

**Draft Environmental Assessment and
Land Protection Plan
For
The Proposed Expansion of
Cahaba River National Wildlife Refuge
and the Proposed Establishment of
Cahaba River Conservation Area**

Bibb, Chilton, Jefferson, Perry and Shelby Counties, Alabama



Southeast Region



**DRAFT ENVIRONMENTAL ASSESSMENT AND LAND PROTECTION PLAN
FOR
THE PROPOSED EXPANSION OF
CAHABA RIVER NATIONAL WILDLIFE REFUGE
AND THE PROPOSED ESTABLISHMENT OF
CAHABA RIVER CONSERVATION AREA**

Bibb, Chilton, Jefferson, Perry, and Shelby Counties, Alabama

**U.S. Department of the Interior
Fish and Wildlife Service**

Southeast Region
Atlanta, Georgia

June 2010

TABLE OF CONTENTS

I. PURPOSE AND NEED FOR ACTION	1
A. Introduction.....	1
B. Purpose	1
C. Background	2
D. Proposed Action	4
E. Coordination and Consultation	6
F. Fish and Wildlife Service Land Acquisition Policy	6
II. AFFECTED ENVIRONMENT	7
A. General.....	7
B. Vegetation and Land Use	10
Longleaf Pine Forest/Woodland (Pinus palustris).....	13
Canebrake (Arundinaria gigantea).....	13
Bottomland Hardwood Forest	14
C. Wildlife Resources.....	14
Mussels	14
Snails	17
D. Fishery Resources.....	18
E. Socioeconomic and Sociocultural Conditions.....	19
Outdoor Recreation Economics	19
Tourism	19
F. Cultural Resources	22
III. ALTERNATIVES INCLUDING THE PROPOSED ACTION.....	23
A. Alternative 1: No Action	23
B. Alternative 2: Protection and Management of up to 106,415 Acres by the Fish and Wildlife Service within Cahaba River National Wildlife Refuge and Establishment of the 173,380-acre Cahaba River Conservation Area (Proposed Alternative).....	23
1. Leases and Cooperative Agreements.....	23
2. Conservation Easements	23
3. Fee Title Acquisition.....	24
C. Alternative 3: Protection and Management of up to 106,415 Acres by the Fish and Wildlife Service within Cahaba River National Wildlife Refuge	25
IV. ENVIRONMENTAL CONSEQUENCES	29
A. Alternative 1: No Action	29
B. Alternative 2: Protection and Management of up to 106,415 Acres by the Fish and Wildlife Service within Cahaba River National Wildlife Refuge and Establishment of the 173,380-acre Cahaba River Conservation Area (Proposed Alternative).....	30
C. Alternative 3: Protection and Management of up to 106,415 Acres by the Fish and Wildlife Service within Cahaba River National Wildlife Refuge	31
V. SUMMARY OF PROPOSED ACTION	33
VI. INFORMATION ON PREPARERS.....	37

APPENDIX A. CONCEPTUAL MANAGEMENT PLAN - PROPOSED EXPANSION OF CAHABA RIVER NATIONAL WILDLIFE REFUGE 39

- Introduction 39
- Management Goals and Objectives 39
- Refuge Administration 42
- habitat Management..... 42
- Fish and Wildlife Population Monitoring 44
- Public Use Opportunities and Management..... 44
 - Visitor Access 44
 - Hunting 45
 - Fishing 45
 - Wildlife Observation and Photography..... 45
 - Environmental Education and Interpretation..... 45
 - Law Enforcement..... 45
- Facilities Management 45
- Miscellaneous 46
 - Cultural Resource Management 46
 - Fire Management..... 46
 - Pest Management..... 46

APPENDIX B. INTERIM COMPATIBILITY DETERMINATION 47

APPENDIX C. INTERIM RECREATION ACT FUNDING ANALYSIS 57

APPENDIX D. LITERATURE CITED 59

List of Figures

Figure 1. Cahaba River NWR approved acquisition boundary map	3
Figure 2. Major physiographic provinces of Alabama	8
Figure 3. Aggregated land cover classification of lands included in the proposed expansion and conservation areas	11
Figure 4. Lands included under Alternative 2 (proposed alternative)	27
Figure 5. Lands included under Alternative 3	28
Figure 6. Proposed expansion of Cahaba River NWR and Cahaba River conservation area acquisition priority ranking	35

List of Tables

Table 1. Federally listed species from the Cahaba River Basin	9
Table 2. Aggregated land cover classification of lands within the proposed expansion and conservation areas	10
Table 3. Freshwater Mussels Currently Found in the Cahaba River Basin	15
Table 4. Extinct and Extirpated Mussels of the Cahaba River Basin	16
Table 5. Threatened, Endangered and Imperiled Freshwater Snails of the Cahaba River Basin.....	17
Table 6. Threatened, Endangered, and Imperiled Fishes of the Cahaba River Basin.....	18
Table 7. Comparison of Geographic and Demographic Statistics for Area Counties, Alabama, and the United States.....	20
Table 8. Wildlife Dependent Recreation by Participants, 16 Years Old and Older, Across Alabama	21
Table 9. Acquisition methods available within the proposed expansion and conservation areas.....	24
Table 10. Estimated maximum annual revenue sharing payments	31
Table 11. Protection priorities for the proposed expansion and recommended methods of acquisition	34
Table 12. Conservation and Related Programs Available to Private Landowners	40

I. PURPOSE AND NEED FOR ACTION

A. INTRODUCTION

The U.S. Fish and Wildlife Service (Service) proposes to protect and manage upland pine and riparian forests and aquatic habitats in Bibb, Chilton, Jefferson, and Shelby Counties, Alabama, through the expansion of the Cahaba River National Wildlife Refuge (Expansion Area) and to protect similar habitats through the establishment of the Cahaba River Conservation Area (Conservation Area) within Bibb, Jefferson, Perry, and Shelby Counties, Alabama.

The mission of the National Wildlife Refuge System is "... to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Improvement Act of 1997). National wildlife refuges provide important habitat for native plants and many species of mammals, birds, fish, insects, amphibians, and reptiles. They also play a vital role in conserving threatened and endangered species. Refuges offer a wide variety of wildlife-dependent recreational opportunities, and many have visitor centers, wildlife trails, and environmental education programs. Nationwide, about 25 million visitors annually hunt, fish, observe and photograph wildlife, or participate in educational and interpretive activities on refuges.

The scope of this draft environmental assessment (EA) is limited to the proposed acquisition of lands within the Expansion Area and establishment of the Conservation Area. The EA is not intended to cover the development and/or implementation of detailed, specific programs for the administration and management of those lands. A conceptual management plan (Appendix A) and interim compatibility determination (Appendix B) provide general outlines on how the proposed lands would be managed. The appendices are provided as general information for the public in its review of the EA. If the Expansion Area is approved and the Conservation Area established, the Service will modify the refuge's existing management plans to incorporate the new lands and resources under its control, as lands or interests in lands are acquired. At that time, these modified refuge management plans will be reviewed in accordance with the Departmental requirements of the National Environmental Policy Act (NEPA).

B. PURPOSE

This EA presents a proposal for protection and management of wildlife habitats in Bibb, Chilton, Jefferson, Perry, and Shelby Counties, through the expansion of the Cahaba River National Wildlife Refuge (NWR) and the establishment of the Cahaba River Conservation Area within Bibb, Jefferson, Perry, and Shelby Counties. This proposal would expand the acquisition boundaries for the existing refuge and designate a new Cahaba River Conservation Area.

Acquisition boundaries are administrative lines delineating areas in which the Service may consider negotiations with willing owners for acquisition of an interest in land. Lands within a refuge acquisition boundary do not become part of the refuge unless and until a legal interest is acquired through a management agreement, easement, lease, donation, or purchase. Lands within an acquisition boundary are not subject to any refuge regulations or jurisdiction unless and until an interest is acquired. Land interests are acquired from willing sellers/owners only. Any landowner that is within an approved acquisition boundary, even though the surrounding parcels may have been purchased by the Service,

retains all the rights, privileges, and responsibilities of private land ownership. This includes, but is not limited to, the right to access, hunting, vehicle use, control of trespass; the right to sell the property to any other party; and the responsibility to pay local real estate or property taxes. Additional information regarding the Service's land acquisition policy is provided in Section F.

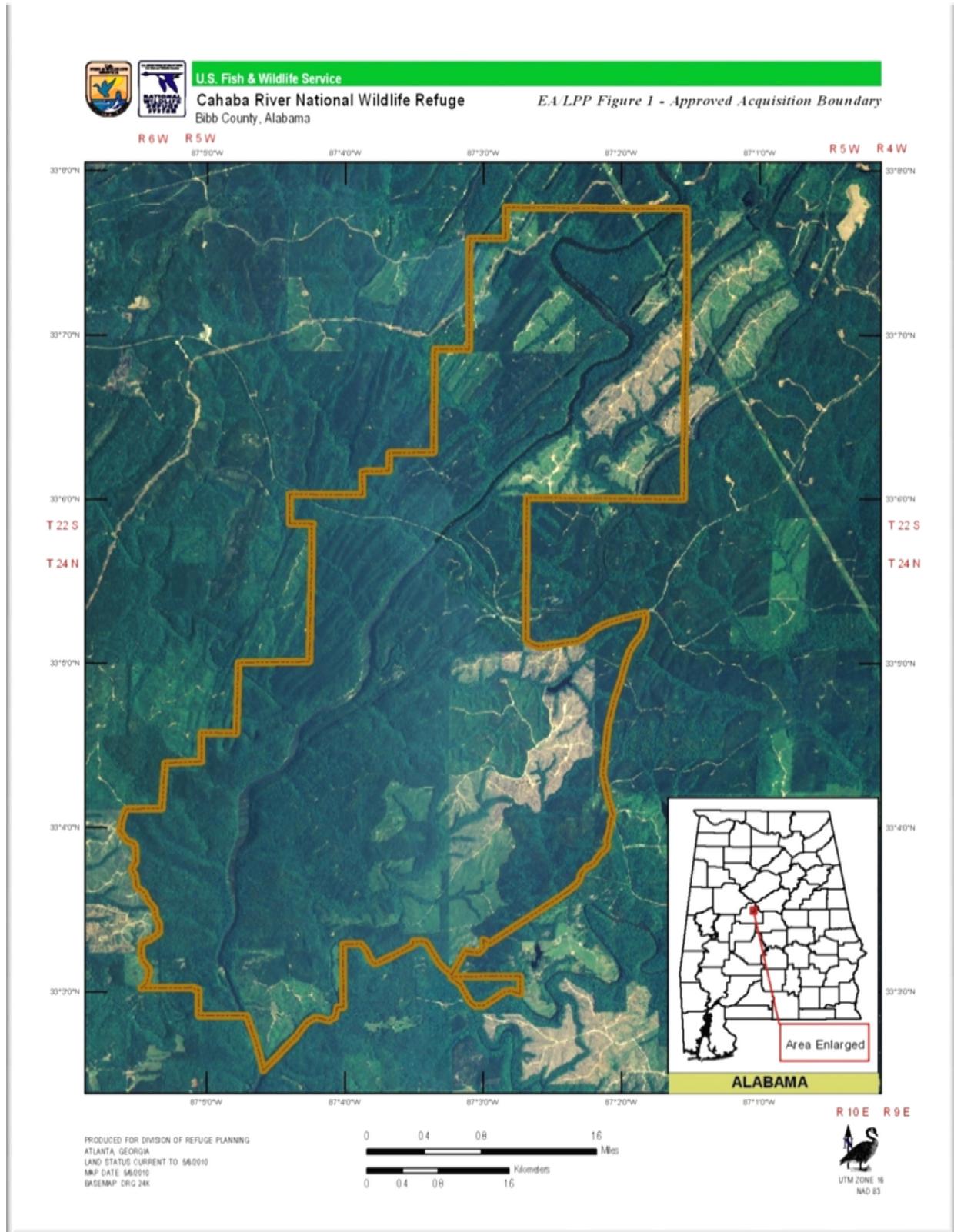
Within approved acquisition boundaries, the Service would be able to enter into negotiations for the protection of environmentally sensitive lands. The most urgent needs for acquiring an interest in these lands are as follows:

- Protection of water quality and quantity of the Cahaba River
- Protection of designated critical habitat for 6 listed mussels species
- Protection of occupied habitat for 3 listed freshwater snail species (cylindrical lioplax, flat pebblesnail, and round rocksnail)
- Protection of occupied or historic habitat for 4 listed fishes (Alabama sturgeon, Cahaba shiner, blue shiner and goldline darter)
- Protection of occupied habitat for 2 listed bird species (red-cockaded woodpecker and wood stork)
- Protection of occupied habitat for 2 listed plant species (Mohr's Barbara's button and Tennessee yellow-eyed grass)
- Protection of occupied or historic habitat for 2 listed mammals (gray bat and Indiana bat)
- Improving the habitat connectivity between the refuge and other regional conservation lands
- Protection of neotropical migratory songbird, wading bird, and waterfowl habitats
- Restoring longleaf pine habitats within the Cahaba River watershed
- Improving the capability to manage wildlife habitat through prescribed fire and protecting the public from wildfires
- Restoring bottomland hardwood habitats along the Cahaba River and its tributaries
- Restoring canebrake habitats along the Cahaba River and its tributaries

C. BACKGROUND

Cahaba River NWR was established in 2002 under the authority of The Cahaba River National Wildlife Refuge Establishment Act, P.L. No. 106-331. This legislation directed the Secretary of the Interior to acquire up to 3,500 acres of lands and waters within the boundaries of the refuge. In 2004, the Regional Director of the Service (Southeast Region) authorized the expansion of the acquisition boundary of the refuge to include an additional 340 acres of property at the confluence of the Cahaba and Little Cahaba Rivers. In 2006, Public Law 109-363 was signed by the President, authorizing the further expansion of the acquisition boundary by 3,600 acres. In 2008, the Regional Director (Southeast Region) authorized the expansion of the acquisition boundary of the refuge by an additional 360 acres. The refuge currently contains 3,608 acres in Bibb County, with an approved acquisition boundary of 7,600 acres (Figure 1). The purpose of the refuge is to conserve and manage a segment of the scenic Cahaba River, which is recognized nationally for its unique biological diversity.

Figure 1. Cahaba River NWR approved acquisition boundary map



D. PROPOSED ACTION

The Service proposes to expand the current acquisition boundary of Cahaba River NWR and establish the Cahaba River Conservation Area to protect the biologically diverse Cahaba River. The proposal encompasses undeveloped areas extending south from the metropolitan areas of the city of Birmingham, to just south of the last major water quality threat to the Cahaba River at Marion in Perry County. The Service would acquire, protect, and manage, through fee title purchases, leases, conservation easements, and/or cooperative agreements from willing sellers, lands within the proposed expansion of Cahaba River NWR, and would protect lands within the proposed Conservation Area through conservation easements and cooperative agreements. All lands and waters acquired would be managed by the Service as part of Cahaba River NWR. All conservation easements acquired from willing sellers within the proposed Conservation Area would be overseen by the staff at Cahaba River NWR.

