus | MS |

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| large Coastal Plain rivers, origin on the Coastal Plain | Tombigbee River at Gainesville | AL |
| large Coastal Plain rivers, origin on the Piedmont/Blue Ridge | Alabama River | AL |
| large Coastal Plain rivers, origin on the Piedmont/Blue Ridge | Lower Coosa River mainstem | AL |
| large East Gulf Coastal Plain rivers, origin on the Cumberland Plateau | Lower Black Warrior River | AL |
| large East Gulf Coastal Plain rivers, origin on the Cumberland Plateau | Lower Tombigbee River | AL |
| large Nashville Basin and Highland Rim rivers | Lower Cumberland River | KY |
| *Lasmigona complanata* | Hatchie River | MS/TN |
| *Lasmigona complanata* | Obinion Creek | KY |
| *Lasmigona complanata* | Pearl River | LA/MS |
| *Lasmigona complanata* | Strong River | MS |
| *Lasmigona complanata alabamensis* | Black Warrior River | AL |
| *Lasmigona complanata alabamensis* | Bogue Chitto Creek | AL |
| *Lasmigona complanata alabamensis* | Buttahatchee River | AL/MS |
| *Lasmigona complanata alabamensis* | Lower Cahaba River | AL |
| *Lasmigona complanata alabamensis* | Lower Noxubee River | AL/MS |
| *Lasmigona complanata alabamensis* | Lower Tombigbee River | AL |
| *Lasmigona complanata alabamensis* | Sipsey River | AL |
| *Lasmigona complanata alabamensis* | Tibbee Creek | MS |
| *Lasmigona complanata alabamensis* | Tombigbee River at Gainesville | AL |
| *Leptoxis ampla* | Lower Cahaba River | AL |
| *Leptoxis ampla* | Upper Cahaba River | AL |
| *Leptoxis picta* | Alabama River | AL |
| *Leptoxis praerosa* | Buffalo River | TN |
| *Leptoxis praerosa* | Shoal/Butler Creeks | TN/AL |
| *Leptoxis taeniata* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Ligumia recta* | Buttahatchee River | AL/MS |
| *Ligumia recta* | Lower Cahaba River | AL |
| *Ligumia recta* | Sipsey River | AL |
| *Ligumia recta* | Strong River | MS |
| *Ligumia recta* | Tombigbee River at Gainesville | AL |
| *Ligumia recta* | Upper Tombigbee River | MS |
| *Lioplax cyclostomaformis* | Upper Cahaba River | AL |
| *Lithasia geniculata fuliginosa* | Buffalo River | TN |
| *Lithasia geniculata fuliginosa* | Lower Cumberland River | KY |
| *Lithasia hubrichti* | Big Black River | MS |
| *Lyperium showalteri* | Upper Cahaba River | AL |
| *Lyperium showalteri* | Upper Cahaba River | AL |
| *Lythrurus bellus alegnotus* | Sipsey Fork Black Warrior | AL |
| *Macrhybopsis sp. cf. aestivalis 2* | Lower Cahaba River | AL |
| *Macrhybopsis sp. cf. aestivalis 2* | Upper Cahaba River | AL |
| *Macrochelys temminckii* | Lower Coosa River mainstem | AL |
| *Medionidus acutissimus* | Bull Mountain Creek | AL/MS |
| *Medionidus acutissimus* | Buttahatchee River | AL/MS |
| *Medionidus acutissimus* | Lubbub Creek | AL |
| *Medionidus acutissimus* | Luxapallila Creek | AL/MS |
| *Medionidus acutissimus* | Sipsey Fork Black Warrior | AL |
| *Medionidus acutissimus* | Sipsey River | AL |
| *Medionidus acutissimus* | Trussells Creek | AL |

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| medium Coastal Plain rivers, origin in the Piedmont and Blue Ridge | Lower Tallapoosa River | AL |
| medium Cumberland Plateau rivers, origin in the Cumberland Plateau | Black Warrior River | AL |
| medium East Gulf Coastal Plain rivers, origin in Ridge and Valley | Lower Cahaba River | AL |
| medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | Big Black River | MS |
| medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | Hatchie River | MS/TN |
| medium East Gulf Coastal Plain rivers, origin in the Coastal Plain | Pearl River | LA/MS |
| *Megalonaias nervosa* | Big Black River | MS |