The protection of additional lands within the Cahaba River watershed is consistent with many of the goals within the Habitat Management Plan for Cahaba River NWR including:

Goal 2. Protect, restore, and enhance the Cahaba River aquatic environment adjacent to the refuge.

Objective 1 – Restore, where feasible, the river hydrological environment that existed during the pre-settlement period, and summarize existing and proposed projects in the annual refuge report.

Goal 3. Provide an ecosystem management strategy for uplands that restores and maintains the mosaic cover of native pine and hardwood forest.

Objective 1 – Within 2 years, map vegetation cover types on refuge to establish community structure and limitations for future prescribed burning.

Objective 2 – Within 5 years, designate stand condition within existing longleaf pine and loblolly plantations for restoration prescriptions.

Goal 4. Reestablish a recurring fire regime through prescribed burning to approximate conditions occurring in pre-settlement forests.

Objective 2 – Establish maintenance prescribed burning on a 3-year cycle for up to 1,000 acres annually on burn units where monitoring plant form and species composition indicates stands have been restored to high quality.

Goal 5. Restore longleaf pine and associated upland communities, where possible, to a condition that can be maintained through prescribed burning.

Objective 1 – Within 5 years of determining longleaf pine stand condition, schedule and reduce hardwoods and unwanted pines on at least 20 acres annually within longleaf pine stands that cannot be controlled through prescribed burning, with the objective of establishing a 25-60 percent canopy cover.

Objective 2 – Within 5 years of mapping loblolly pine plantations, schedule and remove at least 20 acres annually of timber, replanting the areas with longleaf pine seedlings, with no more than 600 trees/acre.

Goal 6. Manage wetland, streamside, and hardwood forests as a component of the mountain longleaf pine ecosystem.

Goal 7. Manage the refuge as part of the regional landscape, while minimizing forest fragmentation and disturbed edge habitat within the refuge boundaries.

Objective 1 – Within 2 years, conduct a coordination meeting with regional partners to establish a cooperative working group that integrates landscape strategies along the Cahaba River and adjacent forested uplands.

Objective 2 – Within 2 years, review forest openings for fragmentation, and abandon or restore, where possible, at least 5 acres annually of small openings that can be returned to a continuous forest cover.

Objective 3 – Within 2 years, initiate biotic inventories with a minimum of 5 annual point counts for nesting birds, both east and west of the river, in both the upland forest and transitional communities (minimum of 10 point counts).

Goal 8. Inventory, protect, and manage rare, endangered, threatened, and sensitive species and natural communities.

Objective 1 – Within 2 years, seek funding for inventories of rare, endangered, threatened, and sensitive species and communities within the refuge, and prepare an annual report on the status of populations, management requirements, and new species discovered during the year.

Objective 2 – When significant ecological communities are discovered on the refuge that merit designation as a “Significant Biological Area,” these communities will be mapped, and status, along with management/protection requirements, provided and reviewed in annual reports.

Objective 3 – Participate in the recovery of endangered, threatened, candidate, and rare species on the refuge, with at least annual coordination with the Service’s Office of Ecological Services.

Goal 9. Inventory and control exotic and invasive species.

Objective 1 – Within 3 years, initiate herbicide control of kudzu and treat at least 2 acres annually.

Objective 2 – Within 3 years, initiate herbicide control of Chinese privet and treat at least 5 acres annually.

Objective 3 – Within 3 years, initiate herbicide control of mimosa.

Goal 10. Maintain and restore native wildlife associated with longleaf pine and other refuge upland natural communities.

Objective 1 – Continue a hunting program on the refuge that provides recreational opportunities and maintains game species at sustainable population levels.

Objective 2 – Within 2 years, contact and encourage cooperative programs with academic institutions and non-governmental organizations to educate, monitor, and establish habitat improvement projects for native wildlife within high-quality longleaf pine forests on the refuge.

It is anticipated that funding for the expansion of Cahaba River NWR would be provided primarily through the Land and Water Conservation Fund as authorized by the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742j). Based upon the prevalence of wetlands within the proposed Conservation Area and their importance to breeding and wintering waterfowl and songbirds, it is anticipated that funding for the proposed Conservation Area would be provided from both The Migratory Bird Conservation Fund as authorized by the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715d), and the Land and Water Conservation Fund.

E. COORDINATION AND CONSULTATION

This Draft EA and Land Protection Plan for the proposed expansion of Cahaba River NWR and establishment of the Cahaba River Conservation Area will be circulated through the Alabama State Clearinghouse for review and comment. Informal comments from the Alabama Department of Conservation and Natural Resources and The Nature Conservancy were solicited in the development of this draft document.

F. FISH AND WILDLIFE SERVICE LAND ACQUISITION POLICY

The Service acquires lands and interests in lands, such as easements, and management rights in lands through leases or cooperative agreements, consistent with legislation or other congressional guidelines and executive orders, for the conservation of fish and wildlife and to provide wildlife-dependent public use for recreational and educational purposes. These lands include national wildlife refuges, national fish hatcheries, research stations, and other areas.

The Service's policy is to acquire land from willing sellers, and only when other protective means, such as local zoning restrictions or regulations, are not appropriate, available, or effective. When land is needed to achieve fish and wildlife conservation objectives, the Service seeks to acquire the minimum interest necessary to reach those objectives. If fee title is required, the Service gives full consideration to extended use reservations, exchanges, or other alternatives that will lessen the impact on the owner and the community. Donations of desired lands or interests are encouraged.

The Service, like all federal agencies, has the power of eminent domain, which allows the use of condemnation to acquire lands and interest in lands for the public good. This power, however, requires congressional approval and is seldom used. The Service usually acquires lands from willing sellers. In all fee title acquisition cases, the Service is required by law to offer 100 percent of the property's appraised market value, as set out in an approved appraisal that meets professional standards and federal requirements.

II. AFFECTED ENVIRONMENT

This section describes the environment that would be affected by the implementation of the alternatives. It is organized under the following impact topics, which includes the area's natural vegetation, land use, fish and wildlife resources, cultural resources, and socioeconomic and socio-cultural conditions.

A. GENERAL

The Cahaba River is Alabama's longest free-flowing river, with a watershed of 1,825 square miles. Free-flowing streams and rivers are considered an endangered habitat type (Noss et al. 1995) due to damming for hydroelectric production and transportation. This 190-mile-long river extends from its source near Trussville in St. Clair County south to the Alabama River. The Cahaba River and its major tributaries support one of the most diverse aquatic ecosystems in the United States.

The Cahaba River and other major streams and rivers within the proposed Expansion and Conservation Areas are located both above and below the "fall line." The fall line separates the Valley and Ridge Physiographic Province from the Coastal Plain Physiographic Province (Figure 2). Rivers and streams are strikingly different in function and appearance depending upon their location above or below the fall line. The fast moving rivers and streams that flow over rocky shoals above the fall line are replaced by a slower moving river and streams over a sand/silt bottom with a larger floodplain below the fall line.

The biological richness and significance of the streams and rivers within the proposed Expansion and Conservation Areas cannot be overstated. The Cahaba River Basin contains occupied or historic habitat for at least 24 federally listed species and numerous species of concern (Table 1). The majority of these species is aquatic.

The Cahaba River drainage is recognized by biologists as one of the most diverse river systems for its size in North America (Pierson et al. 1989). The Cahaba River is Alabama's longest free-flowing river, which is largely responsible for the basin's rich mollusk fauna. The prominence of shoals along the upper river reaches and lack of significant development immediately adjacent to the river, along much of its length, further enhance the river's species richness.

Figure 2. Major physiographic provinces of Alabama

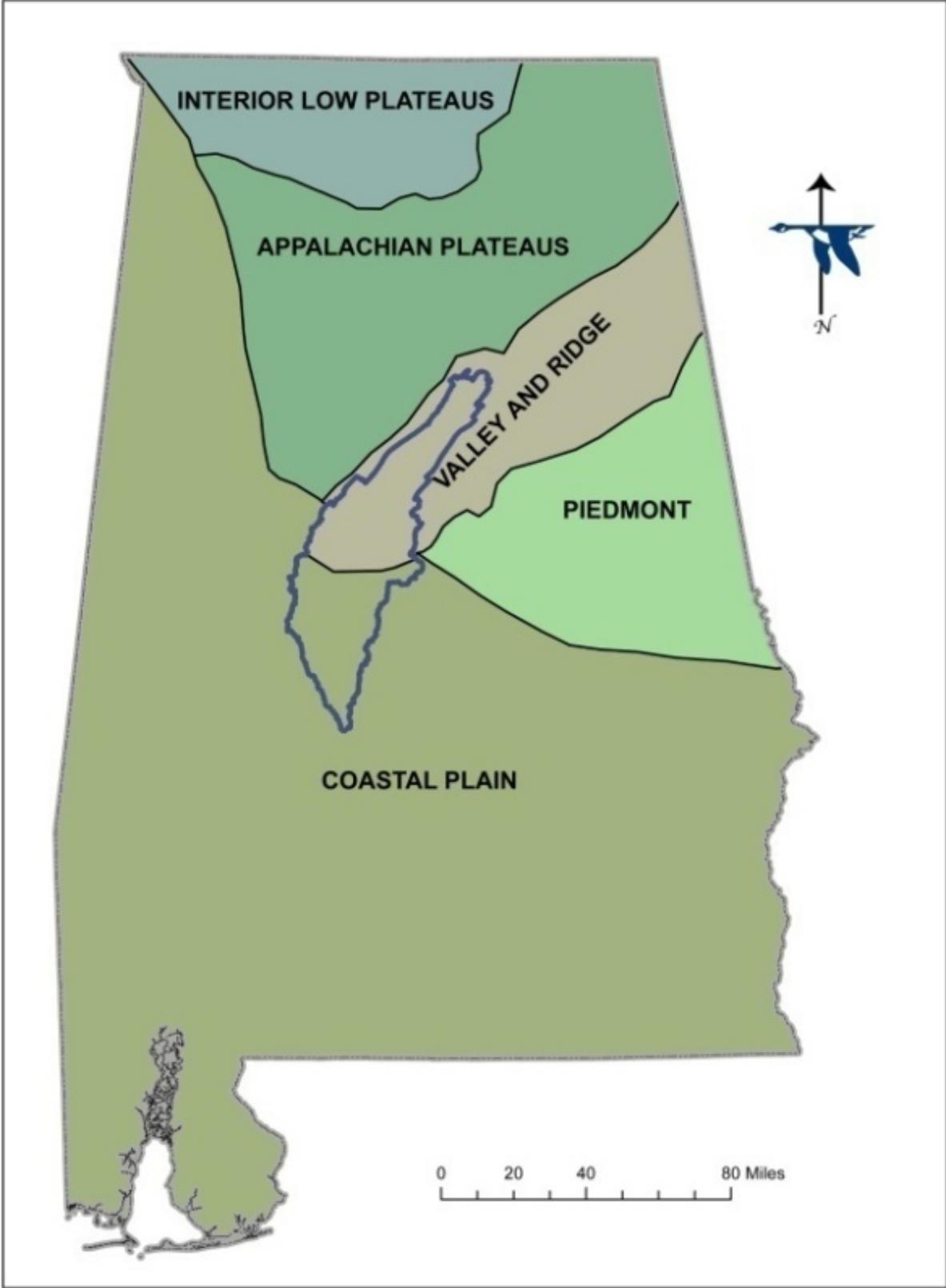


Table 1. Federally listed species from the Cahaba River Basin

GROUP	COMMON NAME	SCIENTIFIC NAME
Mussels	Alabama moccasinshell	<i>Medionidus acutissimus</i>
	Coosa moccasinshell	<i>Medionidus parvulus</i>
	fine-lined pocketbook	<i>Hamiota altilis</i>
	heavy pigtoe	<i>Pleurobema taitianum</i>
	orange-nacre mucket	<i>Hamiota perovalis</i>
	ovate clubshell	<i>Pleurobema perovatum</i>
	southern clubshell	<i>Pleurobema decisum</i>
	southern combshell	<i>Epioblasma penita</i>
	triangular kidneyshell	<i>Ptychobranhus greenii</i>
Snails	cylindrical lioplax	<i>Lioplax cyclostomaformis</i>
	flat pebblesnail	<i>Lepyrium showalteri</i>
	round rocksnail	<i>Leptoxis ampla</i>
Fishes	Alabama sturgeon	<i>Scaphirhyncus suttkusi</i>
	blue shiner	<i>Cyprinella caerulea</i>
	Cahaba shiner	<i>Notropis cahabae</i>
	goldline darter	<i>Percina aurolineata</i>
	gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>
Birds	red-cockaded woodpecker	<i>Picoides borealis</i>
	wood stork	<i>Mycteria Americana</i>
Plants	Mohr's Barbara's button	<i>Marshallia morhii</i>
	Tennessee yellow-eyed grass	<i>Xyris tennesseensis</i>
Mammals	gray bat	<i>Myotis grisescens</i>
	Indiana bat	<i>Myotis sodalist</i>
Insects	Mitchell's satyr butterfly	<i>Neonympha mitchellii</i>

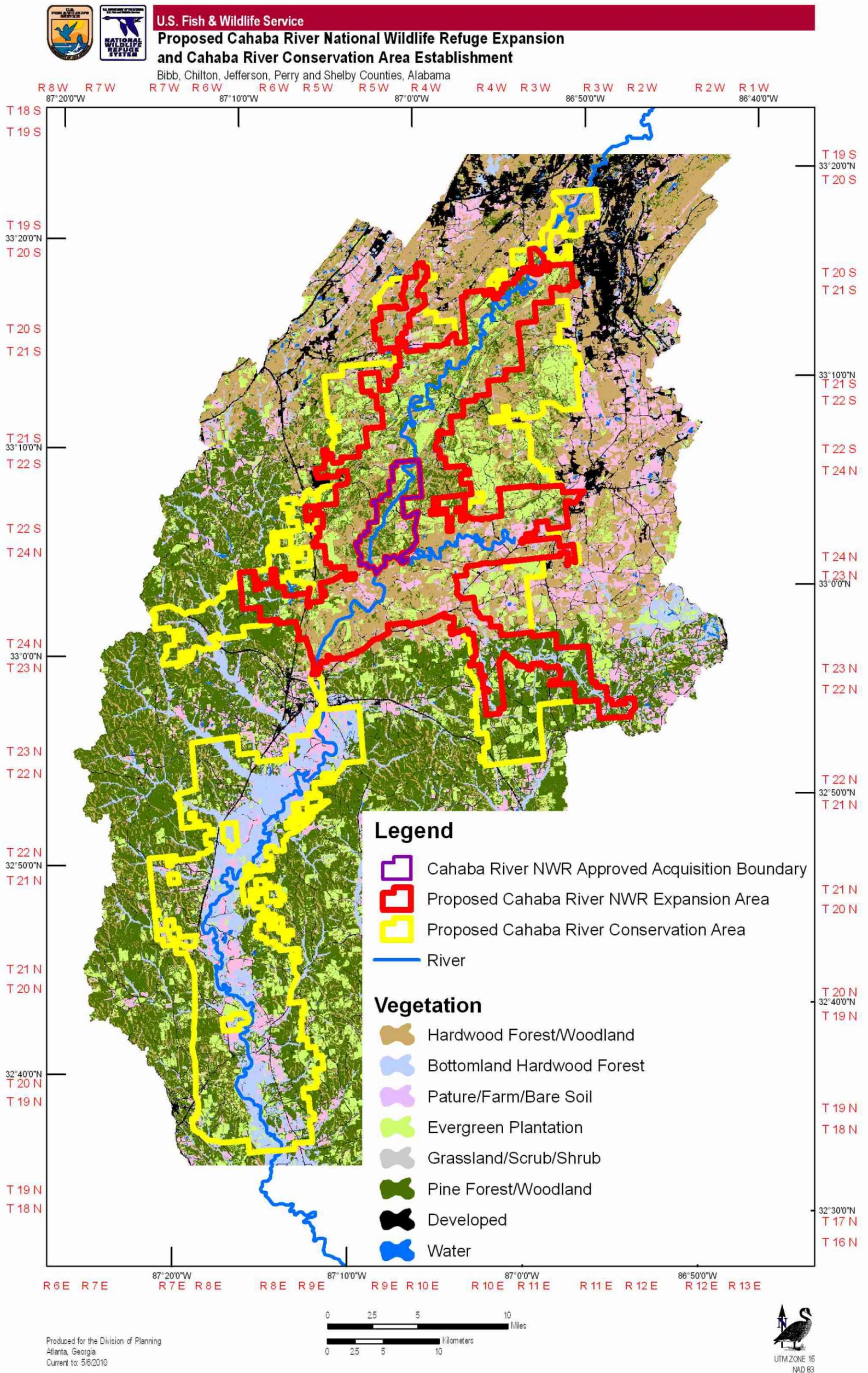
B. VEGETATION AND LAND USE

Vegetation data represented in Table 2 and Figure 3 were adapted from the GAP Landcover Map of Ecological Systems for the State of Alabama (Kleiner et. al. 2007). The 31 vegetation classifications from the original GAP data were combined with similar vegetation classes for clarity and representation within 8 aggregations

Table 2. Aggregated land cover classification of lands within the proposed expansion and conservation areas

General Habitat Type	Cahaba River Conservation Area	Cahaba River NWR Expansion Area	Total
Developed	281	66	347
Floodplain/Riparian	29,893	3,482	33,375
Grass/Scrub/Shrub	10,661	6,829	17,490
Hardwood	28,196	41,493	69,689
Pasture/Farm/Bare Soil	17,289	6,811	24,100
Pine Forests and Woodlands	53,580	24,753	78,333
Pine Plantation	31,503	21,781	53,284
Water	1,977	1,200	3,177
Total	173,380	106,415	279,795

Figure 3. Aggregated land cover classification of lands included in the proposed expansion and conservation area.



At least 37 species of plants within the Cahaba River watershed are considered vulnerable, imperiled, or critically imperiled; including two federally listed species (NatureServe 2010). These plant species have been documented or are likely to occur within the proposed project areas.

LONGLEAF PINE FOREST/WOODLAND (PINUS PALUSTRIS)

Original composition and distribution of the longleaf pine forests and other upland habitat types can only be hypothesized based upon early descriptions of an already altered landscape and the remnants of natural habitats still remaining today. Higher ridges and the most xeric sites probably were covered by pure stands of longleaf pine (Mohr 1901, USDA 1908, Harper 1913 and 1928). Xeric-mesic slopes and ridges may have contained a more mixed cover of longleaf and shortleaf pines, along with upland oaks and hickories. Ravines and more protected environments may have been dominated by deciduous trees and loblolly pine.

Longleaf pine forests originally covered 92 million acres across the southeastern United States (Figure 3). These forests stretched from southeastern Virginia to Texas and have been referred to as the keystone of the southeastern landscape. Today, less than 3 million acres remain and the forest is recognized as a critically endangered ecosystem, with loss of over 98 percent of its original range. Additionally, longleaf pine forest in its original fire-maintained condition has been recognized as perhaps the rarest community type in the southeastern United States (Noss et al. 1995).

Longleaf pine is a key tree species in a complex, fire-dependent ecosystem long native to the southeast. These forests primarily owe their existence to lightning-related wildfires, which were augmented by Native American practices of burning the forest. Pre-settlement forests are believed to have evolved through lightning fires that occurred from May through July (Brown and Smith 2000) at an interval of 2 to 8 years (Outcalt 2000).

Longleaf pine forests that remain within the proposed Expansion and Conservation Areas, and throughout the southeast, are only partly fulfilling their role as habitat for species dependent upon longleaf pine. The lack of fire has affected forest composition within these longleaf pine areas. Without fire, the canopy closes, and fire-sensitive hardwoods gain an advantage and eventually replace aging longleaf pines. More mesic forest associations eventually dominate a landscape formerly covered by xeric open forests of longleaf pine, shortleaf pine, and upland hardwoods. Remnants of longleaf pine forests are found throughout the proposed Expansion and Conservation Areas on appropriate sites but are in danger of being lost due primarily to lack of fire within the landscape and commercial timber operations.

CANEBRAKE (ARUNDINARIA GIGANTEA)

Canebrakes existed within forest openings, as an understory component of floodplain forest, and as broad cane thickets without forest overstory. Canebrakes are successional communities and may have originated following abandonment of aboriginal agricultural fields. They are believed to have been maintained in part by fires set by Native Americans (Platt and Brantley 1997). Giant cane is a common species within floodplain forests along the Cahaba River and tributary streams. The absence of fire and the spread of exotic invasive species, such as Chinese privet (*Ligustrum sinense*) and mimosa (*Albizia julibrissin*), within temporarily flooded forests, have reduced the distribution and abundance of cane.

The southeastern canebrake ecosystem is now considered to be critically endangered with more than 98 percent of this habitat lost (Noss et al. 1995). Historically, cane was a prominent feature of the proposed Expansion and Conservation Areas. These expansive canebrakes were described as being an almost impenetrable wilderness, always in view by Bartram (Bartram 1791) during his wanderings in the southeastern United States, including areas just south of the Cahaba River Conservation Area. By 1901 (Mohr 1901), it was described as a rapidly declining habitat type due to conversion of the fertile, alluvial bottomlands to agriculture and the conversion of uplands for grazing. By 1928 (Harper 1928), the vast canebrakes had all but disappeared. Today, there are remnant populations of cane as understory plants within forested areas and in small pockets along isolated portions of the bottomlands of streams and rivers within the proposed Expansion and Conservation Areas.

BOTTOMLAND HARDWOOD FOREST

Bottomland hardwood forests are found along the floodplain of all rivers and streams within the proposed Expansion and Conservation Areas. Within the northern portion of the proposed Expansion and Conservation Areas, floodplains tend to be limited in extent as the hills rise steeply from the rivers and streams. Below the fall line, within the proposed Conservation Area, the expansive floodplain contains remnants of the bottomland hardwood forests that once existed. Bottomland hardwood forests in the southeastern United States are considered a threatened habitat type (Noss et al. 1995).

C. WILDLIFE RESOURCES

MUSSELS

Within North America, there are approximately 300 species of freshwater mussels. Alabama has supported 178 (59 percent) of these species and the Cahaba River has supported 50 (17 percent) (Williams et al. 2008). Freshwater mollusks are one of the most imperiled groups of organisms in the world. Over half of all known or presumed aquatic animal extinctions in the United States since European settlement have been freshwater mussels and snails unique to the Mobile Basin (USFWS 2000). Only 75 percent of snail species and 71 percent of mussels, historically occurring in Alabama, are thought to still exist today. Of these remaining species, 35 percent of snails and 31 percent of mussels in present-day state environs are considered secure (Lydeard and Mayden 1995). The remaining species are imperiled to varying degrees, ranging from relict populations no longer reproducing to widespread species suffering from declining population levels. Rare and declining aquatic species known from the Cahaba River and listed under the Endangered Species Act include 9 mussels, 5 fish, and 3 snails.

Mussels within the Cahaba River system have declined from 50 to 37 species over the past 70 years (P. D. Johnson, unpublished data). Of these 37 remaining species, 5 species are federally listed and 3 additional species are considered of high or highest conservation concern by the State of Alabama (Table 3). Of the 13 freshwater mussel species that have been lost from the Cahaba River system, 2 species are likely extinct, while 11 species are extirpated from the system, or from the state, but found elsewhere within their range (Table 4). Nine of eleven extirpated species (82 percent) are either federally listed or considered by the state to be of high or highest conservation concern.

Table 3. Freshwater Mussels Currently Found in the Cahaba River Basin

	Scientific Name	Common Name	Federal Status¹	State Status²
1	<i>Amblema elliottii</i>	Coosa Fiveridge		
2	<i>Amblema plicata</i>	Threeridge		
3	<i>Anodonta suborbiculata</i>	Flat Floater		
4	<i>Ellipsaria lineolata</i>	Butterfly		
5	<i>Elliptio arca</i>	Alabama Spike		
6	<i>Elliptio arctata</i>	Delicate Spike		P1
7	<i>Elliptio crassidens</i>	Elephantear		
8	<i>Fusconaia cerina</i>	Gulf Pigote		
9	<i>Fusconaia ebena</i>	Ebonyshell		
10	<i>Hamiota altilis</i>	Fine-lined Pocketbook	T	P2
11	<i>Hamiota perovalis</i>	Orange-nacre Mucket	T	P2
12	<i>Lampsilis ornata</i>	Southern Pocketbook		
13	<i>Lampsilis straminea</i>	Southern Fatmucket		
14	<i>Lampsilis teres</i>	Yellow Sandshell		
15	<i>Lasmigona alabamensis</i>	Alabama Heelsplitter		WATCH
16	<i>Lasmigona etowaensis</i>	Southern Toesplitter		P1
17	<i>Leptodea fragilis</i>	Fragile Papershell		
18	<i>Megaloniais nervosa</i>	Washboard		
19	<i>Obliquaria reflexa</i>	Threehorn Wartyback		
20	<i>Plectomerus dombeyanus</i>	Bankclimber		
21	<i>Pleurobema decisum</i>	Southern Clubshell	E	
22	<i>Pleurobema perovatum</i>	Ovate Clubshell	E	
23	<i>Potamilus purpuratus</i>	Bleufer		
24	<i>Ptychobranhus foremanianus</i> ³	Rayed Kidneyshell	E	P1
25	<i>Pyganodon grandis</i>	Giant Floater		
26	<i>Quadrula apiculata</i>	Southern Mapleleaf		
27	<i>Quadrula asperata</i>	Alabama Orb		
28	<i>Quadrula metanevra</i>	Monkeyface		WATCH
29	<i>Quadrula rumphiana</i>	Ridged Mapleleaf		
30	<i>Quadrula verrucosa</i>	Pistolgrip		
31	<i>Strophitus connasaugaensis</i>	Alabama Creekmussel		WATCH
32	<i>Toxolasma corvunculus</i>	Southern Purple Lilliput		P1
33	<i>Truncilla donaciformis</i>	Fawnsfoot		WATCH
34	<i>Unio merus tetralasmus</i>	Pondhorn		
35	<i>Villosa lienosa</i>	Little Spectaclecase		
36	<i>Villosa nebulosa</i>	Alabama Rainbow		WATCH
37	<i>Villosa vibex</i>	Southern Rainbow		
1	T = Threatened E= Endangered			
2	P1 = Highest Conservation Concern, P2 = High Conservation Concern, Watch = Moderate Conservation Concern			
3	FWS considers this Triangular Kidneyshell - <i>Ptychobranhus grenii</i> currently. Reclassified in Williams et. al. 2008.			

Table 4. Extinct and Extirpated Mussels of the Cahaba River Basin

Extirpated Species		
	Scientific Name*	Common Name
1	<i>Anodontooides radiatus</i>	Rayed Creekshell
2	<i>Epioblasma penita</i>	Southern Combshell
3	<i>Ligumia recta</i>	Black Sandshell
4	<i>Medionidus acutissimus</i>	Alabama Moccasinshell
5	<i>Medionidus parvulus</i>	Coosa Moccasinshell
6	<i>Obovaria jacksoniana</i>	Southern Hickorynut
7	<i>Obovaria unicolor</i>	Alabama Hickorynut
8	<i>Pleurobema rubellum</i>	Warrior Pigtoe
9	<i>Pleurobema taitianum</i>	Heavy Pigtoe
10	<i>Potamilus inflatus</i>	Inflated Heelsplitter
11	<i>Utterbackia imbecillis</i>	Paper Pondshell
Extinct Species		
	Scientific Name*	Common Name
1	<i>Epioblasma metastriata**</i>	Upland Combshell
2	<i>Pleurobema verum</i>	True Pigtoe

* Williams et.al. 2008

** USFWS 2009 5-year Review of 11 Mussel Species of the Mobile River Basin proposed delisting due to extinction

SNAILS

There are 342 species of gill-breathing freshwater snail species throughout North America. The aquatic habitats of Alabama support habitat for 147 (43 percent) of the gill-breathing freshwater snail species, while the Cahaba River supports habitat for 31 (9 percent). Three species of snails within the Cahaba River are federally listed, six additional species are considered by the state as species of high or highest conservation concern, and four additional species are considered critically imperiled, imperiled, or vulnerable (Table 5). One species of snail, Cahaba pebblesnail (*Clappia cahabensis*), was believed to have become extinct until rediscovered in the Cahaba River, within Cahaba River NWR, in 2005. Many of the remaining species of gill-breathing freshwater snail species are limited in distribution or suffer from declining populations.