| *Megalonaias nervosa* | Hatchie River | MS/TN |
| *Megalonaias nervosa* | Little Tallahatchie River | MS |
| *Megalonaias nervosa* | Pearl River | LA/MS |
| *Megalonaias nervosa* | Reelfoot Lake and watershed | KY/TN |
| *Necturus alabamensis* | North River | AL |
| *Necturus alabamensis* | Sipsey Fork Black Warrior | AL |
| *Necturus alabamensis* | Yellow Creek | AL |
| *Notropis cahabae* | Upper Cahaba River | AL |
| *Notropis chalybaeus* | Pearl River | LA/MS |
| *Noturus munitus* | Buttahatchee River | AL/MS |
| *Noturus munitus* | Hatchie River | MS/TN |
| *Noturus munitus* | Lower Cahaba River | AL |
| *Noturus munitus* | Sipsey River | AL |
| *Noturus munitus* | Strong River | MS |
| *Noturus sp 3* | Buffalo River | TN |
| *Noturus stigmosus* | Big Black River | MS |
| *Noturus stigmosus* | Hatchie River | MS/TN |
| *Noturus stigmosus* | Upper Wolf River | MS/TN |
| *Obovaria jacksoniana* | Buttahatchee River | AL/MS |
| *Obovaria jacksoniana* | Hatchie River | MS/TN |
| *Obovaria jacksoniana* | Lower Cahaba River | AL |
| *Obovaria jacksoniana* | Lower Noxubee River | AL/MS |
| *Obovaria jacksoniana* | Lubbub Creek | AL |
| *Obovaria jacksoniana* | Luxapallila Creek | AL/MS |
| *Obovaria jacksoniana* | Sipsey River | AL |
| *Obovaria jacksoniana* | Strong River | MS |
| *Obovaria jacksoniana* | Tibbee Creek | MS |
| *Obovaria jacksoniana* | Upper Tombigbee River | MS |
| *Obovaria jacksoniana* | Upper Wolf River | MS/TN |
| *Obovaria subrotunda* | Bayou Pierre | MS |
| *Obovaria subrotunda* | Big Black River | MS |
| *Obovaria unicolor* | Big Black River | MS |
| *Obovaria unicolor* | Buttahatchee River | AL/MS |
| *Obovaria unicolor* | Lower Cahaba River | AL |
| *Obovaria unicolor* | Lower Noxubee River | AL/MS |
| *Obovaria unicolor* | Lubbub Creek | AL |
| *Obovaria unicolor* | Luxapallila Creek | AL/MS |
| *Obovaria unicolor* | Pearl River | LA/MS |
| *Obovaria unicolor* | Sipsey River | AL |
| *Obovaria unicolor* | Tibbee Creek | MS |
| *Obovaria unicolor* | Trussells Creek | AL |
| *Obovaria unicolor* | Upper Tombigbee River | MS |

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| *Orconectes holti* | Bogue Chitto Creek | AL |
| *Orconectes holti* | Catoma Creek | AL |
| *Orconectes holti* | Chilatchee Creek | AL |
| *Orconectes holti* | Dry Cedar Creek | AL |
| *Orconectes holti* | Mulberry Creek | AL |
| *Percina aurolineata* | Lower Cahaba River | AL |
| *Percina aurolineata* | Upper Cahaba River | AL |
| *Percina aurora* | Upper Chickasawhay River | MS |
| *Percina brevicauda* | Lower Cahaba River | AL |
| *Percina brevicauda* | Upper Cahaba River | AL |
| *Percina burtoni* | Buffalo River | TN |
| *Percina lenticula* | Lower Cahaba River | AL |
| *Percina lenticula* | Lower Tallapoosa River | AL |
| *Percina lenticula* | Pearl River | LA/MS |
| *Percina lenticula* | Uphapee/Chewala/Opintlocco Creeks | AL |
| *Percina lenticula* | Upper Cahaba River | AL |
| *Percina lenticula* | Upper Chickasawhay River | MS |
| *Percina lenticula* | Upper Leaf River | MS |
| *Percina macrocephala* | Buffalo River | TN |
| *Percina sp. cf. macrocephala 10* | Sipsey Fork Black Warrior | AL |
| *Phoxinus erythrogaster* | Clark Creek | LA/MS |
| *Phoxinus erythrogaster* | Lower Yazoo River tributaries | MS |
| *Phoxinus erythrogaster* | Piney Creek | MS |
| Piedmont streams | Yellowleaf Creek | AL |
| Piedmont streams, headwaters in limestones | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Plethobasus cyphyus* | Hatchie River | MS/TN |
| *Pleurobema beadleianum* | Buckatunna River | AL/MS |
| *Pleurobema beadleianum* | Pearl River | LA/MS |
| *Pleurobema beadleianum* | Pearl River/Yockanookany River confluence | MS |
| *Pleurobema beadleianum* | Strong River | MS |
| *Pleurobema beadleianum* | Upper Leaf River | MS |
| *Pleurobema curtum* | Upper Tombigbee River | MS |
| *Pleurobema decisum* | Alabama River | AL |
| *Pleurobema decisum* | Bogue Chitto Creek | AL |
| *Pleurobema decisum* | Bull Mountain Creek | AL/MS |
| *Pleurobema decisum* | Buttahatchee River | AL/MS |
| *Pleurobema decisum* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Pleurobema decisum* | Lubbub Creek | AL |
| *Pleurobema decisum* | Luxapallila Creek | AL/MS |
| *Pleurobema decisum* | Sipsey River | AL |
| *Pleurobema decisum* | Uphapee/Chewala/Opintlocco Creeks | AL |
| *Pleurobema decisum* | Upper Tombigbee River | MS |
| *Pleurobema furvum* | North River | AL |
| *Pleurobema furvum* | Sipsey Fork Black Warrior | AL |
| *Pleurobema georgianum* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Pleurobema marshalli* | Tombigbee River at Gainesville | AL |
| *Pleurobema perovatum* | Buttahatchee River | AL/MS |
| *Pleurobema perovatum* | Coal Fire Creek | AL |
| *Pleurobema perovatum* | Luxapallila Creek | AL/MS |

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| *Pleurobema perovatum* | Sipsey River | AL |
| *Pleurobema perovatum* | Sucarnoochee River | AL/MS |
| *Pleurobema perovatum* | Trussells Creek | AL |
| *Pleurobema perovatum* | Uphapee/Chewala/Opintlocco Creeks | AL |
| *Pleurobema rubrum* | Big Black River | MS |
| *Pleurobema rubrum* | Reelfoot Lake and watershed | KY/TN |
| *Pleurobema taitianum* | Alabama River | AL |
| *Pleurocera annulifera* | Black Warrior River | AL |
| *Pleurocera annulifera* | Lower Black Warrior River | AL |
| *Pleurocera annulifera* | Lower Tombigbee River | AL |
| *Pleurocera showalteri* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Polyodon spathula* | Big Black River | MS |
| *Polyodon spathula* | Lower Cumberland River | KY |
| *Polyodon spathula* | Lower Tombigbee River | AL |
| *Polyodon spathula* | Pearl River | LA/MS |
| *Potamilus capax* | Catherine Creek | MS |
| *Potamilus inflatus* | Black Warrior River | AL |
| *Potamilus inflatus* | Lower Black Warrior River | AL |
| *Potamilus inflatus* | Lower Tombigbee River | AL |
| *Potamilus inflatus* | Pearl River | LA/MS |
| *Potamilus inflatus* | Sipsey River | AL |
| *Potamilus inflatus* | Tombigbee River at Gainesville | AL |
| *Procambarus barbiger* | Strong River | MS |
| *Procambarus barbiger* | Upper Chickasawhay River | MS |
| *Procambarus cometes* | Tibbee Creek | MS |
| *Procambarus lagniappe* | Sucarnoochee River | AL/MS |
| *Procambarus lylei* | Upper Yalobusha River/Shutispear Creek | MS |
| *Procambarus marthae* | Lower Cahaba River | AL |
| *Procambarus pogum* | Tibbee Creek | MS |
| *Pteronotropis welaka* | Big Swamp Creek | AL |
| *Pteronotropis welaka* | Lower Cahaba River | AL |
| *Ptychobranchus greenii* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Ptychobranchus greenii* | Sipsey Fork Black Warrior | AL |
| *Ptychobranchus greenii* | Upper Cahaba River | AL |
| *Pyrgulopsis hershleri* | Lower Coosa River mainstem | AL |
| *Quadrula cylindrica cylindrica* | Big Black River | MS |
| *Quadrula metanerva* | Alabama River | AL |
| *Quadrula metanerva* | Black Warrior River | AL |
| *Quadrula metanerva* | Lower Black Warrior River | AL |
| *Quadrula metanerva* | Lower Cahaba River | AL |
| *Quadrula metanerva* | Upper Tombigbee River | MS |
| *Quadrula refulgens* | Pearl River | LA/MS |
| *Quadrula refulgens* | Upper Leaf River | MS |
| *Quadrula rumphiana* | Bogue Chitto Creek | AL |
| *Quadrula rumphiana* | Buttahatchee River | AL/MS |
| *Quadrula rumphiana* | Lower Cahaba River | AL |