Table 5. Threatened, Endangered and Imperiled Freshwater Snails of the Cahaba River Basin

Scientific Name	Common Name	Federal Status*	State Status**	Global Status***
<i>Elimia ampla</i>	Ample Elimia		P2	G1
<i>Elimia annettae</i>	Lilyshoals Elimia		P2	G1
<i>Elimia bellacrenata</i>	Princess Elimia		P1	G1
<i>Elimia cahawbensis</i>	Cahaba Elimia			G3
<i>Elimia clara</i>	Riffle Elimia			G3
<i>Elimia cochliaris</i>	Cockle Elimia		P1	G1
<i>Elimia showalteri</i>	Compact Elimia		WATCH	G1
<i>Elimia varians</i>	Puzzle Elimia		P2	G2
<i>Elimia variata</i>	Squat Elimia		P2	G2
<i>Leptoxis ampla</i>	Round Rocksnail	T	P2	G2
<i>Lepyrium showalteri</i>	Flat Pebblesnail	E	P1	G1
<i>Lioplax cyclostomaformis</i>	Cylindrical Lioplax	E	P1	G1
<i>Rhodacme elatior</i>	Domed Ancyloid		WATCH	G1
*	T = Threatened E= Endangered			
**	P1 = Highest Conservation Concern, P2 = High Conservation Concern, Watch = Moderate Conservation Concern			
***	G1 = Critically Imperiled, G2 = Imperiled, G3 = Vulnerable (NatureServe 2010)			

D. FISHERY RESOURCES

While the area of Alabama comprises only 0.6 percent of all of North America, it provides habitat for 38 percent of all extant freshwater fish species and 54 percent of all southeastern freshwater fish species (Boschung and Mayden 2004; Lydeard and Mayden 1995). Alabama's rivers and streams are inhabited by one of the richest fish faunas in North America. At least 295 native freshwater fishes reproduce in Alabama freshwaters, giving Alabama the greatest native freshwater fish diversity of any state or province in North America (Boschung and Mayden 2004). More than 135 (43 percent) of Alabama's fish species have been documented in the Cahaba River Basin (Mettee et al. 1996).

Within the Mobile Basin, 57 freshwater and diadromous fishes are considered imperiled (Jelks et al. 2008). This total is the second highest of any freshwater ecosystem in North America. The Cahaba River system includes current or historic habitat for 13 of the Mobile River Basin's 57 imperiled fishes (Table 6). Of these 13 imperiled fishes within the Cahaba River system, 5 are federally listed and 1 is a candidate.

Table 6. Threatened, Endangered, and Imperiled Fishes of the Cahaba River Basin

Scientific Name	Common Name	Federal Status*	State Status**
<i>Acipenser oxyrinchus desotoi</i>	Gulf sturgeon	T	P2
<i>Alosa alabamae</i>	Alabama shad	C	P1
<i>Noturus munitus</i>	frecklebelly madtom (Cahaba River population)		P2
<i>Crystallaria asprella</i>	crystal darter		Watch
<i>Percina aurolineata</i>	goldline darter	T	P1
<i>Percina lenticula</i>	freckled darter		Watch
<i>Percina brevicauda</i>	coal darter		P2
<i>Notropis cahabae</i>	Cahaba shiner	E	P1
<i>Pteronotropis welaka</i>	bluenose shiner		P2
<i>Cyprinella caerulea</i>	blue shiner	T	P2
<i>Polyodon spathula</i>	paddlefish		
<i>Morone saxatilis</i>	striped bass (Gulf of Mexico populations)		Watch
<i>Scaphirhynchus suttkusi</i>	Alabama sturgeon	E	P1

T = Threatened E= Endangered C=Candidate

P1 = Highest Conservation Concern, P2 = High Conservation Concern, Watch = Moderate Conservation Concern

E. SOCIOECONOMIC AND SOCIOCULTURAL CONDITIONS

The proposed Expansion and Conservation Areas include portions of five counties (Bibb, Chilton, Jefferson, Perry, and Shelby) within the State of Alabama. These five counties have a combined area of 3,944 square miles and an estimated population of 932,711. In comparison with the State of Alabama and the United States, income levels of persons living within the proposed project areas are low. Income levels within Shelby County (\$27,176) are the only income levels above the national average (\$21,587) and only Shelby and Jefferson Counties (\$20,892) are above the state average (\$18,189). The percentage of residents living below the poverty level is highest in Perry County (31.7 percent) and lowest in Shelby County (5.8 percent). See Table 7 for a comparison of geographic and demographic statistics for those counties within the proposed project area, the State of Alabama, and the United States of America.

OUTDOOR RECREATION ECONOMICS

The fish and wildlife of Alabama are economically important (Table 8). According to the report, *Banking on Nature (2006: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation)*, approximately 34.8 million people visited national wildlife refuges in Fiscal Year 2006, generating almost \$1.7 billion in total economic activity and creating almost 27,000 private sector jobs, producing about \$542.8 million in employment income. Additionally, recreational spending on refuges generated nearly \$185.3 million in tax revenue at the local, county, state, and federal levels (Carver and Caudill 2007). In 2006, nearly 71 million people 16 years and older spent \$45.7 billion and generated \$122.6 billion while fishing, hunting, or observing wildlife (Leonard 2008).

As land development continues and the number of places left to enjoy wildlife decreases, refuge lands may become even more important to the local community. It can benefit the community directly by providing recreational and employment opportunities for the local population and indirectly by attracting tourists from outside the area to generate additional dollars for the local economy.

TOURISM

Tourism is a big business in Alabama, contributing \$7.3 billion in revenue in 2004 and 8.3 percent of all non-agricultural jobs (Alabama Bureau of Tourism and Travel 2005). It is estimated that over 206 million people visited Alabama during 2004. The Alabama Bureau of Tourism and Travel and many other public and private agencies promote the state's attractions.

Table 7. Comparison of Geographic and Demographic Statistics for Area Counties, Alabama, and the United States

Area	Land Area (sq. mile)	Population (2009 Estimate)	Population Density (per sq. mile)	% pop. Change (2000 – 2009)	Per capita income (1999 est.)	% below poverty (2008 est.)	% White (2008 est.)	% Black (2008 est.)	% Hispanic (2008 est.)	% Asian (2008 est.)	% Native American (2008 est.)
Alabama	50,744.0	4,708,708	92.8	5.9	\$18,189	15.9	71.0	26.4	2.9	1	0.5
Bibb County	623.03	21,587	34.6	8.5	\$14,105	18.5	76.9	22.2	1.4	0.1	0.3
Chilton County	693.98	42,971	61.9	8.5	\$15,303	17.1	87.5	11.1	4.6	0.3	0.3
Jefferson County	1,112.61	665,027	597.7	0.4	\$20,892	13.8	56.3	41.1	3.1	1.3	0.3
Perry County	719.48	10,623	14.8	-10.5	\$10,948	31.7	31.2	67.9	1.3	0.1	0.1
Shelby County	794.69	192,503	180.2	34.4	\$27,176	5.8	87.0	10.3	3.9	1.5	0.3
USA	3,537,438.44	307,006,550	86.8	9.1	\$21,587	13.2	79.8	12.8	15.4	4.5	1.0

Table 8. Wildlife Dependent Recreation by Participants, 16 Years Old and Older, Across Alabama

Activity	# of Participants	Activity Days	Average Days/Participant	Total Expenditures (\$1,000)	Trip-related Expenditures (\$1,000)	Equipment and Other (\$1,000)	Average Expenditure / Participant (\$)	Average Trip Expenditure / Day (\$)
Fishing	1,485,000	22,116,000	17 resident 13 nonres.	1,323,831	629,328	629,503	946 resident 870 nonres.	31 resident 32 nonres.
Hunting	739,000	14,878,000	23 resident 18 nonres.	1,316,421	382,348	934,073	2,069 res. 1,550 nonres.	26
Wildlife Observation	1,981,000	N/A	N/A	1,288,974	189,457	1,099,517	687 resident 616 nonres.	N/A

F. CULTURAL RESOURCES

The proposed Expansion and Conservation Areas contain rugged terrain and the archaeological potential is limited primarily due to slope. In areas where the floodplains of the Cahaba River and its tributaries broaden out, the potential for Native American and historic period occupations increase dramatically. Quarries, lithic workshops, petroglyphs, and ephemeral resource extraction, exploitation, and processing camps represent the most probable types of Native American sites seen in the areas away from the floodplains and valleys.

Industrial sites and features associated with the 19th to 20th century commercial mining operations will dominate much of the landscapes. These sites and features include mine shafts, foundations, and/or building ruins for mining-related operations, and possible remains of quarters for mine workers, abandoned railroad grades, and/or roads.

Section 106 of the National Historic Preservation Act of 1966, as amended, and Section 14 of the Archaeological Resources Protection Act require the Service to evaluate the effects of any of its actions on cultural resources (e.g., historic, architectural, and archaeological) that are listed or eligible for listing in the National Register of Historic Places (NRHP). In accordance with these regulations, the Service has coordinated the review of this proposal with the Alabama State Historic Preservation Office.

The Service believes that the proposed acquisition of lands will have no adverse effect on any known or yet-to-be identified NRHP-eligible cultural resources. However, in the future, if the Service plans or permits any actions that might affect eligible cultural resources, it will carry out appropriate site identifications, evaluations, and protection measures as specified in the regulations and in Service directives and manuals.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

In determining how to achieve the fish and wildlife habitat protection goals for the project lands and waters identified in this document, the Service considered and evaluated three alternatives. These are:

A. ALTERNATIVE 1: NO ACTION

This is the "status quo" alternative. Under this alternative, the Service would not acquire any of the lands proposed for the expansion of the refuge and establishment of the Cahaba River Conservation Area would not occur. The proposed project lands would remain in private ownership and current land uses would continue. Protection of the fish and wildlife habitats and natural resource values of these lands would be contingent upon the enforcement of existing federal, state, and local environmental regulations (i.e., Clean Water Act, Endangered Species Act, and state water quality and pollution laws), and the discretion of the private landowners. Land acquisition would continue within the current 7,600-acre acquisition boundary of Cahaba River NWR as willing sellers are identified and funds are available.

B. ALTERNATIVE 2: PROTECTION AND MANAGEMENT OF UP TO 106,415 ACRES BY THE FISH AND WILDLIFE SERVICE WITHIN CAHABA RIVER NATIONAL WILDLIFE REFUGE AND ESTABLISHMENT OF THE 173,380-ACRE CAHABA RIVER CONSERVATION AREA (PROPOSED ALTERNATIVE)

Under this alternative, the Service would acquire up to 106,415 additional acres of habitat for protection and management as part of Cahaba River NWR and establish the 173,380-acre Cahaba River Conservation Area for the acquisition of conservation easements on private lands (Figure 4). These areas would be included in the approved acquisition boundary for the refuge or within the approved easement boundary of the Cahaba River Conservation Area. This is the proposed alternative, which provides the maximum potential to manage for the continued protection of the Cahaba River and surrounding upland habitats.

The acquisition methods that could be used by the Service under this alternative are summarized in Table 9 and are described as follows:

1. LEASES AND COOPERATIVE AGREEMENTS

Potentially, the Service can protect and manage habitat through leases and cooperative agreements. Management control on privately owned lands could be obtained by entering into long-term renewable leases or cooperative agreements with the landowners. Short-term leases can be used to protect or manage habitat until more secure land protection can be negotiated. Both leases and cooperative agreements could be used within the expansion area of Cahaba River NWR, while only cooperative agreements would be available within the Cahaba River Conservation Area.

2. CONSERVATION EASEMENTS

Conservation easements give the Service the opportunity to acquire interest in lands for their fish and wildlife habitat values. Such management precludes all other uses that are incompatible with the Service's management objectives. Only land uses that would have minimal or no conflicts with the

management objectives are retained by the landowner. In effect, the landowner transfers certain development rights to the Service for management purposes as specified in the easement.

Easements would likely be useful when: (1) most, but not all, of a private landowner's uses are compatible with the Service's management objectives, and (2) the current owner desires to retain ownership of the land and continue compatible uses under the terms set by the Service in the easement.

Land uses that are normally restricted under the terms of a conservation easement include:

- Development rights (agricultural, residential, etc.);
- Alteration of the area's natural topography;
- Uses adversely affecting the area's floral and faunal communities;
- Private hunting and fishing leases;
- Excessive public access and use; and
- Alteration of the natural water regime.

This acquisition method would be available within both the expansion area of Cahaba River NWR and the Cahaba River Conservation Area. This would be the only acquisition method for the Cahaba River Conservation Area.

3. FEE TITLE ACQUISITION

A fee title interest is normally acquired when (1) the area's fish and wildlife resources require permanent protection not otherwise assured; (2) land is needed for visitor use development; (3) a pending land use could adversely impact the area's resources; or (4) it is the most practical and economical way to assemble small tracts into a manageable unit.

Fee title acquisition conveys all ownership rights to the Federal Government and provides the best assurance of permanent resource protection. A fee title interest may be acquired by donation, exchange, transfer, or purchase. This acquisition method would only be used within the proposed Expansion Area of Cahaba River NWR and would not apply to the proposed Conservation Area.

Table 9. Acquisition methods available within the proposed expansion and conservation areas

ACQUISITION METHODS AVAILABLE				
	Leases	Cooperative Agreements	Conservation Easements	Fee Title Acquisition
Cahaba River NWR Expansion Area	●	●	●	●
Cahaba River Conservation Area		●	●	

● Indicates acquisition method available for area

C. ALTERNATIVE 3: PROTECTION AND MANAGEMENT OF UP TO 106,415 ACRES BY THE FISH AND WILDLIFE SERVICE WITHIN CAHABA RIVER NATIONAL WILDLIFE REFUGE

Under this alternative, the Service would acquire up to 106,415 acres of additional habitat for protection and management as part of Cahaba River NWR (Figure 5). The Service would acquire sufficient interest in the identified lands to prevent conflicting land uses and to manage the areas for their wildlife values. No interest in lands would be acquired within the proposed Conservation Area. The same acquisition methods as described in Alternative 2 for the proposed Expansion Area would apply to this alternative.

Figure 4. Lands included under Alternative 2 (proposed alternative)

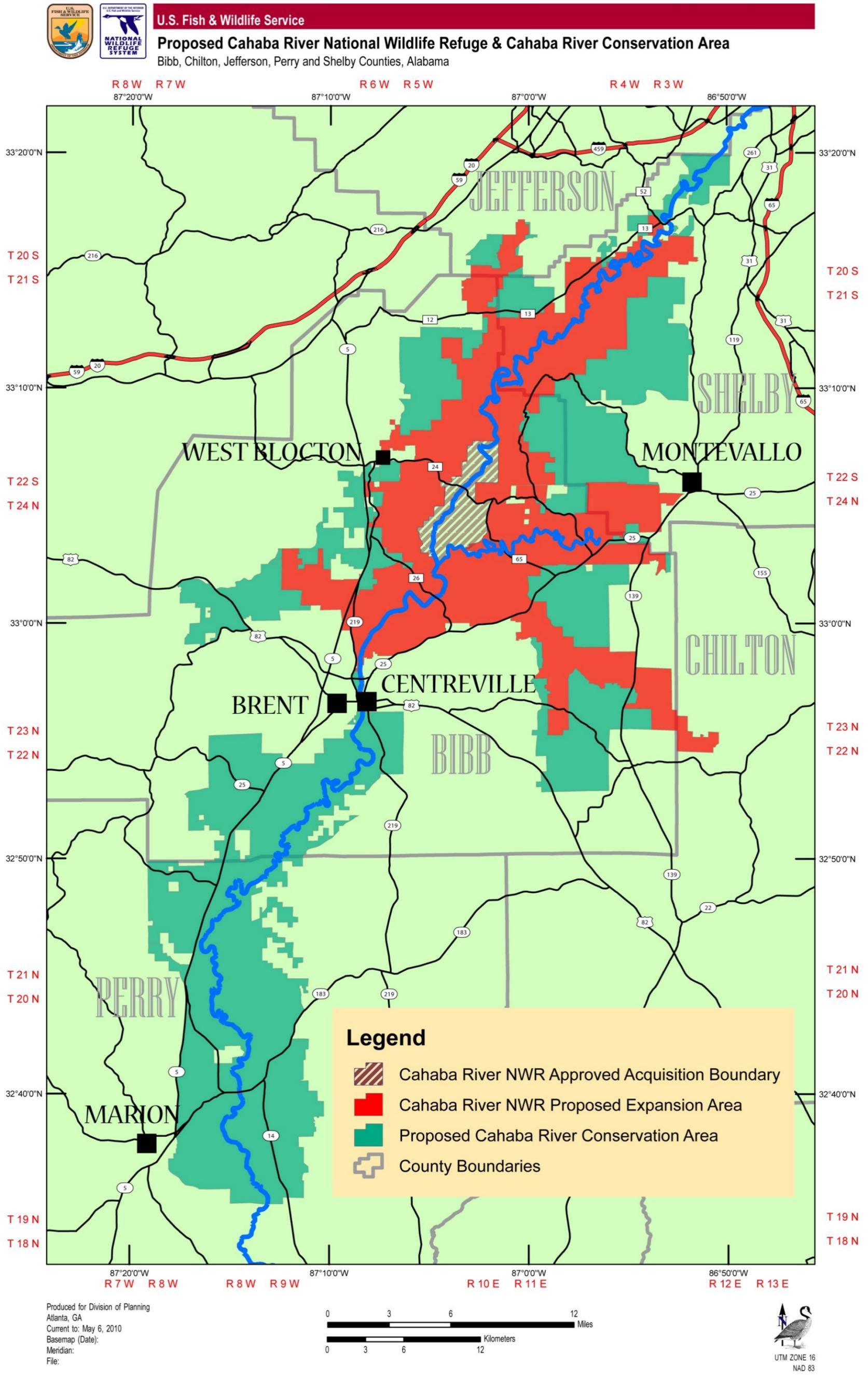
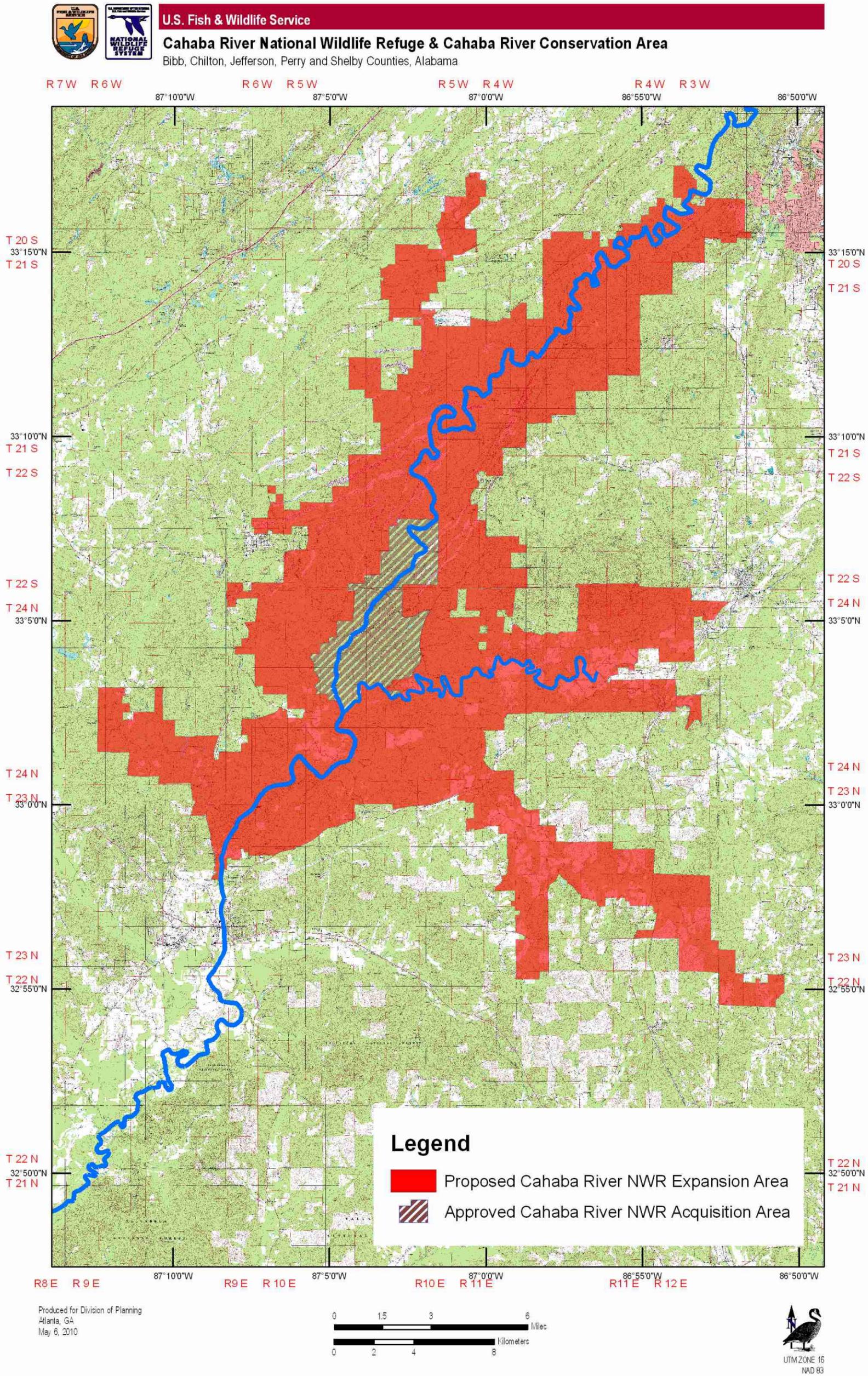


Figure 5. Lands included under Alternative 3



IV. ENVIRONMENTAL CONSEQUENCES

This section analyzes and discusses the potential environmental impacts of the three management alternatives described in Chapter II.

A. ALTERNATIVE 1: NO ACTION

Under this alternative, the Service would take no action to acquire, protect, and manage any lands to expand Cahaba River NWR beyond the currently authorized acquisition boundary and would not establish the Conservation Area.

Future habitat protection under existing laws and regulations may be insufficient to prevent significant degradation of the area's fish and wildlife resource values. Federal executive orders involving the protection of wetlands and floodplains only apply to federal agencies. They do not apply to habitat alterations by non-federal entities, which receive no federal funds.

Within the proposed project area, the primary deterrents against the loss of resource values are the U.S. Army Corps of Engineers' Section 404 permit program, administered under the authority of the Clean Water Act, and Section 7 of the Endangered Species Act (ESA), administered by the Service. In addition, the State of Alabama has regulatory authority over the area and will not permit any developments that would violate the state's water quality standards.

The Section 404 program requires permits for most types of work in wetlands. Most of the wetlands in the project area qualify for protection under this program. There is no assurance that the protection offered by these regulations would be consistent with protection of the area's fish and wildlife resources. The Corps of Engineers Section 404 Permit program is designed to accomplish different objectives. In addition, this program is subject to changes in the law and to varying definitions and interpretations, often to the detriment of wetlands. The Corps of Engineers' regulatory authority provides for the issuance of Section 10 and/or Section 404 permits when it is not contrary to the public interest to do so and provided other conditions are met. Fish and wildlife conservation is only one of several public interest factors that is considered in permit issuance decisions. If fish and wildlife conservation is outweighed by other factors, permits that would alter the wetlands in the proposed Expansion or Conservation Areas could be issued.

Under Section 7 of the Endangered Species Act, federal agencies are required to use their legal authorities to meet the conservation purposes of the ESA and consult with the Service, as appropriate, to ensure the effects of actions they authorize, fund, or carry out will not jeopardize the continued existence of a listed species. The ESA covers all 24 federally listed species within the project area. The entire length of the Cahaba River within the proposed project area is Designated or Proposed Critical Habitat for federally listed species. While ESA program goals are similar to many of the goals of the proposed project, ESA is limited by what activities are regulated under Section 7. Many of the activities occurring within the proposed project area that have the potential to impair fish and wildlife and their habitats occur legally without the need for any federal permit. In 2009, two species listed under ESA and having Critical Habitat designated within the Cahaba River, were declared extinct.

The U.S. Environmental Protection Agency's GIS land change analysis for the Cahaba River watershed documented a dramatic increase in the "disturbed" land use class from 8.8 percent in 1990, to over 38 percent in 1998 (Howard et al. 2002). Continuing development within the

watershed has led to water quality degradation, sedimentation, and hydrologic modification of stream flows. These conditions continue to place stress on populations of upland and aquatic species and negatively impact the Service's ability to recover the many trust resources found within the watershed.

The desired fish and wildlife protection objectives, therefore, cannot be achieved to any degree under this alternative. Specifically, implementation of "No Action" could lead to adverse impacts continuing to impair the area's valuable fish, waterfowl, and wildlife habitats. Habitats would continue to be lost to development and continued impacts to the water quality and hydrology of the Cahaba River would continue.

B. ALTERNATIVE 2: PROTECTION AND MANAGEMENT OF UP TO 106,415 ACRES BY THE FISH AND WILDLIFE SERVICE WITHIN CAHABA RIVER NATIONAL WILDLIFE REFUGE AND ESTABLISHMENT OF THE 173,380-ACRE CAHABA RIVER CONSERVATION AREA (PROPOSED ALTERNATIVE)

Under this alternative, the Service would acquire up to 106,415 additional acres of habitat for protection and management as part of Cahaba River NWR and establish the 173,380-acre Cahaba River Conservation Area for the acquisition of conservation easements on private lands (Figure 5). These areas would be included in the approved acquisition boundary for the refuge or within the approved easement boundary of the Cahaba River Conservation Area. This is the proposed alternative, which provides the maximum potential to manage for the continued protection of the Cahaba River and surrounding upland habitats. The land protection priorities and proposed methods of acquisition are summarized in Chapter VI.

The purposes of the proposed project will be to protect and enhance the hydrology and water quality of the Cahaba River and restore imperiled habitats such as longleaf pines, bottomland hardwoods, and canebrakes. These freshwater and upland habitats support 24 federally listed species and numerous other rare and imperiled species.

Based on the nature of the proposal, the location of the site, and the current land use, the proposed alternative would not have any significant effects on the quality of the human environment, including public health and safety. Further, because the purpose of the proposal is to protect, maintain, and where possible, enhance the natural habitat of the lands within the proposed acquisition area, the proposal is not expected to have any significant adverse effects on the area's wetlands and floodplains, pursuant to Executive Orders 11990 and 11988.

Implementation of the proposed alternative would not involve any highly uncertain, unique, unknown, or controversial effects on the human environment. The proposed action would not establish a precedent for future actions with significant effects, nor would it represent a decision in principle about a future consideration. No cumulatively significant impacts on the environment would be anticipated.

In addition, the proposal would not significantly affect any unique characteristic of the geographic area, such as historical or cultural resources, wild and scenic rivers, or ecologically critical areas. The proposal would not significantly affect any site listed in or eligible for listing in the National Register of Historic Places, nor would it cause loss or destruction of significant scientific, cultural, or historic resources. The area's cultural resources would be protected under the regulations of the National Historic Preservation Act of 1966, as amended, the Archaeological Resources Protection Act, and the Advisory Council on Historic Preservation (36 CFR 800). The Alabama State Historic Preservation

Office would be contacted whenever any future management activities have the potential to affect cultural resource sites.

All tracts acquired by the Service in fee title would be removed from local real estate tax rolls because Federal Government agencies are not required to pay state or local taxes. However, the Service makes annual payments to local governments in lieu of real estate taxes, as required by the Refuge Revenue Sharing Act (Public Law 95-469). Payment for acquired land is computed on whichever of the following formulas is greatest: (1) three-fourths of 1 percent of the fair market value of the lands acquired in fee title; (2) 25 percent of the net refuge receipts collected; or (3) 75 cents per acre of the lands acquired in fee title. The estimated annual revenue-sharing payment that would be made to counties is dependent on the amount of acreage acquired in fee title and the level at which the Act is funded annually by Congress. The estimated payment, should the Act be fully funded, is shown in Table 10.

Table 10. Estimated maximum annual revenue sharing payments

County	Acreage	Estimated per acre annual payment (\$)	Total Payment (\$)
Bibb	76,240	18.75*	1,429,500
Chilton	1,379	18.75*	25,856
Jefferson	1,885	26.25**	49,481
Shelby	26,911	22.50***	605,497

* Based Upon Estimated Fair Market Value of \$2,500/acre

** Based Upon Estimated Fair Market Value of \$3,500/acre

No actions would be taken that would lead to a violation of federal, state, or local laws imposed for the protection of the environment.

C. ALTERNATIVE 3: PROTECTION AND MANAGEMENT OF UP TO 106,415 ACRES BY THE FISH AND WILDLIFE SERVICE WITHIN CAHABA RIVER NATIONAL WILDLIFE REFUGE

Under this alternative, the Service would acquire up to 106,415 acres of upland mixed pine/hardwood forests, bottomland hardwood forests, and other habitats as part of Cahaba River NWR. The Service would acquire sufficient interest in the identified lands to prevent conflicting land uses and to manage the areas for their wildlife values. No interest in lands would be acquired within the Cahaba River Conservation Area.

This alternative is not recommended because it is not considered protective of the water quality of the Cahaba River. Development pressures within the proposed Conservation Area are increasing. The U.S. Environmental Protection Agency’s GIS land change analysis for the Cahaba River watershed documented a dramatic increase in the “disturbed” land use class from 8.8 percent in 1990 to over 38 percent in 1998 (Howard et al. 2002). Continuing development within the watershed has led to water quality degradation, sedimentation, and hydrologic modification of stream flows. These conditions continue to place stress on populations of aquatic species and negatively impact the Service’s ability to recover the many trust resources found within the watershed.