| *Quadrula rumphiana* | Lower Noxubee River | AL/MS |
| *Quadrula rumphiana* | Luxapallila Creek | AL/MS |
| *Quadrula rumphiana* | Sipsey River | AL |
| *Quadrula rumphiana* | Tibbee Creek | MS |
| *Quadrula rumphiana* | Upper Tombigbee River | MS |

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| ridge and valley streams | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| ridge and valley streams | Upper Cahaba River | AL |
| ridge and valley streams, in sandstones | Upper Cahaba River | AL |
| ridge and valley streams, limestone to sandstone | Upper Cahaba River | AL |
| *Scaphirhynchus suttkusi* | Lower Cahaba River | AL |
| small alluvial plain rivers, in Holocene alluvium, origin in the coastal plain, East | Reelfoot Lake and watershed | KY/TN |
| small Coastal Plain rivers in acidic clays, origin in Coastal Plain | Lower Noxubee River | AL/MS |
| small Coastal Plain rivers in acidic clays, origin in Coastal Plain | Tibbee Creek | MS |
| small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | Big Swamp Creek | AL |
| small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | Bogue Chitto Creek | AL |
| small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | Catoma Creek | AL |
| small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | Pintalla Creek | AL |
| small Coastal Plain rivers in fine alluvium, origin in calcareous clays, origin in Coastal Plain | Tibbee Creek | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Bayou de Chien | KY/TN |
| small Coastal Plain rivers, origin in Coastal Plain | Bayou Pierre | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Big Black River | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Buckatonna River | AL/MS |
| small Coastal Plain rivers, origin in Coastal Plain | Bull Mountain Creek | AL/MS |
| small Coastal Plain rivers, origin in Coastal Plain | Buttahatchee River | AL/MS |
| small Coastal Plain rivers, origin in Coastal Plain | Hatchie River | MS/TN |
| small Coastal Plain rivers, origin in Coastal Plain | Little Tallahatchie River | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Lubbub Creek | AL |
| small Coastal Plain rivers, origin in Coastal Plain | Luxapallila Creek | AL/MS |
| small Coastal Plain rivers, origin in Coastal Plain | Mulberry Creek | AL |
| small Coastal Plain rivers, origin in Coastal Plain | Obinion Creek | KY |
| small Coastal Plain rivers, origin in Coastal Plain | Strong River | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Sucarnoochee River | AL/MS |
| small Coastal Plain rivers, origin in Coastal Plain | Thompson Creek | LA/MS |
| small Coastal Plain rivers, origin in Coastal Plain | Uphapee/Chewala/Opintlocco Creeks | AL |
| small Coastal Plain rivers, origin in Coastal Plain | Upper Chickasawhay River | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Upper Leaf River | MS |
| small Coastal Plain rivers, origin in Coastal | Upper North Fork Obion River | KY/TN |

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| Plain | | |
| small Coastal Plain rivers, origin in Coastal Plain | Upper Pearl River/Yockanookany River | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Upper South Fork Forked Deer River | TN |
| small Coastal Plain rivers, origin in Coastal Plain | Upper Tombigbee River | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Upper Wolf River | MS/TN |
| small Coastal Plain rivers, origin in Coastal Plain | Upper Yalobusha River/Shutispear Creek | MS |
| small Coastal Plain rivers, origin in Coastal Plain | Upper Yockanookany River | MS |
| small Coastal Plain rivers, origin in the Cumberland Plateau | Buttahatchee River | AL/MS |