V. SUMMARY OF PROPOSED ACTION

The Service's proposed alternative (Alternative B) would result in the acquisition of up to 106,415 acres of wildlife habitat as an expansion of Cahaba River NWR and the establishment of the 173,380-acre Cahaba River Conservation Area. Acquisition of lands (or interest in lands) for the expansion of Cahaba River NWR could occur, through a combination of fee title purchases from willing sellers and less-than-fee interests (e.g., leases, conservation easements, and cooperative agreements) from willing sellers. Acquisition of interests in lands within the Cahaba River Conservation Area would be limited to conservation easements or cooperative agreements. The Service believes these are the minimum interests necessary to conserve and protect the fish and wildlife resources in the proposed area.

The private property has been prioritized for acquisition using the following criteria:

- Water quality/quantity protection;
- Biological significance;
- Existing and potential threats;
- Significance of the area to refuge management and administration;

Three categories of land acquisition have been established, with the highest priority being the Priority I lands. A description of the lands within each of the three priority groups is given below. Table 11 summarizes the Service's land protection priorities and proposed methods of acquisition. Figure 6 shows the locations of the project areas and their respective priority groups.

Priority Group I

Priority Group I consists of the lands considered most critical for the protection of water quality and quantity of the Cahaba River within, and directly upstream of, areas of imperiled species abundance. These lands are considered the most critical due to their close proximity to the Cahaba River, Little Cahaba River, or a major tributary to these river systems. Of secondary but still critical importance within Priority I lands is their contribution to potential habitat restoration (longleaf pine, bottomland hardwood, canebrake) or habitat connectivity to an existing conservation area. Additional lands of equal importance to Priority Group I lands are found upstream of the proposed Expansion and Conservation Areas but, due to their location within an urban setting and the high density of current development, were not included in the proposed project.

Priority Group II

Priority Group II consists of lands adjacent to important perennial and intermittent tributary streams of the Cahaba River or Little Cahaba River. The contribution to water quality of the Cahaba River is less than Priority I Group lands, but impacts to these lands would have a great impact on the water quality/quantity of the Cahaba River and adjacent imperiled species. These lands also provide important restoration opportunities for imperiled habitats (longleaf pine, bottomland hardwood, canebrake) and/or connectivity to existing conservation areas.

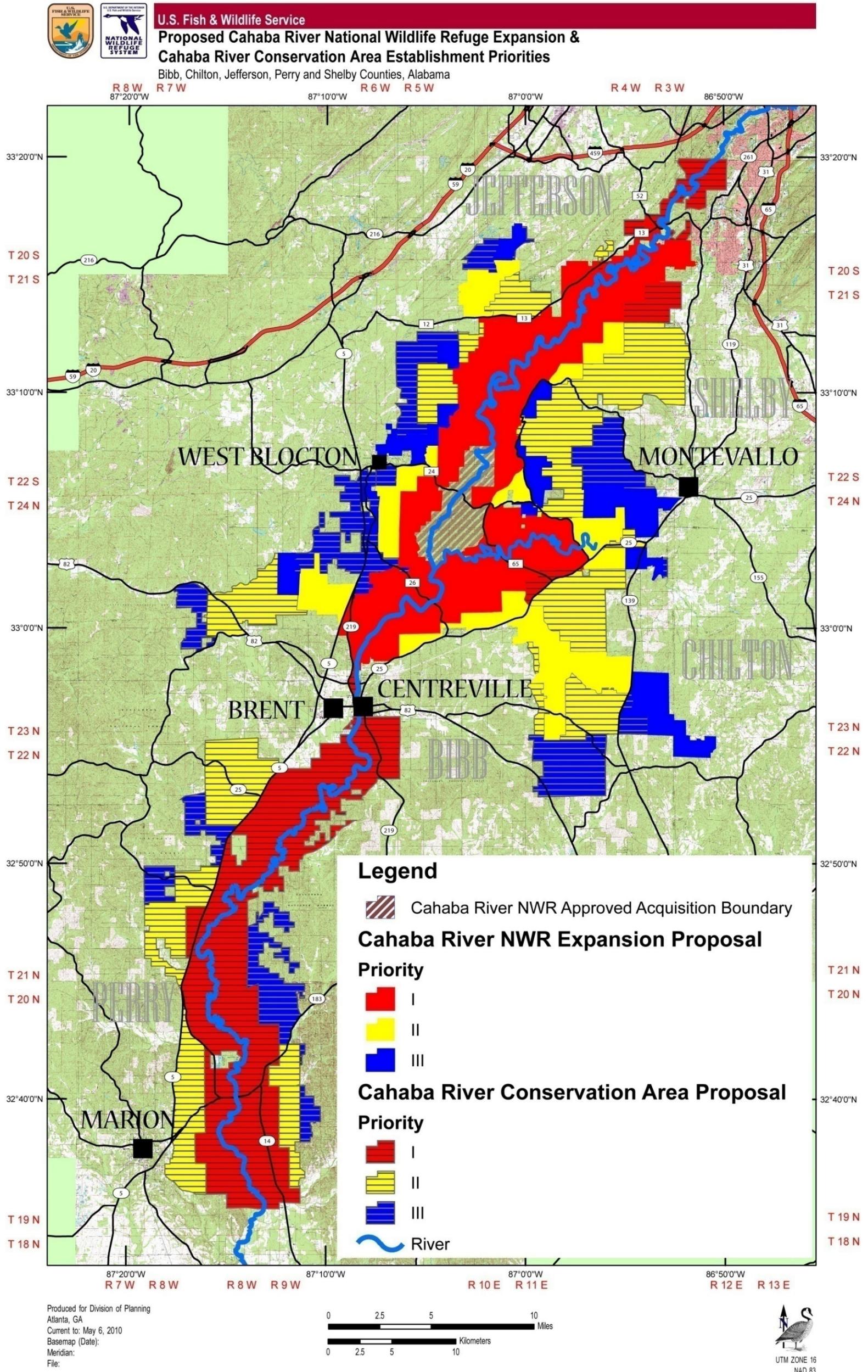
Priority Group III

Lands within Priority Group III provide an important link to other conservation lands or management boundaries and provide significant opportunities for habitat restoration. These lands provide water quality protection to the Cahaba River, but are more remote from imperiled species than Priority Group I and II lands.

Table 11. Protection priorities for the proposed expansion and recommended methods of acquisition

		Expansion Area		Conservation Area	
		Corporate Ownership	Private Ownership	Corporate Ownership	Private Ownership
Priority I Lands	Acres	37,523	22,428	15,377	48,882
	# of Landowners	32	348	79	776
	Acquisition Type	Fee Title	Fee Title/ Conservation Easement	Conservation Easement/ Cooperative Agreement	
Priority II Lands	Acres	16,838	11,548	34,767	35,992
	# of Landowners	24	343	82	1286
	Acquisition Type	Fee Title	Fee Title/ Conservation Easement	Conservation Easement/ Cooperative Agreement	
Priority III Lands	Acres	13,054	5,024	21,238	17,124
	# of Landowners	21	167	54	873
	Acquisition Type	Fee Title	Fee Title/ Conservation Easement	Conservation Easement/ Cooperative Agreement	

Figure 6. Proposed expansion of Cahaba River NWR and Cahaba River conservation area acquisition priority ranking



VI. INFORMATION ON PREPARERS

This document was prepared by Steve Miller, Refuge Manager, Cahaba River National Wildlife Refuge.

Appendix A. Conceptual Management Plan - Proposed Expansion of Cahaba River National Wildlife Refuge

INTRODUCTION

This Conceptual Management Plan for the proposed expansion of Cahaba River National Wildlife Refuge (NWR) is an overview of how the lands would be managed under the Habitat Management Plan for Cahaba River NWR (approved May 2007) until an amendment to the Habitat Management Plan for the acquisition is complete or until the Comprehensive Conservation Plan is completed for Cahaba River NWR. A Conceptual Management Plan does not detail where facilities would be located or show where public use would be allowed. These details would be included in the Comprehensive Conservation Plan, and public input would be solicited. The proposed expansion of Cahaba River NWR would include the acquisition of up to 106,415 acres within Bibb, Chilton, Jefferson, and Shelby Counties, Alabama.

The proposed establishment of the Cahaba River Conservation Area would not result in any management being conducted by the Service on easement lands. All land within an easement would remain in private ownership and management of the lands, including invasive species control, timber harvesting, and control of public access, would remain the responsibility of the landowner. Service responsibilities would be limited to ensuring that the terms of the easement, acquired through the voluntary participation of landowners, are met. There are many programs that offer assistance to private landowners that wish to establish or restore native vegetation. These programs are offered by both the State of Alabama and various Federal Government agencies (Table 12). Participation in these opportunities is not required under terms of the easement nor would an easement preclude the landowner the right to participate in these programs.

MANAGEMENT GOALS AND OBJECTIVES

The protection of additional conservation lands is critical to the restoration and management of resources identified in the many goals and objectives of the refuge Habitat Management Plan, including:

Goal 2. Protect, restore, and enhance the Cahaba River aquatic environment adjacent to the refuge.

Objective 1 – Restore, where feasible, the river hydrological environment that existed during the pre-settlement period, and summarize existing and proposed projects in the annual refuge report.

Goal 3. Provide an ecosystem management strategy for uplands that restores and maintains the mosaic cover of native pine and hardwood forest.

Objective 1 – Within 2 years, map vegetation cover types on the refuge to establish community structure and limitations for future prescribed burning.

Objective 2 – Within 5 years, designate stand condition within existing longleaf pine and loblolly plantations for restoration prescriptions.

Table 12. Conservation and Related Programs Available to Private Landowners

Agency	Program
Alabama Forestry Commission	Southern Pine Beetle (SPB) Prevention and Restoration Thinning Program
Alabama Department of Conservation and Natural Resources	Landowner Incentive Program
USDA Natural Resource Conservation Service	Cooperative Conservation Partnership Initiative
	Healthy Forests Reserve Program
	Conservation Stewardship Program
	Environmental Quality Incentives Program
	EQIP Invasive Plants Management Project
	Wildlife Habitat Incentive Program
	Wetland Reserve Program
Alabama Soil and Water Conservation Districts	Alabama Agricultural and Conservation Development Commission Program
USDA Farm Service Agency	Biomass Crop Assistance Program
	Regular Conservation Reserve Program
	Continuous CRP (Forestry and Wildlife Programs)
U.S. Fish and Wildlife Service	Partners for Fish and Wildlife
	Safe Harbor Program
	Private Individual Grants
The Longleaf Alliance	Longleaf Pine Restoration Program
	Longleaf Legacy Program

Goal 4. Reestablish a recurring fire regime through prescribed burning to approximate conditions occurring in pre-settlement forests.

Objective 2 – Establish maintenance prescribed burning on a 3-year cycle for up to 1,000 acres annually on burn units where monitoring plant form and species composition indicates stands have been restored to high quality.

Goal 5. Restore longleaf pine and associated upland communities, where possible, to a condition that can be maintained through prescribed burning.

Objective 1 – Within 5 years of determining longleaf pine stand condition, schedule and reduce hardwoods and unwanted pines on at least 20 acres annually within longleaf pine stands that cannot be controlled through prescribed burning, with the objective of establishing a 25-60 percent canopy cover.

Objective 2 – Within 5 years of mapping loblolly pine plantations, schedule and remove at least 20 acres annually of timber, replanting the areas with longleaf pine seedlings, with no more than 600 trees/acre.

Goal 6. Manage wetland, streamside, and hardwood forests as a component of the mountain longleaf pine ecosystem.

Goal 7. Manage the refuge as part of the regional landscape, while minimizing forest fragmentation and disturbed edge habitat within the refuge boundaries.

Objective 1 – Within 2 years, conduct a coordination meeting with regional partners to establish a cooperative working group that integrates landscape strategies along the Cahaba River and adjacent forested uplands.

Objective 2 – Within 2 years, review forest openings for fragmentation, and abandon or restore, where possible, at least 5 acres annually of small openings that can be returned to a continuous forest cover.

Objective 3 – Within 2 years, initiate biotic inventories with a minimum of 5 annual point counts for nesting birds, both east and west of the river, in both the upland forest and transitional communities (minimum of 10 point counts).

Goal 8. Inventory, protect, and manage rare, endangered, threatened, and sensitive species and natural communities.

Objective 1 – Within 2 years, seek funding for inventories of rare, endangered, threatened, and sensitive species and communities within the refuge, and prepare an annual report on the status of populations, management requirements, and new species discovered during the year.

Objective 2 – When significant ecological communities are discovered on the refuge that merit designation as a “Significant Biological Area,” these communities will be mapped, and status, along with management/protection requirements, will be provided and reviewed in annual reports.

Objective 3 – Participate in the recovery of endangered, threatened, candidate, and rare species on the refuge, with at least annual coordination with the Service’s Office of Ecological Services.

Goal 9. Inventory and control exotic and invasive species.

Objective 1 – Within 3 years, initiate herbicide control of kudzu and treat at least 2 acres annually.

Objective 2 – Within 3 years, initiate herbicide control of Chinese privet and treat at least 5 acres annually.

Objective 3 – Within 3 years, initiate herbicide control of mimosa.

Goal 10. Maintain and restore native wildlife associated with longleaf pine and other refuge upland natural communities.

Objective 1 – Continue a hunting program on the refuge that provides recreational opportunities and maintains game species at sustainable population levels.

Objective 2 – Within 2 years, contact and encourage cooperative programs with academic institutions and non-governmental organizations to educate, monitor, and establish habitat improvement projects for native wildlife within high-quality longleaf pine forests on the refuge.

REFUGE ADMINISTRATION

The proposed expansion areas of Cahaba River NWR, once acquired, would be managed by the Service as part of the National Wildlife Refuge System under the guidance of the Habitat Management Plan for Cahaba River NWR and eventually by the Comprehensive Conservation Plan to be developed for the refuge. Easements acquired within the Conservation Area would be monitored and administered by staff of Cahaba River NWR, but no management would occur as a result of any easement.

Cahaba River NWR is currently administered by staff stationed at Mountain Longleaf NWR in Anniston, Alabama. Until such a time as an office and staff at Cahaba River NWR are available, the administrative headquarters for the proposed Expansion Area would be located at the Mountain Longleaf NWR headquarters. The Service's Southeast Regional Office in Atlanta, Georgia, would provide technical assistance on such matters as engineering, public use planning, and migratory bird management.

HABITAT MANAGEMENT

The proposed expansion lands contain natural communities far different from those that existed on the historical landscape. Over the past 50 years, much of the region has been converted from longleaf pine forest to loblolly pine plantations or, with the absence of fire, has transitioned into more mesic habitats. Fire, which was part of natural and anthropogenic processes in this fire-dependent ecosystem, has also disappeared from the landscape. The effects of replacing the original upland forests with a long rotation forest crop, and the elimination of fire have dramatically altered refuge natural communities. These land use changes, along with soil disturbance and the subsequent spread of invasive species, have added to the impact, further altering uplands. Within this landscape, however, there remain isolated habitats (e.g., steep slopes) or residual seed banks (e.g., Georgia aster) that retain some of the original, more natural characteristics of the pre-settlement landscape.

The proposed expansion lands are composed of upland ridges, slopes, bottomlands, and streams that support a variety of natural community types that can be broadly defined as dry-mesic, mesic, wet-mesic, and hydric. The formation of these communities was influenced by elevation, slope, aspect, and soils. In addition to geographic and physical factors, the introduction of fire has the ability to structurally change the composition of many of these natural communities. Most of today's natural communities reflect the absence of fire and the successional trend to fire-sensitive species and community types.

The dry-mesic community was historically dominated by interior longleaf pine woodlands. It is likely that this community type was historically a xeric community that, due to the exclusion of fire, has transitioned into a dry-mesic state. Today, this community contains longleaf pine, but longleaf pine is often a secondary component to loblolly pine, Virginia pine, shortleaf pine, and hardwoods, with little longleaf pine regeneration occurring.

Mesic communities are comprised of upland mixed forest and pine plantations. The composition and abundance of species, as well as the structure and dynamics of these forests, are affected by disturbance regimes that vary over space and time. Much of the area that originally was xeric longleaf pine woodlands or dry-mesic upland mixed forest is successionaly evolving into more mesic forest.

Wet-mesic communities are made up of bottomland and floodplain forests within the proposed Expansion Area. Floodplain forests exist wherever streams or rivers flood beyond their channels. In the southeastern United States, these forests are broadly classified into three general categories: bottomland forests, floodplain forests, and deepwater alluvial swamps, with each defined by the frequency and timing of annual flooding. Floodplain ecosystems are highly variable in size, ranging from broad alluvial valleys several miles wide to more narrow strips of stream-bank vegetation. Broad alluvial valleys are more characteristic of the areas within the proposed Conservation Area, whereas narrow floodplain forests are found within the proposed Expansion Area.

A former, more widespread component of floodplain forests is believed to have been giant cane. Canebrakes in the southeast have been identified as a critically endangered ecosystem, with loss of more than 98 percent of their former range (Noss et al. 1995). They existed within forest openings and as an understory component of floodplain forest, and as broad cane thickets without forest overstory. Canebrakes are successional communities and may have originated following abandonment of aboriginal agricultural fields. They are believed to have been maintained in part by fires set by Native Americans (Platt and Brantley 1997).

Giant cane is a common species within floodplain forests along the Cahaba River and tributary streams. The historic distribution of this community type within the proposed Expansion Area is unknown, but the presence of remnants of this habitat throughout the proposed Expansion and Conservation Areas suggests that cane was far more widespread during the pre-settlement period. The absence of fire and the spread of exotic Chinese privet in temporarily flooded forests have reduced the distribution and abundance of cane, as well as the potential for restoration through fire.

Management planned for the acquisition area includes restoration of longleaf pine habitat and prescribed burning. In addition, an aggressive invasive species program will target areas with dense populations of invasive species such as kudzu and Chinese privet.

FISH AND WILDLIFE POPULATION MONITORING

Periodic surveys would be conducted on areas acquired within the proposed Expansion Area to document the occurrence of species and to assess population numbers and habitat use. Surveys would include non-game bird inventories, nesting surveys, endangered species monitoring, habitat monitoring, and breeding bird surveys. Banding and marking of wildlife may also be conducted. Some surveys would be conducted in cooperation with the Alabama Department of Conservation and Natural Resources. Educational institutions, other governmental agencies, and private groups may also conduct surveys or research on the refuge.

PUBLIC USE OPPORTUNITIES AND MANAGEMENT

The National Wildlife Refuge System Improvement Act of 1997 emphasizes the importance of providing wildlife-dependent recreational opportunities on national wildlife refuges as long as they are compatible with the goals of the refuge. Public use opportunities on the refuge would likely include all six priority public uses as outlined in the Improvement Act: hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. The following public use regulations, common to many national wildlife refuges, would be adopted to achieve the management goals for the refuge:

- Public entry is usually permitted year-round in those areas shown in the refuge leaflet and marked by appropriate signs.
- Use of the refuge for any activity is generally limited to daylight hours only. No camping or overnight parking would be permitted.
- Discharging firearms would be prohibited except during established hunting seasons in areas open to hunting. Possession of firearms would conform to and be consistent with state laws.
- Collecting any plant or animal would be prohibited unless otherwise specified.
- No person may search for, disturb, or remove from the refuge any cultural artifact or other historical artifact.
- Directing the rays of any artificial light for the purpose of spotting, locating, or taking any animal would be prohibited.
- Entering or remaining on the refuge while under the influence of alcohol or drugs would be prohibited.
- Fires are generally not permitted except for agricultural and forestry management practices.
- Dogs and other pets must be kept under physical control at all times.

VISITOR ACCESS

Public roads that traverse the proposed Expansion Area would remain open to public use. Logging roads are generally closed once a given tract is acquired. Off-road use of all-wheel-drive vehicles and all-terrain vehicles would generally be prohibited on the refuge. Some areas may be closed to visitors at certain times of the year to protect sensitive wildlife and their habitat. Signs and leaflets would clearly indicate the open and closed areas of the refuge. However, large blocks of a refuge are usually open for access by foot, canoe, or other non-motorized means. The needs of physically challenged persons would be considered and included during access planning for any refuge activity or facility.

HUNTING

Prior to opening any new areas to hunting, the refuge would amend the current Sport Hunting Plan to address these new areas. A public comment period would be provided and the final proposal to open new lands to hunting would be published in the Federal Register for additional public comment.

Recreational hunting of white-tailed deer, turkey, and small game may be permitted within the framework of state and federal regulations and licensing requirements. Seasons, areas, and types of hunting would be determined by safety, management needs, wildlife populations, size of areas, location, and public need. Refuge-specific hunting regulations would be coordinated annually with the Alabama Department of Conservation and Natural Resources.

Certain areas within the proposed Expansion Area may be closed to provide undisturbed areas for wildlife. Other areas may be closed to hunting to permit safe, non-consumptive visitor use during the hunting season.

FISHING

Fishing would be permitted within the framework of state regulations and licensing requirements.

WILDLIFE OBSERVATION AND PHOTOGRAPHY

Wildlife observation and photography would be encouraged. To provide opportunities for wildlife observation, facilities that might be developed include wildlife observation platforms and nature trails. The development of these facilities would depend upon the availability of funds.

ENVIRONMENTAL EDUCATION AND INTERPRETATION

Environmental education and interpretation programs would initially be limited due to the absence of staff on the refuge. As staffing and budgets increase, environmental education and interpretation programs would be designed to enhance the visitor's understanding of natural resource management and ecological concepts. The proposed Expansion Area could serve as an important "outdoor classroom" for the area's local schools. Interpretation programs would focus on self-guiding facilities, such as nature trails, information kiosks, leaflets and booklets, and interpretive signs to point out interesting features.

LAW ENFORCEMENT

Enforcement of state and federal laws on a national wildlife refuge is important to safeguard the refuge's natural and cultural resources and to protect and manage visitors. Refuge officers would work closely with other law enforcement agencies and complement their efforts.

FACILITIES MANAGEMENT

Boundaries of any lands acquired would be posted with national wildlife refuge signs at regular intervals. Signs and barriers may be used to protect sensitive wildlife habitats, to reduce disturbance to wildlife, or to assure public health and safety.

MISCELLANEOUS

CULTURAL RESOURCE MANAGEMENT

The Service would inventory the archaeological and historic sites on the proposed Expansion Area and assess their eligibility for listing on the National Register of Historic Places. Management would be coordinated with the State Historic Preservation Office and other pertinent federal and state agencies.

FIRE MANAGEMENT

It is the policy of the Service to use fire when it is the most appropriate management tool for achieving habitat objectives. Wildfires, however, would be suppressed unless such natural fires are a part of an approved fire management plan. Protection and safety of people and property is top priority within the fire management program.

Cahaba River NWR depends on trained fire staff from refuges outside of the State of Alabama for much of its prescribed burning. To supplement these capabilities, cooperative agreements with other federal and state agencies are also used.

PEST MANAGEMENT

It is Service policy to control those weeds and other plants listed as noxious by the state. In addition, other noxious plants and some animals may have to be removed in order to accomplish refuge objectives.

Appendix B. Interim Compatibility Determination

INTERIM COMPATIBILITY DETERMINATION

This Interim Compatibility Determination describes the wildlife-dependent recreational activities proposed on lands to be acquired as part of the National Wildlife Refuge System and determines whether these activities are compatible with the purposes for which the refuge was established. Under the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, and the Refuge Recreation Act of 1962, the Service may not permit public recreational activities on a national wildlife refuge unless the activities are first determined to be compatible with the purposes of the refuge.

An Interim Compatibility Determination is intended to bridge the gap between acquisition of the proposed Expansion Area and completion of an amendment to the public use and hunting plans, or until completion of the Comprehensive Conservation Plan (CCP) for Cahaba River NWR. All lands of the Refuge System will be managed in accordance with an approved CCP that will guide management decisions and set forth strategies for achieving refuge purposes. The CCP will be consistent with sound resource management principles, practices, and legal mandates, including Service compatibility standards and other Service policies, guidelines, and planning documents. One of the major objectives of a CCP is to provide a basis for determining the compatibility of secondary uses on refuge lands

The Service has responsibility for the protection and management of fish, wildlife, and the habitats upon which they depend. Cahaba River NWR is a special place where the Service will maintain and enhance the Cahaba River ecosystem for fish and wildlife. The Cahaba River is Alabama's longest free-flowing river, and the Cahaba River watershed supports 24 federally listed plant and animal species. In fulfilling our resource responsibilities, however, we will also provide the public with opportunities to enjoy and learn about wildlife and opportunities for wildlife-dependent recreation so long as they do not materially interfere with our habitat and wildlife conservation activities and do not pose a hazard to the public's safety.

Compatibility Determination Jurisdiction:

A portion of the lands proposed to be added to the acquisition boundary of Cahaba River NWR is currently in a long-term lease by the Alabama Department of Conservation and Natural Resources as a wildlife management area (Cahaba River Wildlife Management Area). This lease applies to the recreational rights only. If lands are acquired without recreational rights, the Service would not have jurisdiction over the recreational use of the property and, therefore, compatibility would not be under the purview of the Service and this compatibility determination would not be applicable.

The establishment of the proposed Conservation Area would not result in any refuge-managed public use on easement lands. All land within an easement would remain in private ownership and management of the lands, including the control of public access, would remain the responsibility of the landowner. Service responsibilities would be limited to ensuring that the terms of the easement, acquired through the voluntary participation of landowners, are met. Therefore, lands within the proposed Conservation Area are not considered within this compatibility determination.

Description of Use: (1) Wildlife observation/photography; (2) recreational fishing in accordance with State of Alabama regulations; (3) recreational hunting in accordance with State of Alabama regulations; (4) wildlife-dependent environmental education, and (5) environmental interpretation.

Refuge Name: Cahaba River National Wildlife Refuge

Date Established: September 25, 2002

Establishing and Acquisition Authorities:

The Cahaba River National Wildlife Refuge Establishment Act, P.L. No. 106-331
Cahaba River National Wildlife Refuge Expansion Act, P.L. 109-363 – added acreage on October 17, 2006

Additional acquisition authority: Fish and Wildlife Act 1956

Purposes for Which the Refuge was Established

Establishment purpose: "In administering the Refuge, the Secretary shall— (1) conserve, enhance, and restore the native aquatic and terrestrial community characteristics of the Cahaba River (including associated fish, wildlife, and plant species); (2) conserve, enhance, and restore habitat to maintain and assist in the recovery of animals and plants that are listed under the Endangered Species Act of 1973 (16 U.S.C. 1331 et seq.); (3) in providing opportunities for compatible fish- and wildlife-oriented recreation, ensure that hunting, fishing, wildlife observation and photography, and environmental education and interpretation are the priority general public uses of the refuge, in accordance with section 4(a)(3) and (4) of the National Wildlife Refuge System Administration Act of 1966 [16 U.S.C. 668ee(a)(3), (4)]; and (4) encourage the use of volunteers and to facilitate partnerships among the United States Fish and Wildlife Service, local communities, conservation organizations, and other non-Federal entities to promote public awareness of the resources of the Cahaba River National Wildlife Refuge and the National Wildlife Refuge System and public participation in the conservation of those resources." (V114 Stat. 1304-1305, dated October 19, 2000.)

Additional purposes: "... for the development, advancement, management, conservation, and protection of fish and wildlife resources ..." 16 U.S.C. 742f(a)(4) "... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." [16 U.S.C. 742f(b)(1)] (Fish and Wildlife Act of 1956)

Refuge Goals and Objectives

By protecting additional conservation lands critical to the management of refuge resources, the Land Protection Plan is tied to many of the goals and objectives of the Habitat Management Plan for Cahaba River National Wildlife Refuge. These goals and objectives will be further developed in the comprehensive conservation plan to be written for the refuge. Goals and objectives from the Habitat Management Plan that directly relate to the Land Protection Plan include:

Goal 2. Protect, restore, and enhance the Cahaba River aquatic environment adjacent to the refuge

Objective 1 – Restore, where feasible, the river hydrological environment that existed during the pre-settlement period, and summarize existing and proposed projects in the annual refuge report.

Goal 3. Provide an ecosystem management strategy for uplands that restores and maintains the mosaic cover of native pine and hardwood forest.

Objective 1 – Within 2 years, map vegetation cover types on the refuge to establish community structure and limitations for future prescribed burning.

Objective 2 – Within 5 years, designate stand condition within existing longleaf pine and loblolly plantations for restoration prescriptions.

Goal 4. Reestablish a recurring fire regime through prescribed burning to approximate conditions occurring in pre-settlement forests.

Objective 2 – Establish maintenance prescribed burning on a 3-year cycle for up to 1,000 acres annually on burn units where monitoring plant form and species composition indicate stands have been restored to high quality.

Goal 5. Restore longleaf pine and associated upland communities, where possible, to a condition that can be maintained through prescribed burning.

Objective 1 – Within 5 years of determining longleaf pine stand condition, schedule and reduce hardwoods and unwanted pines on at least 20 acres annually within longleaf pine stands that cannot be controlled through prescribed burning, with the objective of establishing a 25-60 percent canopy cover.

Objective 2 – Within 5 years of mapping loblolly pine plantations, schedule and remove at least 20 acres annually of timber, replanting the areas with longleaf pine seedlings, with no more than 600 trees/acre.

Goal 6. Manage wetland, streamside, and hardwood forests as a component of the mountain longleaf pine ecosystem.