| small Coastal Plain rivers, origin in the Cumberland Plateau | Lower Cahaba River | AL |
| small Coastal Plain rivers, origin in the Cumberland Plateau | Sipsey River | AL |
| small Coastal Plain rivers; origins in Coastal Plain | Blood River | TN/KY |
| small Coastal Plain rivers; origins in Coastal Plain | East and West Forks Clark's R | KY |
| small Highland Rim rivers; origins in Highland Rim | Buffalo River | TN |
| small Highland Rim rivers; origins in Highland Rim | Cypress Creek | TN/AL |
| small Highland Rim rivers; origins in Highland Rim | Shoal/Butler Creeks | TN/AL |
| small Ridge and Valley rivers in sandstones, origin in Ridge and Valley limestones | Upper Cahaba River | AL |
| *Sternotherus depressus* | North River | AL |
| *Sternotherus depressus* | Sipsey Fork Black Warrior | AL |
| *Sternotherus depressus* | Yellow Creek | AL |
| *Stizostedion sp. cf. vitreum 1* | Black Warrior River | AL |
| *Stizostedion sp. cf. vitreum 1* | Buttahatchee River | AL/MS |
| *Stizostedion sp. cf. vitreum 1* | Lower Cahaba River | AL |
| *Stizostedion sp. cf. vitreum 1* | Lower Tallapoosa River | AL |
| *Stizostedion sp. cf. vitreum 1* | Sipsey River | AL |
| *Stizostedion sp. cf. vitreum 1* | Upper Cahaba River | AL |
| *Strophitus conasaugensis* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Strophitus conasaugensis* | Luxapallila Creek | AL/MS |
| *Strophitus subvexus* | Bull Mountain Creek | AL/MS |
| *Strophitus subvexus* | Buttahatchee River | AL/MS |
| *Strophitus subvexus* | Coal Fire Creek | AL |
| *Strophitus subvexus* | Luxapallila Creek | AL/MS |
| *Strophitus subvexus* | North River | AL |
| *Strophitus subvexus* | Sipsey River | AL |
| *Strophitus subvexus* | Trussells Creek | AL |
| *Strophitus subvexus* | Upper Tombigbee River | MS |
| *Strophitus undulatus* | Hatchie River | MS/TN |
| *Strophitus undulatus* | Upper Wolf River | MS/TN |
| *Toxolasma lividus lividus* | Shoal/Butler Creeks | TN/AL |
| transitional streams, coastal plain to Highland Rim | Cypress Creek | TN/AL |
| transitional streams, coastal plain to Piedmont | Chestnut Creek | AL |
| transitional streams, coastal plain to ridge and valley | Upper Cahaba River | AL |

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|---|---|---|
| transitional streams, Cumberland plateau to coastal plain | Bull Mountain Creek | AL/MS |
| transitional streams, Cumberland plateau to coastal plain | Buttahatchee River | AL/MS |
| transitional streams, Cumberland plateau to coastal plain | North River | AL |
| transitional streams, Cumberland plateau to coastal plain | Sipsey River | AL |
| transitional streams, Piedmont to coastal plain, "fall zone" | Sofkahatchee Creek | AL |
| transitional streams, Piedmont to coastal plain, "fall zone" | Uphapee/Chewala/Opintlocco Creeks | AL |
| *Truncilla donaciformes* | Alabama River | AL |
| *Truncilla donaciformes* | Big Black River | MS |
| *Truncilla donaciformes* | Buttahatchee River | AL/MS |
| *Truncilla donaciformes* | Lower Noxubee River | AL/MS |
| *Truncilla donaciformes* | Pearl River | LA/MS |
| *Truncilla donaciformes* | Reelfoot Lake and watershed | KY/TN |
| *Truncilla donaciformes* | Sipsey River | AL |
| *Truncilla donaciformes* | Tombigbee River at Gainesville | AL |
| *Truncilla donaciformes* | Upper Tombigbee River | MS |
| *Tulotoma magnifica* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Tulotoma magnifica* | Lower Coosa River mainstem | AL |
| *Uniomerus declivis* | Hatchie River | MS/TN |
| *Villosa nebulosa* | Kelley/Yellowleaf/Waxahatchee Creeks | AL |
| *Villosa nebulosa* | Sipsey Fork Black Warrior | AL |
| *Villosa vibex* | Hatchie River | MS/TN |
| *Villosa vibex* | Upper Wolf River | MS/TN |