Goal 7. Manage the refuge as part of the regional landscape, while minimizing forest fragmentation and disturbed edge habitat within the refuge boundaries.

Objective 1 – Within 2 years, conduct a coordination meeting with regional partners to establish a cooperative working group that integrates landscape strategies along the Cahaba River and adjacent forested uplands.

Objective 2 – Within 2 years, review forest openings for fragmentation, and abandon or restore, where possible, at least 5 acres annually of small openings that can be returned to a continuous forest cover.

Objective 3 – Within 2 years, initiate biotic inventories with a minimum of 5 annual point counts for nesting birds, both east and west of the river, in both the upland forest and transitional communities (minimum of 10 point counts).

Goal 8. Inventory, protect, and manage rare, endangered, threatened, and sensitive species and natural communities.

Objective 1 – Within 2 years, seek funding for inventories of rare, endangered, threatened, and sensitive species and communities within the refuge, and prepare an annual report on the status of populations, management requirements, and new species discovered during the year.

Objective 2 – When significant ecological communities are discovered on the refuge that merit designation as a “Significant Biological Area,” these communities will be mapped, and status, along with management/protection requirements, will be provided and reviewed in annual reports.

Objective 3 – Participate in the recovery of endangered, threatened, candidate, and rare species on the refuge, with at least annual coordination with the Service’s Office of Ecological Services.

Goal 9. Inventory and control exotic and invasive species.

Objective 1 – Within 3 years, initiate herbicide control of kudzu and treat at least 2 acres annually.

Objective 2 – Within 3 years, initiate herbicide control of Chinese privet and treat at least 5 acres annually.

Objective 3 – Within 3 years, initiate herbicide control of mimosa.

Goal 10. Maintain and restore native wildlife associated with longleaf pine and other refuge upland natural communities.

Objective 1 – Continue a hunting program on the refuge that provides recreational opportunities and maintains game species at sustainable population levels.

Objective 2 – Within 2 years, contact and encourage cooperative programs with academic institutions and non-governmental organizations to educate, monitor, and establish habitat improvement projects for native wildlife within high-quality longleaf pine forests on the refuge.

Mission of the National Wildlife Refuge System

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

Goals of the National Wildlife Refuge System

(1) To conserve, restore, and enhance in their natural ecosystems (when practicable) all species of animals and plants that are endangered or threatened with becoming endangered; (2) to perpetuate the migratory bird resource; (3) to conserve a natural diversity and abundance of fauna and flora on refuge lands; (4) to provide an understanding and appreciation of fish and wildlife ecology and man's role in his environment; and (5) to provide refuge visitors with quality, safe, wholesome, and enjoyable recreational experiences oriented toward wildlife to the extent these activities are compatible with the purposes for which the refuge was established.

Other Applicable Laws, Regulations and Policy

National Wildlife Refuge System Improvement Act of 1997
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee)
Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4)
Title 50 of the Code of Federal Regulations, Subchapters B and C
The Refuge Manual
The Service Manual
Endangered Species Act of 1973 (16 U.S.C. 1531-1543)
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715d)
Migratory Bird Hunting and Conservation Stamp Act (16 U.S.C. 718-718h)
Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712)
National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347)
Bald Eagle Protection Act of 1940 (16 U.S.C. 668-668d)

Anticipated Biological Impacts of the Use

Wildlife-dependent public use is generally encouraged on national wildlife refuges as long as it is compatible with the purposes for which the refuge was established. Public use opportunities are varied and may include both consumptive (e.g., hunting and fishing) and non-consumptive uses (e.g., wildlife observation/photography and environmental education and interpretation).

Because the main purpose for establishing national wildlife refuges is the conservation of fish and wildlife and their habitats, surveys are conducted to collect data regarding fish and wildlife populations and habitat trends. This information forms the basis for habitat management decisions. Wise management of fish and wildlife habitats, fish and wildlife populations, and public use activities requires current and accurate information about the resources on and adjacent to the refuge. Detailed biological and public use information on the lands proposed for the expansion of Cahaba River NWR is not available.

This Interim Compatibility Determination relies on the best estimate of current public use levels as determined by the Service in consultation with the Alabama Department of Conservation and Natural Resources and The Nature Conservancy. During the comprehensive conservation planning process, the Service will gather public data, conduct surveys to estimate fish and wildlife populations, and fully assess public use impacts on the resources.

Following is a general description of the types and estimated levels of wildlife-dependent recreational activities that are proposed and a discussion of whether these uses will be compatible with the purposes of the refuge:

Wildlife Observation/Photography

Within the project lands, public uses, such as bird-watching and nature photography, are minimal at this time due to the private ownership and posted status of the property. Accurate quantitative estimates of these types of uses are not available. Most private visits to the area have been associated with hunting or fishing activities.

The area's habitat for wildlife species is outstanding. The area is used by a variety of resident wildlife and migratory songbirds. Once lands are acquired and the public and conservation groups become aware of the area's excellent wildlife observation opportunities, an increase in priority public wildlife-dependent visits is anticipated.

Wildlife observation/photography activities might result in some disturbance to wildlife, especially if visitors venture (either accidentally or purposely) too close to a nest or den. This disturbance, when properly managed, is expected to be minimal and to have an insignificant effect on refuge resources, including fish and wildlife and their habitats and wetland values. Therefore, the anticipated levels of wildlife observation/photography activities are considered to be compatible with the purposes of the proposed Expansion Area.

Fishing

The proposed Expansion Area includes possible additional access points to river systems. Principal gamefish include bass, bream, and catfish.

Fishing is a common form of public use along a portion of the proposed Expansion Area. Fishing for bass, bream, and catfish is extremely popular with local fishermen. Sportfishing in this region is considered to be a traditional form of wildlife-dependent recreation.

Properly regulated recreational fishing should not have any adverse impacts on either the fisheries resource, wildlife resource, or other natural resource of the proposed Expansion Area. There may be some limited disturbance to certain species of wildlife; however, this should be short-lived, relatively minor, and is not expected to negatively impact the wetland or riparian values of the refuge. Problems associated with littering and illegal take of fish would be controlled through effective law enforcement. Some sensitive areas may be limited to access and use if disturbance becomes a problem.

Sport fishing is very popular in the area. Allowing the public to fish on the proposed Expansion Area would result in a positive public opinion and would help build support for the Service and its natural resource conservation agenda. It would also be allowed and managed to assure wise use of a renewable resource.

The projected level of sport fishing is considered to be compatible with the purposes of the proposed Expansion Area.

Hunting

The proposed Expansion Area contains a diversity of habitat types and a variety of wildlife species. The area has been hunted for white-tailed deer, turkey, and small game. We expect to allow hunting to continue.

A portion of the lands proposed to be added to the acquisition boundary of Cahaba River NWR are currently in a long-term lease by the Alabama Department of Conservation and Natural Resources as a wildlife management area (Cahaba River Wildlife Management Area). This lease applies to the recreational rights only. If lands are acquired without recreational rights, the Service would not have jurisdiction over the recreational use of the property and, therefore, compatibility would not be under the purview of the Service and this compatibility determination would not be applicable.

Sport hunting provides recreational opportunities and can be used to assist in the management of certain game species. Carefully managed hunting assists in maintaining populations at a level compatible with the environment and permits the use of valuable renewable resources. There may be some limited disturbance to non-targeted species of wildlife and some trampling of vegetation; however, this should be short-lived, relatively minor, and not expected to negatively impact the habitats on the refuge. Problems associated with littering and violations of game laws would be controlled through effective law enforcement. Some areas of the refuge may be closed to hunting due to being sanctuary areas.

The projected level of hunting is considered to be compatible with the purposes of the proposed Expansion Area. Prior to opening any new areas to hunting, the refuge would amend the current Sport Hunting Plan and Environmental Assessment to address these new areas. A public comment period would be provided and the final proposal to open new lands to hunting would be published in the Federal Register for additional public comment.

Environmental Education and Interpretation

Environmental education and interpretation programs would initially be limited due to the absence of staff on the refuge. As staffing and budgets increase, environmental education and interpretation programs would be designed to enhance the visitor's understanding of natural resource management and ecological concepts. The proposed Expansion Area could serve as an important "outdoor classroom" for the area's local schools. Interpretive programs would focus on self-guiding facilities, such as nature trails, information kiosks, leaflets and booklets, and interpretive signs along interesting features. The projected level of environmental education and interpretation is considered to be compatible with the purposes of the proposed Expansion Area.

National Environmental Policy Act (NEPA) Compliance

Allowing the projected levels of managed hunting, fishing, and wildlife observation and photography activities evaluated in this Interim Compatibility Determination will have negligible impacts on refuge resources. Permitting these uses should not be controversial, since these activities currently occur on the proposed lands. During the comprehensive conservation planning process, the Service would evaluate the long-term consequences of continued public use through the preparation of a NEPA document.

In assessing the potential impacts of proposed refuge uses, all available tools were utilized. A site-specific document (Preliminary Project Proposal for the Proposed Expansion of Cahaba River National Wildlife Refuge), site-specific personal communications (Service and State Conservation Agency biologists), and general references are considered to be sufficient to make this Interim Compatibility Determination.

Determination

These uses are compatible X. These uses are not compatible ____.

Based on the available information, it has been determined that the expected level of public sport fishing, hunting, environmental education, environmental interpretation, and wildlife observation/photography activities that would occur within the proposed Expansion Area for Cahaba River NWR is compatible with the purposes for which the refuge was established.

There has been substantial historical use of this area for fishing and other wildlife-dependent recreational activities. Based on available information, there is no indication of adverse biological impacts associated with these activities. Allowing well-managed wildlife observation/photography, fishing, and hunting is consistent with refuge objectives and follows current Service policy.

This Pre-acquisition Compatibility Determination is based on a very limited amount of public use and biological information. Much more information is needed for a detailed analysis of compatibility. During the preparation of the Comprehensive Conservation Plan for Cahaba River NWR, which would be completed with appropriate public input, the Service would be able to gather additional public use and biological data necessary for a thorough determination of compatibility. Adjustments to the public use program may be made at that time.

There are a number of situations where refuge closures or restrictions may be warranted. Examples of these situations include, but are not limited to, protection of endangered species (flora or fauna), protection of bird nesting, establishment of sanctuary areas for waterfowl, restriction of hunting to selected days of the week, establishment of quota systems to provide for a quality hunting experience, conflicts with other refuge management programs, and lack of adequate resources to administer the programs.

Stipulations Necessary to Ensure Compatibility: During this interim period, wildlife observation/photography, hunting, and fishing may be permitted in accordance with State of Alabama regulations and licensing requirements, with the following exceptions:

- The refuge would be open for public use during daylight hours only.
- Hunting from permanent tree stands and blinds would be prohibited.
- Baiting or hunting with the aid of bait would be prohibited.
- Hunting deer with dogs would not be allowed on the refuge.
- No camping would be allowed.

When the refuge's CCP is completed, additional refuge-specific regulations may be implemented.

Justification: The Service's current policy is to expand and enhance opportunities for quality hunting and fishing on national wildlife refuges. Hunting and fishing are considered to be compatible with the purposes of the refuge and meet one of the refuge's objectives to provide for compatible wildlife-dependent recreation. Allowing hunting and fishing follows current Service policy to expand and enhance opportunities for quality hunting and fishing on refuges. Allowing fishing also helps to maintain and build support for the Service and other wildlife conservation efforts.

Non-consumptive, wildlife-dependent uses, such as wildlife observation and photography, are compatible with the refuge's purpose and meet one of the refuge's objectives to provide for compatible wildlife-dependent recreation. Allowing these uses follows current Service policy to provide for compatible wildlife-dependent recreation. Allowing these non-consumptive recreational opportunities helps to maintain and build public support for the Service and its fish and wildlife conservation efforts.

Project Leader: _____ (Signature/Date)

Refuge Supervisor: _____ (Signature/Date)

Regional Compatibility Coordinator: _____ (Signature/Date)

Regional Chief, National Wildlife Refuge System, Southeast Region:

_____ (Signature/Date)

Appendix C. Interim Recreation Act Funding Analysis

INTERIM RECREATION ACT FUNDING ANALYSIS

Station Name: Cahaba River National Wildlife Refuge.

Date Established: September 25, 2002

Purpose(s) for Which the Refuge was Established: Establishment purpose: "In administering the Refuge, the Secretary shall: (1) conserve, enhance, and restore the native aquatic and terrestrial community characteristics of the Cahaba River (including associated fish, wildlife, and plant species); (2) conserve, enhance, and restore habitat to maintain and assist in the recovery of animals and plants that are listed under the Endangered Species Act of 1973 (16 U.S.C. 1331 et seq.); (3) in providing opportunities for compatible fish- and wildlife- oriented recreation, ensure that hunting, fishing, wildlife observation and photography, and environmental education and interpretation are the priority general public uses of the refuge, in accordance with section 4(a)(3) and (4) of the National Wildlife Refuge System Administration Act of 1966 [16 U.S.C. 668ee(a)(3), (4)]; and (4) encourage the use of volunteers and to facilitate partnerships among the United States Fish and Wildlife Service, local communities, conservation organizations, and other non-Federal entities to promote public awareness of the resources of the Cahaba River National Wildlife Refuge and the National Wildlife Refuge System and public participation in the conservation of those resources." [V114 Stat. 1304-1305, dated October 19, 2000.]

Additional purposes: "... for the development, advancement, management, conservation, and protection of fish and wildlife resources ..." 16 U.S.C. 742f(a)(4) "... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." [16 U.S.C. 742f(b)(1)] (Fish and Wildlife Act of 1956)

Recreational Use(s) Evaluated: (1) Recreational hunting of resident game and migratory birds (waterfowl) in accordance with federal and state regulations; (2) recreational fishing of freshwater fish species (e.g., largemouth bass, bream, catfish, and crappie), in accordance with State of Alabama regulations; (3) wildlife observation/photography; (4) outdoor education; and (5) interpretation.

Funding Required to Administer and Manage the Recreational Use(s): Minimal funding in the amount of \$5,000 will be made available to implement initial protection, hunt implementation, data collection, and non-consumptive uses.

Based on a review of the refuge budget allocated for recreational use management, I certify that funding is adequate to ensure compatibility and to administer and manage the recreational use(s).

Project Leader: _____ (Signature/Date)

Refuge Supervisor: _____ (Signature/Date)

Regional Chief, National Wildlife Refuge System, Southeast Region:

_____ (Signature/Date)

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Proposed Expansion

**Cahaba River National Wildlife Refuge
and**

Proposed Establishment

Cahaba River Conservation Area

Bibb, Chilton, Jefferson, Perry and Shelby Counties
Alabama

**DRAFT ENVIRONMENTAL ASSESSMENT
AND LAND PROTECTION PLAN**

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June 2010

